



Worcester County Administration Office  
1 West Market Street, Room 1103  
Snow Hill, MD 21863  
Ph. 410-632-1194 Fax 410-632-3131  
Email: [nrice@co.worcester.md.us](mailto:nrice@co.worcester.md.us)

## **Addendum # 4 New Camera System**

Date of Addendum: 2/13/2025

### **NOTICE TO ALL BIDDERS AND PLANHOLDERS**

The Proposal Documents for the above-referenced Project are modified as set forth in this Addendum. The original Proposal Documents and any previously issued addenda remain in full force and effect, except as modified by this Addendum, which is hereby made part of the Proposal Documents. Vendors will take this Addendum into consideration when preparing and submitting a Proposal and shall acknowledge receipt of this Addendum in the space provided in the Proposal Documents.

### **PROPOSAL SUBMITTAL DEADLINE**

The Proposal submittal time has been changed from 2:30pm on Thursday, March 13, 2025 to 2:30pm on Thursday, March 20, 2025.

The last day for questions is noon on March 11, 2025.

### **SHERIFF OFFICE/COURTHOUSE WALKTHROUGH**

A walkthrough of the Sheriff Office/Courthouse will be held Saturday, March 8, 2025 at 9am. Vendors who wish to attend can meet in the lobby of the Government Building, located at 1 West Market Street, Snow Hill, MD 21863.

NOTE: No questions will be allowed during the walkthrough. All questions should be in writing to [nrice@co.worcester.md.us](mailto:nrice@co.worcester.md.us).

### **1.0 – ATTACHMENTS**

<b>Item</b>	<b>Description</b>
1.1	Building Drawings (these are what we have currently located) <ul style="list-style-type: none"><li>• Berlin Roads Building</li><li>• Recreation Center</li><li>• Fire Training Center</li><li>• Government Center</li><li>• Ocean Pines Water Wastewater Plant</li></ul>



<b>2.0 – CLARIFICATIONS</b>	
The following clarifications are provided as a matter of information to clarify issues raised about the Proposal Documents.	
<b>Item</b>	<b>Description</b>
	<p>The following are the requirements for installation of camera equipment at County tower sites:</p> <p>The County has several locations that are communications sites that require special considerations for cabling, bonding, and grounding. At these locations the following requirements apply:</p> <ul style="list-style-type: none"> <li>- All exterior cameras shall be installed in such a manner as to minimize the risk of an individual gaining logical access to the system by accessing the ethernet cabling on the building exterior.</li> <li>- All metallic components on the exterior of the structure must be fully bonded to the communications site external ground ring with solid tinned copper #2AWG solid wire.</li> <li>- All metallic components on the interior of the structure must be bonded to the halo ground within the structure using #6AWG copper stranded wire with green insulation and irreversible crimp.</li> <li>- All rack mount components such as ethernet switches must be grounded to the rack ground bar with #10AWG copper stranded wire with green insulation.</li> <li>- All exterior cabling shall be shielded twisted pair with the shield bonded to the exterior building bus bar at entry through the use of a purpose designed grounding kit (Commscope GK-SUNV or equivalent).</li> <li>- All cabling shall enter the building through established entry ports making use of purpose designed entry boots suitable for the cable ( CommScope 294573 with CommScope SEC-614 or equivalent).</li> <li>- All interior ethernet wiring shall be UTP, yellow in color, and routed within established cable support ladders.</li> <li>- All exterior cabling entering the building shall be suppressed at the interior master bus bar with a Transtector TSJ or equivalent data surge suppressor. Surge suppressor shall be connected to master bus bar with #2AWG copper stranded wire with green insulation and two hole lug.</li> <li>- Where multiple buildings are present and covered by cameras at a communications site, a switch shall be provided within each building and available inter-building fiber shall be used to connect switches. At no time shall copper conductors be used between buildings.</li> <li>- Ethernet connection between the security system ethernet switch and county provided MPLS router shall be protected by a Transtector TSJ or equivalent surge suppressor.</li> </ul>
	<p>Technical answers for export requirements based upon requirements for evidence and use in court:</p> <p>The system shall permit the export of video from the system, however permission to export shall be controllable by user role. The system shall provide a tool for the redaction of video prior to export. Exported video shall conform to NIST 8161 and IWC 62676-2-32 standards and specifically the following characteristics:</p> <ul style="list-style-type: none"> <li>-MP4 digital multimedia file container</li> <li>-H.264 encoded digital video bitstream</li> <li>-Electronic UTC timestamp associated with each video frame</li> <li>-Recording of system clock offset metadata of the VMS</li> <li>-Export file creation date/time metadata</li> <li>-Export operator metadata</li> <li>-Digital signature for data integrity and chain of custody</li> </ul>

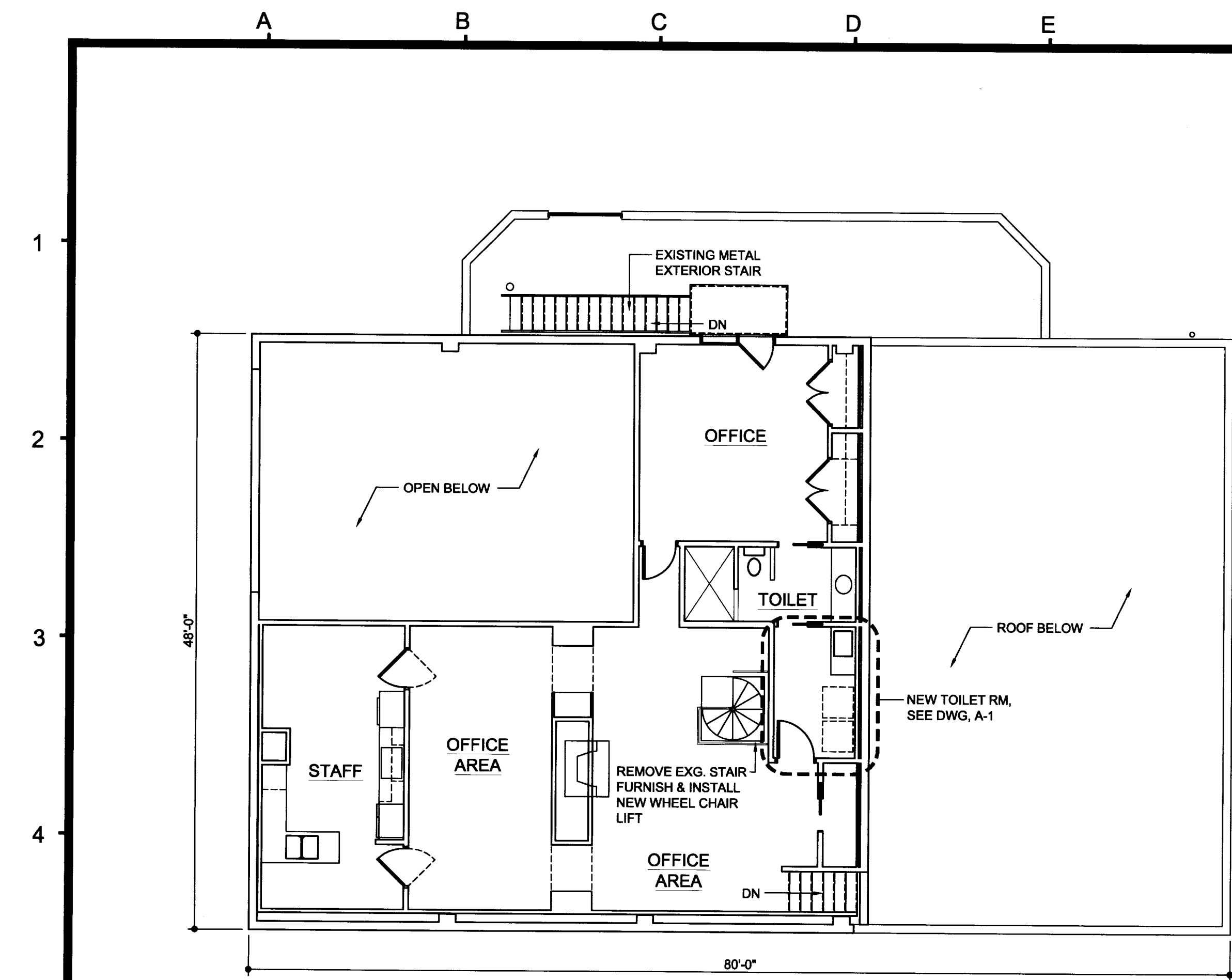
<b>2.0 – QUESTIONS AND ANSWERS</b>	
The following questions and answers are provided as a matter of information to clarify issues raised about the Proposal Documents.	
<b>Item</b>	<b>Questions and Answers</b>
	<p>Q. The “Camera County Building List” provided on the county’s website notes information on Internet/No Internet. Can you provide an additional column for “county network”? This is vital information on the proper transmission of video. I.E</p> <ul style="list-style-type: none"> <li>• County Network- connectivity to county government building for recording on server</li> <li>• Internet-Hi speed internet service available under a current county subscription</li> </ul>



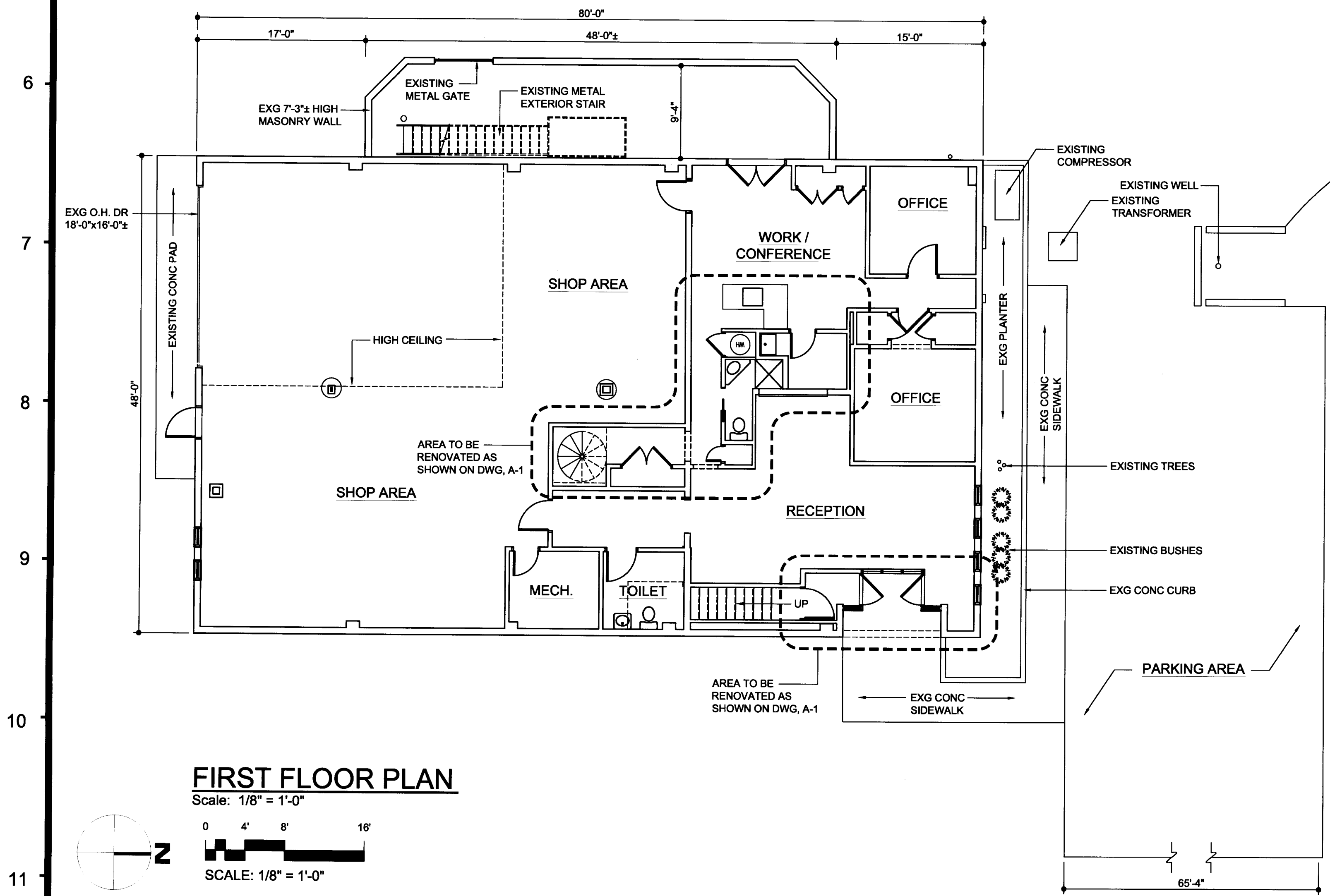
	<ul style="list-style-type: none"> <li>No Internet- No connectivity, vendor will need to provide recommended option for remote access to video.</li> </ul> <p>A. Bandwidth would be sufficient to carry video regardless of the ISP and whether it being on county network or not. If not, we would make corrections. The vendor is not responsible for connectivity or ISP availability. It is the county's responsibility for the bandwidth, we just need to know the recommended bandwidth from the vendor. If no internet services are available, we are expecting Cradlepoint or a suitable solution, but it would be the county's responsibility to provide hardware and subscription.</p>
	<p>Q. Ocean Pines Recycle" is listed on the Camera systems list distributed with the bid documents but not on the addendum attachment "Camera County building list". Please Clarify</p> <p>A. This is to be included. No building structure exists, only recycling bins. We currently have a camera on a light pole and a LPR Camera on a separate pole. The recorder is in a NEMA Box. No internet at this location. We do have power.</p>

**END OF ADDENDUM**

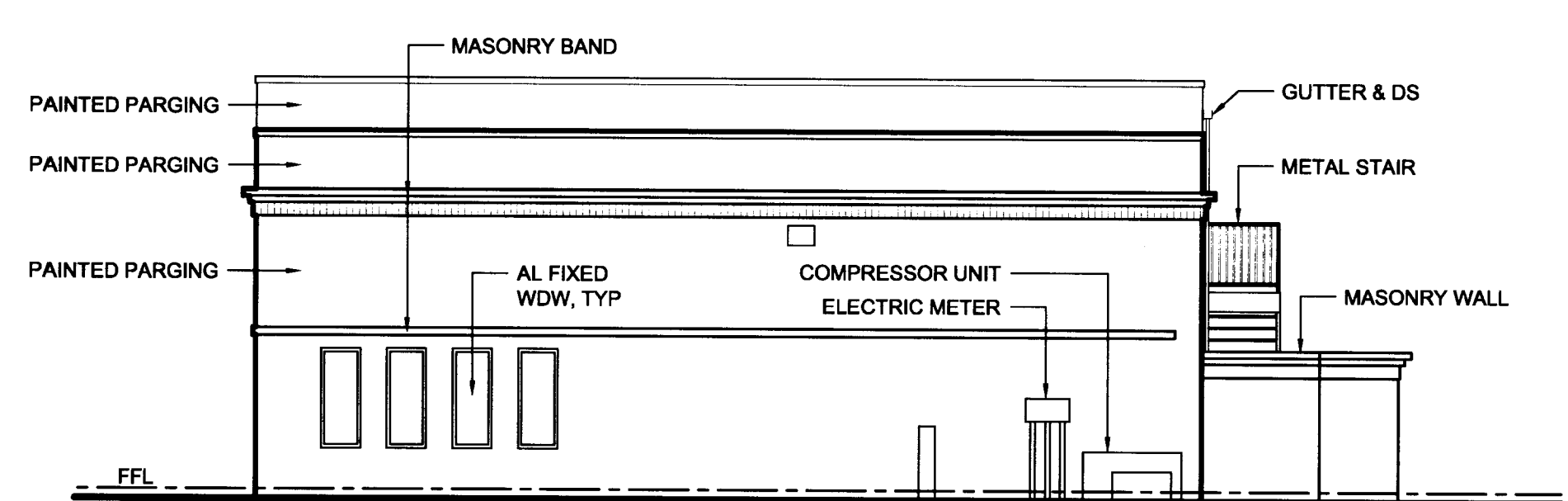




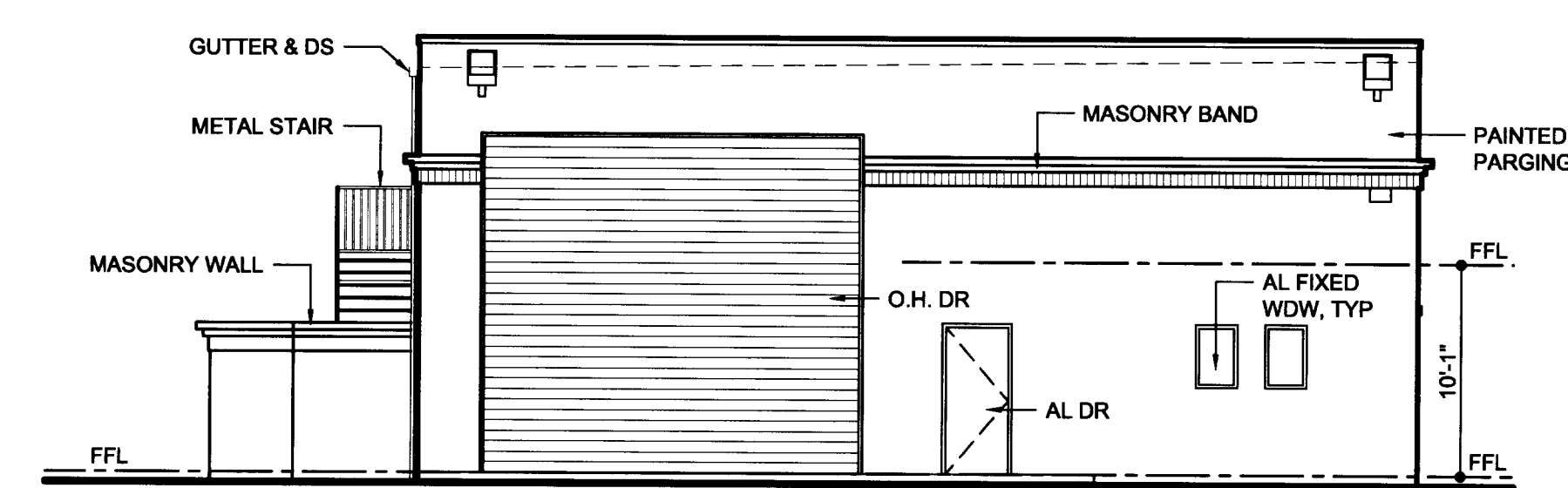
**SECOND FLOOR PLAN**  
Scale: 1/8" = 1'-0"



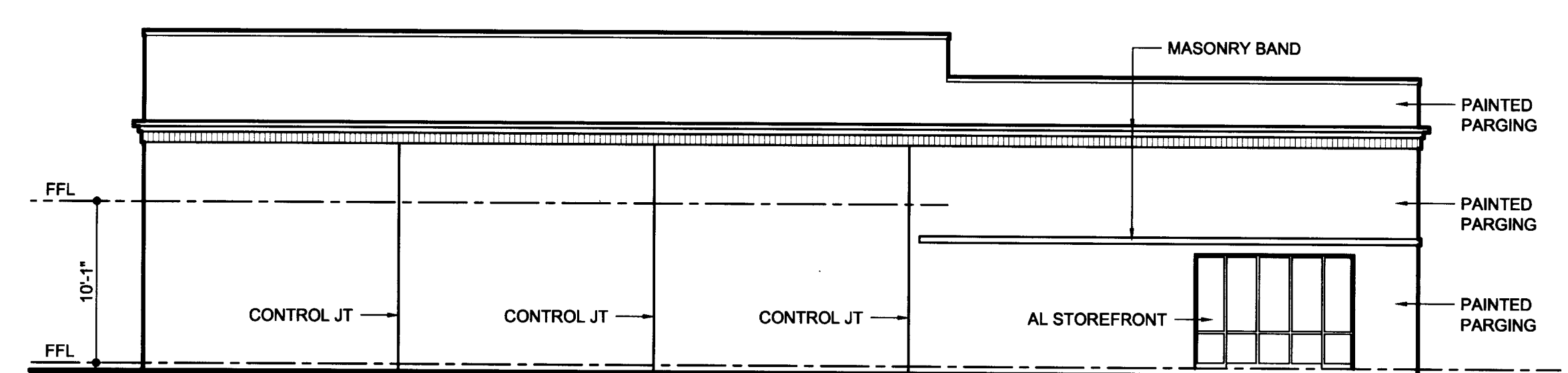
**FIRST FLOOR PLAN**  
Scale: 1/8" = 1'-0"



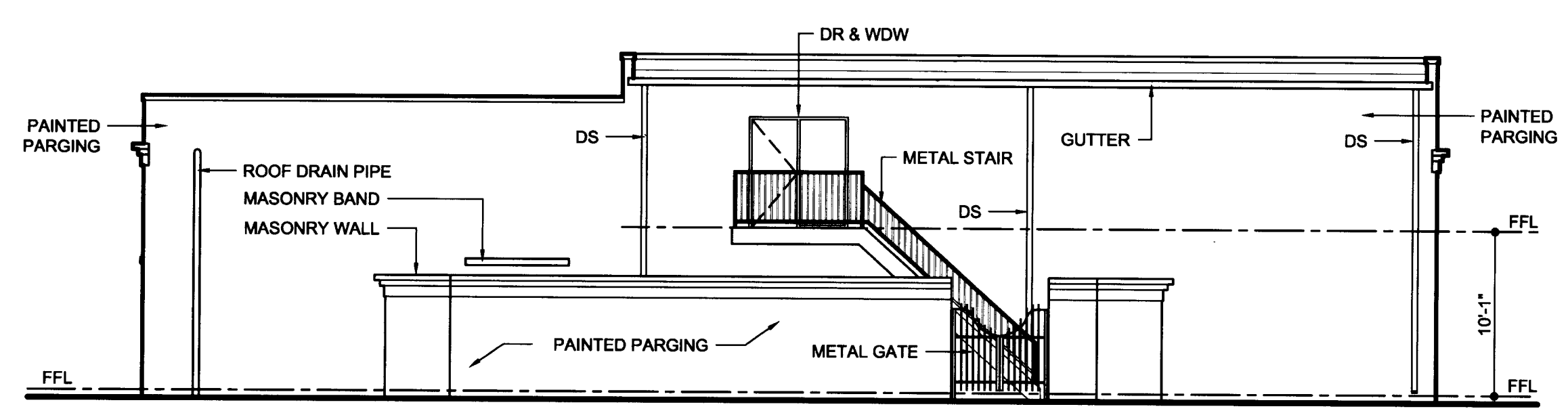
**NORTH ELEVATION**  
Scale: 1/8" = 1'-0"



**SOUTH ELEVATION**  
Scale: 1/8" = 1'-0"



**EAST ELEVATION**  
Scale: 1/8" = 1'-0"



**WEST ELEVATION**  
Scale: 1/8" = 1'-0"

Revisions			

Seal

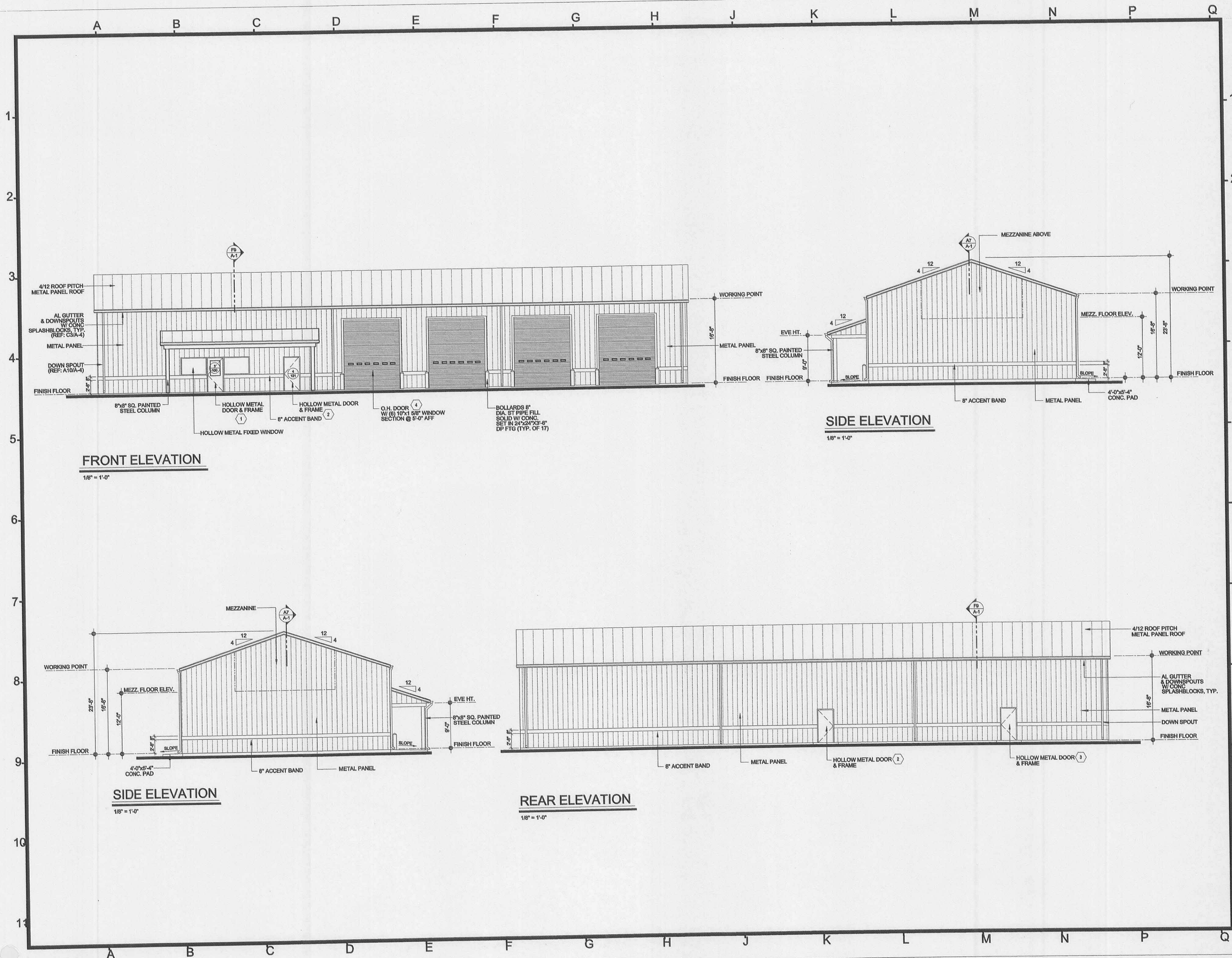
**Todd & Associates Inc Architects**  
218 North Division Street  
Salisbury Maryland  
410-749-2447

**Worcester County Department of Public Works Building**  
Addition / Renovations  
Berlin, Maryland

**Existing Plans & Elevations**

COPYRIGHT © 2007 Todd & Associates Inc Architects ALL RIGHTS RESERVED			
Project	0707	<b>EX-1</b>	
Scale	1/8" = 1'-0"		
Date	07-25-08		
Last Rev			





Revisions				
No	Date	Item	Ref	

Seal	
Seal	

**Todd & Associates Inc Architects**  
 218 North Division Street  
 Salisbury Maryland 21801  
 410-749-2447

**Worcester County Fire Training Center**  
 Newark, Maryland

**Elevations**

COPYRIGHT © 2005 TODD & ASSOCIATES INC ARCHITECTS ALL RIGHTS RESERVED	
Project	0405
Scale	1/8"=1'-0"
Date	6-28-05
Last Rev	

**A-2**



Note  
 Push-Pull  
 Exit Device  
 Lock Set  
 Standard Duty  
 Classroom X WC  
 Lock-Set - Closet Type

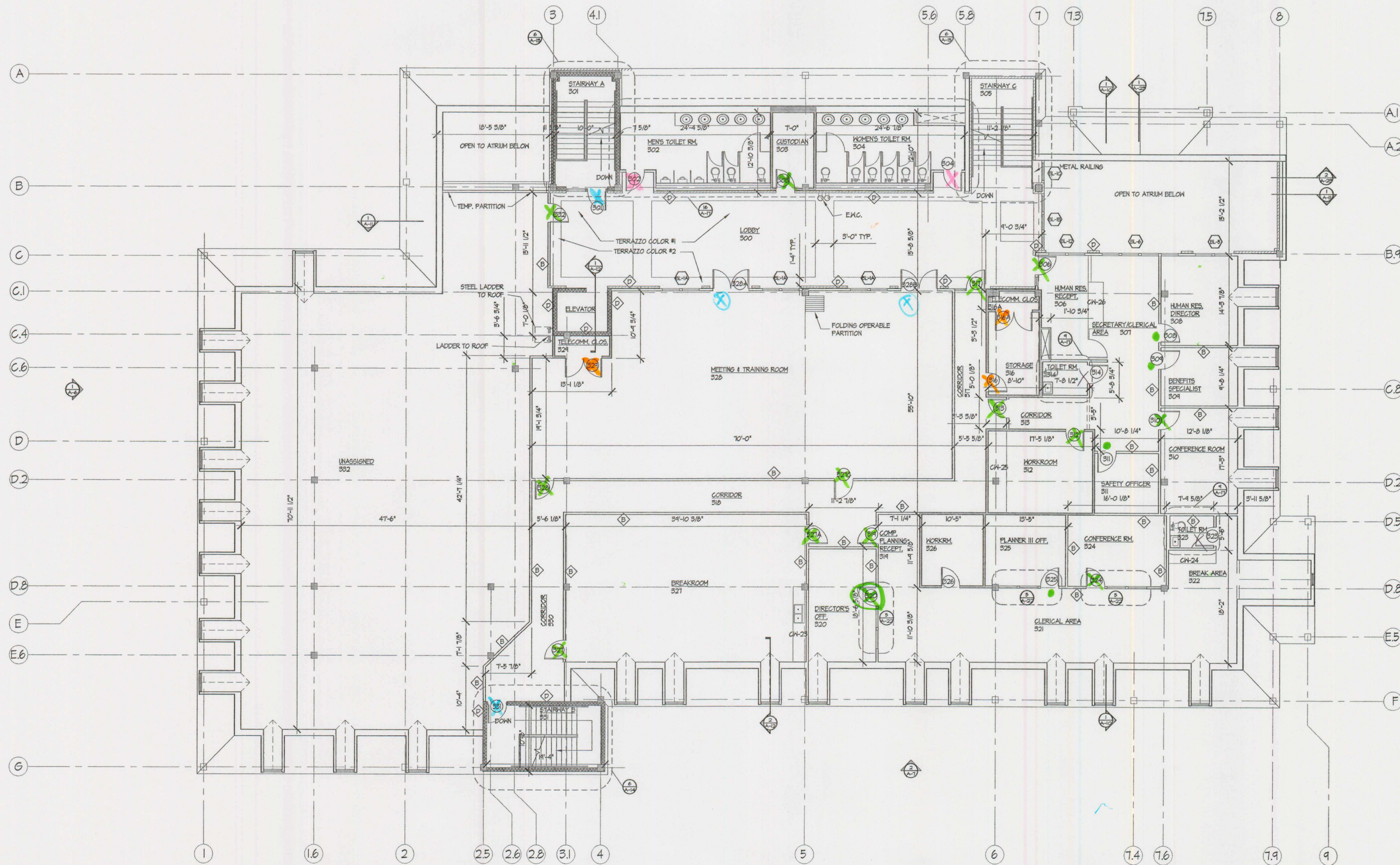
OFFICE

NO CLOSER

CL3930  
 Bathroom

# THIRD FLOOR PLAN

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



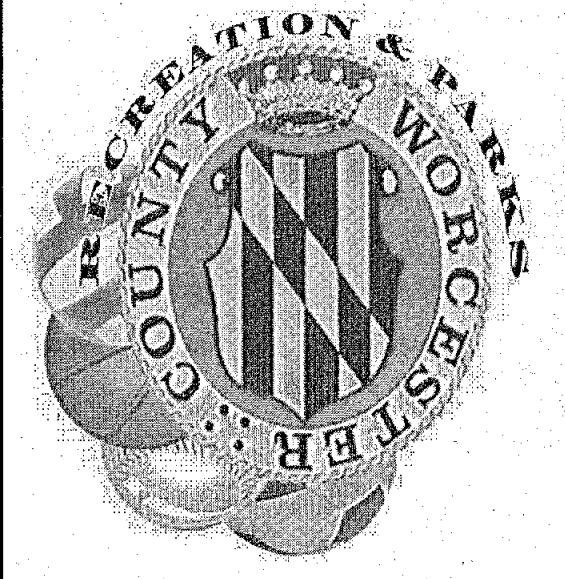
REVISIONS	BY

## WORCESTER COUNTY GOVERNMENT OFFICE BUILDING WASHINGTON STREET SNOW HILL, MARYLAND

R. CALVIN CLENDANIEL ASSOCIATES Architects 1000 N. LINCOLN STREET LINCOLN, DE 19960	
Date:	6/30/00
Scale:	NOTED
Drawn:	RCC
Job No:	4122
Drawing No:	A-4
Sheet	of sheets

THIRD  
 FLOOR PLAN





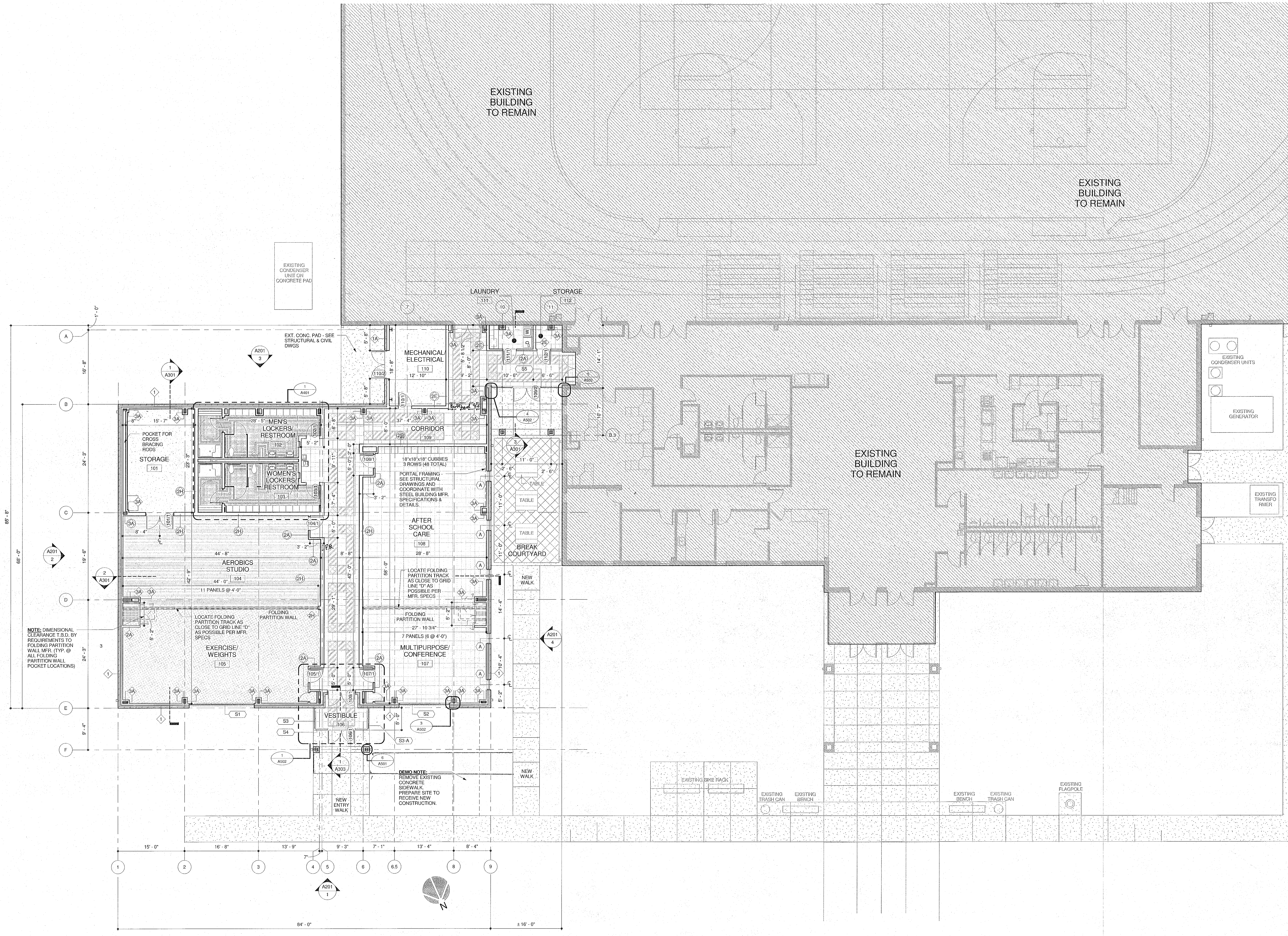
PROFESSIONAL CERTIFICATION:  
I CERTIFY THAT THESE DOCUMENTS  
WERE PREPARED OR APPROVED BY  
ME AND THAT I AM A DULY LICENSED  
ARCHITECT UNDER THE LAWS OF THE  
STATE OF MARYLAND.  
LICENSE NO. 5132-A  
EXPIRATION DATE: 03/09/2015

PROJECT TITLE  
**WORCESTER COUNTY RECREATION CENTER ADDITION**  
6030 PUBLIC LANDING ROAD  
SNOW HILL, MARYLAND

SHEET TITLE  
**FIRST FLOOR PLAN**

Mark	Date	Description
5	05.18.14	ISSUED FOR CONSTRUCTION
4	06.04.14	ISSUED FOR BIDDING/PERMIT
3	12.18.13	PLANNING COMMISSION
2	10.25.13	DD REVIEW
1	09.26.13	SD REVIEW

Revision Schedule:  
PROJECT NO: 2013173.00  
DATE: 9.18.14  
SCALE: 1/8" = 1'-0"  
DRAWN BY: DJD PROJ MGR: JRP  
**A101**  
COPYRIGHT © 2015



**1 FIRST FLOOR**  
SCALE: 1/8" = 1'-0"



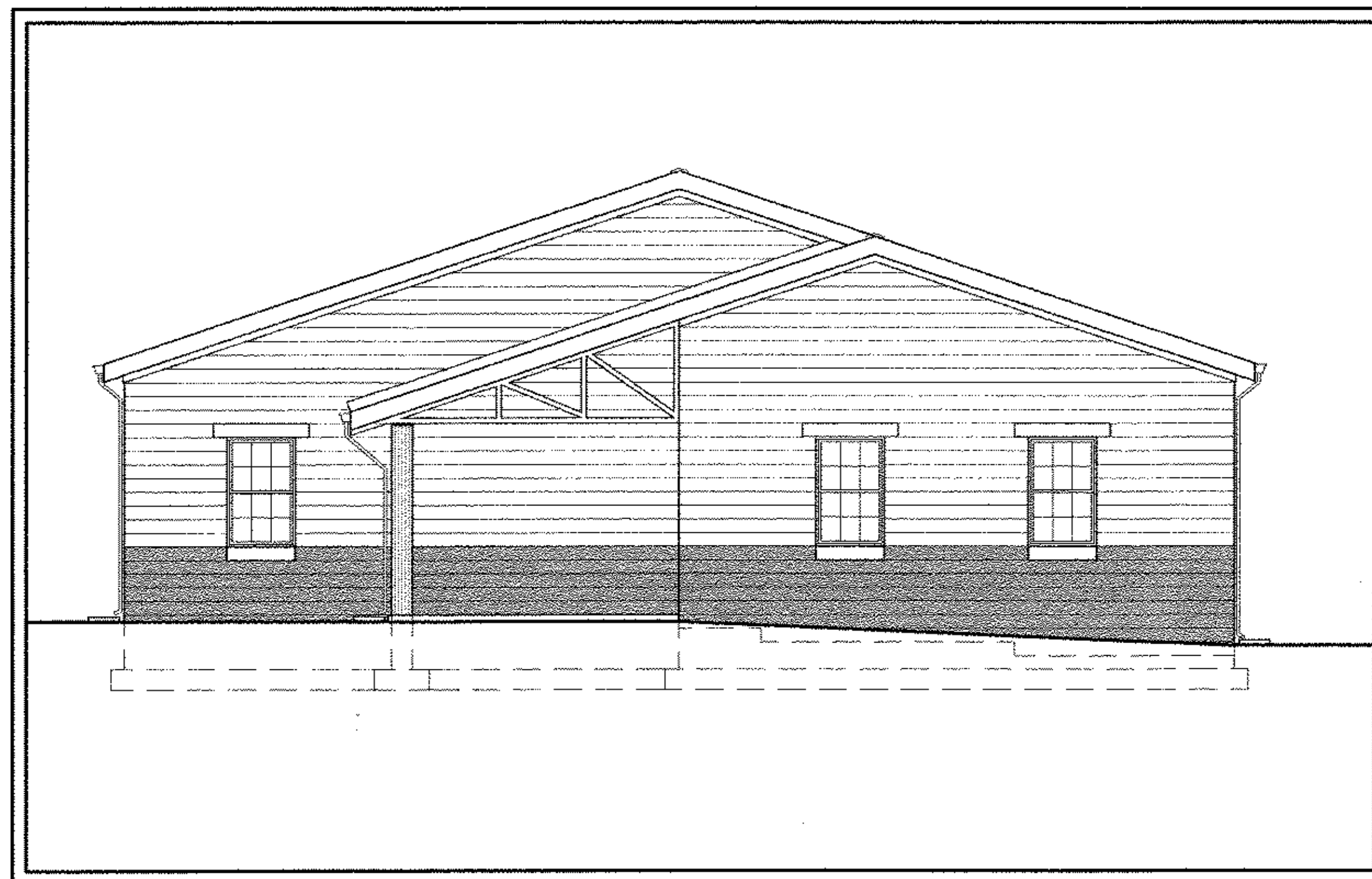
CODE REVIEW:

