

GENERAL NOTES

A. THESE CONSTRUCTION DRAWINGS ESTABLISH THE DESIGN INTENT OF WORK TO BE PERFORMED. ANY DISCREPANCIES OR CONFLICTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND THE OWNER PRIOR TO PERFORMING ANY WORK.

B. DO NOT SCALE DRAWINGS - USE DIMENSIONS PROVIDED - ANY DIMENSIONS FOLLOWED BY "A" SHOULD BE REVIEWED AND ALL NECESSARY ADJUSTMENTS MADE PRIOR TO FABRICATION AND/OR INSTALLATION OF AFFECTED WORK. NOTIFY ARCHITECT'S REPRESENTATIVE IF DISCREPANCIES ARISE BEFORE PROCEEDING WITH THE WORK.

C. ALL TRADES SHALL CAREFULLY COORDINATE THEIR SCOPE OF WORK WITH ALL OTHER TRADES WORKING ON PROJECT.

D. CONTRACTORS SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS AND FOR VERIFYING THEM WITH THE CONTRACT DOCUMENTS. ANY DISCREPANCIES OR CONFLICTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND THE OWNER PRIOR TO FABRICATION OR INSTALLATION.

E. ALL EQUIPMENT, PRODUCTS & MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BUILDING CODE INFORMATION

BUILDING CODE	2021 MICHIGAN BUILDING CODE
ENERGY CODE	2021 MICHIGAN ENERGY CODE (ASHRAE 90.1-2019)
PLUMBING CODE	2021 MICHIGAN PLUMBING CODE
MECHANICAL CODE	2021 MICHIGAN MECHANICAL CODE
ELECTRICAL CODE	2023 NATIONAL ELECTRIC CODE (NEC)
ACCESSIBILITY	ICC A117.1-2017

PROJECT CRITERIA

OCCUPANCY (MIXED, NON SEPARATED) PRIMARY USE: BUSINESS (A-5 SMALL ASSEMBLY BUILDINGS ACCESSORY TO OUTDOOR RECREATION USE, OCCUPANT LOAD < 50 PEOPLE) ACCESSORY USE: BUSINESS (S-2 STORAGE & U. JANITORIAL)	B B	(MBC 303.1.1) (MBC 311.1.1)
CONSTRUCTION TYPE	V-B	(MBC 502)
BUILDING HEIGHT (ALLOWED)	42'	(MBC 504.3)
BUILDING HEIGHT (ACTUAL)	16'	
BUILDING STORIES (ALLOWED)	1	
BUILDING STORIES (ACTUAL)	1	
BUILDING AREA (ALLOWED)	9,000 SF	(MBC 506.2)
PUBLIC RESTROOMS	320 SF	
MARINA RESTROOMS	872 SF	
JANITOR / MECH.	224 SF	
BUILDING AREA (ACTUAL)	1,434 SF	
AREA SEPARATIONS	NONE	(MBC 508.3.3)
BUILDING ELEMENT FIRE RESISTANCE PRIMARY STRUCTURAL FRAME BEARING WALLS EXTERIOR BEARING WALLS INTERIOR NON BEARING INTERIOR WALLS FLOOR CONSTRUCTION ROOF CONSTRUCTION	0 HR 0 HR 0 HR 0 HR 0 HR	(MBC TABLE 601)
BUILDING EXTERIOR WALL RATING (DISTANCE BELOW FROM BUILDING TO PROPERTY LINE OR ADJACENT BUILDING) X < 5 5 <= X < 10' 10' < X < 30' X > 30'	NA NA 0 HR 0 HR	(MBC TABLE 705.5)
BUILDING SPRINKLERED	YES	(MBC 903)
OCCUPANT LOAD PUBLIC RESTROOMS (CONT. BUSINESS) MARINA RESTROOMS (CONT. BUSINESS) JANITOR / MECH. (DIV. BY 300) TOTAL OCCUPANT LOAD	7 18 1 26	(MBC 1004.1.2)
EXIT DOOR WIDTH (REQUIRED) (OCC. LOAD x 0.2 + 0.007 EGRESS EXIT DOOR WIDTH (PROVIDED))	42" 36"	(MBC 1006.3.2)
NUMBER OF EXITS REQUIRED (MIN) (BASED ON OCCUPANCY AND OCC. LOAD)	1	(MBC 1006.2.1)
COMMON PATH OF EGRESS TRAVEL DIST.	NA	
EXIT ACCESS TRAVEL DISTANCE	100'	(MBC 1006.2.1)
FULL BUILDING ACCESSIBILITY	YES	(MBC CH 11)

THERMAL ENVELOPE

MICHIGAN 2021 ENERGY CODE (ASHRAE 90.1-2019) TABLE C402.1.3 CLIMATE ZONE 6 (ALL OTHER)	
ROOF (ATTIC) REQUIRED	R-48
EXTERIOR WALLS (WOOD FRAMED) REQUIRED	R-20 + R3.5 C.I.
UNHEATED SLAB REQUIRED	R-20 C.I. 34" MIN
OPAQUE DOORS U-FACTOR (SWINGING)	0.37 (MAX)
FENESTRATION (FIXED) SHGC	0.34 (MAX) 0.35 (PF < 0.2) 0.45 (PF < 0.5) 0.51 (PF > 0.5)
PF = PROJECTION FACTOR (EAVE DISTANCE DIVIDED BY HEIGHT FROM BOTTOM OF GLAZING TO EAVE)	

PROJECT TEAM

ABONMARCHÉ
ARCHITECTURAL / STRUCTURAL
ABONMARCHÉ CONSULTANTS, INC.
315 W. Jefferson Blvd.
South Bend, IN 46601

INTERIORS / PLUMBING /
MECHANICAL / ELECTRICAL

ABONMARCHÉ BYCE
308 S Kalamazoo Mall
Kalamazoo, MI 49007

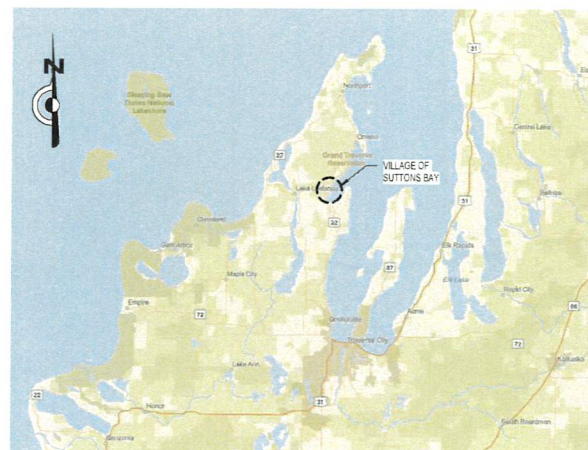
NEW CONSTRUCTION FOR:

VILLAGE OF SUTTONS BAY
PUBLIC / MARINA
COMFORT STATION326 N. FRONT ST.,
SUTTONS BAY, MI 49682

PERSPECTIVE VIEW



VICINITY MAP



SITE IMAGE



SHEET INDEX

GENERAL	PROJECT COVER SHEET
G001	LIFE SAFETY PLAN
G110	
CIVIL	EXISTING CONDITIONS
C001	REMOVAL PLAN
C002	SITE PLAN
C003	DETAILS
C004	SITE GRADING
C005	
STRUCTURAL	STRUCTURAL SPECIFICATIONS
S001	FOUNDATION PLAN
S100	ROOF FRAMING PLAN
S200	FOUNDATION DETAILS
S700	FOUNDATION DETAILS
S701	FRAMING DETAILS
S800	TRUSS PROFILES
S900	
ARCHITECTURAL	ARCHITECTURAL REFERENCE INFORMATION
A001	FIRST FLOOR PLAN
A110	REFLECTED CEILING & ROOF PLANS
A210	EXTERIOR ELEVATIONS
A310	BUILDING SECTIONS
A410	WALL SECTIONS
A510	WALL SECTIONS
A610	INTERIOR ELEVATIONS
A611	INTERIOR ELEVATIONS
A710	DOOR & ROOM FINISH SCHEDULES
PLUMBING	PLUMBING SCHEDULES AND DETAILS
P001	PLUMBING SPECIFICATIONS
P002	PLUMBING PLANS
P110	
MECHANICAL	MECHANICAL SCHEDULES AND DETAILS
M001	MECHANICAL SPECIFICATIONS
M002	HVAC PLAN & MECHANICAL ROOF PLAN
M210	
ELECTRICAL	ELECTRICAL COVER
E001	ELECTRICAL SPECIFICATIONS
E002	ELECTRICAL PLANS
E100	

SCOPE OF WORK

WORK SHALL INCLUDE THE FOLLOWING:
RETAINING WALLS & SIDEWALKS ADJACENT TO NEW RESTROOM BUILDING
INCLUDING REQUIRED EARTHWORK & SITE RESTORATION
POURED CONCRETE BUILDING FOUNDATIONS & FLAT WORK
RESTROOM BUILDING WOOD WALL & ROOF FRAMING INCLUDING ALL
EXTERIOR FINISHES, DOORS & WINDOWS
ALL REQUIRED INTERIOR FINISHES & ACCESSORIES
ALL REQUIRED PLUMBING, MECHANICAL & ELECTRICAL EQUIPMENT &
FITTURES
MISC. SITE AMENITIES INCLUDING GUARDRAILS & SIGNAGE

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ABONMARCHÉ CONSULTANTS, INC.

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VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI 49682

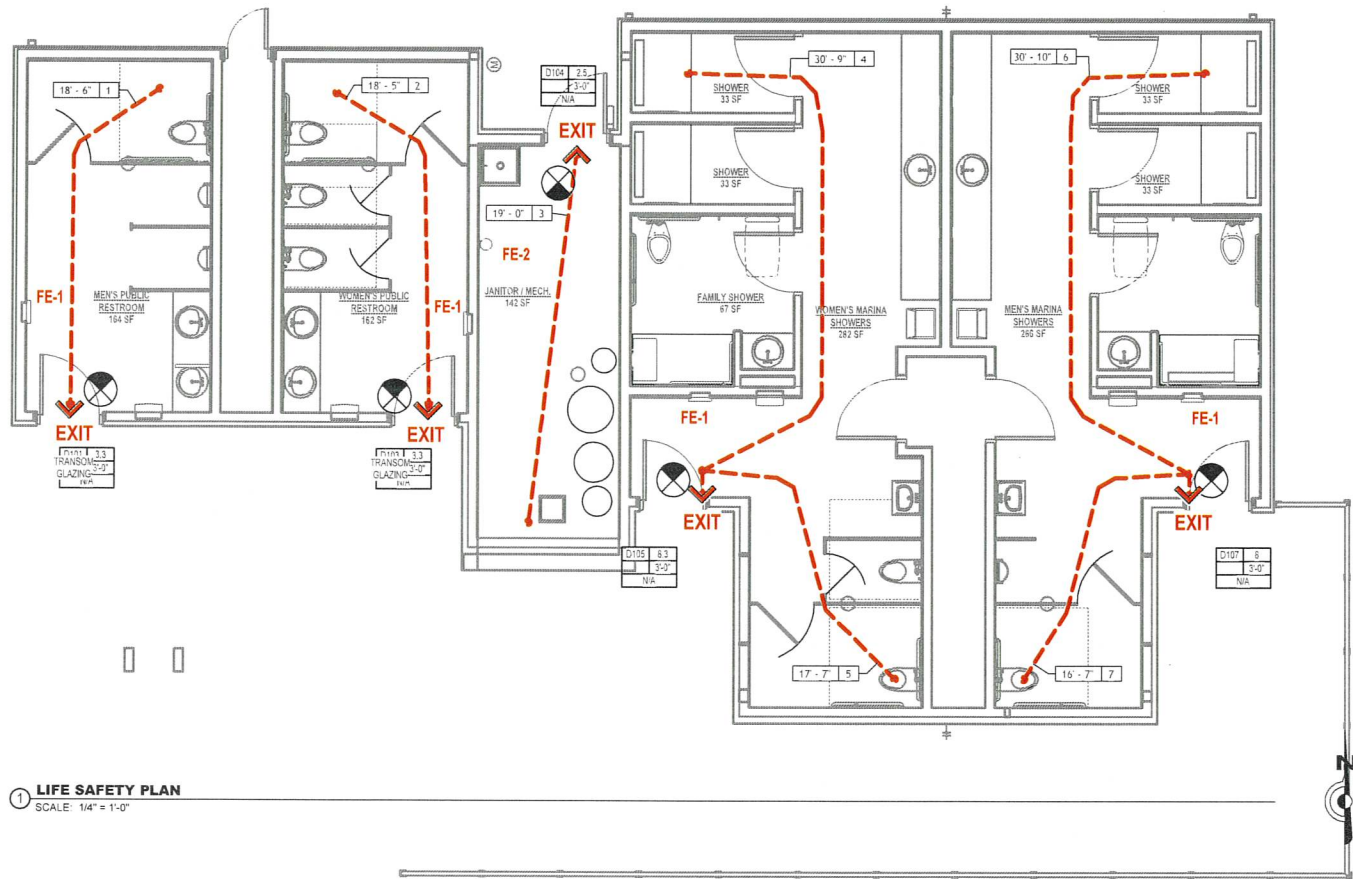
PROJECT COVER SHEET

FOR CONSTRUCTION

ISSUE DATE: 02/17/2025
PM: QA / QC:# ISSUANCE / REVISION DATE
ORIGINAL SHEET IS 24" x 36". USE DIMENSIONS
SHOWN. DO NOT SCALE DRAWINGS.

PROJECT NO: 24-1952

G001



1 LIFE SAFETY PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES - LIFE SAFETY

- A. TOTAL BUILDING OCCUPANCY OF 26 PEOPLE (ASSEMBLY USE CONSIDERED BUSINESS OCCUPANCY PER MBC 303.1.1 - CONCENTRATED BUSINESS USE OF 1 PER 50 SF PER 1004.8)
- B. BUILDING ELEMENTS ARE NOT REQUIRED TO BE FIRE RATED PER MBC TABLE 601 FOR V-B CONSTRUCTION
- C. 1 EXIT REQUIRED FOR 49 OR LESS OCCUPANTS PER MBC 2021 TABLE 1006.2.1
- D. EXIT ACCESS TRAVEL DISTANCE DOES NOT EXCEED 100' PER MBC 2021 TABLE 1017.2

CODE COMPLIANCE PLAN LEGEND:



VILLAGE OF SUTTONS BAY
PUBLIC / MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI 49682
LIFE SAFETY PLAN

FOR CONSTRUCTION

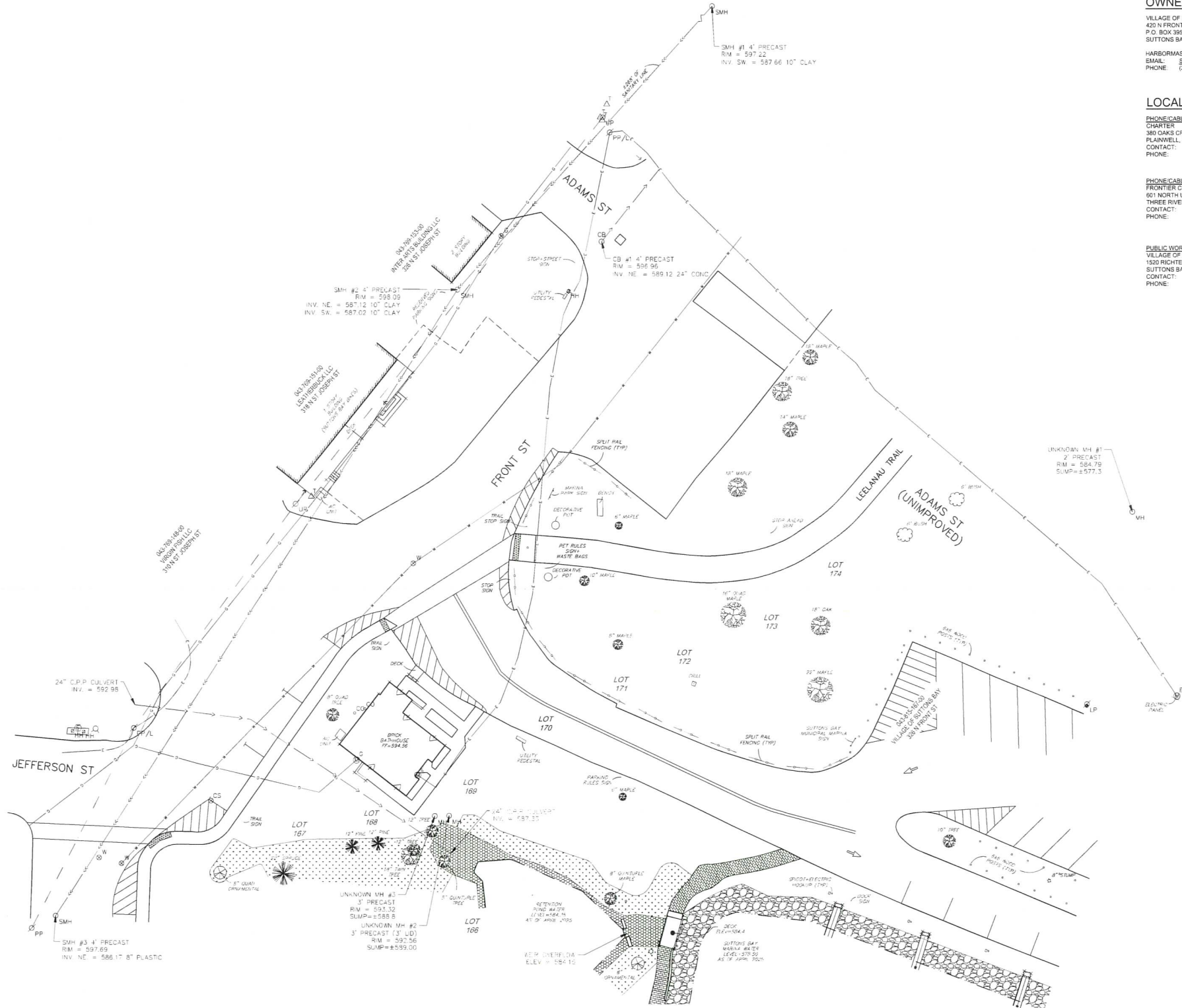


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PROJECT NO: 24-1952

G110

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VILLAGE OFFICIALS

VILLAGE MANAGER: ROB LARREA
TREASURER: LORRIE DEVOL
CLERK: DOROTHY PETOSKY
ASSESSOR: CHRISTY BROW
HARBORMASTER: EDIE AYLWORTH
VILLAGE PRESIDENT: STEVE LUTKE

OWNER:

VILLAGE OF SUTTONS BAY
420 N FRONT STREET
P.O. BOX 395
SUTTONS BAY, MI 49682

HARBORMASTER CONTACT INFO:
EMAIL: SBMARINA@SUTTONSBAYVILLAGE.ORG
PHONE: (231) 271-6703

LOCAL UTILITIES

PHONE/CABLE:
CHARTER
380 OAKS CROSSING
PLAINWELL, MI 48080
CONTACT: LEO SCOFIELD
PHONE: (888) 438-2427

PHONE/CABLE:
FRONTIER COMMUNICATIONS
601 NORTH LUS-131
THREE RIVERS, MI 49093
CONTACT: LANCE WESLEY
PHONE: (268) 273-5383

PUBLIC WORKS:
VILLAGE OF SUTTONS BAY
1520 RICHTER ROAD
SUTTONS BAY, MI 49682
CONTACT: DAVID MILLER, DIRECTOR OF FACILITIES
PHONE: (231) 271-1032

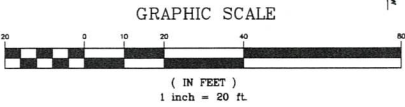
LEGEND			
TEL. POLE	TEL. POLE	FIRE HYDRANT	ASPHALT
ELECTRIC METER	ELECTRIC METER	HAND HOLE	GRAVEL
GAS METER	GAS METER	GAS VALVE	CONCRETE
OUT ANCHOR	OUT ANCHOR	IRRIGATION CONTROL VALVE	PAVED
LAMP	LAMP	WATER VALVE	PAVED
LIGHT POLE	LIGHT POLE	WATER CURB STOP	PAVED
POWER POLE	POWER POLE	BOLLARD	PAVED
POWER POLE W/LIGHT	POWER POLE W/LIGHT	FLAG POLE	PAVED
UTILITY POLE	UTILITY POLE	WELL HEAD	PAVED
ELECTRIC TRANSFORMER	ELECTRIC TRANSFORMER	TRAFFIC SIGN	PAVED
UNKNOWN MANHOLE	UNKNOWN MANHOLE		
SANITARY MANHOLE	SANITARY MANHOLE		
SANITARY CLEAN OUT	SANITARY CLEAN OUT		
ROUND CATCH BASIN	ROUND CATCH BASIN		
FIBER OPTIC MARKER	FIBER OPTIC MARKER		

ELECTRIC:
CHERRYLAND ELECTRIC COOPERATIVE
5930 U.S. 31 SOUTH P.O. BOX 298
GRAND, MI 49637
CONTACT: RACHEL JOHNSON
PHONE: (231) 486-9200

NATURAL GAS:
DTE GAS COMPANY
ONE ENERGY PLAZA
DETROIT, MI 48226
CONTACT: JIM HARRIS
PHONE: (800) 533-6220

SEWER AND WATER:
VILLAGE OF SUTTONS BAY
1520 RICHTER ROAD
SUTTONS BAY, MI 49682
CONTACT: DAVID MILLER, DIRECTOR OF FACILITIES
PHONE: (231) 271-1032

- GENERAL NOTES:
- EXISTING HORIZONTAL DATA IN REFERENCE TO NORTH AMERICAN DATUM OF 1983 (NAD83) MICHIGAN STATE PLANE, CENTRAL ZONE, INTERNATIONAL FEET.
 - EXISTING VERTICAL DATUM IN REFERENCE TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
 - EXISTING TOPOGRAPHIC SURVEY INFORMATION SURVEYED ON 04/17/2025.



CALL MISS DIG

1-800-482-7171 OR 811

FOR PROTECTION OF THE UNDERGROUND UTILITIES, THE CONTRACTOR SHALL CALL MISS DIG A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING CONSTRUCTION OPERATIONS. MEMBERS WILL BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE 'MISS DIG' ALERT SYSTEM.



VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

326 N FRONT ST, SUTTONS BAY, MI 49682

EXISTING CONDITIONS

FOR CONSTRUCTION



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C001



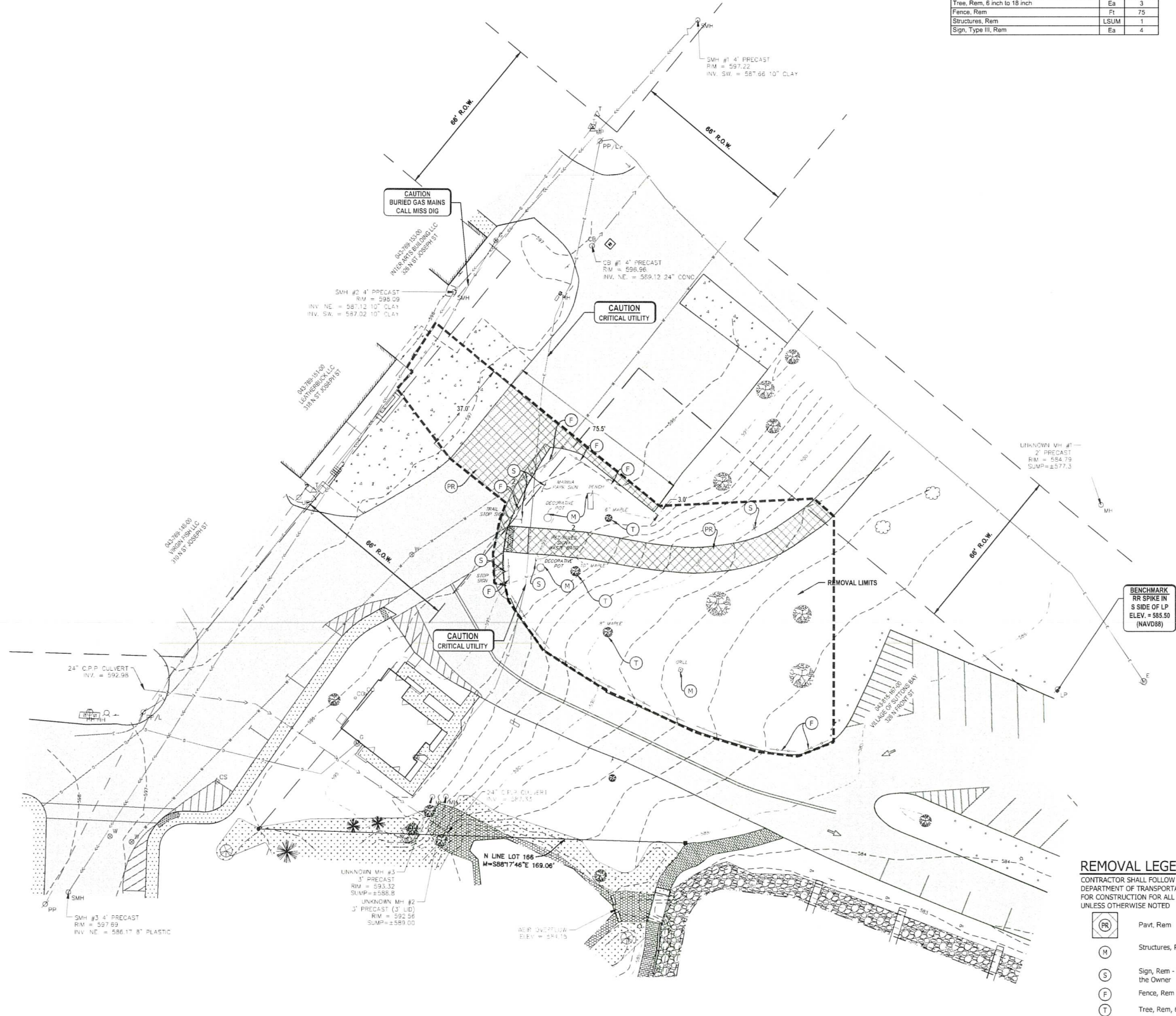
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\\01cnp01\01\24-1952 Suttons Bay Marina Comfort Station\Drawings\24-1952 READ.DWG 24-1952 REM MARTIN N. RIVAS 2.20.2026 11:52 AM
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Item Description	Unit	C002 Quantity
Pavt, Rem	Syd	300
Trees, Rem, 6 inch to 18 inch	Ea	3
Fence, Rem	Ft	75
Structures, Rem	LSUM	1
Sign, Type III, Rem	Ea	4

DEMOLITION NOTES

GENERAL REQUIREMENTS

- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS FOR CONSTRUCTION.
- CONTRACTOR SHALL FOLLOW SOIL AND SEDIMENTATION CONTROL (SESC) REQUIREMENTS.
- NO STREET CLOSURES ARE PERMITTED WITHOUT PRIOR APPROVAL FROM THE VILLAGE OF SUTTONS BAY. CONTRACTOR SHALL PROVIDE MAINTENANCE OF TRAFFIC MEASURES, NECESSARY FOR CONSTRUCTION, PER LOCAL STANDARDS AND REQUIREMENTS.
- CONSTRUCTION MATERIAL, DEBRIS, AND VEHICLE/EQUIPMENT PARKING AREAS SHALL NOT INTERFERE WITH OWNER ACCESS OR ACTIVITIES. CONTRACTOR SHALL COORDINATE STAGING AREAS WITH OWNER APPROVAL.
- CONTRACTOR SHALL NOTIFY THE JURISDICTIONAL DEPARTMENT OF PUBLIC WORKS PRIOR TO WORK IN THE RIGHT-OF-WAY.

SITE PRESERVATION AND RESTORATION

- MAINTAIN POSITIVE DRAINAGE DURING AND AFTER CONSTRUCTION WITHOUT IMPACTING ADJACENT PROPERTIES.
- CONTRACTOR SHALL REVIEW CONSTRUCTION AND REMOVAL LIMITS WITH OWNER. DETERMINE IF TEMPORARY CHAIN-LINK FENCING IS REQUIRED AROUND STAGING AND WORK AREAS; INSTALL PRIOR TO CONSTRUCTION. THIS SHALL BE INCLUDED IN THE COST OF MOBILIZATION.
- CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO ANY INFRASTRUCTURE DESIGNATED TO REMAIN, INCLUDING BUT NOT LIMITED TO: UTILITIES, BUILDINGS, PAVING, IRRIGATION, LIGHTING, AND OTHER IMPROVEMENTS DESIGNATED TO REMAIN.
- RESTORE ALL DISTURBED AREAS TO ORIGINAL OR BETTER CONDITION. SCARIFY COMPACTED GROUND TO A MINIMUM DEPTH OF 6 INCHES PRIOR TO RESTORATION.
- ANY DISTURBED LAWN AREAS LOCATED WITHIN PROJECT LIMITS SHALL BE MAINTAINED BY THE CONTRACTOR.
- TREE PROTECTION MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO: USING DRIVING MATS NEAR TREES AND PREVENTING TALL VEHICLES FROM DAMAGING BRANCHES. ALL TREE PROTECTION MEASURES SHALL BE REVIEWED AND APPROVED BY THE OWNER.

UTILITY COORDINATION

- UTILITY LOCATIONS SHOWN ARE BASED ON VISIBLE ABOVE-GROUND EVIDENCE AND AVAILABLE RECORD DRAWINGS (INCLUDING MANHOLES, HYDRANTS, VALVES, PEDESTALS, BOXES, AND SURFACE MARKINGS BY OTHERS). PIPE INVERTS WERE MEASURED TO THE GREATEST ACCURACY POSSIBLE WITHOUT CONFINED SPACE ENTRY.
- USE **CAUTION**: ADDITIONAL UNDERGROUND UTILITIES MAY EXIST THAT WERE NOT MARKED OR VISIBLE.
- CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION ACTIVITY. REPORT DISCREPANCIES TO THE ENGINEER AND AWAIT INSTRUCTIONS BEFORE PROCEEDING.
- CONTRACTOR MUST CALL MISS DIG (811) A MINIMUM OF 3 FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, BEFORE CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL INQUIRE ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION TO CONFIRM UNDERGROUND UTILITY LOCATIONS. CONTRACTOR SHALL COORDINATE WITH OWNER REGARDING UTILITIES TO REMAIN OR BE REMOVED DURING CONSTRUCTION. CONTRACTOR SHALL NOT INTERRUPT UTILITY SERVICES TO EXISTING BUILDINGS WITHOUT OWNER AND/OR UTILITY COMPANY APPROVAL.
- EXISTING UNDERGROUND UTILITIES TO BE REMOVED WITHIN THE PROJECT SITE SHALL BE PROPERLY DISCONNECTED BY THE UTILITY COMPANY, IF REQUIRED, AND REMOVED. UTILITIES OUTSIDE THE BUILDING FOOTPRINT MAY BE ABANDONED IN PLACE BY FILLING WITH FLOWABLE FILL AND CAPPING, PROVIDED THEY DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.

SITE INVESTIGATION

- CONTRACTOR SHALL FIELD VERIFY FOR ANY WELLS. ANY DISCOVERED WELL(S) MUST BE PROPERLY CAPPED AND ABANDONED BY A LICENSED WELL DRILLER.
- IF CONTAMINATED SOILS ARE ENCOUNTERED, STOP WORK IMMEDIATELY AND IMMEDIATELY NOTIFY THE ENGINEER. CONTAMINATED SOILS MUST BE REMOVED AND DISPOSED OF OFF-SITE PER LOCAL, STATE, AND FEDERAL REGULATIONS.

DEMOLITION SCOPE

- REMOVE SURFACE MATERIALS AS INDICATED ON THE DRAWINGS TO THEIR FULL DEPTH UNLESS NOTED OTHERWISE. WHERE PAVEMENT IS REMOVED, ALL AGGREGATE AND DEBRIS-FILLED SOIL SHALL ALSO BE REMOVED.
- CONTRACTOR SHALL REMOVE ALL VEGETATION REQUIRED FOR CONSTRUCTION. SEE SITE PLANS FOR CONSTRUCTION AREA(S).
- CONTRACTOR SHALL STRIP AND STOCKPILE TOPSOIL MATERIAL AT A LOCATION APPROVED BY OWNER.
- REMOVED ITEMS SHALL BE RELOCATED AT THE DIRECTION OF THE OWNER AS NOTED OR DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND LAWS.
- CONTRACTOR SHALL COORDINATE RETURNING ANY SALVAGED ITEMS (FENCING, POSTS, SIGNAGE, ETC.) TO OWNER UPON REQUEST.
- CONTRACTOR SHALL PLAN AND DETERMINE REQUIRED CLEARING FOR CONSTRUCTION. ANY REMOVED ITEMS SUCH AS, BUT NOT LIMITED TO: STRUCTURES, TREES, SHRUBS, STUMPS, VEGETATION, SHALL BE SUBMITTED TO OWNER FOR REVIEW AND APPROVAL. PROTECT EXISTING PLANT MATERIAL AND IMPROVEMENTS DESIGNATED TO REMAIN.
- ALL PAVEMENT, CURB, AND SIDEWALKS DESIGNATED FOR REMOVAL SHALL BE SAW-CUT PRIOR TO REMOVAL TO CREATE CLEAN VERTICAL JOINTS.
- REMOVE DEMOLITION DEBRIS DAILY TO AN APPROVED OFF-SITE LOCATION. NO DEBRIS SHALL BE BURIED OR DISPOSED OF ON THE PROPERTY.
- PAVEMENT AREAS FOR REMOVAL INCLUDE, BUT NOT LIMITED TO: ASPHALT, CONCRETE PAVEMENT, PADS, CURBS, RETAINING WALLS, STAIRS, RAILINGS, PAVERS, AND OTHER HARDSCAPE ITEMS.
- STRUCTURES, REM SHALL INCLUDE THE FOLLOWING ITEMS: GRILL (1), DECORATIVE POT (2), BENCH (1). THESE ITEMS SHALL BE REMOVED IN THEIR ENTIRETY, INCLUDING ANY FOUNDATIONS, AND SHALL BE STORED ON SIDE AND RELOCATED AT THE DIRECTION OF THE OWNER.

EXISTING LEGEND

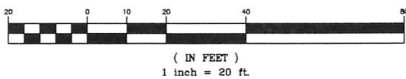
	EXISTING GROUND CONTOURS
	EXISTING DITCH
	STORM SEWER
	SANITARY SEWER LINE
	WATER MAIN
	OVERHEAD UTILITY LINE
	OVERHEAD ELECTRIC
	BURIED ELECTRIC
	GAS LINE
	BURIED CABLE TV
	FIBER OPTIC
	BURIED TELEPHONE LINE

REMOVAL LEGEND

CONTRACTOR SHALL FOLLOW THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR CONSTRUCTION FOR ALL ITEMS DESCRIBED HERE UNLESS OTHERWISE NOTED

	Pavt, Rem
	Structures, Rem - See note 10
	Sign, Rem - Relocate at the direction of the Owner
	Fence, Rem
	Tree, Rem, 6 inch to 18 inch

GRAPHIC SCALE



Surveying
Engineering
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VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

326 N FRONT ST, SUTTONS BAY, MI 49682

REMOVAL PLAN

FOR CONSTRUCTION



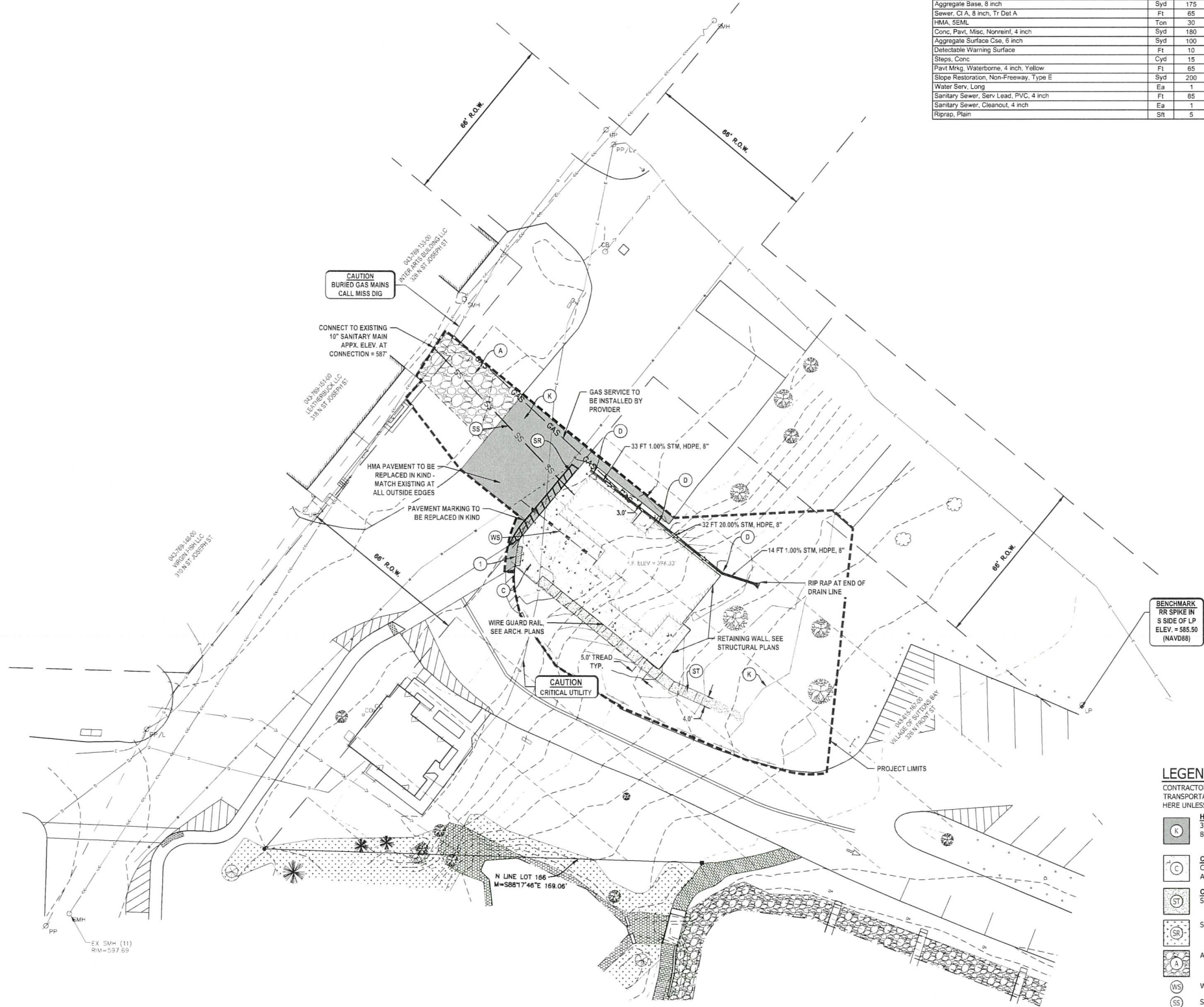
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C002

O:\PROJECTS\024\24-1952 SUTTONS BAY MARINA COMFORT STATION\7 DRAWING FILES\CIVIL\DRAWINGS\24-1952 SITE.DWG 24-1952 SITE MARTIN N. RIVAS 2:20:2026 11:53 AM

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Item Description	Unit	C003 Quantity
Site Grading	LSUM	1
Aggregate Base, 6 inch	Syd	180
Aggregate Base, 8 inch	Syd	175
Sewer, CTA, 8 inch, Tr Del A	Ft	65
HMA, 55ML	Ton	30
Conc. Pavt, Misc, Nonreinf, 4 inch	Syd	180
Aggregate Surface Cse, 6 inch	Syd	100
Detectable Warning Surface	Ft	10
Steps, Conc	Cyd	15
Pavt Mng, Waterborne, 4 inch, Yellow	Ft	65
Slope Restoration, Non-Freeway, Type E	Syd	200
Water Serv, Long	Ea	1
Sanitary Sewer, Serv Lead, PVC, 4 inch	Ft	65
Sanitary Sewer, Cleanout, 4 inch	Ea	1
Riprap, Plain	SR	5

GENERAL NOTES

- CURRENT ZONING: "PL" PUBLIC LANDS
- EXISTING LAND USE: VACANT LAND
- PROPOSED LAND USE: MARINA COMFORT STATION
- SANITARY AND WATER SHALL BE SERVICED BY THE VILLAGE OF SUTTONS BAY.
- SETBACKS SHALL CONFORM TO VILLAGE OF SUTTONS BAY ZONING ORDINANCE UNLESS THE PROPER VARIANCES HAVE BEEN APPROVED.
- SITE/BUILDING DRAINAGE SHALL BE MANAGED ONSITE WITH A ROOF DRAIN AND SHALL HAVE AN OVERLAND EMERGENCY OVERFLOW TO SUTTONS BAY.
- ALL LANDSCAPE AND LIGHTING SHALL BE IN ACCORDANCE WITH THE VILLAGE OF SUTTONS BAY ZONING ORDINANCE UNLESS THE PROPER VARIANCES HAVE BEEN OBTAINED.
- COORDINATE WITH UTILITY COMPANIES FOR RELOCATION OF ANY UTILITIES PRIOR TO ANY CONSTRUCTION ACTIVITY.

CONSTRUCTION NOTES

- CONTRACTOR SHALL OBTAIN AND COMPLY WITH ALL REQUIRED LOCAL, STATE AND FEDERAL PERMITS.
- CONTRACTOR SHALL REQUEST EXISTING UTILITY LOCATIONS FROM MICHIGAN 811 PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
- DAMAGE TO PUBLIC AND PRIVATE PROPERTY SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- NO STREETS SHALL BE CLOSED OR RESTRICTED WITHOUT PRIOR APPROVAL FROM THE VILLAGE OF SUTTONS BAY.
- CONTRACTOR SHALL PROTECT THE WORK AND SAFETY OF THE PUBLIC AND SHALL PROVIDE, ERECT AND MAINTAIN BARRICADES, SIGNALS, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE "MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
- CONTRACTOR SHALL ADHERE TO THE CURRENT "MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION" FOR ALL ITEMS OF WORK DESCRIBED HERE UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL CONSTRUCT SIDEWALKS, RAMPS, AND ADA ACCESSIBLE AREAS IN ACCORDANCE WITH THE "2010 ADA STANDARDS FOR ACCESSIBLE DESIGN" STANDARDS.
- SIGN DESIGNATIONS SHALL COMPLY WITH THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).
- IN THE EVENT THAT THE CONTRACTOR DISCOVERS A DISCREPANCY IN THE CONTRACT DOCUMENTS OR A POTENTIAL CONFLICT, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION PRIOR TO PROCEEDING WITH CONSTRUCTION OF THE WORK IN QUESTION.
- CONTRACTOR SHALL PREPARE RECORD DRAWINGS WITH FIELD LOCATIONS AND ELEVATIONS UPON COMPLETION OF THE WORK FOR SUBMITTALS TO THE ENGINEER.

UTILITY CONSTRUCTION NOTES

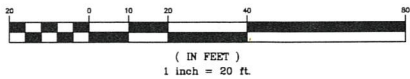
- CONTRACTOR IS RESPONSIBLE FOR HAVING EXISTING UNDERGROUND UTILITIES LOCATED AND FIELD CONFIRMING LOCATIONS AND DEPTHS PRIOR TO COMMENCING CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE UTILITY SERVICE LOCATIONS AND DEPTHS IN THE R/W WITH UTILITY COMPANIES PRIOR TO INSTALLATION.
- CONTRACTOR SHALL VERIFY UTILITY SERVICE LOCATIONS AND DEPTHS AT THE BUILDING WITH THE ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES AS NECESSARY IF SERVICE INTERRUPTION IS REQUIRED.
- MATERIALS, CONSTRUCTION AND TESTING SHALL BE IN ACCORDANCE WITH THE CURRENT CONSTRUCTION STANDARDS OF THE LOCAL JURISDICTION.
- CONTRACTOR SHALL VERIFY THE WATER TABLE DEPTH AND INCLUDE DEWATERING COST WITH OTHER ITEMS OF WORK. THE WATER TABLE SHALL BE LOWERED TO AT LEAST 12 INCHES BELOW THE LOWEST PIPE INVERT PRIOR TO PIPE INSTALLATION.
- MAINTAIN MINIMUM 5 FEET OF COVER AT WATER MAINS & SERVICES.
- UNSATURABLE MATERIAL THAT MAY AFFECT THE STRUCTURAL INTEGRITY OF THE PIPE SHALL BE REPLACED OR TREATED TO SUPPORT THE ANTICIPATED LOADS.
- SEWER CONTRACTOR IS RESPONSIBLE SHALL INSTALL CASTINGS TO WITHIN 0.1 FEET OF FINISHED GRADE.
- ROOF DOWNSPOUTS SHALL CONNECT TO THE STORM SEWER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE ARCH. PLANS AND CONFIRM DOWNSPOUT LOCATIONS.
- UTILITIES OTHER THAN SEWER AND WATER SHALL BE INSTALLED UNDERGROUND AND PLACED IN PVC CONDUIT WHERE LOCATED UNDER PAVEMENT SIDEWALK AND CURB.
- REMOVE SEDIMENT BUILDUP FROM STORM STRUCTURES PRIOR TO OWNER'S ACCEPTANCE OF THE WORK.
- CONTRACTOR SHALL COORDINATE WITH MUNICIPALITY FOR WATER CONNECTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WELL HEAD PROTECTION PERMIT.