2015 I.B.C., 2015 NFPA 101			
OCCUPANCY TYPE:		BUSINESS GROUP B STORAGE GROUP S-1 (MODERATE HAZARD)	
CONSTRUCTION TYPE:		TYPE V-B, UNSPRINKLERED	
FIRE RESISTANCE OF BUILDING ELEMENTS (TABLE 601)		0 HOURS 1 HR @ ELEC. ROOM DUE TO TRANSFORMER	
FIRE RESISTANCE EXTERIOR WALLS BASED ON SEPARATION: (TABLE 602)		0 HOURS 10 FEET OR GREATER	
OCCUPANCY SEPARATION: (TABLE 6.1.4.4.1 (NFPA))		2 HOUR	
ALLOWABLE FLOOR AREA: (TABLE 506.2)		9,000 S.F.	
ACTUAL FLOOR AREA:		S-1 700 S.F. B 2,595 S.F. TOTAL 3,295 S.F.	
AUTOMATIC SPRINKLER SYSTEMS: (SECTION 903)		NOT REQUIRED	
OCCUPANT LOAD: (TABLE 1004.1.2)		BUSINESS (B) = $\frac{9000}{100} = 26$ STORAGE (S-1) = $\frac{9000}{450} = 2$ TOTAL = 28	
PLUMBING FIXTURES: (TABLE 2902.1)		REQUIRED PROVIDED	
WC - 1 PER 25 =		2	2
LAV. - 1 PER 40 =		1	2
DF - 1 PER 100 =		1	1
SERVICE SINK		1	1

NOTES:

1. THE CONTRACTOR SHALL PAY ALL FEES, GIVE ALL NOTICES, FILE ALL NECESSARY DRAWINGS AND OBTAIN ALL PERMITS AND CERTIFICATIONS OF APPROVALS REQUIRED IN CONNECTION WITH ALL WORK UNDER THIS CONTRACT.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE FINAL CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL FIELD DIMENSIONS AND PROJECT CONDITIONS AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES, CONFLICTS AND OMISSIONS THAT WOULD INTERFERE WITH THE SATISFACTORY COMPLETION OF THE PROJECT.
3. BASE INFORMATION INDICATED ON THESE DRAWINGS WAS DERIVED FROM VISUAL AND CASUAL OBSERVATIONS AND ALL DIMENSIONS ARE APPROXIMATE. THIS BASE INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR AND IS NOT TO BE CONSTRUED AS A RE-MEASURED OR 'AS-BUILT' PLAN BY THE ARCHITECT, BUT RATHER AS REFERENCED DATA WHICH FROM ALL SURFACE APPEARANCES OBSERVED AT THE SITE IS BASICALLY ACCEPTABLE FOR THE PURPOSES OF THIS PROJECT.
4. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, ELEVATIONS AND DIMENSIONS BEFORE EXECUTION OF ANY WORK, AND, ANY VARIANCES OR INCONSISTENCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY AND IN WRITTEN FORM EITHER ON THE DRAWINGS OR IN A LETTER.
5. AFTER DEMOLITION AND REMOVALS ARE COMPLETED, THE CONTRACTOR IS TO NOTIFY THE ARCHITECT, IN WRITING, OF ANY CONDITIONS THAT ARE MADE EVIDENT THAT WILL CONFLICT WITH THE COMPLETION OF THE PROJECT OR REQUIRE ADDITIONAL DEMOLITION TO MEET THE REQUIREMENTS OF THE NEW SCOPE OF WORK REQUIRED BY THE CONTRACT.
6. THE CONTRACTOR AGREES TO WORK WITH THE ARCHITECT IN RESOLVING CONFLICTS IN A TIMELY MANNER, INCLUDING CONCEALED OR UNANTICIPATED CONDITIONS THAT AFFECT THE WORK OF THIS CONTRACT.
7. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS OF THE GOVERNING AGENCIES HAVING JURISDICTION OVER THE PROJECT.
8. THE CONTRACTOR MUST TAKE ADEQUATE CARE TO PROTECT ALL AREAS OF THE BUILDING WHERE THE WORK OF THIS ALTERATION IS LOCATED AS WELL AS AREAS ADJACENT TO THE AREA OF WORK OF THIS PROJECT SO AS TO PREVENT DAMAGE TO LIFE OR PROPERTY AS A RESULT OF THIS ALTERATION AND NEW CONSTRUCTION. PROVIDE ALL NECESSARY SAFEGUARDS, BARRICADES, FENCES, SIGNAGE, ETC. AS REQUIRED TO PROTECT THE OCCUPANTS, PUBLIC AND EMPLOYEES FROM ANY POSSIBLE INJURY RESULTING FROM THE WORK.
9. IN ALL CASES, DRAWINGS SHALL NOT BE SCALED FOR INFORMATION. FIGURED DIMENSIONS SHALL GOVERN THE WORK AND ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD.
10. THE CONTRACTOR AND EACH SUB-CONTRACTOR SHALL KEEP ACCURATE RECORDS OF ANY MODIFICATION OR DEVIATIONS FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL DELIVER TO THE ARCHITECT A COMPLETE SET OF 'AS-BUILT' DRAWINGS PRIOR TO APPROVAL OF FINAL PAYMENT.
11. THE CONTRACTOR SHALL NOT MAKE, CAUSE TO BE MADE, OR PERMIT A SUBCONTRACTOR OR STAFF MEMBER OR LOCAL REPRESENTATIVE OF THE OWNER TO MAKE ANY CHANGES TO WHAT IS SPECIFIED ON THE DRAWINGS WITHOUT SPECIFIC AUTHORIZATION OF THE ARCHITECT.
12. REPAIR OR REPLACE ALL AREAS DAMAGED AS A RESULT OF THE WORK TO THE SATISFACTION OF THE OWNER.
13. ALL WOOD BLOCKING SHALL BE FIRE RETARDANT.
14. EXISTING DOCUMENTATION SHOWN PROVIDED BY OWNER THEREFORE GMB DOES NOT TAKE ANY RESPONSIBILITY FOR ERRORS AND OMISSIONS OF THE GRAPHIC INFORMATION PROVIDED WHICH IS FOR PERMIT AND REVIEW.
15. REFER TO OWNER SPEC FOR FINISH/COLOR CHOICES, FIXTURE AND EQUIPMENT MANUFACTURERS, DEMOLITION AND REPAIR INSTRUCTIONS AND OTHER MISCELLANEOUS ITEMS.

# NEW CONSTRUCTION FOR: OCEAN PINES WWTP OPERATIONS BUILDING WORCESTER COUNTY, MARYLAND

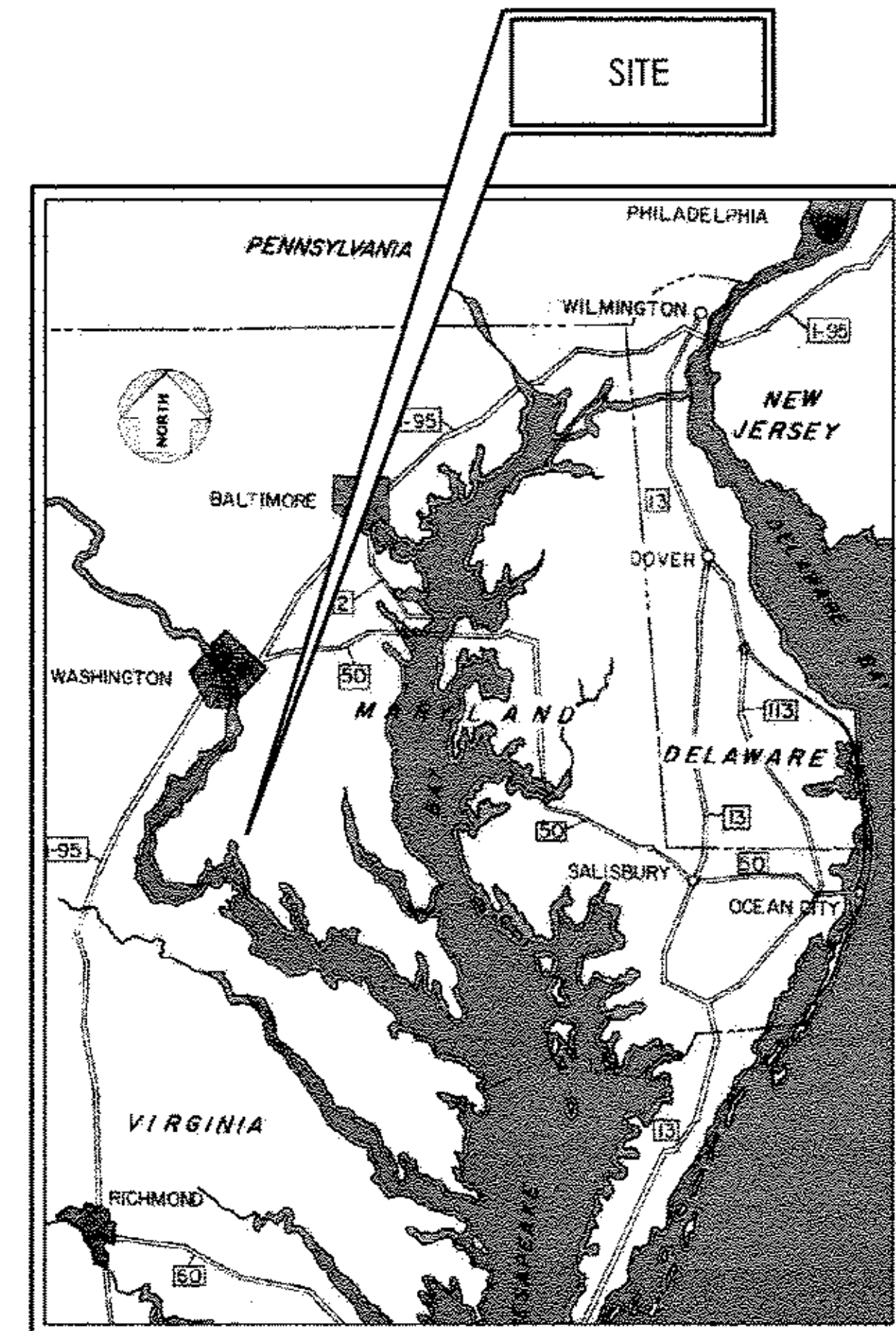


CONTACTS:

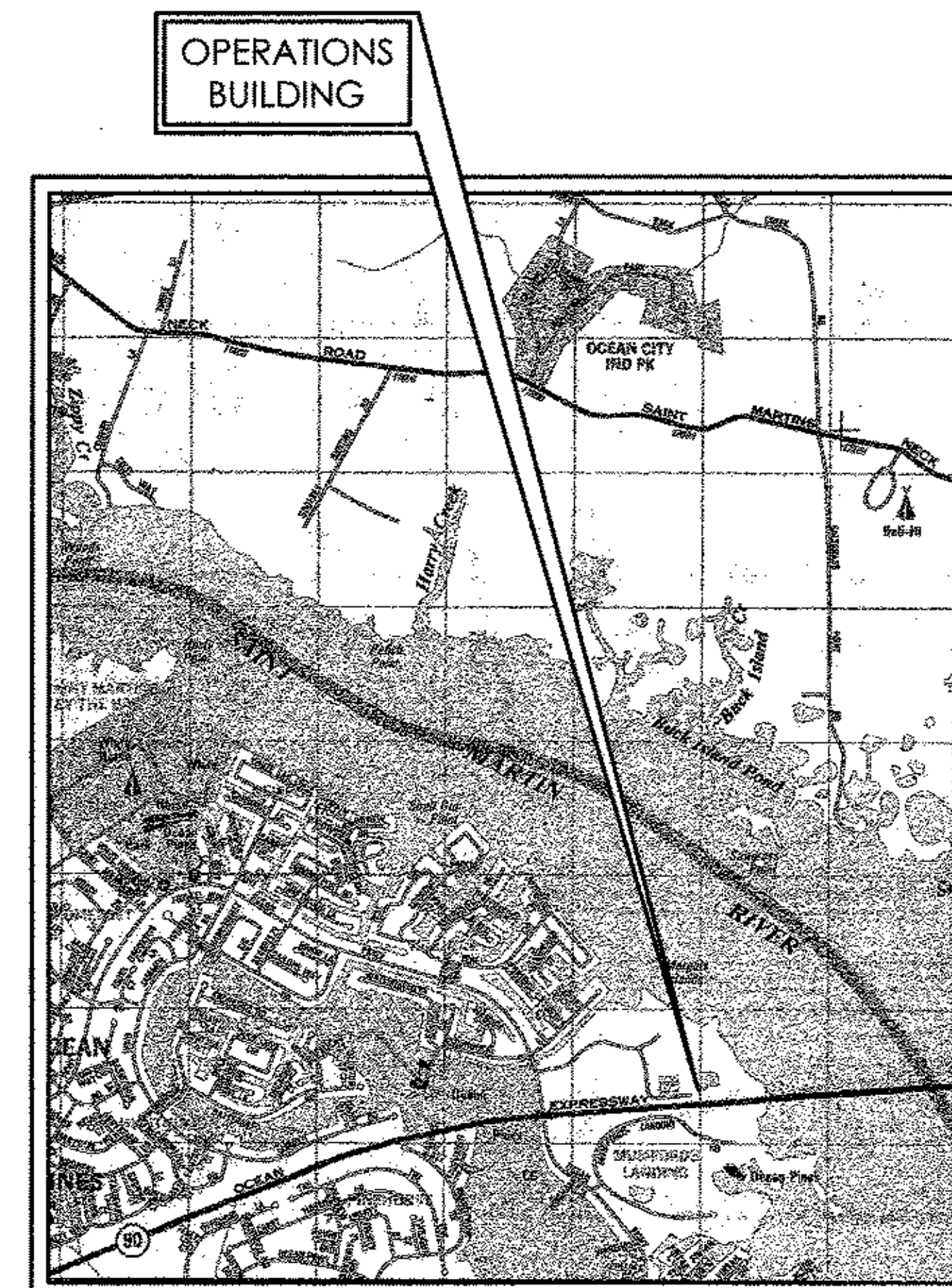
OWNER REP:	COUNTY COMMISSIONERS OF WORCESTER COUNTY, MARYLAND GOVERNMENT CENTER, ROOM 1103 ONE WEST MAIN STREET SNOW HILL, MARYLAND 21863		
	MADISON J. BUNTING, JR., PRESIDENT		
ARCHITECT:	GEORGE, MILES & BUHR, LLC 208 W. MAIN STREET SALISBURY, MD 21801 410-742-3115		
	MORGAN HELFRICH, AIA, LEED AP		
STRUCTURAL ENGINEER:	GEORGE, MILES & BUHR, LLC 208 W. MAIN STREET SALISBURY, MD 21801 410-742-3115		
	ROLAND HOLLAND, P.E.		
CIVIL ENGINEER:	GEORGE, MILES & BUHR, LLC 208 W. MAIN STREET SALISBURY, MD 21801 410-742-3115		
	STEVE MARSH, P.E.		
MEP CONSULTANT:	ALLEN & SHARRIF 205 E MARKET ST SALISBURY, MD 21801 410-341-0200		

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VICINITY MAP  
N.T.S.



LOCATION MAP  
N.T.S.

NEW CONSTRUCTION FOR:  
OCEAN PINES WWTP  
OPERATIONS BUILDING  
WORCESTER COUNTY, MARYLAND

COVER SHEET

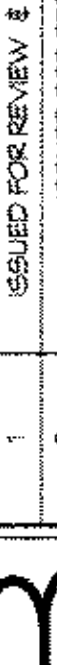


SCALE: AS NOTED  
DESIGN BY: MEM  
DRAWN BY: LKW  
CHECKED BY: MHH  
GMB FILE: 180048  
DATE: 11-18-16

G1.1

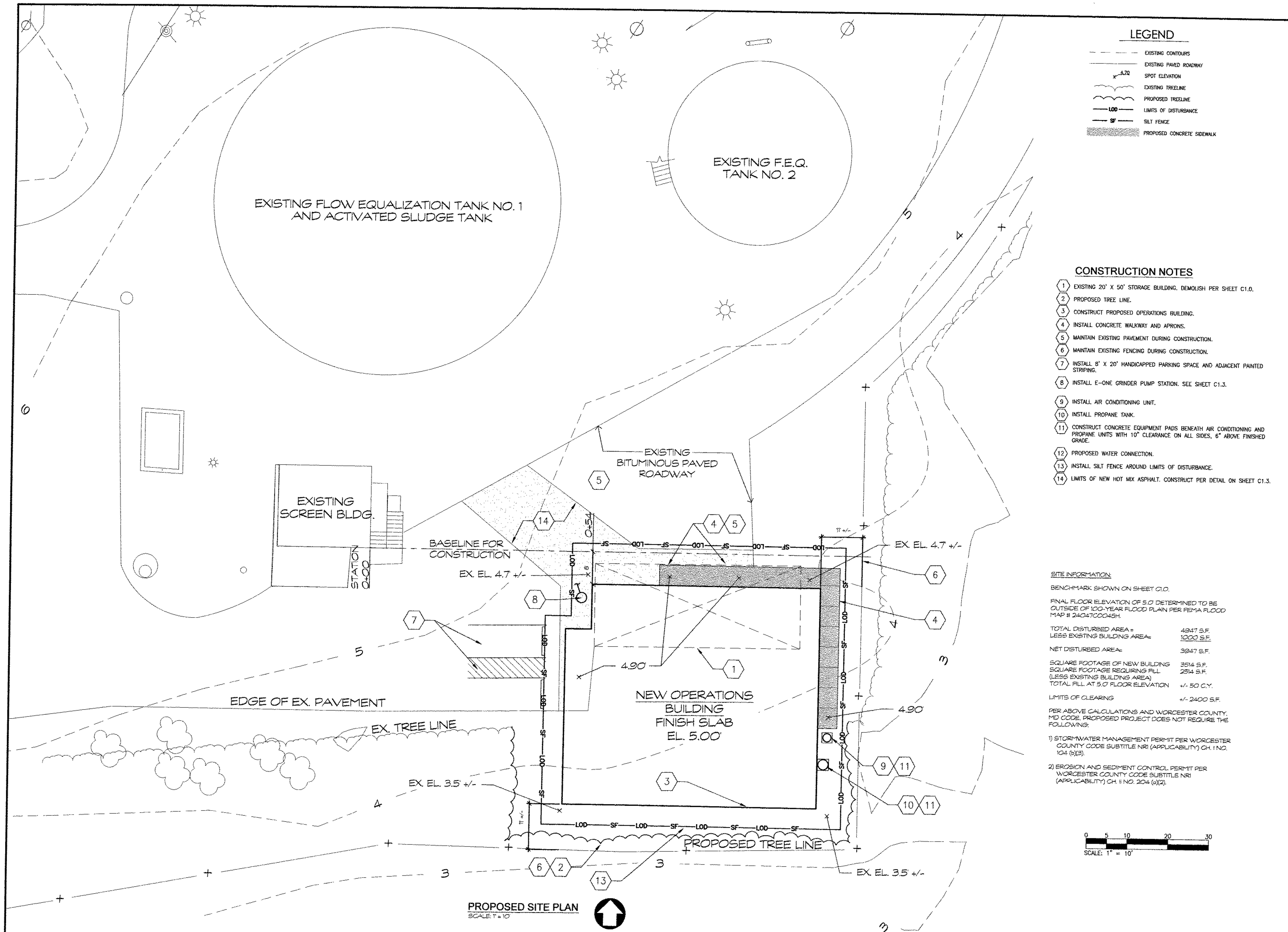


### SITE PLAN DEMOLITION

		<p><b>SITE PLAN DEMOLITION</b></p>		<p><b>NEW CONSTRUCTION FOR: OCEAN PINES WWTP OPERATIONS BUILDING WORCESTER COUNTY, MARYLAND</b></p>		<p><b>GMB</b> GEORGE, MILES &amp; BUHR, LLC ARCHITECTS &amp; ENGINEERS SAUSSEUR • BALTIMORE • SEAFORD www.gmbnet.com</p>		<p>DATE ISSUED FOR REVIEW &amp; PERMITTING 10-22-16</p> <p>1</p> <p>2</p> <p>DATE ISSUED FOR PERMIT 11-18-16</p>
<p>SCALE : AS NOTED</p> <p>DESIGN BY : GBA JK</p> <p>DRAWN BY : GBA JK</p> <p>CHECKED BY : PAB</p> <p>MS FILE : 1600048</p> <p>DATE : NOVEMBER 2016</p>		<p><b>C.O.</b></p>						



g:\Projects\2016\160049 ocean pines wwtp operations building\Drawings\current drawings\C1.1 SITE PLAN.dwg, 11/21/2016 8:21 AM, Lee K. Wholey



LEGEND

- EXISTING CONTOURS
- EXISTING PAVED ROADWAY
- SPOT ELEVATION
- EXISTING TREELINE
- PROPOSED TREELINE
- LIMITS OF DISTURBANCE
- SILT FENCE
- PROPOSED CONCRETE SIDEWALK

CONSTRUCTION NOTES

- EXISTING 20' X 50' STORAGE BUILDING, DEMOLISH PER SHEET C1.0.
- PROPOSED TREE LINE.
- CONSTRUCT PROPOSED OPERATIONS BUILDING.
- INSTALL CONCRETE WALKWAY AND APRONS.
- MAINTAIN EXISTING PAVEMENT DURING CONSTRUCTION.
- MAINTAIN EXISTING FENCING DURING CONSTRUCTION.
- INSTALL 8' X 20' HANDICAPPED PARKING SPACE AND ADJACENT PAINTED STRIPING.
- INSTALL E-ONE GRINDER PUMP STATION. SEE SHEET C1.3.
- INSTALL AIR CONDITIONING UNIT.
- INSTALL PROPANE TANK.
- CONSTRUCT CONCRETE EQUIPMENT PADS BENEATH AIR CONDITIONING AND PROPANE UNITS WITH 10" CLEARANCE ON ALL SIDES, 6" ABOVE FINISHED GRADE.
- PROPOSED WATER CONNECTION.
- INSTALL SILT FENCE AROUND LIMITS OF DISTURBANCE.
- LIMITS OF NEW HOT MIX ASPHALT. CONSTRUCT PER DETAIL ON SHEET C1.3.

SITE INFORMATION:

BENCHMARK SHOWN ON SHEET C1.0.

FINAL FLOOR ELEVATION OF 5.0' DETERMINED TO BE OUTSIDE OF 100-YEAR FLOOD PLAIN PER FEMA FLOOD MAP # 2404700045H.

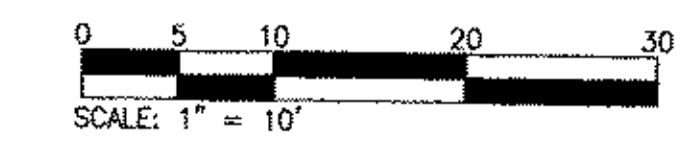
TOTAL DISTURBED AREA =	4947 S.F.
LESS EXISTING BUILDING AREA =	1000 S.F.
NET DISTURBED AREA =	3947 S.F.

SQUARE FOOTAGE OF NEW BUILDING	3514 S.F.
SQUARE FOOTAGE REQUIRING FILL (LESS EXISTING BUILDING AREA)	2514 S.F.
TOTAL FILL AT 5.0' FLOOR ELEVATION	+/- 50 C.Y.

LIMITS OF CLEARING +/- 2400 S.F.

PER ABOVE CALCULATIONS AND WORCESTER COUNTY, MD CODE, PROPOSED PROJECT DOES NOT REQUIRE THE FOLLOWING:

- STORMWATER MANAGEMENT PERMIT PER WORCESTER COUNTY CODE SUBTITLE NRI (APPLICABILITY) CH. I NO. 104 (b)(3).
- EROSION AND SEDIMENT CONTROL PERMIT PER WORCESTER COUNTY CODE SUBTITLE NRI (APPLICABILITY) CH. II NO. 204 (a)(2).



DATE	10-2-16
REVISION	ISSUED FOR REVIEW & PERMITTING
NO.	1
NO.	2
ISSUED FOR PERMIT	11-18-16

GEORGE, MILES & BUHR, LLC  
ARCHITECTS & ENGINEERS  
SAUSBURY · BALTIMORE · SEAFORD  
www.gmbnet.com

NEW CONSTRUCTION FOR:  
**OCEAN PINES WWTP  
OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

**PROPOSED SITE  
PLAN**

SCALE	: AS NOTED
DESIGN BY	: GBA, JK
DRAWN BY	: GBA, JK
CHECKED BY	: PAB
GMB FILE	: 160049
DATE	: 11-18-16

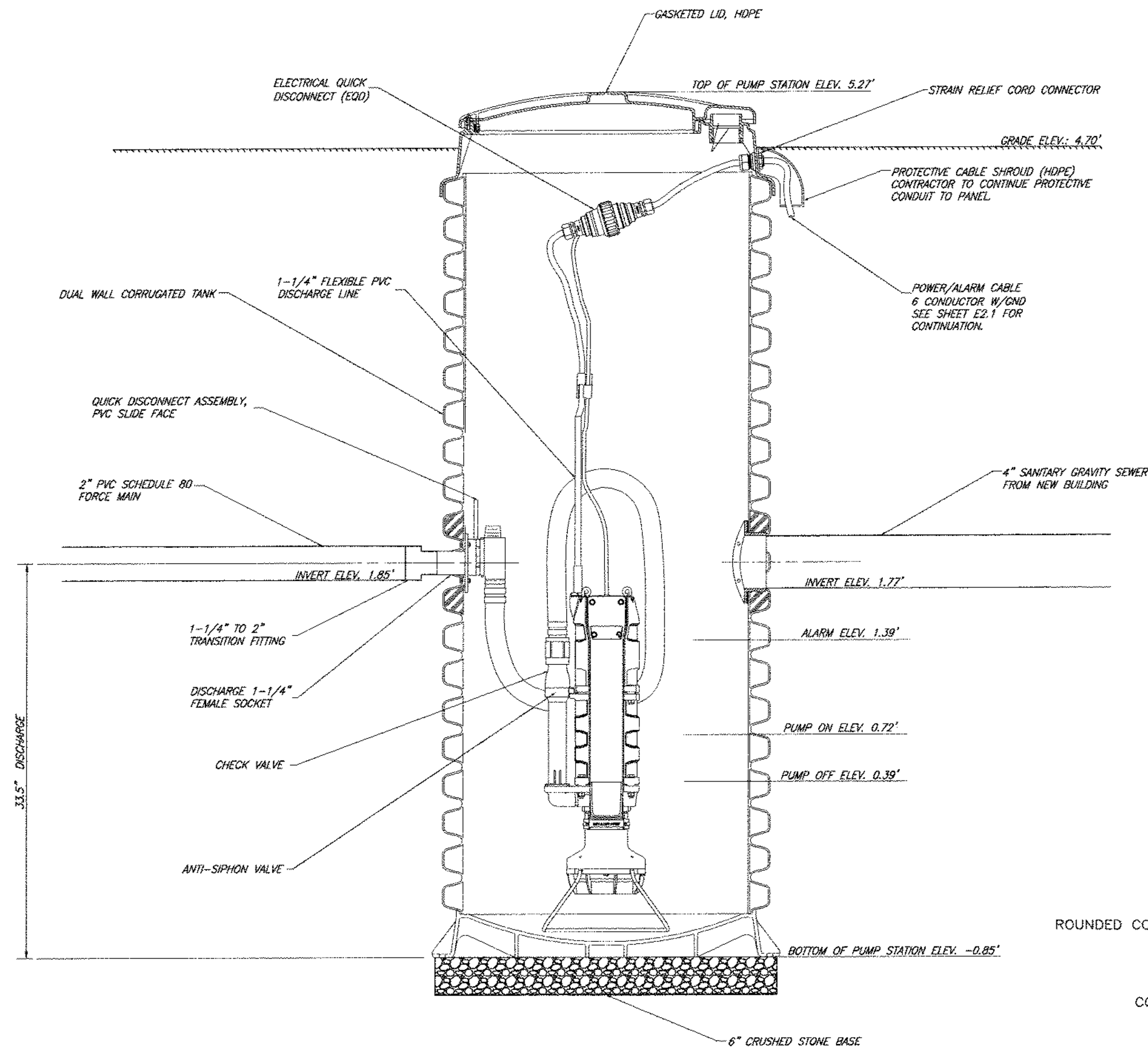
**C1.1**

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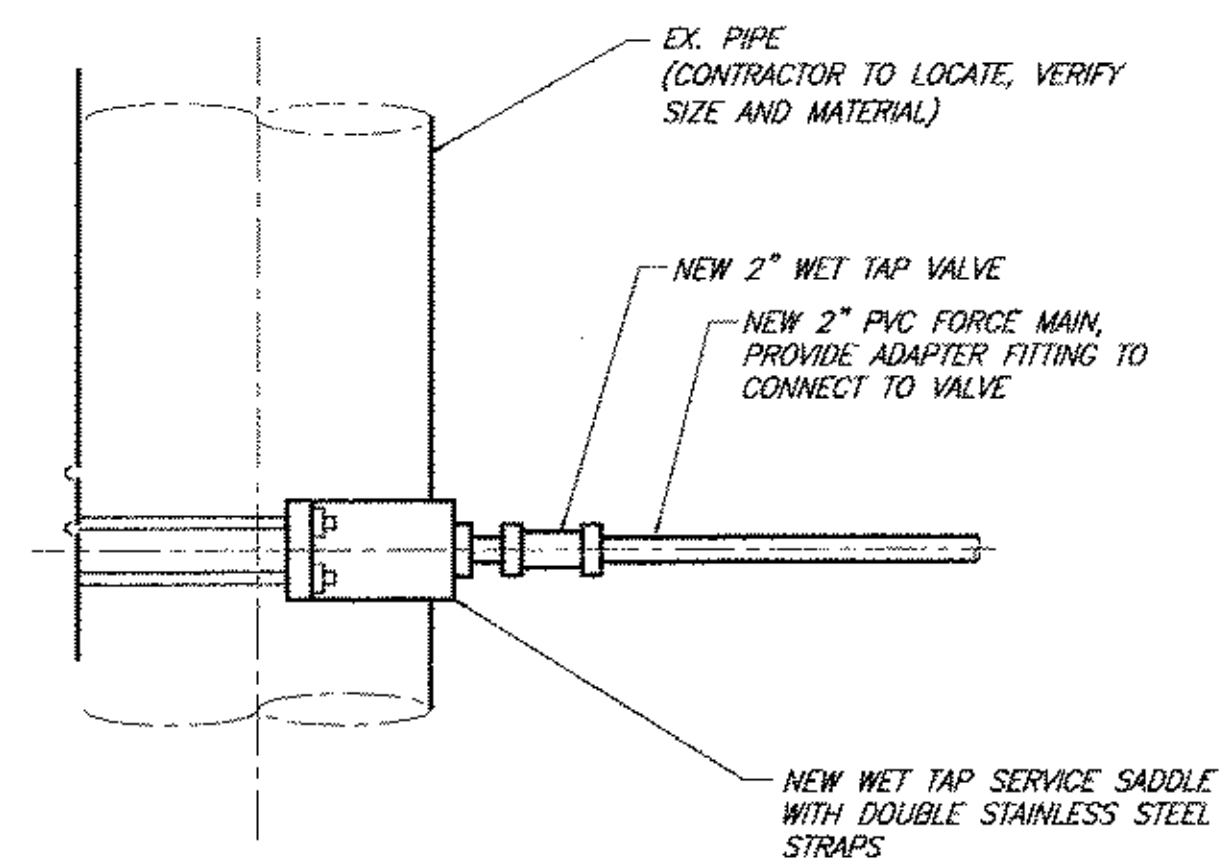