LEGEND

CONTRACTOR SHALL FOLLOW THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR CONSTRUCTION FOR ALL ITEMS DESCRIBED HERE UNLESS OTHERWISE SPECIFIED

- HMA PAVEMENT**
 - 3" of HMA, SEMI (Two lifts at 165 lbs/syd each)
 - 8" Aggregate Base
- CONCRETE PAVEMENT**
 - Conc Pavt, Misc, Nonreinf, 4 inch
 - Aggregate Base, 6 inch
- CONCRETE STAIRS**
 - Steps, Conc - See Detail
- Slope Restoration, Non-Freeway, Type E**
- Aggregate Surface Cse, 6 Inch - Shall be 21AA**
- Water Serv, Long - See Arch. plans for plumbing details**
- Sanitary Sewer, Serv Lead, PVC, 4 inch - See Arch. plans for plumbing details**
- Downspout Connection - See Arch. plans for plumbing details**
- Detectable Warning Surface**

GRAPHIC SCALE



Surveying
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Architecture

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VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

326 N FRONT ST, SUTTONS BAY, MI 49682

SITE PLAN

FOR CONSTRUCTION

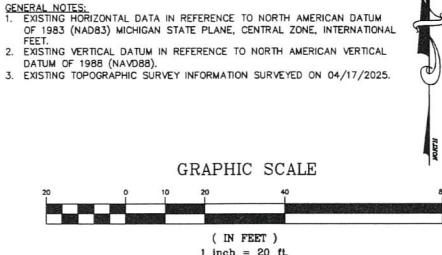


ISSUE DATE: 02.17.2026
PM: MNR QA/QC: TRD

ISSUE/REVISION DATE
ORIGINAL SHEET IS 24"X36" USE DIMENSIONS SHOWN. DO NOT SCALE DRAWINGS.

PROJECT NO: 24-1952

C003

[illegible]

VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

326 N FRONT ST, SUTTONS BAY, MI 49682

SITE GRADING

I. DESIGN BASIS

- A. BUILDING CODE USED IN THE DESIGN OF THIS STRUCTURE
2021 MICHIGAN BUILDING CODE
- B. THE EDITIONS REFERENCED IN THE BUILDING CODE LISTED ABOVE SHALL APPLY FOR THE FOLLOWING DESIGN STANDARDS:
1. CONCRETE ACI 318
 2. STRUCTURAL STEEL AISC STEEL CONSTRUCTION MANUAL LRFD ASD
 3. STEEL JOISTS & GIRDERS SJI AMERICAN NATIONAL STANDARD (ANSI)
 4. COLD-FORMED STEEL AISI S100
 5. METAL DECK SDI MANUALS
 6. WOOD NDS FOR WOOD CONSTRUCTION

- C. SOIL CAPACITY (ASSUMED AT BOTTOM OF FOOTING)
1. MINIMUM SOIL BEARING PRESSURE = 2,500 PSF
 2. CONTRACTOR MUST VERIFY THAT THE SOILS CAN SUPPORT THIS PRESSURE.
 3. SOIL DESIGN PROPERTIES PER GEOTECHNICAL REPORT BY SOILS AND STRUCTURES DATED JANUARY 30, 2025

- D. GRAVITY DEAD LOADS
1. ROOF = 20 PSF
 2. ALL OTHER = ACTUAL WEIGHTS

- E. GRAVITY LIVE LOADS
1. ROOF = 20 PSF

- F. WIND LATERAL LIVE LOADS
1. ULTIMATE DESIGN WIND SPEED = 105 MPH
 2. RISK CATEGORY = II
 3. WIND EXPOSURE = D
 4. INTERNAL PRESSURE COEFFICIENT: GC_{pi} = ±0.18
 5. COMPONENTS/CLADDING WIND PRESSURE: ZONE 1 = ±30.9 PSF
ZONE 2 = ±43.0 PSF
ZONE 3 = ±57.2 PSF
ZONE 4 = ±28.5 PSF
ZONE 5 = ±34.8 PSF

- G. SNOW LOADS
1. GROUND SNOW LOAD: P_s = 80 PSF
 2. SNOW EXPOSURE FACTOR: C_e = 1.0
 3. SNOW IMPORTANCE FACTOR: I = 1.0
 4. THERMAL FACTOR: C_t = 1.1
 5. FLAT ROOF SNOW LOAD: P_f = 46.2 PSF
 6. UNBALANCED, SLIDING AND DRIFTS PER ASCE 7-16

- H. SEISMIC LATERAL LIVE LOADS
1. SEISMIC RISK CATEGORY = II
 2. SEISMIC DESIGN CATEGORY = A
 3. SITE CLASS = D
 4. IMPORTANCE FACTOR: I_e = 1.0
 5. RESPONSE MODIFICATION FACTOR: R = 6.5
 6. SEISMIC RESPONSE COEFFICIENT: C_s = 0.009
 7. MAPPED SPECTRAL RESPONSE ACCELERATIONS: S₁ = 0.049; S₂ = 0.031
 8. SPECTRAL RESPONSE COEFFICIENTS: S_{DS} = 0.052; S_{0.2} = 0.05
 9. BASIC SEISMIC FORCE RESISTING SYSTEM: LIGHT-FRAME WOOD WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE
 10. ANALYSIS USED: EQUIVALENT LATERAL FORCE PROCEDURE

- I. SERVICEABILITY DEFLECTION (L=STRUCTURAL COMPONENT SPAN LENGTH)
1. FLOOR: LIVE LOAD = L/360
 2. ROOF: LIVE LOAD = L/240
 - TOTAL LOAD = L/240
 - TOTAL LOAD = L/180

- J. DESIGN LOADS ABOVE ASSUME BUILDING TO REMAIN CONDITIONED AND KEPT ABOVE FREEZING THROUGH WINTER.

II. OVERVIEW

A. GENERAL

1. ANY CHANGES TO THE STRUCTURAL DESIGN MUST HAVE WRITTEN APPROVAL FROM THE ENGINEER OR THE CERTIFICATION MAY BE INVALIDATED.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FOLLOWING SAFETY PRECAUTIONS AND REGULATIONS.
3. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR METHODS, TECHNIQUES, SEQUENCING AND SUPERVISION OF THE WORK.
4. THESE DRAWINGS INDICATE GENERAL DETAILS OF CONSTRUCTION, WHERE CONDITIONS ARE NOT SPECIFICALLY DETAILED, CONSTRUCTION SIMILAR TO THE DRAWING DETAILS SHALL BE USED, UNLESS NOTED OTHERWISE.
5. THE CONTRACTOR SHALL USE THESE DRAWINGS TOGETHER WITH THE DRAWINGS AND SPECIFICATIONS OF ALL OTHER DISCIPLINES ON THE PROJECT AND SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES THAT INTERFACE WITH THE STRUCTURAL WORK.
6. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN, INSTALL AND INSPECT ADEQUATE AND SAFE TEMPORARY BRACING, SHORING, ETC. REQUIRED DURING CONSTRUCTION UNTIL ALL STRUCTURAL WORK IS COMPLETED.
7. THE CONTRACTOR SHALL COMPLY WITH THE SUPPLIER'S MANUFACTURING DELIVERY, HANDLING, STORAGE AND ERECTION SPECIFICATIONS FOR ALL STRUCTURAL SYSTEM COMPONENTS.
8. THE CURRENT EDITIONS OF ASTM STANDARDS AND ALL REFERENCES SHALL APPLY UNLESS NOTED OTHERWISE.
9. DEMOLISHED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS NOTED OTHERWISE.
10. DO NOT SCALE DRAWINGS; USE INDICATED DIMENSIONS ONLY.

B. SHOP DRAWINGS

1. THE GENERAL CONTRACTOR SHALL REVIEW, CHECK AND COORDINATE THE SHOP DRAWINGS AND SUBMIT A REVIEW STAMPED SET TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS WITHOUT A CONTRACTOR REVIEW STAMP WILL BE REJECTED BY THE ENGINEER.
2. THE ENGINEER WILL REVIEW SHOP DRAWINGS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE DRAWINGS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS.
3. THE ENGINEER SHALL REVIEW THE SHOP DRAWINGS IN ACCORDANCE WITH A SCHEDULE PRE-APPROVED BY THE ENGINEER, OR, IN THE ABSENCE OF A SCHEDULE, IN A MANNER DEEMED TIMELY BY THE ENGINEER.
4. AS A MINIMUM, SUBMIT THE FOLLOWING APPLICABLE SHOP DRAWINGS FOR REVIEW: (1) CONCRETE MIX DESIGN SPECIFICATIONS; (2) CONCRETE REINFORCING STEEL; (3) LOAD BEARING MASONRY REINFORCING STEEL; (4) STRUCTURAL STEEL; (5) STEEL JOISTS/GIRDERS; (6) METAL DECK; (7) WOOD TRUSSES; (8) LOAD BEARING COLD-FORMED STEEL FRAMING; (9) PRECAST CONCRETE.

C. INTERFACE WITH EXISTING CONSTRUCTION

1. THE CONTRACTOR SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS BEFORE PROCEEDING WITH THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR PROTECTING EXISTING WORK THAT IS TO REMAIN.
2. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ETC. REQUIRED FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE WORK AND SHALL TAKE THE MEASUREMENTS REQUIRED FOR STRUCTURAL MEMBER FABRICATION AND ERECTION.
3. ANY DISCREPANCY IN THE DRAWINGS OF EXISTING CONDITIONS AND ANY UNKNOWN CONDITIONS UNCOVERED DURING CONSTRUCTION SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. WELDING TO AND WITHIN AN EXISTING FACILITY MAY PRESENT THE FOLLOWING HAZARDS:
 - a. FIRE HAZARD DUE TO EXISTING BUILDING COMPONENTS: PROTECT EXISTING COMBUSTIBLES PRIOR TO WELDING AND KEEP A SEPARATE WATCHMAN AND MULTIPLE FIRE EXTINGUISHERS ON HAND AND REMAIN AT THE SITE UNTIL SATISFIED THAT NO FIRE HAZARD EXISTS.
 - b. STRUCTURAL LIQUEFACTION DUE TO WELDING ACROSS THE FULL STEEL MEMBER SECTION (WELD IN SMALL INCREMENTS AND ALLOW WELD TO HARDEN BEFORE CONTINUING TO THE NEXT INCREMENT.)

D. SPECIAL INSPECTIONS

1. THE OWNER/CONTRACTOR SHALL EMPLOY ONE OR MORE 3RD PARTY SPECIAL INSPECTORS WHO SHALL PROVIDE INSPECTIONS AND MATERIALS TESTING DURING CONSTRUCTION. ALL SPECIAL INSPECTIONS AND TESTING SHALL CONFORM TO THE REQUIREMENTS OF THE 2015 MICHIGAN BUILDING CODE (MBC).
2. SPECIAL INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE LOCAL BUILDING OFFICIAL. SPECIAL INSPECTIONS SHALL NOT RELIEVE THE OWNER AND CONTRACTOR FROM REQUESTING THE BUILDING OFFICIAL'S INSPECTIONS REQUIRED BY MBC SECTION 110.
3. SPECIAL INSPECTORS SHALL BE GIVEN PROPER NOTICE AND ACCESS TO THE SITE TO PERFORM TESTING AND INSPECTION AS NECESSARY.
4. REQUIRED CATEGORIES OF SPECIAL INSPECTIONS:
 - a. STEEL CONSTRUCTION (MBC SECTION 1705.5)
 - b. CONCRETE CONSTRUCTION (MBC SECTION 1705.3)
 - c. MASONRY CONSTRUCTION (MBC SECTION 1705.4)
 - d. SOILS (MBC SECTION 1705.6)
5. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
 - a. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO VERIFY THAT IT CONFORMS TO THE CONTRACT DOCUMENTS.
 - b. THE SPECIAL INSPECTOR SHALL NOT AUTHORIZE OR APPROVE DEVIATIONS FROM THE CONTRACT DOCUMENTS. ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS MUST BE INITIATED BY THE CONTRACTOR VIA A WRITTEN REQUEST FOR INFORMATION (RFI) AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO PROCEEDING WITH WORK.
 - c. THE SPECIAL INSPECTOR SHALL FURNISH WRITTEN INSPECTION REPORTS TO THE CONTRACTOR FOR CORRECTION IF CORRECTIONS ARE NOT MADE. THE BUILDING OFFICIAL AND ENGINEER AND/OR ARCHITECT SHALL BE NOTIFIED.

III. FOUNDATIONS

A. GENERAL

1. FOLLOW ALL RECOMMENDATIONS OF THE GEOTECHNICAL REPORT FOR THE SITE PREPARED BY SOILS AND STRUCTURES DATED JANUARY 30, 2025. FOUNDATIONS FOR THIS PROJECT HAVE BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE GEOTECHNICAL REPORT.
2. FOOTINGS SHALL BEAR ON UNDISTURBED, FIRM NATURAL SOIL OR COMPACTED FILL CAPABLE OF SUPPORTING THE MINIMUM SOIL BEARING PRESSURE SPECIFIED IN THE "DESIGN BASIS" SECTION OF THESE STRUCTURAL NOTES. A GEOTECHNICAL ENGINEER/TESTING AGENCY SHALL EVALUATE FOUNDATION EXCAVATIONS PRIOR TO PLACING FOUNDATION CONCRETE.
3. CONTRACTOR SHALL REMOVE UNSUITABLE SOILS FROM BELOW THE BUILDING AND PLACE SUITABLE FILL MATERIAL UNDER THE FOUNDATION COMPACTED TO 100% STANDARD PROCTOR IN 8" MAXIMUM LIFTS. A GEOTECHNICAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED SHALL TEST COMPACTED FILL PLACED UNDER FOUNDATIONS.
4. CONCRETE WORK SHALL CONFORM TO THE SPECIFICATIONS IN THE "CAST-IN-PLACE CONCRETE" SECTION OF THESE STRUCTURAL NOTES.
5. IF FOOTINGS ARE NOT PLACED IMMEDIATELY AFTER EXCAVATION, INSTALL A 2" THICK SEAL OF LEAN CONCRETE TO PROTECT THE SOIL FROM MOISTURE DAMAGE.
6. CONTRACTOR MAY LOCATE CONSTRUCTION JOINTS IN FOUNDATION WALLS AT FOOTINGS AT HIS DISCRETION. REINFORCING SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS. IN MAT AND SPREAD FOOTINGS, CONSTRUCTION JOINTS ARE PROHIBITED WITHOUT THE ENGINEER'S APPROVAL.
7. DEPRESS FOUNDATION WALLS 3" AT DOOR OPENINGS, UNLESS NOTED OTHERWISE. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR VERIFICATION OF DOOR OPENING LOCATIONS.
8. SECURE WATER STOPS TO AVOID SHIFTING WHEN CONCRETE IS PLACED.
9. COLUMN CENTERLINES AND PILE CAPS ARE LOCATED ON COLUMN CENTERLINES UNLESS NOTED OTHERWISE.

B. RETAINING WALLS

1. PROVIDE AT LEAST 12" OF FREE DRAINING BACKFILL FOR FULL WALL HEIGHT.
2. PROVIDE CONTROL JOINTS AT APPROXIMATE EQUAL INTERVALS NOT TO EXCEED 35 FEET NOR THREE TIMES THE WALL HEIGHT.
3. PROVIDE EXPANSION JOINTS AT EVERY 4TH CONTROL JOINT, UNLESS NO OTHERWISE.

IV. CONCRETE

A. CAST-IN-PLACE CONCRETE

- a. APPLICABLE SPECIFICATIONS: (1) CONCRETE ACI 301; (2) STRUCTURAL CONCRETE ACI 301; (3) HOT WEATHER CONCRETE ACI 308; (4) COLD WEATHER CONCRETE ACI 305; (5) CONCRETE MIX ACI 301; (6) REINFORCEMENT LAP & EMBEDMENT LENGTH ACI 318; (7) REINFORCEMENT DETAILING ACI 315; (8) WELDING REINFORCING STEEL AWS D1.4; (9) PORTLAND CEMENT CONCRETE ASTM C150; (10) AGGREGATE ASTM C33; (11) REINFORCING STEEL ASTM A615; (12) WELDED WIRE FABRIC, MIN. 70 KSI STRENGTH ASTM A195; (13) EPOXY COATED REINFORCING STEEL ASTM A775; (14) ADMIXTURES ASTM C494; (15) AIR-ENTRAINING ADMIXTURES ASTM C263; (16) READY-MIXED CONCRETE ASTM C94.

2. INTERIOR AND FOUNDATION CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 4,000 PSI AT 28 DAYS.
3. CONCRETE EXPOSED TO WEATHER SHALL HAVE A MINIMUM STRENGTH OF 4,000 PSI AT 28 DAYS. Limestone aggregate and 4%+1% ENTRAINED AIR.
4. MINIMUM CONCRETE COVER FOR REINFORCING STEEL:
 - a. CAST AGAINST A PERMANENTLY EXPOSED TO EARTH: 1"
 - b. FORMED SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH SOIL:
 - i. #5 BARS OR LESS: 1-1/2"
 - ii. #6 BARS OR GREATER: 2"
 - c. FORMED SURFACE NOT EXPOSED TO WEATHER: 1-1/2"
 - d. FORMED SURFACES NOT EXPOSED TO WEATHER OR NOT IN CONTACT WITH SOIL:
 - i. SLABS, WALLS, JOISTS: 3/4"
 - ii. BEAMS & COLUMNS - PRIMARY REINFORCEMENT: 1-1/2"
 - iii. BEAMS & COLUMNS - TIES, STIRRUPS, SPIRALS: 1-1/2"

5. STEEL REINFORCING SHALL BE GRADE 60. TIES AND STIRRUPS SHALL BE GRADE 60.
6. LAP CONTINUOUS REINFORCING STEEL WITH CLASS B SPLICES PER ACI 315, UNLESS NOTED OTHERWISE.
7. PROVIDE PLASTIC OR STAINLESS STEEL SUPPORTS FOR REINFORCING STEEL TO INSURE MINIMUM CONCRETE COVER.

8. SET REINFORCING STEEL AND SECURE PRIOR TO PLACING CONCRETE. VERTICAL DOWELS FOR MASONRY WALL REINFORCING MAY BE PLACED IN PLACE.
9. REINFORCING STEEL SHALL BE CONTINUOUS AT CORNERS. EXTEND WALL VERTICAL REINFORCING INTO FOOTINGS AND PROVIDE DOWELS AS REQUIRED.
10. DO NOT FIELD BEND REINFORCING BARS EMBEDDED IN HARDENED CONCRETE.
11. WELDED WIRE FABRIC SHALL CONFORM TO THE SPECIFICATIONS IN THE "SLAB-ON-GRADE" SECTION OF THESE STRUCTURAL NOTES.
12. CONCRETE SUPERSTRUCTURE FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 50% OF 28 DAY COMPRESSIVE STRENGTH. CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING AND RE-SHORING.

B. SLAB-ON-GRADE

1. CONCRETE WORK SHALL CONFORM TO THE SPECIFICATIONS IN THE "CAST-IN-PLACE CONCRETE" SECTION OF THESE STRUCTURAL NOTES.
2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A615 SPECIFICATIONS. BE SUPPLIED IN FLAT SHEETS, LAP ADJOINING PIECES BY AT LEAST ONE FULL MESH AND BE HELD IN PLACE AS NEEDED TO REMAIN IN THE PROPER POSITION WHEN CONCRETE IS PLACED.
3. PROVIDE ONE LAYER OF 6X6-W1.4XW1.4 WELDED WIRE FABRIC PLACED 1-1/2" BELOW THE TOP OF THE SLAB, UNLESS NOTED OTHERWISE.
4. EXTERIOR SLABS TO BE UNREINFORCED UNLESS NOTED OTHERWISE, WHERE REINFORCING IS NOTED, ALL EXTERIOR SLAB REINFORCING SHALL BE EPOXY COATED.
5. POLYPROPYLENE FIBER REINFORCEMENT IS PROHIBITED WITHOUT THE WRITTEN AUTHORIZATION OF THE ENGINEER.
6. PROVIDE 10 MIL POLYETHYLENE VAPOR BARRIER OVER 4" POROUS SUBGRADE OR OROUS FILL COMPACTED TO 95% STANDARD PROCTOR UNDER INTERIOR CONCRETE SLABS.
7. POROUS FILL SHALL BE CLEAN GRANULAR MATERIAL WITH 100% PASSING THROUGH A 1-1/2" SIEVE AND NO MORE THAN 5% PASSING THROUGH A NO. 4 SIEVE.
8. MAXIMUM JOINT SPACING SHALL BE 24 TIMES THE SLAB THICKNESS. SAWCUT JOINTS AS SOON AS POSSIBLE AFTER CONCRETE IS PLACED. DO NOT SPALL JOINT EDGES. FILL SAWN JOINTS WITH EPOXY RESIN 4-6 WEEKS AFTER SLAB IS CAST. REMOVE DEBRIS FROM JOINTS PRIOR TO FILLING.
9. PROVIDE EXPANSION JOINTS BETWEEN EXTERIOR SLABS-ON-GRADE AND THE BUILDING.
10. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF DEPRESSED SLABS AND DRAINS. SLOPE SLAB TO DRAINS.

IV. STEEL

A. STRUCTURAL STEEL

- a. APPLICABLE SPECIFICATIONS: (1) MINIMUM YIELD STRENGTH:
 - i. W SHAPES, MIN. FY = 50 KSI; ASTM A992
 - ii. HSS ROUND SHAPES, MIN. FY = 50 KSI; ASTM A500, GRADE C
 - iii. HSS RECTANGULAR SHAPES, MIN. FY = 50 KSI; ASTM A500, GRADE C
- b. M, S, C, MC, L SHAPES, MIN. FY = 50 KSI; ASTM A572
- c. HP SHAPES, MIN. FY = 50 KSI; ASTM A572, GRADE 50
- d. BEARING PLATES, MIN. FY = 50 KSI; ASTM A572
- e. ANCHOR BOLTS, ASTM F1554, GRADE 36
- f. HIGH STRENGTH BOLTS, MIN. ULTIMATE STRENGTH, F_u = 120 KSI; ASTM A325
- g. THREADED RODS, MIN. FY = 36 KSI; ASTM A36
- h. NON-SHRINK GROUT, MIN. 8,000 PSI STRENGTH, ASTM C1107
- i. STRUCTURAL STEEL CONSTRUCTION: AISC, TYPE 2
- j. HOT-DIP GALVANIZING: ASTM A153
- k. WELDING, MIN. FY = 58 KSI FOR FILLER MATERIAL, AWS D1.1

2. STEEL FABRICATOR SHALL MAINTAIN DETAILED QUALITY CONTROL PROCEDURES AS REQUIRED BY THE SPECIAL INSPECTION SPECIFICATIONS OF THE INTERNATIONAL BUILDING CODE.

3. CONNECTIONS SHALL BE SHEAR TYPE UNLESS NOTED OTHERWISE AND DESIGNED BY THE FABRICATOR FOR SHEAR LOADS INDICATED ON THESE DRAWINGS IN ACCORDANCE WITH THE AISC SPECIFICATIONS DESIGNATED IN THE "DESIGN BASIS" SECTION OF THESE STRUCTURAL NOTES.

4. COLUMNS, ANCHOR BOLTS, BASE PLATES, ETC. ARE DESIGNED FOR THE FINAL LOADING CONDITION AND HAVE NOT BEEN INVESTIGATED FOR POTENTIAL LOADINGS DURING ERECTION AND CONSTRUCTION. THIS INVESTIGATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

5. MOMENT CONNECTIONS ARE DENOTED WITH THE SYMBOL  ON THESE DRAWINGS. THE FABRICATOR SHALL SUBMIT CALCULATIONS AND SHOP DRAWINGS FOR ALL SPECIAL CONNECTIONS, INCLUDING MOMENT CONNECTIONS.

6. BOLTS SHALL BE SNUG-TIT SHEAR-BEARING TYPE WITH MINIMUM 3/4" DIAMETER UNLESS NOTED OTHERWISE.

7. A CERTIFIED WELDER SHALL PERFORM ALL WELDING WORK. USE E70XX ELECTRODES FOR WELDING, UNLESS NOTED OTHERWISE. PROVIDE CONTINUOUS MINIMUM SIZE/2 PILET WELDS IN ACCORDANCE WITH AISC SPECIFICATIONS. TOUCH UP WELDED CONNECTIONS WITH ZINC RICH PRIMER.

8. DRILL OR PUNCH HOLES IN STEEL. PROVIDE SMOOTH EDGES FOR SLOTTED HOLES, BURNING AND TORCH CUTTING AT THE SITE IS NOT PERMITTED.

9. SHOP PAINT STRUCTURAL STEEL WITH ONE COAT OF RUST INHIBITIVE ALKYL PRIMER, UNLESS NOTED OTHERWISE.

10. HOT-DIP GALVANIZED STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE WEATHER, INCLUDING BRICK SHELF ANGLES AND LINTELS AT EXTERIOR OPENINGS.

11. FIELD REPAIR REPAIRMENT COATINGS DAMAGED DURING TRANSPORT, ERECTING AND WELDING TO MATCH THE SHOP APPLIED COATING.
12. THE STRUCTURAL STEEL ERECTOR SHALL PROVIDE TEMPORARY GUYING AND BRACING.

13. PROVIDE ANGLE FRAMES AT ROOF OPENINGS AND ROOFTOP MECHANICAL UNITS IN ACCORDANCE WITH DETAILS PROVIDED IN THESE DRAWINGS.

B. STEEL JOISTS & JOIST GIRDERS

1. STEEL JOIST INSTITUTE (SJI) STANDARDS AND SPECIFICATIONS SHALL APPLY FOR THE DESIGN, FABRICATION AND ERECTION OF STEEL JOISTS AND GIRDERS, INCLUDING JOIST BRIDGING AND SHOP PAINTING.
2. JOIST AND GIRDER MANUFACTURERS SHALL BE SJI CERTIFIED AND MAINTAIN APPROVED FABRICATION PROCEDURES AS REQUIRED BY THE SPECIAL INSPECTION SPECIFICATIONS OF THE INTERNATIONAL BUILDING CODE.
3. PRIOR TO FABRICATION THE JOIST MANUFACTURER SHALL SUBMIT CALCULATIONS TO THE ENGINEER FOR SPECIAL JOISTS AND ALL JOIST GIRDERS CERTIFIED BY A PROFESSIONAL IN THE STATE WHERE INSTALLED FOR RECORD PURPOSES.
4. PROPERLY ANCHOR JOISTS AT BEARINGS. REFER TO ANY DETAILS IN THESE DRAWINGS.
5. COMPLETELY INSTALL JOIST BRIDGING AND CONNECTIONS PRIOR TO PLACING ANY CONSTRUCTION LOADS ON THE JOISTS. CONSTRUCTION LOADS SHALL NOT EXCEED JOIST DESIGN LOAD.
6. AT STANDING SEAM ROOFS, PROVIDE ADDITIONAL BRIDGING TO ADEQUATELY BRACE TOP CHORDS AGAINST LOADS ON THE JOISTS. CONSTRUCTION LOADS SHALL NOT EXCEED JOIST DESIGN LOAD.
7. DESIGN ROOF JOISTS AND GIRDERS FOR A NET WIND UPLIFT AS SPECIFIED ON THESE DRAWINGS. MANUFACTURER SHALL PROVIDE BOTTOM CHORD BRACING FOR JOISTS AS REQUIRED TO RESIST WIND UPLIFT.
8. JOIST ON COLUMN CENTERLINES SHALL HAVE EXTENDED BOTTOM CHORD CONNECTIONS. REFER TO ANY DETAILS IN THESE DRAWINGS. DO NOT CONNECT BOTTOM CHORD EXTENSION TO STABILIZER PLATE.
9. ATTACH FIELD INSTALLED MEMBERS AT CONCENTRATED LOADS NOT OCCURRING AT PANEL POINTS.
10. INSTALL ADDITIONAL JOISTS UNDER PARTITIONS RUNNING PARALLEL TO JOISTS.

VI. WOOD

A. WOOD FRAMING

1. MATERIAL SHALL BE SURFACE DRY AND USED AT 19% MAXIMUM MOISTURE CONTENT. ALLOWABLE STRESS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THIS SECTION.

2. UNLESS NOTED OTHERWISE, JOISTS, RAFTERS EXTERIOR WALL STUDS, LOAD BEARING INTERIOR WALL STUDS AND MISCELLANEOUS FRAMING SHALL BE NO. 1 GRADE SOUTHERN YELLOW PINE OR BETTER WITH THE FOLLOWING MINIMUM PROPERTIES FOR MEMBERS 2-4 INCHES THICK:

Width	F _b	F _t	F _v	F _{c, parallel}	F _{c, perp.}	E
2-4 inches	1,500 psi	1,000 psi	175 psi	1,650 psi	565 psi	1,500 psi
5-8 inches	1,350 psi	875 psi	175 psi	1,500 psi	565 psi	1,500 psi
8 inches	1,250 psi	800 psi	175 psi	1,500 psi	565 psi	1,500 psi
10 inches	1,050 psi	700 psi	175 psi	1,430 psi	565 psi	1,500 psi
12 inches	1,000 psi	650 psi	175 psi	1,400 psi	565 psi	1,500 psi

3. PRESSURE TREAT FRAMING EXPOSED TO WEATHER OR IN CONTACT WITH MASONRY OR CONCRETE IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS ASSOCIATION SPECIFICATIONS, WHERE POSSIBLE, COMPLETE CUTS AND HOLES PRIOR TO TREATMENT. FOR ON-SITE FABRICATION, BRUSH CUTS AND HOLES WITH TWO COATS OF COPPER NAPHTHATE SOLUTION CONTAINING MINIMUM 2% METALLIC COPPER IN ACCORDANCE WITH ANWA STD. M4.

4. FOR 2 INCH NOMINAL LOAD BEARING FRAMING, WIDE FACE LENGTH OF SPLIT SHALL BE LIMITED TO LESS THAN 1/2 OF THE WIDE FACE DIMENSION. FOR 3 INCH NOMINAL OR OTHER SPECIAL CONNECTIONS, WIDE FACE LENGTH OF SPLIT SHALL BE LIMITED TO LESS THAN 1/2 OF THE NARROW FACE DIMENSION.

5. PREFABRICATED LAMINATED VENEER LUMBER (LVL) FRAMING FOR HEADERS AND BEAMS SHALL BE 2" DE MICROLAM LVL WITH THE FOLLOWING MINIMUM PROPERTIES:

S (psi)	E (psi)	F _b (psi)	F _t (psi)	F _v (psi)	F _{c, parallel} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)
125,000	2.0x10 ⁶	1,270	1,270	2,400	1,535	720	2,370	285	0.50

6. PREFABRICATED PARALLEL STRAND LUMBER (PSL) FRAMING FOR HEADERS AND BEAMS SHALL BE 2" DE PARALLAM PSL WITH THE FOLLOWING MINIMUM PROPERTIES:

S (psi)	E (psi)	F _b (psi)	F _t (psi)	F _v (psi)	F _{c, parallel} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)
125,000	2.0x10 ⁶	1,270	1,270	2,400	1,535	720	2,370	285	0.50

7. PREFABRICATED PARALLEL STRAND LUMBER (PSL) FRAMING FOR COLUMNS SHALL BE 1.8E PARALLAM PSL WITH THE FOLLOWING MINIMUM PROPERTIES:

S (psi)	E (psi)	F _b (psi)	F _t (psi)	F _v (psi)	F _{c, parallel} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)
125,000	2.0x10 ⁶	1,270	1,270	2,400	1,535	720	2,370	285	0.50

8. PREFABRICATED QUALITY LUMBER FRAMING FOR BEAMS SHALL BE 2X4-14 (1.8E) GRADE 1/2" OF STRUCTURAL GLUED LAMINATED TIMBER PRESSURE TREATED WITH H-CLEAR II INDUSTRIAL WOOD PRESERVATIVE AND WITH THE FOLLOWING MINIMUM PROPERTIES:

S (psi)	E (psi)	F _b (psi)	F _t (psi)	F _v (psi)	F _{c, parallel} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)	F _{c, perp.} (psi)
125,000	2.0x10 ⁶	1,270	1,270	2,400	1,535	720	2,370	285	0.50

9. DO NOT CUT OR NOTCH LVL AND PSL FRAMING WITHOUT THE MANUFACTURER'S APPROVAL.
10. PROVIDE DOUBLE JOISTS UNDER PARTITIONS THAT ARE PARALLEL TO THE JOISTS AND UNDER CONCENTRATED LOADS FROM THE FRAMING ABOVE.
11. FRAME AROUND PLYWOOD DECK OPENINGS WITH HEADER BEAMS EQUAL TO THE JOIST/RAFTER MEMBER SIZE, UNLESS NOTED OTHERWISE.
12. HOLES AND NOTCHES CUT OR DRILLED INTO WOOD FRAMING SHALL BE IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE REQUIREMENTS.
13. HOT DIP GALVANIZE PLATES, ANCHORS, BOLTS, NAILS, NUTS, WASHERS AND OTHER MISCELLANEOUS HARDWARE.
14. PROVIDE A STEEL BASE PLATE AT COLUMNS TO PREVENT MOISTURE TRANSMISSION.

15. PREFABRICATED METAL JOIST HANGERS, HURRICANE CLIPS, HOLD DOWN ANCHORS AND OTHER ACCESSORIES SHALL BE MANUFACTURED BY "SIMPSON STRONG-TIE" OR APPROVED EQUAL. INSTALL ALL ACCESSORIES IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. STEEL SHALL BE ASTM GRADE A STEEL, 0.04 INCHES OR GREATER IN COATED THICKNESS AND HAVE A G60 GALVANIZED COATING IN ACCORDANCE WITH ASTM A653.

B. PRE-ENGINEERED WOOD TRUSSES

1. MANUFACTURER SHALL DESIGN TRUSSES IN ACCORDANCE WITH THE NATIONAL DESIGN SPECIFICATIONS OF THE AMERICAN FOREST & PAPER ASSOCIATION AND THE AMERICAN WOOD COUNCIL DESIGN SPECIFICATIONS FOR METAL PLATE CONNECTED WOOD TRUSSES SHALL BE BY THE TRUSS PLATE INSTITUTE AND THE INTERNATIONAL BUILDING CODE FOR THE LOADS SPECIFIED IN THE "DESIGN BASIS" SECTION OF THESE STRUCTURAL NOTES.
2. WOOD MATERIALS MUST SATISFY STRESS REQUIREMENTS OF THE "WOOD FRAMING" SECTION OF THESE STRUCTURAL NOTES. DESIGN SHALL CONSIDER TOP AND BOTTOM CHORD SECONDARY BENDING STRESSES DUE TO DEAD, LIVE AND WIND LOADS. NATIONAL DESIGN SPECIFICATIONS SHALL APPLY FOR WOOD LOAD DURATION FACTORS.
3. MANUFACTURE TRUSSES IN A PERMANENT FACILITY BY WORKERS EXPERIENCED WITH PRECISION CUTTING, JOGGING AND PRESSING EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS IN THE TRUSS PLATE INSTITUTE QUALITY CONTROL STANDARD QST-88.
4. CONNECTOR PLATES SHALL BE ASTM GRADE A STEEL, 3/8 INCHES OR GREATER IN COATED THICKNESS AND HAVE A G60 GALVANIZED COATING IN ACCORDANCE WITH ASTM A653. STEEL SHALL HAVE A MINIMUM YIELD STRESS OF 33,000 PSI.
5. SUBMIT WOOD TRUSS SHOP DRAWINGS CERTIFIED BY AN ENGINEER REGISTERED IN THE STATE WHERE INSTALLED SHOWING MEMBER SIZES, SPECIES, GRADE, MOISTURE CONTENT, SPAN, CAMBER, DIMENSIONS, CHORD PITCH, BRACING REQUIREMENTS AND LOADS.
6. A QUALIFIED, EXPERIENCED CONTRACTOR SHALL ERECT THE WOOD TRUSSES AND PROVIDE TEMPORARY AND PERMANENT BRACING IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
7. DO NOT CUT, NOTCH, DRILL OR IN ANY WAY ALTER THE TRUSS MEMBERS AND COMPONENTS WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

326 N FRONT ST. SUTTONS BAY, MI 49682

SPECIFICATIONS

FOR CONSTRUCTION



ISSUE DATE: 2/17/2025

PM: QA / QC: SFL

ISSUANCE / REVISION DATE

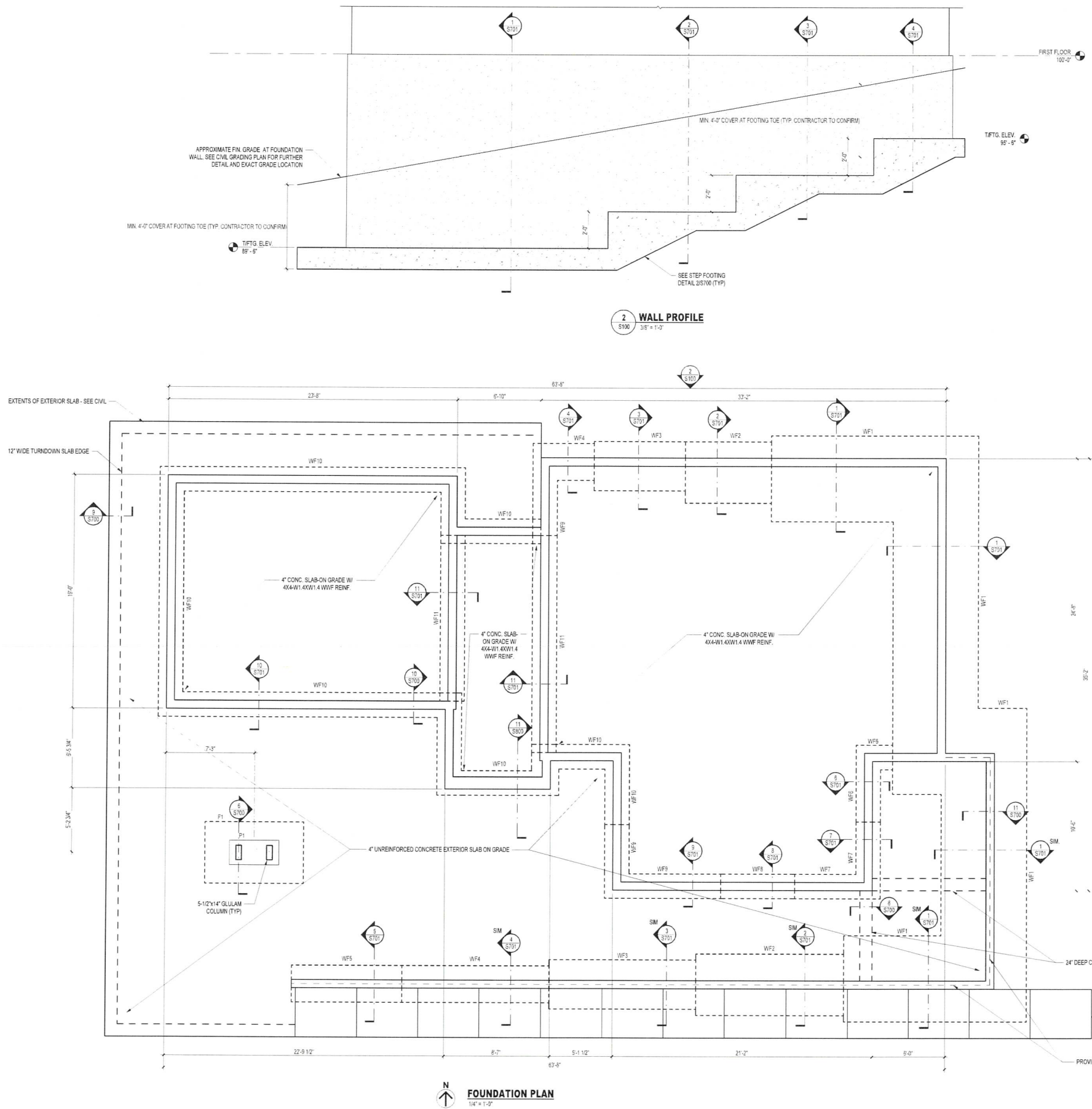
ORIGINAL SHEET IS 24"X36" DO NOT SCALE DRAWINGS

PROJECT NO: 24-1952

S001

ABONMARCHÉ
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ABONMARCHÉ CONSULTANTS, INC.



- GENERAL NOTES**
- ALL SLABS ON GRADE TO BE AT FINISH FLOOR ELEVATION 100'-0".
 - BUILDING FLOOR SLABS TO BE SUPPORTED ON A MINIMUM OF 8" THICK WELL COMPACTED GRANULAR BASE COURSE (MOIST CLASS 1 GRANULAR MATERIAL) BEARING ON A SUITABLY PREPARED SUB GRADE.
 - SEE CIVIL PLANS FOR SLOPE IN EXTERIOR SLABS.

ISOLATED FOOTING SCHEDULE

NOTES:
1. REINFORCEMENT SPACING SPECIFIED IN THE TABLE ABOVE SHALL BE TAKEN AS THE CENTER TO CENTER DISTANCE OF THE REBAR.
2. ALL SPREAD FOOTINGS TO BE CENTERED ON FOUNDATION WALLS OR COLUMN GRID CENTERLINES UNLESS OTHERWISE NOTED.

MARK	DIMENSIONS	THICKNESS	T/FTG. ELEV.	TOP REINF.	BOT. REINF.	QNTY.
F1	5'-0" X 5'-0"	1'-0"	97'-0"	(7) #5 @ 9" O.C. LONG, (11) #5 @ 9" O.C. TRANS.	(7) #5 @ 9" O.C. LONG, (11) #5 @ 9" O.C. TRANS.	1

PEDESTAL SCHEDULE

NOTES:
1. MORE INFORMATION REGARDING REINFORCEMENT CONFIGURATION CAN BE FOUND IN DETAILS XSX.X.
2. REINFORCEMENT SPACING SPECIFIED IN THE TABLE ABOVE SHALL BE TAKEN AS THE CENTER TO CENTER DISTANCE.
3. PEDESTALS TO BE CENTERED ON FOOTING UNLESS NOTED OTHERWISE.

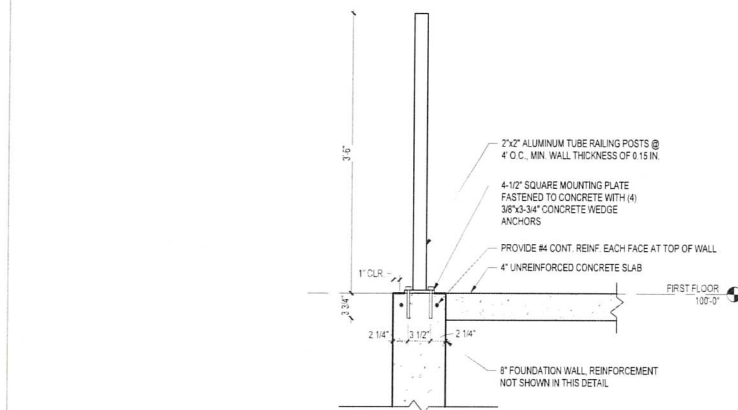
Type Mark (Col)	DIMENSIONS	VERT. REINF.	HORIZ. REINF.	T/FTG. ELEV.	T/PEDESTAL ELEV.	HEIGHT	QNTY.
P1	24" X 48"	(26) #6 VERT. BARS	#4 TIES @ 9" O.C.	97'-0"	100'-0"	3'-0"	1

CONTINUOUS WALL FOOTING SCHEDULE

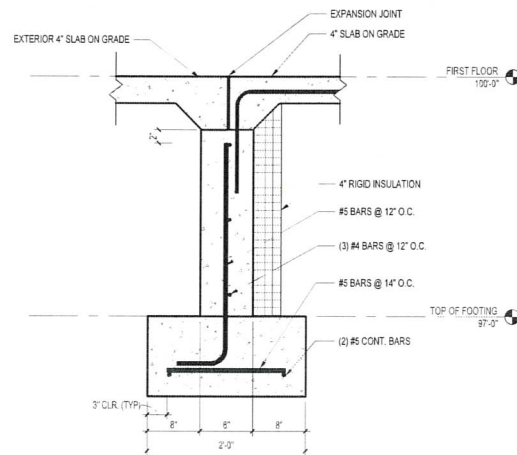
NOTES:
1. CONTINUOUS WALL FOOTINGS SHALL BE EQUAL TO OR GREATER THAN THE LENGTH OF THE WALL THEY ARE SUPPORTING.
2. REINFORCEMENT SPACING SPECIFIED IN THE TABLE ABOVE SHALL BE TAKEN AS THE CENTER TO CENTER DISTANCE OF THE REBAR.
3. ALL CONTINUOUS WALL FOOTINGS SHALL BE CENTERED ON WALLS UNLESS OTHERWISE NOTED.