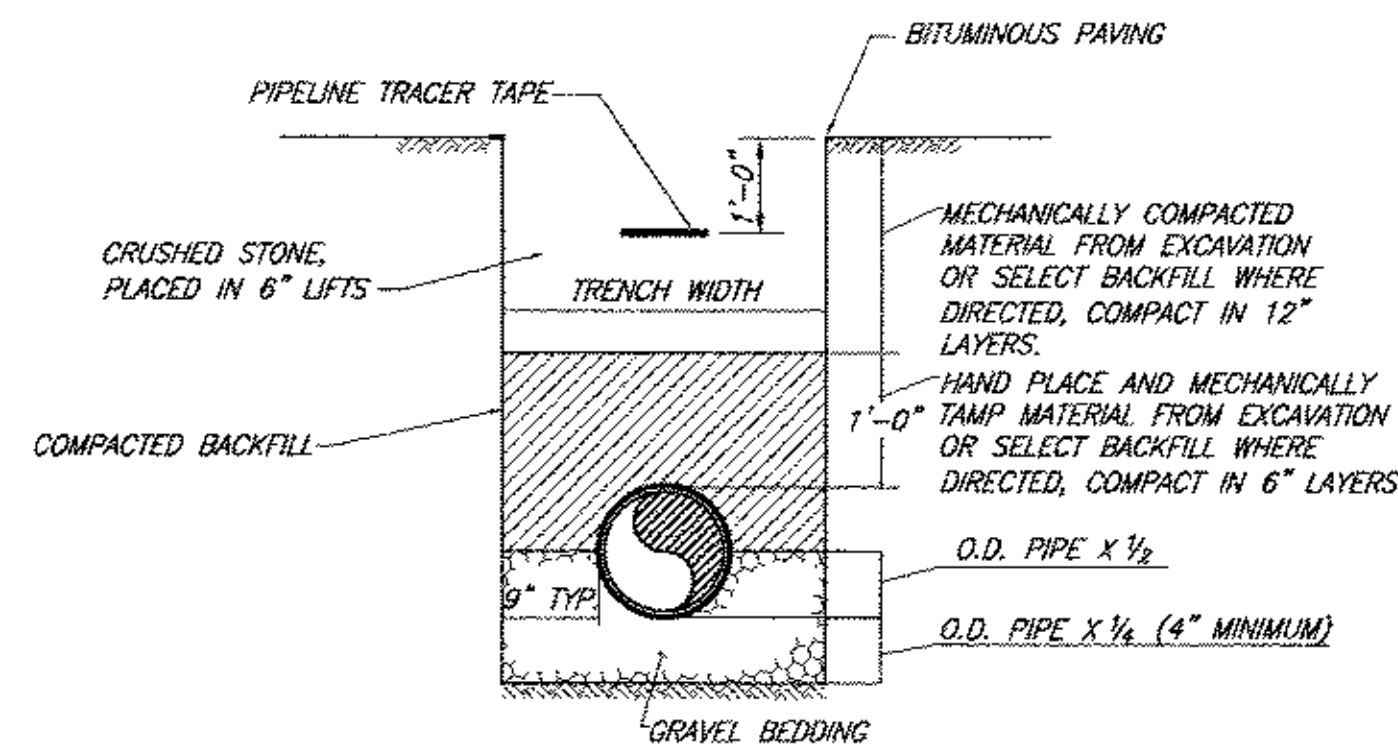


**PUMP STATION SECTION**  
NOT TO SCALE

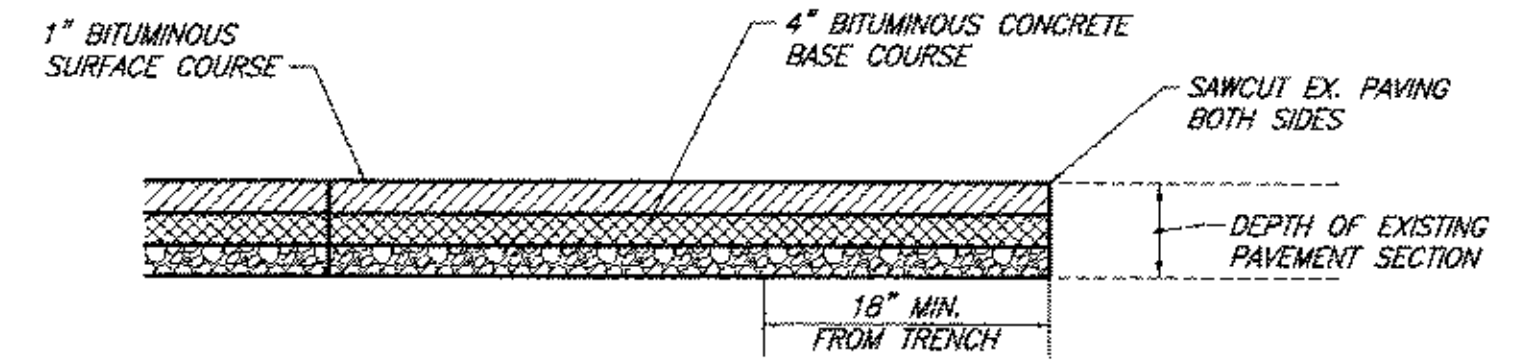


(TYPICAL FOR 6\"/>

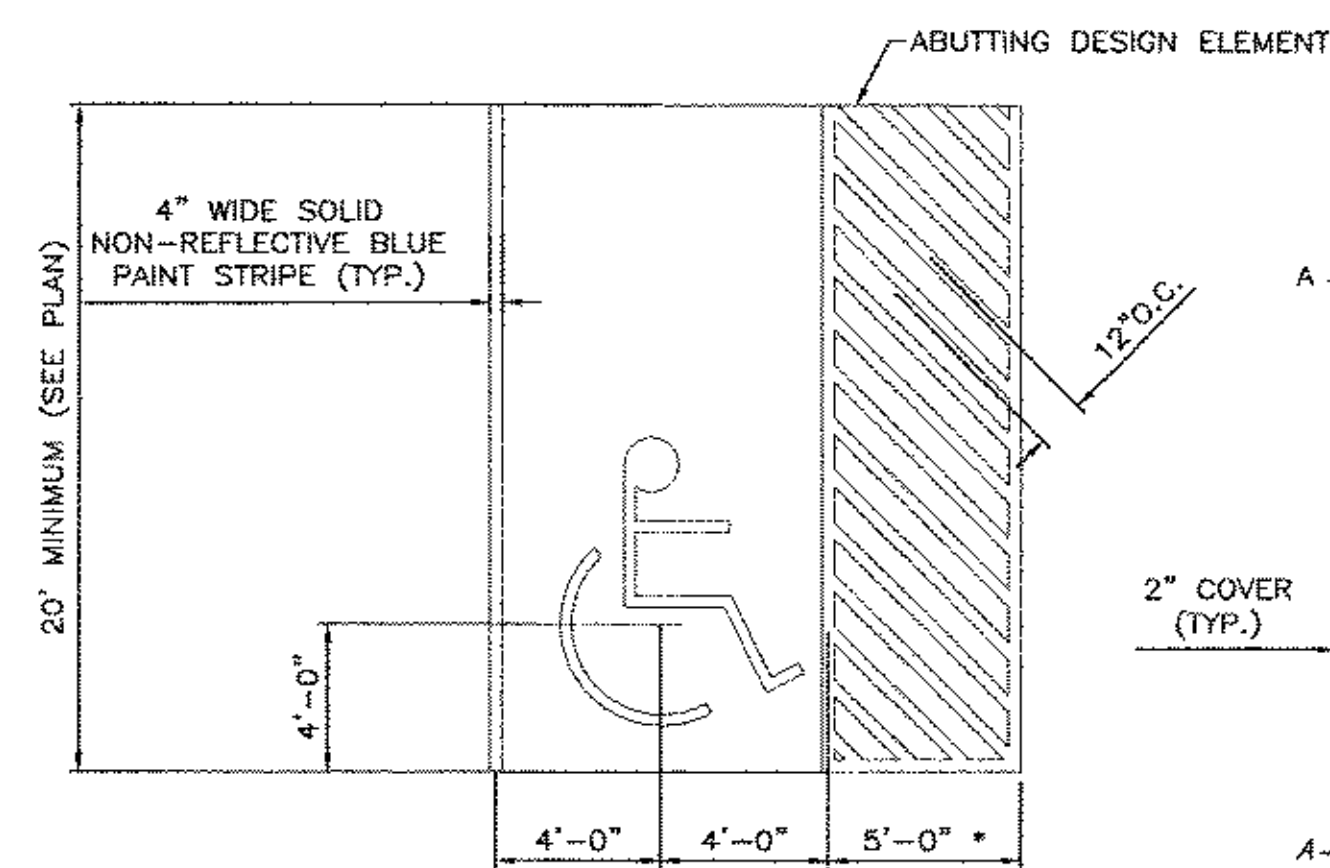
**WET TAP DETAIL**  
NOT TO SCALE



**PIPE TRENCH**  
NOT TO SCALE

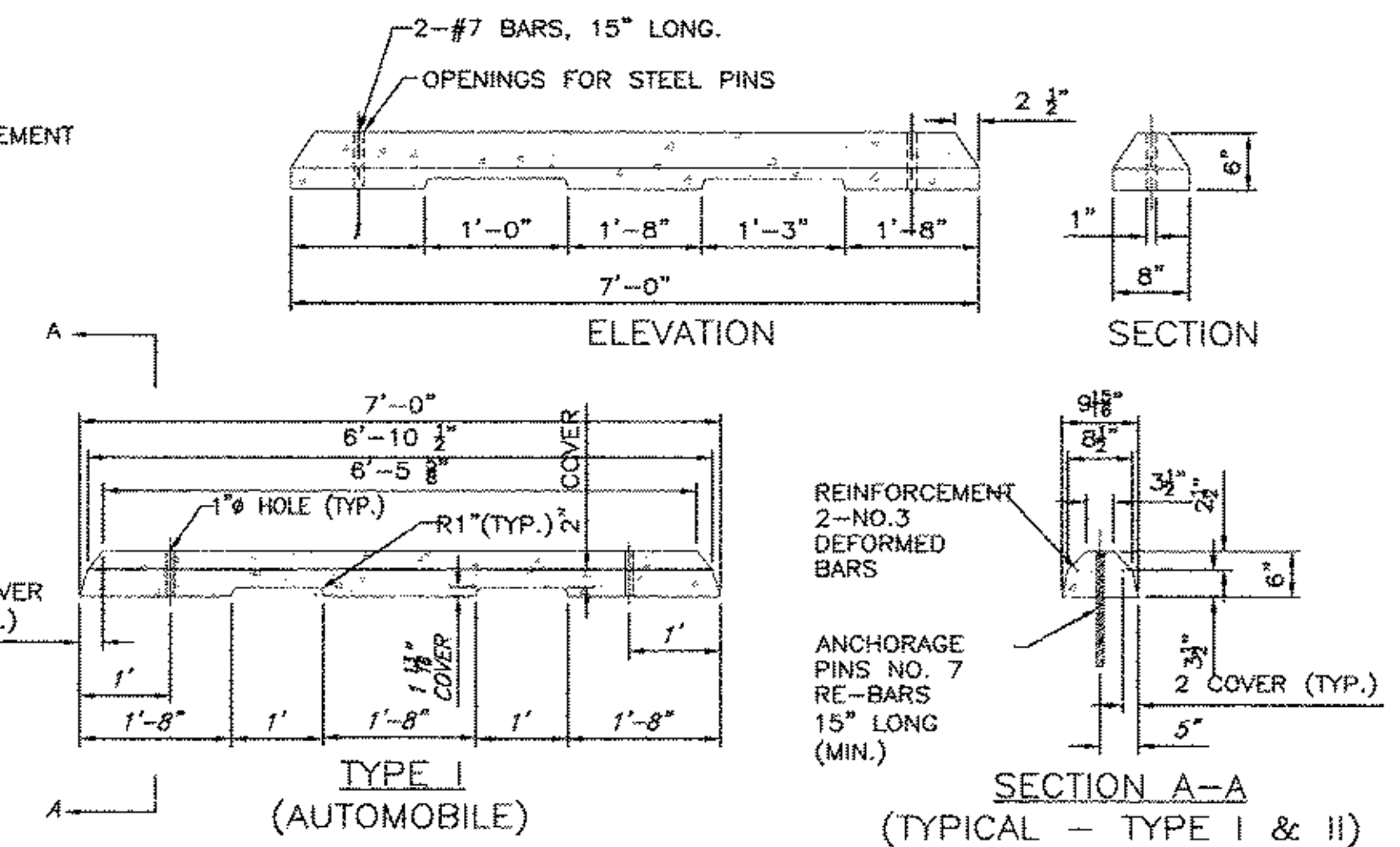


**BITUMINOUS PAVING REPAIR**  
NOT TO SCALE

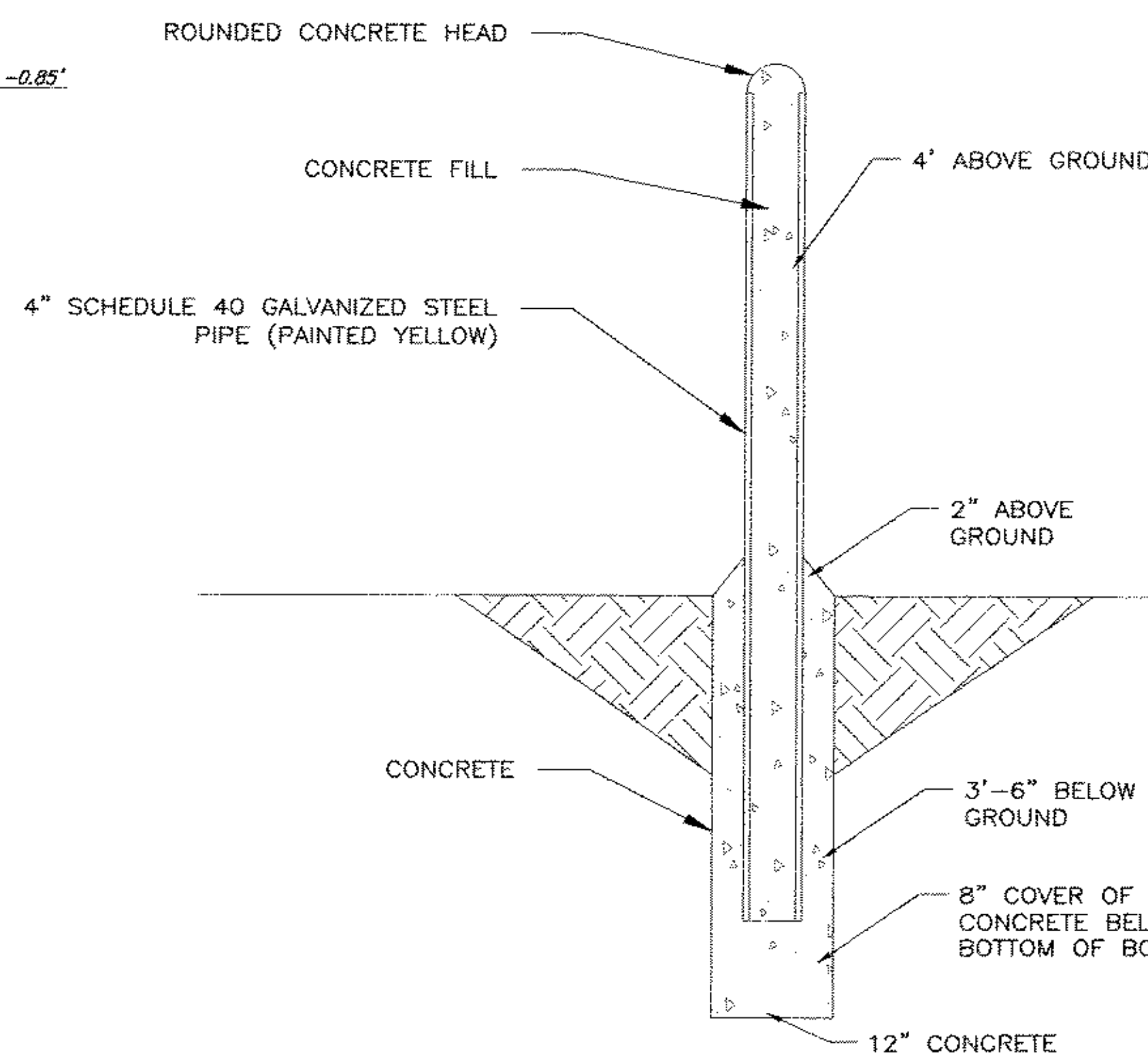


NOTE:  
STRIPING MATERIAL AND METHODS OF CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE LATEST MUTCD EDITION AND SHA STDS. & SPECS.

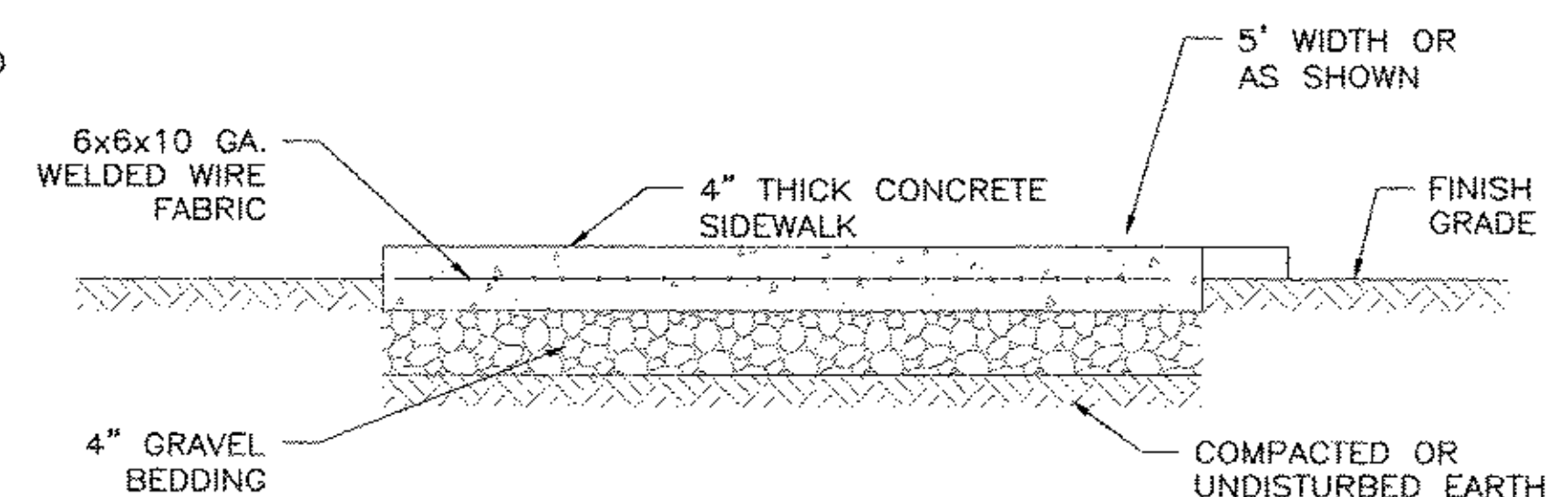
**HANDICAP PARKING DETAIL**  
NOT TO SCALE



NOTE:  
PRECAST CONCRETE WHEEL STOPS SHALL BE LOCATED AS SHOWN ON THE PLANS, THEN SECURED IN PLACE WITH TWO (2) NO.7 REINFORCEMENT BARS PER WHEEL STOP.




**PIPE BOLLARD DETAIL**  
NO SCALE



NOTE:  
PROVIDE EXPANSION JOINTS AT INTERVALS NOT GREATER THAN 20 FEET.

**CONCRETE SIDEWALK**  
NO SCALE


DATE	10-21-16
REVISION	1-15-18
ISSUED FOR REVIEW & PERMITTING	SEALED FOR PERMIT
NO.	1
	2



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**OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

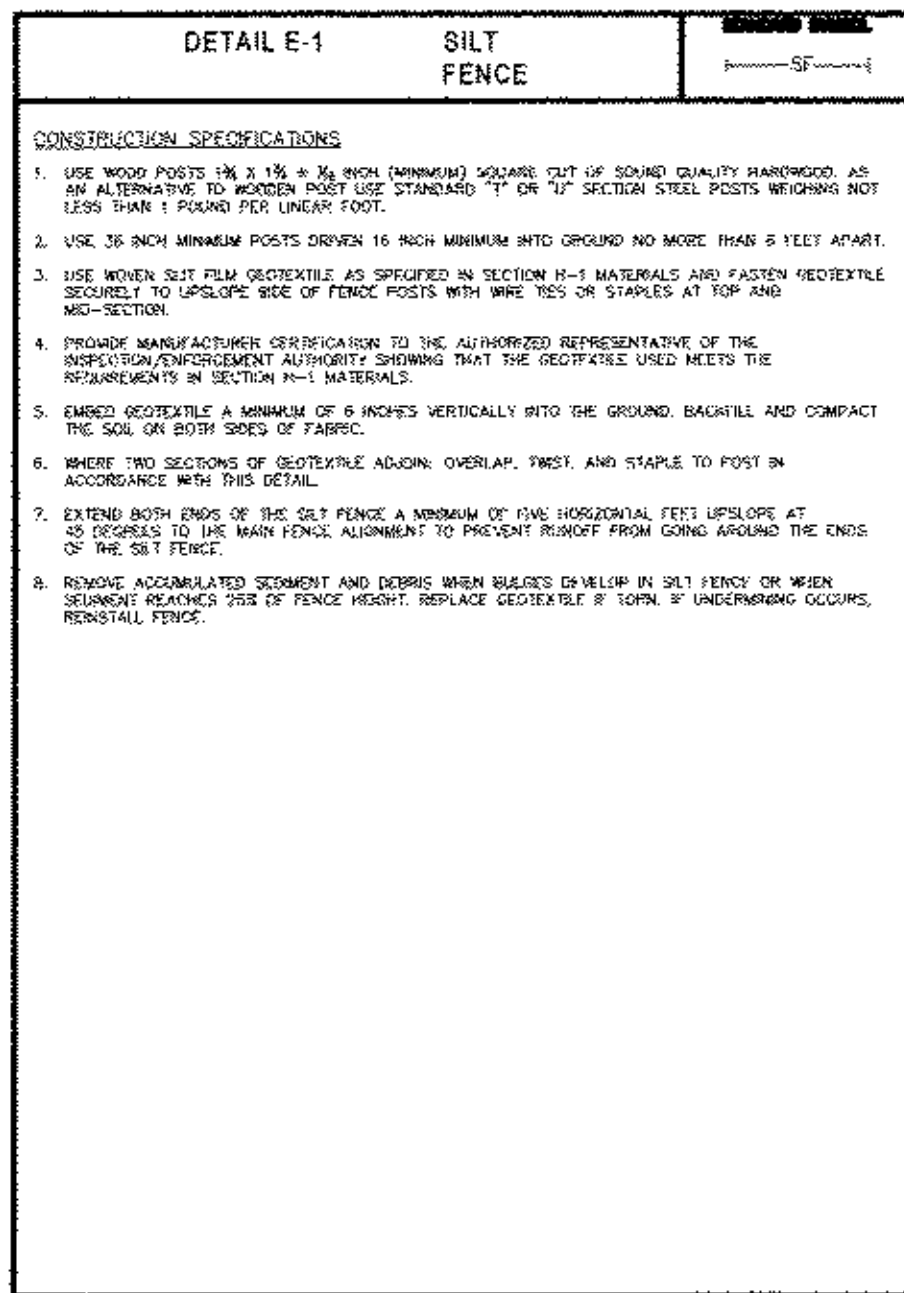
**CONSTRUCTION**  
**DETAILS**



SCALE	: AS NOTED
DESIGN BY	: GBA, JK
DRAWN BY	: GBA, JK
CHECKED BY	: RAB
GMB FILE	: 1600049
DATE	: 11-18-16

C1.3





PERMANENT SEEDING SUMMARY								
HARDINESS ZONE (FROM FIGURE B.3): 7B MIXTURE (FROM TABLE B.3): 1				SEED	FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPL RATE (LBS/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	
1	COASTAL PANIC GRASS	10	3/1 TO 5/15 8/15 TO 10/15	¼ TO ½	45LBS/AC 1LBS/1000S F	90LBS/AC 2LBS/1000 SF	90LBS/AC 2LBS/1000 SF	2 TONS/AC 90LBS/1000 SF
	CREeping RED FESCUE	15	3/1 TO 5/15 8/15 TO 10/15	¼ TO ½				
	PARTRIDGE PEA	4	3/1 TO 5/15 8/15 TO 10/15	¼ TO ½				

- C1.4

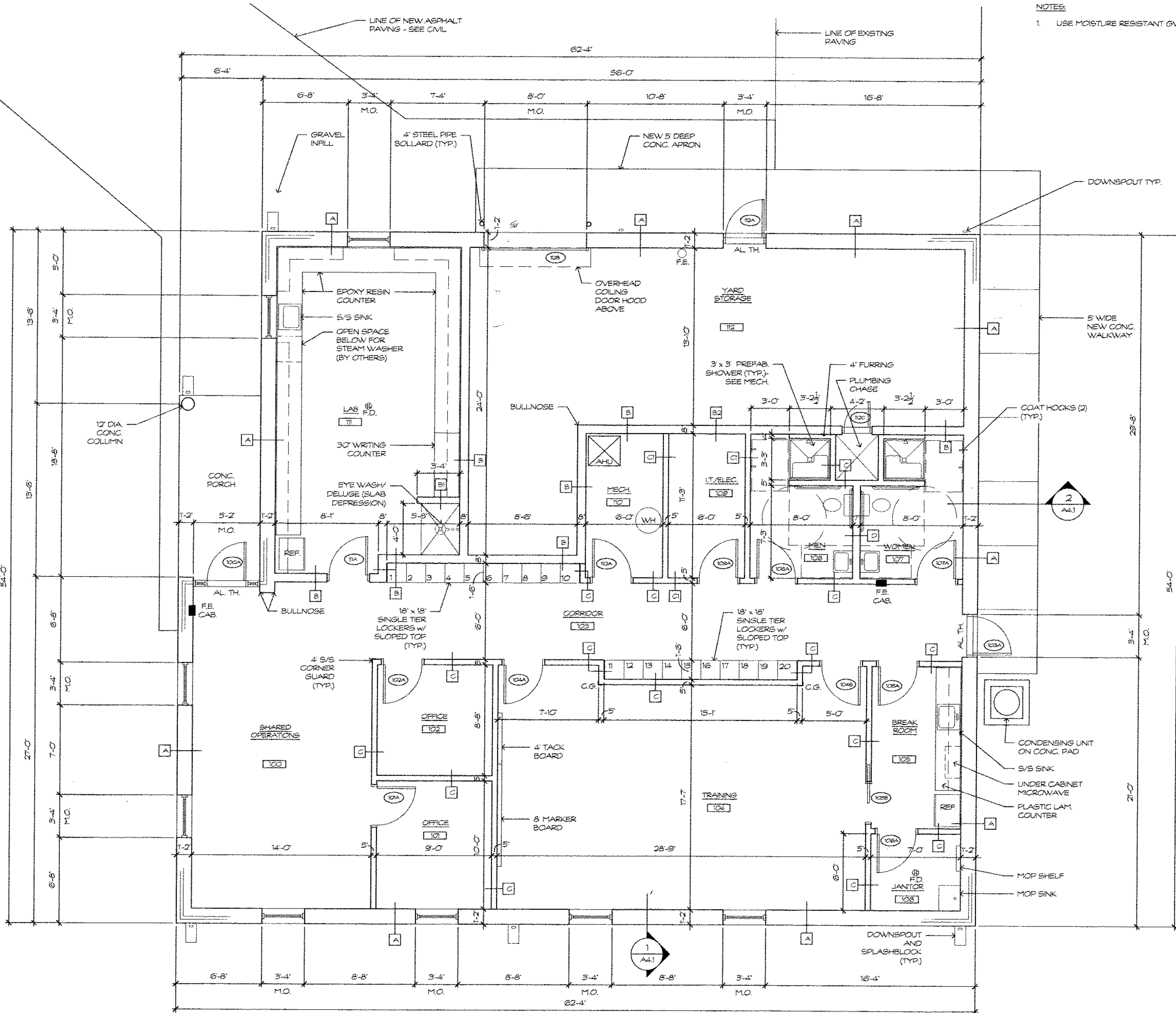


g:\Projects\2016\60049 ocean pines wwtp operations building\Drawings\current drawings\A1.1 FLOOR PLAN.dwg, 11/21/2016 7:48 AM, Lee K. Whaley

1

# FLOOR PLAN

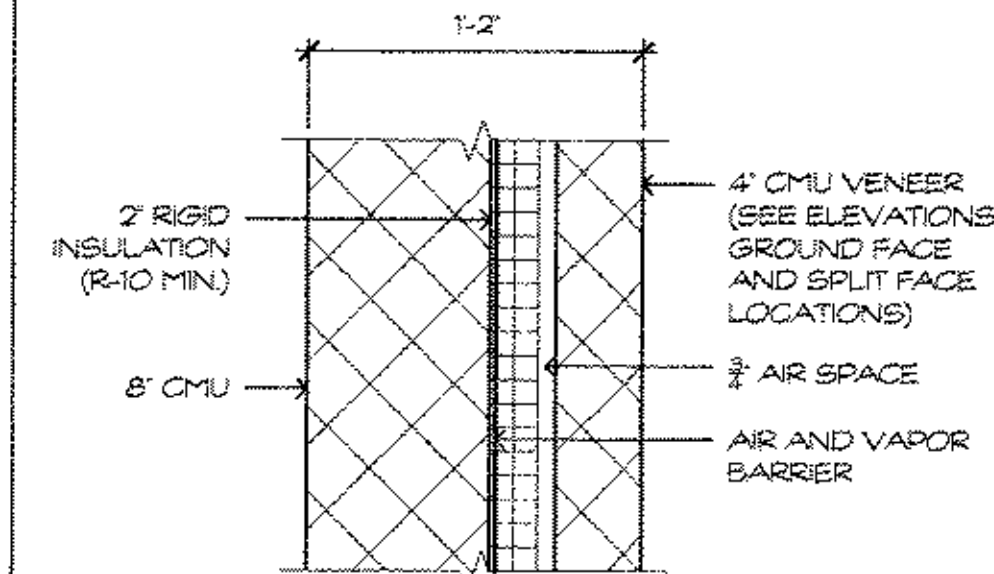
1/4" = 1'-0"



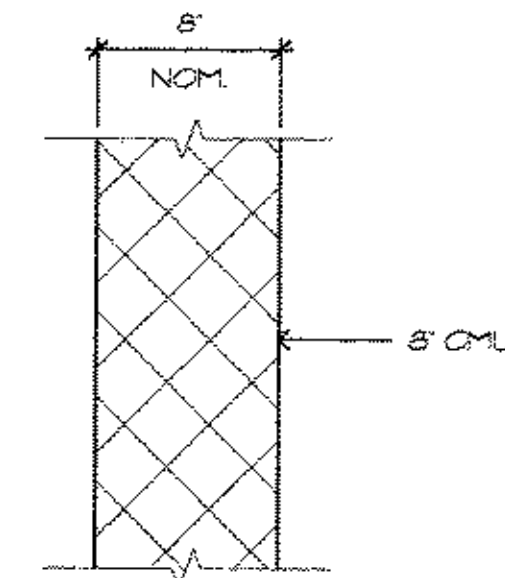
- NOTES:
1. USE MOISTURE RESISTANT GWB IN TOILET ROOMS.

## WALL TYPES:

1 1/2" = 1'-0"

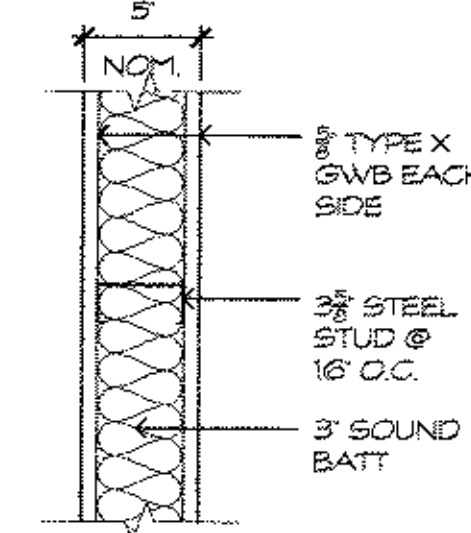


TYPE A



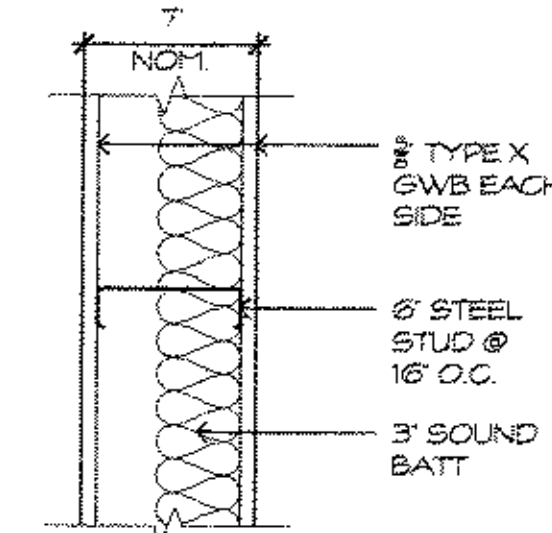
TYPE B1 - 6\"/>

TYPE B2 - (2 HOUR BASED ON UL U205 AT RATED WALLS)



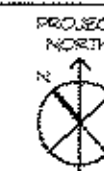
TYPE C

TYPE C1 (1 HOUR BASED ON UL U404 AT RATED WALLS)



TYPE D

ENCLOSED FLOOR AREA = 3295 S.F.  
COVERED AREA = 82 S.F.  
TOTAL AREA = 3384 S.F.

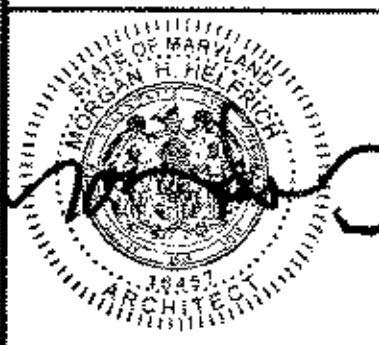


DATE	12-2-16
REVISION	ISSUED FOR REVIEW & PERMITTING
NO.	1
NO.	2
NO.	3

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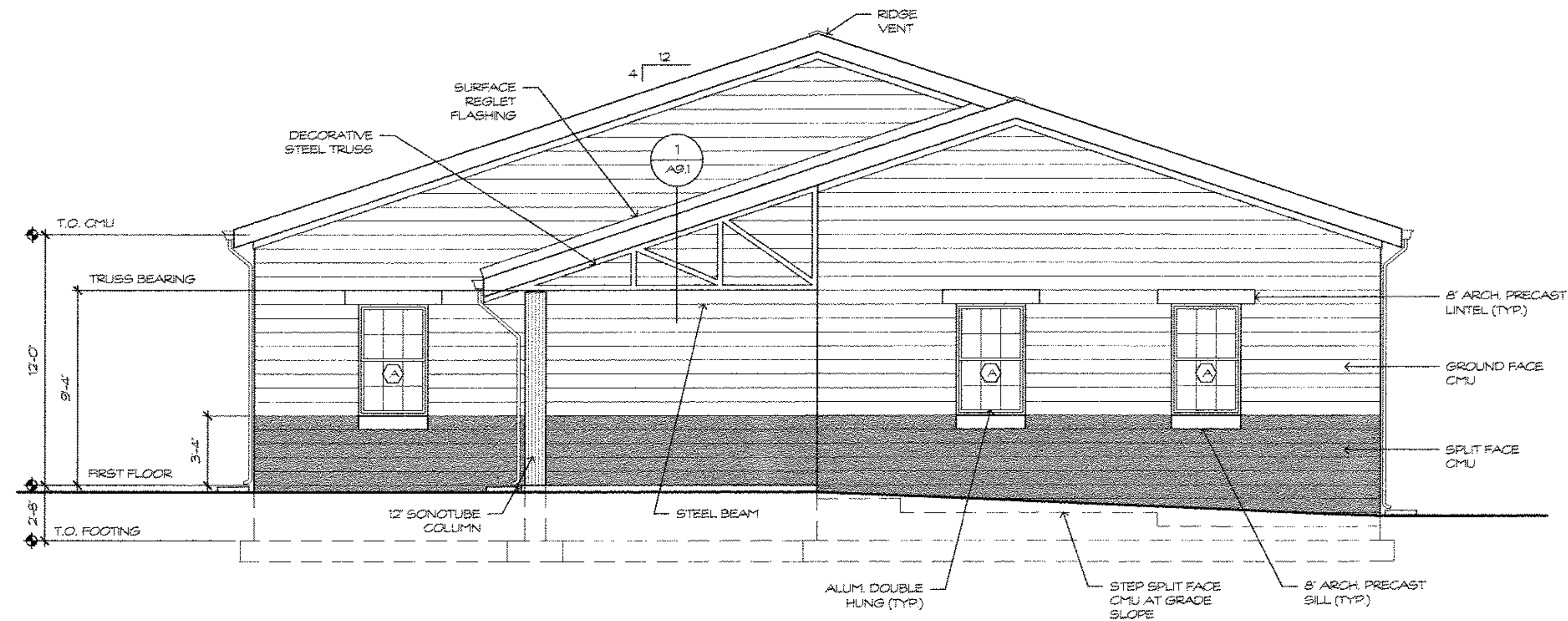
## FLOOR PLAN



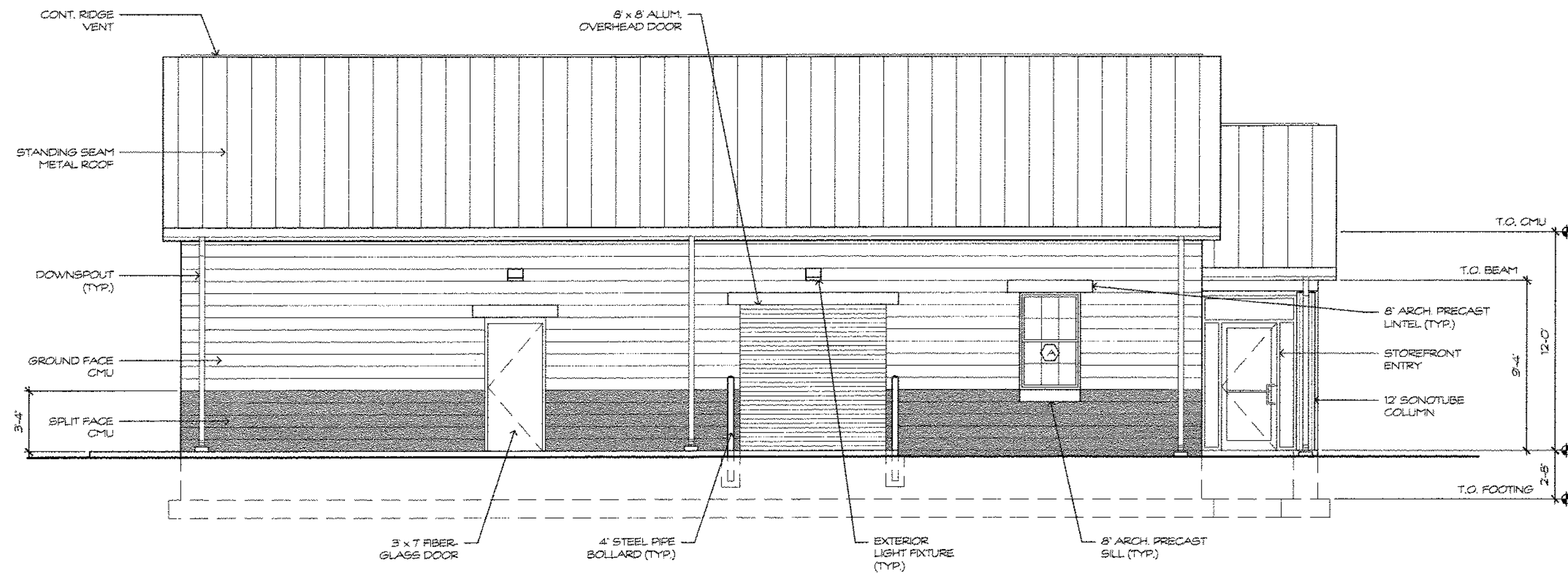
SCALE	AS NOTED
DESIGN BY	MDM
DRAWN BY	LKW
CHECKED BY	MHH
GMB FILE	160049
DATE	11-18-16

A1.1





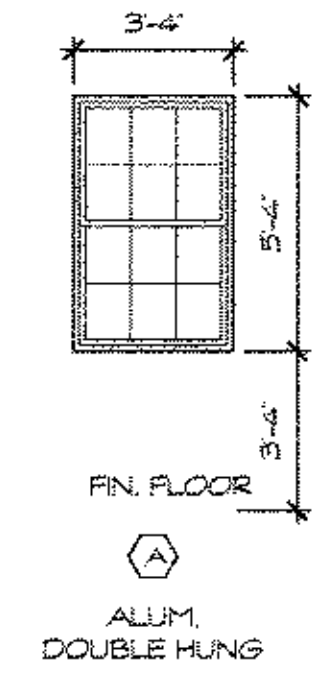
EAST ELEVATION



NORTH ELEVATION

WINDOW SCHEDULE

1/4" = 1-0"

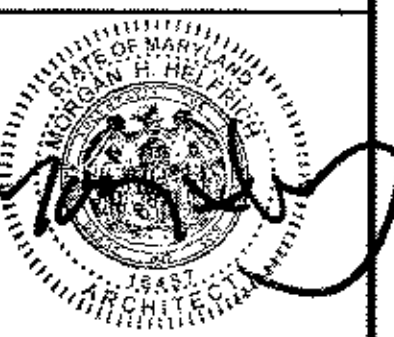


NO.	REVISION	DATE
1	ISSUED FOR REVIEW & RE-EVALUATING	10-2-16
2	ISSUED FOR PERMIT	11-9-16



NEW CONSTRUCTION FOR:  
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OPERATIONS BUILDING  
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# ELEVATIONS

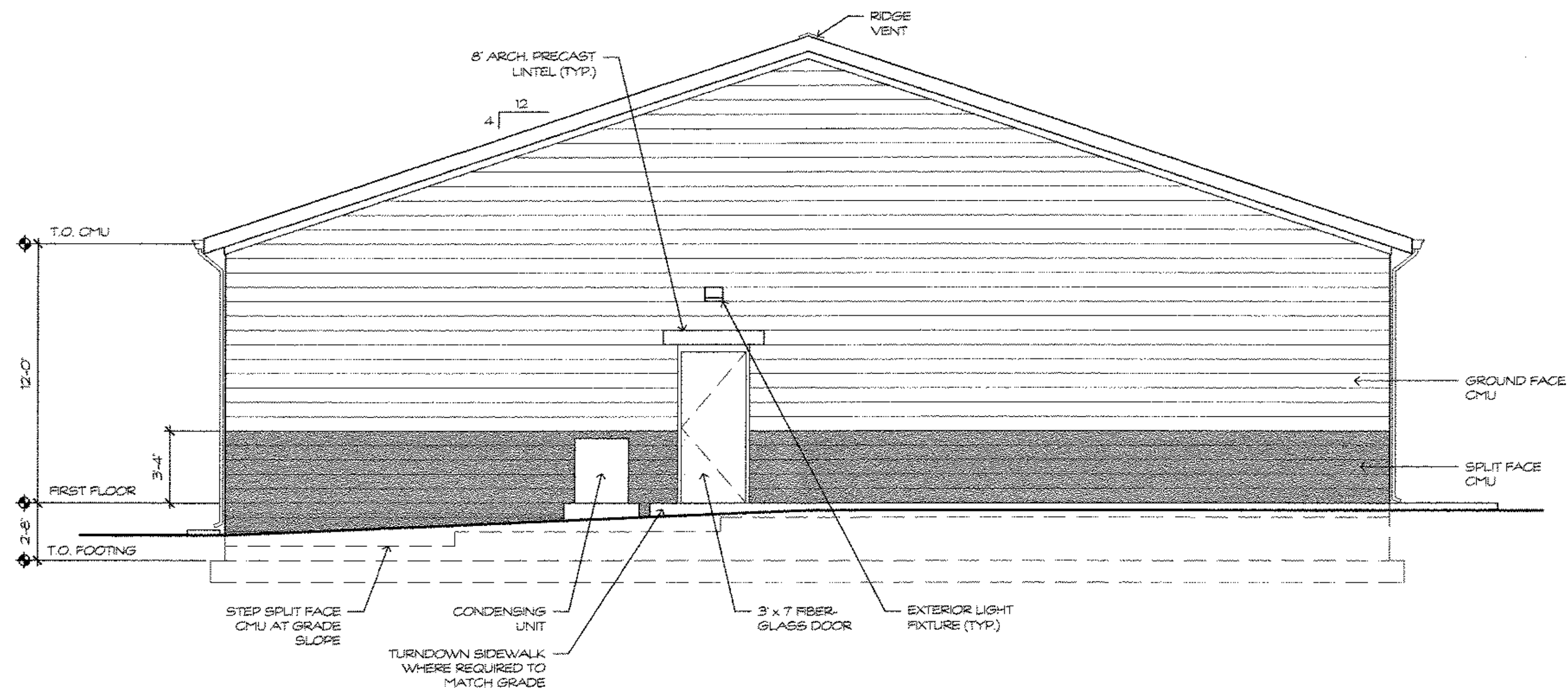


SCALE : AS NOTED  
DESIGN BY : MDM  
DRAWN BY : LKW  
CHECKED BY : MHH  
GWS FILE : 160049  
DATE : 11-18-16

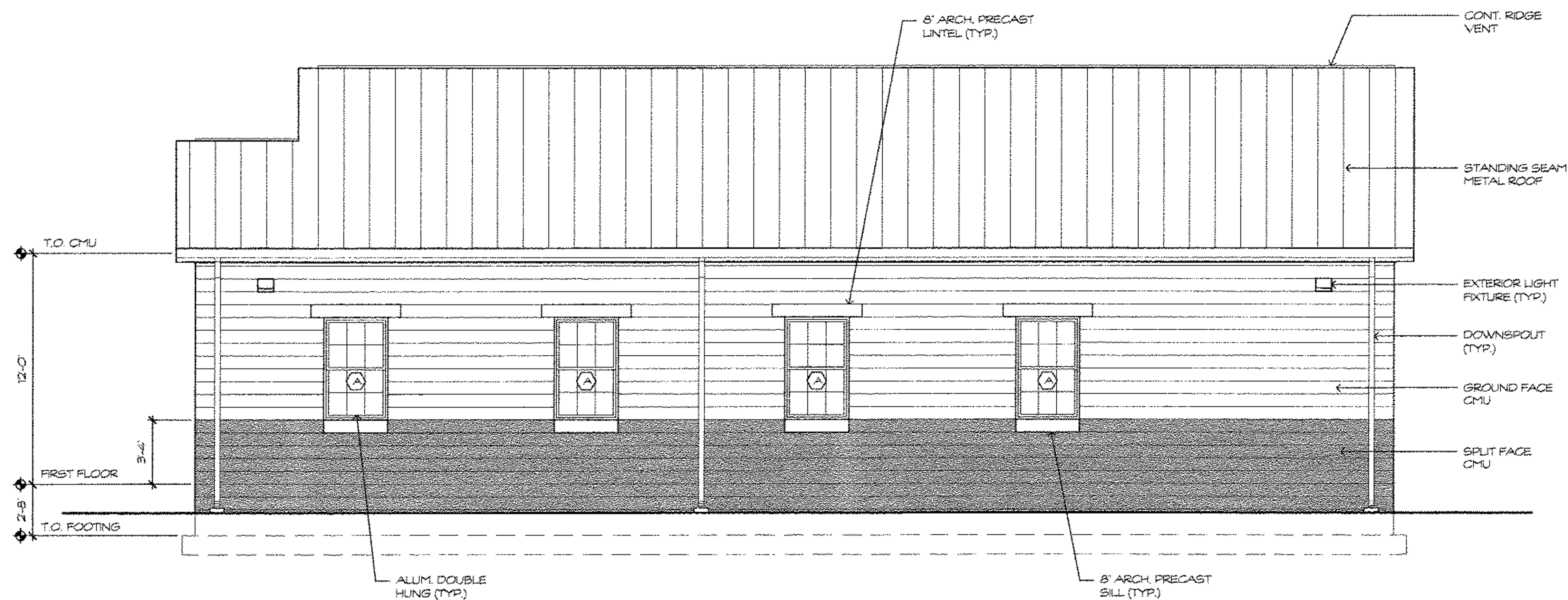
## A2.1



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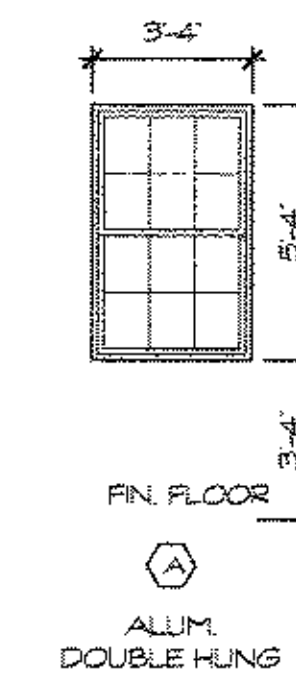
WEST ELEVATION



SOUTH ELEVATION

WINDOW SCHEDULE

1/4" = 1'-0"



NO.	REVISION	DATE
1	ISSUED FOR REVIEW & PERMITTING	10-24-16
2	ISSUED FOR PERMIT	11-8-16

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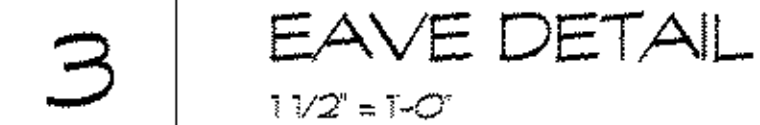
ELEVATIONS



SCALE : AS NOTED  
DESIGN BY : MCM  
DRAWN BY : LKW  
CHECKED BY : MHH  
GMB FILE : 160049  
DATE : 11-8-16

A2.2







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DOOR SCHEDULE								
DOOR #	TYPE	MATL	SIZE	THICK	RATING	FRAME	HARDWARE	REMARKS
100A	A	ALUM.	3'-0" x 7'-0"	1 3/4"	--	F-3	HW-1	
101A	B	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-4	
102A	B	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-4	
103A	C	FG	3'-0" x 7'-0"	1 3/4"	--	F-2	HW-6	FIBERGLASS DOOR AND FRAME
104A	B	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-7	
104B	B	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-7	
105A	B	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-4	
105B	D	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-5	HOLLOW METAL POCKET DOOR FRAME
106A	C	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-3	
107A	C	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-2	
108A	C	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-2	
109A	C	WD	3'-0" x 7'-0"	1 3/4"	60 MIN.	F-1	HW-3	SMOKE GASKET
110A	C	WD	3'-0" x 7'-0"	1 3/4"	--	F-1	HW-3	
111A	B	WD	3'-0" x 7'-0"	1 3/4"	--	F-2	HW-4	
112A	C	FG	3'-0" x 7'-0"	1 3/4"	--	F-2	HW-6	FIBERGLASS DOOR AND FRAME
112B	E	ALUM.	8'-0" x 8'-0"	--	--	F-1	HW-8	
112C	C	FG	2'-0" x 7'-0"	1 3/4"	90 MIN.	F-3	HW-9	FIBERGLASS DOOR AND FRAME

HARDWARE SETS:

HW-1  
KEYED LOCKSET  
BALANCE OF HARDWARE PROVIDED  
BY STOREFRONT ENTRY  
MANUFACTURER

HW-2  
1 1/2" PR HINGES (BB)  
1 PRIVACY LOCKSET  
1 WALL BUMPER  
2 KICKPLATES

HW-3  
1 1/2" PR HINGES (BB)  
1 STORAGE LOCKSET  
1 WALL BUMPER  
2 KICKPLATES

HW-4  
1 1/2" PR HINGES (BB)  
1 OFFICE LOCKSET  
1 WALL BUMPER  
2 KICKPLATES

HW-5  
HARDWARE PROVIDED BY POCKET  
DOOR MANUFACTURER

HW-6  
1 1/2" PR HINGES (BB)  
1 ENTRY LOCKSET w/ PANIC  
HARDWARE  
1 CLOSER  
1 WEATHERSTRIP  
1 THRESHOLD

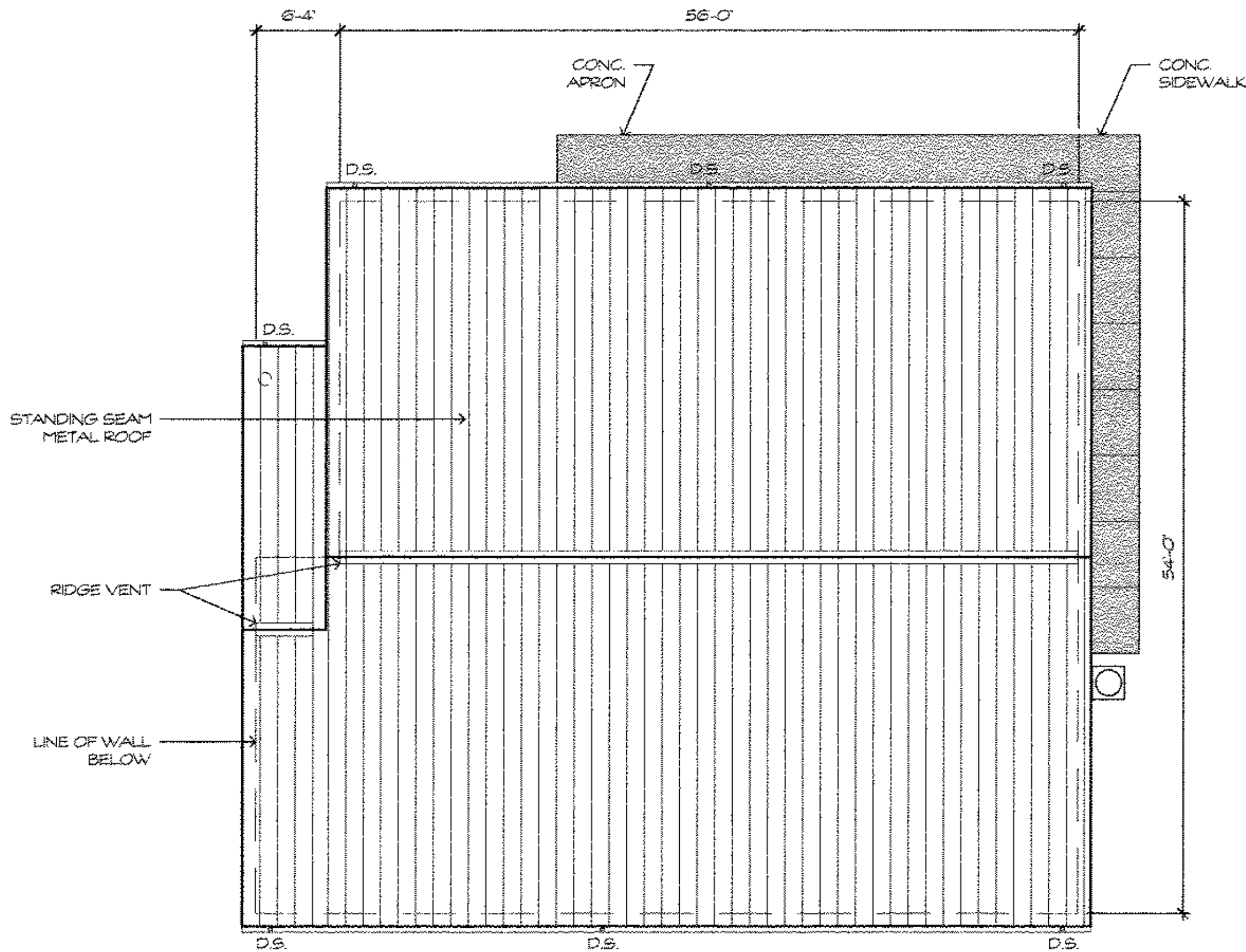
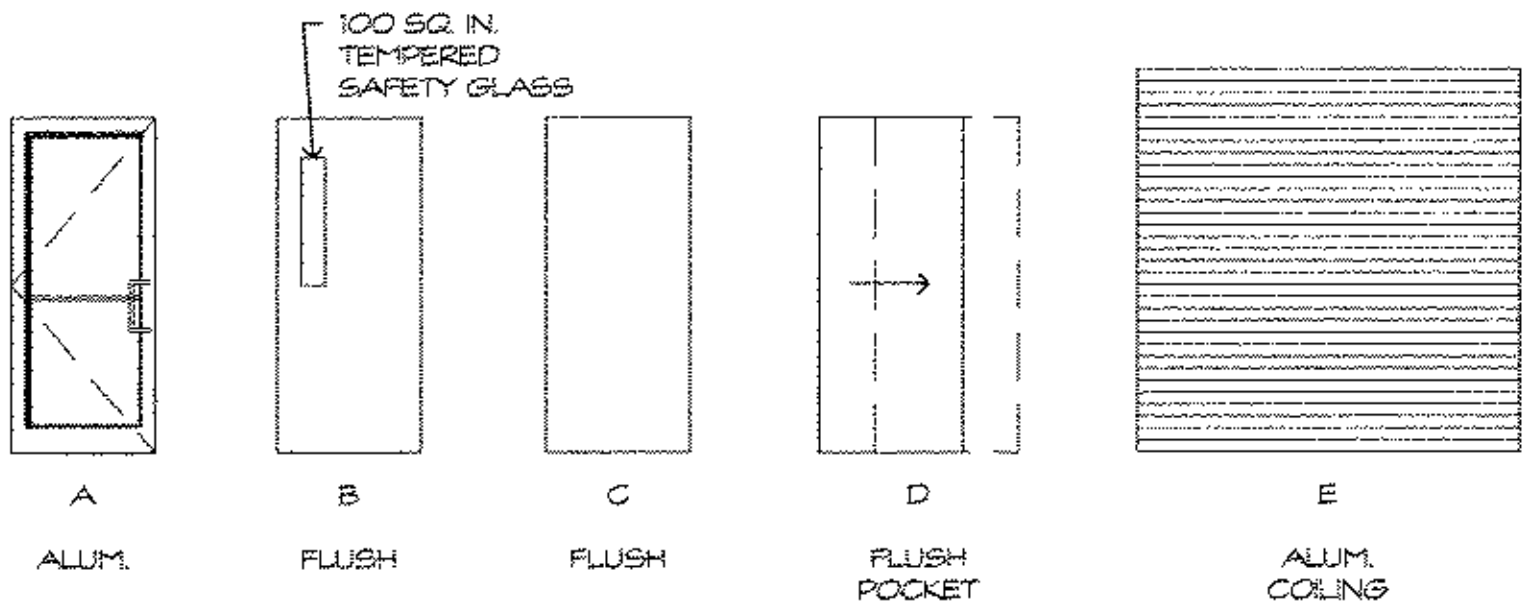
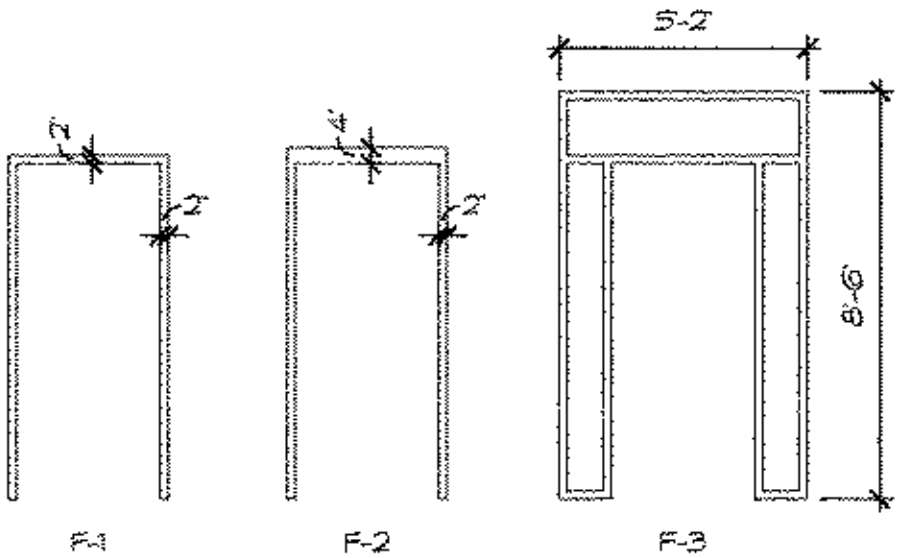
HW-7  
1 1/2" PR HINGES (BB)  
1 CLASSROOM LOCKSET  
1 WALL BUMPER  
2 KICKPLATES

HW-8  
HARDWARE PROVIDED BY COILING  
DOOR MANUFACTURER

HW-9  
1 1/2" PR HINGES (BB)  
1 STORAGE LOCKSET  
1 WALL BUMPER  
2 KICKPLATE  
1 CLOSER  
1 SMOKE GASKET

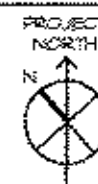
FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	WALLS				CEILING	CLG. HT.	NOTES
				N	E	S	W			
100	SHARED OPERATIONS	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #1	9'-0"	
101	OFFICE	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #1	9'-0"	
102	OFFICE	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #1	9'-0"	
103	CORRIDOR	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #1	9'-0"	
104	TRAINING	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #1	9'-0"	
105	BREAK ROOM	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #1	9'-0"	
106	JANITOR	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	PAINT	12'-0"	
107	WOMEN	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #2	9'-0"	
108	MEN	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #2	9'-0"	
109	I.T./ELECTRICAL	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	PAINT	12'-0"	
110	MECHANICAL	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	PAINT	12'-0"	
111	LAB	VCT	RUBBER	PAINT	PAINT	PAINT	PAINT	AC-L #1	9'-0"	
112	YARD STORAGE	SEALED CONC.	NONE	NONE	NONE	NONE	NONE	PAINT	12'-0"	



NOTE: NEW GUTTER AND DOWNSPOUT DESIGN SHALL CONFORM TO SMACNA STANDARDS FOR 100 YEAR STORMS.

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



NEW CONSTRUCTION FOR:  
OCEAN PINES WWTP  
OPERATIONS BUILDING  
WORCESTER COUNTY, MARYLAND

ROOF PLAN AND  
SCHEDULES



SCALE : AS NOTED  
DESIGN BY : MDM  
DRAWN BY : LKW  
CHECKED BY : MHH  
GMB FILE : 160049  
DATE : 11-18-16

A5.1

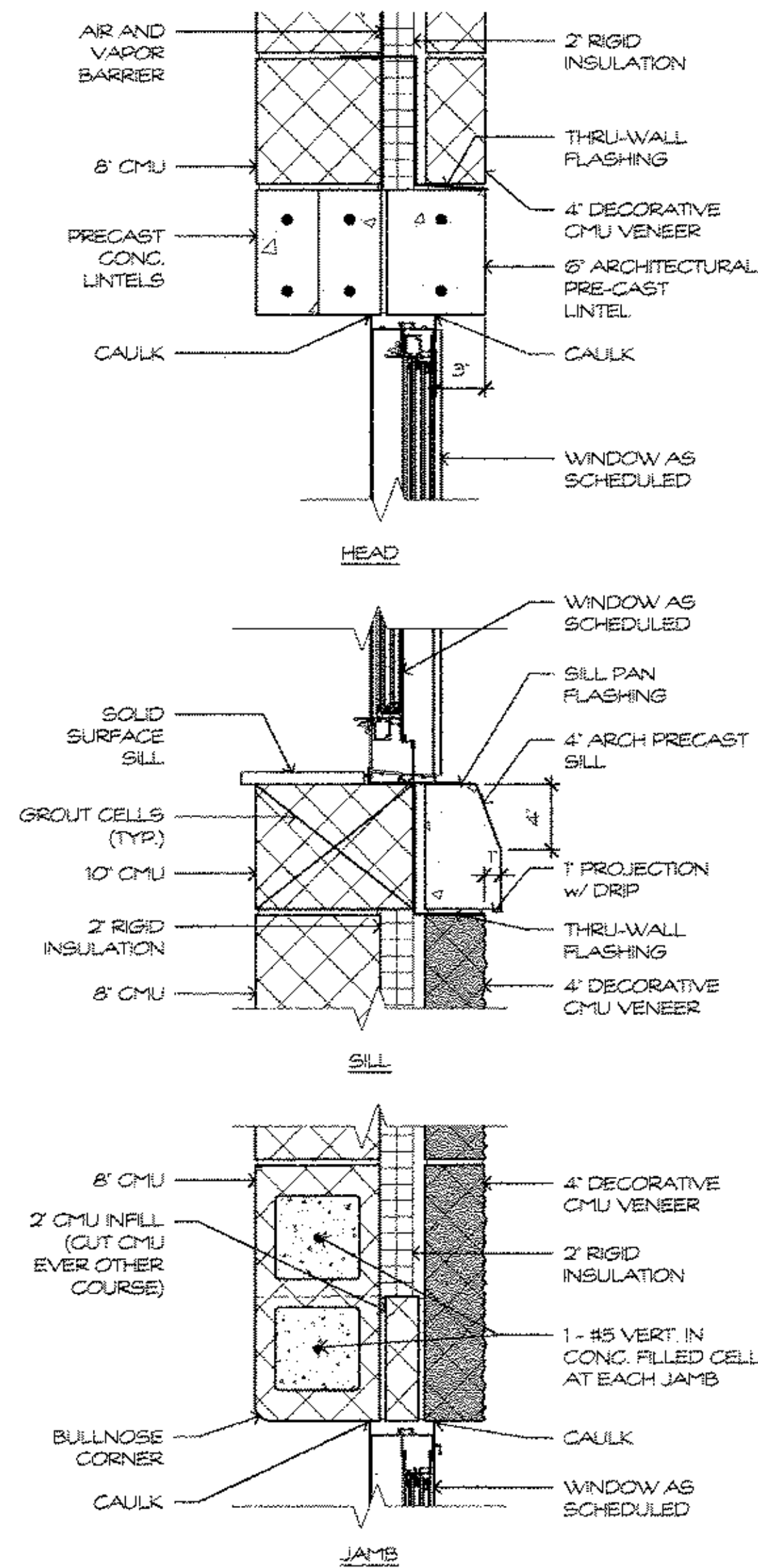


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2

## WINDOW DETAILS

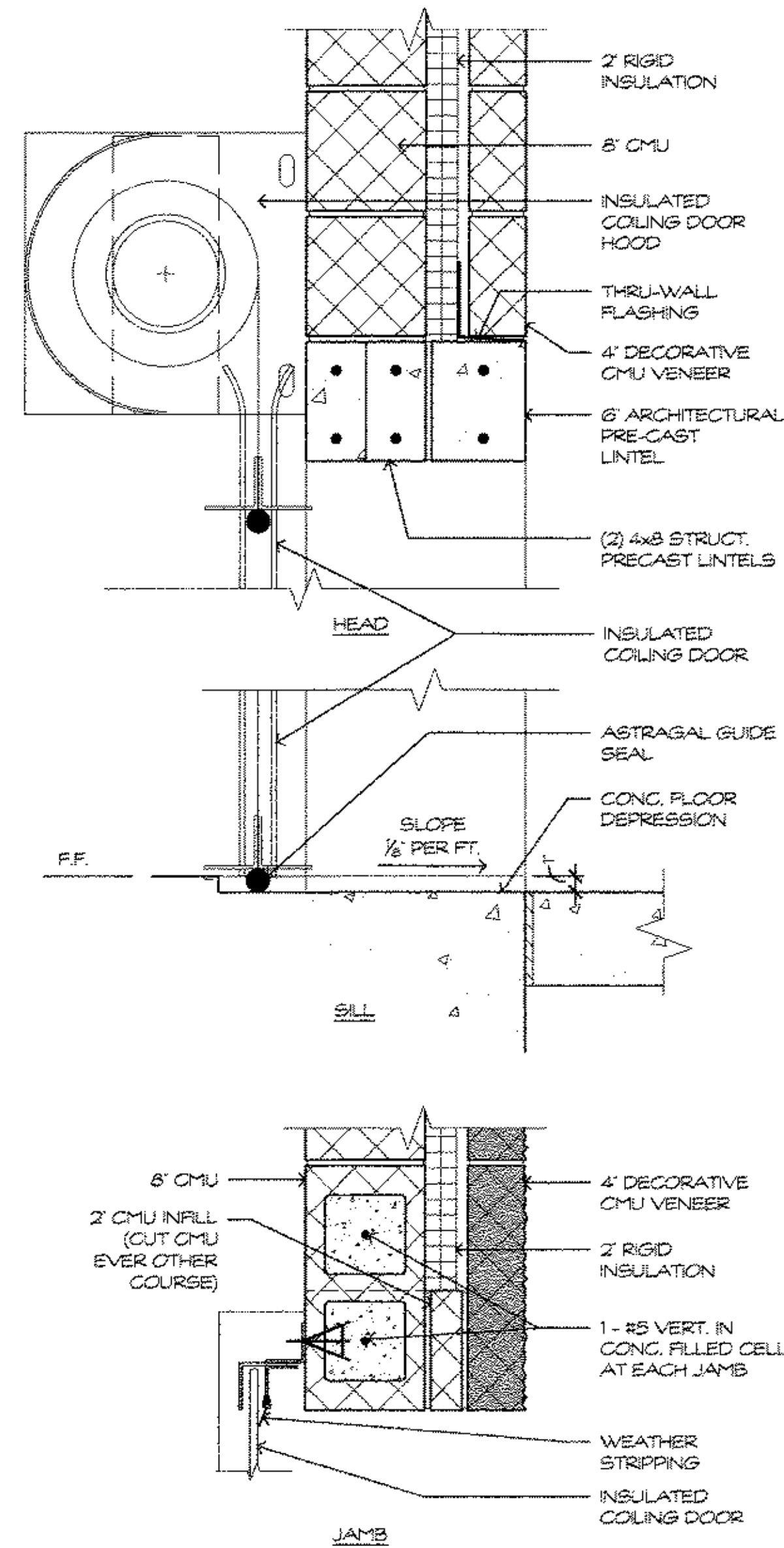
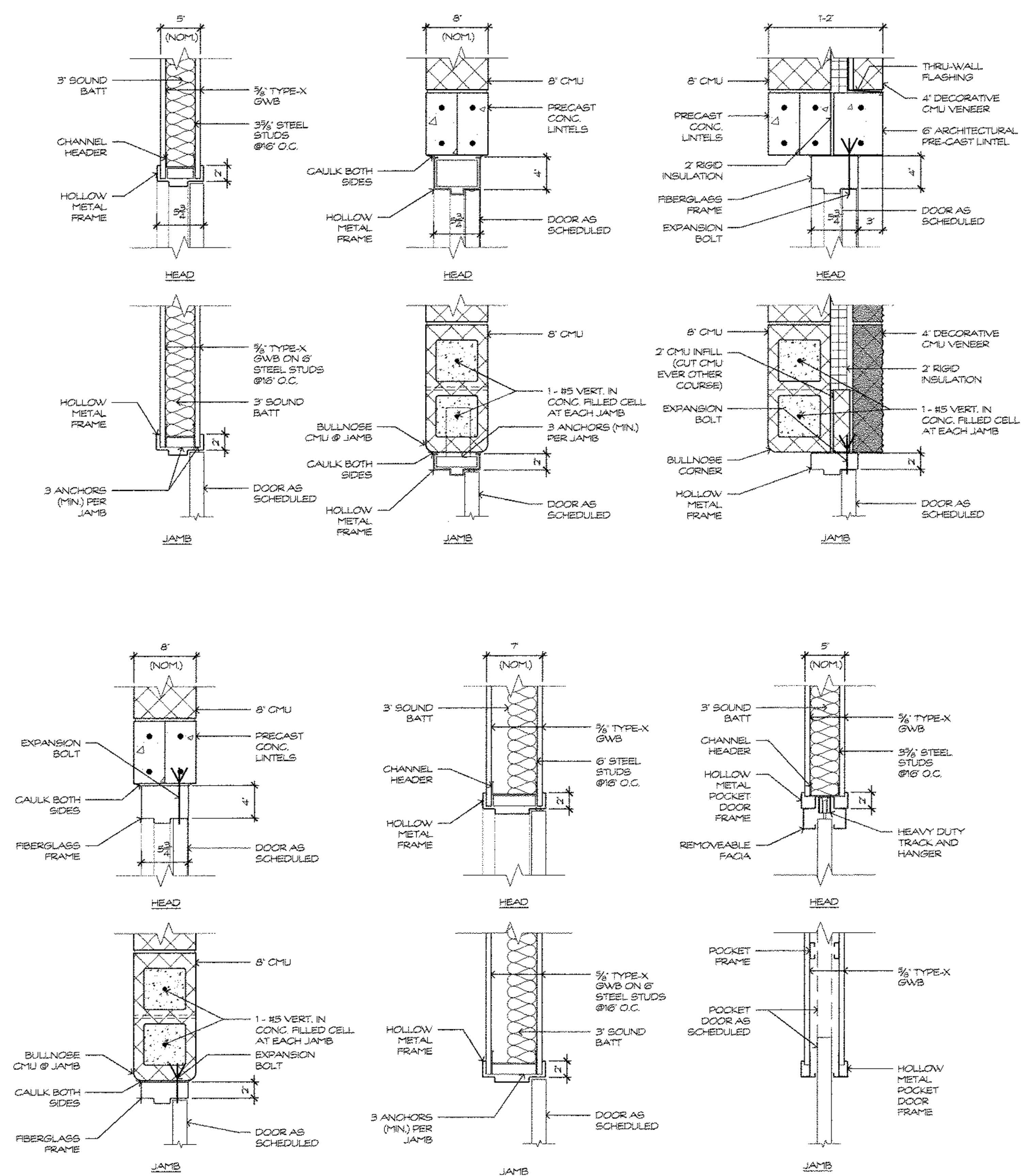
1 1/2" = 1'-0"



1

## DOOR DETAILS

1 1/2" = 1'-0"



NEW CONSTRUCTION FOR:  
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OPERATIONS BUILDING  
WORCESTER COUNTY, MARYLAND

HEAD, JAMB AND  
SILL DETAILS



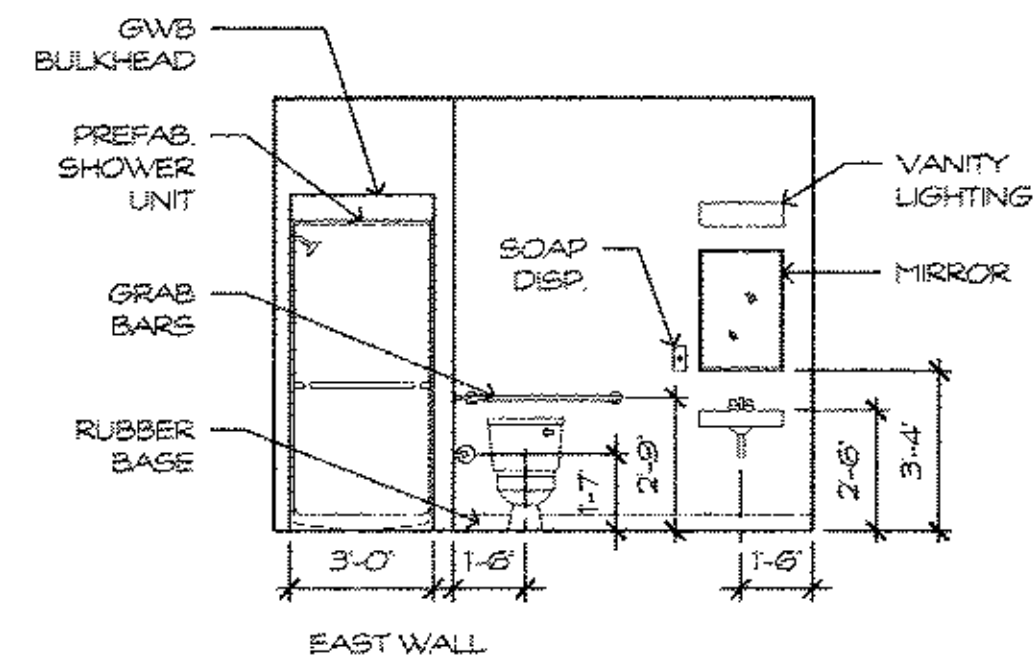
SCALE : AS NOTED  
DESIGN BY : MDM  
DRAWN BY : LKW  
CHECKED BY : MHH  
GMB FILE : 160049  
DATE : 11-18-16

A5.2

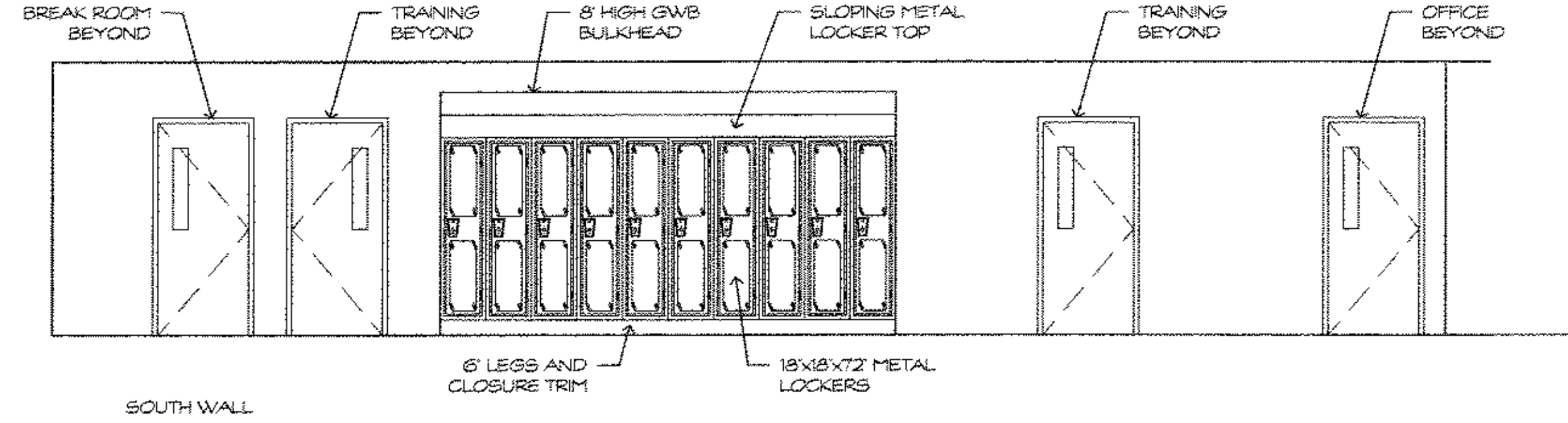
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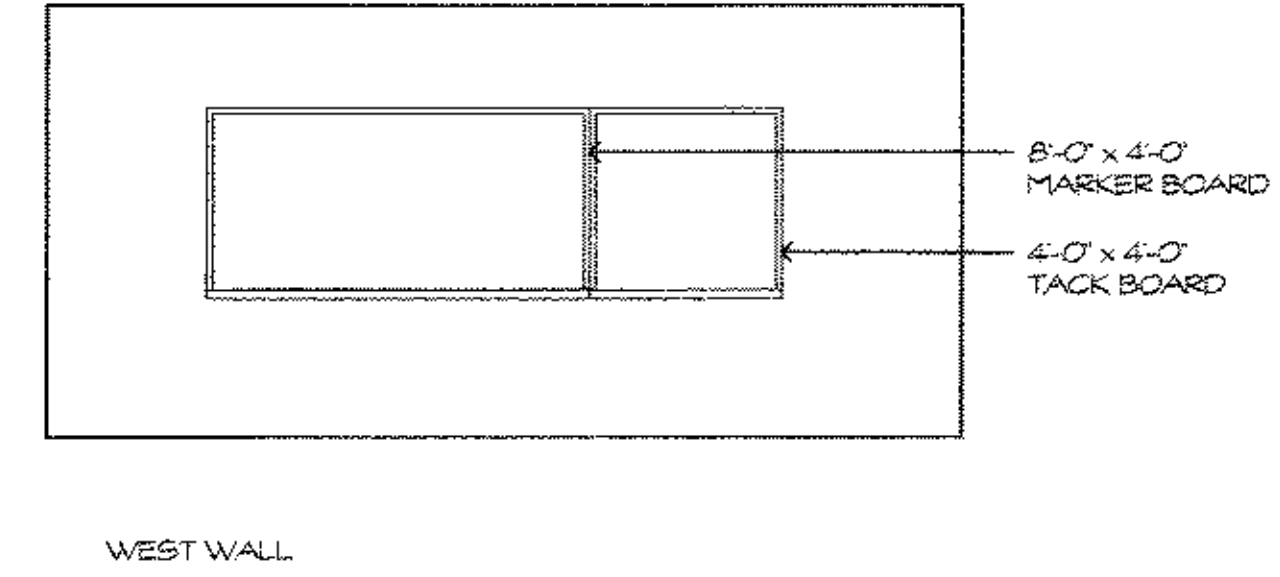
g:\Projects\2016\180049 ocean pines wwtp operations building\Drawings\current drawings\A7.1 INTERIOR ELEVATIONS.dwg, 11/18/2016 11:37 AM, Lee K. Whaley



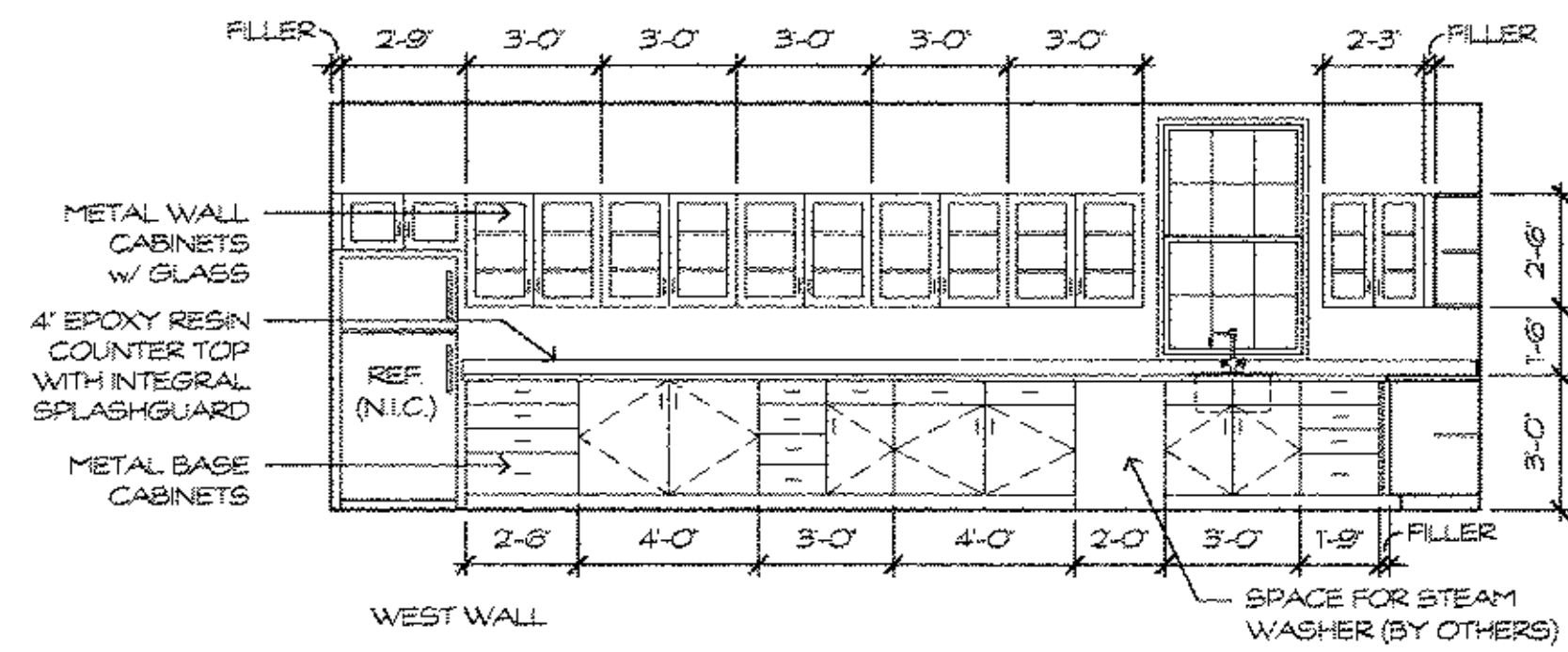
MEN  
(WOMEN 107 SIMILAR) 108



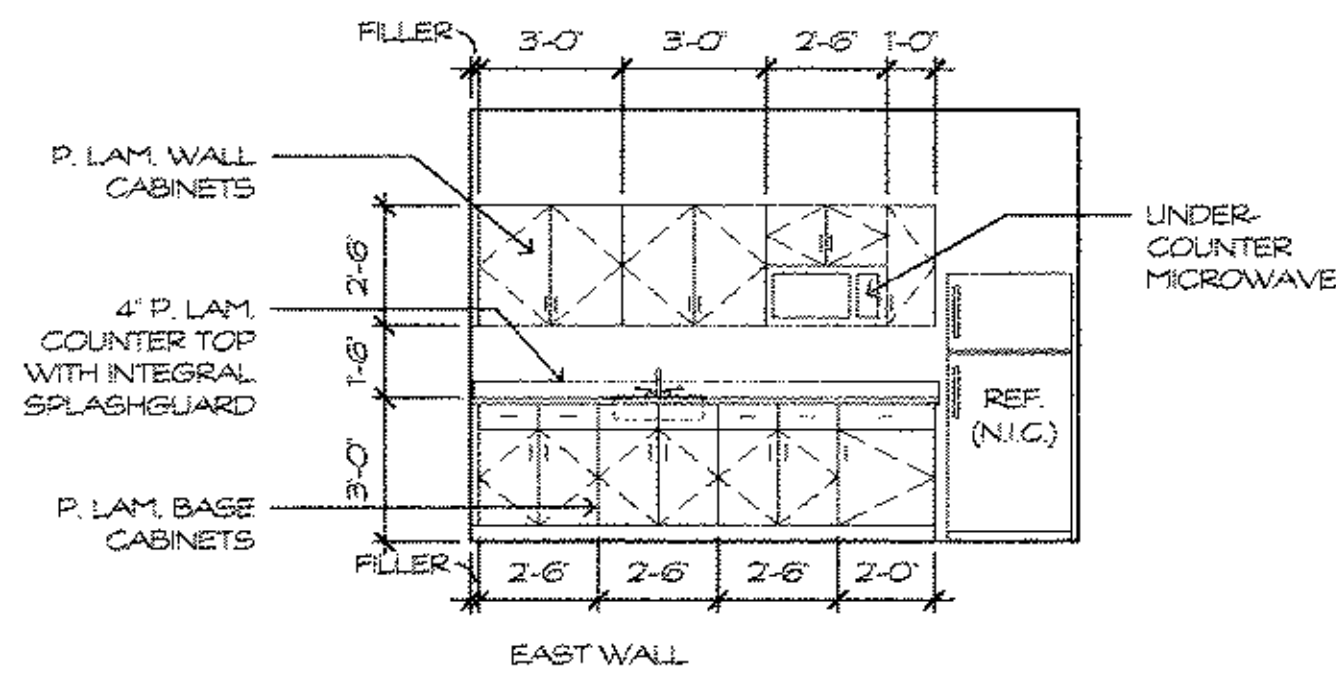
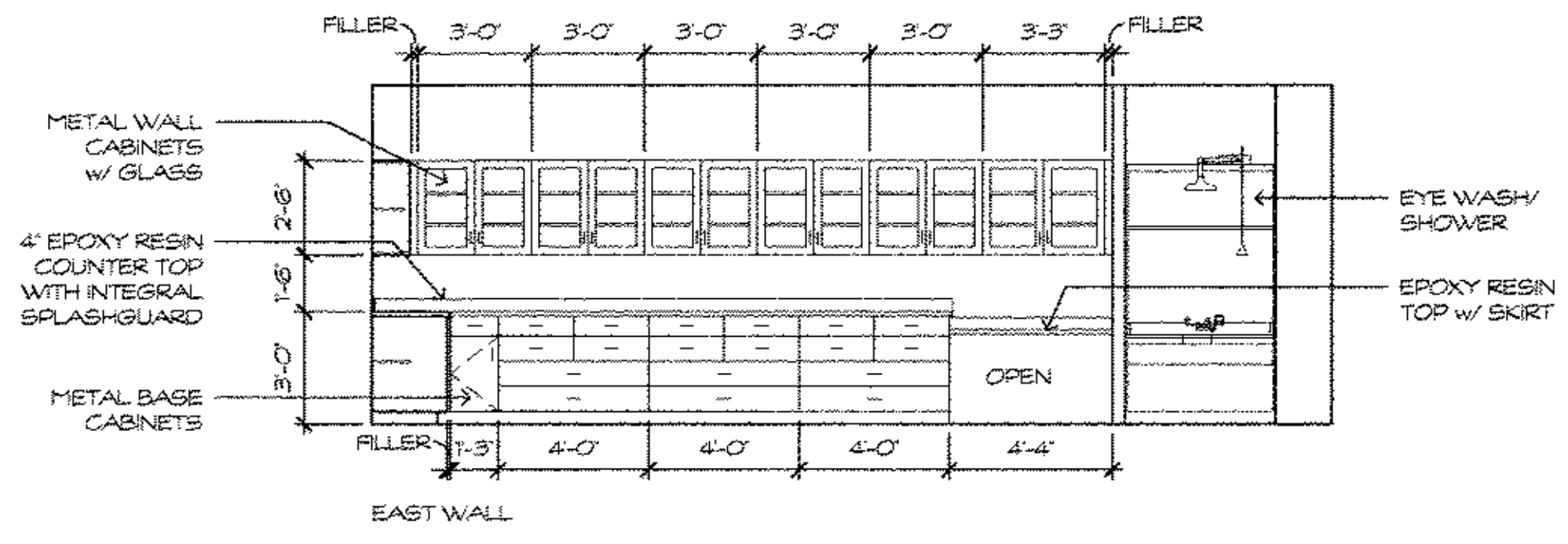
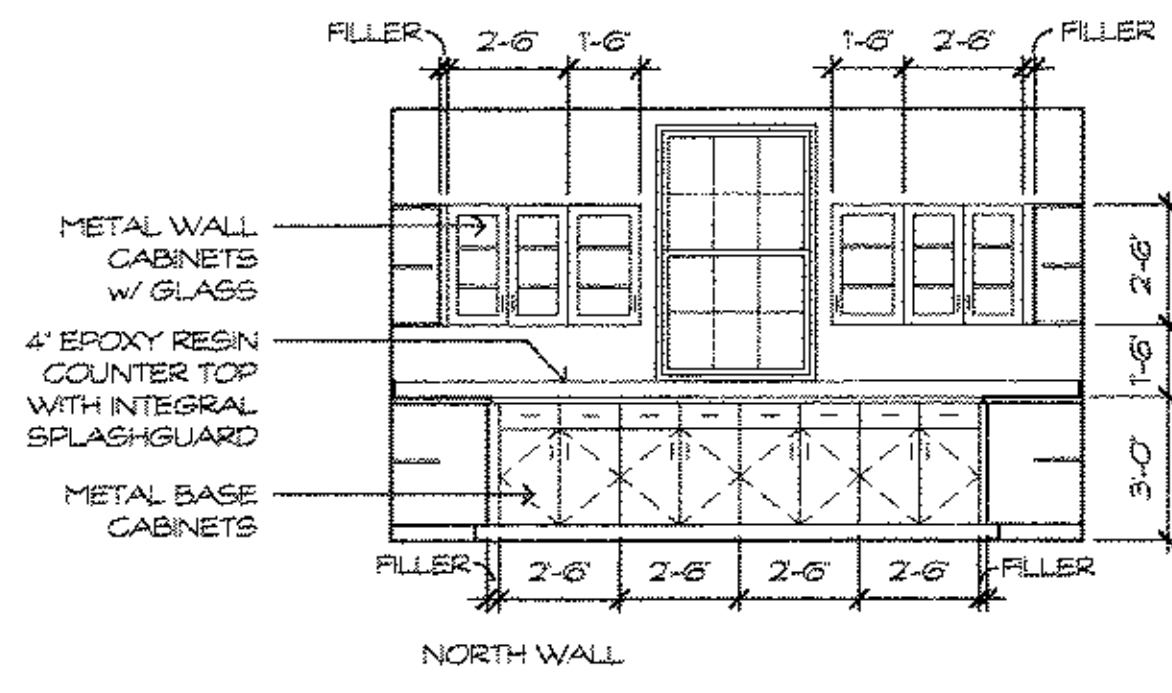
CORRIDOR  
(TYP. LOCKER ELEVATIONS) 103