MARK	WIDTH	THICKNESS	T/FTG. ELEV.	TRAN. REINF.	LONG. REINF.	QNTY.
WF1	7'-0"	1'-2"	89'-6"	#5 BARS @ 12" O.C.	(7) #5 BARS @ 12" O.C.	5
WF2	5'-0"	1'-0"	91'-6"	#5 BARS @ 12" O.C.	(5) #5 BARS @ 12" O.C.	2
WF3	4'-0"	1'-0"	93'-6"	#5 BARS @ 12" O.C.	(4) #5 BARS @ 12" O.C.	2
WF4	3'-0"	1'-0"	95'-6"	#5 BARS @ 12" O.C.	(3) #5 BARS @ 12" O.C.	2
WF5	3'-0"	1'-0"	97'-0"	#5 BARS @ 12" O.C.	(2) #5 BARS @ 12" O.C.	1
WF6	2'-0"	1'-0"	89'-6"	#5 BARS @ 12" O.C.	(2) #5 CONT. BARS	2
WF7	2'-0"	1'-0"	91'-6"	#5 BARS @ 12" O.C.	(2) #5 CONT. BARS	2
WF8	2'-0"	1'-0"	93'-6"	#5 BARS @ 12" O.C.	(2) #5 CONT. BARS	1
WF9	2'-0"	1'-0"	95'-6"	#5 BARS @ 12" O.C.	(2) #5 CONT. BARS	3
WF10	2'-0"	1'-0"	97'-0"	#5 BARS @ 12" O.C.	(2) #5 CONT. BARS	10
WF11	2'-0"	1'-0"	99'-4"	#5 BARS @ 12" O.C.	(2) #5 CONT. BARS	2

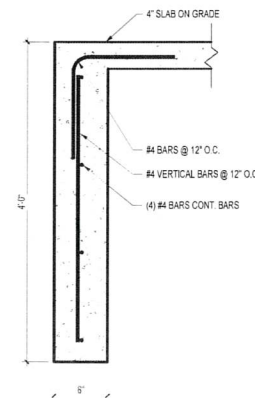




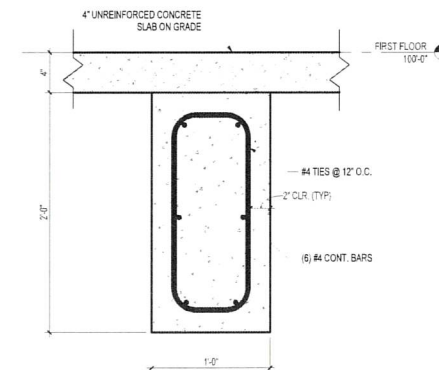
11 RAILING CONNECTION DETAIL
1" = 1'-0"



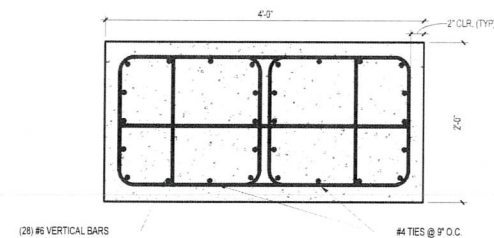
10 THICKENED SLAB EDGE AT DOOR DETAIL
1" = 1'-0"



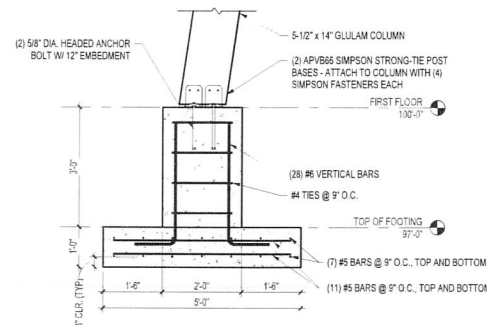
9 TYPICAL TURNDOWN SLAB EDGE DETAIL
1" = 1'-0"



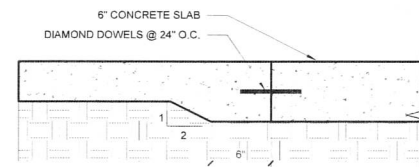
8 TYPICAL GRADE BEAM DETAIL
1 1/2" = 1'-0"



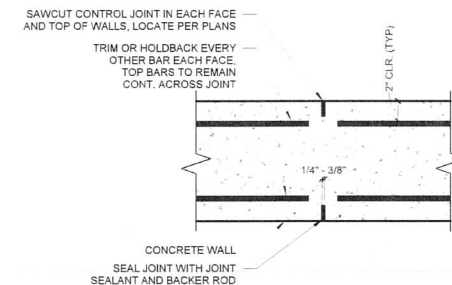
7 PEDESTAL PLAN VIEW
1" = 1'-0"



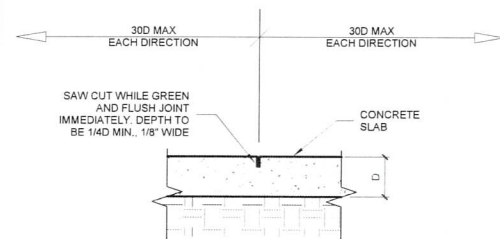
6 COMBINED FOOTING DETAIL
1 1/2" = 1'-0"



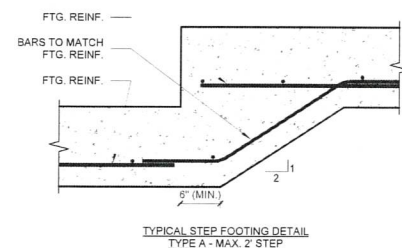
5 FLOOR SLAB CONSTRUCTION JOINT DETAIL
1" = 1'-0"



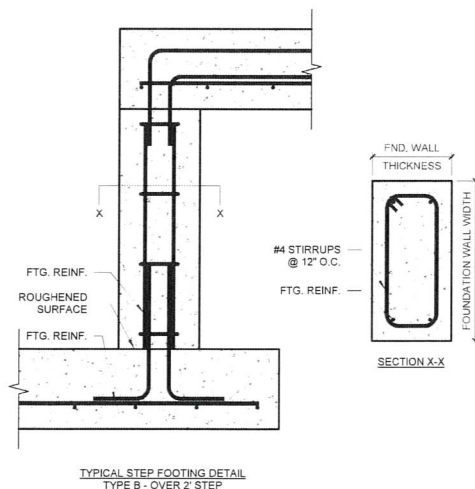
4 TYPICAL CONC. WALL CONTROL JOINT DETAIL
1 1/2" = 1'-0"



3 FLOOR SLAB CONTROL JOINT DETAIL
1 1/2" = 1'-0"

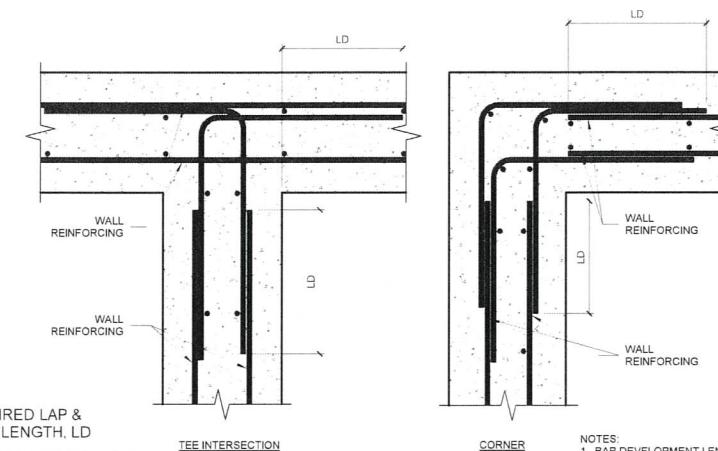


2 TYPICAL STEP FOOTING DETAIL
1" = 1'-0"



MINIMUM REQUIRED LAP & DEVELOPMENT LENGTH, LD

REINF. BAR SIZE	VERT. BARS	HORIZ. BARS
#4	25"	33"
#5	31"	41"
#6	37"	48"



1 TYPICAL FOUNDATION INTERSECTIONS
1 1/2" = 1'-0"

NOTES:
1. BAR DEVELOPMENT LENGTH SHALL BE IN ACCORDANCE WITH ACI 318 AND "MINIMUM REQUIRED LAP & DEVELOPMENT LENGTH, LD" TABLE, THIS DETAIL.
2. CORNER REINF. MAY BE AN EXTENSION OF THE WALL REINFORCING AT THE CONTRACTOR'S OPTION.

VILLAGE OF SUTTONS BAY
PUBLIC / MARINA COMFORT STATION

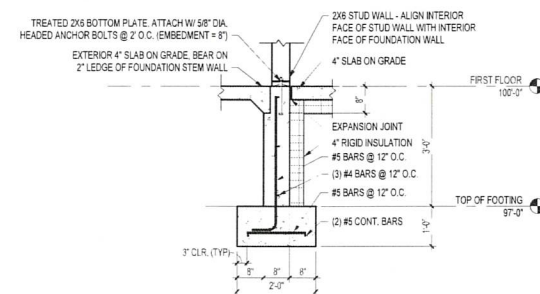
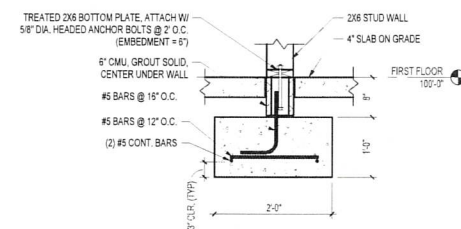
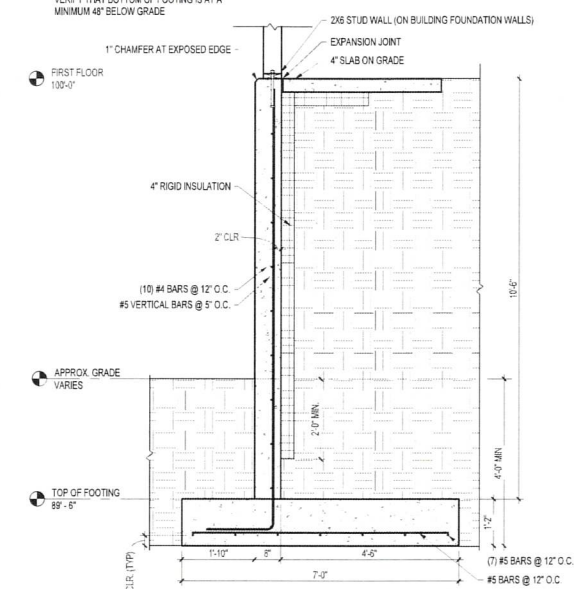
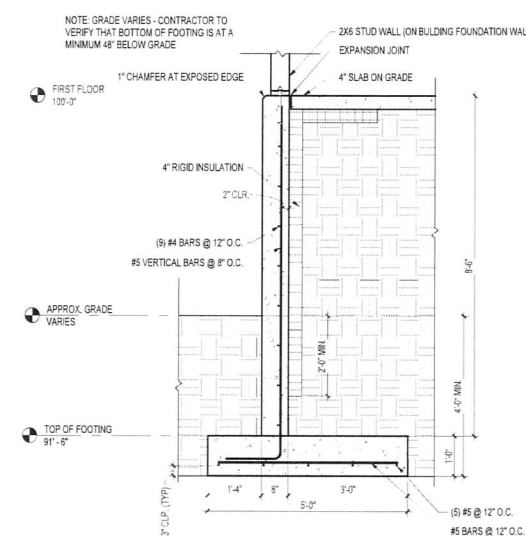
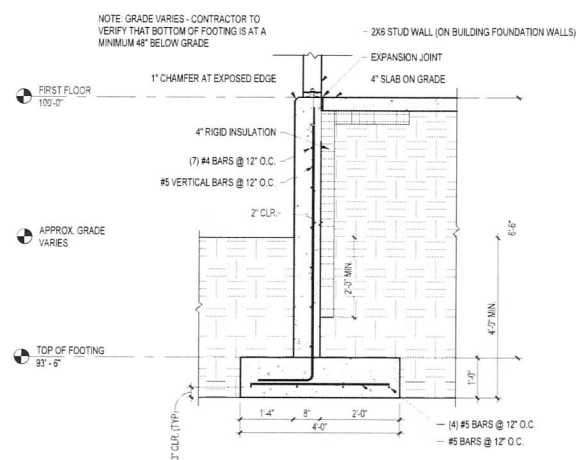
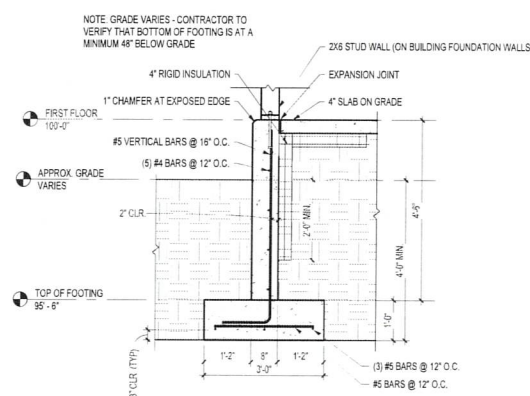
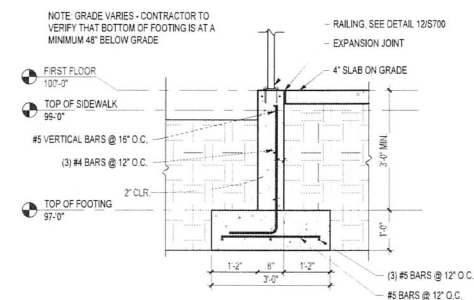
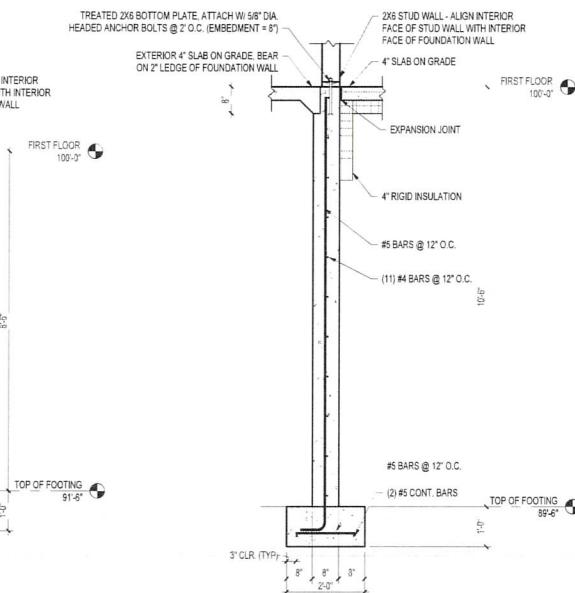
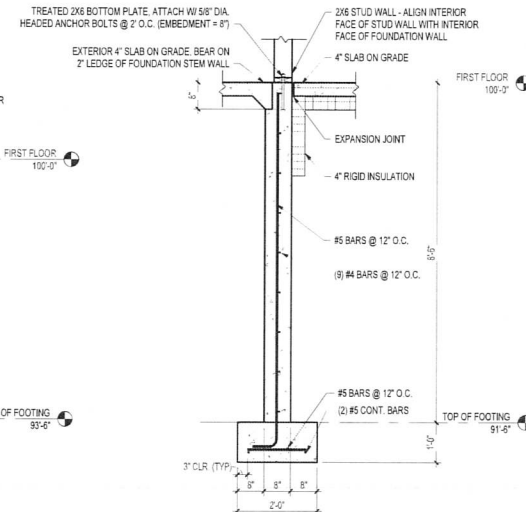
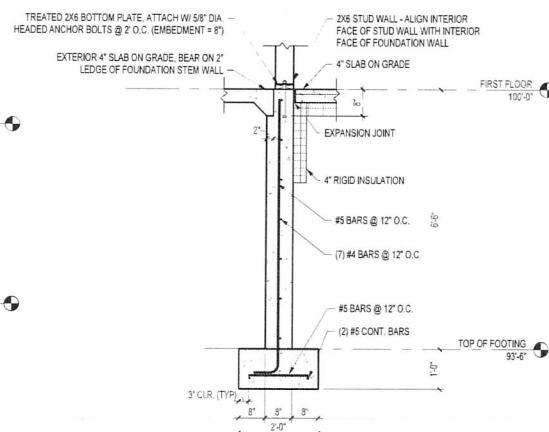
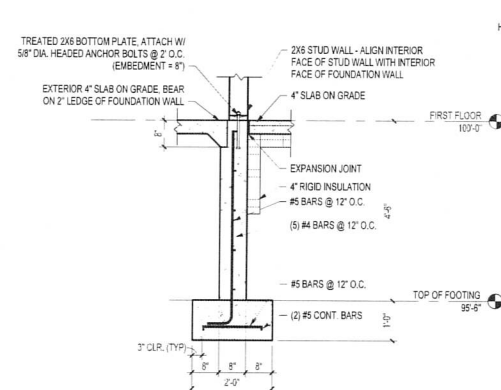
326 N FRONT ST. SUTTONS BAY, MI 49682
FOUNDATION DETAILS

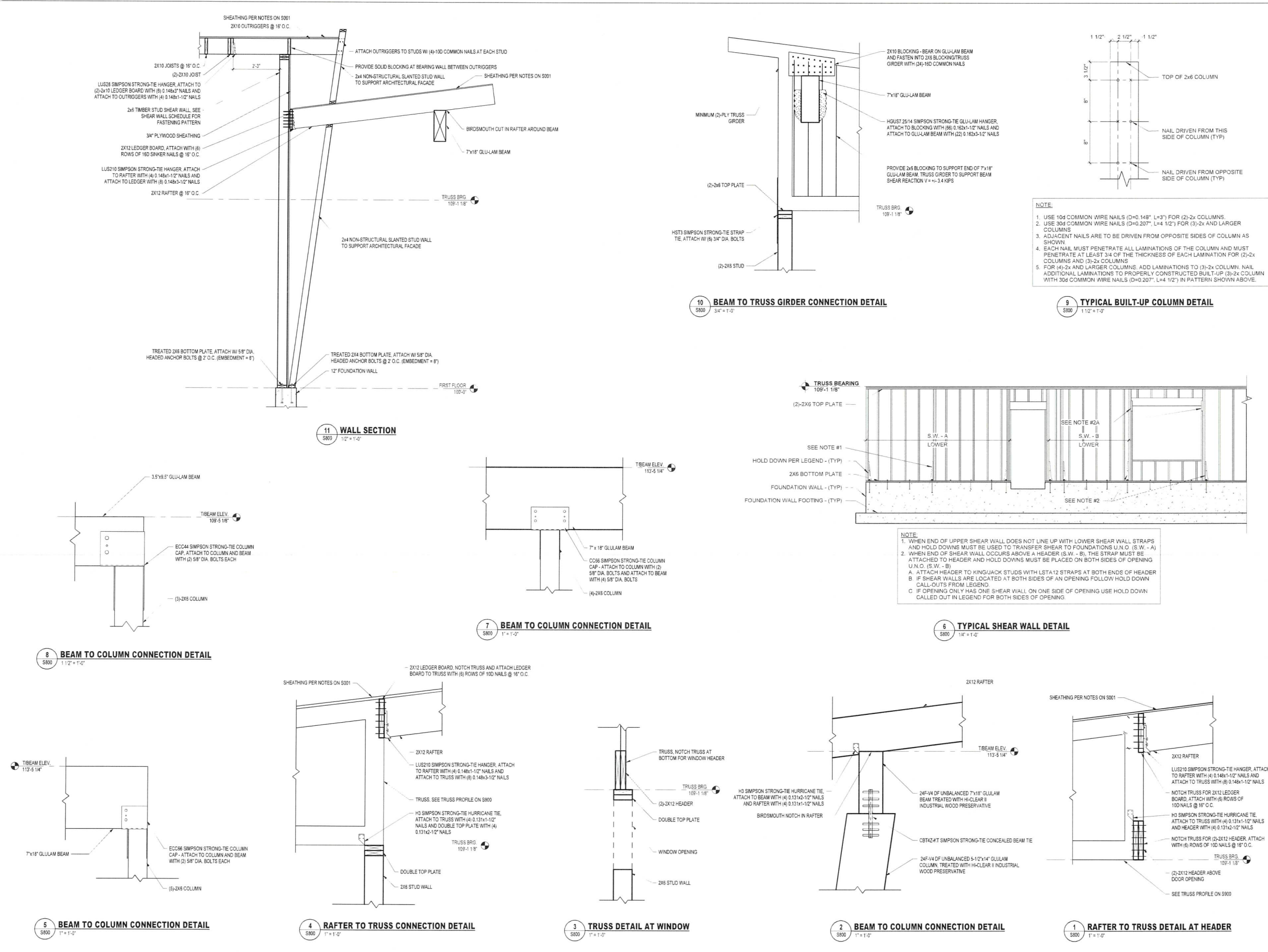
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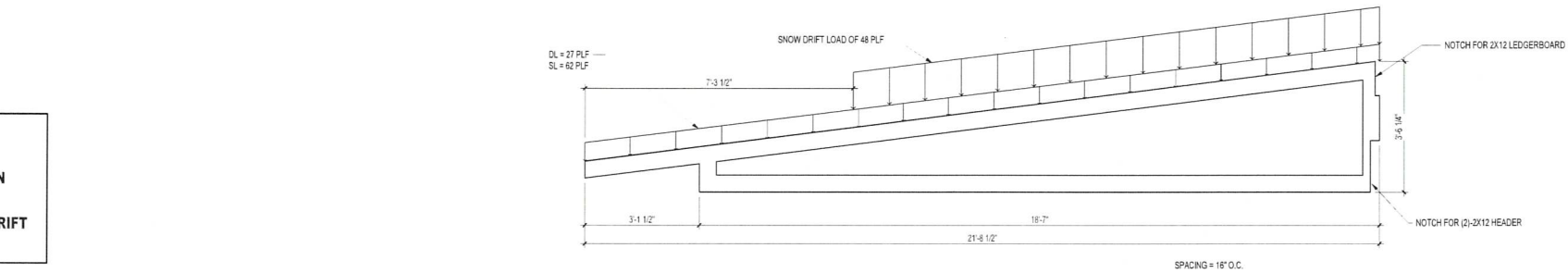
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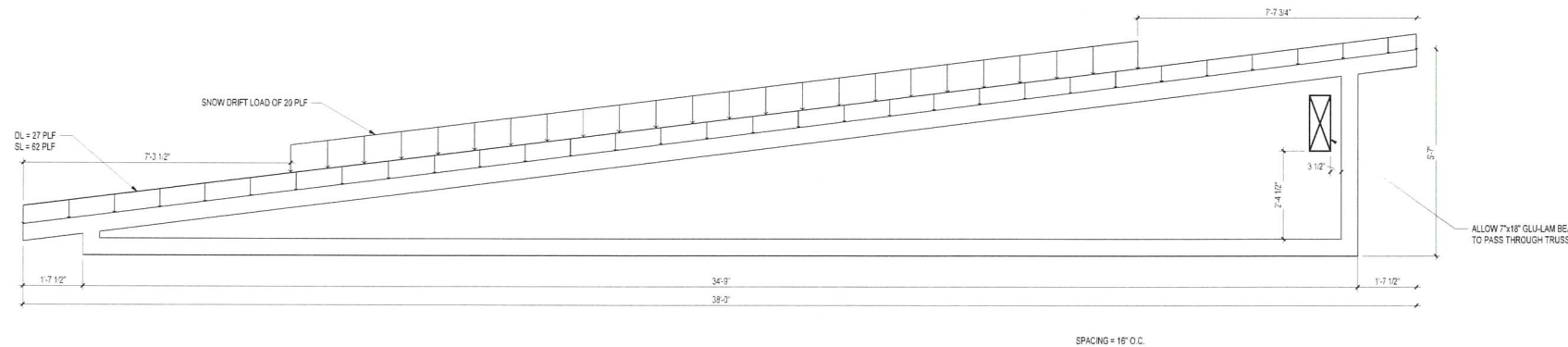


VILLAGE OF SUTTONS BAY
PUBLIC / MARINA COMFORT STATION
326 N FRONT ST. SUTTONS BAY, MI 49682
FRAMING DETAILS

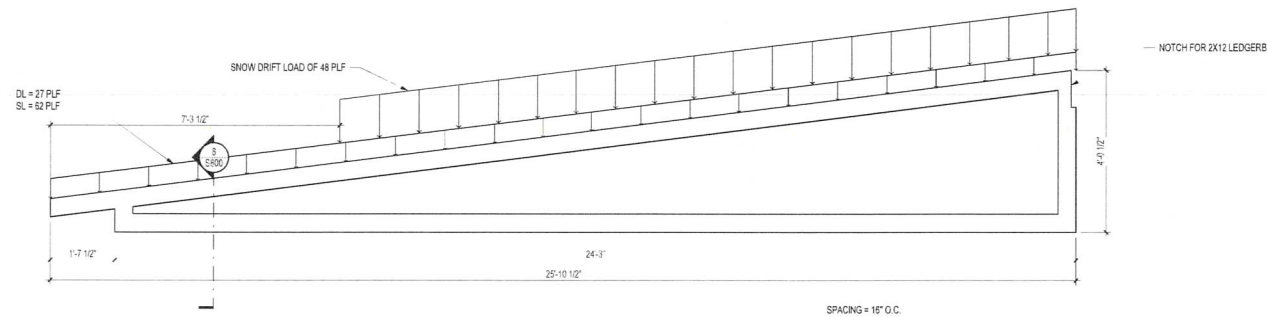
NOTE:
TRUSSES MUST BE DESIGNED FOR LOADS GIVEN IN DESIGN BASIS ON SHEET S001, U.N.O. TRUSSES WITH SNOW DRIFT LOADING REQUIREMENTS ARE GIVEN AT EACH PROFILE. DRIFT LOADS ARE TO BE ADDED TO BALANCED SNOW LOAD.



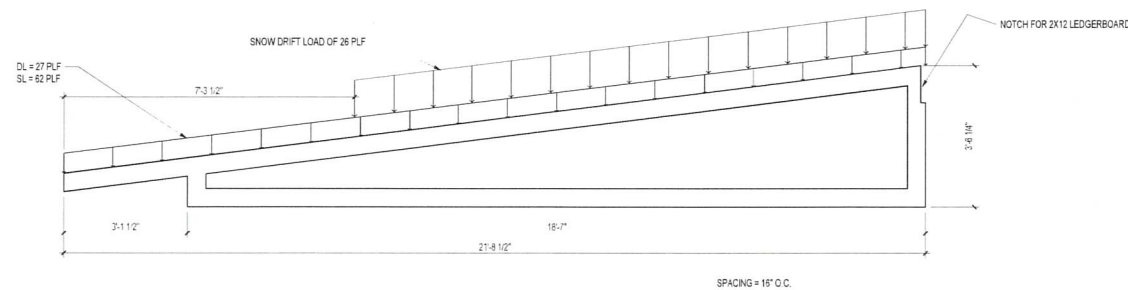
4 T4 TRUSS PROFILE
S900 1/2" = 1'-0"



3 T3 TRUSS PROFILE
S900 1/2" = 1'-0"

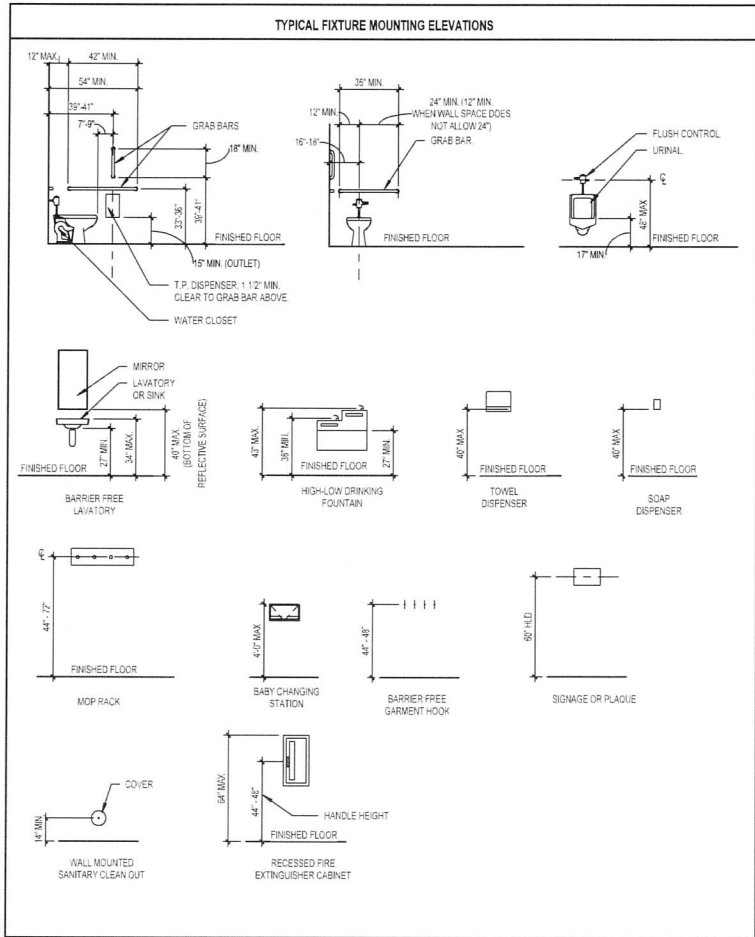


2 T2 TRUSS PROFILE
S900 1/2" = 1'-0"

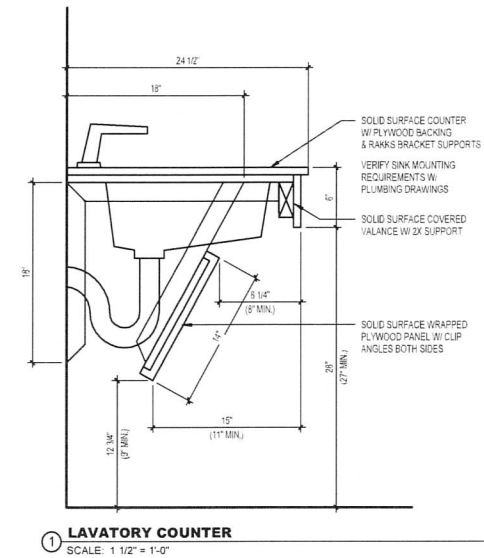


1 T1 TRUSS PROFILE
S900 1/2" = 1'-0"

ABBREVIATIONS			
A.B.	ANCHOR BOLT	F.A.P.	FIRE ALARM CONTROL PANEL
A.C.T.	ACOUSTICAL CEILING TILE	F.D.	FLOOR DRAIN
A.D.A.	AMERICANS WITH DISABILITIES ACT	F.E.	FIRE EXTINGUISHER
OP192		F.E.C.	FIRE EXTINGUISHER CABINET
A.F.F.	ABOVE FINISHED FLOOR	F.F.	FINISH FLOOR
AGGR.	AGGREGATE	FFANDE.	FIXTURES, FURNISHINGS AND EQUIPMENT
AL.	ALUMINUM	FIN.	FINISH
ARCH.	ARCHITECT	FLR.	FLOOR
B.D.	BOTTOM OF DECK	FND.	FOUNDATION
B.F.	BARRIER FREE	FTG.	FOOTING
B.O.S.	BELOW FINISHED FLOOR	G.C.	GENERAL CONTRACTOR
B.P.	BOTTOM OF STEEL	G.P.H.	GALLONS PER HOUR
B.P.D.	BASE PLATE	G.P.M.	GALLONS PER MINUTE
B.S.	BOTTOM OF ROOF DECK	G.S.F.	GROSS SQUARE FEET
B.S.D.	BOTTOM OF SLAB	GA.	GAUGE
BD.	BOARD	GALV.	GALVANIZED
BIT.	BITUMINOUS	GYP.	GYPSUM
BLFG.	BLOCKING	GYP BD.	GYPSUM BOARD
BM.	BEAM	H.B.	HOSE BB
BOT.	BOTTOM	H.R.	HORSEPOWER
BRNG.	BEARING	H.V.A.C.	HEATING, VENTILATION AND COOLING
BRNG.	PL. BEARING PLATE	HD.	HEAD
C.B.	CATCH BASIN	HDW.	HARDWARE
C.C.	CENTER TO CENTER	HORIZ.	HORIZONTAL
C.F.H.	CUBIC FEET PER HOUR	HR.	HOUR
C.F.M.	CUBIC FEET PER MINUTE	HT.	HEIGHT
C.G.	CORNER GUARD	LD.	INSIDE DIMENSION
C.J.	CONTROL JOINT OR CONSTRUCTION JOINT	LG.	INSULATING GLASS
C.L. of C.	CENTER LINE	INCL.	INCLUDED
C.M.U.	CONCRETE MASONRY UNIT	J.F.	JOINT FILLER
C.O.	CLEAN OUT	JAN.	JANITOR
C.T.	CERAMIC TILE	JT.	JOINT
CAB.	CABINET	L.B.	LONG BARS
CLR.	CLEAR	L.E.E.D.	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN
COL.	COLUMN	L.F.	LINEAR FOOT
CONC.	CONCRETE	LL.	LIVE LOAD
CONT.	CONTINUOUS	L.W.	LIGHT WEIGHT
CPT.	CARPET	LAM.	LAMINATED
C.T.R.	CENTER	LAV.	LAVATORY
D.L.	DEAD LOAD	LB.	POUND
D.S.	DOWN SPOUT	LJR.	LOCKER
DB.	DECIBELS, SOUND PRESSURE LEVEL	M.D.O.	MEDIUM DENSITY OVERLAY
DIA. or Ø	DIAMETER	M.O.	MASONRY OPENING
DM.	DIMENSION	MAN.	MANUAL
DN.	DOWN	MATL.	MATERIAL
DR.	DOOR	MAX.	MAXIMUM
DTL.	DETAIL	MECH.	MECHANICAL
DWG.	DRAWING	MEZZ.	MEZZAINE
E @ EXIST.	EXISTING	MFR.	MANUFACTURER
E.F.	EACH FACE	MIN.	MINIMUM
E.I.F.S.	EXTERIOR INSULATED FINISH SYSTEM	MISC.	MISCELLANEOUS
E.J.	EXPANSION JOINT	MNTD.	MOUNTED
E.O.S.	EDGE OF SLAB	MTL.	METAL
E.P.D.M.	ETHYLENE PROPYLENE DIENE MONOMER	N.C.	NORMALLY CLOSED
E.T.F.	ELEV. TOP OF FOOTING	N.C.	NOT IN CONTACT
E.T.P.C.	ELEV. TOP OF PILE CAP	N.O.	NORMALLY OPEN
E.W.	EACHWAY	N.S.F.	NET SQUARE FEET
E.W.C.	ELECTRIC WATER COOLER	N.T.S.	NOT TO SCALE
EA.	EACH	NOM.	NOMINAL
EL.	ELEVATION	O.C.	ON CENTER
ELEC.	ELECTRICAL	O.D.	OVERFLOW DRAIN
ELEV.	ELEVATOR	O.P.C.I.	OWNER FURNISHED-CONTRACTOR INSTALLED
EMBED.	EMBEDMENT	O.S.B.	ORIENTED STRAND BOARD
ENG.R.	ENGINEER	OP.	OVERHEAD
EQ.	EQUAL	OPNG.	OPENING
EXP.	EXPANSION	OPP.	OPPOSITE HAND OR MIRRORED
EXT.	EXTERIOR		
P.LAM.	PLASTIC LAMINATE		
P.S.I.	PRESSURE PER SQUARE INCH		
P.T.	PRESSURE TREATED		
PL.	PLATE		
PL.WD.	PLYWOOD		
PRE-FIN.	PRE-FINISHED		
Q.T.	QUARRY TILE		
R.A.	RETURN AIR		
R.D.	ROOF DRAIN		
R.O.	ROUGH OPENING		
R.P.H.	REVOLUTIONS PER HOUR		
R.P.M.	REVOLUTIONS PER MINUTE		
R.T.U.	ROOF TOP UNIT		
R.W.B.	RUBBER WALL BASE		
REIN.	REINFORCE		
REQU.	REQUIRED		
S.	SINK		
S.A.	SUPPLY AIR		
S.A.B.	SOUND ATTENUATION		
S.B.	BLANKET		
S.C.W.D.	SOLID CORE WOOD DOOR		
S.F.	SQUARE FEET		
S.G.	SPANDREL GLASS		
S.M.	SHEET METAL		
S.O.G.	SLAB ON GRADE		
S.S.	STAINLESS STEEL		
S.S.M.	SOLID SURFACE MATERIAL		
SECT.	SECTION		
SH.	SHOWER		
SHT.	SHEET		
SN.	SIMILAR		
SPEC.	SPECIFICATION		
SO.	SQUARE		
STC.	STANDARD		
STL.	STEEL		
STRUCT.	STRUCTURAL		
SUSP.	SUSPENDED		
T.	TILE		
T.D.	TRENCH DRAIN		
T.G.	TEMPERED GLASS		
T.O.F.	TOP OF FOOTING		
T.O.M.	TOP OF MASONRY		
T.O.P.	TOP OF PIER		
T.O.S.	TOP OF STEEL		
T.O.W.	TOP OF WALL		
T.P.	TOILET PAPER		
TANDG.	TONGUE AND GROOVE		
TEMP.	TEMPERATURE		
TCT.	TOILET		
TYP.	TYPICAL		
U.N.O.	UNLESS NOTED OTHERWISE		
UR.	URINAL		
V.	VENT		
V.C.T.	VINYL COMPOSITION TILE		
V.I.F.	VERIFY IN FIELD		
V.T.R.	VENT THROUGH ROOF		
V.U.G.	VENT UNDERGROUND		
V.W.B.	VINYL WALL BASE		
V.W.C.	VINYL WALL COVERING		
VERT.	VERTICAL		
W.C.	WATER CLOSET		
W.C.O.	WALL CLEAN OUT		
W.H.	WATER HEATER		
W.M.	WASHING MACHINE		
W.T.W.	WALL TO WALL		
W.W.F.	WELDED WIRE FABRIC		
W.	WITH		
WD.	WOOD		
WP.	WEATHERPROOF		

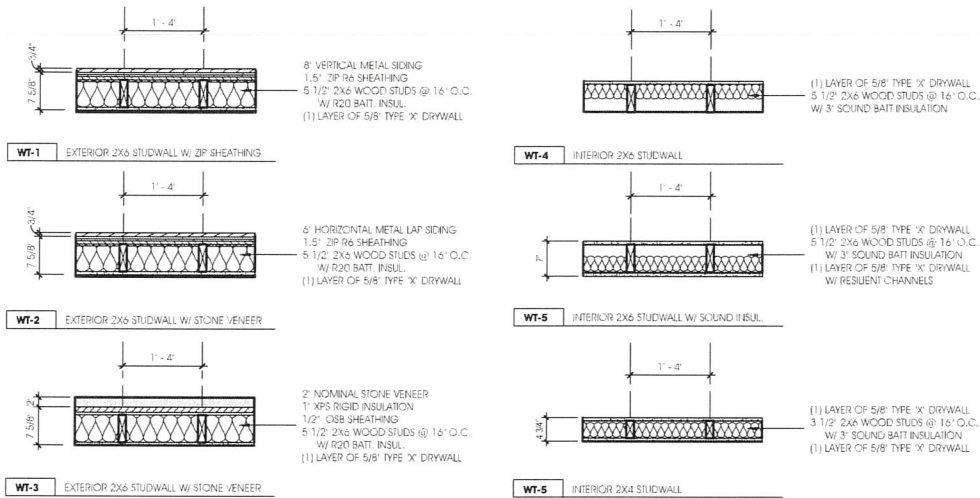


SYMBOLS LEGEND	
1	STRUCTURAL GRID IDENTIFIER
101	DOOR TAG
3A	WALL TAG
01	WINDOW TAG
01	BORROWED LITE TAG
NAME XXX-X	LEVEL SYMBOL
Room Name 101	ROOM TAG
1 HOUR FIRE BARRIER	
2 HOUR FIRE BARRIER	
1 A101	BUILDING SECTION SYMBOL
1 A101	WALL SECTION SYMBOL
1 A101	DETAIL SYMBOL
1 A101	ELEVATION SYMBOL



GENERAL NOTES - WALLS TYPES

- WOOD STUDS SHALL BE 16" O.C. (TYP) AND SHALL BE CONTINUOUS TO ROOF BEARING - SEE STRUCTURAL DRAWINGS FOR SHEAR WALLS & ADDITIONAL FRAMING/ BRACING REQUIREMENTS
- ZIP SHEATHING TO BE INSTALLED AS COMPLETE SYSTEM PER MFR SPECIFICATIONS, INCLUDING ANCHORS & SEAM TAPE
- PROVIDE R-20 MIN. BATT INSULATION AT ALL EXTERIOR WOOD STUD WALLS.
- AT EXTERIOR STONE VENEER AREAS, PROVIDE 1" OF XPS RIGID INSULATION OVER WOOD STUD FRAMING W/ 1/2" OSB SHEATHING - ANCHORS FOR SCRATCH COAT METAL MESH TO EXTEND THROUGH INSULATION INTO SHEATHING/ FRAMING AS REQUIRED BY STONE MFR.
- PROVIDE WOOD BLOCKING FOR GRAB BARS, ACCESSORIES, ETC.
- PROVIDE 5/8" WET LOCATION / ABUSE RESISTANT TYPE 'X' CHRYUM WALL BOARD AT ALL INTERIOR WALL & CEILING LOCATIONS (U.N.O.)
- REFER TO ROOM FINISH SCHEDULE FOR WALL FINISHES



VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI-49682

ARCHITECTURAL REFERENCE INFORMATION



ISSUE DATE: 02/17/2026
PM: QA / QC.