TRAINING 104



LAB 111



BREAK ROOM 105

DATE	REVISION	ISSUED FOR REVIEW	ISSUED FOR PERMIT
10-24-16	1	ISSUED FOR REVIEW	ISSUED FOR PERMIT
11-8-16	2		

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INTERIOR  
ELEVATIONS

SCALE : AS NOTED  
DESIGN BY : MDM  
DRAWN BY : LKW  
CHECKED BY : MDM  
GMB FILE : 180049  
DATE : 11-18-16

A7.1

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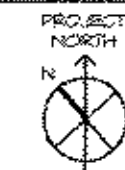
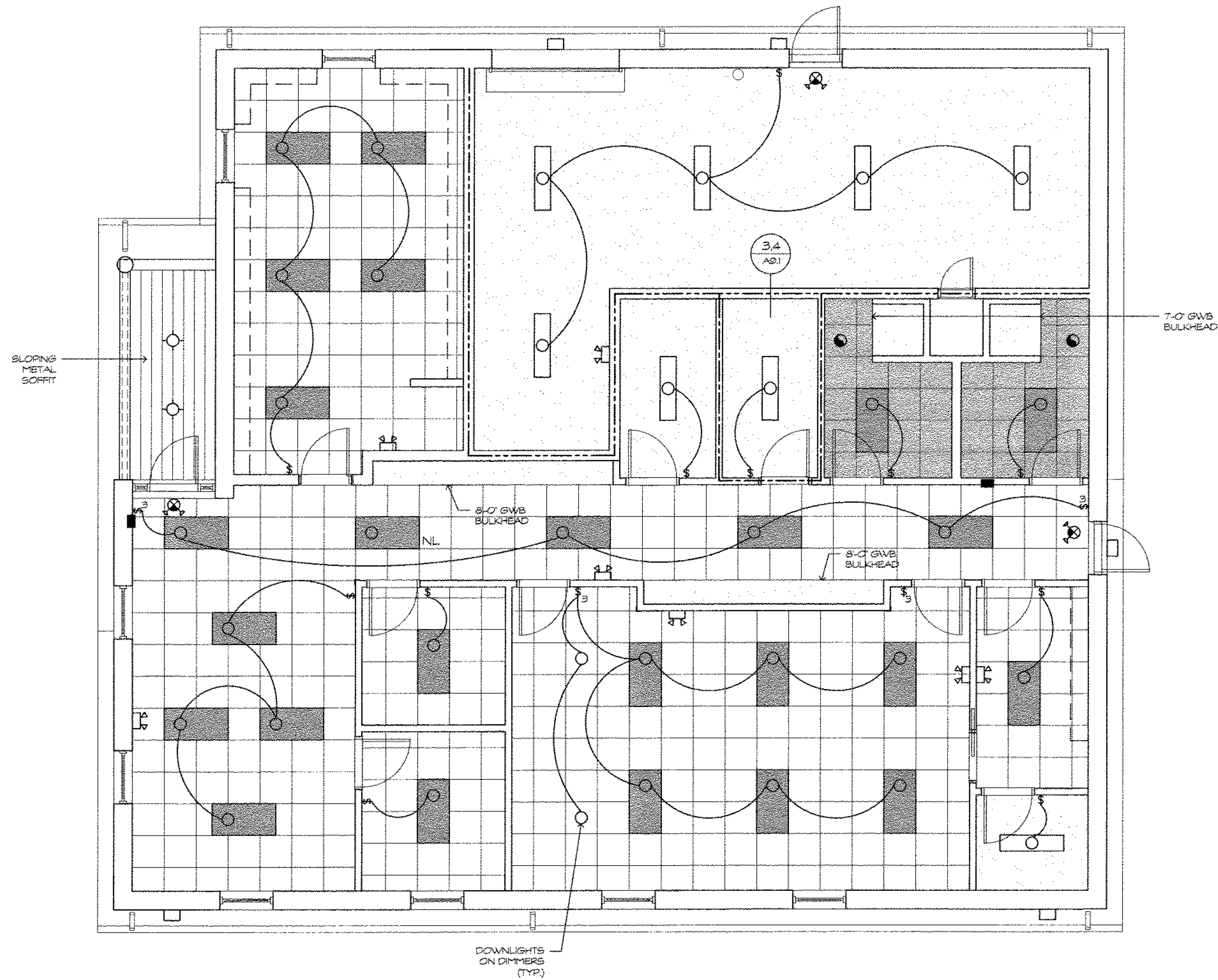


g:\Projects\2016\160049 ocean pines wwtp operations building\Drawings\current drawings\A8.1 REFLECTED CEILING PLAN.dwg, 11/18/2016 11:37 AM, Lee K. Wholey

1

# REFLECTED CEILING PLAN

1/4" = 1'-0"



## RCP LEGEND:

1/4" = 1'-0"

- 2x4 RECESSED LED
- RECESSED LED ON PHOTO CELL
- LED DOWNLIGHT
- 1x4 SURFACE MOUNTED FLUORESCENT
- EXIT/ EMERGENCY LIGHT
- EXTERIOR LED SURFACE MOUNTED FIXTURE
- EXHAUST FAN
- EMERGENCY BATTERY PACK
- SINGLE POLE SWITCH
- THREE WAY SWITCH
- NL NIGHT LIGHT
- 2x4 ACOUSTICAL LAY-IN CEILING (AC-1)
- 2x4 MOISTURE RESISTANT LAY-IN CEILING (AC-2)
- GWB CEILING
- 1 HR FIRE-RATED WALLS
- 2 HR FIRE-RATED WALLS

## NOTES:

- ALL EXTERIOR LIGHTS ON PHOTOCELL

DATE	10-2-16	1-8-16
REVISION	ISSUED FOR REVIEW & PERMITTING	ISSUED FOR PERMIT
NO.	1	2

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OCEAN PINES WWTP  
OPERATIONS BUILDING  
WORCESTER COUNTY, MARYLAND

REFLECTED  
CEILING PLAN

SCALE	AS NOTED
DESIGN BY	MDM
DRAWN BY	LKW
CHECKED BY	MHH
GMB FILE	160049
DATE	11-18-16

A8.1

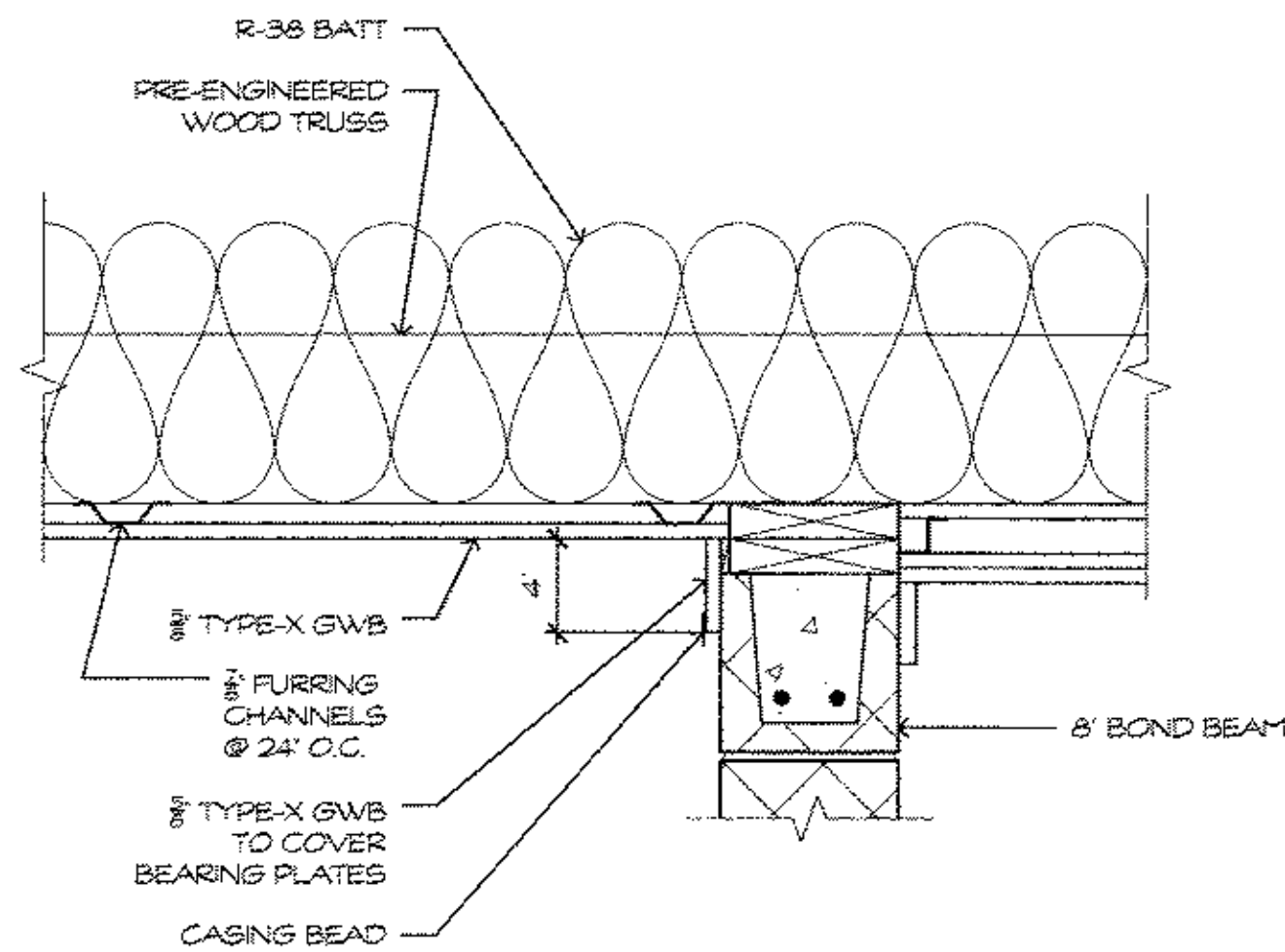
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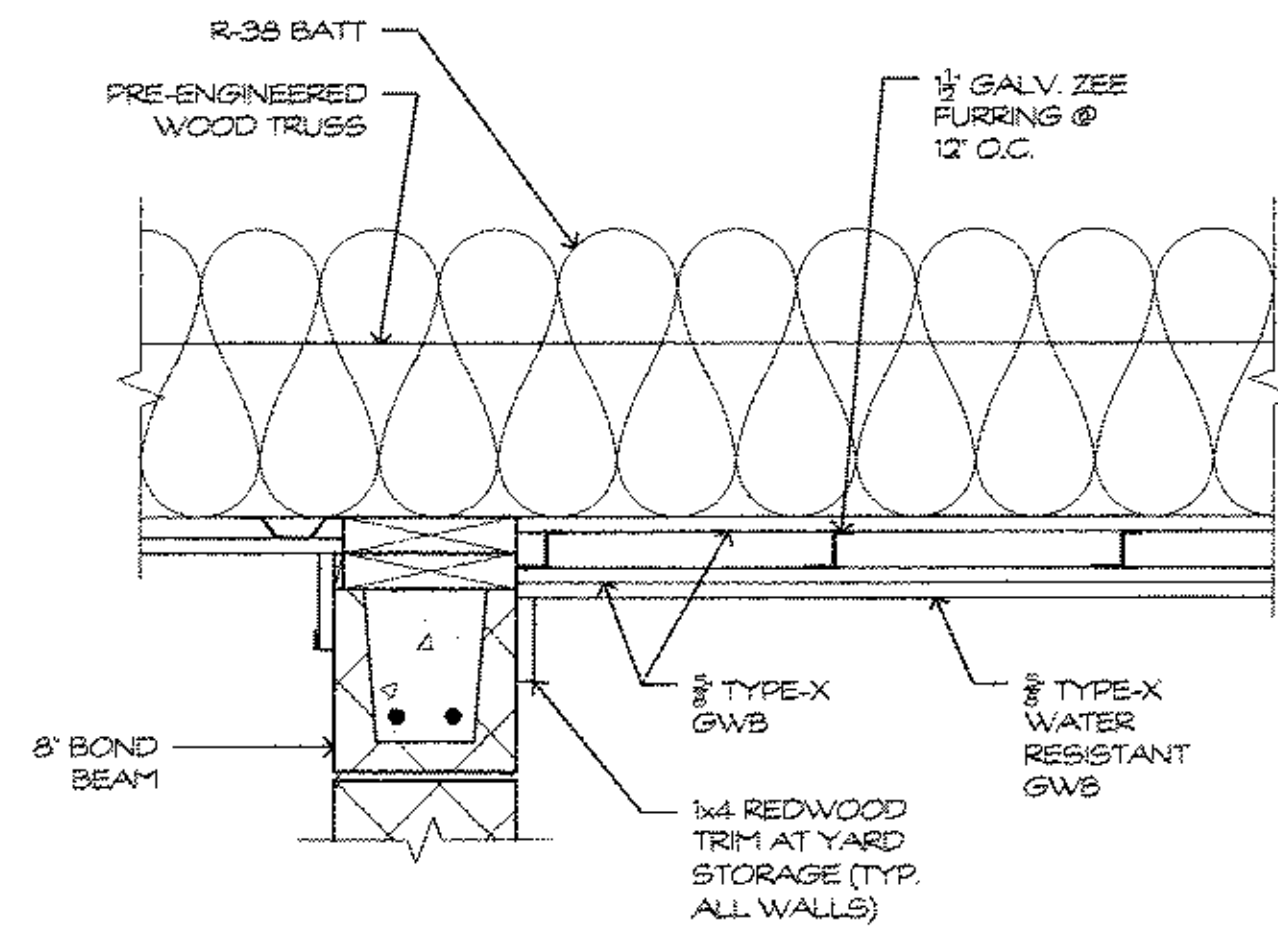
4

1 HR. CEILING @ I.T./ ELEC. ROOM  
1 1/2" = 1'-0"  
(BASED ON UL P522)



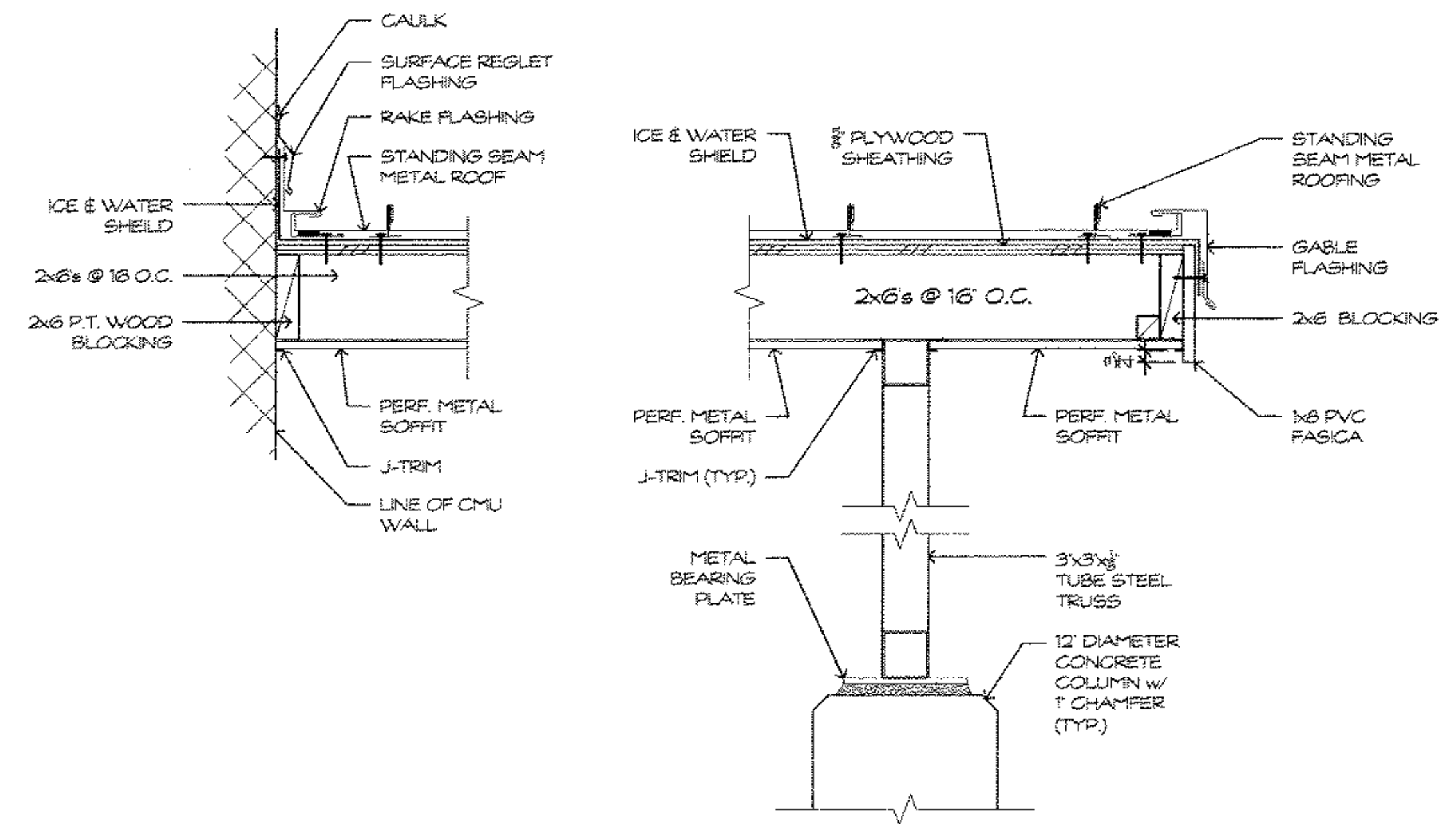
3

2 HR CEILING @ YARD STORAGE  
1 1/2" = 1'-0"  
(BASED ON UL P571)



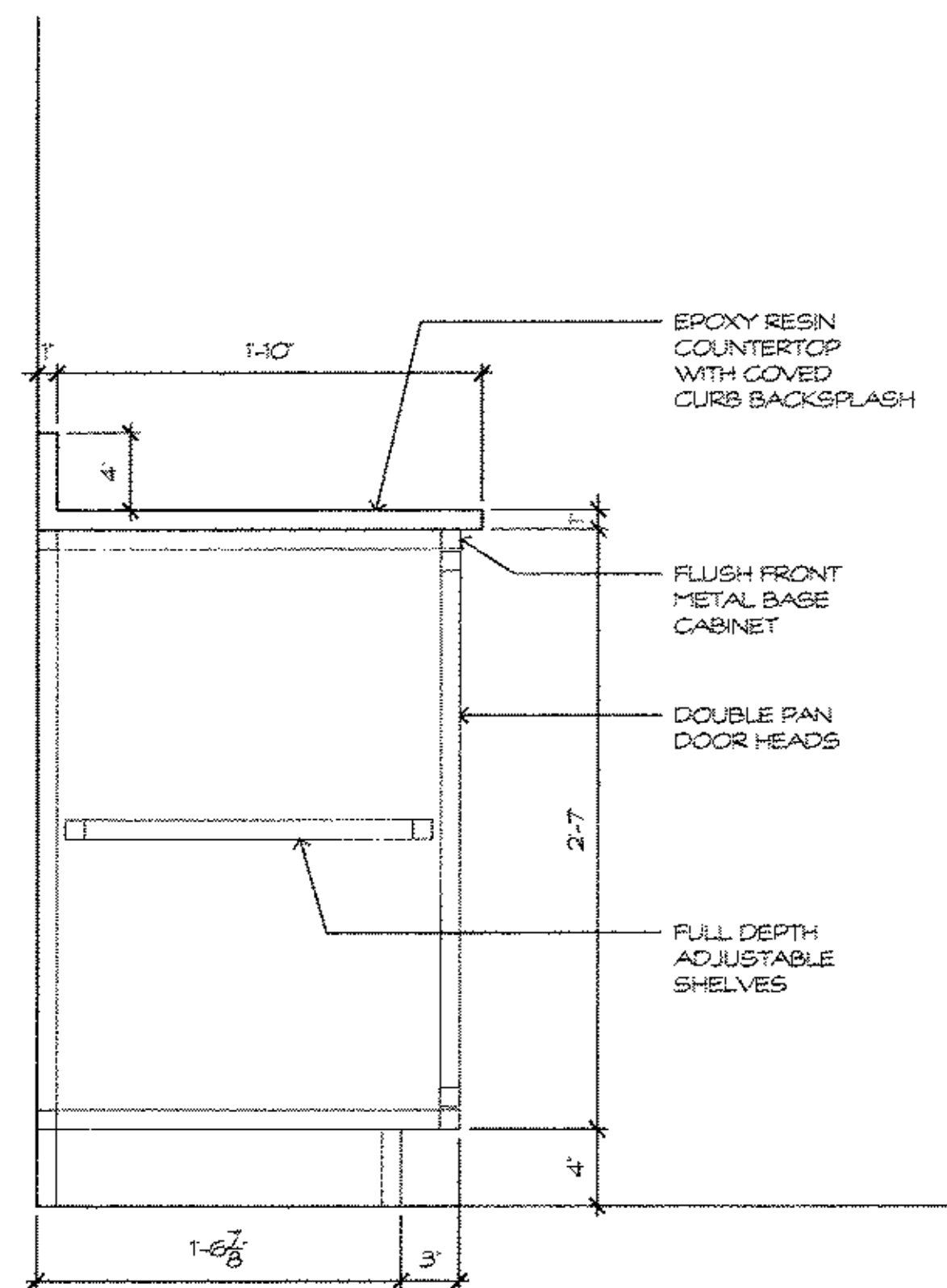
1

STEEL TRUSS AND RAKE FLASHING DETAIL  
1 1/2" = 1'-0"

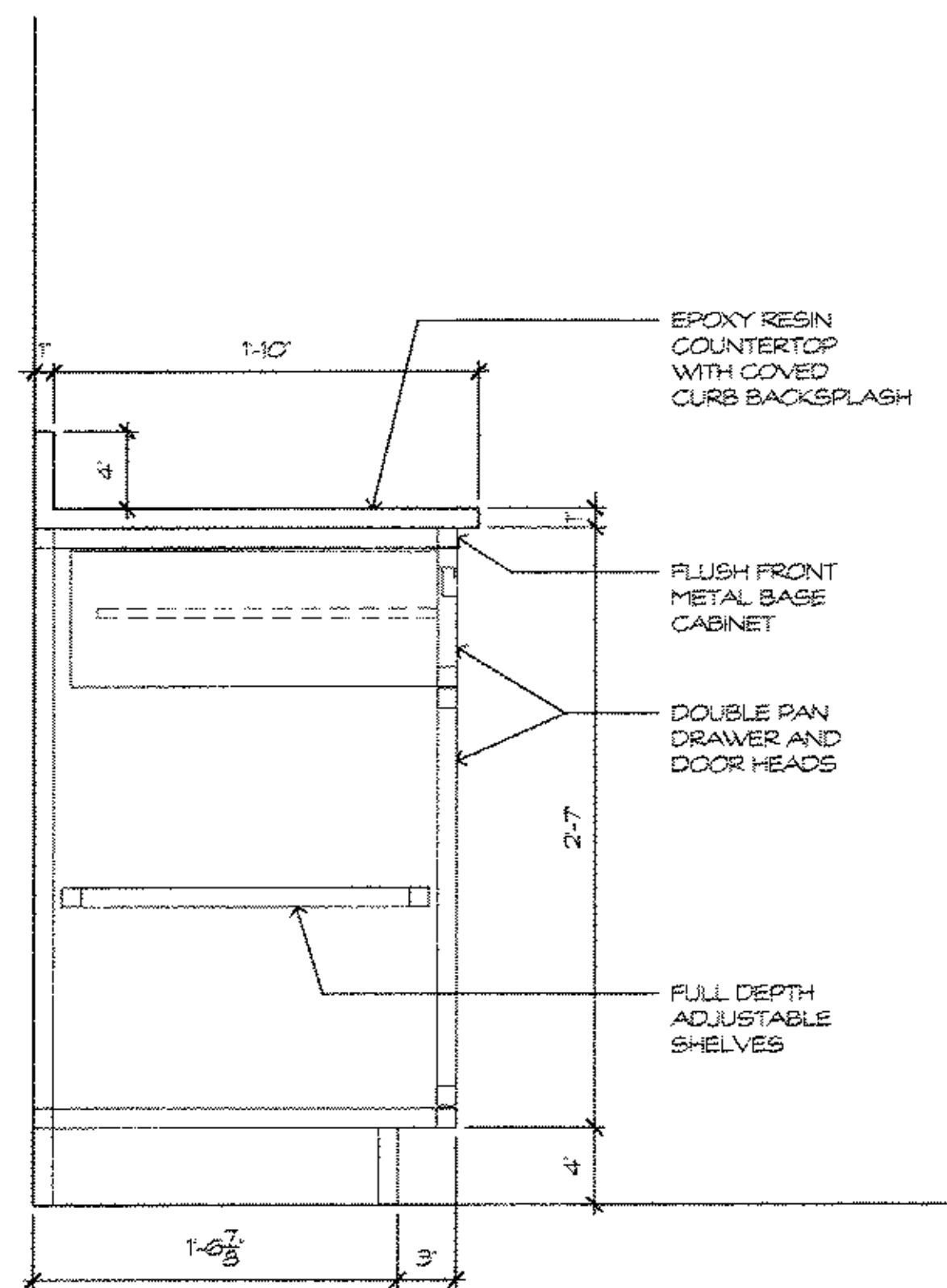


2

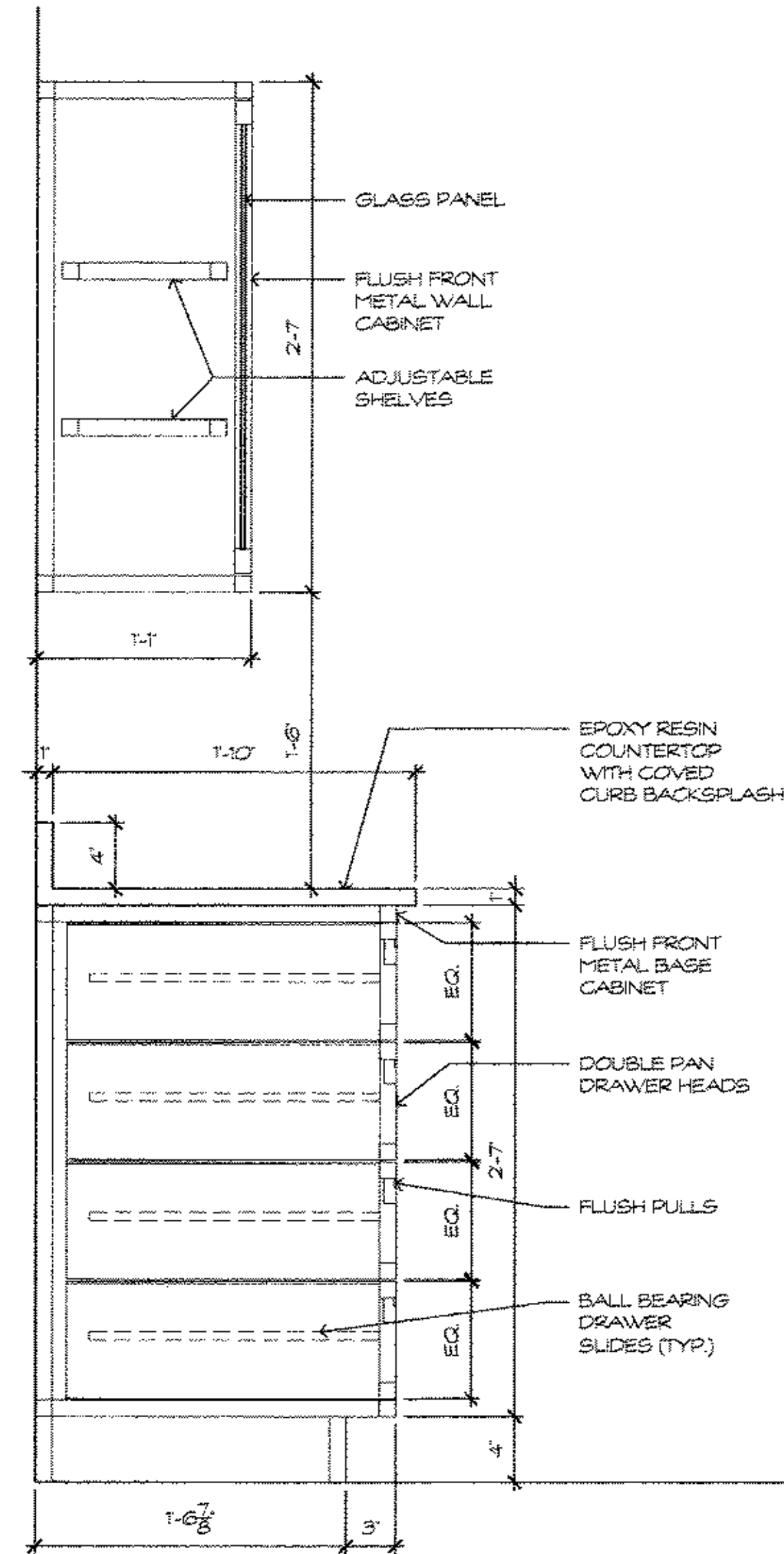
CABINET DETAIL  
1 1/2" = 1'-0"



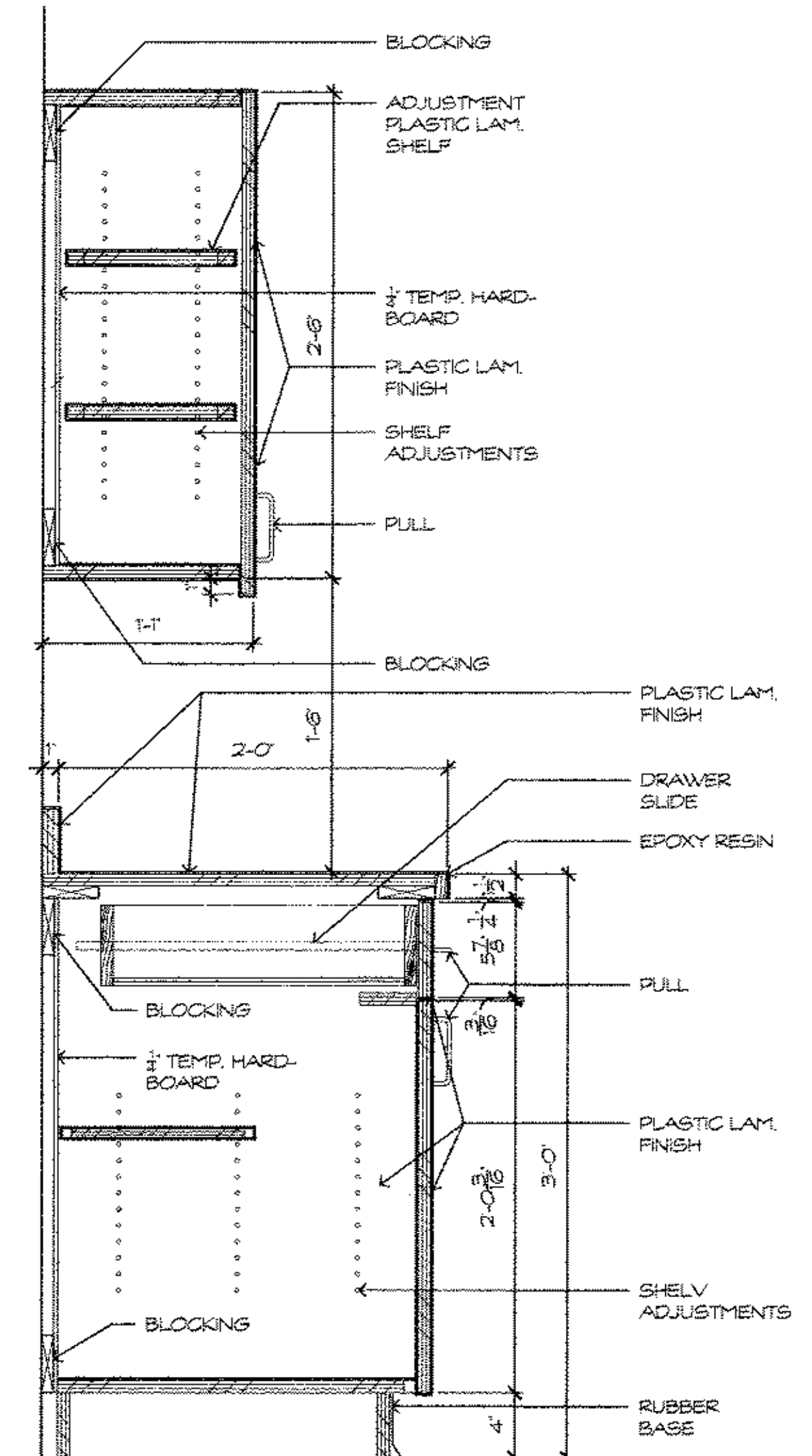
LAB - STORAGE CABINET (TYP.)



LAB - STORAGE AND DRAWER CABINET (TYP.)



LAB - DRAWER CABINET (TYP.)



BREAK ROOM - STORAGE & DRAWER CABINET (TYP.)

NEW CONSTRUCTION FOR:  
OCEAN PINES WWTP  
OPERATIONS BUILDING  
WORCESTER COUNTY, MARYLAND

DETAILS

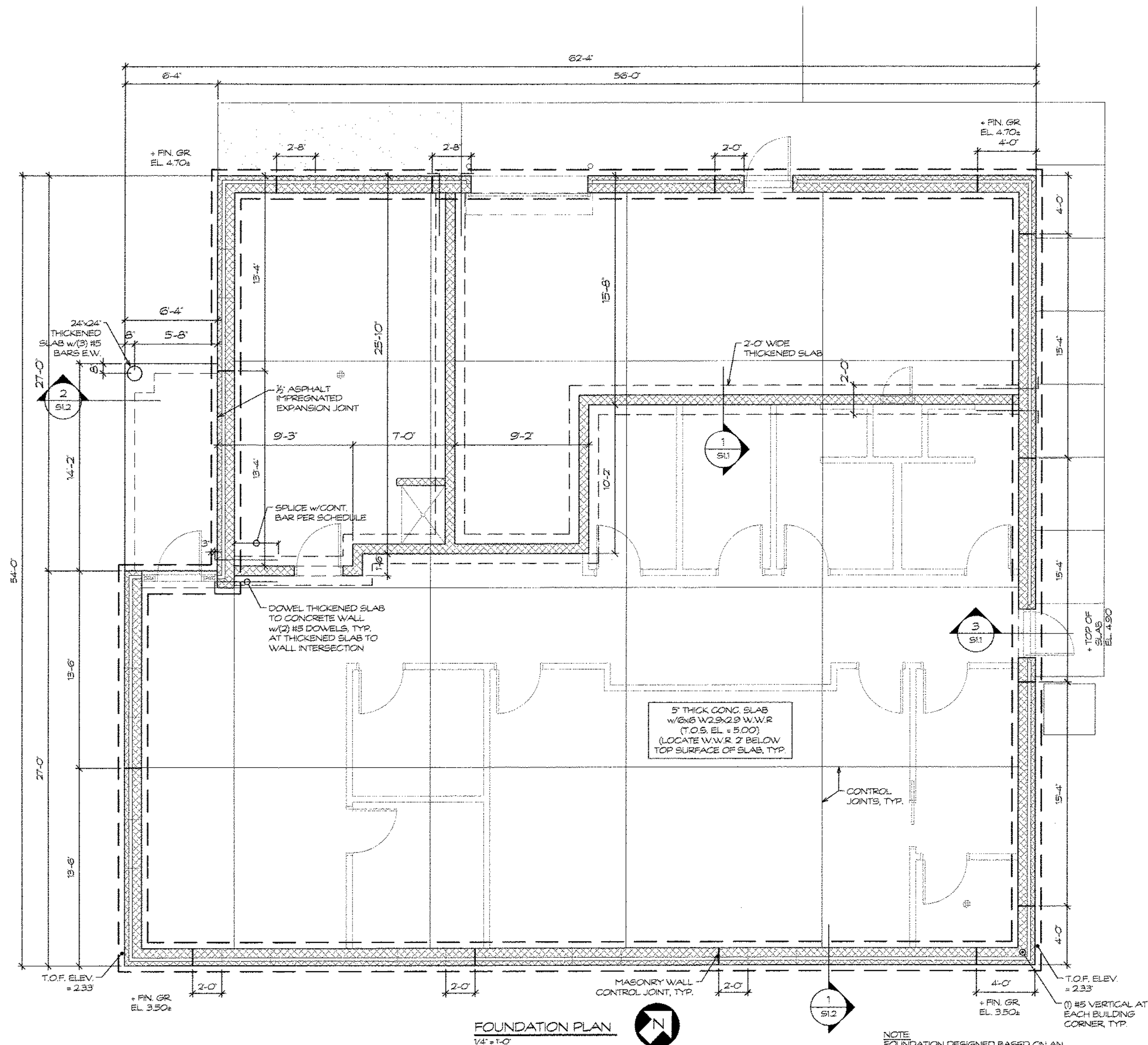


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DRAWN BY : LKW  
CHECKED BY : MHH  
GMD FILE : 160049  
DATE : 11-18-16