PROJECT NO: 24-1952

A001

ISSUANCE / REVISION DATE
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PROJECT NO: 24-1952

A001

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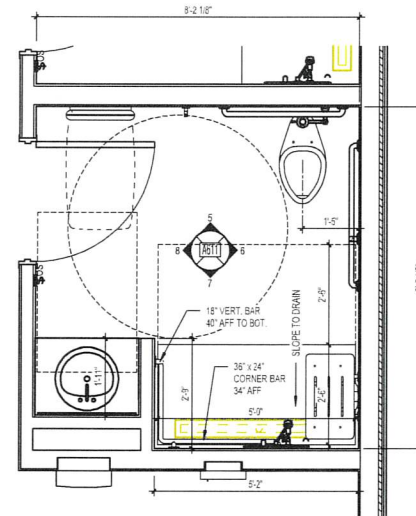
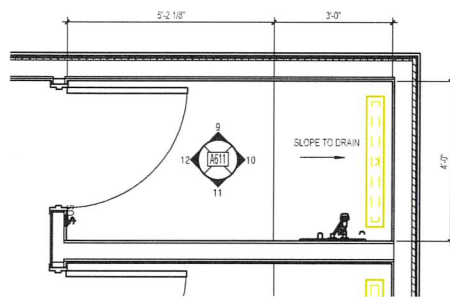
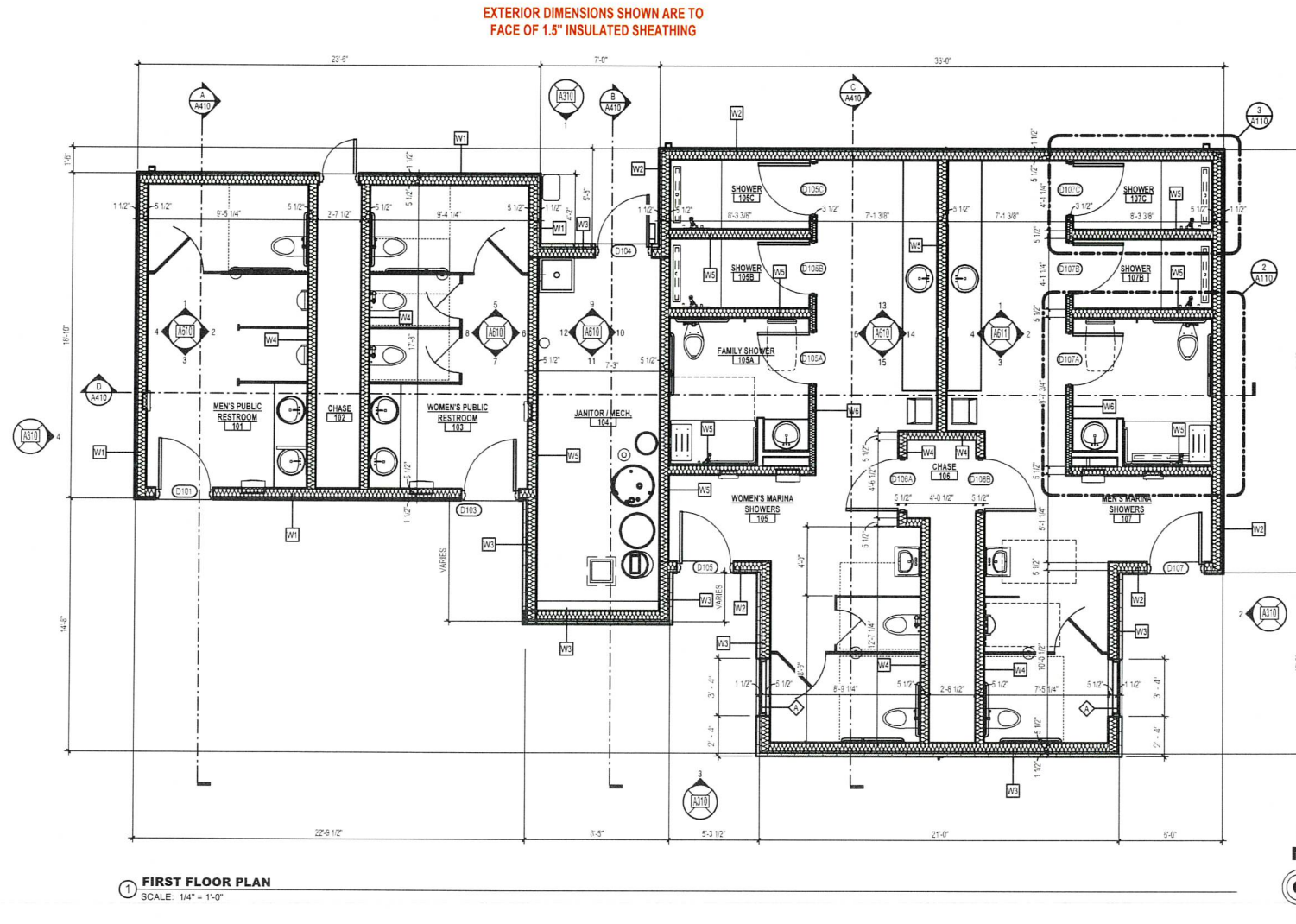
A001

VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI-49682

ARCHITECTURAL REFERENCE INFORMATION



ARCHITECTURAL GENERAL NOTES:

- A. THESE CONSTRUCTION DRAWINGS ESTABLISH THE DESIGN INTENT OF WORK TO BE PERFORMED. ANY DISCREPANCIES OR CONFLICTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND THE OWNER PRIOR TO PERFORMING ANY WORK.
- B. DO NOT SCALE DRAWINGS - USE DIMENSIONS PROVIDED - ANY DIMENSIONS FOLLOWED BY -- SHOULD BE REVIEWED AND ALL NECESSARY ADJUSTMENTS MADE PRIOR TO FABRICATION AND/OR INSTALLATION OF AFFECTED WORK. NOTIFY ARCHITECTS REPRESENTATIVE IF DISCREPANCIES ARISE BEFORE PROCEEDING WITH THE WORK.
- C. ALL TRADES SHALL CAREFULLY COORDINATE THEIR SCOPE OF WORK WITH ALL OTHER TRADES WORKING ON PROJECT.
- D. CONTRACTORS SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS AND FOR VERIFYING THEM WITH THE CONTRACT DOCUMENTS. ANY DISCREPANCIES OR CONFLICTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND THE OWNER PRIOR TO FABRICATION OR INSTALLATION.
- E. ALL EQUIPMENT, PRODUCTS & MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- F. COORDINATE SIZE AND LOCATION OF ALL EQUIPMENT SUPPORTS INCLUDING BUT NOT RESTRICTED TO CONCRETE HOUSKEEPING PADS WITH APPROPRIATE EQUIPMENT MANUFACTURER.
- G. COORDINATE SIZE AND LOCATION OF ALL ACCESS PANELS WITH TRADES REQUIRING THE SAME. ACCESS PANELS ARE SPECIFIED ARCHITECTURALLY BUT ARE REQUIRED TO BE PROVIDED BY EACH TRADE. ALL LOCATIONS MUST BE COORDINATED AND APPROVED BY THE ARCHITECTS FIELD REPRESENTATIVE.
- H. VERIFY QUANTITY, SIZE AND LOCATION OF ALL FLOOR, ROOF AND WALL OPENINGS FOR ALL DISCIPLINES INCLUDING BUT NOT RESTRICTED TO MECHANICAL AND ELECTRICAL WORK WITH THE APPROPRIATE TRADE. PROVIDE ALL OPENINGS SHOWN OR REQUIRED FOR THE COMPLETION OF THE WORK. PROVIDE ALL UNITS REQUIRED FOR THESE OPENINGS PER SPECIFICATIONS.
- I. REFER TO ARCHITECTURAL COVER SHEET A801 FOR WALL TYPE DETAILS.
- J. REFER TO SCHEDULE SHEET A800 FOR ROOM FINISH SCHEDULE W/ FINISH LEGEND & DOOR SCHEDULE WITH DOOR / FRAME ELEVATIONS & HARDWARE LEGEND.
- K. REFER TO STRUCTURAL DRAWINGS & SPECIFICATIONS FOR FOUNDATION & WALL / ROOF FRAMING PLANS, SCHEDULES & DETAILS.
- L. REFER TO MEP DRAWING & SPECIFICATIONS FOR PLUMBING, MECHANICAL & ELECTRICAL SYSTEM, FIXTURE & EQUIPMENT PLANS, SCHEDULES & DETAILS.
- M. RECESS FLOOR SLAB AT SHOWERS AS REQUIRED TO PROVIDE POSITIVE SLOPE TO DRAINS.

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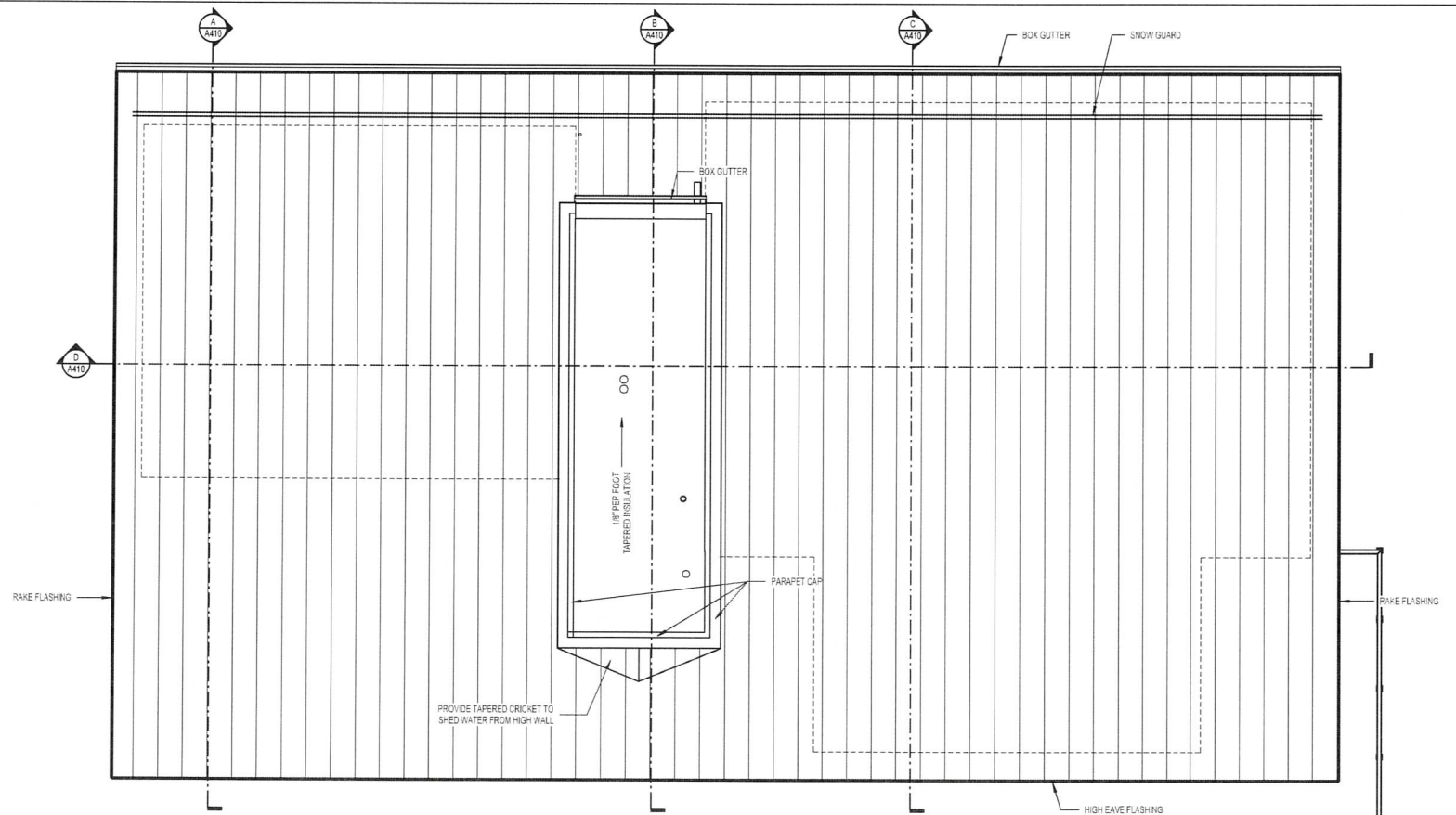
VILLAGE OF SUTTONS BAY
PUBLIC / MARINA COMFORT STATION
PO BOX 395, SUTTONS BAY, MI-49682
FIRST FLOOR PLAN

FOR CONSTRUCTION

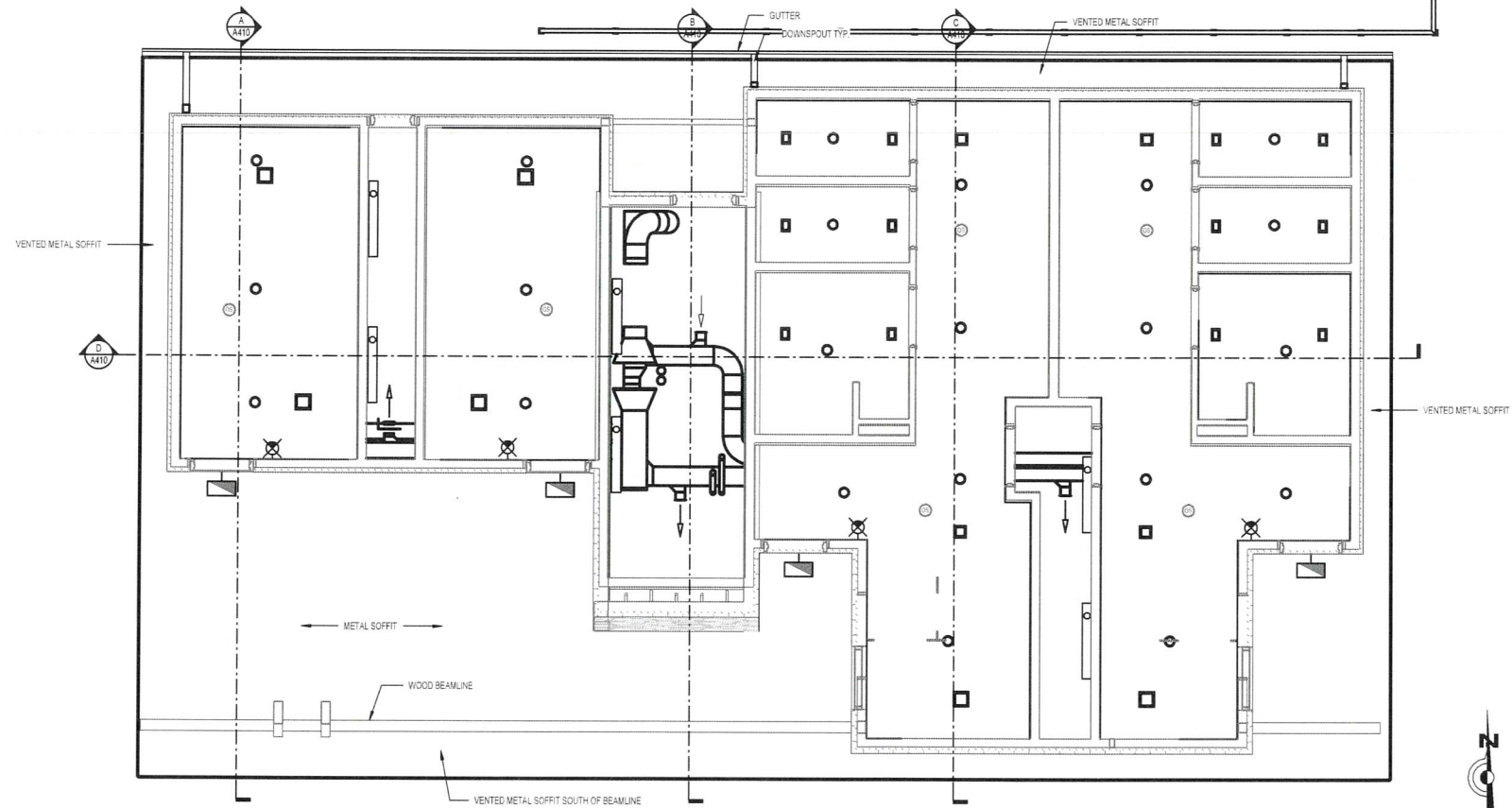
STATE OF MICHIGAN
ARVIN RIC DELACRUZ
ARCHITECT
No. 1301060203
LICENSED ARCHITECT

ISSUE DATE: 02/17/2026
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PROJECT NO: 24-1952
A110



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



1 REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

ROOF PLAN NOTES:

- A. SLOPED ROOFING TO BE 18" AEP SPAN-LOK HP IN 24 GA. W/ STANDARD STRIATIONS & COOL DURA TECH 6000 FINISH (COLOR FROM STANDARD OPTIONS) - PROVIDE ICE & WATER SHIELD MEMBRANE OVER ENTIRE PITCHED ROOF AREA. ALL STANDARD AEP SPAN EAVE, RAKE & FLASHING DETAILS W/ MATCHING COLOR TO ROOFING PANELS AS REQUIRED FOR COMPLETE INSTALLATION W/ MIN. 4" DEPTH OVER FASCIA - ANCHOR TO DECK AS REQUIRED FOR WIND CONDITIONS NOTED IN STRUCTURAL DRAWINGS
- B. AT SLOPED METAL ROOF PERIMETER, PROVIDE PRE-FINISHED ALUMINUM WRAPPED 1X12 FASCIA BOARD OVER SUB-FASCIA FRAMING - PROVIDE BLOCKING FOR SOFFIT ATTACHMENT AS REQUIRED
- C. AT SLOPED ROOF LOW EAVE PROVIDE 6" SQUARE .030 ALUMINUM BOX GUTTER W/ (3/4" SQUARE MATCHING DOWNSPOUTS (FINISH TO MATCH ROOFING) INCLUDING ALL REQUIRED ANCHORS & MOUNTING BRACKETS - ALSO PROVIDE SINGLE ROW OF DOUBLE BAR STANDING SEAM SNOW GUARDS (ALPINE OR EQUAL) 24" FROM LOW EAVE
- D. TOWER ROOF TO BE MECHANICALLY ATTACHED DURALAST DLS3 WHITE MEMBRANE ROOFING W/ 20 YEAR M/L WARRANTY - PROVIDE 1/8" PER FOOT TAPERED INSULATION TO GUTTER & DURALAST VAPOR BARRIER - PROVIDE ALL STANDARD DURALAST PERIMETER & FLASHING DETAILS AS REQUIRED FOR COMPLETE INSTALLATION
- E. PROVIDE .050 ALUMINUM SNAP ON 5" DEEP FLASHING CAP OVER TOWER PARAPET WALLS INCLUDING CONT. GALV. CLEATS ATTACHED TO TREATED WOOD BLOCKING AS REQUIRED - INCLUDE MATCHING FINISH FLASHING W/ SEALANT UNDER ALL BUTT JOINTS - ALSO PROVIDE 4" SQUARE .050 ALUMINUM BOX GUTTER W/ SINGLE 3" SQUARE MATCHING DOWNSPOUT (FINISH TO MATCH STANDING SEAM ROOFING) INCLUDING ALL REQUIRED ANCHORS & MOUNTING BRACKETS
- F. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER FLASHING OF ALL DRAINS, CURBS, VENT STACKS, ETC.
- G. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF PENETRATIONS, FLASH AS SPECIFIED
- H. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF ROOFTOP UNITS, CONTRACTOR TO PROVIDE FLASHING TIE-INS TO MEMBRANE AS REQUIRED
- I. SEE MECHANICAL DRAWINGS FOR ADDITIONAL OPENINGS, DETAILS OF SIMILAR OPENINGS REFERENCED ON THIS SHEET ARE APPLICABLE

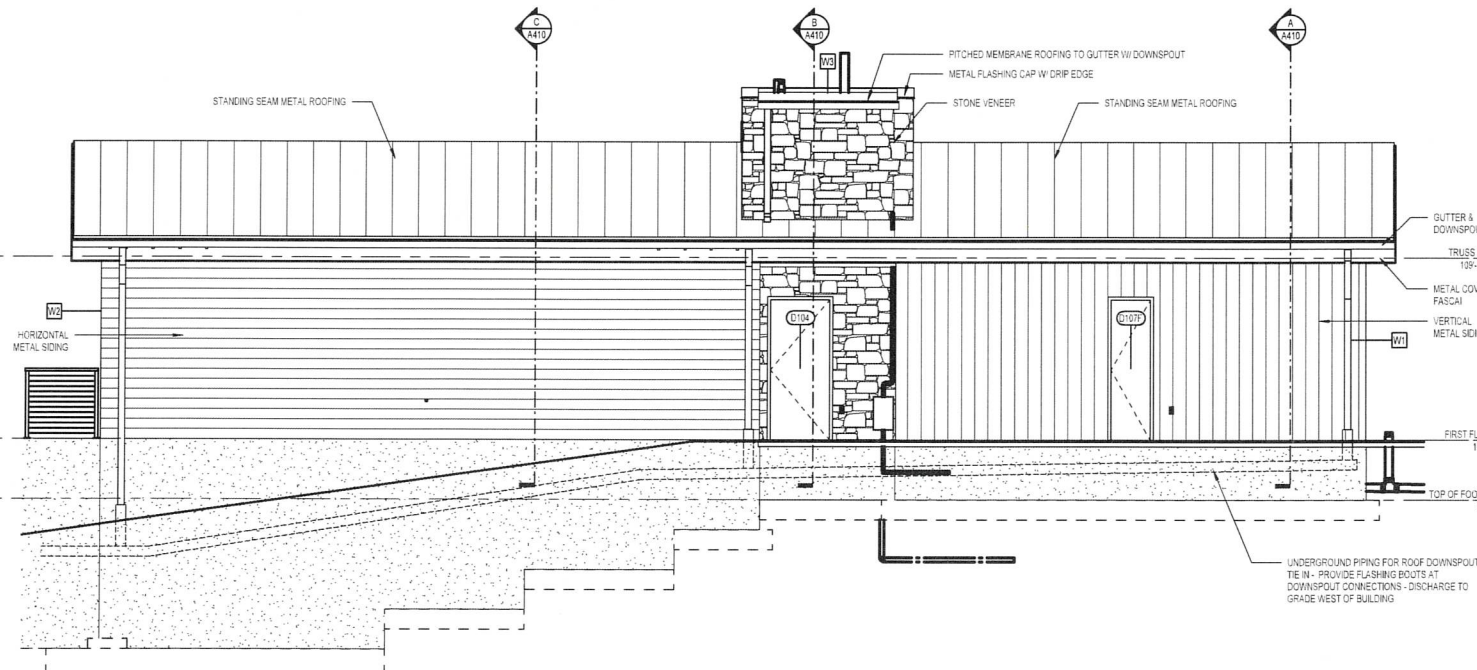
REFLECTED CEILING NOTES:

1. METAL SOFFIT TO BE PAC-CLAD PAC-750 ALUMINUM SOFFIT PANELS OR EQUAL IN SOLID & VENTED WHERE NOTED ON PLAN - FINISH FROM TIMBER SERIES WOOD GRAIN - PROVIDE MATCHING J-TRIM AT PERIMETER AS REQUIRED
2. REFER TO MECHANICAL & ELECTRICAL DRAWINGS FOR FIXTURE TYPES & EQUIPMENT REQUIREMENTS
3. COORDINATE SIZE AND LOCATION OF ANY ACCESS PANELS REQUIRED BY PLUMBING OR MECHANICAL DRAWINGS WITH ARCHITECT PRIOR TO INSTALLATION
4. PROVIDE BLOCKING ABOVE CEILING AS REQUIRED FOR MISCELLANEOUS SUSPENDED ITEMS

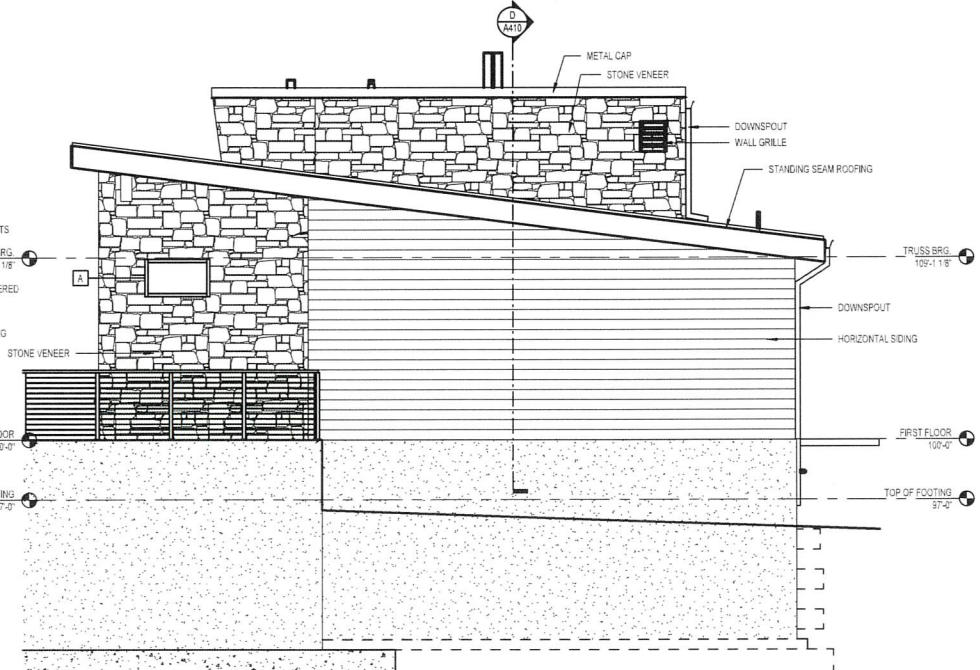
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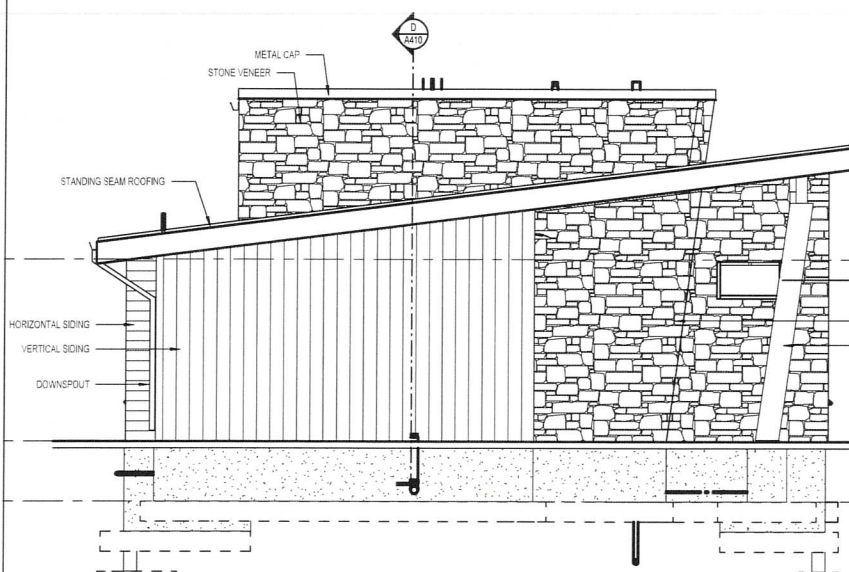
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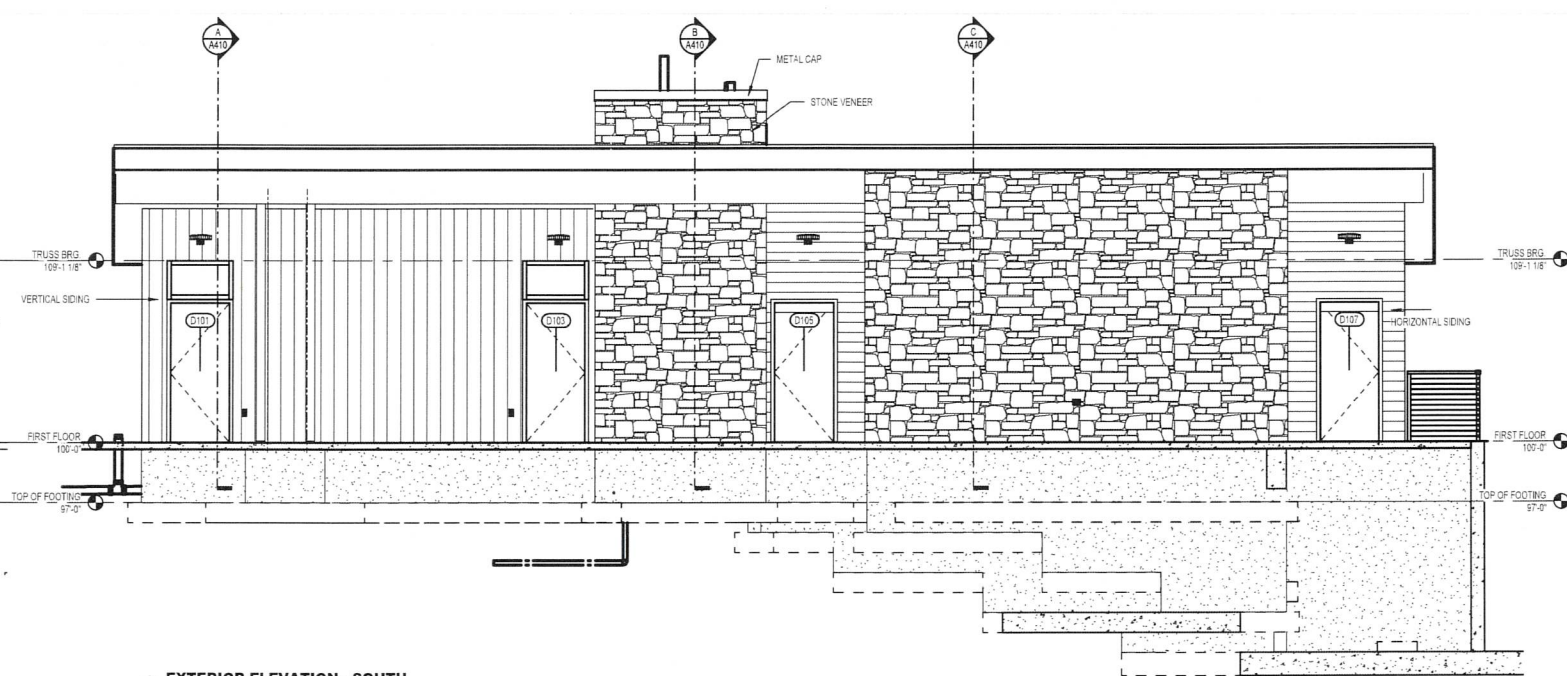
1 EXTERIOR ELEVATION - NORTH
SCALE: 1/4" = 1'-0"



2 EXTERIOR ELEVATION - EAST
SCALE: 1/4" = 1'-0"



4 EXTERIOR ELEVATION - WEST
SCALE: 1/4" = 1'-0"



3 EXTERIOR ELEVATION - SOUTH
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATION GENERAL NOTES:

- A. SEE WALL TYPES ON SHEET A801 FLOOR PLAN ON SHEET A110 FOR WALL TYPE LOCATIONS & WALL SECTIONS ON SHEETS A310 & A311 FOR ADDITIONAL EXTERIOR FINISH INFORMATION
- B. SEE ROOF PLAN ON SHEET A210 FOR ROOFING, FASCIA & SOFFIT INFORMATION
- C. VERTICAL METAL SIDING TO BE INDIANA METAL FLUSH FRONT IN 26 GA. BARNWOOD OR EQUAL
- D. HORIZONTAL METAL SIDING TO BE INDIANA METAL FLUSH FRONT IN 26 GA. KOKO BROWN OR EQUAL
- E. MANUFACTURED STONE VENEER TO BE CORANADO WEATHERED EDGE - NORTHLAND OR EQUAL - INSTALL PER STANDARD MFR DETAILS OVER INSULATED SHEATHING
- F. PROVIDE SEALANT BETWEEN ALL DISMILAR MATERIALS AND AT ALL LOCATIONS REQUIRED BY MFR SPECIFICATIONS

VILLAGE OF SUTTONS BAY
PUBLIC / MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI-49682
EXTERIOR ELEVATIONS

FOR CONSTRUCTION

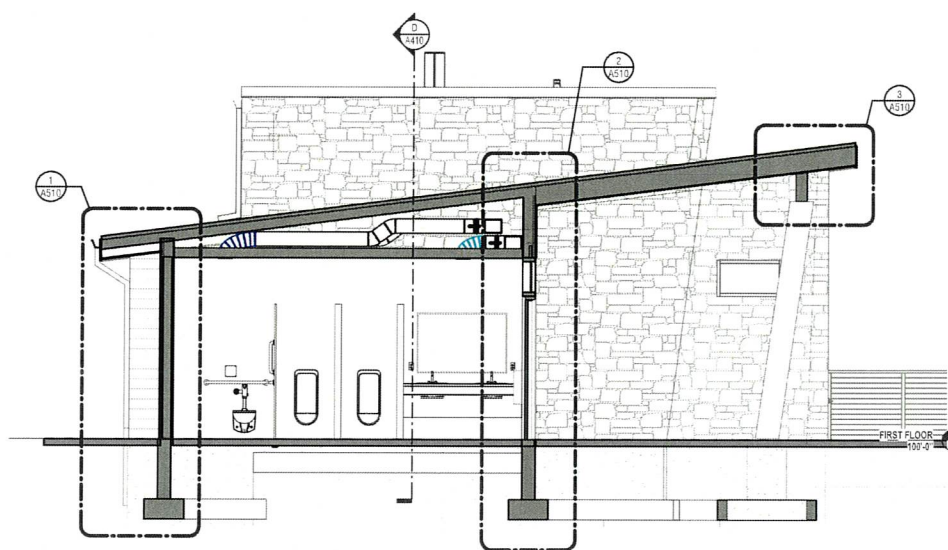


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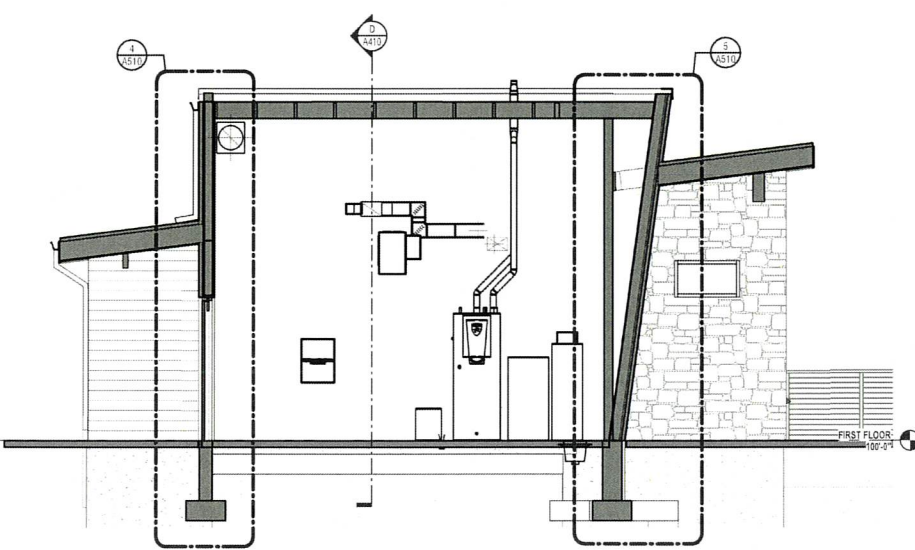
ISSUANCE / REVISION DATE
ORIGINAL SHEET IS 30"X42" USE DIMENSIONS
SHOWN, DO NOT SCALE DRAWINGS

PROJECT NO: 24-1952

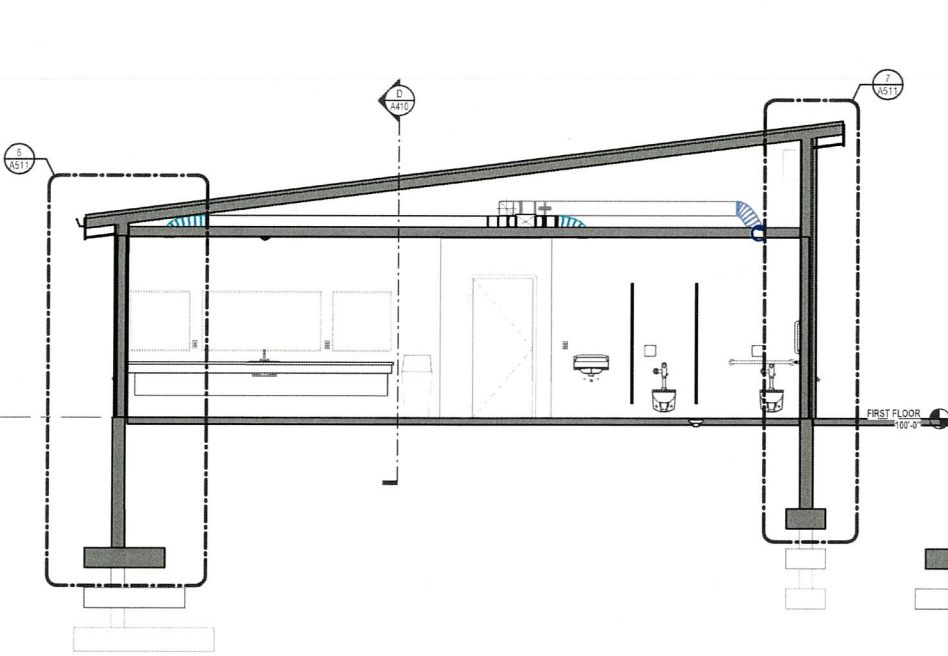
A310



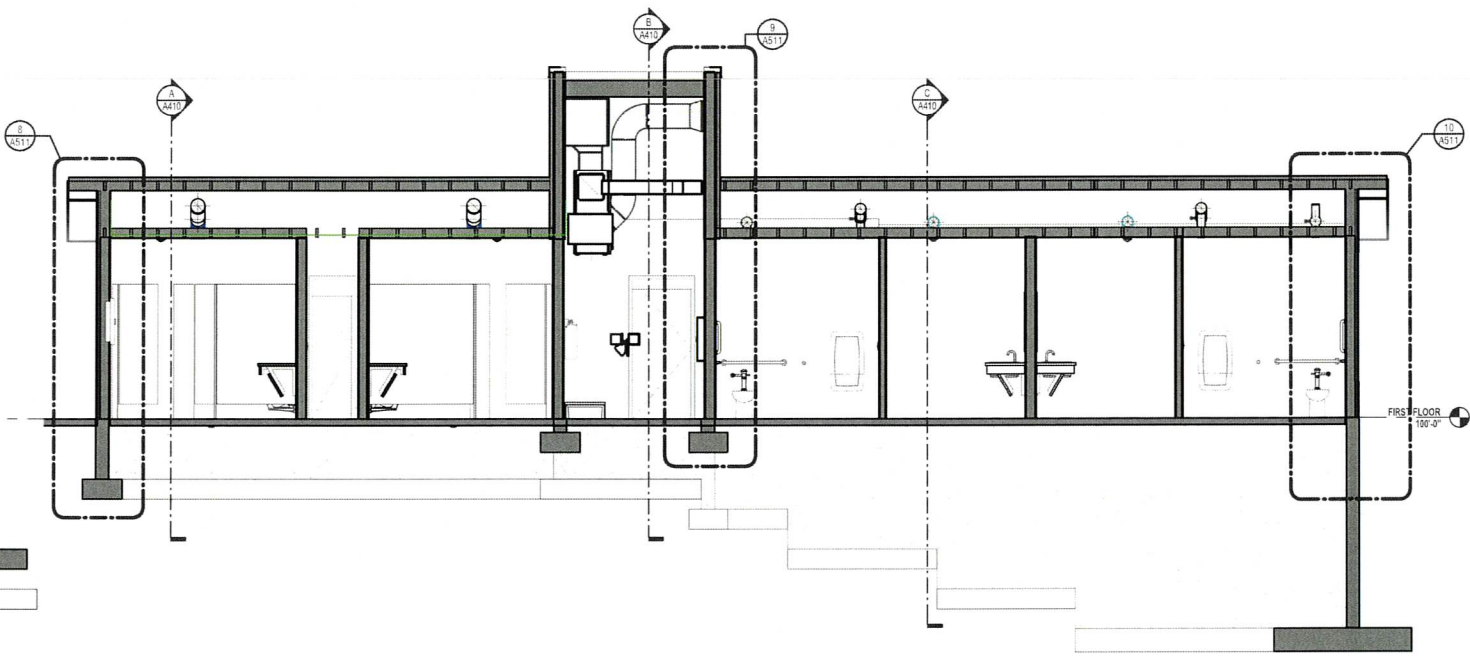
A BUILDING SECTION A
SCALE: 1/4" = 1'-0"



B BUILDING SECTION B
SCALE: 1/4" = 1'-0"



C BUILDING SECTION C
SCALE: 1/4" = 1'-0"



D BUILDING SECTION D
SCALE: 1/4" = 1'-0"

BUILDING SECTION GENERAL NOTES:

- A. SEE STRUCTURAL DRAWINGS FOR FOUNDATIONS & FRAMING INFORMATION
- B. SEE ENLARGED WALL SECTIONS FOR SPECIFIC CONSTRUCTION INFORMATION
- C. SEE EXTERIOR ELEVATIONS FOR ALL EXTERIOR MATERIALS & FINISHES
- D. SEE INTERIOR ELEVATIONS & ROOM FINISH SCHEDULE FOR ALL INTERIOR MATERIALS, FINISHES & ACCESSORIES
- E. COORDINATE WITH PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

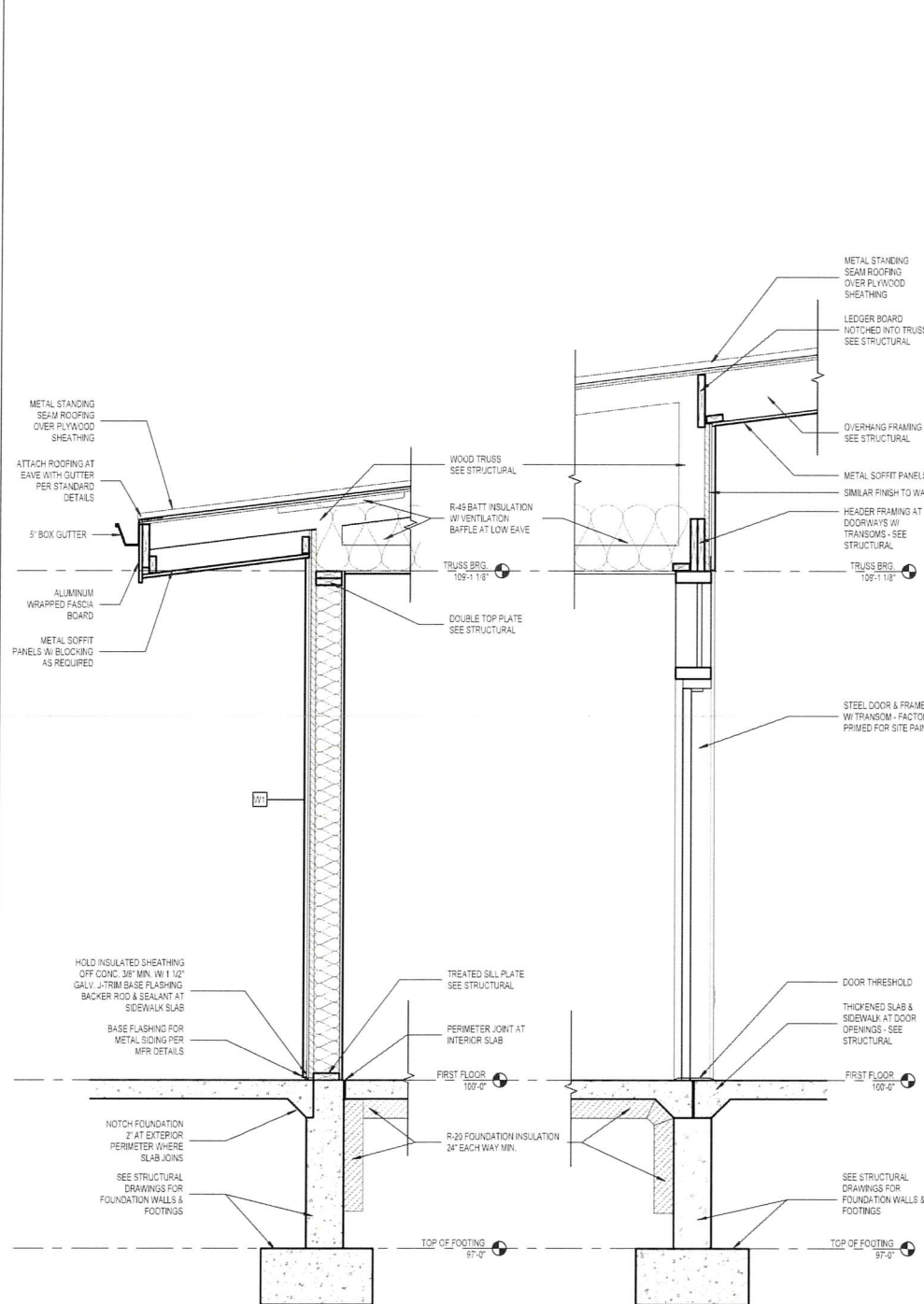
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VILLAGE OF SUTTONS BAY
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PO BOX 395, SUTTONS BAY, MI-49682
BUILDING SECTIONS

FOR CONSTRUCTION

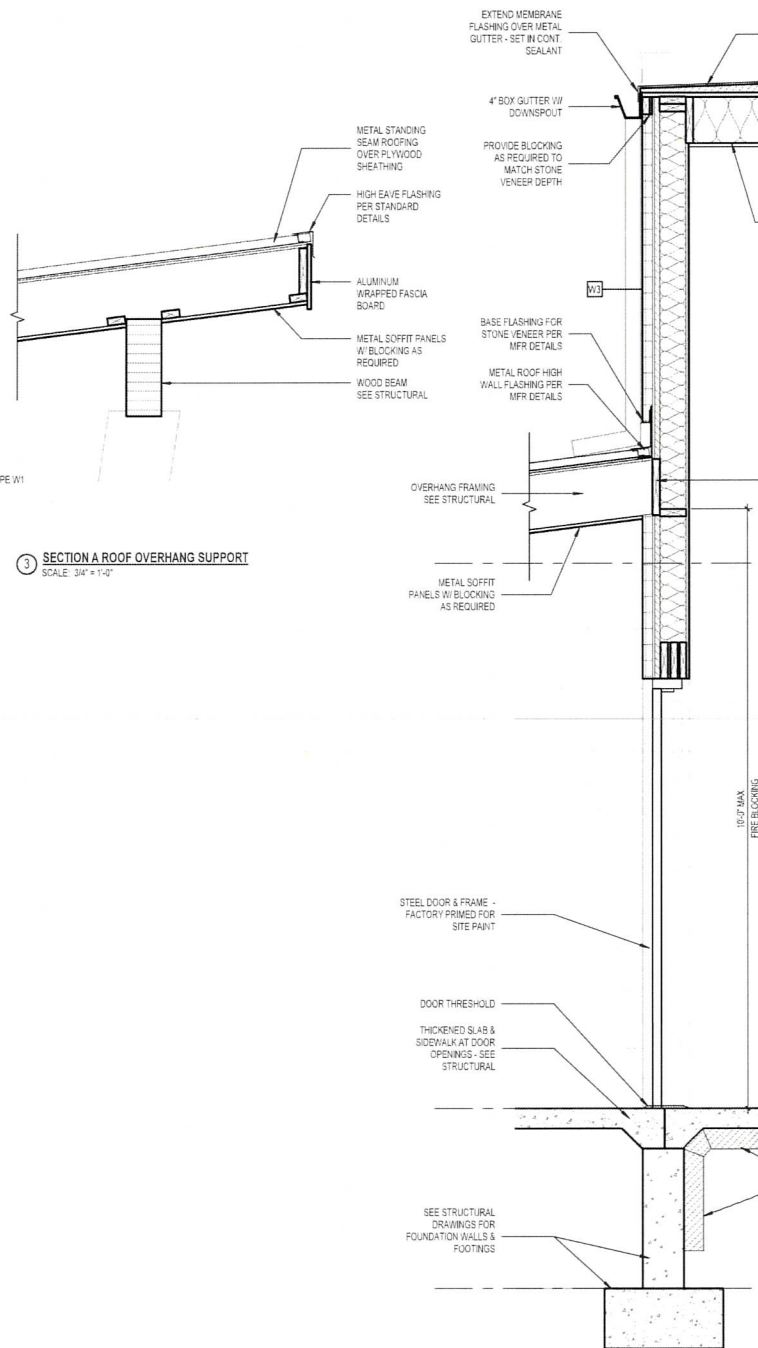
STATE OF MICHIGAN
ARVIN RIC DELACRUZ
ARCHITECT
No. 1301090203
LICENSED ARCHITECT
ISSUE DATE: 02/17/2025
PM: QA / QC:

ISSUANCE / REVISION DATE
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PROJECT NO: 24-1952
A410

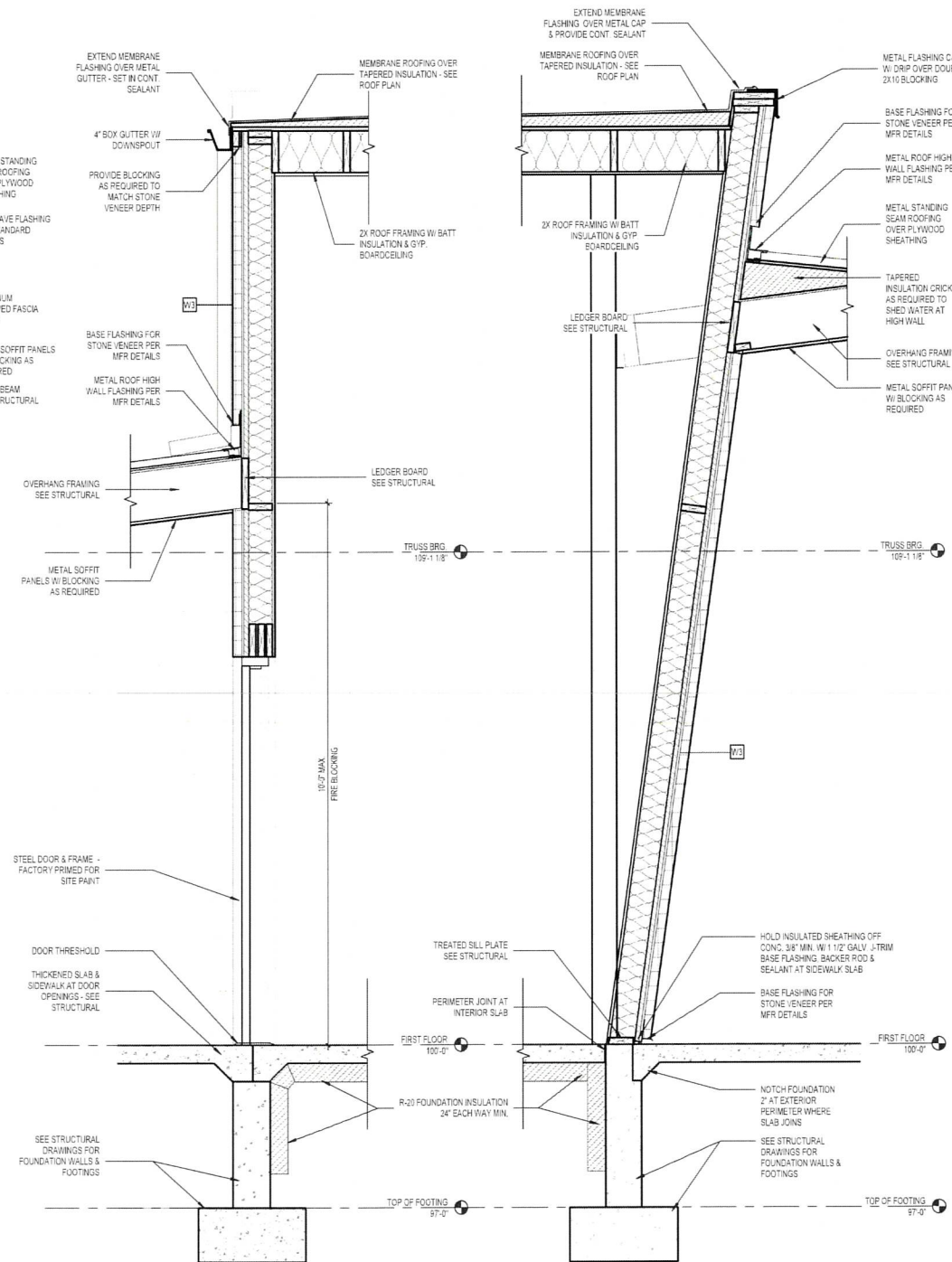


1 SECTION A - NORTH WALL
SCALE: 3/4" = 1'-0"

2 SECTION A - SOUTH WALL
SCALE: 3/4" = 1'-0"



3 SECTION A ROOF OVERHANG SUPPORT
SCALE: 3/4" = 1'-0"



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

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

VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI-49682

WALL SECTIONS

FOR CONSTRUCTION



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PM: QA / QC

PROJECT NO: 24-1952

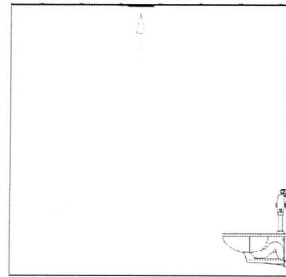
A510

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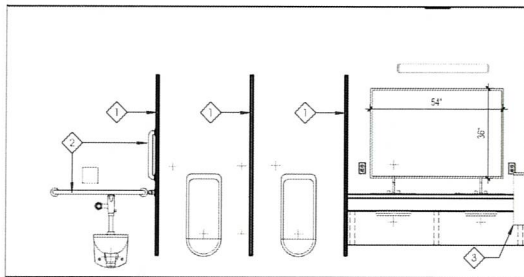
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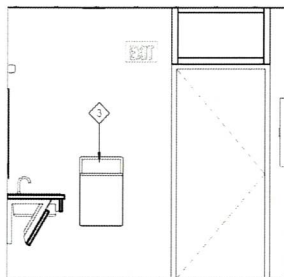
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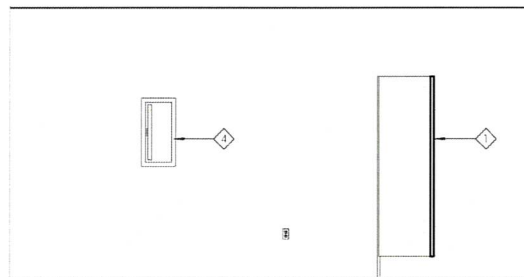
1 101 MEN'S RESTROOM - NORTH
SCALE: 3/8" = 1'-0"



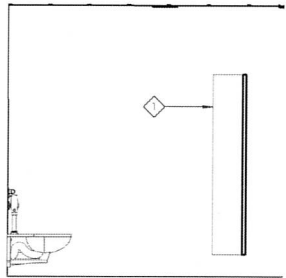
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SCALE: 3/8" = 1'-0"



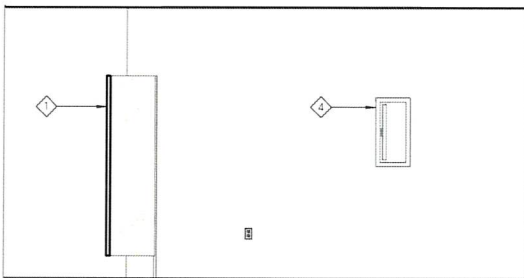
3 101 MEN'S RESTROOM - SOUTH
SCALE: 3/8" = 1'-0"



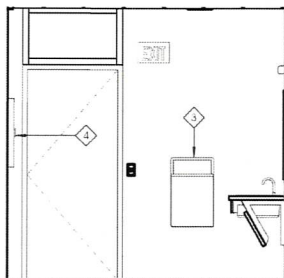
4 101 MEN'S RESTROOM - WEST
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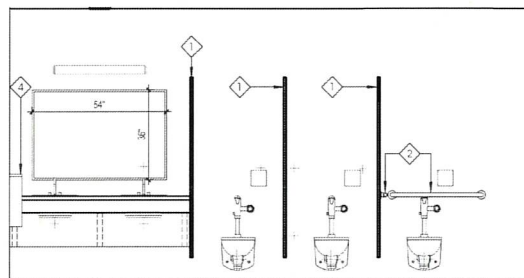
5 103 WOMEN'S RESTROOM - NORTH
SCALE: 3/8" = 1'-0"



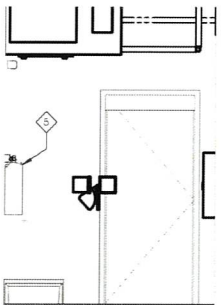
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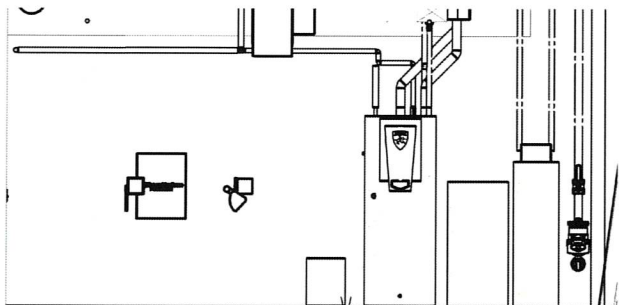
7 103 WOMEN'S RESTROOM - SOUTH
SCALE: 3/8" = 1'-0"



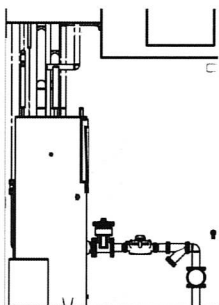
8 103 WOMEN'S RESTROOM - WEST
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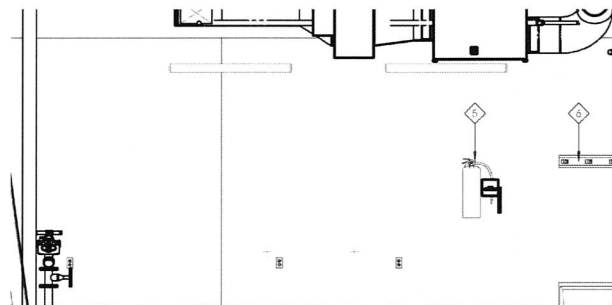
9 104 JANITOR / MECH. - NORTH
SCALE: 3/8" = 1'-0"



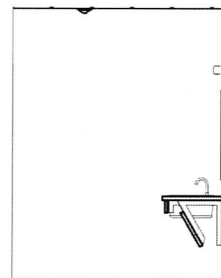
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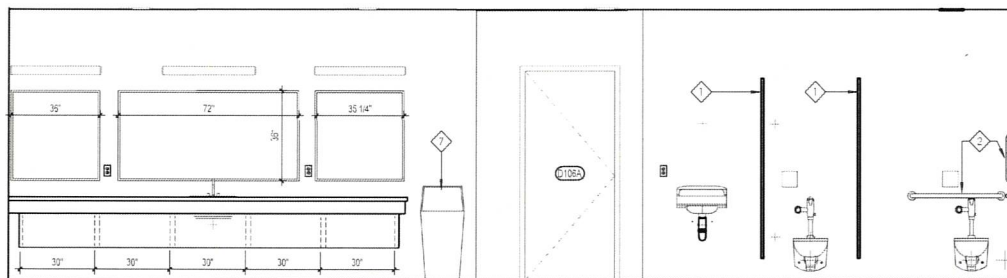
11 104 JANITOR / MECH. - SOUTH
SCALE: 3/8" = 1'-0"



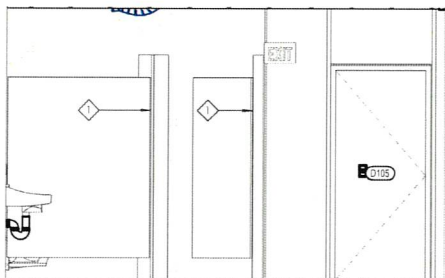
12 104 JANITOR / MECH. - WEST
SCALE: 3/8" = 1'-0"



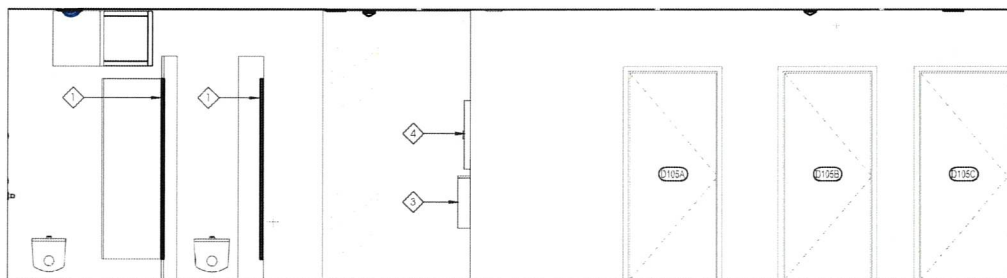
13 105 WOMAN'S SHOWERS - NORTH
SCALE: 3/8" = 1'-0"



14 105 WOMAN'S SHOWERS - EAST
SCALE: 3/8" = 1'-0"



15 105 WOMAN'S SHOWERS - SOUTH
SCALE: 3/8" = 1'-0"



16 105 WOMAN'S SHOWERS - WEST
SCALE: 3/8" = 1'-0"

GENERAL NOTES - INTERIOR ELEVATIONS

- A. BUILT-IN COUNTERS TO BE SOLID SURFACE MATERIAL - CORIAN PRICING GROUP 2 OR EQUAL - COLOR TBD FROM STANDARD OPTIONS - PROVIDE SOLID SURFACE VALANCE PANEL PER STANDARD DETAILS ON SHEET A001
- B. ADA TOILET STALL PARTITIONS LAYOUT TO MEET ALL ADA ACCESS REQUIREMENTS - PROVIDE BOBRICK B-233 COAT HOOK OR EQUAL ON BACK OF DOOR IN EACH STALL AT 48" AFF
- C. PROVIDE BOBRICK B-233 COAT HOOK OR EQUAL ON INSIDE FACE OF FAMILY RESTROOM DOORS 105A & 107A
- D. PROVIDE SHOWER CURTAINS W/ HOOKS AS REQUIRED FOR ALL LOCATIONS - BOBRICK 294-1 & J OR EQUAL

INTERIOR ELEVATION ACCESSORIES

TAG	ITEM	MANUFACTURER	MODEL NO.
1	TOILET PARTITIONS	BOBRICK	SIERRA SERIES SCRD 1999
2	ADA GRAS BARS	BOBRICK	B-5800 SERIES
3	WASTE RECEPTACLE	BOBRICK	B-43144
4	WALL MOUNT FIRE EXT.	ULINE	H-5800
5	WALL MOUNT FIRE EXT.	ULINE	H-5803
6	MOP HOOKS	BOBRICK	B-223 X 34
7	WASTE RECEPTACLE	BOBRICK	B-4270
8	BABY CHANGING TABLE	KOALA-KARE	K3331-00
9	SHOWER CURTAIN ROD	BOBRICK	B-4107
10	ADA SHOWER SEAT	BOBRICK	B-5193

ALL ITEMS NOTED SHALL BE "OR EQUAL"
SEE SHEET A001 FOR MOUNTING HEIGHT INFORMATION

VILLAGE OF SUTTONS BAY

PUBLIC / MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI-49682

INTERIOR ELEVATIONS

FOR CONSTRUCTION



ISSUE DATE: 02/17/2025
PM: QA / QC:

ISSUANCE / REVISION DATE
ORIGINAL SHEET IS 24" X 36" USE DIMENSIONS
SHOWN, DO NOT SCALE DRAWINGS

PROJECT NO: 24-1952

A610

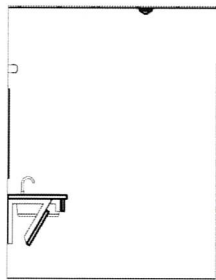
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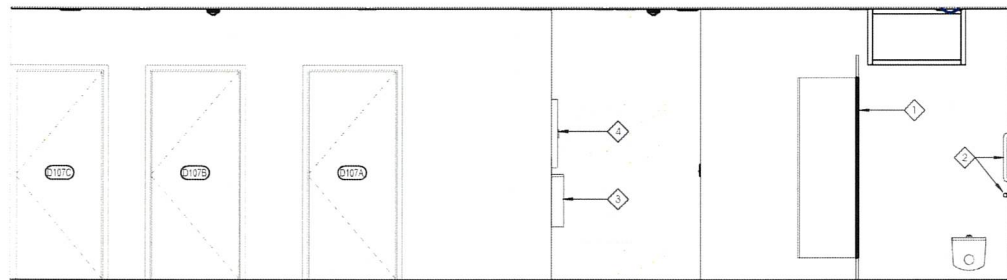
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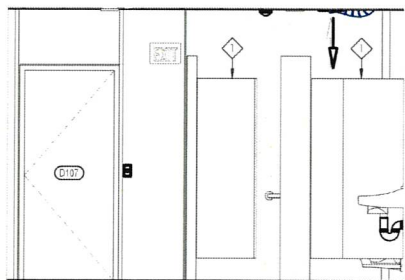
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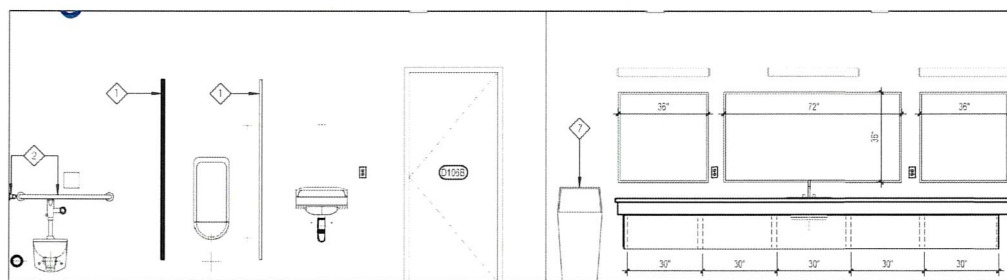
1 107 MEN'S SHOWERS - NORTH
SCALE: 3/8" = 1'-0"



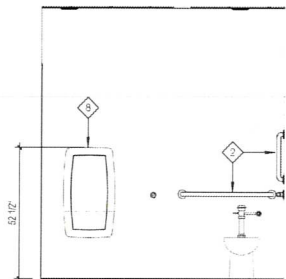
2 107 MEN'S SHOWERS - EAST
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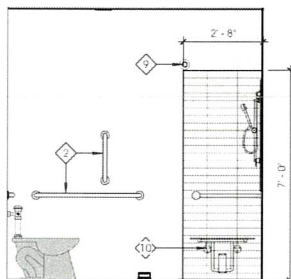
3 107 MEN'S SHOWERS - SOUTH
SCALE: 3/8" = 1'-0"



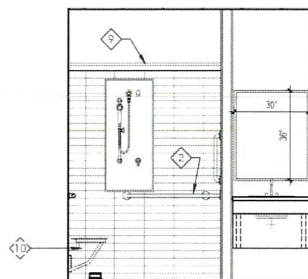
4 107 MEN'S SHOWERS - WEST
SCALE: 3/8" = 1'-0"



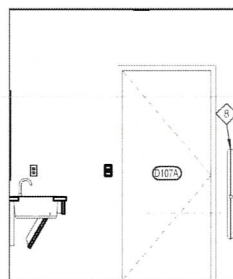
5 FAMILY SHOWER ROOM - NORTH
SCALE: 3/8" = 1'-0"



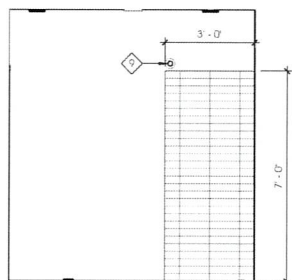
6 FAMILY SHOWER ROOM - EAST
SCALE: 3/8" = 1'-0"



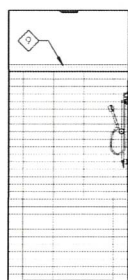
7 FAMILY SHOWER ROOM - SOUTH
SCALE: 3/8" = 1'-0"



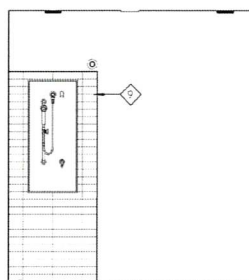
8 FAMILY SHOWER ROOM - WEST
SCALE: 3/8" = 1'-0"



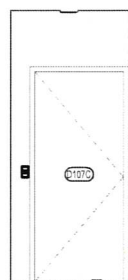
9 SHOWER ROOM - NORTH
SCALE: 3/8" = 1'-0"



10 SHOWER ROOM - EAST
SCALE: 3/8" = 1'-0"



11 SHOWER ROOM - SOUTH
SCALE: 3/8" = 1'-0"



12 SHOWER ROOM - WEST
SCALE: 3/8" = 1'-0"

GENERAL NOTES - INTERIOR ELEVATIONS

- A. BUILT-IN COUNTERS TO BE SOLID SURFACE MATERIAL - CORIAN PRICING GROUP 2 OR EQUAL - COLOR TBD FROM STANDARD OPTIONS - PROVIDE SOLID SURFACE VALANCE PANEL. PER STANDARD DETAILS ON SHEET A001
- B. ADA TOILET STALL PARTITIONS LAYOUT TO MEET ALL ADA ACCESS REQUIREMENTS - PROVIDE BOBRICK B-233 COAT HOOK OR EQUAL ON BACK OF DOOR IN EACH STALL AT 48" AFF
- C. PROVIDE BOBRICK B-233 COAT HOOK OR EQUAL ON INSIDE FACE OF FAMILY RESTROOM DOORS 105A & 107A
- D. PROVIDE SHOWER CURTAINS W/ HOOKS AS REQUIRED FOR ALL LOCATIONS - BOBRICK 204-1 & 3 OR EQUAL

INTERIOR ELEVATION ACCESSORIES			
TAG	ITEM	MANUFACTURER	MODEL NO.
1	TOILET PARTITIONS	BOBRICK	SIERRA SERIES SCRC 1099
2	ADA GRAB BARS	BOBRICK	B-5990 SERIES
3	WASTE RECEPTACLE	BOBRICK	B-43644
4	WALL MOUNT FIRE EXT	ULINE	H-5800
5	WALL MOUNT FIRE EXT	ULINE	H-5533
6	MOP HOOKS	BOBRICK	B-223 X 24
7	WASTE RECEPTACLE	BOBRICK	B-2250
8	BABY CHANGING TABLE	KCALA-KAPE	K3501-30
9	SHOWER CURTAIN ROD	BOBRICK	B-4107
10	ADA SHOWER SEAT	BOBRICK	B-5193

ALL ITEMS NOTED SHALL BE "OR EQUAL"
SEE SHEET A001 FOR MOUNTING HEIGHT INFORMATION

VILLAGE OF SUTTONS BAY
PUBLIC / MARINA COMFORT STATION
PO BOX 395, SUTTONS BAY, MI-49682
INTERIOR ELEVATIONS

FOR CONSTRUCTION



ISSUE DATE: 02/17/2025
PM: QA / QC:

ISSUANCE / REVISION: DATE
ORIGINAL SHEET IS 11x17" USE DIMENSIONS
SHOWN, ON NEXT SCALE DRAWINGS

PROJECT NO: 24-1952

A611

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DOOR HARDWARE:

GENERAL:
PROVIDE AND INSTALL FINISH HARDWARE THROUGHOUT THE WORK AS NEEDED FOR A COMPLETE INSTALLATION AND AS INDICATED ON DRAWINGS

SUBMITTALS:
PROVIDE PRODUCT DATA AND SCHEDULE FOR EACH TYPE OF PRODUCT.
• KEYING SCHEDULE SHALL BE PREPARED BY DISTRIBUTOR DETAILING OWNER'S FINAL KEYING INSTRUCTIONS FOR LOCKS.

QUALITY ASSURANCE:
PROVIDE DOOR HARDWARE LISTED BY UL OR INTERTEK TESTING SERVICES FOR ALL FIRE-RATED OPENINGS. LOCKS SHALL MEET ALL LOCAL AND FEDERAL ACCESSIBILITY REQUIREMENTS.

HARDWARE SCHEDULE:
ALL HARDWARE SHALL BE GRADE1

FINISHES:
BHMA 610 SATIN FINISHED STAINLESS STEEL

INSTALL HARDWARE ITEMS AT HEIGHTS RECOMMENDED BY THE DOOR AND HARDWARE INSTITUTE. EXCEPT AS SPECIFICALLY REQUIRED TO COMPLY WITH LOCAL CODES. INSTALL HARDWARE IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. SET UNITS LEVEL, PLUMB, AND TRUE

LOCKSETS:
ANSI A156.2 GRADE 1, BORED, CYLINDRICAL LOCKSETS, 23/4" STANDARD BACKSET. FURNISH LEVERS WITH ROSE AS SELECTED FROM MANUF. STANDARDS. BASIS OF DESIGN: SCHLAGE. FIELD VERIFY AND MATCH EXISTING BUILDING STANDARD

CYLINDERS:
ANSI A156.2 GRADE 1, 7 PIN TYPE INTERCHANGEABLE CORE TYPE, KEVED AS DIRECTED BY OWNER. BASIS OF DESIGN, BEST, FIELD VERIFY AND MATCH EXISTING BUILDING STANDARD.
COMPLY WITH OWNER'S INSTRUCTIONS FOR MASTER KEYING.

LATCHES AND LOCKS FOR MEANS OF EGRESS DOORS SHALL COMPLY WITH NFPA 101. LATCHES SHALL NOT REQUIRE MORE THAN 15 POUNDS PER FOOT TO RELEASE THE LATCH. LOCKS SHALL NOT REQUIRE USE OF A KEY, TOOL, OR SPECIAL KNOWLEDGE FOR OPERATION.

ELECTRIC STRIKES:
ANSI A156.5 RIM MOUNTED ELECTRIC STRIKES. BASIS OF DESIGN: DORMA ES95A X 320.

CLOSERS:
ANSI A156.4 SURFACE MOUNTED, OVERHEAD CONCEALED, FULL PACK AND PINION TYPE, WITH STEEL SPRING AND NON-FREEZING HYDRAULIC FLUID. BASIS OF DESIGN: DORMA 8915 X AF95 X 595.

HINGES:
BUTTS AND HINGES SHALL BE PER BHMA A156.1. PROVIDE FULL MORTISE TYPE. SUFFICIENT TO CLEAR TRIM PROJECTION WHEN DOOR SWINGS 180 DEGREES. 41/2" HEAVY WEIGHT TYP. FOR 1 3/4" DOORS. STAINLESS STEEL PIN (NON-REMOVABLE). BASIS OF DESIGN: IVEB.

KICK PLATES:
ANSI A156.5, 16 INCH HIGH BY 2 INCH LESS THAN DOOR WIDTH, MINIMUM .350 INCH STAINLESS STEEL. BASIS OF DESIGN: DOCKWOOD 469 X 320

WALL STOPS:
ANSI A156.1, GRADE 1, 21/2" WALL STOP WITH NO VISIBLE SCREWS. BASIS OF DESIGN: DOCKWOOD 469 X 320

THRESHOLDS:
MAXIMUM 1/2" HEIGHT. BASIS OF DESIGN: NATIONAL GUARD

ROOM FINISH SCHEDULE									
MARK	ROOM NAME	FLOOR		INTERIOR WALL FINISH				CEILING FINISH	NOTES
		FINISH	BASE	NORTH	EAST	SOUTH	WEST		
101	MEN'S PUBLIC RESTROOM	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	
102	CHASE	CONC	-	-	-	-	-	-	
103	WOMEN'S PUBLIC RESTROOM	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	
104	JANITOR / MECH.	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	
105	WOMEN'S MARINA SHOWERS	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	T1 ON SHOWER WALLS, T-2 ON FLOOR
105A	FAMILY SHOWER	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	T1 ON SHOWER WALLS, T-2 ON FLOOR
105B	SHOWER	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	T1 ON SHOWER WALLS, T-2 ON FLOOR
105C	SHOWER	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	T1 ON SHOWER WALLS, T-2 ON FLOOR
106	CHASE	CONC	-	-	-	-	-	-	
107	MEN'S MARINA SHOWERS	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	T1 ON SHOWER WALLS, T-2 ON FLOOR
107B	SHOWER	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	T1 ON SHOWER WALLS, T-2 ON FLOOR
107C	SHOWER	EP-1	EP-1	PT-1	PT-1	PT-1	PT-1	PT-1	T1 ON SHOWER WALLS, T-2 ON FLOOR

FINISHES LEGEND

KEY	MATERIAL	TYPE	PRODUCT	COLOR	FINISH	LOCATIONS	COMMENTS
PT-1	PAINT	HIGH PERFORMANCE ACRYLIC INTERIOR-GRADE COATING	SHERWIN WILLIAMS EMERALD INTERIOR ACRYLIC LATEX PAINT	TO BE SELECTED FROM STANDARD OPTIONS	2 COATS (BASE + TOPCOAT) SATIN SHEEN	INTERIOR DRYWALL SURFACES SEE ROOM FINISH SCHEDULE	
PT-2	PAINT	HIGH PERFORMANCE ACRYLIC EXTERIOR-GRADE COATING	SHERWIN WILLIAMS EMERALD URETHANE TRIM ENAMEL	TO BE SELECTED FROM STANDARD OPTIONS	2 COATS (BASE + TOPCOAT) SATIN SHEEN	METAL DOORS & FRAMES	
EP-1	EPOXY	CONCRETE FLOOR COATING W/ INTERGRAL BASE	POLYMER FLAKE	TO BE SELECTED FROM STANDARD OPTIONS	PIGMENTED BASECOAT FULL COVERAGE 1/8" FLAKES CLEAR TOPCOAT	INTERIOR SLAB-ON-GRADE FLOOR SEE ROOM FINISH SCHEDULE	CONCRETE SLAB MAY REQUIRE DIAMOND GRINDING FOR LEVELING - PRIMER & JOINT SEALER REQUIRED PRIOR TO BASE COAT - MAY INCLUDE SEALER COAT PRIOR TO PRIMER BASED ON SLAB MOISTURE CONTENT
T-1	TILE	DALTILE CERAMIC OR PORCELAIN WALL TILE	41/2" X12" WALL TILE, STACKED OR RUNNING BOND, TYP.	TO BE SELECTED FROM STANDARD OPTIONS	GROUT COLOR TBD	SHOWER WALLS	PROVIDE TILE BACKING BOARD BEHIND WALL TILE
T-2	TILE	ISLAND STONE MARBLE FLOOR TILE	"PEBBLE TILE" STYLE, "COBBLES" PATTERN, TUMBLED FINISH, MESH MOUNTED 12X12 NOM. SHEETS	TO BE SELECTED FROM STANDARD OPTIONS	GROUT COLOR TBD SEALANT PER MFR'S RECOMMENDATION	SHOWER FLOORS, TYP.	1/4" PER FOOT SLOPED MORTAR BED IN DEPRESSIONED SLAB-ON-GRADE.

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DOOR & OPENINGS SCHEDULE

MARK	DOOR				FRAME				FIRE RATING	GLASS	HARDWARE SET	REMARKS
	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH			
D101	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-2	STEEL	PT-2	N/A	SET 1	TRANSOM GLAZING
D103	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-2	STEEL	PT-2	N/A	SET 1	TRANSOM GLAZING
D104	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 2	
D105	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 3	
D105A	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 4A	OCCUPIED INDICATOR
D105B	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 4B	OCCUPIED INDICATOR
D105C	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 4B	OCCUPIED INDICATOR
D105A	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 5	
D105B	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 5	
D107	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 3	
D107A	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 4A	OCCUPIED INDICATOR
D107B	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 4B	OCCUPIED INDICATOR
D107C	3'-0"	7'-0"	1 3/4"	F-1	STEEL	PT-2	HM-1	STEEL	PT-2	N/A	SET 4B	OCCUPIED INDICATOR
D107F	2'-0"	7'-0"	1 3/4"	F-1	STEEL							
D107G	2'-0"	7'-0"	1 3/4"									

HARDWARE SET LEGEND

SET NO.	FIRE RATING	LOCKSET	ELECTRONIC ACCESS	CLOSER	HINGES	KICKPLATE	DOOR STOP	PERIMETER SEALS	SWEEP	THRESHOLD
1	N/A	PASSAGE	ELECTRIC STRIKE	INTERIOR ARM	3 SETS	PUSH SIDE	INTEGRAL TO CLOSER	WEATHER	SWEEP	THERMALLY BROKEN
2	N/A	STORAGE	N/A	N/A	3 SETS	PUSH SIDE	O.H.	WEATHER	SWEEP	THERMALLY BROKEN
3	N/A	ENTRY	KEYPAD	INTERIOR ARM	3 SETS	PUSH SIDE	INTEGRAL TO CLOSER	WEATHER	SWEEP	THERMALLY BROKEN
4A	N/A	PRIVACY W/IND.	N/A	N/A	3 SETS	PUSH SIDE	O.H.	N/A	N/A	N/A
4B	N/A	PRIVACY W/IND.	N/A	N/A	3 SETS	PUSH SIDE	WALL	N/A	N/A	N/A
5	N/A	STORAGE	N/A	N/A	3 SETS	N/A	O.H.	N/A	N/A	N/A

1/1/2025 02:29

GENERAL NOTES - INTERIOR FINISHES

A. ALL MATERIALS TO BE APPLIED / INSTALLED PER MFR. SPECIFICATIONS & INSTRUCTIONS

B. VERIFY ALL FINISHES ARE APPLIED TO MFR APPROVED SUBSTRATE INCLUDING ALL APPROVED CONDITIONS FOR APPLICATION INCLUDING, BUT NOT LIMITED TO, TEMPERATURE & MOISTURE CONTENT OF SUBSTRATE

GENERAL NOTES - DOORS, FRAMES & HARDWARE

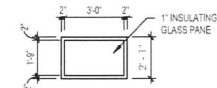
A. EXTERIOR & INTERIOR 16 GA. DOOR FRAMES TO BE STEELCRAFT F SERIES OR EQUAL W/ FULLY WELDED CORNERS & G-60 GALVANNEALED STEEL W/ FACTORY PRIMER. PROVIDE WOOD STUD ANCHORS PER MFR RECOMMENDATIONS

B. EXTERIOR 18 GA. STEEL FLUSH DOOR PANELS TO BE STEELCRAFT L SERIES OR EQUAL W/ POLYURETHANE INSULATED CORE, G-60 GALVANNEALED STEEL W/ FACTORY PRIMER

C. INTERIOR 18 GA. STEEL FLUSH DOOR PANELS TO BE STEELCRAFT L SERIES OR EQUAL W/ STANDARD HONEYCOMB CORE, G-60 GALVANNEALED STEEL W/ FACTORY PRIMER

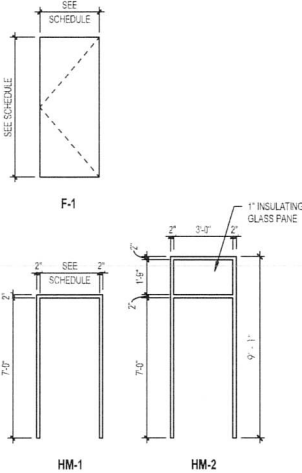
D. DOOR FRAME HM-2 TRANSOM & WINDOW & GLAZING TO BE PILKINTON OR EQUAL 1" CLEAR INSULATING TEMPERED SAFETY GLAZING PANE W/ LOW E COATING ON ONE INNER FACE & ARGON FILL

WINDOW TYPE LEGEND



TYPE A

DOOR PANEL & FRAME LEGEND



FOR CONSTRUCTION



ISSUE DATE: 02/17/2025

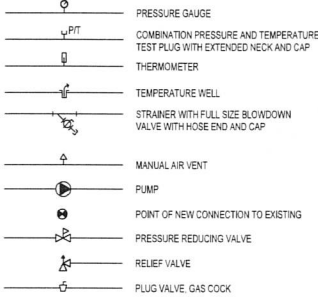
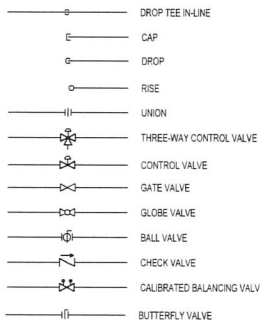
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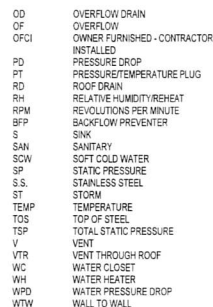
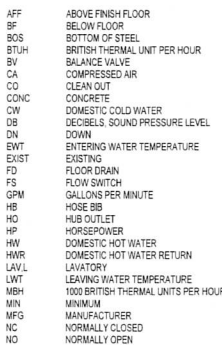
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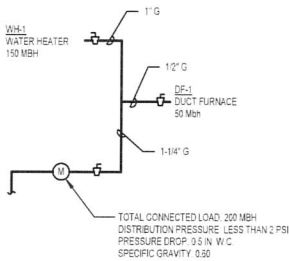
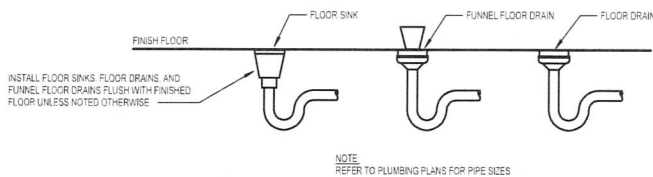
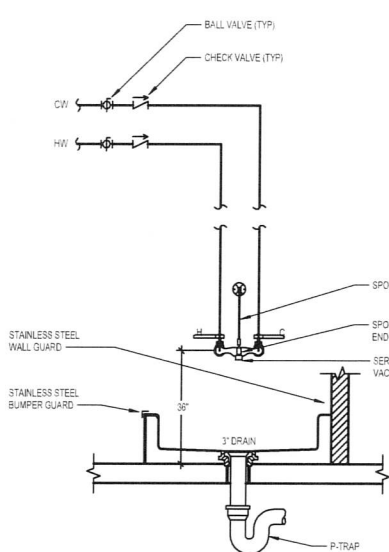
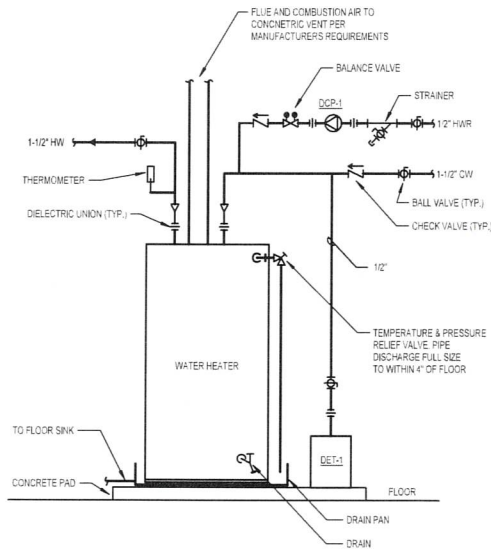
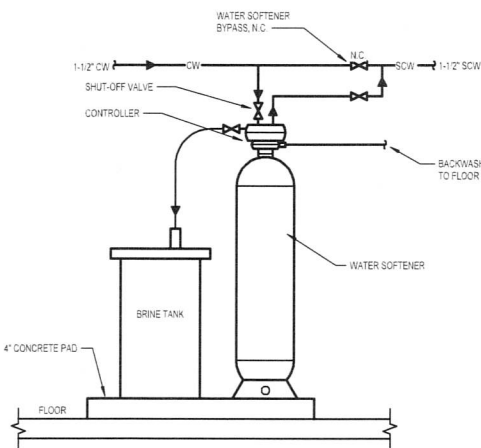


ABBREVIATIONS:



GENERAL CONTRACTOR REQUIREMENTS:

- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND LAWS.
- ARRANGE AND PAY FOR ALL PERMITS AND INSPECTIONS AS REQUIRED.
- MAKE ARRANGEMENTS WITH AND PAY ALL CHARGES REQUIRED BY UTILITY COMPANIES FOR WATER AND SEWER SERVICES.
- ALL WORK SHALL BE PERFORMED TO FACILITATE EXPEDITIOUS PROGRESS ON THE WHOLE PROJECT. COORDINATE WORK WITH OTHER TRADES TO MINIMIZE AND RESOLVE POTENTIAL CONFLICTS.
- COMPLETED SYSTEM SHALL BE TESTED, BALANCED, AND GUARANTEED.
- PROVIDE A GAS SHUTOFF VALVE AND DIRT LEG AT EACH PIECE OF GAS FIRED EQUIPMENT.
- THE DRAWINGS ARE DIAGNOSTIC IN NATURE. THE CONTRACTOR SHALL PROVIDE FITTINGS, OFFSETS, ETC., AS NECESSARY TO PROPERLY COMPLETE THE INSTALLATION OF THE SYSTEMS.
- CONTRACTOR TO FURNISH AND INSTALL WATER HAMMER ARRESTERS AT EACH VALVED FIXTURE.
- ALL PIPES PASSING THRU FINISHED WALLS, PARTITIONS AND FLOORS SHALL BE FITTED WITH ADJUSTABLE ESCUTCHEONS AND APPROPRIATE FIRE TOPPING WHERE REQUIRED.
- FURNISH AND INSTALL ALL VALVING FOR THE PROPER SECTIONALIZING AND OPERATION OF THE PIPING SYSTEM.
- LAYOUT PLUMBING WORK TO AVOID CONFLICTS WITH OTHER BUILDING COMPONENTS. ESTABLISH ELEVATION OF PUBLIC SEWER SYSTEM.
- WHERE FIXTURES ARE MOUNTED TO WALLS SEAL ALL INTERSECTIONS WITH SILICONE CAULK.
- IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY DETAIL OF CONSTRUCTION. CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS NECESSARY FOR A COMPLETE CODE COMPLYING MECHANICAL SYSTEM TO BE IN PROPER WORKING ORDER.
- PROVIDE APPROPRIATE FIRE STOPPING MATERIALS WHERE FIRE RATED ASSEMBLIES ARE PENETRATED.
- MATERIALS EXPOSED WITHIN A PLENUM SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84. EXISTING AND NEW PVC PIPING WILL REQUIRE 1/2 INCH MINERAL FIBER INSULATION WITH VAPOR RETARDER FACING THAT MEETS ASTM E84.
- CONTROLS MECHANICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONDUIT AND WIRING FOR LOW VOLTAGE AND LINE VOLTAGE REQUIREMENTS FOR PROPER FUNCTION AND COMMUNICATION OF EQUIPMENT.

5 NATURAL GAS SCHEMATIC
SCALE: NONE5 FLOOR DRAIN AND FLOOR SINK INSTALLATION DETAIL
SCALE: NONE4 MOP BASIN DETAIL
SCALE: NONE3 WATERHEATER DETAIL
SCALE: NONE2 WATER SOFTENER DETAIL
SCALE: NONE

WATER HEATER							
MARK	MODEL	SERVICE	STORAGE	GPH REC	INPUT MBH	VP	REMARKS
WH-1	SWR150	NATURAL GAS	90 GALLONS	175	150,000	1201	12

1. BASED ON "LOCHINVAR".
2. PROVIDE WITH DISCONNECT. DRAIN PAN, CONCENTRIC VENT KIT AND CONDENSATE NEUTRALIZATION KIT.

PLUMBING EQUIPMENT LIST

- DCF-1 DOMESTIC CIRCULATOR PUMP
MANUFACTURER: BELL & GOSSETT
MODEL: NSF-8SLW
FLOW: 1 GPM
HEAD: 3 FEET
RPM: 2800
PIPE SIZE: 1/2"
ELECTRICAL: 125 WATTS, 0.4 FLA, 120V
CONTROLS: PROVIDE AUTOMATIC THERM TC-1 AND
AQUASTAT AQ5-12
- DET-1 DOMESTIC EXPANSION TANK
MANUFACTURER: BELL & GOSSETT
MODEL: PT-12
VOLUME: 4.4 GALLONS
ACCEPTANCE: 3.2 GALLONS
- WS-1 WATER SOFTENER
MANUFACTURER: PEERLESS
MODEL: 18 TCOMWS-1-10"
CAPACITY: 150,000 GRAINS
PIPE SIZE: 1-1/2"
SERVICE FLOW RATE: 35 GPM
PEAK FLOW RATE: 37 GPM
BACKWASH RATE: 9 GPM
MEDIA: 5 CU. FT. RESIN
CONTROL CENTER: WS-1-1/2" - PISTON TYPE
VP: 1201

FOR CONSTRUCTION



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ORIGINAL SHEET IS 24" X 36"

DO NOT SCALE DRAWINGS

PROJECT NO: 24-1952

P001



Surveying
Engineering
Architecture

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VILLAGE OF SUTTONS BAY

SUTTONS BAY MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI 49682

PLUMBING SCHEDULES AND DETAILS

DIVISON 22 - PLUMBING SPECIFICATIONS

SECTION 220500 - COMMON WORK RESULTS FOR PLUMBING

- A. LAYOUT PLUMBING WORK TO AVOID CONFLICTS WITH OTHER BUILDING COMPONENTS. ESTABLISH ELEVATION OF PUBLIC SEWER SYSTEM TO INSURE NOT LESS THEN CODE MINIMUM COVER.
- B. FURNISH AND INSTALL ALL VALVING FOR THE PROPER SECTIONALIZING AND OPERATION OF PIPING SYSTEMS. PROVIDE ACCESS PANELS AS REQUIRED FOR ACCESS TO VALVES. COORDINATE ACCESS PANEL LOCATIONS AS REQUIRED.
- C. INSTALL SLEEVES FOR PIPING PASSING THROUGH PENETRATIONS IN FLOORS, PARTITIONS, ROOFS, AND WALLS.
- D. INSTALL SLEEVE-SEAL SYSTEMS IN SLEEVES IN EXTERIOR CONCRETE WALLS AND SLABS-ON-GRADE AT SERVICE PIPING ENTRIES INTO BUILDING. TIGHTEN BOLTS AGAINST PRESSURE PLATES THAT CAUSE SEALING ELEMENTS TO EXPAND AND MAKE A WATERTIGHT SEAL.
- E. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS.
- F. INSTALL ADJUSTABLE ESCUTCHEONS ON ALL PIPES PASSING THROUGH FINISHED WALLS, PARTITIONS AND FLOORS.