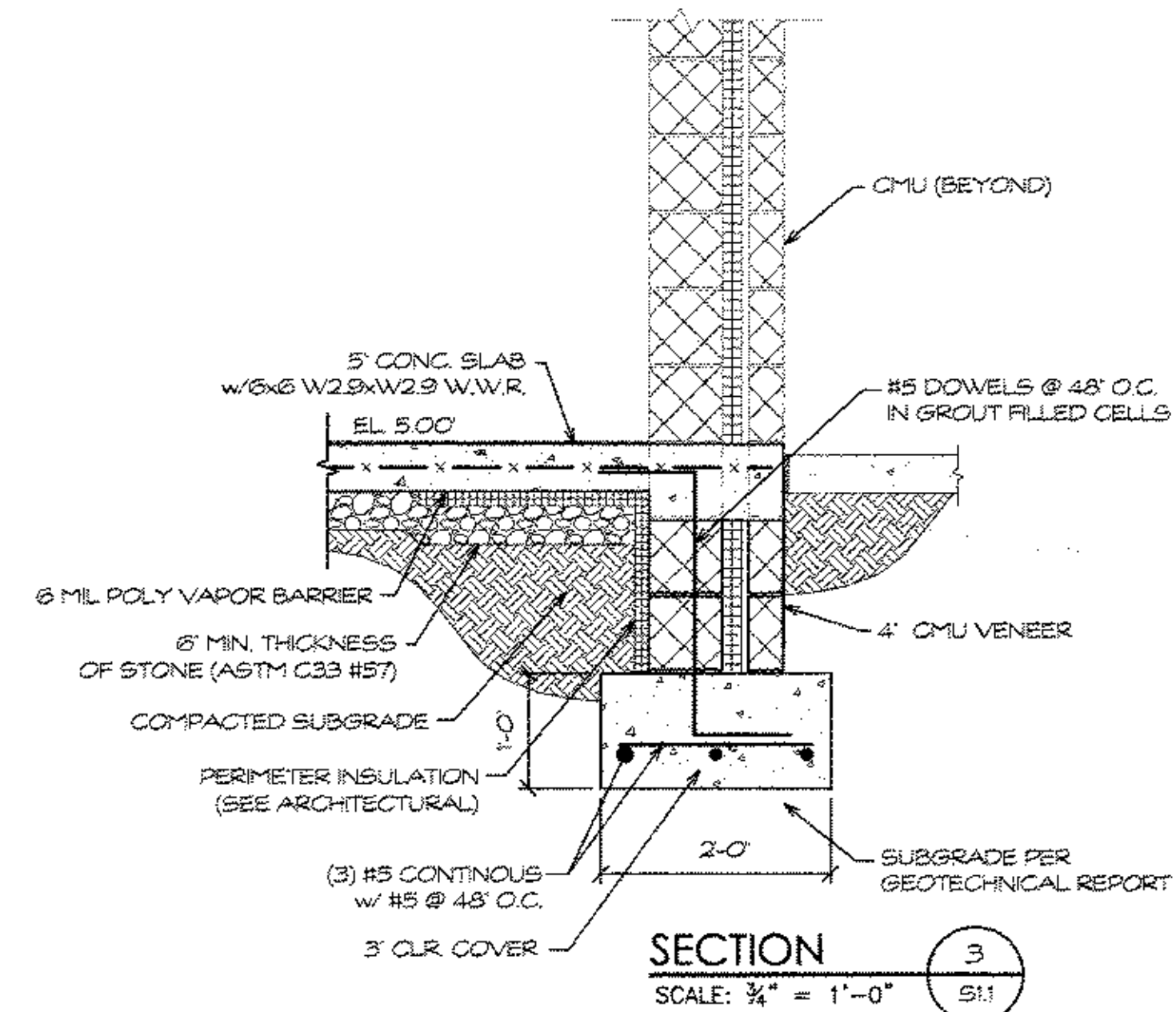
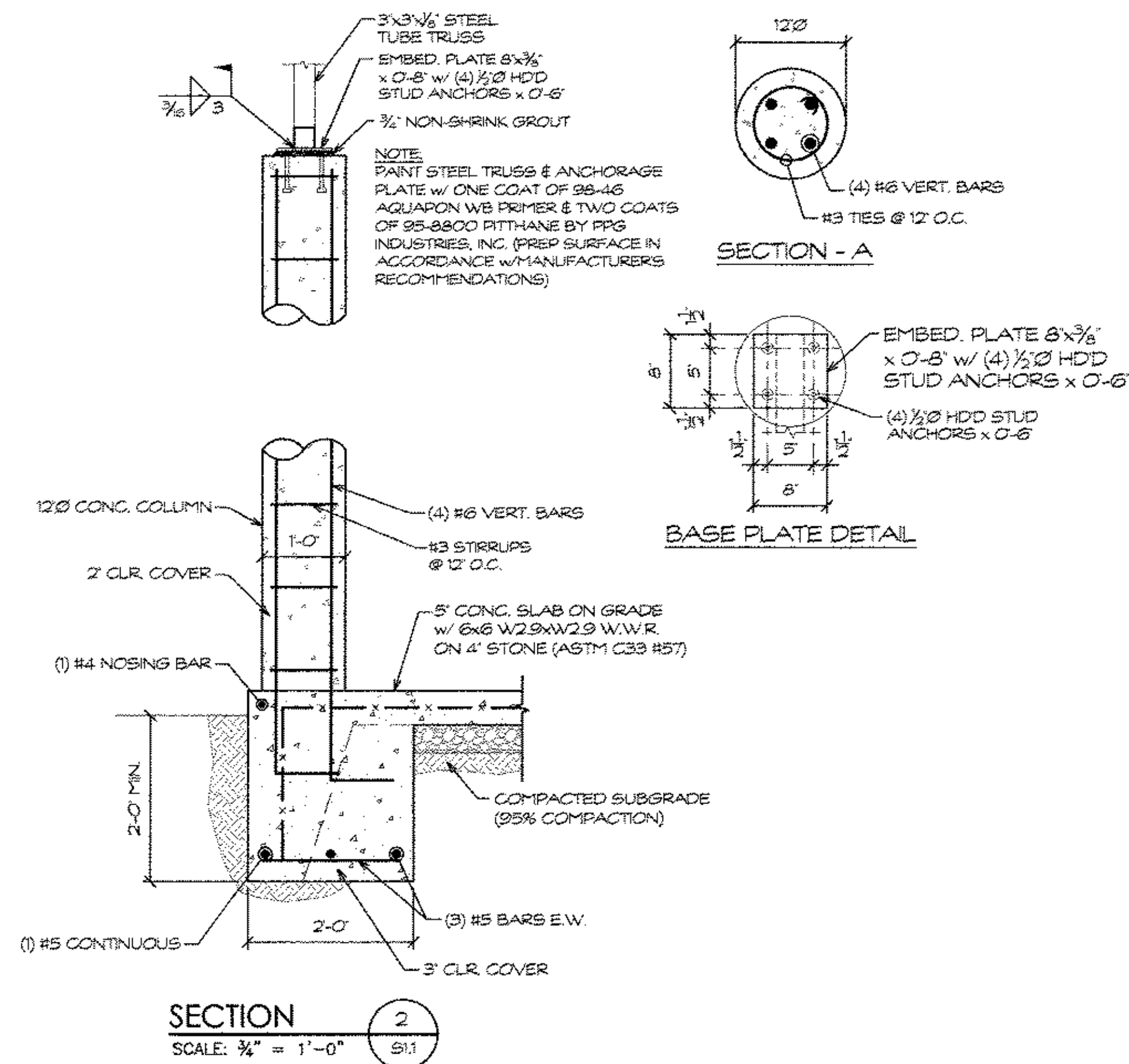
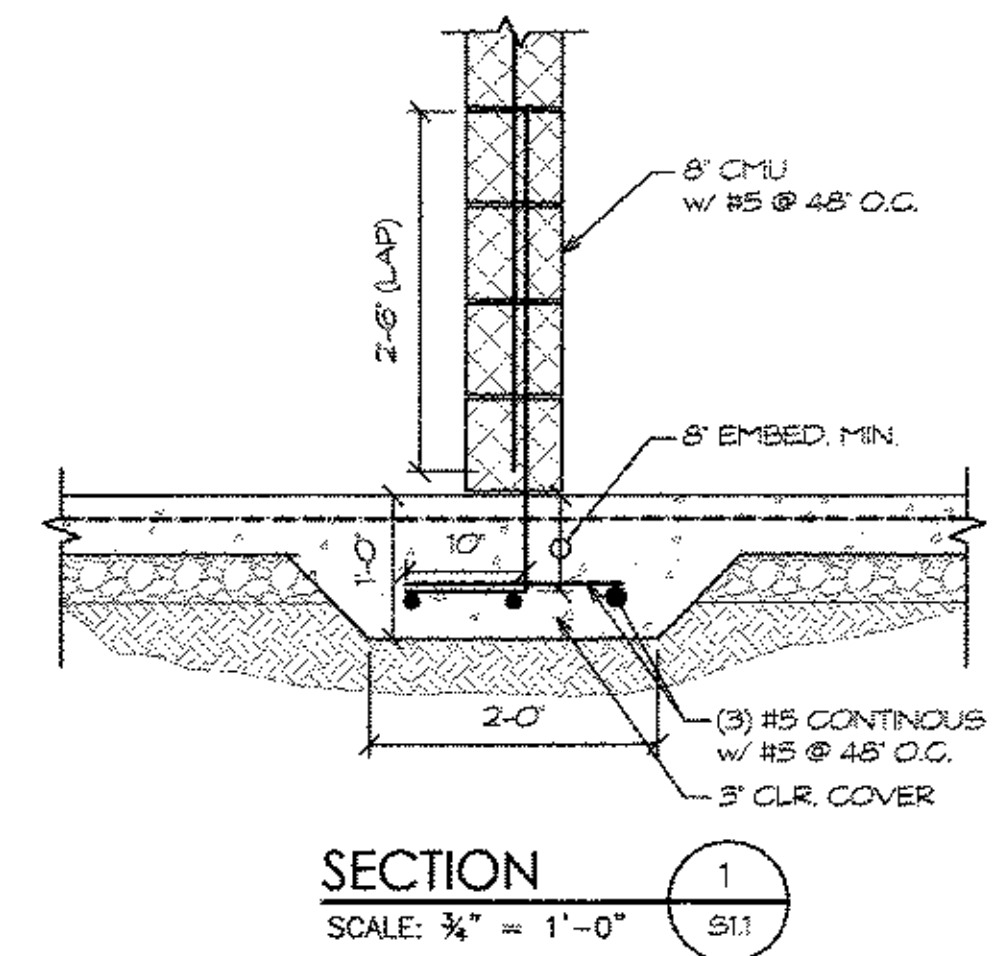
A9.1

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NOTE:  
FOUNDATION DESIGNED BASED ON AN  
ASSUMED SOIL BEARING CAPACITY OF  
2,000 PSF CONTRACTOR TO VERIFY.




NO.	REVISION	DATE
1	ISSUED FOR REVIEW & PERMITTING	10-21-16
2	ISSUED FOR PERMIT	11-08-16



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**NEW CONSTRUCTION FOR:**  
**OCEAN PINES WWTP**  
**OPERATIONS BUILDING**  
**WORCESTER COUNTY, MARYLAND**

**FOUNDATION**  
**PLAN**



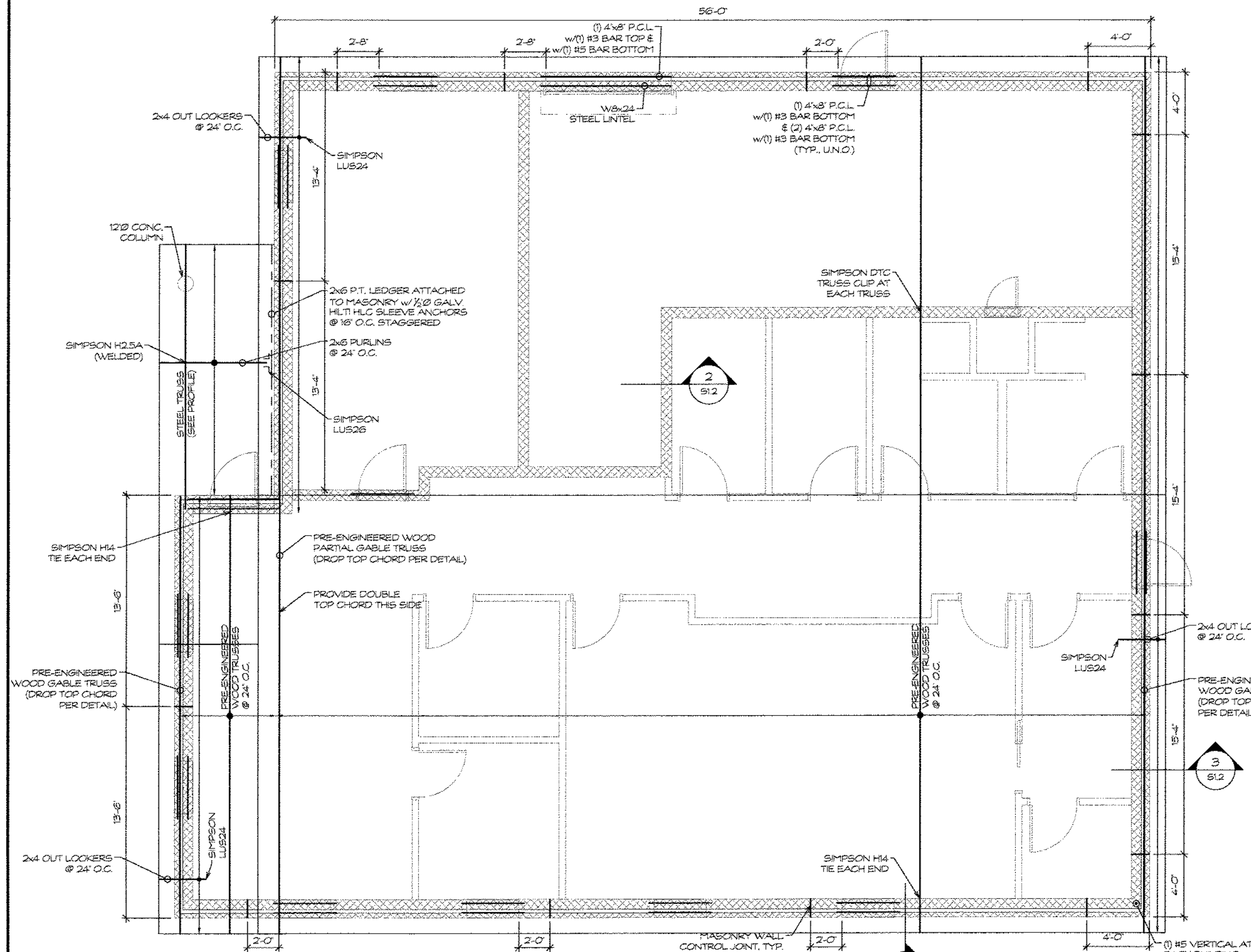
*John E. Buhr*

SCALE :	AS NOTED
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GMB FILE :	160048
DATE :	11-18-16

**S1.1**



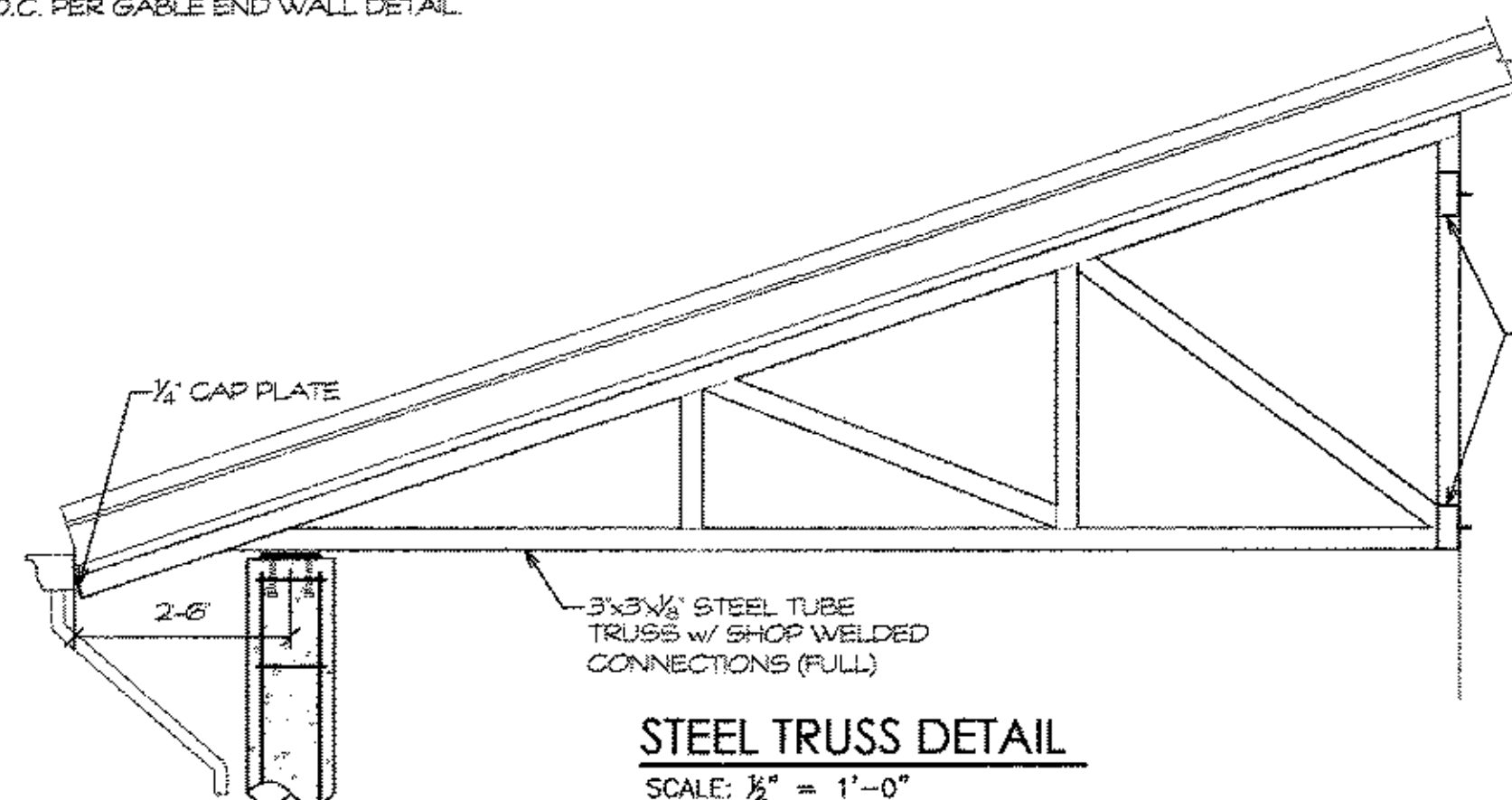
c:\projects\2016\160049 ocean pines wwtp operations building\Drawings\current drawings\51.1 FOUNDATION PLAN.dwg, 11/18/2016 11:38 AM, Lee K. Whaley



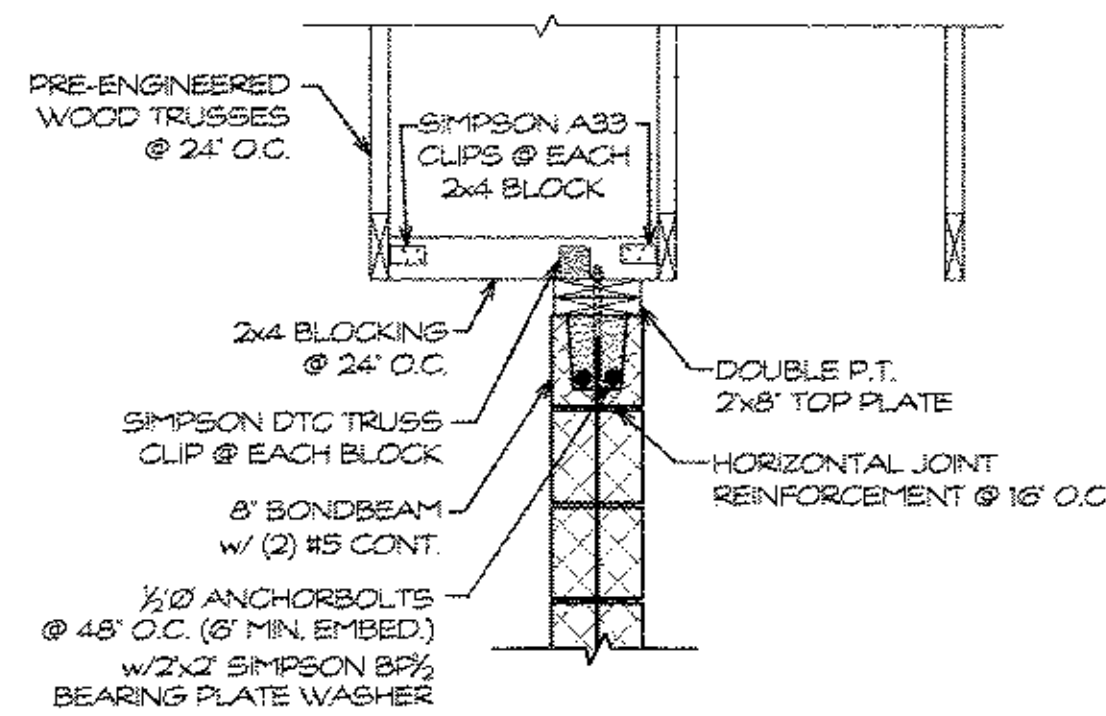
- NOTES:
1. PROVIDE PERMANENT WEB BRACING WHERE REQUIRED BY TRUSS MANUFACTURER BRACE WEB BRACING w/DIAGONAL FRAMING IN ACCORDANCE w/MI TEK DETAIL, ST-WEB BRACE & BCSI BOOKLET BY THE TRUSS PLATE INSTITUTE (TPI) UPDATED MARCH 2015.
  2. CONTRACTOR SHALL INCORPORATE ALL REQUIREMENTS OF BCSI BOOKLET BY TPI UPDATED MARCH 2015 FOR ROOF TRUSS INSTALLATION.
  3. DEPRESS TOP CHORD OF GABLE TRUSS AND ADJACENT TRUSS & PROVIDE 2x6 OUT LOOKERS AT 16' O.C. PER GABLE END WALL DETAIL.

LEGEND:  
P.C.L. = PRECAST CONCRETE LINTELS  
C.J. = CONTROL JOINT IN MASONRY WALL

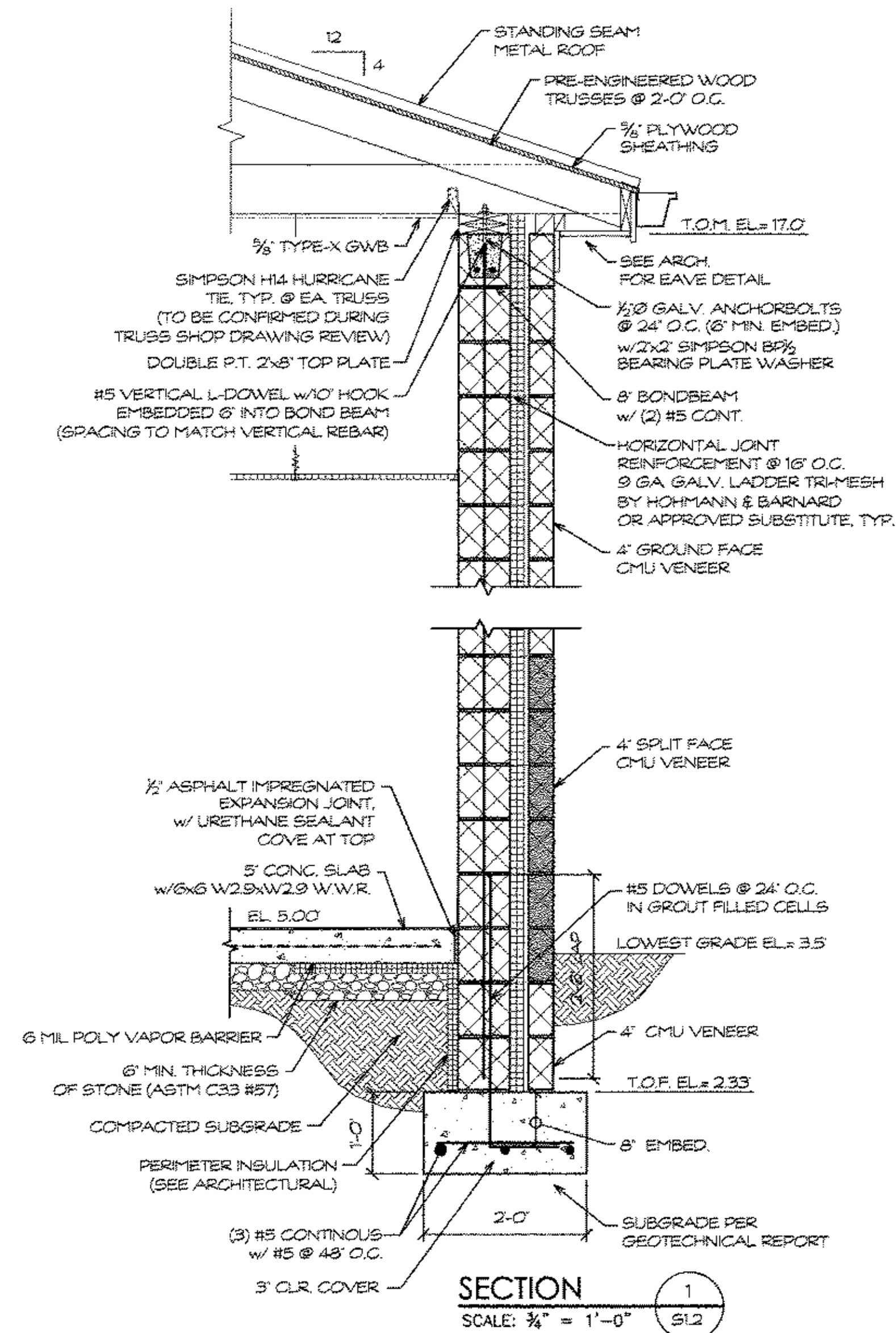
ROOF FRAMING PLAN  
SCALE: 1/4" = 1'-0"



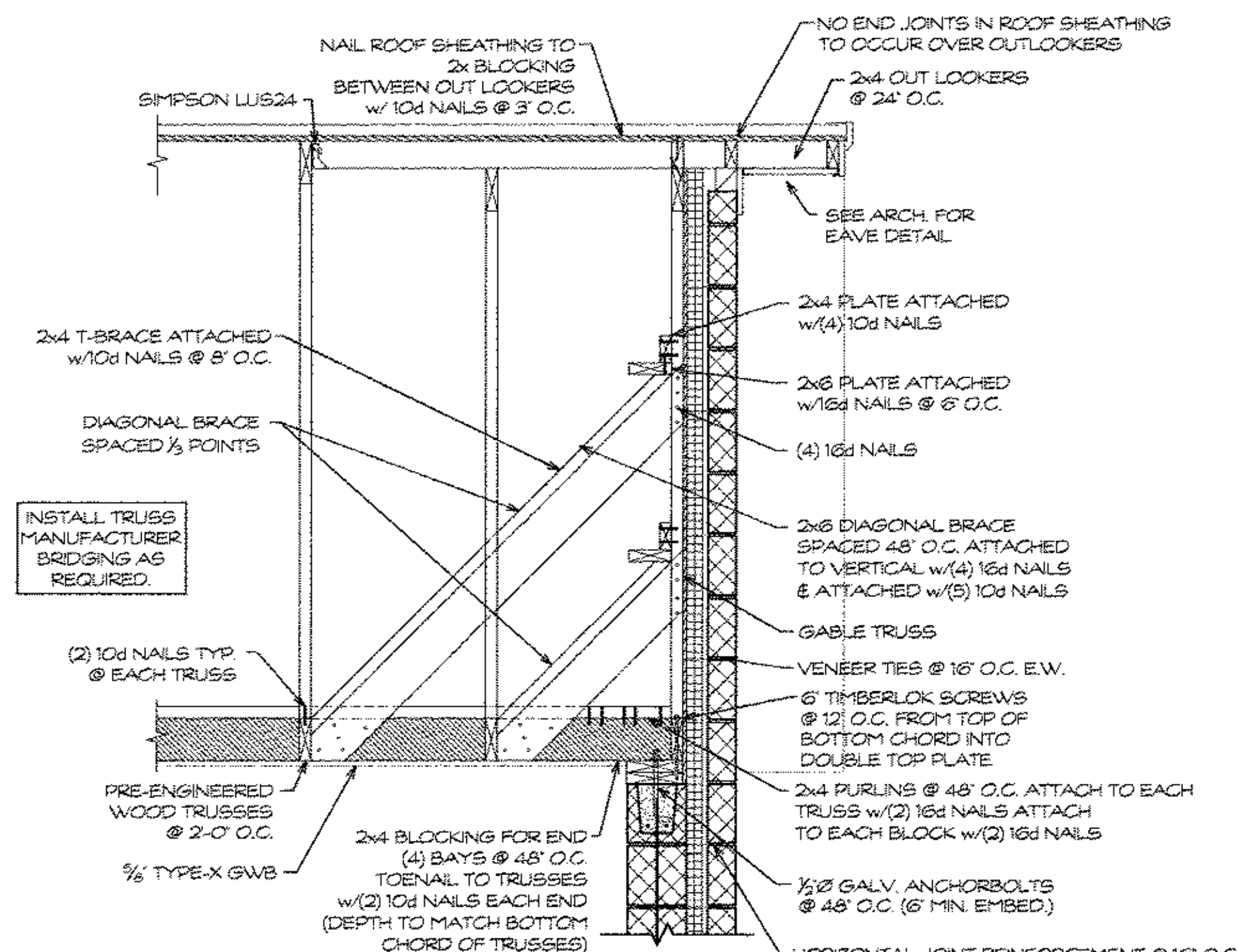
STEEL TRUSS DETAIL  
SCALE: 1/2" = 1'-0"



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



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



GABLE END WALL DETAIL 3  
SCALE: 3/4" = 1'-0"

DATE	REVISION	ISSUED FOR REVIEW & PERMITTING	ISSUED FOR PERMIT
10-20-16			
11-8-16			

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NEW CONSTRUCTION FOR:  
**OCEAN PINES WWTP  
OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

ROOF FRAMING  
PLAN

SCALE	: AS NOTED
DESIGN BY	: REM
DRAWN BY	: HBE
CHECKED BY	:
GMB FILE #	: 160049
DATE	: 11-8-16

**S1.2**

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## GENERAL NOTES

ALL DIMENSIONS, LOCATIONS AND ELEVATIONS OF EXISTING STRUCTURES SHOWN ON THE CONTRACT DRAWINGS, SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

THE SIZES AND LOCATIONS OF EQUIPMENT PADS AND PEDESTALS, AS WELL AS EQUIPMENT RELATED FLOOR AND SLAB OPENINGS, ARE DEPENDENT UPON THE ACTUAL EQUIPMENT FURNISHED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ALL SUCH ITEMS, NO DIMENSIONS INDICATED ON THESE DRAWINGS SHALL BE ALTERED WITHOUT THE ENGINEER'S APPROVAL. ALL EQUIPMENT PADS AND OTHER EQUIPMENT SUPPORTS REQUIRED, MAY NOT HAVE BEEN SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO CIVIL, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR SIZES AND LOCATIONS OF SUCH PADS AND SUPPORTS.

## CODES

"INTERNATIONAL BUILDING CODE," 2015, INTERNATIONAL CODE COUNCIL.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION, (AISC) "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" THIRTEENTH EDITION, AISC/AISC 360-10

AMERICAN CONCRETE INSTITUTE, (ACI-318-14) "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."

AMERICAN CONCRETE INSTITUTE, (ACI-530-13/ASCE 5-13/TMS402-13) "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES."

"NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" 2015, AMERICAN FOREST & PAPER ASSOCIATION. "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES", AMERICAN SOCIETY OF CIVIL ENGINEERS, (ASCE 7-10)

## DESIGN LOADS

DEAD LOADS - ACTUAL WEIGHT OF STRUCTURE.

WEIGHT OF SOIL - 100 P.C.F. TO RESIST UPLIFT.  
120 P.C.F. DEAD LOAD

EARTH PRESSURES - LATERAL EARTH DESIGN PRESSURES PER GEOTECH REPORT. BACKFILL MATERIAL SHALL NOT BE PLACED AGAINST FOUNDATION WALLS UNTIL THE UPPER BRACING COMPONENTS ARE IN PLACE FOR AT LEAST 7 DAYS. BACKFILL MATERIAL SHALL BE MEET REQUIREMENTS OF THE GEOTECHNICAL REPORT.

LIVE LOADS - IN AREAS NOT OCCUPIED BY EQUIPMENT OR SUBJECT TO TRUCK LOADING.

STORAGE - 125 P.S.F.  
ALL OTHER ROOMS - 100 P.S.F.

SNOW LOAD DESIGN DATA :  
GROUND SNOW LOAD (Pg) - 25 PSF  
RAIN ON SNOW SURCHARGE - 0 PSF  
FLAT-ROOF SNOW LOAD (Pf) - 23.1 PSF  
SNOW EXPOSURE FACTOR (Ce) - 1.0  
SNOW LOAD IMPONANCE FACTOR (Is) - 1.1  
THERMAL FACTOR (Ct) - 1.0

WIND LOAD DESIGN DATA :  
BASIC WIND SPEED (3-SECOND GUST) - 135 MPH  
RISK CATEGORY III  
WIND EXPOSURE - CAT. C  
BUILDING CATEGORY - SIMPLE DIAPHRAM, LOW-RISE  
ENCLOSED, RIGID STRUCTURE (ALL BUILDINGS)

INTERNAL PRESSURE COEFFICIENT (Gcp1) - +0.18 (ALL BUILDINGS)

## EARTHQUAKE DESIGN DATA

RISK CATEGORY III  
SEISMIC IMPORTANCE FACTOR (Ie) - 1.25  
SITE CLASS - D  
SPECTRAL RESPONSE ACCEL. Sa - 0.086  
SPECTRAL RESPONSE ACCEL. S1 - 0.043  
SPECTRAL RESPONSE COEFF. Sds - 0.092  
SPECTRAL RESPONSE COEFF. Sd1 - 0.068  
SEISMIC DESIGN CATEGORY - B  
STRUCTURAL SYSTEM - BEARING WALL SYSTEM  
SEISMIC FORCE RESISTING SYSTEM - ORDINARY REINFORCED MASONRY  
SHEAR WALLS (BUILDINGS)  
RESPONSE MODIFICATION FACTOR (R) - 2 (BUILDINGS)  
ANALYSIS PROCEDURE UTILIZED - EQUIVALENT LATERAL FORCE PROCEDURE

## FOUNDATION

MECHANICAL AND ELECTRICAL WORK TO BE INCORPORATED IN FOUNDATION WORK, SEE MECHANICAL AND ELECTRICAL DRAWINGS.

ALL EXCAVATIONS SHALL BE KEPT DRY. STANDING WATER SHALL NOT BE ALLOWED IN EXCAVATIONS.

BEFORE PLACING ANY CONCRETE ON SUB GRADE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

A STRUCTURAL SLAB SHALL BE USED WHEN UNCOMPACTED FILL EXCEEDS 8".

THE CONTRACTOR SHALL VERIFY THE BEARING CAPACITY OF THE BEARING SOILS IN THE FOOTING EXCAVATION PRIOR TO CASTING ANY FOOTINGS. WRITTEN VERIFICATION SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER.

REFER TO THE SPECIFICATIONS AND SOILS REPORT FOR THE SITE PREPARATION REQUIREMENTS.

ALL CONCRETE FOR FOOTINGS SHALL BE CAST ON THE SAME DAY THAT THE EXCAVATIONS ARE MADE TO THE FINAL GRADE.

THE TOP OF ALL EXTERIOR FOOTINGS SHALL BE PLACED A MINIMUM OF 1'-6" BELOW FINISH GRADE. THE TOP OF INTERIOR FOOTINGS SHALL BE PLACED A MINIMUM OF 0'-8" BELOW FINISH FLOOR.

PLACE FOOTINGS ON FIRM, DRY, NON-FROZEN SUBGRADE. REMOVE SOFT SOILS ENCOUNTERED DURING EXCAVATION. BACKFILL EXCAVATIONS AND AREAS REQUIRING STRUCTURAL FILL WITH CLEAN, MOIST, GRANULAR SELECT BORROW. ALL BACKFILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8-INCHES IN LOOSE THICKNESS. PROPER EQUIPMENT SHALL BE SELECTED AND USED FOR COMPACTION ACCORDING TO THE TYPE A BACKFILL MATERIAL USED. COMPACTION RATIO SHALL BE 97% MINIMUM.

SOILS, FOOTINGS, FOUNDATION WALLS AND SLABS SHALL NOT BE PLACED ON OR IN MARINE CLAY, PEAT OR OTHER ORGANIC MATERIALS.

WHERE REQUIRED, STEP FOOTINGS IN A RATIO OF 2 HORIZONTAL TO 1 VERTICAL.

1/2" WATERPROOF PARGING IS TO BE APPLIED TO MASONRY FOUNDATIONS, BITUMINOUS WATERPROOFING WITH POURED IN PLACE CONCRETE.

ANCHOR BOLTS SHALL BE MAX. 12" FROM PLATE ENDS, MINIMUM OF (2) PER PLATE SECTION.

## FABRICATED WOOD TRUSSES

TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THESE SPECIFICATIONS AND WHERE ANY APPLICABLE DESIGN FEATURE IS NOT SPECIFIED HEREIN, DESIGN SHALL BE IN ACCORDANCE WITH APPLICABLE PROVISIONS OF LATEST EDITION OF NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION (NDS) AMERICAN FOREST AND PAPER ASSOCIATION (AFPA), AND DESIGN SPECIFICATIONS FOR METAL PLATE CONNECTED WOOD TRUSSES (ANSI/TPI 1), TRUSS PLATE INSTITUTE (TPI), AND CODES OF JURISDICTION. FABRICATE, SUPPLY AND ERECT WOOD TRUSSES AS SHOWN ON THE DRAWINGS AND AS SPECIFIED. WORK SHALL INCLUDE ALL ANCHORAGE, BLOCKING, CURBING, MISCELLANEOUS FRAMING AND BRACING.

MANUFACTURER SHALL SUBMIT 3 COPIES OF TRUSS DESIGN DRAWINGS BEARING SEAL OF PROFESSIONAL ENGINEER FOR APPROVAL PRIOR TO ERECTION AND ENGINEERING FRAMING PLANS FOR ALL FLAT CHORD TRUSSES.

LUMBER USED FOR TRUSS MEMBERS SHALL BE IDENTIFIED BY GRADE MARK OF A LUMBER INSPECTION AGENCY, AND SHALL BE AS SHOWN ON DESIGN DRAWINGS. TRUSSES SHALL BE HANDLED DURING FABRICATION, DELIVERY AND AT JOBSITE SO AS NOT TO BE SUBJECTED TO EXCESSIVE BENDING. TRUSSES SHALL BE UNLOADED ON SMOOTH GROUND TO AVOID LATERAL STRAIN. TRUSSES SHALL BE PROTECTED FROM DAMAGE THAT MIGHT RESULT FROM ON-SITE ACTIVITIES AND ENVIRONMENTAL CONDITIONS. PREVENT TOPPLING WHEN HANDLING IS REMOVED.

HANDLE DURING INSTALLATION IN ACCORDANCE WITH HANDLING, INSTALLING AND BRACING WOOD TRUSSES (HIB-91), TPI, AND ANSI/TPI 1-1995. INSTALLATION SHALL BE CONSISTENT WITH GOOD WORKMANSHIP AND GOOD BUILDING PRACTICES. TRUSSES SHALL BE SET AND SECURED LEVEL AND PLUMB, AND IN CORRECT LOCATION. TRUSSES SHALL BE HELD IN CORRECT ALIGNMENT UNTIL SPECIFIED PERMANENT BRACING IS INSTALLED. CUTTING AND ALTERING OF TRUSSES IS NOT PERMITTED. CONCENTRATED LOADS (FULL BUNDLES OF DECKING) SHALL NOT BE PLACED ATOP TRUSSES UNTIL ALL SPECIFIED BRACING HAS BEEN INSTALLED AND DECKING IS PERMANENTLY NAILED IN PLACE. ERECTION BRACING IS ALWAYS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND FURNISHING THE MATERIALS USED FOR INSTALLATION AND PERMANENT BRACING.

STRUCTURAL ENGINEER OF RECORD SHALL APPROVE SHOP DRAWINGS PRIOR TO SUBMITTAL TO BUILDING OFFICIAL. BUILDING OFFICIAL SHALL APPROVE SHOP DRAWING PRIOR TO INSTALLATION.

ALL ROOF TRUSSES SHALL BE ATTACHED TO PERPENDICULAR WALLS NON-LOAD BEARING WALLS WITH TRUSS CLIPS. CEILING GWB SHALL BE ATTACHED TO BLOCKING ON THE WALL AND NOT TO THE TRUSS FOR A DISTANCE OF 18" FROM THE WALL.

## CONCRETE

ALL CONCRETE SHALL BE MADE IN ACCORDANCE WITH DESIGN MIXES WHICH ARE TO BE APPROVED BY THE ARCHITECT OR ENGINEER PRIOR TO CASTING ANY CONCRETE. MIXES SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTION ACI 318. SEE SPECIFICATIONS FOR CEMENT TYPE, MINIMUM CEMENT CONTENT AND WATER/CEMENT RATIO.

MINIMUM SPECIFIED COMPRESSIVE STRENGTH f'c @ 28 DAYS.

LOCATION	MIN. COMP. (f'c)	SLUMP (IN.)
BUILDING FOUNDATIONS NOT EXPOSED TO WEATHER	3000 PSI	3" +/- 1"
INTERIOR SLABS ON GRADE	4000 PSI	3" +/- 1"
FOUNDATIONS, EXTERIOR WALLS & OTHER CONCRETE EXPOSED TO WEATHER	3500 PSI(1)	3" +/- 1"
DRIVEWAYS, CURBS, WALKS, PATIOS, STEPS AND STAIRS	3500 PSI(2)	3" +/- 1"
UNHEATED GARAGE FLOORS EXPOSED TO WEATHER	3500 PSI(2)	3" +/- 1"
NOTES (1) CONCRETE SUBJECTED TO FREEZE AND THAW DURING CONSTRUCTION SHALL BE AIR-ENTRAINED. (2) CONCRETE SHALL BE AIR-ENTRAINED.		

LIQUID-MEMBRANE CURING COMPOUNDS SHALL BE HIGH-SOLIDS, WATER AND ACRYLIC-BASED, COMPLYING WITH ASTM C309 AS TESTED UNDER ASTM C156.

ALL EXTERIOR CONCRETE AND CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED (6% +/- 12%). USE OF ADDITIVES SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER. USE OF ADDITIVES CONTAINING CALCIUM CHLORIDE SHALL NOT BE PERMITTED. DO NOT USE HIGH-RANGE WATER REDUCING ADMIXTURES IN AIR-ENTRAINED CONCRETE. CONFORM TO ASTM C268.

ALL CONCRETE TO BE PLACED IN THE CELLS OF CONCRETE MASONRY UNITS (CMU BLOCK FILL), OR IN THE VOIDS OF BRICK MASONRY CONSTRUCTION, SHALL CONTAIN PEA GRAVEL (3/8-INCH DIAMETER STONE) IN LIEU OF COARSE AGGREGATE. THE CONCRETE MIX SHALL CONTAIN A HIGH-RANGE WATER REDUCER (SUPERPLASTICIZER). SLUMP OF THE CONCRETE SHALL BE A MINIMUM OF 6-INCHES AND A MAXIMUM OF 9-INCHES. SEE THE PROJECT SPECIFICATIONS.

ADDITION OF WATER TO THE CONCRETE AT THE JOB SITE FOR THE PURPOSE OF INCREASING THE SLUMP OR FOR RETEMPERING THE CONCRETE WHICH HAS BEGUN TO SET IS STRICTLY PROHIBITED. SEE THE PROJECT SPECIFICATIONS FOR REQUIREMENTS OF WATER ADDITION TO CONCRETE AT THE JOBSITE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ANCHOR BOLTS, CLIPS, INSERTS, CONNECTION PLATES, SLOTS AND OTHER REQUIRED ITEMS IN ACCORDANCE WITH THE CONTRACT DRAWINGS, AND IN COOPERATION WITH OTHER TRADES PRIOR TO PLACING CONCRETE. ANCHOR BOLTS AND EQUIPMENT PEDESTALS SHALL BE SIZED AND LOCATED AS REQUIRED TO SUIT EQUIPMENT FURNISHED.

REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 60 (60,000 PSI). WELDED WIRE FABRIC (WVF) SHALL CONFORM TO ASTM A-185. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH ACI'S MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES, (ACI-315). DETAILS OF REINFORCEMENT SHALL CONFORM TO ACI 318, ACI 315, AND CRSI STANDARDS.