SECTION 220510 - METERS AND GAGES FOR PLUMBING PIPING

- A. THERMOMETERS SHALL BE LIQUID IN GLASS METAL-CASE. COMPACT OR STANDARD SIZE GRADUATED WITH DEG F. STANDARD ASME B45.200. CONNECTOR SHALL BE 1/2" ASME B1.1 SCREW THREADS. ACCURACY TO PLUS MINUS 1 PERCENT. SCALE RANGE 0-250 DEG F. AND 0-150 DEG C.
- B. PRESSURE GAUGES SHALL BE DIRECT MOUNTED METAL CASE DIAL TYPE. CAST ALUMINUM OR DRAWN STEEL. 4-1/2" INCH DIAMETER. STANDARD ASME B45.100. CONNECTION BRASS ASME B1.20.2 PIPE THREADED. ACCURACY GRADE B. PLUS OR MINUS 2 PERCENT. SCALE RANGE 0-100 PSI.
- C. INSTALL THERMOMETERS, AND PRESSURE GAUGES WERE INDICATED ON DRAWINGS.

SECTION 220520 - GENERAL DUTY VALVES FOR PLUMBING PIPING

- A. BALL VALVES SHALL BE BRONZE. TWO PIECE FULL PORT. AND BRONZE OR BRASS TRIM. THREADED. SOLDERED OR PRESSED ENDS FOR POTABLE WATER SYSTEMS. STANDARD MSS SP-110. MSS SP-145.
- B. CHECK VALVES SHALL BE BRONZE LIFT OR BRONZE SWING TYPE WITH NONMETALLIC DISC. CLASS 125. THREADED. SOLDERED OR PRESSED ENDS. STANDARD MSS SP-40. TYPE 2.
- C. INSTALL SHUT-OFF VALVES TO ISOLATE EQUIPMENT, PARTS OF SYSTEMS AND VERTICAL RISERS, OR AS INDICATED ON THE DRAWINGS.
- D. INSTALL VALVES IN POSITION TO ALLOW FULL VALVE ACTUATION MOVEMENT.
- E. INSTALL VALVES WITH UNIONS, FLANGES OR COUPLINGS. ARRANGE TO ALLOW SPACE FOR SERVICE AND EQUIPMENT REMOVAL WITHOUT SYSTEM SHUT DOWN.
- F. INSTALL SINKING CHECK VALVES IN HORIZONTAL PIPING AND LIFT CHECK VALVES IN VERTICAL PIPING.
- G. PROVIDE ACCESS WHERE VALVES ARE NOT EXPOSED. COORDINATE SIZE AND LOCATION OF ACCESS DOORS WITH GENERAL CONTRACTOR.

SECTION 220525 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

- A. CONFORM TO ASME B31.3 ASTM F708.
- B. METAL PIPE HANGER INSTALLATION: COMPLY WITH MSS SP-49 AND MSS SP-49. INSTALL HANGERS, SUPPORTS, CLAMPS AND ATTACHMENTS AS REQUIRED TO PROPERLY SUPPORT PIPING FROM THE BUILDING STRUCTURE.
- C. HANGERS FOR COLD PIPE SIZES 2 INCHES AND LARGER. CARBON STEEL. ADJUSTABLE. CLEVIS.
- D. MULTIPLE OR TRAPEZE HANGERS. STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
- E. VERTICAL SUPPORT. STEEL RISER CLAMP.
- F. FLOOR SUPPORT FOR COLD PIPE. CAST IRON ADJUSTABLE PIPE SADDLE. LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
- G. INSTALL HANGERS AND SUPPORTS COMPLETE WITH NECESSARY ATTACHMENTS. INSERTS. BOLTS. RODS. NUTS. WASHERS. AND OTHER ACCESSORIES.
- H. INSTALL IN ACCORDANCE WITH ASME B31.1 ASME B31.5 ASME 31.5.
- I. INSTALL HANGERS WITH MINIMUM 1/4" INCH SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.
- J. PLACE HANGERS WITHIN 12 INCHES OF EACH HORIZONTAL ELBOW.
- K. USE HANGERS WITH 1-1/2 INCH MINIMUM VERTICAL ADJUSTMENT.
- L. PIPE HANGER SPACING SHALL BE PER CODE REQUIREMENTS.

SECTION 220540.13 - VIBRATION CONTROLS FOR PLUMBING PIPING AND EQUIPMENT

- A. PROVIDE VIBRATION-CONTROL DEVICES FOR SYSTEMS AND EQUIPMENT WERE INDICATED IN EQUIPMENT SCHEDULES. DRAWINGS, OR WHERE THE SPECIFICATIONS INDICATE THEY ARE TO BE INSTALLED ON SPECIFIC EQUIPMENT AND SYSTEMS.

SECTION 220550 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

- A. PROVIDE EQUIPMENT LABELS FOR EACH PIECE OF SCHEDULED EQUIPMENT. UNIT NAME SHALL MATCH EQUIPMENT MARK ON SCHEDULE. EQUIPMENT TAG SHALL BE PLASTIC, OR METAL FASTENED WITH RIVETS. SELF-TAPPING SCREWS OR CONTACT TYPE PERMANENT ADHESIVE. COMPATIBLE WITH LABEL AND SUBSTRATE.
- B. PROVIDE MANUFACTURED PIPE LABELS INDICATING PIPE SIZE, SYSTEM ABBREVIATION AND FLOW DIRECTION. INSTALL PIPE LABELS WITHIN THREE FEET OF EACH VALVE OR PIECE OF EQUIPMENT AND SPACED AT MAXIMUM INTERVALS OF 25 FEET.
- C. PROVIDE VALVE TAGS WITH SYSTEM ABBREVIATION AND SIZE WITH BRASS OR ALUMINUM TAG. FASTEN WITH BRASS WIRE OR BEADED CHAIN.
- D. SIZE LETTERS IN ACCORDANCE WITH ASME A13.1 FOR PIPING.
- E. SIGN AND LABEL COLORS: WHITE LETTERS ON ANSI Z55.1 SAFETY-GREEN BACKGROUND.

SECTION 220710 - PLUMBING PIPING INSULATION

- A. PROVIDE INSULATION TO MEET ASHRAE 90.1-2013.
- B. INSTALL INSULATION MATERIALS, FORMS, VAPOR BARRIERS OR RETARDERS, JACKETS, AND THICKNESSES REQUIRED FOR EACH ITEM OF PIPE SYSTEM AS SPECIFIED.
- C. DOMESTIC COLD WATER, GLASS-FIBER, PREFORMED PIPE INSULATION, TYPE I, OR MINERAL WOOL, PREFORMED PIPE INSULATION, TYPE II, THICKNESS 1/2" FOR NPS 1 AND SMALLER, 1" FOR NPS 1-1/4" AND LARGER.
- D. DOMESTIC HOT AND RECIRCULATED HOT WATER, GLASS-FIBER, PREFORMED PIPE INSULATION, TYPE I, OR MINERAL WOOL, PREFORMED PIPE INSULATION, TYPE II, THICKNESS 1 INCH THICK NPS 1-1/4" OR SMALLER, 1-1/2" FOR NPS 1-1/2" AND LARGER.
- E. FACTORY APPLIED JACKETS: ASJ, WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCREW WITH ALUMINUM-FOL, BACKING: COMPLYING WITH ASTM C1135, TYPE I.
- F. FIELD APPLIED JACKETS: PVC JACKET, HIGH-IMPACT-RESISTANT, UV-RESISTANT PVC COMPLYING WITH ASTM D1784, CLASS 1535A. C. ADHESIVE AS RECOMMENDED BY JACKET MANUFACTURER. COLOR: WHITE. PROVIDE WITH FACTORY FABRICATED FITTINGS.
- G. INSTALL FIELD APPLIED JACKETS ON EXPOSED PIPING.
- H. INSULATE PIPING, EQUIPMENT, VALVES, AND PIPING SPECIALTIES.
- I. INSULATION INSTALLED INDOORS: FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS.
- J. INSULATE FITTINGS USING PREFORMED FITTINGS INSULATION OR SECTIONAL PIPE INSULATION OF SAME MATERIAL, DENSITY, AND THICKNESS AS USED FOR ADJACENT PIPE.
- K. KEEP INSULATION MATERIALS DRY DURING APPLICATION AND FINISHING.
- L. APPLY ADHESIVES, MASTICS, AND SEALANTS AS MANUFACTURERS RECOMMENDATIONS.

SECTION 221000 - PLUMBING PIPING

- A. ABOVE GROUND DOMESTIC HOT AND COLD WATER PIPING, TYPE 1/2" HARD DRAWN COPPER TUBING, ASTM B68. SOLDERED OR PRESSED.
- B. BELOW GROUND DOMESTIC HOT AND COLD WATER PIPING, PRE-INSULATED PEX.
- C. DRAIN, VENT, AND WASTE PIPING, SCHEDULE 40W PVC (SCH 40) OR CAST IRON.
- D. INSTALL NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINING DISSIMILAR METALS.
- E. ROUTE PIPING IN ORDERLY MANNER AND MAINTAIN GRADIENT.
- F. ESTABLISH INVERT ELEVATIONS, SLOPES FOR DRAINAGE AND STOP PIPING 1/8 INCH PER FOOT MINIMUM.
- G. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
- H. AFTER SYSTEM COMPLETION, FILL, CLEAN, AND TREAT ENTIRE SYSTEM.

SECTION 221400 - PLUMBING PIPING SPECIALTIES

- A. INSTALL POTABLE WATER PROTECTION DEVICES ON PLUMBING LINES WHERE CONTAMINATION OF DOMESTIC WATER MAY OCCUR. JANITOR ROOMS, FIRE SYSTEM, LAUNDRY, KITCHEN ECT.
- B. HOSE CONNECTION VACUUM BREAKERS. STANDARD ASSE 1011, BRONZE WITH MANUAL DRAIN.
- C. PRESSURE VACUUM BREAKERS STANDARD ASSE 1020.
- D. BACKFLOW PREVENTORS, REDUCED PRESSURE PRINCIPLE (RPP), STANDARD ASSE 1013, THREADED FOR NPS 2 AND SMALLER. FLANGED FOR NPS 2-1/2 AND LARGER.
- E. PIPE RELIEF FROM VALVES, BACKFLOW PREVENTERS AND DRAINS TO NEAREST FLOOR SANITARY. AIR GAP FITTING ASME A112.1.2 MATCHING BACKFLOW PREVENTER CONNECTION.
- F. BALANCING VALVES, COPPER ALLOY CALIBRATED BALL OR Y-PATTER GLOBE WITH TWO READOUT PORTS AND MEMORY SETTING INDICATOR. SIZE: SAME AS CONNECTED PIPING. JOINTS: THREADED, SOLDERED OR PRESS.
- G. FURNISH AND INSTALL ASSE 1070 TEMPERING VALVES AT ALL LAVATORIES, TUBS, SHOWERS, AND HAND SINKS. STANDARD ASSE 1070. THERMOSTATICALLY CONTROLLED. BRONZE BODY. THREADED CONNECTIONS. CHECK STOPS AND ADJUSTABLE TEMPERATURE CONTROL HANDLE.
- H. STRAINERS: Y-PATTERN, BRONZE WITH THREADED CONNECTIONS FOR NPS 2 AND SMALLER. CAST IRON. FDA APPROVED EPOXY COATED WITH FLANGED CONNECTIONS FOR NPS 2-1/2 AND LARGER. SCREEN SHALL BE STAINLESS STEEL WITH 0.033 INCH PERFORATIONS FOR NPS 2 AND SMALLER, AND 0.062 INCH PERFORATIONS FOR NPS 2-1/2 AND LARGER. FACTORY INSTALLED HOSE-END DRAIN VALVE.
- I. FURNISH AND INSTALL WATER HAMMER ARRESTERS IN ACCORDANCE WITH PDH W-001. CONTRACTOR SHALL LOCATE ARRESTERS UPSTREAM OF ALL FAST ACTING VALVES INCLUDING FLUSH VALVES. BANKS OF FIXTURES MAY BE PROTECTED WITH ONE COMMON ARRESTER ON THE SUPPLY HEADER.
- J. PROVIDE CLEAN OUTS AS INDICATED ON THE DRAWINGS. INSIDE AND OUTSIDE THE BUILDING 100 FEET APART, AND WHERE A CHANGE IN DIRECTION GREATER THAN 45 DEGREES OCCURS. CLEANOUTS TO BE CAST IRON WITH BRASS FLUID. PROVIDE ROUND FLAT CHROME-PLATED COVER PATE FOR WALL CLEANOUTS.
- K. PROVIDE AIR ADMITTANCE VALVES ONLY WHERE INDICATED ON THE DRAWINGS. STANDARD ASSE 1051, TYPE 4 FOR SINGLE FIXTURE.
- L. PROVIDE TRAP SEAL AT ALL FLOOR DRAINS, TRENCH DRAINS OR WHERE INDICATED ON THE DRAWINGS AND SCHEDULES. SIZE TO BE SAME SIZE AS FIXTURE CONNECTION.
- M. PROVIDE DI-ELECTRIC FITTINGS WHERE DISSIMILAR METALS ARE CONNECTED.

SECTION 221220.21 - IN-LINE, DOMESTIC-WATER PUMPS

- A. PUMPS TO BE FACTORY ASSEMBLED AND TESTED IN-LINE CLOSE COUPLED, CANNE-MOTOR, SEAL LESS, OVERHUNG-IMPELLER CENTRIFUGAL PUMPS, HERMETICALLY SEALED, REPLACEABLE CARTRIDGE TYPE WITH IMPELLER ON COMMON SHAFT, PROVIDE INLET AND OUTLET FLANGES.
- B. CONTROLS: ELECTRIC THERMOSTATS 50 TO 125 DEG F. START PUMP AT 115 DEG F. AND STOP PUMP AT 125 DEG F.
- C. TIMERS, ELECTRIC PROGRAMMABLE SEVEN-DAY WITH MANUAL OVERRIDE.
- D. INSTALL PUMP PER MANUFACTURERS REQUIREMENTS.
- E. PERFORM STARTUP SERVICE AND ADJUST INITIAL TEMPERATURE SETPOINTS.

SECTION 223400 - DOMESTIC WATER HEATERS

- A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES LISTED AND LABELED AS DEFINED IN NFPA 70, BY AN NRTL AND MARKED FOR INTENDED LOCATION AND USE.
- B. ASME COMPLIANCE WHERE ASME-CODE CONSTRUCTION IS INDICATED. FABRICATE AND LABEL COMMERCIAL DOMESTIC-WATER HEATER STORAGE TANKS TO COMPLY WITH ASME BOILER AND PRESSURE VESSEL CODE, SECTION VIII, DIVISION 1.
- C. STORAGE TANK CONSTRUCTION: CORROSION RESISTANT METAL WITH CORROSION RESISTANT COATING ENAMEL FINISH.
- D. INTERIOR FINISH OR LINING: COMPLY WITH NSF 61 AND NSF 372 BARRIER MATERIALS FOR POTABLE-WATER TANK LININGS, INCLUDING EXTENDING LINING MATERIAL INTO TAPPINGS.
- E. FACTORY INSTALLED APPURTENANCES: CORROSION RESISTANT HOSE END DRAIN VALVE, INSULATION TO COMPLY WITH ASHRAE 90.1-2013, ADJUSTABLE THERMOSTAT, HIGH-TEMPERATURE SAFETY CUTOFF, POWER CORD, ASME/ANSI RATED COMBINATION TEMPERATURE AND PRESSURE RELIEF VALVE AND (ELECTRIC AUTOMATIC GAS-IGNITION SYSTEM).
- F. WATER HEATER ACCESSORIES: EXPANSION TANK AS INDICATED ON THE DRAWINGS AND CORROSION RESISTANT DRAIN PAN.
- G. INSTALL PER MANUFACTURERS REQUIREMENTS AND CLEARANCES. LEVEL AND PLUMB AND ARRANGE UNITS FOR SERVICING.
- H. INSTALL SHUT-OFF VALVES ON INLET AND OUTLET OF EACH DOMESTIC WATER HEATER.
- I. FILL DOMESTIC WATER HEATERS WITH WATER AND PERFORM LEAK TEST AND STARTUP SERVICE. ADJUST INITIAL SETPOINTS.
- J. INSTALL GAS-FIRED DOMESTIC WATER HEATERS IN ACCORDANCE WITH NFPA 54.
- K. ROUTE FUE AND COMBUSTION AIR PER MANUFACTURERS REQUIREMENTS.

SECTION 224000 - PLUMBING FIXTURES

- A. ALL FIXTURES SHALL BE AS SCHEDULED ON THE PLUMBING FIXTURE SCHEDULE OR EQUAL APPROVED BY THE ENGINEER OF RECORD. TO INCLUDE ALL TRIM AND ACCESSORIES INDICATED IN THE SCHEDULE.
- B. ALL CHINA SHALL BE FROM THE SAME MANUFACTURER WHERE POSSIBLE.
- C. ALL LAVATORY AND SINK TRIM SHALL BE FROM THE SAME MANUFACTURER WHERE POSSIBLE.
- D. ALL FIXTURES SHALL BE LEAD FREE.
- E. REVIEW MILLWORK SHOP DRAWINGS. CONFIRM LOCATION AND SIZE OF FIXTURES AND OPENINGS BEFORE ROUGH-IN AND INSTALLATION.
- F. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. USE SCREWED TAILPIECE COUPLINGS. CONNECT FIXTURE WASTE TO STACK WITH SLIP FITTING.
- G. AT EACH BARRIER FREE WATER CLOSET WITH FLUSH VALVE, INSTALL THE HANDLE TOWARD THE "OPEN" SIDE OF THE WATER CLOSET STALL.
- H. PROVIDE FIXTURES WITH CHROME PLATED RIGID OR FLEXIBLE SUPPLIES. LOOSE KEY STOPS, REDUCERS, AND ESCUTCHEONS.
- I. INSTALL COMPONENTS LEVEL AND PLUMB.
- J. CAULK JOINT BETWEEN FINISH FLOOR AND FLOOR MOUNTED FIXTURES AND BETWEEN FINISH WALLS AND WALL MOUNTED FIXTURES WITH SILICON CAULK. CAULK THE JOINT BETWEEN RIM AND FIXTURE WHERE A FIXTURE BUILDS INTO A COUNTER TOP. WITH CAULKING COMPOUND.
- K. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHTS.
- L. ALL NON-POTABLE OUTLETS SHALL BE CLEARLY MARKED WITH A PERMANENTLY AFFIXED LAMINATED SIGN WITH 3/8" HIGH LETTERING SAYING "NON-POTABLE WATER NOT FOR HUMAN CONSUMPTION". SIGN SHALL HAVE BLACK LETTERING ON A YELLOW BACKGROUND.
- M. ALL EXPOSED SINK AND LAVATORY TRAPS, PIPING AND ANGLE STOPS INSTALLED AT ACCESSIBLE SINK AND LAVATORY LOCATIONS SHALL INCLUDE OFFSET STYLE DRAIN TAILPIECE, P-TRAP INSTALLED NEAR AND PARALLEL WITH BACK WALL, AND INSULATION KIT SPECIALLY MANUFACTURED FOR THIS INSTALLATION. ARMAFLEX WITH DUCT TAPE IS NOT ACCEPTABLE.
- N. AT COMPLETION, CLEAN PLUMBING FIXTURES, EQUIPMENT, AND FAUCET AERATOR SCREENS.
- O. PROVIDE ASSE 1070 APPROVED MIXING VALVES AT THE FOLLOWING LOCATIONS: ACCESSIBLE SINKS AS REQUIRED FOR ADA COMPLIANCE OR SINKS RECEIVING HOT WATER OVER 120°F.
- P. WHERE LAVATORIES REQUIRE INSULATION FOR ADA COMPLIANCE, FURNISH THE FOLLOWING SAFETY COVERS TO ANSI A177.1 AND CONSISTING OF INSULATION KIT MOLDED CLOSED SELL VINYL CONSTRUCTION, 3/16" THICK, WHITE COLOR, FOR INSULATING THE TAILPIECE, P-TRAP, VALVES AND SUPPLY PIPING. FURNISH WITH WEEP HOLE AND ANGLE VALVE ACCESS COVERS.
- Q. FREEZELESS WALL HYDRANTS: STANDARD ASME A112.21.3M FOR EXPOSED-OUTLET. SELF DRAINING WALL HYDRANTS.

GENERAL CONTRACTOR SPECIFICATIONS

- A. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND LAWS.
- B. ARRANGE AND PAY FOR ALL PERMITS AND INSPECTIONS AS REQUIRED.
- C. MAKE ARRANGEMENTS WITH AND PAY ALL CHARGES REQUIRED BY UTILITY COMPANIES FOR GAS, WATER, AND SEWER SERVICES.
- D. COORDINATE INTERRUPTIONS TO EXISTING UTILITIES AND EQUIPMENT WITH GENERAL CONTRACTOR AND BUILDING OWNER.
- E. ALL WORK SHALL BE PERFORMED TO FACILITATE EXPEDITIOUS PROGRESS ON THE WHOLE PROJECT. COORDINATE WORK WITH OTHER TRADES TO MINIMIZE AND RESOLVE POTENTIAL CONFLICTS.
- F. COMPLETED SYSTEM SHALL BE TESTED, BALANCED, AND GUARANTEED.
- G. THE DRAWINGS ARE DIAGRAMATIC IN NATURE. THE CONTRACTOR SHALL PROVIDE FITTINGS, OFFSETS, ETC., AS NECESSARY TO PROPERLY COMPLETE THE INSTALLATION OF THE SYSTEMS.
- H. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY DETAIL OF CONSTRUCTION. CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS NECESSARY FOR A COMPLETE CODE COMPLYING MECHANICAL AND PLUMBING SYSTEM.
- I. PROVIDE APPROPRIATE FIRE STOPPING MATERIALS WHERE FIRE RATED ASSEMBLIES ARE PENETRATED.
- J. MATERIALS EXPOSED WITHIN A PLENUM SHALL BE NONCOMUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84. EXISTING AND NEW PVC PIPING WILL REQUIRE 1/2 INCH MINERAL FIBER INSULATION WITH VAPOR RETARDER FACING THAT MEETS ASTM E84.
- K. CONTROLS: MECHANICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONDUIT AND WIRING FOR LOW VOLTAGE AND LINE VOLTAGE REQUIREMENTS FOR PROPER FUNCTION AND COMMUNICATION OF EQUIPMENT.
- L. WORK SHALL BE DONE COMPLETE IN ALL RESPECTS, INCLUDING THE FOLLOWING ITEMS BRIEFLY MENTIONED AND ALL OTHER ITEMS WHICH ARE INDICATED, SPECIFIED OR NECESSARY FOR A COMPLETE AND SATISFACTORY MECHANICAL AND PLUMBING SYSTEM.
- M. FINAL LOCATION OF ALL CEILING FEATURES TO BE LOCATED PER REFLECTED CEILING PLAN.
- N. ALL WORK AND MATERIALS SHALL BE GUARANTEED IN WRITING FOR ONE YEAR FROM PROJECT COMPLETION.
- O. PROVIDE SHOP DRAWINGS FOR APPROVAL OF ALL SCHEDULED AND LISTED EQUIPMENT. SHOP DRAWINGS ARE TO BE SUBMITTED PER SPECIFICATION SECTION.
- P. MODEL NUMBERS LISTED ON DRAWINGS ARE BASED ON MANUFACTURERS LISTED. THE CONTRACTOR MAY AT HIS OPTION PROVIDE AN "OR EQUAL" MANUFACTURED PRODUCT. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL COST ADDITIONS REQUIRED TO THE SYSTEM SHOULD AN "OR EQUAL" MANUFACTURER BE SELECTED.
- Q. COORDINATE THE INSTALLATION OF THE WORK WITH ALL OTHER TRADES BEFORE INSTALLATION TO ELIMINATE CONFLICTS OVER AVAILABLE SPACE.
- R. ARRANGE WITH OTHER TRADES FOR THE PROVISION OF ALL CHASES, SLOTS, AND OPENINGS NECESSARY FOR THE PROPER INSTALLATION OF THE MECHANICAL AND PLUMBING WORK.
- S. COORDINATE THE INSTALLATION OF ALL REQUIRED SUPPORTING DEVICES.
- T. WHERE ELECTRICAL CONNECTIONS ARE REQUIRED, CONFIRM REQUIREMENTS WITH PROJECT ELECTRICAL CONTRACTOR BEFORE ITEM IS ORDERED.
- U. WHERE STARTERS, DISCONNECTS, ETC. ARE NOT SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS, THEY ARE TO BE PROVIDED BY THE MECHANICAL CONTRACTOR.
- V. MAINTAIN A "CLEAN" SET OF PROJECT DRAWINGS FOR THE SOLE PURPOSE OF RECORDING DEVIATIONS FROM THE DESIGN. THIS SET OF DRAWINGS SHALL BE MAINTAINED WITH ALL MODIFICATIONS MARKED-UP AS WORK PROGRESSES. DRAWINGS TO BE TURNED OVER TO THE OWNER FOR FUTURE REFERENCE.
- W. ALL OPENINGS IN PIPING AND DUCT WORK SYSTEMS SHALL BE PROTECTED DURING CONSTRUCTION TO PREVENT THE ENTRANCE OF FOREIGN MATERIALS.
- X. ALL SYSTEMS FABRICATED ON SITE SHALL BE TESTED BY THE CONTRACTOR. TESTING SHALL INCLUDE THE PROVISION OF ALL NECESSARY EQUIPMENT, LABOR, AND FLUIDS.
- Y. WHEN CONNECTIONS TO SITE SERVICES ARE REQUIRED CONFIRM LOCATIONS AND ELEVATION OF SAME PRIOR TO PROCEEDING WITH THE LAYOUT OF BUILDING SYSTEM.
- Z. FLUSH AND TEST SYSTEM FOR LEAKS. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROPER LEAK-FREE OPERATION OF SYSTEM. SOLDER JOINTS WITH LEAD-FREE SOLDER.



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VILLAGE OF SUTTONS BAY

SUTTONS BAY MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI 49682

PLUMBING SPECIFICATIONS

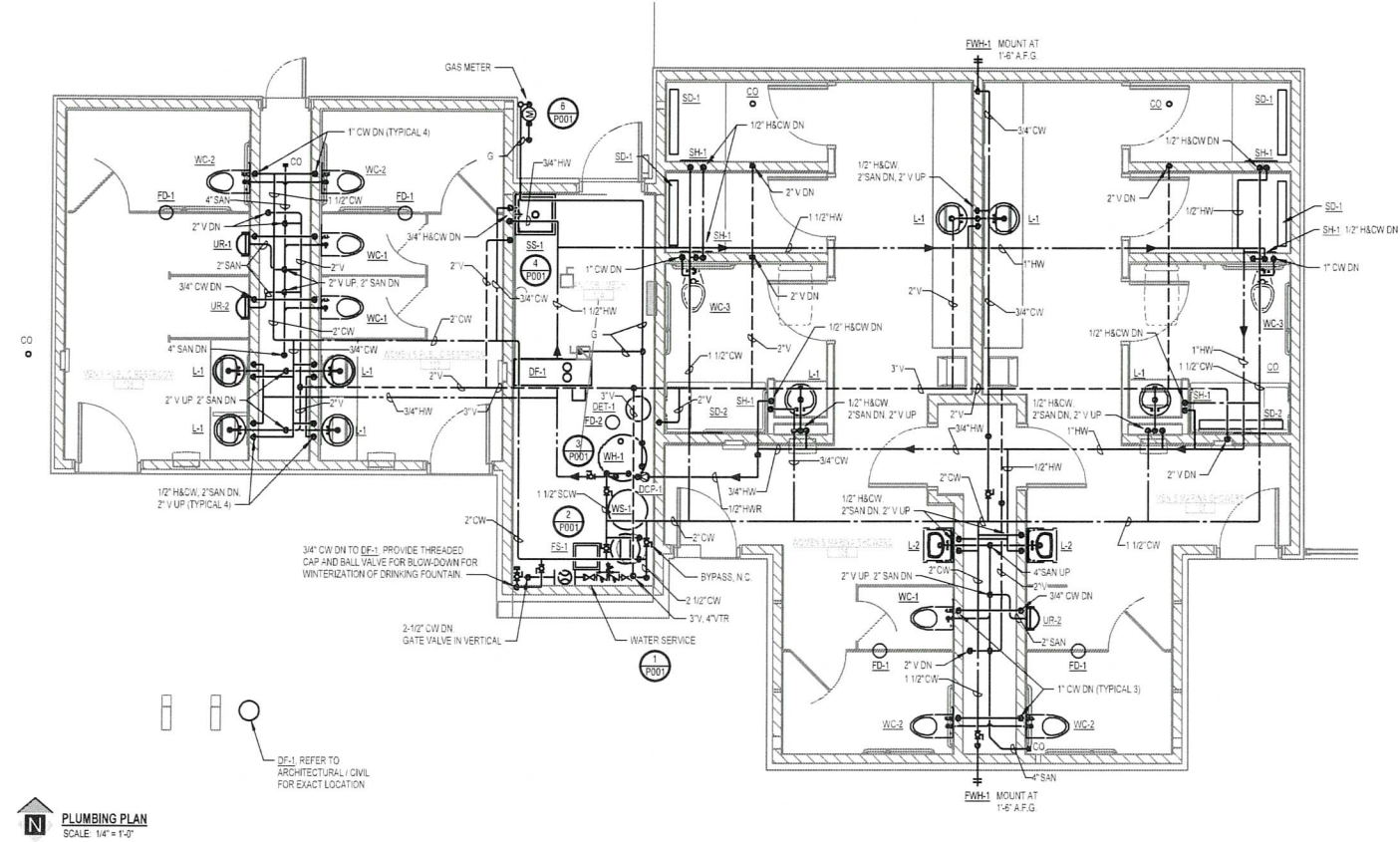
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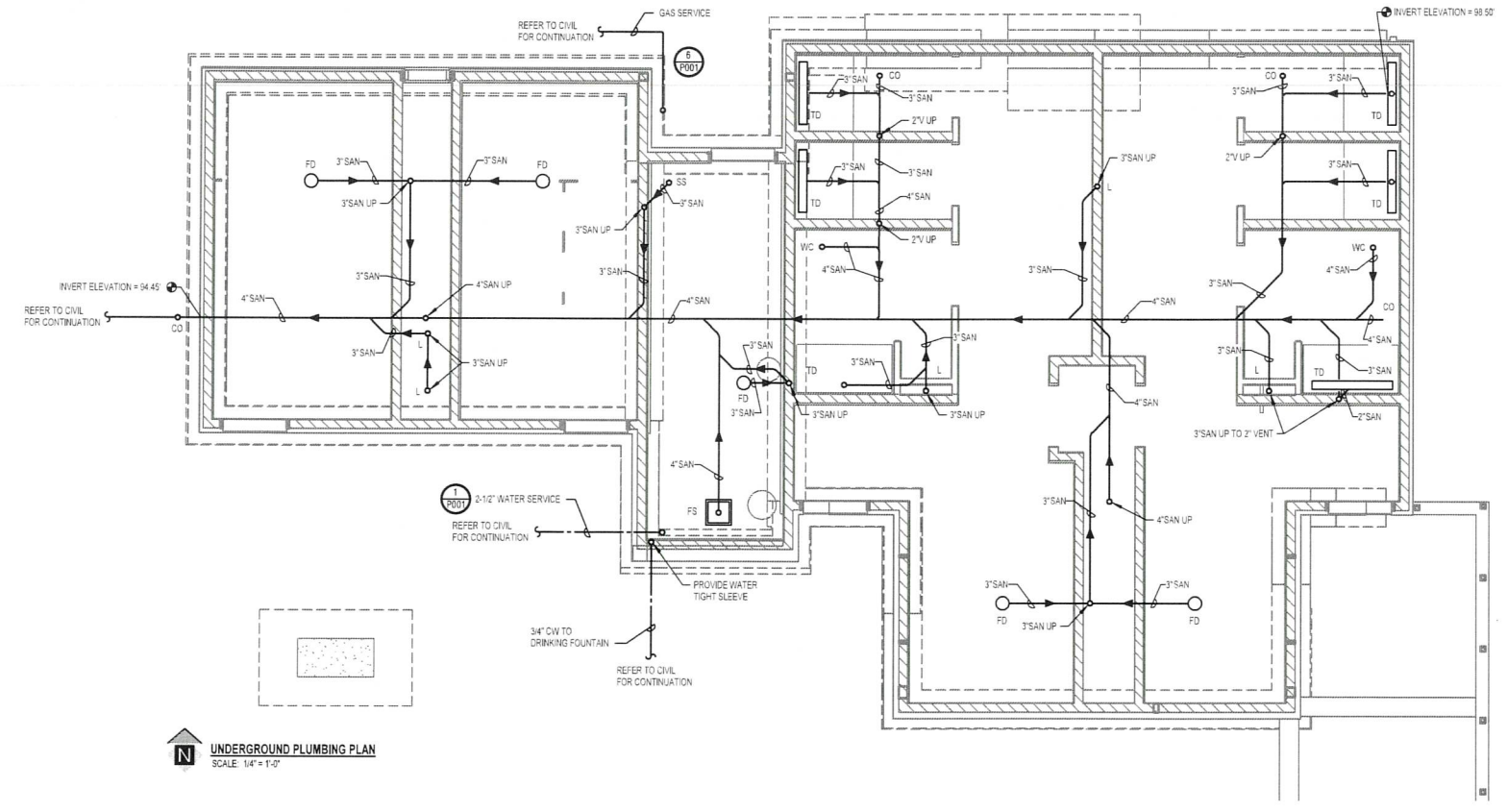
ISSUE DATE: 02/17/2026
PM: QA / QC:

ISSUANCE / REVISION
ORIGINAL SHEET IS 24/307
DO NOT SCALE DRAWINGS
PROJECT NO: 24-1952

P002



PLUMBING PLAN
SCALE: 1/4" = 1'-0"



UNDERGROUND PLUMBING PLAN
SCALE: 1/4" = 1'-0"

VILLAGE OF SUTTONS BAY
SUTTONS BAY MARINA COMFORT STATION
PO BOX 395, SUTTONS BAY, MI 49682
PLUMBING PLANS

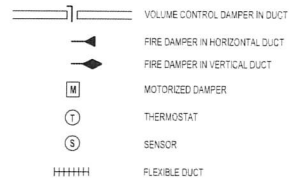
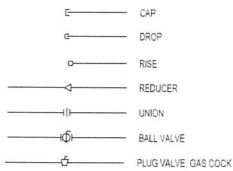
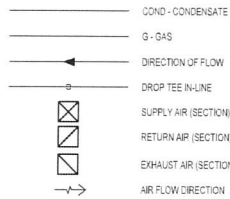
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TREVOR
RICHARDSON
License No.
6201310278
REGISTERED PROFESSIONAL ENGINEER

ISSUE DATE: 02/17/2025
PM. QA / QC.

ISSUANCE / REVISION	DATE
ORIGINAL SHEET IS 34"x36" DO NOT SCALE DRAWINGS	
PROJECT NO: 24-1952	
P110	

LEGEND:



DIFFUSER / GRILLE LEGEND:

TAQ	DESCRIPTION
S-1 (3) 17'0 400	SUPPLY DIFFUSER TYPE (# OF SIMILAR DIFFUSER IN ROOM, ONLY USE IF GREATER THAN 1) NECK SIZE OF SQUARE CEILING DIFFUSER (TYPICALLY 24"x24" FACE FOR LAY-IN CEILINGS) CFM
E-1 (4) 14"x6" 400	EXHAUST GRILLE TYPE (# OF SIMILAR GRILLE IN ROOM, ONLY USE IF GREATER THAN 1) SIZE OF RETURN GRILLE CFM
11'-0" AFF	MOUNTING HEIGHT ABOVE FINISHED FLOOR (IF WALL MOUNTED)

ABBREVIATIONS:

AFF	ABOVE FINISH FLOOR
ATR	AIR TEMPERATURE RISE
BF	BELOW FLOOR
BOD	BOTTOM OF DUCT
BOS	BOTTOM OF STEEL
BTUH	BRITISH THERMAL UNIT PER HOUR
CFA	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CO CONC	CONCRETE
DB	DRY BULB / DECI BELS
DN	DOWN
EA	EXHAUST AIR/ EACH
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
FD	FLOOR DRAIN

HP	HORSEPOWER
LAT	LEAVING AIR TEMPERATURE/LEAVING HEAT
MAT	MIXED AIR TEMPERATURE
MDH	1000 BRITISH THERMAL UNITS PER HOUR
MN	MINIMUM
MFG	MANUFACTURER
CA	OUTSIDE AIR
RH	RELATIVE HUMIDITY/REHEAT
CA	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SS	STAINLESS STEEL
ST	STORM
TEMP	TEMPERATURE
TOD	TOP OF DUCT
TOS	TOP OF STEEL
TYP	TYPICAL
WH	WATER HEATER

GENERAL CONTRACTOR REQUIREMENTS:

- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND LAWS.
- ARRANGE AND PAY FOR ALL PERMITS AND INSPECTIONS AS REQUIRED.
- MAKE ARRANGEMENTS WITH AND PAY ALL CHARGES REQUIRED BY UTILITY COMPANIES FOR WATER AND SEWER SERVICES.
- ALL WORK SHALL BE PERFORMED TO FACILITATE EXPEDITIOUS PROGRESS ON THE WHOLE PROJECT. COORDINATE WORK WITH OTHER TRADES TO MINIMIZE AND RESOLVE POTENTIAL CONFLICTS.
- COMPLETED SYSTEM SHALL BE TESTED, BALANCED, AND GUARANTEED.
- PROVIDE A GAS SHUTOFF VALVE AND DIRT LEG AT EACH PIECE OF GAS FIRED EQUIPMENT.
- THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR SHALL PROVIDE FITTINGS, OFFSETS, ETC., AS NECESSARY TO PROPERLY COMPLETE THE INSTALLATION OF THE SYSTEMS.
- CONTRACTOR TO FURNISH AND INSTALL WATER HAMMER ARRESTERS AT EACH VALVED FITTING.
- ALL PIPES PASSING THRU FINISHED WALLS, PARTITIONS AND FLOORS SHALL BE FITTED WITH ADJUSTABLE ESCUTCHEONS, AND APPROPRIATE FIRE TOPPING WHERE REQUIRED.
- FURNISH AND INSTALL ALL VALVING FOR THE PROPER SECTIONALIZING AND OPERATION OF THE PIPING SYSTEM.
- IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY DETAIL OF CONSTRUCTION. CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS NECESSARY FOR A COMPLETE CODE COMPLYING MECHANICAL SYSTEM TO BE IN PROPER WORKING ORDER.
- PROVIDE APPROPRIATE FIRE STOPPING MATERIALS WHERE FIRE RATED ASSEMBLIES ARE PENETRATED.
- MATERIALS EXPOSED WITHIN A PLENUM SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84. EXISTING AND NEW P.V.C. PIPING WILL REQUIRE 1/2 INCH MINERAL FIBER INSULATION WITH VAPOR RETARDER FACING THAT MEETS ASTM E84.
- CONTROLS MECHANICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONDUIT AND WIRING FOR LOW VOLTAGE AND LINE VOLTAGE REQUIREMENTS FOR PROPER FUNCTION AND COMMUNICATION OF EQUIPMENT.

ENERGY RECOVERY UNITS

MARK	MODEL	EA CFM	EA ESP	OA CFM	OA ESP	SUMMER PERFORMANCE (°F)			WINTER PERFORMANCE (°F)			VIP	MCA	REMARKS
						RA (DBWB)	OA (DBWB)	SA (DBWB)	RA (DB)	OA (DB)	SA (DB)			
ERV-1	HE13-JUV-STEEL-CONT-L	800	0.5	800	0.5	75.02	95.75	81.69	55.48	-10/-10	43.04	2.061	3.3	1.2

1. BASED ON "RENEWARE".

2. PROVIDE WITH DISCONNECT, MERV 8 FILTERS AND PROGRAMMABLE TIMECLOCK.

DUCT FURNACES

MARK	MODEL	CFM	INPUT MBH	OUTPUT MBH	EAT/LAT (°F)	VIP	REMARKS
DF-1	GHANIKS/KINSHITS/D11F-ST	800	9007.5	40.5/22.3	42.05	120/1	1.2

1. BASED ON "RENEWARE".

2. PROVIDE WITH DISCONNECT, TWO STAGES OF HEAT, PROGRAMMABLE THERMOSTAT, AND S.S. BURNER.

AIR INLETS AND OUTLETS SCHEDULE

MARK	MODEL	DESCRIPTION	REMARKS
E-1	330RL	SINGLE DEFLECTION, SURFACE MOUNTED, STEEL, BAKED ON ENAMEL	1
S-1	330RL	DOUBLE DEFLECTION, SURFACE MOUNTED, STEEL, BAKED ON ENAMEL	1

1. BASED ON "TITUS".

MECHANICAL EQUIPMENT LIST

LV-1

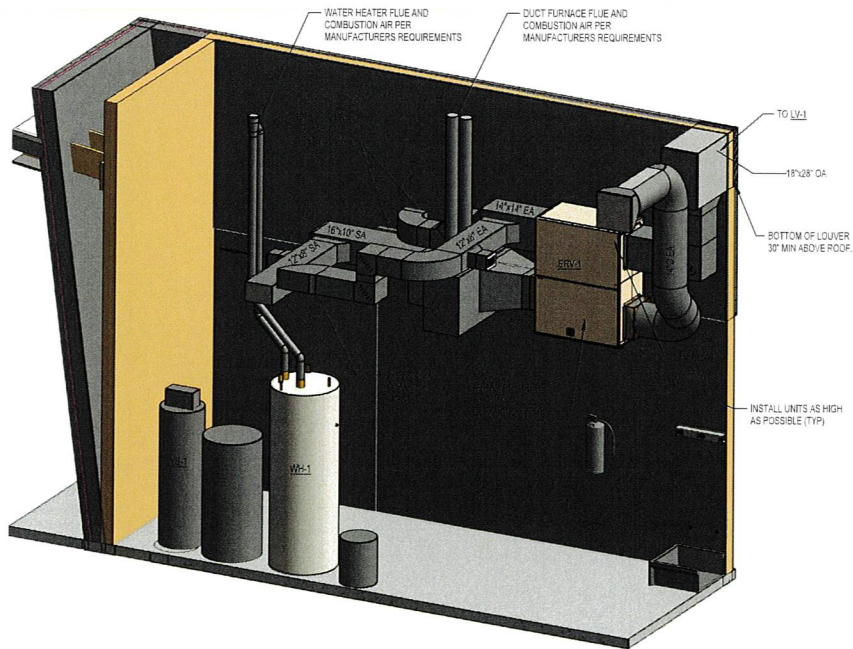
LOUVER

MANUFACTURER: GREENHECK
MODEL: ESD-435
SIZE: 19x28
VOLUME: 800 CFM
MAX VELOCITY: 501 FPM
FINISH: BAKED ENAMEL, COLOR SELECTED BY ARCHITECT.

LV-2

LOUVER

MANUFACTURER: GREENHECK
MODEL: ESD-435
SIZE: 19x28
VOLUME: 800 CFM
MAX VELOCITY: 1041 FPM
FINISH: BAKED ENAMEL, COLOR SELECTED BY ARCHITECT.

7 ERV & DF-1 ISOMETRIC VIEW
SCALE: NONE

SEQUENCE OF OPERATION:

ENERGY RECOVERY VENTILATORS (ERV-1).

A. UNIT SHALL RUN CONTINUOUSLY WHEN OCCUPIED. COORDINATE INITIAL SCHEDULE WITH BUILDING OWNER.

B. INTERLOCK WITH DF-1.

DUCT FURNACE (DF-1)

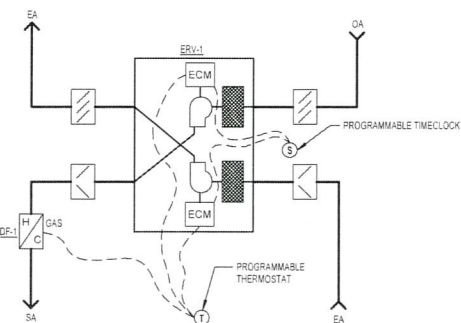
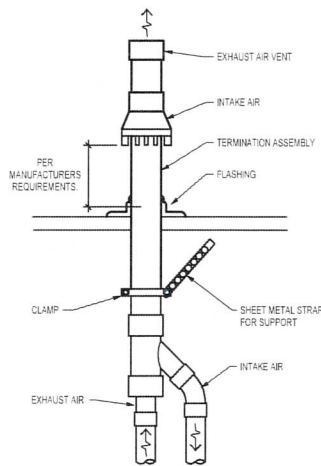
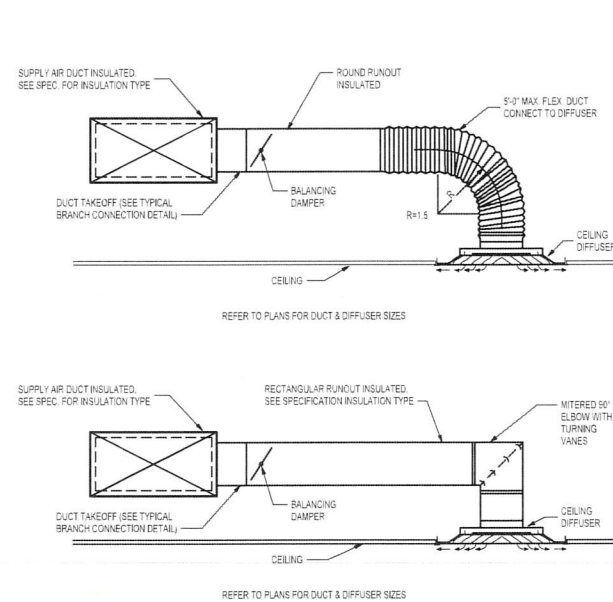
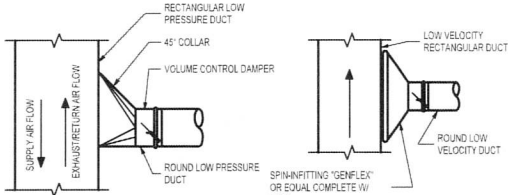
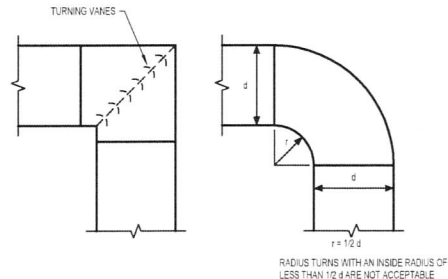
A. FACTORY INSTALLED CONTROLLER WITH 7-DAY PROGRAMMABLE THERMOSTAT PER ASHRAE 90.1-2019.

B. UNIT SHALL RUN CONTINUOUSLY WHEN OCCUPIED. COORDINATE INITIAL SCHEDULE WITH BUILDING OWNER.

C. ENABLE HEATING IN SEQUENCE TO MAINTAIN SPACE TEMPERATURE. WHEN SPACE TEMPERATURE DROPS BELOW 65 DEGREES F (ADJ.) ENABLE FIRST STAGE OF HEAT. IF SETPOINT IS NOT REACHED AFTER 15 MINUTES (ADJ.) ENABLE SECOND STAGE OF HEAT.

D. SAFETY FEATURES:

- AUTOMATIC HIGH LIMIT SHUT-OFF.
- AUXILIARY MANUAL HIGH LIMIT SWITCH.
- COMBUSTION AIR PRESSURE SWITCH.
- AIR PROVING SWITCH.
- FLAME ROLL-OUT SWITCH.

4 ERV AD DUCT FURNACE CONTROL SCHEMATIC
SCALE: NONE5 UNIT HEATER (GAS)
SCALE: NONE5 CONCENTRIC VENT
SCALE: NONE5 SUPPLY AIR RUNOUT
SCALE: NONE3 DUCT TAKEOFF
SCALE: NONE1 ACCEPTABLE DUCT TURNS
SCALE: NONE

VILLAGE OF SUTTONS BAY

SUTTONS BAY MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI 49682

MECHANICAL SCHEDULES AND DETAILS

FOR CONSTRUCTION



ISSUE DATE: 02/17/2026

PM. QA / QC.

PROJECT NO: 24-1952

M001

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DIVISON 23 - HEATING, VENTILATING AND AIR CONDITIONING (HVAC) SPECIFICATIONS

SECTION 230500 - COMMON WORK RESULTS FOR HVAC

- A. INSTALL SLEEVES FOR PIPING PASSING THROUGH PENETRATIONS IN FLOORS, PARTITIONS, ROOFS, AND WALLS.
- B. INSTALL SLEEVE-SEAL SYSTEMS IN SLEEVES IN EXTERIOR CONCRETE WALLS AND SLABS-ON-GRADE AT SERVICE PIPING ENTRIES INTO BUILDING. TIGHTEN BOLTS AGAINST PRESSURE PLATES THAT CAUSE SEALING ELEMENTS TO EXPAND AND MAKE A WATER-TIGHT SEAL.
- C. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS.
- D. INSTALL ADJUSTABLE ESCUTCHEONS ON ALL PIPES PASSING THROUGH FINISHED WALLS, PARTITIONS AND FLOORS.

SECTION 230620 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

- A. CONFORM TO ASME B31.6, ASTM F708.
- B. METAL PIPE-HANGER INSTALLATION: COMPLY WITH MSS SP-89 AND MSS SP-89. INSTALL HANGERS, SUPPORTS, CLAMPS AND ATTACHMENTS AS REQUIRED TO PROPERLY SUPPORT PIPING FROM THE BUILDING STRUCTURE.
- C. HANGERS FOR COLD PIPE SIZES 2 INCHES AND LARGER, CARBON STEEL, ADJUSTABLE, CLEVIS.
- D. MULTIPLE OR TRAPEZOID HANGERS, STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
- E. VERTICAL SUPPORT, STEEL RISER CLAMP.
- F. FLOOR SUPPORT FOR COLD PIPE, CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
- G. INSTALL HANGERS AND SUPPORTS COMPLETE WITH NECESSARY ATTACHMENTS, INSERTS, BOLTS, RODS, NUTS, WASHERS, AND OTHER ACCESSORIES.
- H. INSTALL IN ACCORDANCE WITH ASME B31.1, ASME B31.5, ASME 31.8.
- I. INSTALL HANGERS WITH MINIMUM 1/4 INCH SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.
- J. PLACE HANGERS WITHIN 12 INCHES OF EACH HORIZONTAL ELBOW.
- K. USE HANGERS WITH 1-1/2 INCH MINIMUM VERTICAL ADJUSTMENT.
- L. PIPE-HANGER SPACING SHALL BE PER CODE REQUIREMENTS.

SECTION 230540.13 - VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT

- A. PROVIDE VIBRATION-CONTROL DEVICES FOR SYSTEMS AND EQUIPMENT WHERE INDICATED IN EQUIPMENT SCHEDULES, DRAWINGS OR WHERE THE SPECIFICATIONS INDICATE THEY ARE TO BE INSTALLED ON SPECIFIC EQUIPMENT AND SYSTEMS.

SECTION 230551 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

- A. PROVIDE EQUIPMENT LABELS FOR EACH PIECE OF SCHEDULED EQUIPMENT. UNIT NAME SHALL MATCH EQUIPMENT MARK ON SCHEDULE. EQUIPMENT TAG SHALL BE PLASTIC OR METAL FASTENED WITH RIVETS, SELF-TAPPING SCREWS OR CONTACT TYPE PERMANENT ADHESIVE, COMPATIBLE WITH LABEL AND SUBSTRATE.
- B. PROVIDE MANUFACTURED PIPE LABELS INDICATING PIPE SIZE, SYSTEM ABBREVIATION AND FLOW DIRECTION. INSTALL PIPE LABELS WITHIN THREE FEET OF EACH VALVE OR PIECE OF EQUIPMENT AND SPACED AT MAXIMUM INTERVALS OF 35 FEET.
- C. PROVIDE VALVE TAGS WITH SYSTEM ABBREVIATION AND SIZE WITH BRASS OR ALUMINUM TAG, FASTEN WITH BRASS WIRE OR BEADED CHAIN.
- D. SIZE LETTERS IN ACCORDANCE WITH ASME A13.1 FOR PIPING.
- E. SIGN AND LABEL COLORS: WHITE LETTERS ON ANSI Z39.1 SAFETY-GREEN BACKGROUND.

SECTION 230593 - TESTING, ADJUSTING AND BALANCING FOR HVAC

- A. ASHRAE 90.1-2013 COMPLIANCE: APPLICABLE REQUIREMENTS IN AIA/SHR/IES 90.1-2013 SECTION 9.7.2.3 - "SYSTEM BALANCING".
- B. TAB SPECIALISTS QUALIFICATIONS: CERTIFIED BY AABC.
- C. VERIFY SYSTEMS ARE COMPLETE AND OPERABLE BEFORE COMMENCING WORK. VERIFY THE FOLLOWING:
 - 1. SYSTEMS ARE STARTED AND OPERATING IN SAFE AND NORMAL CONDITION.
 - 2. TEMPERATURE CONTROL SYSTEMS ARE INSTALLED COMPLETE AND OPERABLE.
 - 3. PROPER THERMAL OVERLOAD PROTECTION IS IN PLACE FOR ELECTRICAL EQUIPMENT.
 - 4. SERVICE AND BALANCING VALVES AND DAMPERS ARE OPEN.
- D. TEST AND BALANCE AIR DISTRIBUTION SYSTEM WITHIN 10% OF CFM SHOWN ON PLAN.
- E. PROVIDE BALANCE REPORT TO ENGINEER FOR REVIEW AT PROJECT COMPLETION.

SECTION 230713 - HVAC INSULATION

- A. PROVIDE INSULATION TO MEET ASHRAE 90.1-2013.
- B. INSULATION INSTALLED INDOORS: FLAME-SPREAD INDEX OF 35 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS.
- C. OUTSIDE AIR INTAKE DUCTS: GLASS FIBER BLANKET, 3" THICKNESS AND 0.75 LB/FT NOMINAL DENSITY IN ACCORDANCE WITH ASTM C411, COMPLY WITH ASTM C553, TYPE II, AND ASTM C1290, TYPE III WITH FACTORY-APPLIED FSK JACKET.
- D. SUPPLY AND RETURN DUCTS: MAN-MADE MINERAL FIBER INSULATION, GLASS FIBER BLANKET, 3" THICKNESS AND 0.75 LB/FT NOMINAL DENSITY IN ACCORDANCE WITH ASTM C411, COMPLY WITH ASTM C553, TYPE II, AND ASTM C1290, TYPE III WITH FACTORY-APPLIED FSK JACKET. NO INSULATION REQUIRED ON SUPPLY & RETURN DUCTWORK LOCATED IN EXPOSED, INTERIOR, AMBIENT CONDITIONS.
- E. INSTALL DUCT INSULATION WITH TIGHT OVERLAPPING SEAMS AND END JOINTS. COVER JOINTS AND SEAMS WITH TAPE, APPLY ADHESIVES, MASTICS, AND SEALANTS AT MANUFACTURERS' RECOMMENDATIONS.
- F. INSTALL INSULATION CONTINUOUSLY THROUGH ROOF AND EXTERIOR WALL PENETRATIONS. SEAL PENETRATIONS WITH FLASHING SEALANT. EXTEND JACKET OF OUTDOOR INSULATION OUTSIDE ROOF OR EXTERIOR WALL FLASHING AT LEAST 2 INCHES. SEAL JACKET TO ROOF FLASHING WITH FLASHING SEALANT.
- G. MAKE ALL ROOF AND EXTERIOR WALL OPENINGS WATER-TIGHT. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE ALL EQUIPMENT OPENINGS WITH THE GENERAL CONTRACTOR.
- H. FOR PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES, TERMINATE INSULATION AT FIRE DAMPER SLEEVES AND EXTERNALLY INSULATE DAMPER SLEEVE BEYOND RATED ASSEMBLY TO MATCH ADJACENT DUCT INSULATION. OVERLAP DAMPER SLEEVE AND DUCT INSULATION AT LEAST 2 INCHES.
- I. KEEP INSULATION MATERIALS DRY DURING APPLICATION AND FINISHING.
- J. APPLY ADHESIVES, MASTICS, AND SEALANTS AT MANUFACTURERS' RECOMMENDATIONS.

SECTION 232113 - HVAC PIPING

- A. COMPLY WITH THE CURRENT INTERNATIONAL FUEL GAS CODE FOR NATURAL GAS PIPING.
- B. MINIMUM OPERATING-PRESSURE RATINGS: PIPING AND VALVES: 100 PSIG MINIMUM UNLESS OTHERWISE INDICATED.
- C. NATURAL GAS PIPING: STEEL PIPE ASTM A53/A53M, SCHEDULE 40, BLACK, FITTINGS: ASME B16.3, MALLEABLE IRON OR ASTM A234-A234M, FORGED STEEL WELDING TYPE JOINTS, THREADED, WELDED OR MEGAPRESS BY VIEGA.
- D. DO NOT INSTALL GAS PIPING IN CONCEALED LOCATIONS UNLESS SLEEVED WITH THE SLEEVE OPEN AT BOTH ENDS.
- E. DRIPS AND SEDIMENT TRAPS: INSTALL DRIPS AT POINTS WHERE CONDENSATE MAY COLLECT, INCLUDING SERVICE-METER OUTLETS. LOCATE WHERE ACCESSIBLE TO PERMIT CLEANING AND EMPTYING. CONSTRUCT DRIPS AND SEDIMENT TRAPS USING TEE FITTING WITH BOTTOM OUTLET PLUGGED OR CAPPED. USE NIPPLE A MINIMUM LENGTH OF 3 PIPE DIAMETERS, BUT NOT LESS THAN 3 INCHES LONG AND SAME SIZE AS CONNECTED PIPE. INSTALL WITH SPACE BELOW BOTTOM OF DRIP TO REMOVE PLUG OR CAP.
- F. DO NOT INSTALL NATURAL-GAS PIPING IN OR THROUGH CIRCULATING AIR DUCTS, PLENUMS, CLOTHES OR TRASH CHUTES, CHIMNEYS OR GAS VENTS (FLUES), VENTILATING DUCTS, OR DUMBWATER OR ELEVATOR SHAFTS.
- G. DO NOT INSTALL NATURAL-GAS PIPING IN SOLID WALLS OR PARTITIONS.
- H. DO NOT USE NATURAL-GAS PIPING AS GROUNDING ELECTRODE.
- I. INSTALL MANUAL GAS SHUTOFF VALVE FOR EACH GAS APPLIANCE.
- J. WHEN REGULATORS ARE REQUIRED, INSTALL AFTER EACH SHUT-OFF VALVE WITH MAINTENANCE ACCESS SPACE ADEQUATE FOR SERVICING AND TESTING.
- K. ROUTE PIPING IN ORDERLY MANNER AND MAINTAIN GRADIENT.

SECTION 232300 - DUCTS

- A. INSTALL ALL DUCTWORK PER SMACNA STANDARDS, USING METAL DUCT ADEQUATELY SUPPORTED TO AVOID DEFLECTION.
- B. GALVANIZED STEEL DUCTS: ASTM A653/A653M GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, HAVING G60 ZINC COATING OF IN CONFORMANCE WITH ASTM A990B9M.
- C. FASTENERS: RIVETS, BOLTS, OR SHEET METAL SCREWS.
- D. HANGER ROD: ASTM A304/304M STEEL, GALVANIZED, THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUSLY THREADED.
- E. INSULATED FLEXIBLE DUCTS: UL 181, CLASS 1, ALUMINUM LAMINATE AND POLYESTER FILM WITH LATEX ADHESIVE SUPPORTED BY HELICAL WOUND SPRING STEEL WIRE, FIBERGLASS INSULATION, ALUMINIZED VAPOR BARRIER FILM, PRESSURE RATING: 10 INCHES H₂O POSITIVE AND 1.0 INCHES H₂O NEGATIVE, MAXIMUM VELOCITY: 4000 FPM, TEMPERATURE RANGE: -20 DEGREES F TO 210 DEGREES F, THERMAL RESISTANCE: 4.2 SQUARE FEET-HOUR-DEGREE F PER BTU, MAXIMUM LENGTH OF FLEX DUCT: 5 FEET.
- F. SINGLE WALL SPIRAL ROUND DUCTS: PRODUCT DESCRIPTION: UL 181, CLASS 1, ROUND SPIRAL LOCKSEAM DUCT CONSTRUCTED OF GALVANIZED STEEL.
- G. DUCTS EXPOSED TO WEATHER SHALL HAVE ALL EXTERNAL JOINTS TO HAVE SECURE WATER-TIGHT CONNECTIONS. CONSTRUCT DUCTS TO RESIST EXTERNAL LOADS OF WIND, SNOW AND ICE. IF OUTER SURFACE OF DUCT IS UNINSULATED, PROTECT OUTER SURFACE WITH SUITABLE EXTERIOR PAINT, COLOR AND FINISH BY ARCHITECT.
- H. PROVIDE ALL NECESSARY DUCT FITTINGS AND TRANSITIONS FOR A COMPLETE SYSTEM.
- I. RUN ALL DUCT ABOVE CEILING WHERE CEILINGS EXIST.
- J. PERFORM A DUCT LEAKAGE TEST TO COMPLY WITH SMACNA STANDARDS. TEST FOR LEAKS BEFORE APPLYING INSULATION.
- K. ELBOWS SHALL BE LONG RADIUS OR PROVIDED WITH TURNING VANES. TAPS SHALL BE CONICAL OR 45 DEG LATERAL.
- L. MATERIALS (UNLESS INDICATED OTHERWISE ON PLANS): SUPPLY DUCTWORK: STEEL, RETURN AND RELIEF: STEEL, OUTDOOR AIR INTAKE: STEEL, DUCTS CONVEYING MOIST AIR: ALUMINUM.

SECTION 232300 - DUCT ACCESSORIES

- A. INSTALL DUCT ACCESSORIES IN ACCORDANCE WITH SMACNA STANDARDS.
- B. SUPPORT DIFFUSERS AND GRILLES INDEPENDENTLY FROM DUCT. FINISH EXPOSED DUCT WITH CANVAS JACKET FOR FINISH PAINTING BY OTHERS. INSTALL DIFFUSERS WITH AIR-TIGHT CONNECTIONS. PAINT DUCT VISIBLE BEHIND AIR OUTLETS AND INLETS MATTE BLACK.
- C. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS, GRILLES, AND REGISTERS, DESPITE WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, GRILLE, REGISTER OR NOT.
- D. LOCATE BALANCING DAMPERS ABOVE LAY-IN CEILING WHERE POSSIBLE. PROVIDE AND COORDINATE ACCESS PANELS FOR ALL OTHER VOLUME CONTROL DAMPERS.
- E. INSTALL ACCESS DOORS BEFORE AND AFTER EACH FIRE DAMPER. ACCESS DOORS TO BE MINIMUM 36x6 INCH SIZE.
- F. DUCT MOUNTED ACCESS DOORS: DOUBLE WALL 24-GAUGE AIR TIGHT TO MATCH DUCT PRESSURE CLASS. INSTALL WITH SWING AGAINST DUCT STATIC PRESSURE.
- G. FIRE DAMPERS: DYNAMIC RATED AND LABELED IN ACCORDANCE WITH UL 555 BY AN NRTL, RATING: 1-1/2 HOURS, HEAT RESPONSIVE ELEMENT, REPLACEABLE 165 DEG F FUSIBLE LINK. INSTALL FIRE DAMPERS IN ACCORDANCE WITH UL LISTING.
- H. COMBINATION FIRE AND SMOKE DAMPERS LABEL TO INDICATE CONFORMANCE TO UL 555 AND UL 555S BY AN NRTL. LABEL TO INDICATE CONFORMANCE TO NFPA 80 AND NFPA 80A BY AN NRTL. USE PARALLEL BLADE CONFIGURATION. RATING: 1-1/2 HOURS, HEAT RESPONSIVE ELEMENT, REPLACEABLE 165 DEG F FUSIBLE LINK, DAMPER ACTUATOR: 120 VAC, UL 873 LISTED DESIGNED TO OPERATE AS SMOKE CONTROL, WITH UL555S REQUIREMENTS, TWO POSITION WITH FAIL-SAFE SPRING RETURN, 15-SECOND MAXIMUM FULL-STROKE CLOSURE, NEMA 2 ENCLOSURE.
- I. INSTALL BACKDRAFT OR CONTROL DAMPERS AT INLET OF EXHAUST FANS OR EXHAUST DUCTS AS CLOSE AS POSSIBLE TO EXHAUST FAN UNLESS OTHERWISE INDICATED.

GENERAL CONTRACTOR SPECIFICATIONS

- A. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND LAWS.
- B. ARRANGE AND PAY FOR ALL PERMITS AND INSPECTIONS AS REQUIRED.
- C. MAKE ARRANGEMENTS WITH AND PAY ALL CHARGES REQUIRED BY UTILITY COMPANIES FOR GAS, WATER, AND SEWER SERVICES.
- D. COORDINATE INTERUPTIONS TO EXISTING UTILITIES AND EQUIPMENT WITH GENERAL CONTRACTOR AND BUILDING OWNER.
- E. ALL WORK SHALL BE PERFORMED TO FACILITATE EXPEDITIOUS PROGRESS ON THE WHOLE PROJECT. COORDINATE WORK WITH OTHER TRADES TO MINIMIZE AND RESOLVE POTENTIAL CONFLICTS.
- F. COMPLETED SYSTEM SHALL BE TESTED, BALANCED, AND GUARANTEED.
- G. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR SHALL PROVIDE FITTINGS, OFFSETS, ETC., AS NECESSARY TO PROPERLY COMPLETE THE INSTALLATION OF THE SYSTEMS.
- H. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY DETAIL OF CONSTRUCTION. CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS NECESSARY FOR A COMPLETE CODE-COMPLYING MECHANICAL AND PLUMBING SYSTEM.
- I. PROVIDE APPROPRIATE FIRE STOPPING MATERIALS WHERE FIRE-RATED ASSEMBLIES ARE PENETRATED.
- J. MATERIALS EXPOSED WITHIN A PLENUM SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84. EXISTING AND NEW PVC PIPING WILL REQUIRE 1/2 INCH MINERAL FIBER INSULATION WITH VAPOR RETARDER FACING THAT MEETS ASTM E84.
- K. CONTROL: MECHANICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONDUIT AND WIRING FOR LOW VOLTAGE AND LINE VOLTAGE REQUIREMENTS FOR PROPER FUNCTION AND COMMUNICATION OF EQUIPMENT.
- L. WORK SHALL BE DONE COMPLETE IN ALL RESPECTS, INCLUDING THE FOLLOWING ITEMS BRIEFLY MENTIONED AND ALL OTHER ITEMS WHICH ARE INDICATED, SPECIFIED OR NECESSARY FOR A COMPLETE AND SATISFACTORY MECHANICAL AND PLUMBING SYSTEM.
- M. FINAL LOCATION OF ALL CEILING FEATURES TO BE LOCATED PER REFLECTED CEILING PLAN.
- N. ALL WORK AND MATERIALS SHALL BE GUARANTEED IN WRITING FOR ONE YEAR FROM PROJECT COMPLETION.
- O. PROVIDE SHOP DRAWINGS FOR APPROVAL OF ALL SCHEDULED AND LISTED EQUIPMENT. SHOP DRAWINGS ARE TO BE SUBMITTED PER SPECIFICATION SECTION.
- P. MODEL NUMBERS LISTED ON DRAWINGS ARE BASED ON MANUFACTURERS LISTED. THE CONTRACTOR MAY AT HIS OPTION PROVIDE AN "OR-EQUAL" MANUFACTURED PRODUCT. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL COST ADDITIONS REQUIRED TO THE SYSTEM SHOULD AN "OR-EQUAL" MANUFACTURER BE SELECTED.
- Q. COORDINATE THE INSTALLATION OF THE WORK WITH ALL OTHER TRADES BEFORE INSTALLATION TO ELIMINATE CONFLICTS OVER AVAILABLE SPACE.
- R. ARRANGE WITH OTHER TRADES FOR THE PROVISION OF ALL CHASES, SLOTS, AND OPENINGS NECESSARY FOR THE PROPER INSTALLATION OF THE MECHANICAL AND PLUMBING WORK.
- S. COORDINATE THE INSTALLATION OF ALL REQUIRED SUPPORTING DEVICES.
- T. WHERE ELECTRICAL CONNECTIONS ARE REQUIRED, CONFIRM REQUIREMENTS WITH PROJECT ELECTRICAL CONTRACTOR BEFORE ITEM IS ORDERED.
- U. WHERE STARTERS, DISCONNECTS, ETC. ARE NOT SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS, THEY ARE TO BE PROVIDED BY THE MECHANICAL CONTRACTOR.
- V. MAINTAIN A "CLEAN" SET OF PROJECT DRAWINGS FOR THE SOLE PURPOSE OF RECORDING DEVIATIONS FROM THE DESIGN. THIS SET OF DRAWINGS SHALL BE MAINTAINED WITH ALL MODIFICATIONS MARKED-UP AS WORK PROGRESSES. DRAWINGS TO BE TURNED OVER TO THE OWNER FOR FUTURE REFERENCE.
- W. ALL OPENINGS IN PIPING AND DUCT WORK SYSTEMS SHALL BE PROTECTED DURING CONSTRUCTION TO PREVENT THE ENTRANCE OF FOREIGN MATERIALS.
- X. ALL SYSTEMS FABRICATED ON-SITE SHALL BE TESTED BY THE CONTRACTOR. TESTING SHALL INCLUDE THE PROVISION OF ALL NECESSARY EQUIPMENT, LABOR, AND FLUIDS.
- Y. WHEN CONNECTIONS TO SITE SERVICES ARE REQUIRED, CONFIRM LOCATIONS AND ELEVATION OF SAME PRIOR TO PROCEEDING WITH THE LAYOUT OF BUILDING SYSTEM.
- Z. FLUSH AND TEST SYSTEM FOR LEAKS. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROPER LEAK-FREE OPERATION OF SYSTEM. SOLDER JOINTS WITH LEAD-FREE SOLDER.

VILLAGE OF SUTTONS BAY

ABONMARCHÉ

Surveying
Engineering
Architecture

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SUTTONS BAY MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI 49682

MECHANICAL SPECIFICATIONS

FOR CONSTRUCTION

TREVOR RICHARDSON

License No. 6201310278

REGISTERED PROFESSIONAL ENGINEER

ISSUE DATE: 02/17/2026
PM: QA / QC:

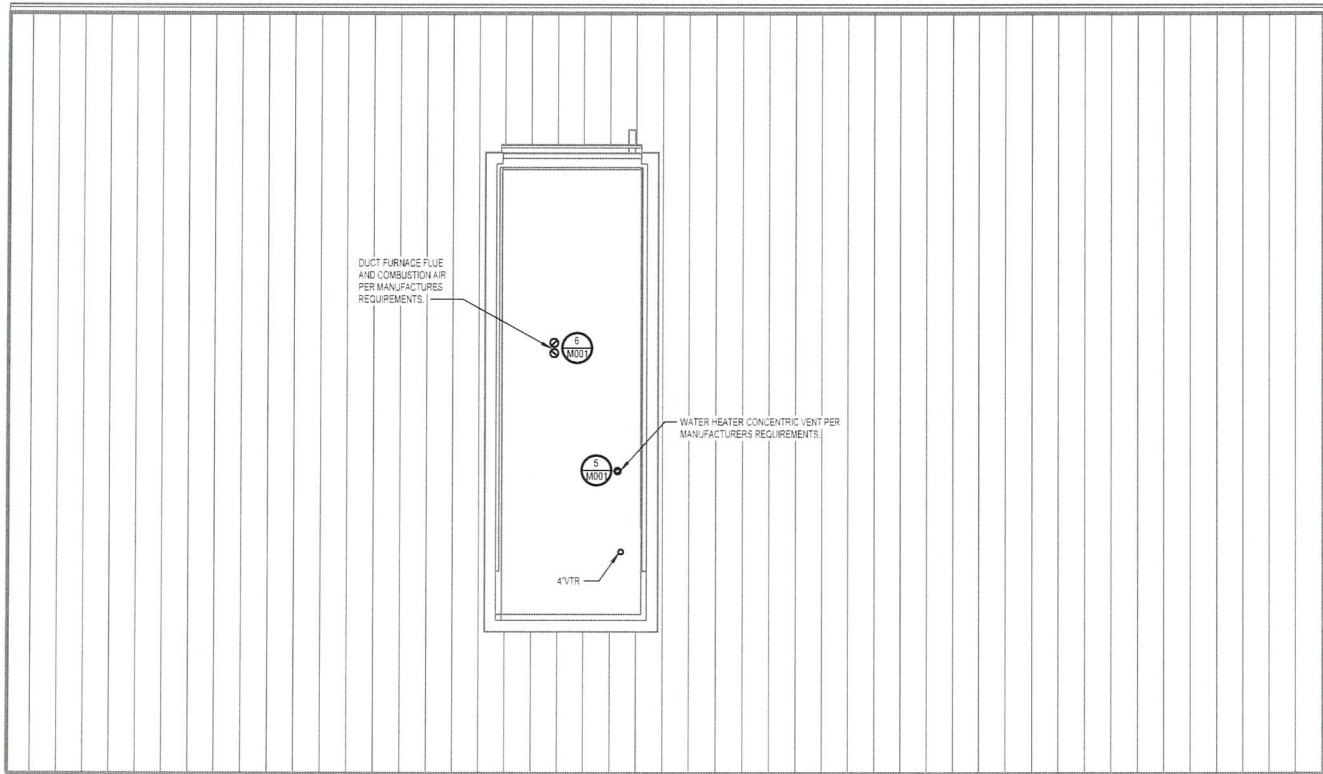
ISSUANCE / REVISION

DATE

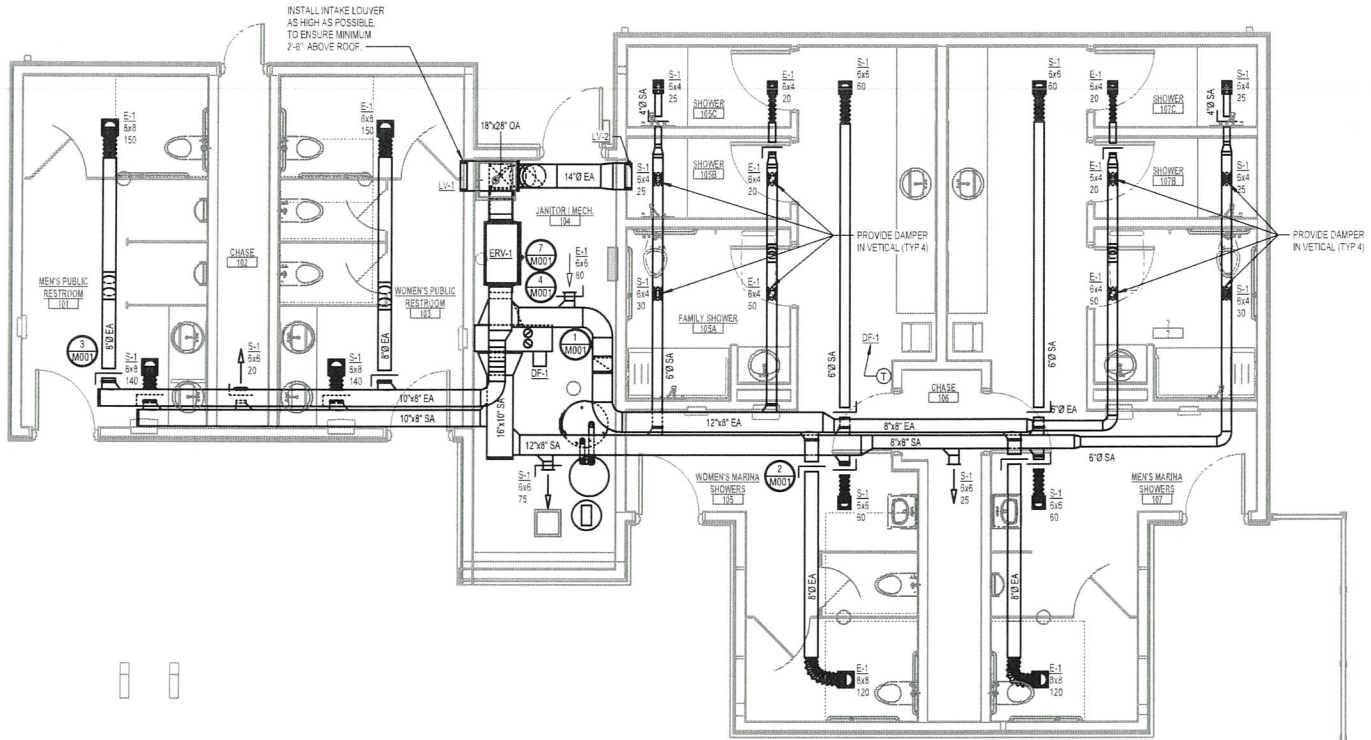
ORIGINAL SHEET IS 34'-X36'
DO NOT SCALE DRAWINGS

PROJECT NO: 24-1952

M002



MECHANICAL ROOF PLAN
SCALE: 1/4" = 1'-0"



HVAC PLAN
SCALE: 1/4" = 1'-0"

DUCT SIZING CHART	
AIRFLOW (CFM)	SIZE (IN) OR EQUIVALENT
0-100	8"Ø
101-250	8"Ø
251-400	10"Ø
401-650	12"Ø
651-1000	14"Ø
1001-1400	16"Ø

VILLAGE OF SUTTONS BAY
SUTTONS BAY MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI 49682
HVAC PLAN & MECHANICAL ROOF PLAN

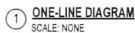
FOR CONSTRUCTION



ISSUE DATE: 02/17/2026
PM: QA / QC:

ISSUANCE / REVISION
ORIGINAL SHEET IS 34"X46"
DO NOT SCALE DRAWINGS
PROJECT NO: 24-1952

M210



NOTES: (BLANK) - STANDARD BREAKER, (G) - GROUND FAULT CIRCUIT INTERRUPTOR, (A) - ARC FAULT CIRCUIT INTERRUPTER, (S) - SHUNT TRIP, (C) - 100% CONTINUOUS RATED, (E) - EXISTING

MARK	SYMBOL	WATTS	TYPE	MANUFACTURER	MTG.	REMARKS
CA		15 W	LED	HALO PR-FS24-D010-PR6M-24MD-8FS-MW OR EQUIVALENT	SURFACE	6" DIAMETER RECESSED DOWNLIGHT. SELECT 80CRI AND 2000 LUMENS
IA		51 W	LED	METALUX 4174-TL52-6-UNV-L84Q-CD1-WL-U OR EQUIVALENT	WALL 8'-0" AFF	4' STRIPLIGHT. 5000 LUMENS. 80 CRI. 4000K COLOR TEMPERATURE.
VA		20 W	LED	BLACKJACK LIGHTING VEG-38V-121-40K OR EQUIVALENT	WALL 7'-0" AFF	3 VANTY LIGHT. 1500 LUMENS. 90CRI. 4000K COLOR TEMPERATURE
VIA		17 W	LED	MOGRAN-DESIGN G00-PR5-1-C-735Q-UTL-BK-CBP-8PC(120V)-MS/DIM-L20 OR EQUIVALENT	WALL 10'-0" ABOVE GRADE	EXTERIOR EGRESS LIGHT W/ MOTION/AMBIENT LIGHT SENSOR, PHOTOCELL, AND EMERGENCY BATTERY BACKUP. 2244 DELIVERED LUMENS. TPOPI. 3500K COLOR TEMPERATURE.
XA		1 W	LED	SURE LITES PCK - 71 OR EQUIVALENT	WALL 8'-0" AFF	EMERGENCY EXIT SIGN. PROVIDE FACES AND CHEVRONS AS SHOWN.

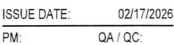
CONDUITS AND OUTLETS S	PROVIDED BY	INSTALLED BY	WIRED BY	E = ELECTRICAL M = MECHANICAL X = OTHERS		M.A.T TO CENTERS
				SYMBOL	DESCRIPTION	
m	m	m	m		OCCUPANCY SENSOR	CEILING
m	m	m	m		OCCUPANCY SENSOR SWITCH	44"
m	m	m	m		LIGHT SWITCH	44"

CONDUITS AND OUTLETS	PROVIDED BY	INSTALLED BY	WIRED BY	E = ELECTRICAL M = MECHANICAL X = OTHERS		IN H. TO CENTER
				SYMBOL	DESCRIPTION	
1"	E	E	E		DUPLEX RECEPTACLE	18"
1"	E	E	E		GFCI RECEPTACLE, WP = WEATHERPROOF IN-USE COVER	18"
1"	E	E	E		GFCI RECEPTACLE, ABOVE COUNTER OR AS NOTED, WP = WEATHERPROOF IN-USE COVER	44"

CONDUITS AND OUTLETS	INSTALLED BY	PROVIDED BY	WIRED BY	E = ELECTRICAL M = MECHANICAL X = OTHERS		MATERIAL CENTER
				SYMBOL	DESCRIPTION	
E	E	E	E		FUSIBLE DISCONNECT SWITCH	
E	E	E	E		NON-FUSIBLE DISCONNECT SWITCH	
E	E	E	E		CIRCUIT BREAKER PANEL SURFACE MOUNTED	

SUTTONS BAY MARINA COMFORT STATION

ELECTRICAL COVER



#	ISSUANCE / REVISION	DATE
	ORIGINAL SHEET IS 24"x36"	
	DO NOT SCALE DRAWINGS	

PROJECT NO: 24-1952

E001

DIVISION 25 - ELECTRICAL SPECIFICATIONS

250500 - GENERAL PROVISIONS

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRIC CODE AND ALL AUTHORITIES HAVING JURISDICTION.
2. ARRANGE FOR SERVICE INSTALLATIONS WITH UTILITY COMPANY AND OWNER TO PAY ANY CHARGES THAT ARE IMPOSED, SECURE AND PAY FOR ALL PERMITS AND FEES.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES FOR INSTALLATION OF ALL EQUIPMENT. FIELD VERIFICATION OF ALL DIMENSIONS IS REQUIRED. EXACT LOCATIONS, DISTANCES AND LEVELS WILL BE GOVERNED BY ACTUAL FIELD CONDITIONS.
4. PROVIDE ALL SUPERVISION LABOR, MATERIALS, INSTRUMENTATION AND EQUIPMENT NECESSARY TO EFFECTIVELY TEST, MEASURE AND VERIFY THE PERFORMANCE OF THE ELECTRICAL EQUIPMENT SYSTEMS. TEST FOR GROUNDS AND SHORT CIRCUITS.
5. PROVIDE SHOP DRAWINGS TO ENGINEER AND ARCHITECT FOR APPROVAL OF THE FOLLOWING PRODUCTS:
 - a. NEW PANELBOARDS
 - b. MOTOR CONTROL EQUIPMENT
 - c. LIGHTING CONTROL DEVICES
 - d. LIGHTING FIXTURES
6. WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.

250510 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

1. CONDUCTOR SIZES AS SHOWN ON ONE-LINE DIAGRAM AND POWER DRAWINGS.
2. COPPER BUILDING WIRE
 - a. DESCRIPTION: FLEXIBLE, INSULATED AND UNINSULATED, DRAWN, COPPER CURRENT-CARRYING CONDUCTOR WITH AN OVERALL INSULATION LAYER OR JACKET, OR BOTH, RATED 600 V OR LESS.
 - b. CONDUCTOR AND CABLE MARKING: COMPLY WITH WIRE AND CABLE MARKING ACCORDING TO UL 796 AND CABLE MARKING AND APPLICATION GUIDE.
 - c. CONDUCTORS: COPPER, COMPLYING WITH ASTM B3 FOR BARE ANNEALED COPPER AND WITH ASTM B484 FOR STRANDED CONDUCTORS.
 - d. CONDUCTOR INSULATION:
 - a. TYPE THHN: COMPLY WITH UL 15.
 - b. TYPE THHW: COMPLY WITH UL 15.
 - c. TYPE XHHW: COMPLY WITH UL 44.
3. CONNECTORS AND SPLICES
 - a. DESCRIPTION: FACTORY-FABRICATED CONNECTORS, SPLICES, AND LUGS OF SIZE APPROPRIATE RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED. LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
4. EXECUTION
 - a. INSTALLATION: GENERAL
 - i. CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE INDICATED.
 - ii. USE MANUFACTURER-APPROVED PULLING COMPOUND OR LUBRICANT WHERE NECESSARY. COMPOUND USED MUST NOT DEGRADATE CONDUCTOR OR INSULATION. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM PULLING TENSIONS AND EXERCISE CARE TO PREVENT DAMAGE TO CABLES.
 - iii. INSTALL EXPOSED CABLES PARALLEL AND PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS, AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE.
 - iv. INSTALL SLEEVES AND SLEEVE SEALS AT PENETRATIONS OF EXTERIOR FLOOR AND WALL ASSEMBLIES.
 - b. IDENTIFICATION
 - i. IDENTIFY AND COLOR-CODE CONDUCTORS AND CABLES ACCORDING TO SECTION 250535 "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
 - ii. IDENTIFY EACH SPARE CONDUCTOR AT EACH END WITH IDENTITY NUMBER AND LOCATION OF OTHER END OF CONDUCTOR, AND IDENTIFY AS SPARE CONDUCTOR.

5. FIRESTOPPING
 - a. APPLY FIRESTOPPING TO ELECTRICAL PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY ACCORDING TO SECTION 07413 "PENETRATION FIRESTOPPING."

250520 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

INSTALL A COMPLETE GROUNDING SYSTEM FOR THE GROUNDED NEUTRALS, CONDUIT SYSTEM, PANEL BOARDS, MOTORS, MOTOR DRIVEN EQUIPMENT, SWITCHES, AND WIRING DEVICES. ALL ITEMS TO BE LISTED AND LABELED IN ACCORDANCE WITH NFPA 70, BY A QUALIFIED ELECTRICAL TESTING LABORATORY RECOGNIZED BY AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF AN ELECTRODE 3/4" O.D. COLD STEEL ROD 10'-0" LONG, THE GROUNDING ELECTRODE SHALL BE COPPER, CAD WELDED TO BOTH THE METAL UNDERGROUND WATER PIPE AND BUILDING STEEL.

ROUTE GROUNDING ELECTRODE CONDUCTOR FROM ELECTRICAL SERVICE GROUNDING POINT TO NEW METAL WATER SERVICE PIPING. PROVIDE WIRING TO BYPASS WATER METER AND INSURE CONTINUITY.

1. GROUNDING AND BONDING CONDUCTORS
 - a. EQUIPMENT GROUNDING CONDUCTOR
 - i. GENERAL CHARACTERISTICS: 300 V, THHN/THW-2, COPPER OR TINNED-COPPER WIRE OR CABLE, GREEN COLOR, IN ACCORDANCE WITH SECTION 250510 "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES."
 - ii. ASTM: BARE COPPER GROUNDING AND BONDING CONDUCTOR/COMPLY WITH ONE OR MORE OF THE FOLLOWING:
 - a. SOFT OR ANNEALED COPPER WIRE: ASTM B3
 - b. CONCENTRICALLY STRANDED COPPER CONDUCTOR: ASTM B8
 - c. TIN-COATED SOFT OR ANNEALED COPPER WIRE: ASTM B33
 - iii. 10-0% COMBINATION UNILAY STRANDED COPPER CONDUCTOR: ASTM B197/B197M
2. GROUNDING AND BONDING CLAMPS
 - a. DESCRIPTION: CLAMPS SUITABLE FOR ATTACHMENT OF GROUNDING AND BONDING CONDUCTORS TO GROUNDING ELECTRODES, PIPES, TUBING, AND REAR, GROUNDING AND BONDING CLAMPS SPECIFIED IN THIS ARTICLE SHOULD ALSO BE SUITABLE FOR USE WITH COMMUNICATIONS APPLICATIONS. SEE SECTION 270520 "GROUNDING AND BONDING FOR COMMUNICATIONS SYSTEMS" FOR SELECTION AND INSTALLATION GUIDELINES.
 - b. PERFORMANCE CRITERIA
 - i. GROUNDING AND BONDING EQUIPMENT: UL CCN K08R, INCLUDING UL 467.
 - ii. GROUNDING AND BONDING EQUIPMENT FOR COMMUNICATIONS: UL CCN K08H, INCLUDING UL 467.
3. GROUNDING AND BONDING CONNECTORS
 - a. PERFORMANCE CRITERIA
 - i. GROUNDING AND BONDING EQUIPMENT: UL CCN K08R, INCLUDING UL 467.
 - ii. GROUNDING AND BONDING EQUIPMENT FOR COMMUNICATIONS: UL CCN K08H, INCLUDING UL 467.
4. GROUNDING (EARTHING) ELECTRODES
 - a. DESCRIPTION: GROUNDING ELECTRODES INCLUDE METAL UNDERGROUND WATER PIPES, METAL BUILDING FRAMES, CONCRETE-ENCASED ELECTRODES AND PIPE AND PLATE ELECTRODES.
 - b. PERFORMANCE CRITERIA
 - i. GROUNDING AND BONDING EQUIPMENT: UL CCN K08R, INCLUDING UL 467.