ALL REINFORCING STEEL (INCLUDING WELDED WIRE FABRIC) SHALL BE SECURELY TIED AND ANCHORED IN PLACE TO PREVENT DISLOCATION DURING THE PLACING OPERATION.

REINFORCING STEEL SHALL BE CLEAN OF MUD, DEBRIS, LOOSE RUST, CEMENT, GROUT, OR ANY OTHER MATERIAL WHICH MAY INHIBIT THE BOND BETWEEN THE STEEL AND CONCRETE.

REINFORCED CONCRETE SHALL BE DETAILED AND CONSTRUCTED IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE, (ACI 301-LATEST EDITION) "SPECIFICATIONS FOR STRUCTURAL CONCRETE."

UNLESS OTHERWISE NOTED ON THE DRAWINGS, CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER CONCRETE POURED AGAINST EARTH -	3"
FORMED CONCRETE EXPOSED TO EARTH, WEATHER OR PROCESS LIQUIDS--	2"
FORMED CONCRETE NOT EXPOSED TO EARTH, WEATHER OR PROCESS LIQUIDS--	1 1/2"
SLABS ON GROUND, UNLESS OTHERWISE NOTED -	1 1/2" FROM TOP OF SLAB

THE CONTRACTOR SHALL SUBMIT SHOP DETAILS OF REINFORCING STEEL BEFORE PROCEEDING WITH FABRICATION.

ALL SPLICES FOR REINFORCING BARS NOT DIMENSIONED ON THE DRAWINGS, SHALL BE DETAILED AS TABULATED ON THIS DRAWING.

PROVIDE 2'-6" x 2'-6" CORNER BARS TO MATCH ALL HORIZONTAL REINFORCING IN WALLS AND FOOTINGS. ALL PROVIDE DOWELS BETWEEN ALL FOOTINGS, WALLS AND PIERS TO MATCH SIZE AND SPACING OF VERTICAL REINFORCING.

ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4", UNLESS OTHERWISE NOTED.

CONCRETE SLAB AND WALLS SHALL BE POURED BETWEEN INDICATED JOINTS, ALLOWING A MINIMUM PERIOD OF 3 DAYS TO ELAPSE BETWEEN ADJACENT POURS.

WATERSTOPS SHALL BE 3/8" THICK x 6" WIDE, FLAT DUMBBELL TYPE, AS NOTED ON THE DRAWINGS. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.

DRY PACK SHALL CONSIST OF SIKKA GROUT 212 OR APPROVED SUBSTITUTE. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

SEE ARCHITECTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL EMBEDDED ITEMS SUCH AS SLEEVES, ANCHORS, ELECTRICAL CONDUITS, OPENINGS, WHICH MAY INTERFERE WITH CONCRETE CONSTRUCTION. ALL PIPING AND OTHER EMBEDDED ITEMS ARE NOT SHOWN ON STRUCTURAL DRAWINGS.

U.N.O. SLABS ON GRADE SHALL BE 4" THICK CONCRETE AND REINFORCED WITH 6"x6" W2.9 x W2.9 WWR. WELDED WIRE FABRIC SHALL BE SUPPORTED ON HIGH CHAIRS SO THAT THE FABRIC IS POSITIONED IN THE TOP THIRD OF THE SLAB THICKNESS, BUT NOT MORE THAN 1-1/2 INCHES BELOW THE TOP SURFACE. LAP ONE FULL MESH PLUS TWO-INCHES AT SPLICES IN EACH DIRECTION. PLACE CONCRETE OVER 6 MIL. POLYETHYLENE VAPOR BARRIER AND 4 INCHES MINIMUM OR COURSE AGGREGATE OR AS RECOMMENDED BY SOILS ENGINEER. THE AGGREGATE LAYER SHALL BE PLACED OVER FIRM NATURAL SUBGRADE OR ON COMPACTED AND CONTROLLED FIRM FILL UNDER SLABS SHALL BE COMPACTED IN 8 INCH LAYERS TO 95% MAX. DENSITY. USE AIR-ENTRAINED AT ALL EXTERIOR SLABS. POUR SLABS IN ALTERNATE PANELS WITH A MAXIMUM OF 600 SF AND PROVIDE CONTROL AND CONSTRUCTION JOINTS AT 12'-0" MAXIMUM OR AS REQUIRED TO PREVENT UNCONTROLLED CRACKING.

SLAB CONTROL JOINTS: SAW CUT OR FORM TO 1/3 SLAB DEPTH. SPACE NO MORE THAN 12 FEET APART. DISCONTINUE WELDED WIRE FABRIC AT CONTROL JOINTS. PROVIDE JOINTS ON GROUND SUPPORTED SLABS IN RECTANGULAR CONFIGURATION, WITH THE LONGER SIDE NO MORE THAN ONE-AND-ONE-HALF TIMES THE LENGTH OF THE SHORTER SIDE.

SLAB ISOLATION JOINTS: PROVIDE PRE-MOLDED JOINT FILLER AROUND ALL PIPING, PIERS AND FOUNDATION WALLS.

## LUMBER

LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.

LUMBER FOR JOISTS AND BEAMS SHALL BE NO. 2 GRADE SOUTHERN PINE OR APPROVED EQUIVALENT WITH THE FOLLOWING MINIMUM REQUIREMENTS: Fb = 1200 PSI, Fv = 90 PSI, Fc = 565 PSI (PERPENDICULAR TO GRAIN) AND MODULUS OF ELASTICITY E = 1,600,000 PSI, AND A MAXIMUM MOISTURE CONTENT OF 19%.

PLYWOOD SHALL BE EXTERIOR GRADE, EXPOSURE 1, IDENTIFIED WITH THE DFPA GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

WOOD COLUMNS AND POSTS SHALL BE FRAMED TO TRUE END BEARINGS, AND SHALL BE POSITIVELY ANCHORED TO FOUNDATION WITH APPROVED POST BASES, SUPPORT COLUMN AND POST SECURELY IN POSITION AND PROTECT BASE FROM DETEIORATION. COLUMNS AND POST OF TREATED WOOD MAY BE PLACED DIRECTLY ON CONCRETE OR MASONRY.

FLOOR JOIST, CEILING JOISTS AND ROOF RAFTERS SHALL HAVE A 4" NOMINAL BEARING ON WOOD, MASONRY, OR WOOD PLATES BOLTED TO STEEL BEAMS.

PROVIDE 2" NOMINAL THICKNESS FULL DEPTH SOLID BLOCKING FOR JOISTS AND RAFTERS AT ENDS AND AT SUPPORTS. OMIT SOLID BLOCKING WHEN JOIST ARE NAILED TO A CONTINUOUS HEADER. LAP JOISTS FRAMING FROM OPPOSITE SIDES OF A BEAM, GIRDER OR PARTITION AT LEAST 6". SECURE JOISTS FRAMED END TO END WITH METAL STRAPS. USE APPROVED FRAMING ANCHORS TO SUPPORT JOISTS FRAMING INTO THE SIDES OF WOOD BEAMS. PROVIDE DOUBLED (OR EQUIVALENT CROSS-SECTION) TRIMMER AND HEADER JOISTS AROUND OPENINGS UNLESS NOTED OTHERWISE. SUPPORT HEADER JOISTS FROM FRAMING ANCHORS OR JOIST HANGERS UNLESS BEARING ON A BEAM, PARTITION OR A WALL. JOIST CARRYING PARTITIONS PERPENDICULAR TO JOISTS SHALL BE OFFSET FROM SUPPORTING ORDERS, WALLS OR PARTITIONS MORE THAN THE JOIST DEPTH. JOISTS CARRYING PARTITIONS PARALLEL TO JOISTS SHALL BE DOUBLED.

NAIL ROOF SHEATHING TO SUPPORTS w/8d NAILS @ 6" O.C. AT PANEL EDGES, 12" O.C. ELSEWHERE.

## SHOP DRAWINGS

THE GENERAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS FOR APPROVAL. THE STRUCTURAL ENGINEER WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT IF THE GENERAL CONTRACTOR FAILS TO OBTAIN APPROVAL OF THE SHOP DRAWINGS. THE GENERAL CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER IN WRITING CONCERNING DEVIATIONS AND/OR OMISSIONS FROM THE CONTRACT DOCUMENTS AT THE TIME OF SHOP DRAWING SUBMISSION. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS AND SHALL MAKE ALL CORRECTIONS HE DEEMS NECESSARY BEFORE SUBMISSION. THE GENERAL CONTRACTOR SHALL STATE ON THE SHOP DRAWINGS THAT CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN MET AND THAT ALL DIMENSIONS, CONDITIONS AND QUANTITIES HAVE BEEN REVIEWED AND VERIFIED AS SHOWN AND/OR CORRECTED ON THE SHOP DRAWINGS.

## MISCELLANEOUS ITEMS

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS, AND DRAWINGS OF OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THE WORK OF ALL TRADES IS COORDINATED WITH THE STRUCTURAL WORK.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, FURNISHING, ERECTING, AND REMOVING ANY SHORING AND BRACING REQUIRED DURING CONSTRUCTION.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY REGULATIONS, PROGRAMS AND PRECAUTIONS RELATED TO ALL WORK ON THIS PROJECT.

CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT SAME AGAINST INJURY, DAMAGE OR LOSS.

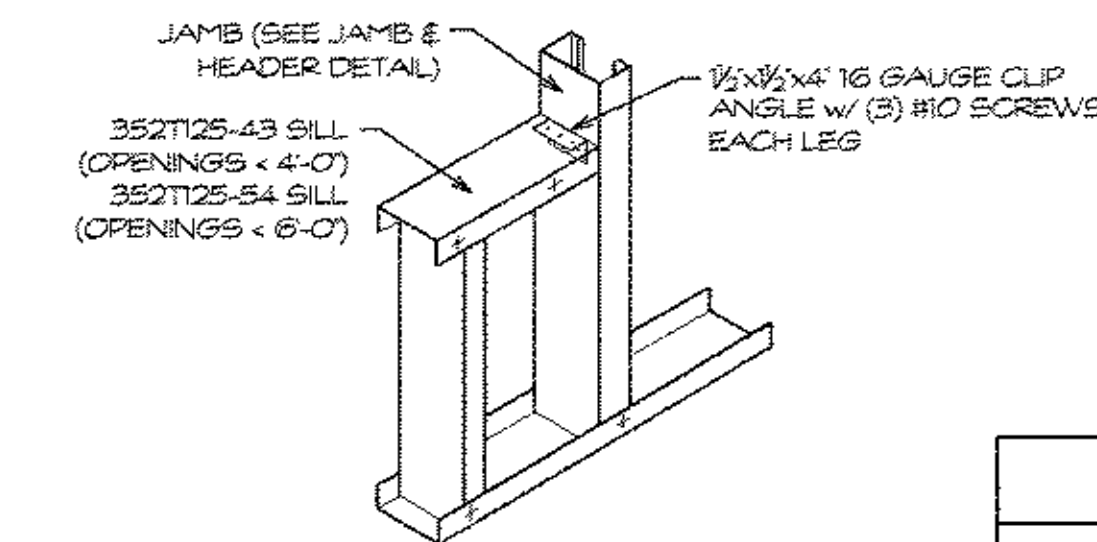
NO OPENING NOR ANY CHANGES IN SIZE, DIMENSION OR LOCATION SHALL BE MADE IN ANY STRUCTURAL ELEMENTS WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. SUCH LOADS SHALL NOT EXCEED THE CAPACITY OF THE STRUCTURE AT ANY TIME.

THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION, AND ANY TEMPORARY BRACING OR SUPPORT REQUIRED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH NEW WORK IN AREAS AFFECTED BY EXISTING CONDITIONS. STRUCTURAL ENGINEER SHALL BE INFORMED IN WRITING OF CONFLICTS BETWEEN EXISTING AND PROPOSED NEW CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS. INCONSISTENCIES ON THE STRUCTURAL DRAWINGS OR BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER CONTRACT, SHOP, FABRICATION, OR OTHER DRAWINGS OR INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH AFFECTED WORK.



TYPICAL WINDOW SILL DETAIL  
N.T.S.

## CONDITION CASES

BAR SIZE	TOP BARS		OTHER BARS	
	CASE 1	CASE 2	CASE 1	CASE 2
#3	23"	34"	18"	27"
#4	31"	46"	24"	35"
#5	38"	57"	30"	44"
#6	46"	68"	35"	53"
#7	67"	100"	51"	77"
#8	76"	114"	59"	88"
#9	86"	128"	66"	99"
#10	96"	144"	74"	111"

## CLASS "B" LAP SPLICES (f'c=4500 psi)

NON EPOXY COATED

TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE SPLICE.

CASE 1 - OTHER CASES  
CASE 2 - COLUMNS & BEAMS:  
COVER < BAR DIA. OR  
CENTER TO CENTER SPACING < 2 BAR DIA.  
ALL OTHER ELEMENTS:  
COVER < BAR DIA. OR  
CENTER TO CENTER SPACING < 3 BAR DIA.

## STRUCTURAL STEEL

FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, (AISC) "MANUAL OF STEEL CONSTRUCTION."

THE CONTRACTOR SHALL SUBMIT ERECTION PLANS AND SHOP DETAILS BEFORE PROCEEDING WITH FABRICATION.

ALL STRUCTURAL STEEL 1 BEAMS SHALL CONFORM TO ASTM A992 GRADE 50 (50 KSI).

ANCHOR BOLTS (A.B.) SHALL COMPLY WITH ASTM F1554 GRADE 36.

HIGH STRENGTH BOLTS (HS) SHALL COMPLY WITH ASTM A325N.

ALL WELDING SHALL COMPLY WITH AMERICAN WELDING SOCIETY, (AWS D1.1) "STRUCTURAL WELDING CODE" LATEST EDITION.

ALL SHOP CONNECTIONS SHALL BE WELDED WITH CLASS E-70 SERIES ELECTRODES. FIELD CONNECTIONS SHALL BE HIGH STRENGTH BOLTED, EXCEPT WHERE OTHERWISE NOTED.

CONNECTIONS NOT INDICATED, SHALL BE DESIGNED BY THE FABRICATOR. BEAM CONNECTIONS SHALL BE DESIGNED FOR ONE-HALF THE TOTAL ALLOWABLE UNIFORM LOAD, GIVEN IN PART 2 OF THE AISC "MANUAL OF STEEL CONSTRUCTION." OTHER CONNECTIONS SHALL BE DESIGNED FOR THE LOADS INDICATED. ALL CONNECTIONS SHALL BE A MINIMUM OF TWO 3/4" H.S. BOLTS OR WELDS OF EQUAL STRENGTH.

WILL BOTTOM OF ALL COLUMNS AND FINISH TOP OF ALL BASE PLATES IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS. BASE PLATES SHALL BE WELDED TO BOTTOM OF COLUMNS.

SPECIFIED GROUT THICKNESS INCLUDES 1/4 INCH THICK LEVELING PLATES WHICH SHALL BE USED UNDER ALL BEAMS AND COLUMNS RESTING ON CONCRETE.

ALL EXPOSED STEEL SHALL BE EPOXY COATED OR GALVANIZED.

## CONCRETE MASONRY

MASONRY CONSTRUCTION SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE (ACI 530.1-13/ASCE 6-13/TMS602-13), "SPECIFICATION FOR MASONRY STRUCTURES."

MORTAR SHALL MEET THE REQUIREMENTS OF ASTM C270 TYPE M OR S. CEMENT SHALL BE PORTLAND CEMENT.

GROUT SHALL MEET THE REQUIREMENTS OF ASTM C476 COARSE GROUT AND SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 3000 POUNDS PER SQUARE INCH AT 28 DAYS.

REINFORCING BARS SHALL MEET THE REQUIREMENTS OF ASTM A615, GRADE 60.

CONCRETE FOR PRECAST LINTELS SHALL COMPLY WITH SPECIFICATION SECTION 03300, "CAST-IN-PLACE CONCRETE," AND SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 3000 POUNDS PER SQUARE INCH.

## MATERIALS

HOLLOW CMU: NORMAL WEIGHT: ASTM C-80, GRADE N, Fm= 1900 PSI  
SOLID CMU: NORMAL WEIGHT: ASTM C-145, GRADE N  
MORTAR:

SINGLE WYTHE ABOVE GRADE:  
ASTM C270 PROJECTION SPECIFICATION MORTAR SHALL CONSIST OF TYPE 1 PORTLAND CEMENT, TYPE S HYDRATED LIME AND APPROVED AGGREGATE, WITH 1800psi MINIMUM AVERAGE COMPRESSIVE STRENGTH OF 2-INCH CUBES AT 28-DAYS.

SINGLE WYTHE BELOW GRADE:  
ASTM C270 PROJECTION SPECIFICATION MORTARS SHALL CONSIST OF TYPE 1 PORTLAND CEMENTS, TYPE N HYDRATED LIME & APPROVED AGGREGATE, WITH 750 PSI MINIMUM AVERAGE COMPRESSIVE STRENGTH OF 2-INCH CUBES AT 28-DAYS.

VENEER:  
ASTM C270 PROJECTION SPECIFICATION MORTARS SHALL CONSIST OF TYPE 1 PORTLAND CEMENTS, TYPE N HYDRATED LIME & APPROVED AGGREGATE, WITH 750 PSI MINIMUM AVERAGE COMPRESSIVE STRENGTH OF 2-INCH CUBES AT 28-DAYS.

ALL MASONRY WORK SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF BIA AND NOMA SPECIFICATION FOR CONCRETE MASONRY CONSTRUCTION (ACI 513.1).

PROVIDE CONTINUOUS MASONRY BOND BEAM THAT SPANS ACROSS ALL EXPANSION JOINTS & WALL INTERSECTIONS.

PROVIDE (2) #5 BENT BARS WITH 3-FOOT LEGS AT EVERY CORNER OR WALL INTERSECTION.

CONTINUOUS TIE OR BOND BEAMS SHALL BE REINFORCED WITH NOT LESS THAN 2 #5 CONTINUOUS BARS. LINTELS SHALL BE THE SIZES SHOWN AND REINFORCED AS INDICATED ON THE DRAWINGS.

REINFORCED MASONRY WALLS SHALL HAVE ALL HOLLOW CELLS FILLED WITH CONCRETE. CONCRETE MAY BE PLACED IN MAXIMUM VERTICAL LIFTS NOT TO EXCEED 4-FEET. ROUGHEN ALL SURFACES OF CONCRETE FIL WHICH ARE TO RECEIVE ADDITIONAL LIFTS ABOVE.

PROVIDE MINIMUM 2 COURSES 8" x 16" SOLID BEARING AT BEAM AND HEADER BEARING POINTS IN CMU WALLS.

GROUT ALL CELLS SOLID BELOW GRADE

LINTEL FOR MASONRY WALLS (U.N.O.): PROVIDE 1 ANGLE FOR EACH 4" OF WALL THICKNESS AS FOLLOWS:  
OPENINGS TO 3'-9": 3 1/2"x3 1/2" x 1/4" (3 1/2" HORIZ.)  
3'-1" TO 5'-0": 4"x3 1/2" x 1/4" (3 1/2" HORIZ.)  
5'-1" TO 6'-6": 5"x3 1/2" x 1/4" (3 1/2" HORIZ.)  
6'-7" TO 8'-0": 6"x3 1/2" x 1/4" (3 1/2" HORIZ.)  
GREATER THAN 8'-0": SEE PLANS.

## CONDITION CASES

BAR SIZE	TOP BARS		OTHER BARS	
	CASE 1	CASE 2	CASE 1	CASE 2
#3	28"	42"	22"	32"
#4	37"	56"	29"	43"
#5	47"	70"	36"	54"
#6	56"	84"	43"	65"
#7	81"	122"	63"	94"
#8	93"	139"	72"	107"
#9	105"	157"	81"	121"
#10	118"	177"	91"	136"

## CLASS "B" LAP SPLICES (f'c=3000 psi)

NON EPOXY COATED

TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE SPLICE.

CASE 1 - OTHER CASES  
CASE 2 - COLUMNS & BEAMS:<



HVAC GENERAL NOTES

1. ALL WORK AND EQUIPMENT SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, ETC., OF ALL AUTHORITIES HAVING JURISDICTION, INCLUDING BUT NOT LIMITED TO: THE INTERNATIONAL MECHANICAL CODE, THE LOCAL FIRE MARSHAL, UNDERWRITERS LABORATORY (UL), IRI, FM, OSHA, AND THE NATIONAL ELECTRICAL CODE (NEC). MODIFICATIONS REQUIRED BY THE ABOVE SAID AUTHORITIES TO BRING THE SPACE UNDER CONTRACT UP TO CODE SHALL BE MADE WITHOUT ADDITIONAL CHARGE. WHERE CONTRACT DOCUMENT REQUIREMENTS ARE IN EXCESS OF CODE REQUIREMENTS, THE CONTRACT DOCUMENTS SHALL GOVERN. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

2. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ARE COMPLIMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.

3. CONTRACTOR SHALL VERIFY ALL POINTS OF CONNECTION BEFORE COMMENCING WORK. CONTRACTOR SHALL COORDINATE WORK WITH EXISTING WORK AND OTHER TRADES. CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS, DEBRIS, AND RUBBISH FROM SITE AND LEGALLY DISPOSE OF IT. ALL UNUSED EQUIPMENT SERVING THIS AREA SHALL BE REMOVED AND RETURNED TO THE OWNER.

4. SOME WORK SHOWN MAY REQUIRE PREMIUM TIME TO AVOID DISRUPTION OF ACTIVITIES AND MEP SERVICES. CONTRACTOR SHALL CONFIRM THE REQUIREMENTS FOR PREMIUM TIME OR SPECIAL PROCEDURES WITH THE OWNER AND INCLUDE THE COST IN HIS BID PROPOSAL. THE CONTRACTOR, BY SUBMITTING HIS BID PROPOSAL, AGREES TO ACCEPT ALL EXISTING SITE CONDITIONS NOT SPECIFICALLY EXCEPTED. ALL EXCEPTIONS SHALL BE PROVIDED IN WRITING TO THE ARCHITECT AND ENGINEER.

5. CONTRACTOR SHALL COORDINATE, PREPARE AND SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER FOR THEIR APPROVAL. SHOP DRAWINGS TO BE SUBMITTED INCLUDE: SHEETMETAL, DIFFUSERS, GRILLES, REGISTERS, FIRE DAMPERS, AND ALL EQUIPMENT. SHEETMETAL SHOP DRAWINGS SHALL BE COORDINATED WITH ALL DISCIPLINES AND SHOW DUCT ELEVATIONS. PROVIDE RISES, DROPS AND OFFSETS AS REQUIRED. BRING AREAS OF POTENTIAL CONFLICT TO THE ENGINEER'S ATTENTION.

6. A SET OF MEP RECORD/COORDINATION DRAWINGS SHALL BE MAINTAINED IN THE GENERAL CONTRACTORS OFFICE AT THE JOB SITE. ACTUAL LOCATIONS OF ALL EQUIPMENT, PIPING, DUCTWORK, ETC., AND ALL DEVIATIONS OF THE WORK FROM THAT SHOWN ON THE CONTRACT DOCUMENTS SHALL BE MARKED ON THE RECORD/COORDINATION DRAWINGS. EACH TRADE SHALL REVIEW THE COORDINATION DRAWINGS AND RESOLVE ANY POTENTIAL CONFLICTS WITH OTHER TRADES PRIOR TO INSTALLING ANY PORTION OF THEIR WORK. CONTRACTOR SHALL NOT CORE, DRILL, OR CUT CONCRETE SLABS FOR ANY REASON WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE STRUCTURAL ENGINEER AND THE OWNER.

7. WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING THE WORK UNDER THIS CONTRACT. MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AT THE END OF EACH WORKING DAY.

8. IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTORS PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK, WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.

9. THE GENERAL CONTRACTOR SHALL BRING TO THE ATTENTION OF THE MECHANICAL CONTRACTOR ANY SLAB-TO-SLAB PARTITIONS IN ORDER TO PRESERVE RETURN AIR PATHWAYS. ALL PENETRATIONS OF SLAB-TO-SLAB PARTITIONS SHALL BE SEALED AIRTIGHT. CONTRACTOR SHALL VERIFY PARTITION RATING AND PROVIDE FIRE DAMPER AND ACCESS DOOR AS REQUIRED. CURTAIN TYPE DAMPERS SHALL BE W/ THE CURTAIN OUT OF THE AIR STREAM.

10. WHEREVER FIRE RATED PARTITIONS ARE PENETRATED FOR WIRE, DUCT, OR PIPE PASSAGE, SEAL PASSAGES WITH CODE APPROVED, LABORATORY TESTED AND LABELED SEALANT OF FIRE RESISTANCE RATING NOT LESS THAN THAT OF PENETRATED ASSEMBLY THAT WILL PREVENT PASSAGE OF FIRE AND SMOKE.

11. CONTRACTOR SHALL VERIFY THAT THE LOCATION OF CEILING MOUNTED DIFFUSERS, GRILLES, AND REGISTERS SHOWN ON THE DRAWINGS ARE ACCEPTABLE TO THE ARCHITECT PRIOR TO INSTALLATION.

12. ALL AUTOMATIC TEMPERATURE CONTROL SYSTEM WORK, MODIFICATION AND INSPECTION SHALL BE ACCOMPLISHED BY THIS CONTRACTOR. ALL DAMAGED, DEFECTIVE, MISSING, OR INAPPROPRIATE DEVICES SHALL BE REPAIRED OR REPLACED AS REQUIRED. THERMOSTATS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS UNDER THIS CONTRACT. STANDARD MOUNTING HEIGHT TO TOP OF THERMOSTAT IS 48" ABOVE FINISHED FLOOR OR AS INDICATED ON THE ARCHITECTURAL DRAWINGS. DO NOT INSTALL THERMOSTATS NEAR DIMMER SWITCHES. WIRING OF ALL MOTORIZED OPERATORS AND THERMOSTATS (REGARDLESS OF VOLTAGE) ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

13. CONTRACTOR SHALL MAKE ALL FINAL EQUIPMENT CONNECTIONS AND PROVIDE THE NECESSARY ADAPTORS, FITTINGS, VALVES, DEVICES, ETC. FOR A COMPLETE AND OPERABLE SYSTEM. COORDINATE REQUIREMENT FOR PROVISION OF MOTOR STARTERS, DISCONNECTS, CONTACTORS, CONTROL WIRING, ETC. AS REQUIRED FOR PROPER FUNCTIONING SYSTEM WITH DIVISION 26.

14. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO INSTALL THE HEATING, VENTILATION AND AIR CONDITIONING SYSTEM SO AS TO INSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING, STRUCTURE OR OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THIS CONTRACTORS RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY SYSTEM OR EQUIPMENT AS REQUIRED.

15. ALL PACKAGED EQUIPMENT SHALL BE INDEPENDENTLY THIRD PARTY LABELED AS A SYSTEM FOR ITS INTENDED USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) IN ACCORDANCE WITH OSHA FEDERAL REGULATIONS 29CFR1910.303 AND .389, AS WELL AS NFPA PAMPHLET NO. 70, AND THE NATIONAL ELECTRICAL CODE (NEC), ARTICLE 90-7.

16. CLEAN ALL MECHANICAL EQUIPMENT AND DUCTWORK OF ALL CONSTRUCTION DUST AT PROJECT COMPLETION. REPLACE ALL FILTERS PRIOR TO AIR BALANCING. PROVIDE ONE SPARE SET OF FILTERS FOR EACH PIECE OF EQUIPMENT TO THE OWNER.

MISCELLANEOUS EQUIPMENT SPECIFICATIONS:

PERFORATED FACE DIFFUSER - TITUS MODEL PSS OR APPROVED EQUAL. 24" X 24" FACE, STEEL CONSTRUCTION, WHITE FINISH, FLUSH FACE, LAY IN BORDER, STAR PATTERN. PROVIDE SURFACE MOUNT BOARDER FOR INSTALLATION IN DRYWALL CEILING. ROUND NECK. SEE SCHEDULE FOR NECK AND FLEX DUCT SIZE.

PERFORATED FACE RETURN/ EXHAUST AIR GRILLES AND REGISTERS - TITUS MODEL PAR OR APPROVED EQUAL. 24" X 24" FACE, STEEL CONSTRUCTION, WHITE FINISH, FLUSH FACE, LAY-IN BORDER (TYPICAL). PROVIDE SURFACE MOUNT BORDER FOR INSTALLATION IN DRYWALL CEILING. SQUARE NECK. SEE SCHEDULE FOR REQUIRED NECK SIZES.

RETURN/ EXHAUST AIR REGISTERS - TITUS MODEL 350 FL OR APPROVED EQUAL. ALUMINUM CONSTRUCTION, BLADES SHALL HAVE 3/4" SPACING & 33° FIXED DEFLECTION. BLADES SHALL BE PARALLEL TO LONG DIMENSION. PROVIDE REGISTER WITH OPPOSED BLADE DAMPER FOR REGISTERS INSTALLED IN DRYWALL CEILINGS. DAMPER SHALL BE ADJUSTABLE FROM FACE OF AIR DEVICE. SEE SCHEDULE FOR NECK SIZES.

SUPPLY AIR REGISTERS - TITUS MODEL 300 FS OR APPROVED EQUAL. ALUMINUM CONSTRUCTION, DOUBLE DEFLECTION BLADES SHALL HAVE 3/4" SPACING, FRONT BLADES PARALLEL TO SHORT DIMENSION. ALL BLADES INDIVIDUALLY ADJUSTABLE. PROVIDE REGISTER WITH OPPOSED BLADE DAMPER FOR REGISTERS INSTALLED IN DRYWALL CEILINGS AND REGISTERS INSTALLED IN THE SIDE OF RECTANGULAR DUCTS. DAMPER SHALL BE ADJUSTABLE FROM FACE OF AIR DEVICE. SEE SCHEDULE FOR NECK SIZES.

LOUVERED DOOR GRILLES - TITUS MODEL T-700L OR APPROVED EQUAL. STEEL CONSTRUCTION, SIGHT PROOF, 20 GAUGE STEEL BLADES, BLADES PARALLEL TO THE LONG DIMENSION. SIZE SHALL BE 18/16 UNLESS NOTED OTHERWISE. ARCHITECT TO SELECT COLOR.

OUTSIDE AIR INTAKE & EXHAUST AIR LOUVERS - GREENHECK MODEL ESD-403 OR APPROVED EQUAL. STATIONARY, EXTRUDED ALUMINUM CONSTRUCTION, 4" FRAME, DRAINABLE BLADES, WITH BIRDSCREEN (MODEL ESD-202 FOR 2" FRAME FOR SOFFIT INSTALLATIONS).

SPLIT SYSTEM SCHEDULE - HEAT PUMP

UNIT DES.	SERVICE	SENS. CAP MBH	TOTAL CAP MBH	E.A.T. DB / WB	REVERSE CYCLE HEAT CAP. MBH @ 17 O.A.T.	INDOOR UNIT					OUTDOOR UNIT					ELEC. VOLTS / PHASE	REMARKS
						CFM	O.A. CFM	E.S.P. IN. W.G.	HP	HEATER KW@230V	TRANE MODEL	UNIT. DES.	NOM. TONS	SEER	HSPF	TRANE MODEL	
AHU-1	SEE PLAN	45.4	55.5	75.6 / 63.2	35.6	1965	320	0.6	1	10.8000	GAM5B0C60M	HP-1	5	14.0	8.5	4TWR5061E	208/1 1 THRU 14

- PIPE 1" INSULATED CONDENSATE DRAIN PIPING TO SPLASH BLOCK LOCATED ON GRADE OUTSIDE.
- PROVIDE SINGLE POINT WIRING KIT, CIRCUIT BREAKER, AND DISCONNECT SWITCH FOR AHU.
- SIZE AND INSTALL INSULATED REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.
- INTERLOCK AHU AND THERMOSTAT WITH ERV-1. ERV-1 SHALL BE ON DURING OCCUPIED SCHEDULE PROGRAMMED INTO THERMOSTAT.
- PROVIDE RETURN AIR FILTER IN AHU WITH STANDARD FILTER.
- PROVIDE REMOTE PROGRAMMABLE WALL MOUNTED THERMOSTAT WITH AUTOMATIC CHANGEOVER AS SHOWN ON FLOOR PLANS. INTERLOCK AHU WITH ASSOCIATED HP.
- PROVIDE CONDENSATE OVERFLOW SENSOR IN PRIMARY CONNECTION OF THE COOLING COIL TO SHUT SOWN THE UNIT UPON SENSING CONDENSATE.
- PROVIDE FLEXIBLE CONNECTION AT INLET AND DISCHARGE OF AHU TO ISOLATE FAN. USE HEAT RESISTANT MATERIAL.
- PROVIDE TXV AND TIME DELAY RELAY.
- PROVIDE NEOPRENE ISOLATION PAD UNDER AHU AND HP.
- PROVIDE HONEYWELL MODEL EC720 ECONOMIZER CONTROLLER WITH DIFFERENTIAL ENTHALPY CONTROL FOR AHU.
- PROVIDE NIGHT SET BACK CONTROL, MORNING WARM UP CONTROL, COMPRESSOR SUMP HEATER, AND DEFROST CONTROL.
- INSTALL DUCT SMOKE DETECTORS PROVIDED AND WIRED BY ELECTRICAL CONTRACTOR IN SUPPLY AND RETURN DUCTWORK.
- INSTALL OUTDOOR UNIT ON CONCRETE PAD. PROVIDE 1" NEOPRENE VIBRATION PAD BETWEEN UNIT AND CONCRETE PAD.

DUCTLESS SPLIT SYSTEM SCHEDULE

UNIT DES.	SERVICE	E.A.T. DB / WB	INDOOR UNIT				OUTDOOR UNIT					REMARKS
			CFM	SEER	VOLTS / PHASE	BASIS OF DESIGN	NOM. TONS	AMBIENT AIR °F	HEATING CAPACITY @ 47°F O.A.T. (BUTH)	BASIS OF DESIGN	VOLTS / PHASE	
DSS-1	ELECT. 108	80 / 67	425	15.2	208 / 1	MTSUBISHI PKA-A12HA6	1	95	N.A.	MTSUBISHI PUY-A12NHA6	208 / 1	1 THRU 10

- PROVIDE LOW AMBIENT CONTROL TO °F.
- PROVIDE UNIT MOUNTED CONTROLS.
- PROVIDE CONDENSATE PUMP FROM FACTORY AND CONDENSATE OVERFLOW SENSOR.
- PROVIDE REMOTE WALL MOUNTED HARD WIRED THERMOSTAT.
- PROVIDE INSULATED REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNITS. SIZE AND INSTALL PER MANUFACTURES RECOMMENDATIONS
- PROVIDE DC ROTARY COMPRESSOR WITH INDETER TECHNOLOGY / VARIABLE SPEED.
- INSTALL OUTDOOR UNIT ON CONCRETE PAD. PROVIDE 1" NEOPRENE VIBRATION ISOLATORS BETWEEN CONDENSING UNIT AND CONCRETE PAD.
- INDOOR UNIT MOUNTED ON WALL. PROVIDE SUPPORT AND BLOCKING FOR UNIT.
- PROVIDE DISCONNECT SWITCH FOR INDOOR UNIT.
- PROVIDE 1" INSULATED CONDENSATE DRAIN PIPING TO SPLASH BLOCK LOCATED ON GRADE OUTSIDE.

ENERGY RECOVERY VENTILATOR SCHEDULE

UNIT NUMBER	SUPPLY FAN				RETURN / EXHAUST FAN				SUMMER		WINTER		GREENHECK MODEL #	REMARKS
	CFM	E.S.P. IN. W.G.	RPM	HP	CFM	E.S.P. IN. W.G.	RPM	HP	EAT (DB / WB)	LAT (DB / WB)	EAT	LAT		
ERV-1	320	0.75	1635	1/3	280	0.75	1636	1/3	93 / 80	81.4 / 69.7	14	49.8	MINIVENT-450-VG	1 THRU 6

- UNIT TO BE 115 VOLT, SINGLE PHASE WITH SINGLE POINT CONNECTION.
- UNIT TO HAVE INTEGRAL DESICCANT WHEEL AND PACKAGED CONTROLS.
- UNIT TO BE PROVIDED WITH 1" OUTDOOR AND EXHAUST AIR FILTERS, SPRING TYPE VIBRATION ISOLATORS, SPARE BELTS AND FILTERS AND WHEEL FROST CONTROL.
- UNIT SHALL OPERATE PER ITS PACKAGED CONTROLS. INTERLOCK ERV WITH ASSOCIATED HPS AND MOTORIZED DAMPER. UNIT SHALL OPERATE DURING OCCUPIED MODE ONLY.
- UNIT TO BE PROVIDED WITH SOLID SATE SPEED CONTROLLERS FOR BOTH FANS.
- PROVIDE VARL-GREEN EZ MOTORS.

ELECTRIC UNIT HEATER SCHEDULE

UNIT NO.	SERVES	KW	VOLTS / PHASE	TYPE	MANUFACTURER	MODEL	REMARKS
EUH-1	YARD STORAGE	3	208 / 1	HORIZONTAL	Q-MARK	MUHO381	1, 2

- PROVIDE DISCONNECT SWITCH AND UNIT MOUNTED THERMOSTAT.
- PROVIDE MOUNTING BRACKET.

24/24 PERFORATED FACE RETURN AIR GRILLE SCHEDULE

CFM RANGE	SQUARE NECK SIZE	ROUND NECK SIZE
0 - 125	6 X 6	6"Ø
126 - 240	8 X 8	8"Ø
241 - 375	10 X 10	10"Ø
376 - 550	12 X 12	12"Ø
551 - 725	14 X 14	14"Ø
726 - 850	16 X 16	N.A.
851 - 1090	22 X 22	N.A.

NOTE: NECK SIZES ABOVE ARE FOR DUCTED APICATIONS MODEL PAR. NON-DUCTED UNITS SHALL BE MODEL PKP.

RETURN / EXHAUST REGISTER SCHEDULE

CFM RANGE	DUCT / NECK SIZE (UNO)
0 - 75	6 X 6
41 - 150	8 X 8
111 - 225	10 X 10
151 - 350	12 X 12
211 - 410	14 X 14
241 - 650	22 X 14
651 - 865	30 X 14
866 - 1025	30 X 18
1026 - 1490	42 X 14
1491 - 1850	32 X 32
1851 - 2100	40 X 24
2101 - 6550	48 X 48

DIFFUSER & RUNOUT SCHEDULE

CFM RANGE	NECK SIZE	MAX LENGTH
0 - 40	4"Ø	8'-0"
40 - 100	6"Ø	8'-0"
101 - 230	8"Ø	8'-0"
231 - 420	10"Ø	8'-0"
421 - 500	12"Ø	8'-0"
501 - 575	14"Ø	8'-0"
576 - 750	16"Ø	8'-0"

NOTE: ALL FLEXIBLE DUCT DIAMETERS SHALL EQUAL DIFFUSER NECK SIZE. SEE PLANS AND SPECIFICATIONS FOR FACE TYPE AND MODEL NUMBERS.