5. EXECUTION
 - a. SELECTION OF GROUNDING AND BONDING CONDUCTORS
 - i. CONDUCTORS: INSTALL SOLID CONDUCTOR FOR 8 AWG AND SMALLER, AND STRANDED CONDUCTORS FOR 8 AWG AND LARGER UNLESS OTHERWISE INDICATED.
 - ii. CUSTOM-LENGTH INSULATED EQUIPMENT BONDING JUMPERS: 8 AWG, 15-STRAND, TYPE THHN.
 - iii. BONDING CABLE: 28 KCMIL, 14 STRANDS OF 17 AWG CONDUCTOR, 1/4 INCH IN DIAMETER.
 - iv. BONDING CONDUCTOR: 4 AWG OR 6 AWG, STRANDED CONDUCTOR.
 - v. BONDING JUMPER: COPPER TAPE, BRAIDED CONDUCTORS TERMINATED WITH COPPER 4, FERFULES: 1/8 INCH WIDE AND 1/16 INCH THICK.
 - vi. TINNED BONDING JUMPER: TINNED-COPPER TAPE, BRAIDED CONDUCTORS TERMINATED WITH COPPER FERFULES: 1/8 INCH WIDE AND 1/16 INCH THICK.
 - b. SELECTION OF CONNECTORS
 - i. PIPE AND EQUIPMENT GROUNDING CONDUCTOR TERMINATIONS: BOLTED CONNECTORS.
 - ii. UNDERGROUND CONNECTIONS: WELDED CONNECTORS EXCEPT AT TEST WELLS AND AS OTHERWISE INDICATED.
 - iii. CONNECTIONS TO GROUNDING RODS AT TEST WELLS: BOLTED CONNECTORS.
 - iv. CONNECTIONS TO STRUCTURAL STEEL: WELDED CONNECTORS.
 - c. INSTALLATION
 - i. SPECIAL TECHNIQUES
 - a. ROUTE ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE UNLESS OTHERWISE INDICATED OR REQUIRED BY CODE. AVOID OBSTRUCTING ACCESS OR PLACING CONNECTIONS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE.

- CONNECTIONS: MAKE CONNECTIONS SO POSSIBILITY OF GALVANIC ACTION OR ELECTROLYSIS IS MINIMIZED. SELECT CONNECTORS, CONNECTION HARDWARE, CONDUCTORS, AND CONNECTION METHODS SO METALS IN DIRECT CONTACT ARE QUASI-UNIONALLY COMPATIBLE.
- USE ELECTROPLATED OR HOT-DIP-COATED MATERIALS TO ENSURE HIGH CONDUCTIVITY AND TO MAKE CONTACT POINTS CLOSER IN ORDER OF GALVANIC SERIES.
- MAKE CONNECTIONS WITH CLEAN, BARE METAL AT POINTS OF CONTACT.
- BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT.
- BONDING TO STRUCTURE: BOND STRAPS DIRECTLY TO BASIC STRUCTURE, TAKING CARE NOT TO PENETRATE ADJACENT PARTS.
- USE EXOTHERMIC WELDED CONNECTIONS FOR OUTDOOR LOCATIONS, IF DISCONNECT TYPE CONNECTION IS REQUIRED. USE BOLTED CLAMP.
- COVERS FOR ELECTRICAL SYSTEMS WELDING AND FITTINGS.
- INSTALLATION OF BOXES AND COVERS FOR ELECTRICAL SYSTEMS
 - a. REFERENCE STANDARDS FOR INSTALLATION
 - i. OUTLET, DEVICE, PULL, AND JUNCTION BOXES: ARTICLE 314 OF NFPA 70.
 - ii. SPECIAL INSTALLATION TECHNIQUES
 - a. PROVIDE BOXES IN WIRING AND RACEWAY SYSTEMS WHEREVER REQUIRED FOR PULLING OF WIRES, MAKING CONNECTIONS, AND MOUNTING OF DEVICES OR FIXTURES.
 - b. MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING HEIGHTS OF BOXES ARE NOT INDIVIDUALLY INDICATED, GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED.
 - c. HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL.
 - d. LOCATION BOXES SO THAT COVER OR PLATE WILL NOT SPAN DIFFERENT BUILDING FINISHES.
 - e. SUPPORT BOXES IN RECESSED CEILING UNLESS INDEPENDENT OF CEILING TILES AND CEILING GRID.
 - f. SUPPORT BOXES OF THREE GANGS OR MORE FROM MORE THAN ONE SIDE BY SPANNING TWO FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR PURPOSE.
 - g. FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.
 - h. SET NONMETALLIC FLOOR BOXES LEVEL. TRIM AFTER INSTALLATION TO FIT FLUSH WITH FINISHED FLOOR SURFACE.
 - b. INTERFACES WITH OTHER WORK
 - i. COORDINATE WITH SECTION 07413 "PENETRATION FIRESTOPPING" FOR INSTALLATION OF FIRESTOPPING AT PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES.
 - ii. COORDINATE WITH SECTION 070505 "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS" FOR INSTALLATION OF CONDUIT HANGERS AND SUPPORTS.
 - c. CLEANING
 - i. REMOVE CONSTRUCTION DUST AND DEBRIS FROM BOXES BEFORE INSTALLING WALLPLATES, COVERS, AND WOODS.

250520 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

1. SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS
 - a. IDENTIFY AND COLOR-CODE CONDUCTORS AND CABLES ACCORDING TO SECTION 250535 "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
 - b. IDENTIFY EACH SPARE CONDUCTOR AT EACH END WITH IDENTITY NUMBER AND LOCATION OF OTHER END OF CONDUCTOR, AND IDENTIFY AS SPARE CONDUCTOR.
2. FIRESTOPPING
 - a. APPLY FIRESTOPPING TO ELECTRICAL PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY ACCORDING TO SECTION 07413 "PENETRATION FIRESTOPPING."

3. EXECUTION
 - a. INSTALLATION OF SUPPORTS
 - i. COMPLY WITH NECA NEIS 101 FOR INSTALLATION REQUIREMENTS EXCEPT AS SPECIFIED IN THIS ARTICLE.
 - ii. RACEWAY SUPPORT METHODS: IN ADDITION TO METHODS DESCRIBED IN NECA NEIS 1, EMT MAY BE SUPPORTED BY OPENINGS THROUGH STRUCTURE MEMBERS, IN ACCORDANCE WITH NFPA 70 TO MOUNTING AND ANCHORAGE OF SURFACE-MOUNTED EQUIPMENT AND COMPONENTS ANCHOR AND FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTS TO BUILDING STRUCTURAL ELEMENTS BY THE FOLLOWING METHODS UNLESS OTHERWISE INDICATED BY CODE:
 - a. TO WOOD: FASTEN WITH LAG SCREWS OR THROUGH BOLTS.
 - b. TO NEW CONCRETE: BOLTS TO CONCRETE INSERTS.
 - c. TO MASONRY: APPROVED TOGGLE-TYPE BOLTS ON HOLLOW MASONRY UNITS AND EXPANSION ANCHOR FASTENERS ON SOLID MASONRY UNITS.
 - d. TO EXISTING CONCRETE: EXPANSION ANCHOR FASTENERS.
 - e. TO STEEL: BEAM CLAMPS (MSS SP-98, TYPE 19, 21, 23, 25, OR 27), COMPLYING WITH MSS SP-98.
 - f. TO LIGHT STEEL SHEET METAL SCREWS.
 - g. ITEMS MOUNTED ON HOLLOW WALLS AND NONSTRUCTURAL BUILDING SURFACES: MOUNT CABLES, PANELBOARDS, DISCONNECT SWITCHES, CONTROL ENCLOSURES, PULL AND JUNCTION BOXES, TRANSFORMERS, AND OTHER DEVICES ON SLOTTED-CHANNEL RACKS ATTACHED TO SUBSTRATE.
 - iii. INSTALLATION OF FABRICATED METAL SUPPORTS
 - a. CUT, FIT, AND PLACE MISCELLANEOUS METAL SUPPORTS ACCURATELY IN LOCATION, ALIGNMENT, AND ELEVATION TO SUPPORT AND ANCHOR ELECTRICAL MATERIALS AND EQUIPMENT.
 - b. FIELD WELDING: COMPLY WITH AWS D1.1/D1.1M, SUBMIT WELDING CERTIFICATES.

250530 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

1. COLOR AND LEGEND REQUIREMENTS
 - a. RACEWAYS AND CABLES CARRYING CIRCUITS AT 1000 V OR LESS:
 - i. BLACK LETTERS ON ORANGE FIELD.
 - ii. LEGEND: INDICATE VOLTAGE AND SYSTEM OR SERVICE TYPE.
 - iii. COLOR CODING FOR PHASE- AND VOLTAGE LEVEL IDENTIFICATION: 1000 V OR LESS: USE COLORS LISTED BELOW FOR UNGROUNDED SERVICE FEEDER AND BRANCH-CIRCUIT CONDUCTORS.
 - iv. COLOR MUST BE FACTORY APPLIED OR FIELD APPLIED FOR SIZES LARGER THAN 8 AWG IF AUTHORITIES HAVING JURISDICTION PERMIT.
 - v. COLORS FOR 240V/120V CIRCUITS:
 - a. PHASE A: BLACK
 - b. PHASE B: RED
 - c. COLOR FOR NEUTRAL: WHITE OR GRAY
 - d. COLOR FOR EQUIPMENT GROUNDING: BARE COPPER OR GREEN
 - e. EQUIPMENT IDENTIFICATION LABELS
 - f. MARKER FOR LABELS
 - vi. BLACK LETTERS ON WHITE FIELD.

250530 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

1. COMPLY WITH NECA 1 AND NECA 101 FOR INSTALLATION REQUIREMENTS EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS ARTICLE ARE STRicter. COMPLY WITH NFPA 70 LIMITATIONS FOR TYPES OF RACEWAYS ALLOWED IN SPECIFIC OCCUPANCIES AND NUMBER OF FLOORS.
2. PROVIDE CONDUIT TYPES AS SHOWN BELOW:
 - a. OUTDOORS
 - i. EXPOSED AND SUBJECT TO PHYSICAL DAMAGE: ERMIC.
 - ii. DIRECT BURIED: PVC-40-PVC.
 - iii. INDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW UNLESS OTHERWISE INDICATED:
 - iv. EXPOSED AND SUBJECT TO PHYSICAL DAMAGE: ERMIC-S.
 - v. CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS: EMT.
 - vi. SERVICE CONDUITS: RIGID GALVANIZED STEEL.
 - vii. MINIMUM RACEWAY SIZE: 3/4 INCH (19MM) TRADE SIZE.
 - b. PROVIDE BOX TYPES AS SHOWN BELOW:
 - i. OUTDOORS
 - a. TYPE 3R UNLESS OTHERWISE INDICATED.
 - ii. TYPE 3R UNLESS OTHERWISE INDICATED.

3. EXECUTION
 - a. REFERENCE STANDARDS FOR INSTALLATION, UNLESS MORE STRINGENT INSTALLATION REQUIREMENTS ARE SPECIFIED IN CONTRACT DOCUMENTS OR MANUFACTURER'S PUBLISHED INSTRUCTIONS, COMPLY WITH THE FOLLOWING:
 - i. TYPE EMT-A: ARTICLE 358 OF NFPA 70 AND NECA NEIS 102.
 - ii. TYPE EMT-S: ARTICLE 358 OF NFPA 70 AND NECA NEIS 101.
 - iii. TYPE ERMIC-A: ARTICLE 344 OF NFPA 70 AND NECA NEIS 102.
 - iv. TYPE ERMIC-S: ARTICLE 344 OF NFPA 70 AND NECA NEIS 101.
 - v. TYPE FMC-S: ARTICLE 348 OF NFPA 70 AND NECA NEIS 101.
 - vi. TYPE PVC: ARTICLE 350 OF NFPA 70 AND NECA NEIS 111.
 - vii. EXPANSION FITTINGS: NECA NEIS 2.40.
 - b. INSTALLATION OF CONDUIT:
 - i. SPECIAL INSTALLATION TECHNIQUES:
 - a. DO NOT INSTALL CONDUITS WITHIN 2 INCH OF THE BOTTOM SIDE OF A METAL DECK ROOF.
 - b. CUT CONDUIT PERPENDICULAR TO THE LENGTH. FOR CONDUITS METRIC DESIGNATOR S3 (TRADE SIZE 2) AND LARGER, USE ROLL CUTTER OR A GUIDE TO MAKE CUT STRAIGHT AND PERPENDICULAR TO THE LENGTH. REAM INSIDE OF CONDUIT TO REMOVE BURRS.
 - c. INSTALL PULL WIRES IN EMPTY DUCT RACEWAYS. PROVIDE POLYPROPYLENE OR MONOPOLYMER PLASTIC LINE WITH NOT LESS THAN 200 LB TENSILE STRENGTH. LEAVE AT LEAST 12 INCH OF SLACK AT BOTH ENDS OF PULL WIRE. CAP UNDERGROUND DUCT RACEWAYS DESIGNATED AS SPARE ABOVE GRADE. ALONGSIDE DUCT RACEWAYS IN USE.

250530 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS (CONT)

- b. TYPES ERMIC
 - i. THREADED CONDUIT JOINTS: EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS. APPLY LISTED COMPOUND THAT MAINTAINS ELECTRICAL CONDUCTIVITY TO THREADS OF DUCT RACEWAY AND FITTINGS BEFORE MAKING UP JOINTS. FOLLOW COMPOUND MANUFACTURER'S PUBLISHED INSTRUCTIONS.
 - ii. PROVIDE A MAXIMUM OF 72 INCH OF FLEXIBLE CONDUIT FOR EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT, AND FOR TRANSFORMERS AND MOTORS.
- c. TYPES PVC
 - i. DO NOT INSTALL TYPE PVC, TYPE HOPE, OR TYPE EPEC CONDUIT WHERE AMBIENT TEMPERATURE EXCEEDS 122 DEG F. CONDUCTOR RATINGS MUST BE LIMITED TO 75 DEG C EXCEPT WHERE INSTALLED IN A TRENCH OUTSIDE BUILDINGS WITH CONCRETE ENCASEMENT. WHERE 90 DEG C CONDUCTORS ARE PERMITTED, CONSIDER FOR ELECTRICAL SYSTEMS WELDING AND FITTINGS.
- d. INSTALLATION OF BOXES AND COVERS FOR ELECTRICAL SYSTEMS
 - a. REFERENCE STANDARDS FOR INSTALLATION
 - i. OUTLET, DEVICE, PULL, AND JUNCTION BOXES: ARTICLE 314 OF NFPA 70.
 - ii. SPECIAL INSTALLATION TECHNIQUES
 - a. PROVIDE BOXES IN WIRING AND RACEWAY SYSTEMS WHEREVER REQUIRED FOR PULLING OF WIRES, MAKING CONNECTIONS, AND MOUNTING OF DEVICES OR FIXTURES.
 - b. MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING HEIGHTS OF BOXES ARE NOT INDIVIDUALLY INDICATED, GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED.
 - c. HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL.
 - d. LOCATION BOXES SO THAT COVER OR PLATE WILL NOT SPAN DIFFERENT BUILDING FINISHES.
 - e. SUPPORT BOXES IN RECESSED CEILING UNLESS INDEPENDENT OF CEILING TILES AND CEILING GRID.
 - f. SUPPORT BOXES OF THREE GANGS OR MORE FROM MORE THAN ONE SIDE BY SPANNING TWO FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR PURPOSE.
 - g. FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.
 - h. SET NONMETALLIC FLOOR BOXES LEVEL. TRIM AFTER INSTALLATION TO FIT FLUSH WITH FINISHED FLOOR SURFACE.
 - b. INTERFACES WITH OTHER WORK
 - i. COORDINATE WITH SECTION 07413 "PENETRATION FIRESTOPPING" FOR INSTALLATION OF FIRESTOPPING AT PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES.
 - ii. COORDINATE WITH SECTION 070505 "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS" FOR INSTALLATION OF CONDUIT HANGERS AND SUPPORTS.
 - c. CLEANING
 - i. REMOVE CONSTRUCTION DUST AND DEBRIS FROM BOXES BEFORE INSTALLING WALLPLATES, COVERS, AND WOODS.

250540 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLES

1. EXECUTION
 - a. INSTALLATION OF SLEEVES FOR NON-FIRE RATED ELECTRICAL PENETRATIONS:
 - i. INTERIOR PENETRATIONS OF FLOORS AND FLOORS:
 - a. SEAL SPACE OUTSIDE OF SLEEVES WITH MORTAR OR GROUT. PACK SEALING MATERIAL, SOLIDLY, BETWEEN SLEEVE AND WALL OR FLOOR SO NO VOIDS REMAIN. TOOL EXPOSED SURFACES SMOOTH. PROTECT MATERIAL WHILE CURING.
 - b. SEAL ANNUAL SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE TO BE SUPPORTED JOINT SEALANT APPROPRIATE FOR SIZE, DEPTH, AND LOCATION OF JOINT. COMPLY WITH RECOMMENDED IN SECTION 070505 "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS" FOR SEALING.
 - ii. USE PIPE SLEEVES UNLESS PENETRATION ARRANGEMENT REQUIRES RECTANGULAR SLEEVED OPENING.
 - iii. SIZE PIPE SLEEVES TO PROVIDE 1/4 INCH ANNUAL CLEAR SPACE BETWEEN RACEWAY AND CABLE, UNLESS SLEEVE-SEAL SYSTEM IS TO BE INSTALLED.
 - iv. INSTALL SLEEVES FOR WALL PENETRATIONS UNLESS CORE-DRILLED HOLES OR FORMED OPENINGS ARE USED. INSTALL SLEEVES DURING ERECTION OF WALLS. CUT SLEEVES TO LENGTH OF JOINT, MOUNTING FLUSH WITH BOTH SURFACES OF WALLS. DEBURR AFTER CUTTING.
 - v. INSTALL SLEEVES FOR FLOOR PENETRATIONS. EXTEND SLEEVES INSTALLED IN FLOORS 2 INCH ABOVE FINISHED FLOOR LEVEL. INSTALL SLEEVES DURING ERECTION OF FLOORS.

- b. SLEEVES FOR CONDUITS PENETRATING NON-FIRE RATED WALL ASSEMBLIES
 - i. USE CIRCULAR METAL SLEEVES UNLESS PENETRATION ARRANGEMENT REQUIRES RECTANGULAR SLEEVED OPENING.
 - ii. SEAL SPACE OUTSIDE OF SLEEVES WITH APPROVED JOINT COMPOUND FOR WALL ASSEMBLIES.
- c. ABOVE-GROUND EXTERIOR-WALL PENETRATIONS: SEAL PENETRATIONS USING STEEL PIPE SLEEVES AND MECHANICAL SLEEVE-SEAL SYSTEMS. SIZE SLEEVES TO ALLOW FOR 1 INCH ANNUAL CLEAR SPACE BETWEEN RACEWAY OR CABLE AND SLEEVE FOR INSTALLING SLEEVE-SEAL SYSTEM. INSTALL SLEEVE DURING CONSTRUCTION OF FLOOR OR WALL.
- d. INSTALL STEEL PIPE SLEEVES: SIZE SLEEVES TO ALLOW FOR 1 INCH ANNUAL CLEAR SPACE BETWEEN RACEWAY OR CABLE AND SLEEVE FOR INSTALLING SLEEVE-SEAL SYSTEM. INSTALL SLEEVE DURING CONSTRUCTION OF FLOOR OR WALL.
- e. INSTALL STEEL PIPE SLEEVES: SIZE SLEEVES TO ALLOW FOR 1 INCH ANNUAL CLEAR SPACE BETWEEN RACEWAY OR CABLE AND SLEEVE FOR INSTALLING SLEEVE-SEAL SYSTEM. INSTALL SLEEVE DURING CONSTRUCTION OF FLOOR OR WALL.

250550 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

1. COLOR AND LEGEND REQUIREMENTS
 - a. RACEWAYS AND CABLES CARRYING CIRCUITS AT 1000 V OR LESS:
 - i. BLACK LETTERS ON ORANGE FIELD.
 - ii. LEGEND: INDICATE VOLTAGE AND SYSTEM OR SERVICE TYPE.
 - iii. COLOR CODING FOR PHASE- AND VOLTAGE LEVEL IDENTIFICATION: 1000 V OR LESS: USE COLORS LISTED BELOW FOR UNGROUNDED SERVICE FEEDER AND BRANCH-CIRCUIT CONDUCTORS.
 - iv. COLOR MUST BE FACTORY APPLIED OR FIELD APPLIED FOR SIZES LARGER THAN 8 AWG IF AUTHORITIES HAVING JURISDICTION PERMIT.
 - v. COLORS FOR 240V/120V CIRCUITS:
 - a. PHASE A: BLACK
 - b. PHASE B: RED
 - c. COLOR FOR NEUTRAL: WHITE OR GRAY
 - d. COLOR FOR EQUIPMENT GROUNDING: BARE COPPER OR GREEN
 - e. EQUIPMENT IDENTIFICATION LABELS
 - f. MARKER FOR LABELS
 - vi. BLACK LETTERS ON WHITE FIELD.

250550 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

2. LABELS
 - a. LABEL ENDS OF CONDUCTORS WITH CIRCUIT NUMBER.
 - b. SELF-ADHESIVE WRAPAROUND LABELS: PREPRINTED 3 MIL THICK VINYL FLEXIBLE LABEL WITH ACRYLIC PRESSURE-SENSITIVE ADHESIVE.
 - c. SELF-LAMINATING, CLEAR UV-WEATHER- AND CHEMICAL-RESISTANT, SELF-LAMINATING, PROTECTIVE SHIELD OVER LEGEND. IDENTIFY EACH CONDUCTOR WITH SHIELD OVERLAYS ENTIRE PRINTED LEGEND.
 - d. MARKER FOR LABELS
 - i. MACHINE-PRINTED, PERMANENT, WATERPROOF, BLACK INK RECOMMENDED BY PRINTER MANUFACTURER.
 - e. SELF-ADHESIVE LABELS: POLYESTER VINYL, THERMAL TRANSFER-PRINTED, 3 MIL THICK, MULTICOOL, WEATHER- AND UV-RESISTANT, PRESSURE-SENSITIVE ADHESIVE LABELS, CONFIGURED FOR INTENDED USE AND LOCATION.
 - f. MINIMUM NOMINAL SIZE:
 - i. 1-1/2 BY 1/4 INCH FOR RACEWAY AND CONDUCTORS.
 - ii. 3-1/2 BY 1/4 INCH FOR EQUIPMENT.
 - iii. AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
3. TAGS
 - a. METAL TAGS: BRASS OR ALUMINUM, 2 BY 2 BY 1/16 INCH, WITH STAMPED LEGEND, PUNCHED FOR USE WITH SELF-LOCKING CABLE TIE FASTENER.
 - b. NONMETALLIC PREPRINTED TAGS: POLYETHYLENE TAGS, 0.015 INCH THICK, COLOR-CODED FOR PHASE AND VOLTAGE LEVEL, WITH FACTORY SCREENED PRINTED, PERMANENT DESIGNATIONS. PUNCHED FOR USE WITH SELF-LOCKING CABLE TIE FASTENER.
4. INSTALLATION
 - a. VERIFY AND COORDINATE IDENTIFICATION NAMES, ABBREVIATIONS, COLORS, AND OTHER FEATURES WITH REQUIREMENTS IN OTHER SECTIONS REQUIRING IDENTIFICATION APPLICATIONS: DRAWINGS, SHOP DRAWINGS, MANUFACTURER'S WIRING DIAGRAMS AND OPERATION AND MAINTENANCE MANUAL. USE CONSISTENT DESIGNATIONS THROUGHOUT PROJECT.
 - b. INSTALL IDENTIFYING DEVICES BEFORE INSTALLING ACoustICAL, CEILING AND SIMILAR CONCEALMENT.
 - c. VERIFY IDENTITY OF ITEM BEFORE INSTALLING IDENTIFICATION PRODUCTS.
 - d. COORDINATE IDENTIFICATION WITH PROJECT DRAWINGS, MANUFACTURER'S WIRING DIAGRAMS AND OPERATION AND MAINTENANCE MANUAL.
 - e. APPLY IDENTIFICATION DEVICES TO SURFACES THAT REQUIRE FINISH AFTER COMPLETING FINISH WORK.
 - f. INSTALL SIGNS WITH APPROVED LEGEND TO FACILITATE PROPER IDENTIFICATION, OPERATION AND MAINTENANCE OF ELECTRICAL SYSTEMS AND CONNECTED ITEMS.

250550 - IDENTIFICATION FOR ELECTRICAL SYSTEMS (CONT)

- b. TYPES ERMIC
 - i. THREADED CONDUIT JOINTS: EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS. APPLY LISTED COMPOUND THAT MAINTAINS ELECTRICAL CONDUCTIVITY TO THREADS OF DUCT RACEWAY AND FITTINGS BEFORE MAKING UP JOINTS. FOLLOW COMPOUND MANUFACTURER'S PUBLISHED INSTRUCTIONS.
 - ii. PROVIDE A MAXIMUM OF 72 INCH OF FLEXIBLE CONDUIT FOR EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT, AND FOR TRANSFORMERS AND MOTORS.
- c. TYPES PVC
 - i. DO NOT INSTALL TYPE PVC, TYPE HOPE, OR TYPE EPEC CONDUIT WHERE AMBIENT TEMPERATURE EXCEEDS 122 DEG F. CONDUCTOR RATINGS MUST BE LIMITED TO 75 DEG C EXCEPT WHERE INSTALLED IN A TRENCH OUTSIDE BUILDINGS WITH CONCRETE ENCASEMENT. WHERE 90 DEG C CONDUCTORS ARE PERMITTED, CONSIDER FOR ELECTRICAL SYSTEMS WELDING AND FITTINGS.
- d. INSTALLATION OF BOXES AND COVERS FOR ELECTRICAL SYSTEMS
 - a. REFERENCE STANDARDS FOR INSTALLATION
 - i. OUTLET, DEVICE, PULL, AND JUNCTION BOXES: ARTICLE 314 OF NFPA 70.
 - ii. SPECIAL INSTALLATION TECHNIQUES
 - a. PROVIDE BOXES IN WIRING AND RACEWAY SYSTEMS WHEREVER REQUIRED FOR PULLING OF WIRES, MAKING CONNECTIONS, AND MOUNTING OF DEVICES OR FIXTURES.
 - b. MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING HEIGHTS OF BOXES ARE NOT INDIVIDUALLY INDICATED, GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED.
 - c. HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL.
 - d. LOCATION BOXES SO THAT COVER OR PLATE WILL NOT SPAN DIFFERENT BUILDING FINISHES.
 - e. SUPPORT BOXES IN RECESSED CEILING UNLESS INDEPENDENT OF CEILING TILES AND CEILING GRID.
 - f. SUPPORT BOXES OF THREE GANGS OR MORE FROM MORE THAN ONE SIDE BY SPANNING TWO FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR PURPOSE.
 - g. FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.
 - h. SET NONMETALLIC FLOOR BOXES LEVEL. TRIM AFTER INSTALLATION TO FIT FLUSH WITH FINISHED FLOOR SURFACE.
 - b. INTERFACES WITH OTHER WORK
 - i. COORDINATE WITH SECTION 07413 "PENETRATION FIRESTOPPING" FOR INSTALLATION OF FIRESTOPPING AT PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES.
 - ii. COORDINATE WITH SECTION 070505 "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS" FOR INSTALLATION OF CONDUIT HANGERS AND SUPPORTS.
 - c. CLEANING
 - i. REMOVE CONSTRUCTION DUST AND DEBRIS FROM BOXES BEFORE INSTALLING WALLPLATES, COVERS, AND WOODS.

252410 - PANELBOARDS

1. GENERAL REQUIREMENTS
 - a. SOURCE LIMITATIONS: OBTAIN PRODUCTS FROM SINGLE MANUFACTURER.
 - b. PANELBOARDS AND LOAD CENTERS: COMMON REQUIREMENTS
 - i. COMPLY WITH NECA PB 1.
 - ii. COMPLY WITH NFPA 70.
 - c. ENCLOSURES: SURFACE-MOUNTED, DEAD-FRONT CABINETS.
 - d. RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION: INDOOR DRY AND CLEAN LOCATIONS. UL SIZE: TYPE 1.
 - e. HEIGHT: 7 FT MAXIMUM.
 - f. FRONT: SECURED TO BOX WITH CONCEALED TRIM CLAMPS. FOR SURFACE-MOUNTED FRONTS, MATCH BOX DIMENSIONS. FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX TRIMS MUST COVER LUG PARTS AND MAY HAVE NO EXPOSED HARDWARE.
 - g. FINISHES
 - i. PANELS AND TRIM: STEEL, FACTORY FINISHED IMMEDIATELY AFTER CLEANING AND PRETREATING WITH MANUFACTURER'S STANDARD TWO-COAT, BAKED-ON FINISH. CONSISTING OF PRIME COAT AND THERMOPLASTIC TOPCOAT.
 - ii. BACK BOXES: SAME FINISH AS PANELS AND TRIM.
 - iii. FUNGUS PROOFING, PERMANENT FUNGICIDAL TREATMENT FOR OVERCURRENT PROTECTIVE DEVICES AND OTHER COMPONENTS.
 - iv. PHASE, NEUTRAL, AND GROUND BUSES
 - h. MATERIAL: COPPER
 - i. BUS MUST BE FULLY RATED FOR ENTIRE LENGTH.
 - ii. INTERIORS MUST BE FACTORY ASSEMBLED INTO UNIT, REPLACING SWITCHING AND PROTECTIVE DEVICES MAY NOT DISTURB ADJACENT UNITS OR REQUIRE REMOVING MAIN BUS CONNECTORS.
 - iii. EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT AND GROUNDING CONDUCTORS, BONDED TO BOX.
 - i. CONDUCTOR CONNECTORS: SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES.
 - j. MATERIAL: COPPER.
 - k. TERMINATIONS MUST ALLOW USE OF 15 DEG C RATED CONDUCTORS WITHOUT DERATING.
 - l. SIZE: LUGS SUITABLE FOR INDICATED CONDUCTOR SIZES, WITH ADDITIONAL GUTTER SPACE, IF REQUIRED, FOR LARGER CONDUCTORS.
 - m. MAIN AND NEUTRAL LUGS: MECHANICAL TYPE, WITH LUG ON NEUTRAL BAR FOR EACH POLE IN PANELBOARD.
 - n. GROUND LUGS AND BUS-CONFIGURED TERMINATORS: MECHANICAL TYPE, WITH LUG ON BAR FOR EACH POLE IN PANELBOARD.
2. POWER PANELBOARDS
 - a. LISTING CATALOG: NECA PB 1 DISTRIBUTION TYPE.
 - b. DOORS: SECURED WITH VAULT-TYPE LATCH WITH TUMBLER LOCK, KEVED ALIKE.
 - c. FOR DOORS MORE THAN 30 INCH HIGH, PROVIDE TWO LATCHES, KEVED ALIKE.
 - d. BRANCH DISCONNECT PROTECTIVE DEVICES FOR CIRCUIT-BREAKER FRAME SIZES 125 A AND SMALLER.
3. DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES
 - a. MCCB: COMPLY WITH UL 489, WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS.
 - b. THERMAL-MAGNETIC CIRCUIT BREAKERS FOR LOW-VOLTAGE OVERLOADS:
 - i. INVERSE TIME-CURRENT BREAKER FOR LOAD-LEVEL OVERLOADS.
 - ii. INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS.
 - iii. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 A AND LARGER.
 - c. GFCI CIRCUIT BREAKERS: SINGLE- AND DOUBLE-POLE CONFIGURATIONS WITH CLASS A GROUND-FAULT PROTECTION (6 MA TRIP).
 - d. MCCB FEATURES AND ACCESSORIES:
 - i. STANDARD FRAME SIZES, TRIP RATINGS, AND NUMBER OF POLES.
 - ii. BREAKER HANDLE INDICATES TRIP STATUS.
 - iii. UL LISTED FOR REVERSE CONNECTION WITHOUT RESTRICTIVE LINE OR LOAD RATINGS.
 - iv. LUGS: MECHANICAL, STYLE, SUITABLE FOR NUMBER, SIZE, TRIP RATINGS, AND CONDUCTOR MATERIALS.
 - v. HANDLE PADLOCKING DEVICE: FIXED ATTACHMENT, FOR LOCKING CIRCUIT-BREAKER HANDLE IN OFF POSITION.
 - vi. HANDLE CLAMP: LOOSE ATTACHMENT, FOR HOLDING CIRCUIT-BREAKER HANDLE IN ON POSITION.
 - vii. MULTIPOLE UNITS ENCLOSED IN SINGLE HOUSING, WITH SINGLE HANDLE OR FACTORY ASSEMBLED TO OPERATE AS SINGLE UNIT.

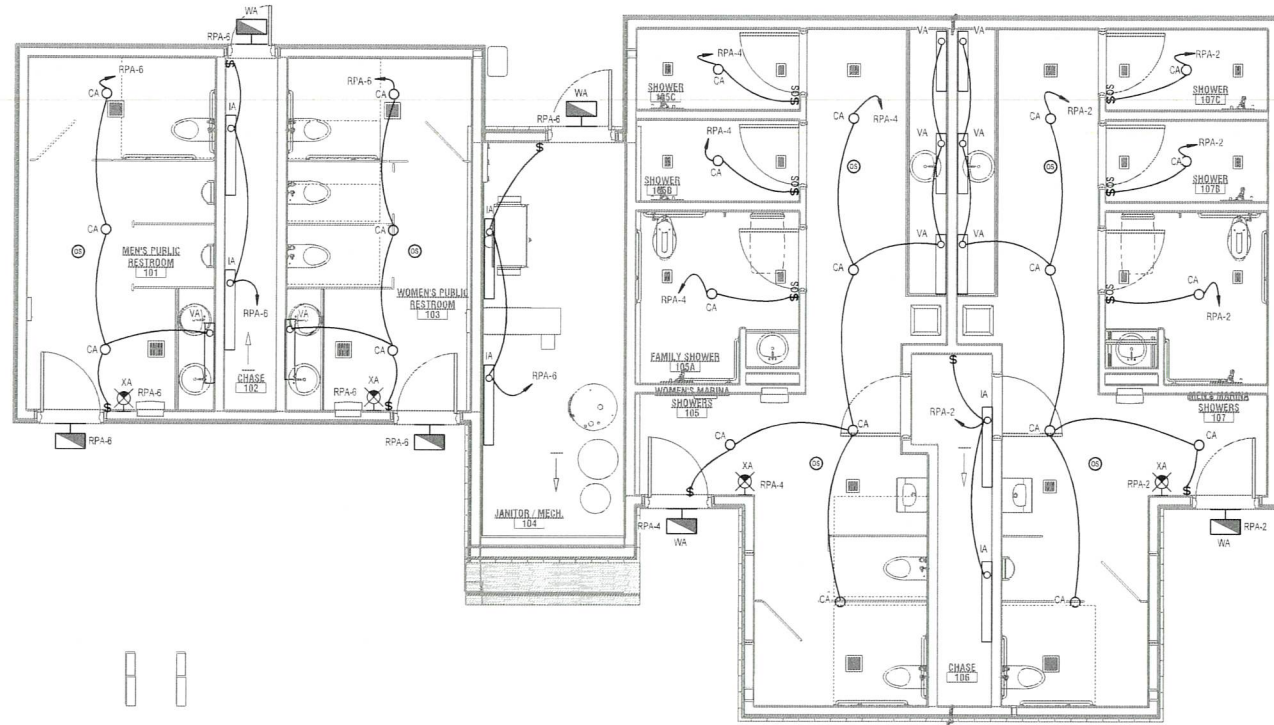
5. INSTALLATION
 - a. SPECIAL TECHNIQUES
 - i. EQUIPMENT MOUNTING:
 - a. ATTACH PANELBOARD TO VERTICAL FINISHED OR STRUCTURAL SURFACE BEHIND PANELBOARD.
 - b. MOUNT TOP OF TRIM 7.5 FT ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
 - c. MOUNT PANELBOARD CABINET PLUMB AND RIGID WITHOUT DISTORTION OF BOX.
 - d. INSTALL OVERCURRENT PROTECTIVE DEVICES AND CONTROLLERS NOT ALREADY FACTORY INSTALLED:
 - a. SET FIELD-ADJUSTABLE CIRCUIT-BREAKER TRIP RANGES.
 - b. TIGHTEN BOLTED CONNECTIONS AND CIRCUIT-BREAKER CONNECTIONS USING CALIBRATED TORQUE WRENCH OR TORQUE SCREWDRIVER IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS.
 - e. MAKE GROUNDING CONNECTIONS AND BOND NEUTRAL FOR SERVICES AND SEPARATELY DERIVED SYSTEMS TO GROUND. MAKE CONNECTIONS TO GROUNDING ELECTRODES, SEPARATE GROUNDS FOR ISOLATED GROUND BARS, AND CONNECTIONS TO SEPARATE GROUND BARS.
 - f. INSTALL FILLER PLATES IN UNUSED SIZES.
 - g. BRANCHED CONDUCTORS OR GULTERS INTO GROUPS AND BUNDLE AND WRAP WITH WIRE TIES.
 - ii. INTERFACES WITH OTHER WORK
 - a. COORDINATE LAYOUT AND INSTALLATION OF PANELBOARDS AND COMPONENTS WITH OTHER CONSTRUCTION THAT PENETRATES WALLS OR IS SUPPORTED BY THEM, INCLUDING ELECTRICAL AND OTHER TYPES OF EQUIPMENT, RACEWAYS, PIPING, ENCUMBRANCES TO WORKSPACE CLEARANCE REQUIREMENTS AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.

250550 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

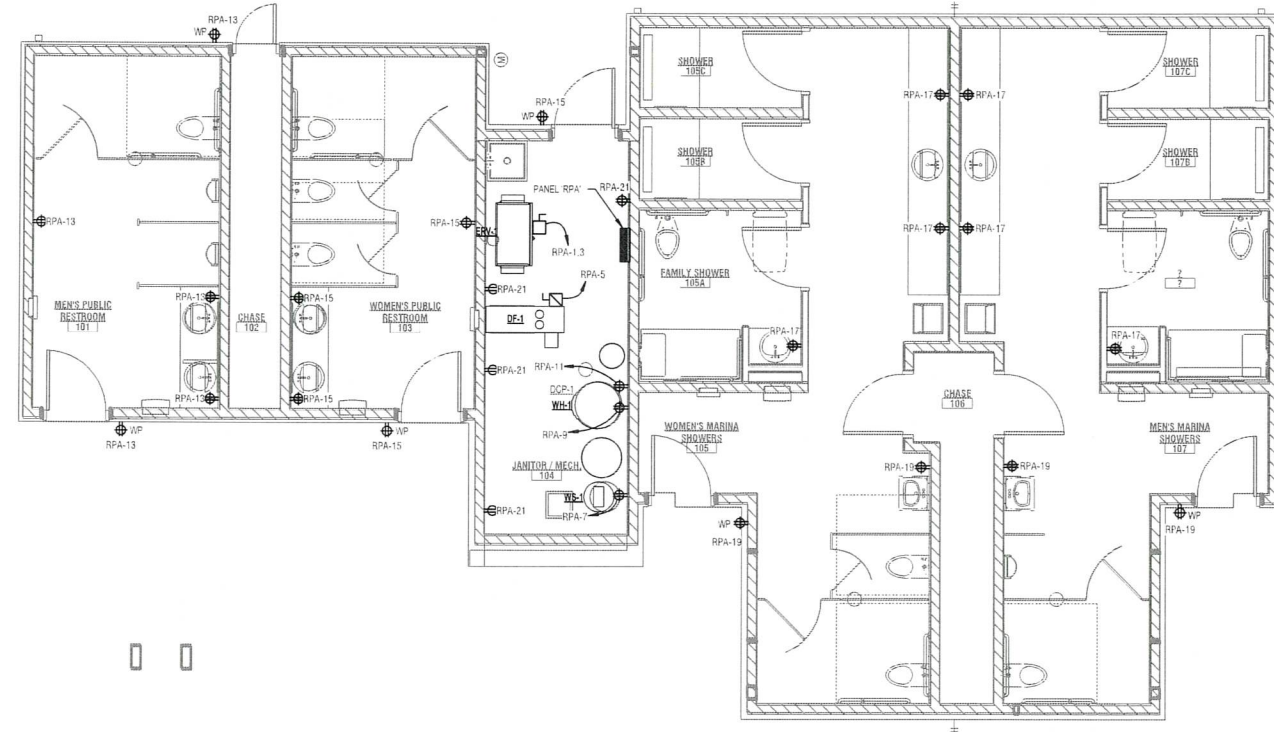
5. IDENTIFICATION
 - a. PANELBOARDS
 - i. LABEL PANEL ENCLOSURE.
 - ii. IDENTIFY AMPERE RATING.
 - iii. IDENTIFY VOLTAGE AND PHASE.
 - iv. IDENTIFY POWER SOURCE AND CIRCUIT LOCATION.
 - b. CIRCUIT DIRECTORY
 - i. PROVIDE DIRECTORY CARD INSIDE PANELBOARD DOOR, MOUNTED IN TRANSPARENT CARD HOLDER.
 - ii. CIRCUIT DIRECTORY MUST IDENTIFY SPECIFIC PURPOSE WITH DETAIL SUFFICIENT TO DISTINGUISH IT FROM OTHER CIRCUITS.

250550 - IDENTIFICATION FOR ELECTRICAL SYSTEMS (CONT)

1. GENERAL REQUIREMENTS
 - a. WALL SWITCHES
 - i. AS ONLY: QUIET OPERATING, GENERAL-USE SNAP SWITCHES WITH SILVER ALLOY CONTACT.
 - ii. SEPARATE POWER PACK.
 - iii. COMPLYING WITH NECA WD 1 AND NECA WD 6, AND LISTED AS COMPLYING WITH UL 20 AND WHERE APPLICABLE, FS WS-896, TYPES AS INDICATED ON THE DRAWINGS.
 - b. WIRING PROVISIONS
 - i. TERMINAL SCREWS: FOR TYPE WIRING AND SCREW-ACTUATED BINDING CLAMP FOR BACK WIRING WITH SEPARATE GROUND TERMINAL SCREW.
 - ii. STANDARD WALL SWITCHES:
 - a. INDUSTRIAL SPECIFICATION: 20 A, 240/120V, WITH STANDARD TOGGLE TYPE SWITCH ACTUATOR AND MAINTAINED CONTACTS, SINGLE POLE, SINGLE THROW AS INDICATED ON THE DRAWINGS.
 - c. RECEPTACLES
 - i. DUPLEX STRAIGHT-BLAD RECEPTACLE
 - a. GENERAL CHARACTERISTICS
 - i. REFERENCE STANDARDS: UL CCN RTRT AND UL 486.
 - b. OPTIONS
 - i. DEVICE COLOR: WHITE OR AS INDICATED ON ARCHITECTURAL DRAWINGS.
 - ii. CONFIGURATION:
 - a. GENERAL-DUTY: NECA 5-20R.
 - b. REFERENCE STANDARDS: UL CCN RXXX, UL 486, UL 543, UL 1699 AND UL SUBJECT TO 599A.
 - c. DEVICE COLOR: WHITE OR AS INDICATED ON ARCHITECTURAL DRAWINGS.
 - d. CONFIGURATION: HEAVY-DUTY, NECA 5-20R.
2. EXECUTION
 - a. INSTALLATION OF SWITCHES
 - i. REFERENCE STANDARDS
 - a. UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED IN CONTRACT DOCUMENTS OR MANUFACTURER'S INSTRUCTIONS, COMPLY WITH INSTALLATION INSTRUCTIONS IN NECA NEIS 130.
 - b. MOUNTING HEIGHTS: UNLESS OTHERWISE INDICATED IN CONTRACT DOCUMENTS, COMPLY WITH MOUNTING HEIGHTS



1 LIGHTING PLAN
SCALE: 1/4" = 1'-0"



2 POWER & SYSTEMS PLAN
SCALE: 1/4" = 1'-0"

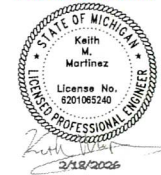
VILLAGE OF SUTTONS BAY

SUTTONS BAY MARINA COMFORT STATION

PO BOX 395, SUTTONS BAY, MI 49682

ELECTRICAL PLANS

FOR CONSTRUCTION



ISSUE DATE: 02/17/2026
PM: QA / QC:

ISSUANCE / REVISION DATE
ORIGINAL SHEET IS 24"X36"
DO NOT SCALE DRAWINGS
PROJECT NO: 24-1952

E100



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