SUPPLY REGISTER SCHEDULE

CFM RANGE	DUCT / NECK SIZE (W X H)
0 - 40	6 X 6
41 - 110	8 X 8
111 - 150	12 X 8
151 - 210	14 X 8
211 - 240	14 X 10
241 - 350	16 X 16

MECHANICAL LEGEND

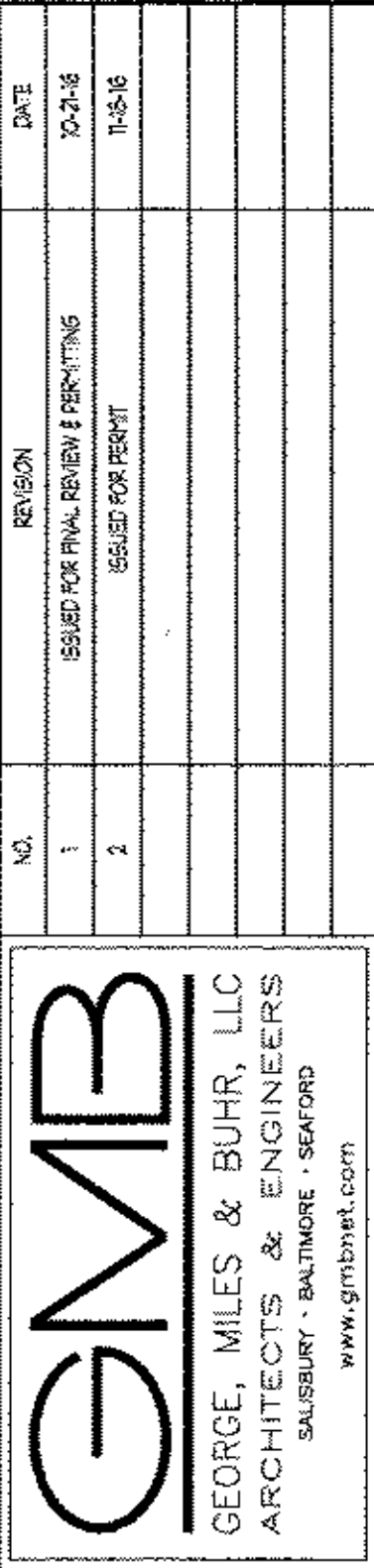
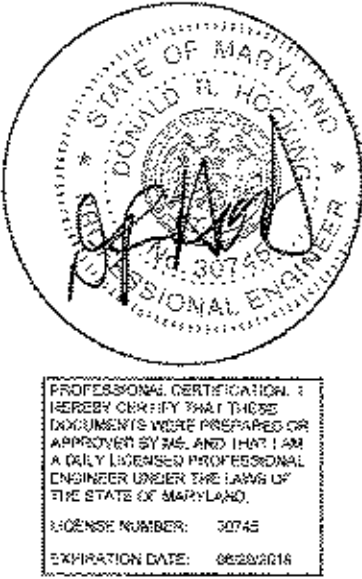
SYMBOL	ABRV.	DESCRIPTION
		NEW EQUIPMENT OR DUCTWORK
		90° ELBOW WITH TURNING VANES
		90° RADIUS ELBOW
		DRAWING NOTE
		24/24 PERFORATED FACE RETURN AIR GRILLE
	EF	CEILING EXHAUST FAN
	T-STAT	THERMOSTAT/ SENSOR
	U/D	UNDER CUT DOOR
	225	24/24 PERFORATED FACE DIFFUSER WITH ROUND NECK. CFM AS INDICATED. SEE SCHEDULE FOR NECK SIZE.
		SPIN TAP WITH VOLUME CONTROL DAMPER
		V.C.D. VOLUME CONTROL DAMPER
	B.D.	BACKDRAFT DAMPER
	OA	OUTSIDE AIR
	SA	SUPPLY AIR
	RA	RETURN AIR
		E.S.P. EXTERNAL STATIC PRESSURE
		T.S.P. TOTAL STATIC PRESSURE
		IN. W.G. INCHES WATER GAUGE
		FT. W.G. FEET WATER GAUGE
	GR	GRILLE
	REG	REGISTER
	TR. GR.	TRANSFER GRILLE
	TR	TOP REGISTER
	CR	CEILING REGISTER
	UNO	UNLESS NOTED OTHERWISE
	CED	OPEN ENDED DUCT

DIVISION OF MECHANICAL/ ELECTRICAL WORK

ITEM	MECH/ DIV 22 AND 23	ELEC/ DIV 26
AUTOMATIC TEMPERATURE CONTROLS	FURNISH, INSTALL & WIRE	POWER WIRE
CONTROL PANELS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
LOW VOLTAGE CONTROL WIRING FOR MECH EQUIP.	FURNISH & INSTALL	
LINE VOLTAGE CONTROL WIRING FOR MECH. EQUIP.	FURNISH, INSTALL & WIRE	
MECHANICAL FLOW SWITCHES	FURNISH, INSTALL & WIRE	
THERMOSTATS/ SENSORS	FURNISH, INSTALL & WIRE	
PIE & E/P SWITCHES	FURNISH, INSTALL & WIRE	
DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
MECHANICAL EQUIPMENT MONITORS	FURNISH & INSTALL	POWER WIRE
MANUAL STARTERS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
MAGNETIC STARTERS FOR MECHANICAL EQUIPMENT	FURNISH	INSTALL & POWER WIRE
MOTOR CONTROL CENTERS	CONTROL WIRING	FURNISH, INSTALL & POWER WIRE
VARIABLE SPEED CONTROLLERS	FURNISH & INSTALL	POWER WIRE
MOTORIZED DAMPERS & VALVES	FURNISH, INSTALL & WIRE	
DUCT SMOKE DETECTORS	INSTALL	FURNISH & WIRE
HEAT TRACE CABLE FOR PIPING	FURNISH & INSTALL	POWER WIRE
OIL/ GAS EMERGENCY SHUT-OFF SWITCHES		FURNISH, INSTALL & POWER WIRE
SPRINKLER FLOW & TAMPER SWITCHES	BY SPRINKLER CONTRACTOR	WIRE

**Allen & Shariff**  
DESIGN | BUILD | MANAGE

Allen & Shariff Engineering, LLC  
205 East Market Street  
Salisbury, Maryland 21801  
Tel: 410.341.0200



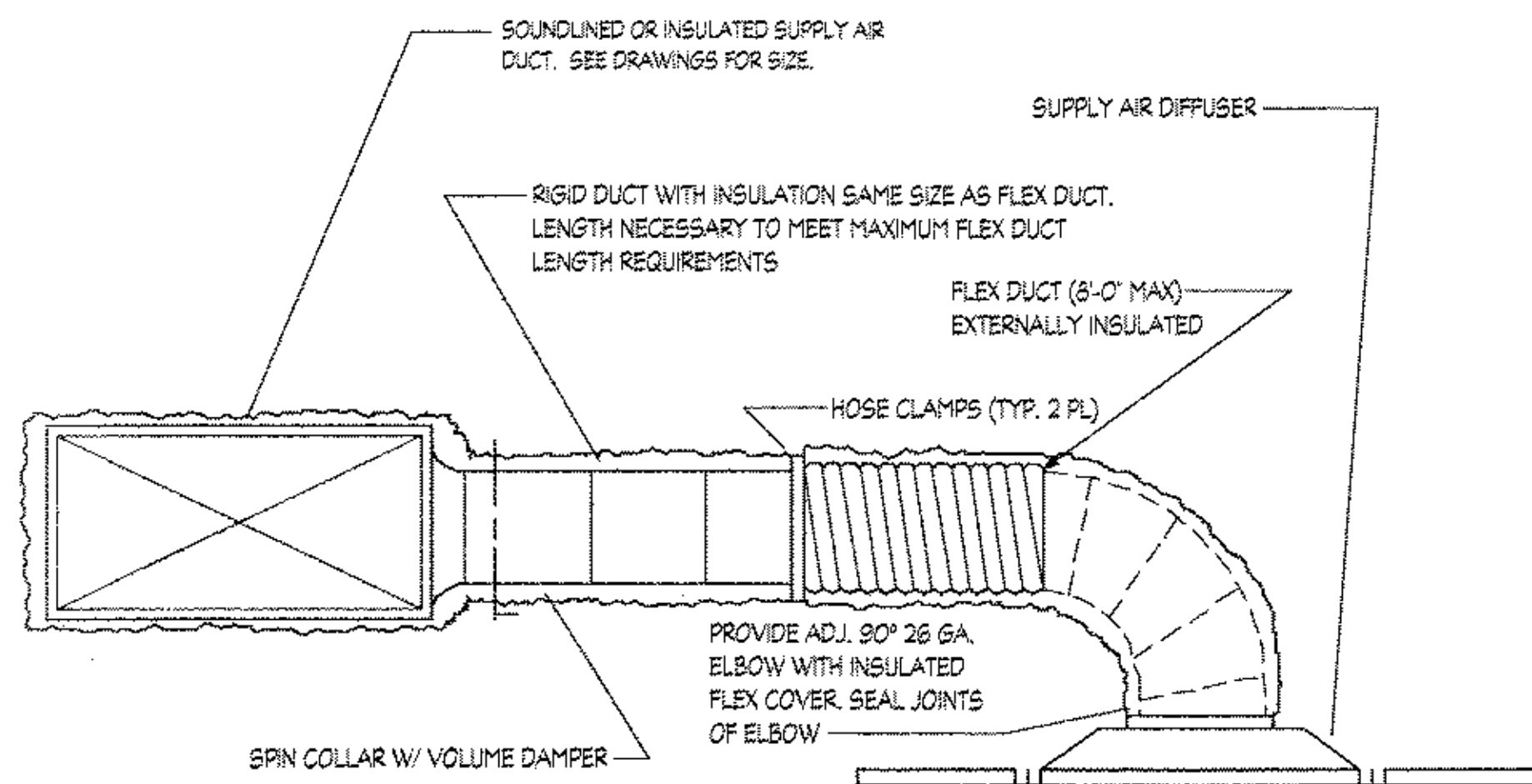
NEW CONSTRUCTION FOR:  
OCEAN PINES WWTP  
OPERATIONS BUILDING  
WORCESTER COUNTY, MARYLAND

MECHANICAL SCHEDULES,  
NOTES AND LEGEND

SCALE: NONE  
DESIGN BY: DC  
DRAWN BY: JM  
CHECKED BY: JS  
GMB FILE: 160209  
DATE: 11-16-16

M1.0



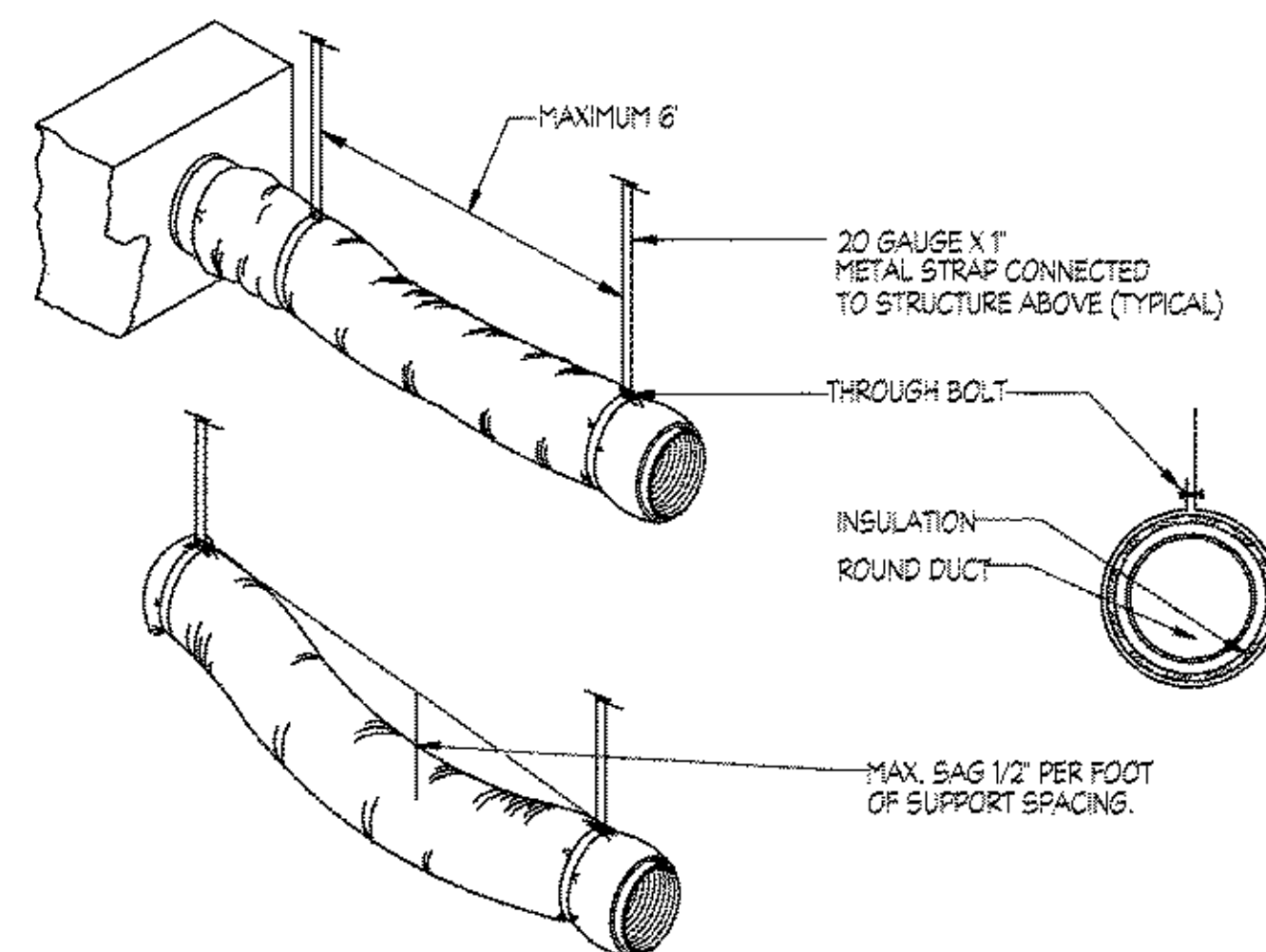


**SUPPLY AIR DIFFUSER CONNECTION DETAIL**

NOT TO SCALE

**NOTES:**

1. USE SPIN-IN FITTING WHERE TAP SIZE IS 2" SMALLER THAN DUCT RAIL DIMENSION.
2. WHERE TAP SIZE IS 3" SMALLER THAN DUCT RAIL DIMENSION BELLMOUTH FITTING MAY BE USED.
3. MAXIMUM 6" - 0" HANGER SPACING WITH A MAXIMUM SAG OF 1/2" PER FOOT OF SUPPORT SPACING FOR FLEXIBLE DUCT.

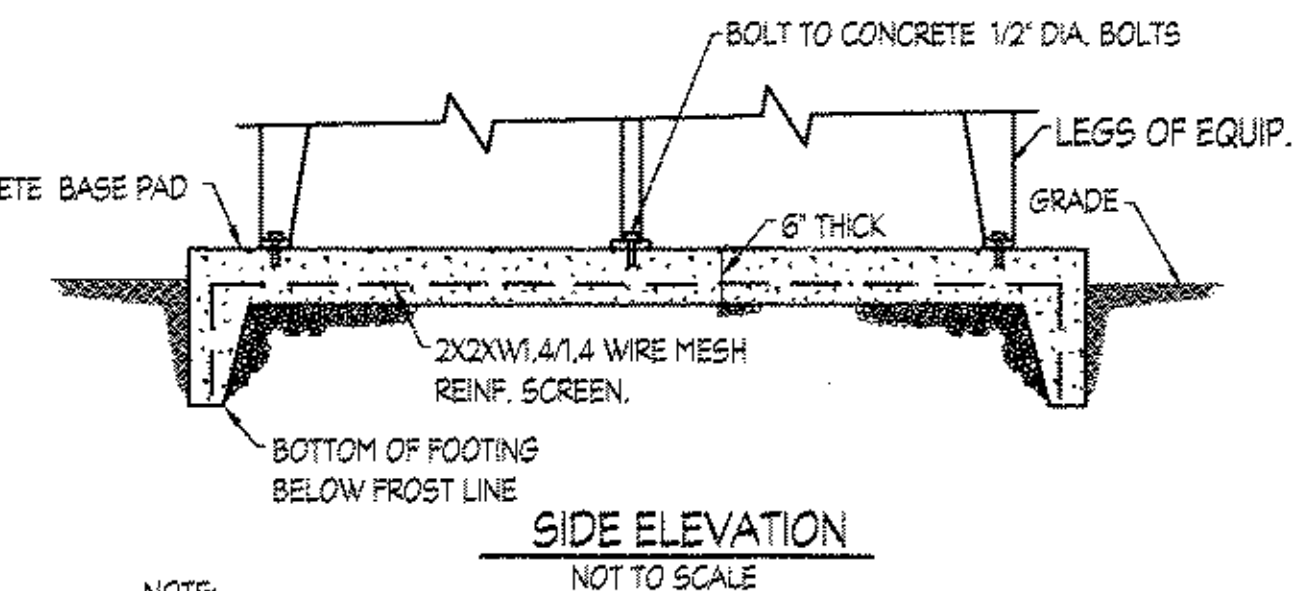
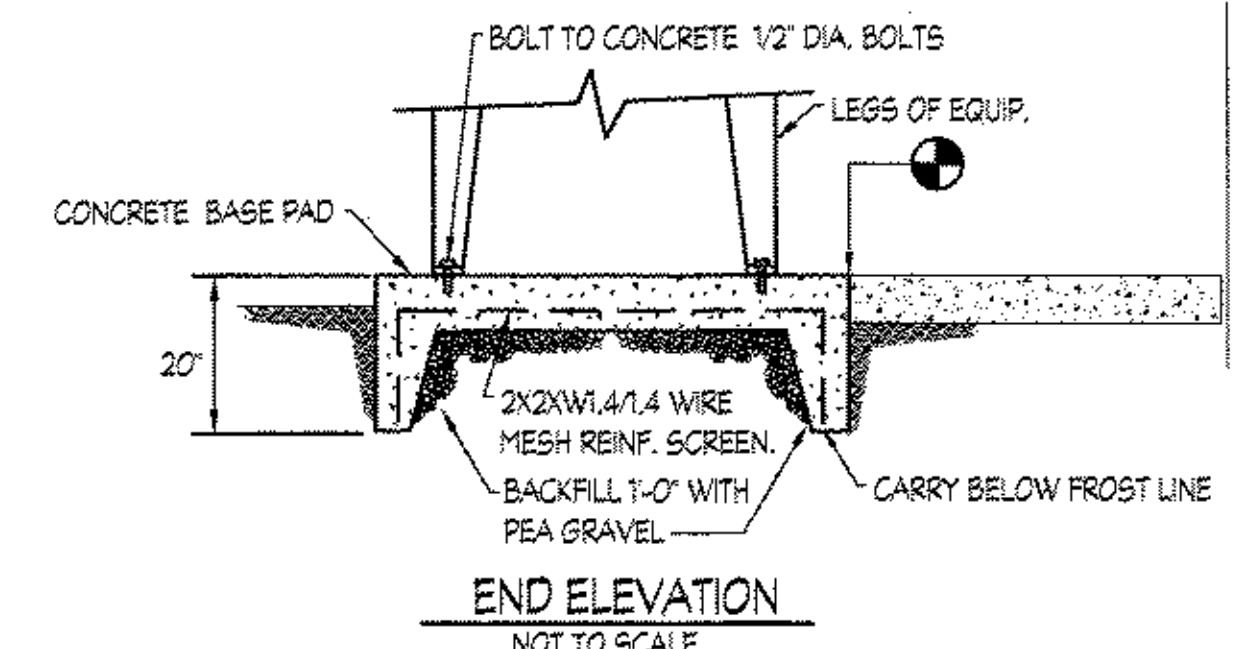


**FLEXIBLE DUCT RUN-OUT SUPPORT DETAIL**

NO SCALE

**NOTES:**

1. FLEXIBLE DUCT SHOULD EXTEND STRAIGHT FOR SEVERAL INCHES FROM RECTANGULAR DUCT CONNECTION BEFORE BENDING.
2. FLEXIBLE DUCT SHOULD NOT EXCEED 8'-0" IN LENGTH. USE RIGID ROUND DUCTWORK WHEN RUNOUTS EXCEED 8'-0".



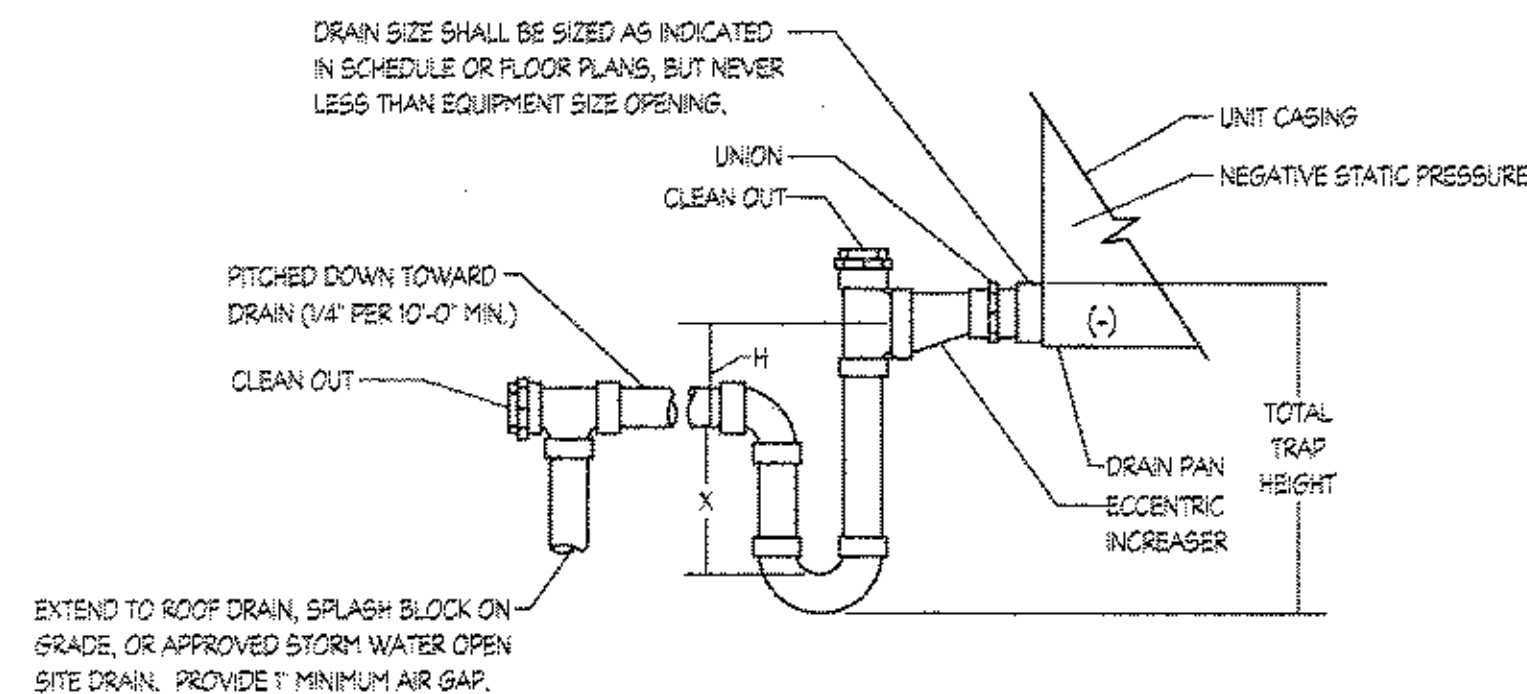
**NOTE:**

1. PAD DIMENSIONS SHALL BE 6" WIDER THAN EQUIPMENT.
2. USE 3,500 PSI CONCRETE MIX.

**CONCRETE PAD DETAIL**

NO SCALE

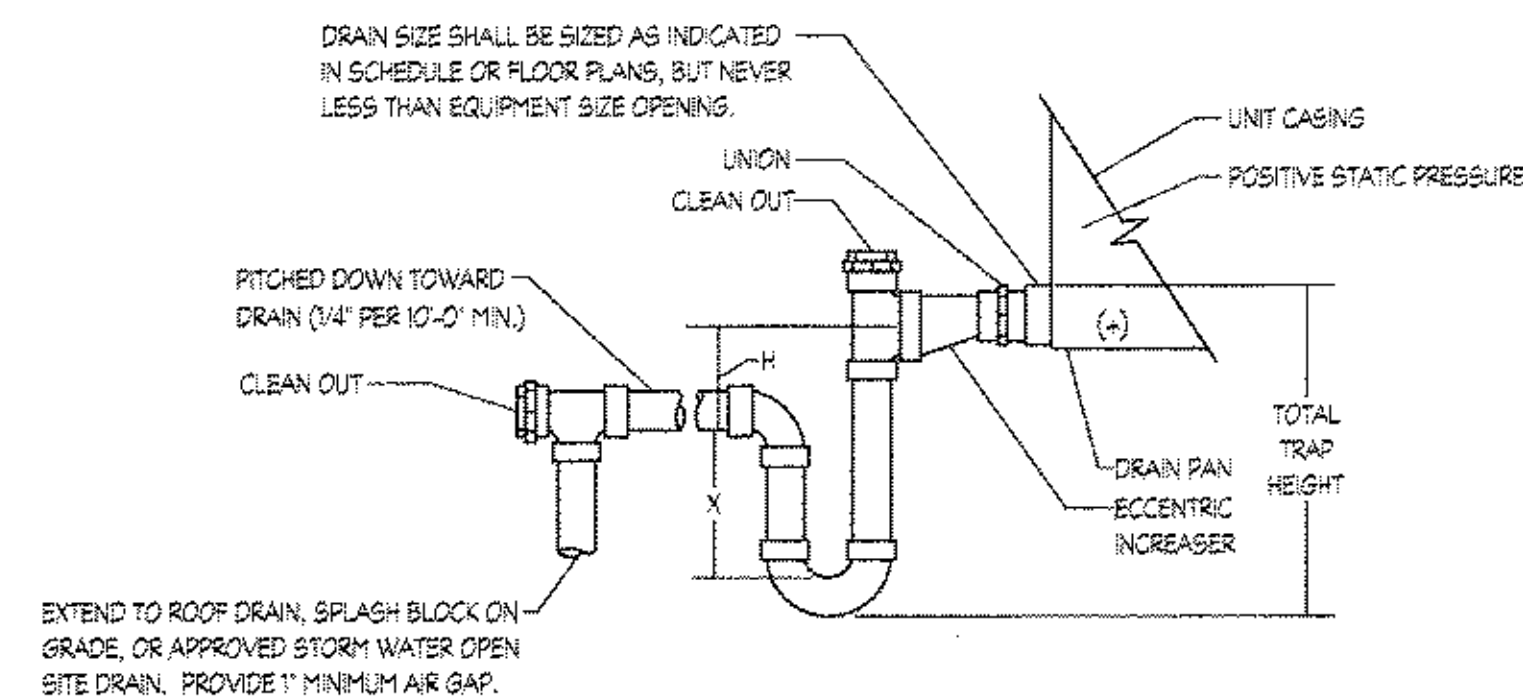
TRAP SIZING	
"H" MUST EQUAL 1 INCH PLUS CASING STATIC PRESSURE	
"X" = 1/2 "H"	
TOTAL TRAP HEIGHT = "X" + "H" + (1.5 X PIPE DIAMETER) + INSULATION THICKNESS	



**DETAIL - TYPICAL DRAW-THRU OR NEGATIVE PRESSURE A/C CONDENSATE DRAIN TRAP ASSEMBLY**

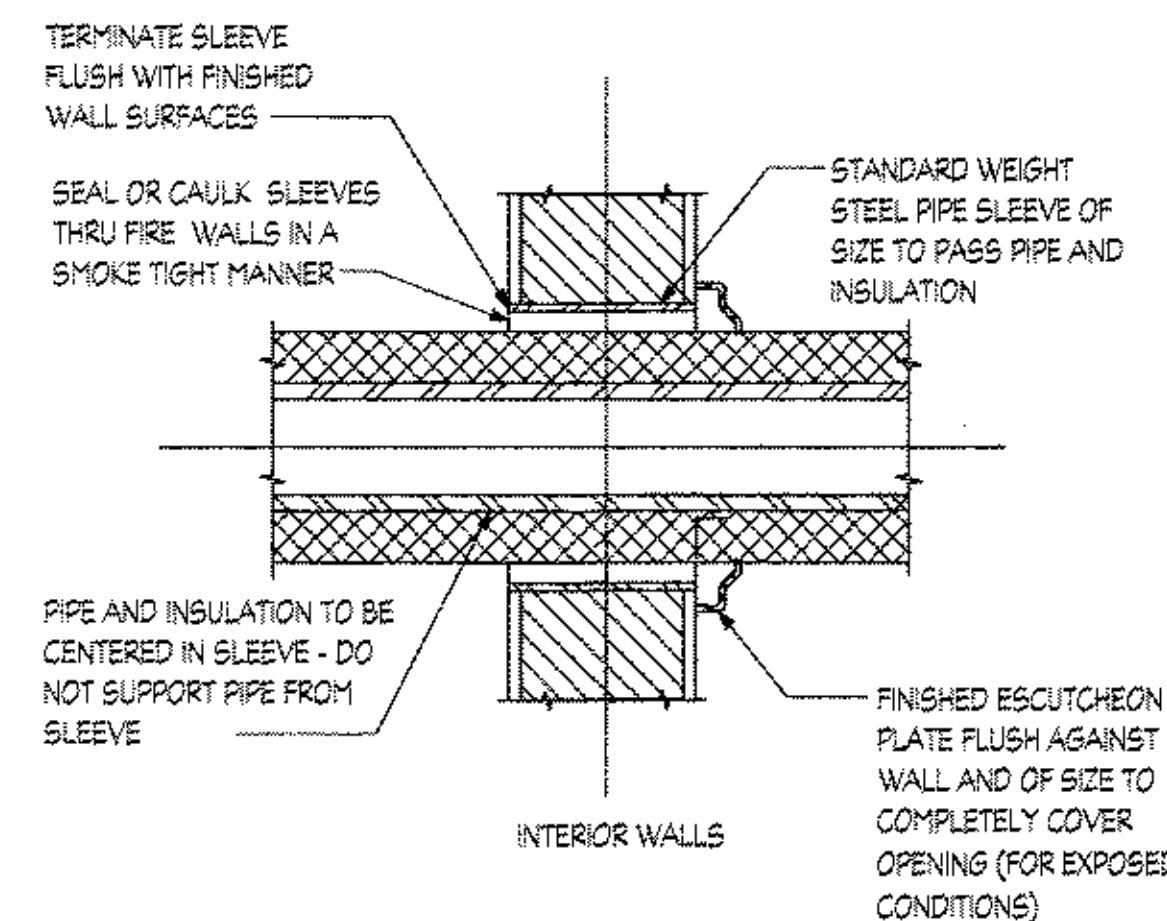
NOT TO SCALE

TRAP SIZING	
"X" MUST EQUAL 1 INCH PLUS CASING STATIC PRESSURE	
"H" MUST EQUAL AT LEAST 1 INCH	
TOTAL TRAP HEIGHT = "X" + "H" + (1.5 X PIPE DIAMETER) + INSULATION THICKNESS	



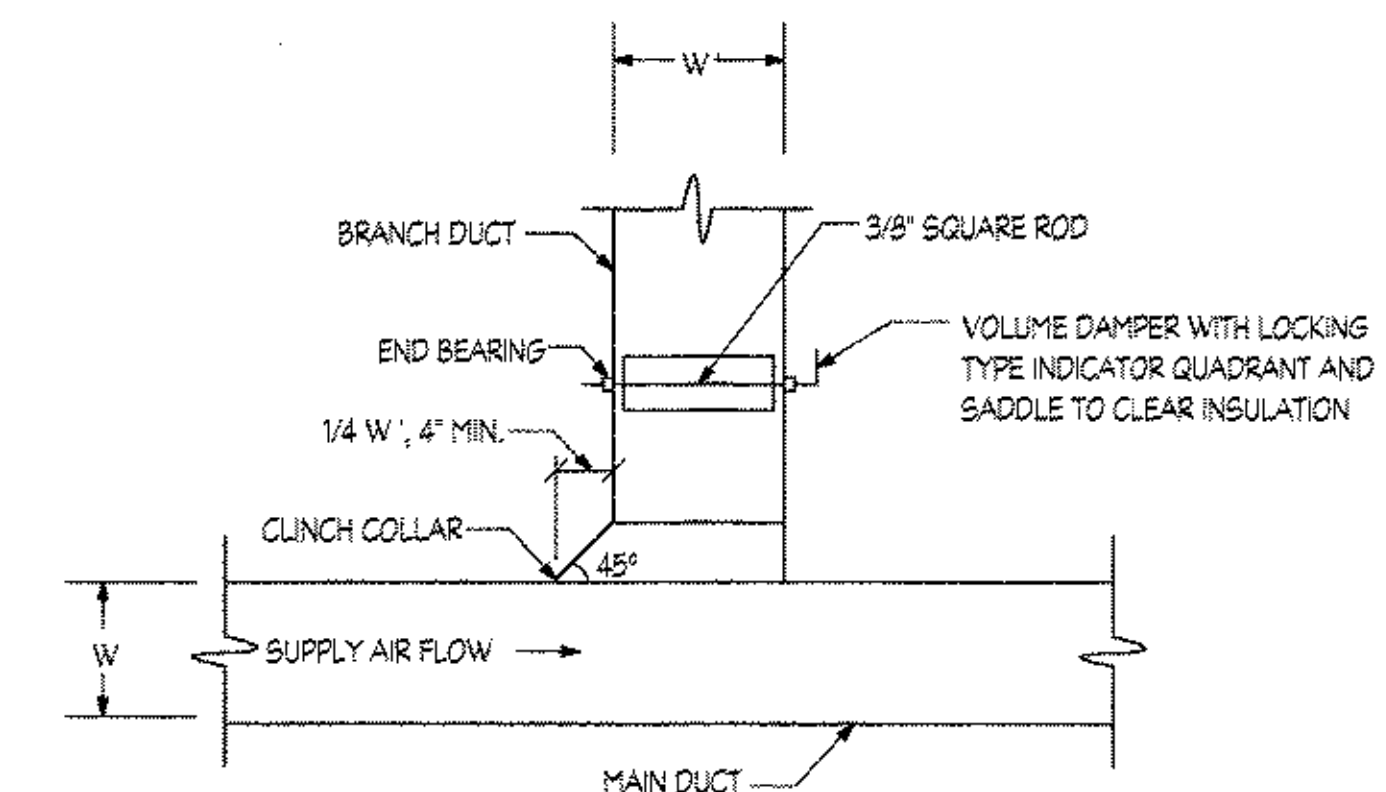
**DETAIL - TYPICAL BLOW-THRU OR POSITIVE PRESSURE A/C CONDENSATE DRAIN TRAP ASSEMBLY**

NOT TO SCALE



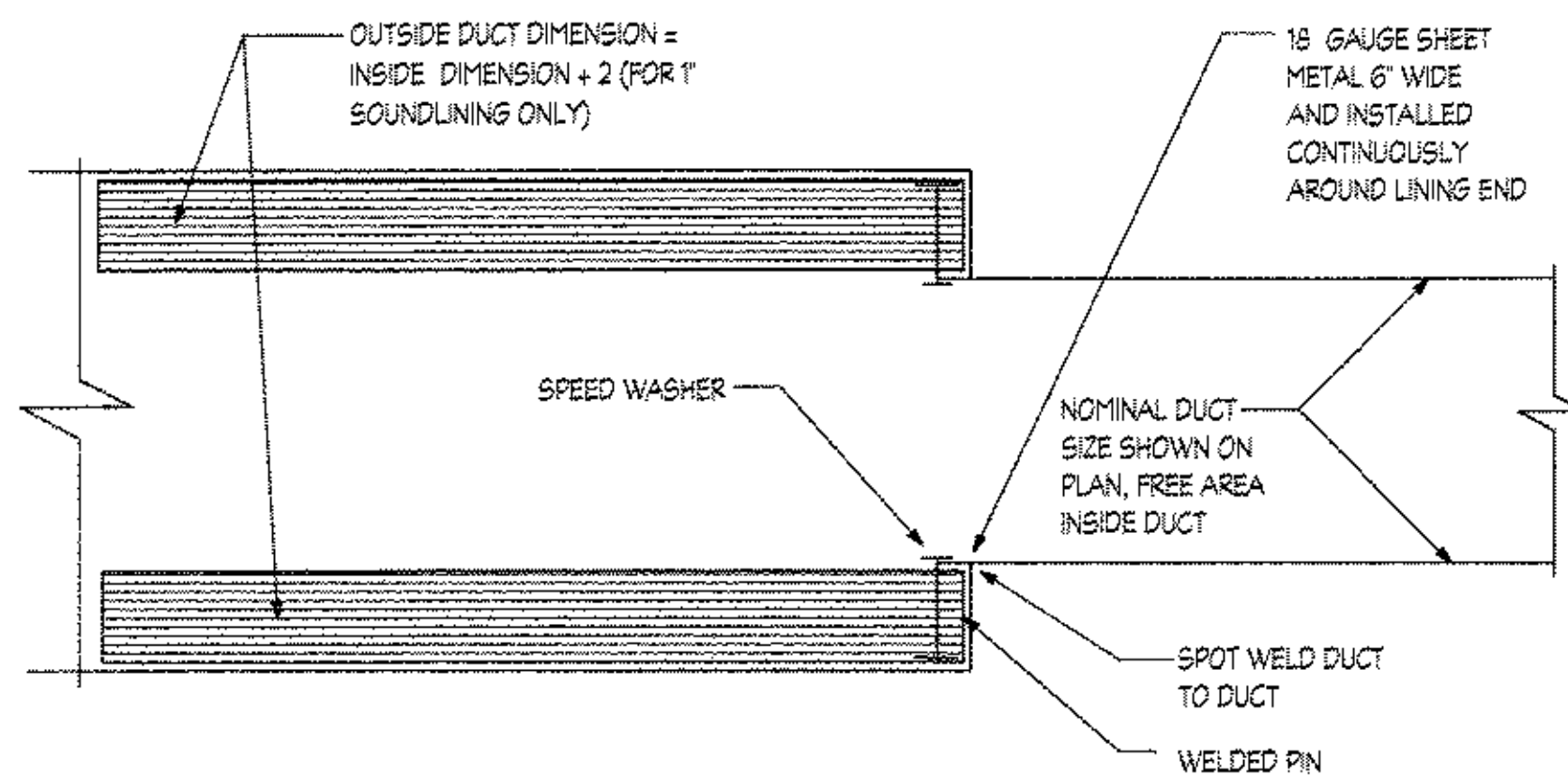
**PIPE SLEEVE DETAIL**

NO SCALE



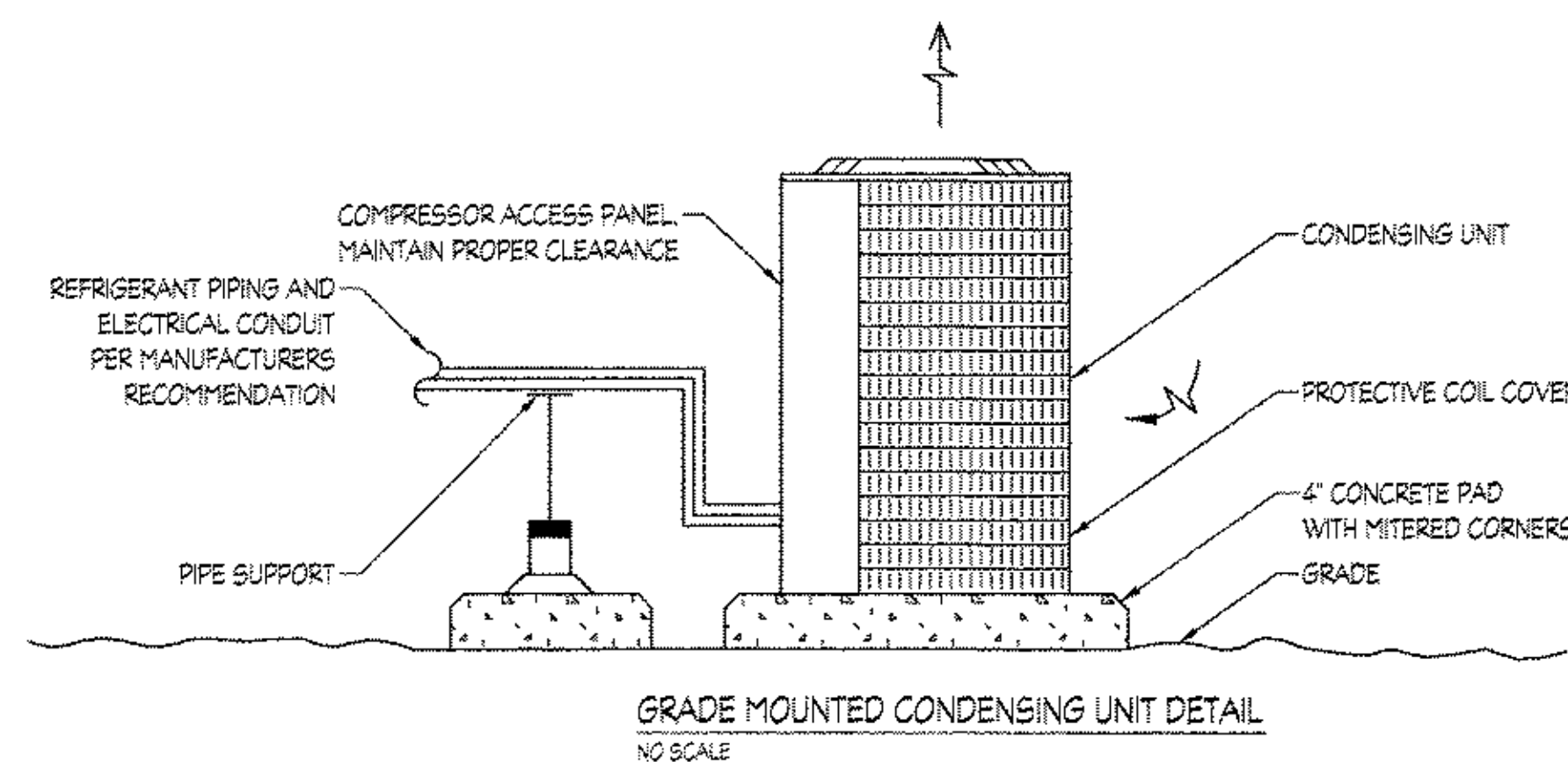
**LOW PRESSURE RECTANGULAR DUCT TAP WITH VOLUME DAMPER DETAIL**

NO SCALE



**SOUNDLINER DETAIL**

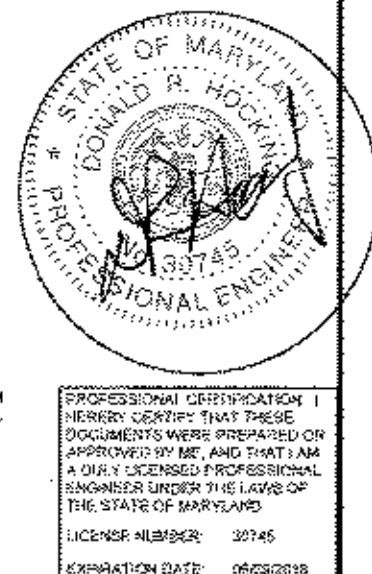
NO SCALE



**GRADE MOUNTED CONDENSING UNIT DETAIL**

NO SCALE

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Tel: 410.341.0200



DATE	REVISION	REVISION	REVISION
10/20/18	1	ISSUED FOR FINAL REVIEW & PERMITTING	
11/16/18	2	ISSUED FOR PERMIT	

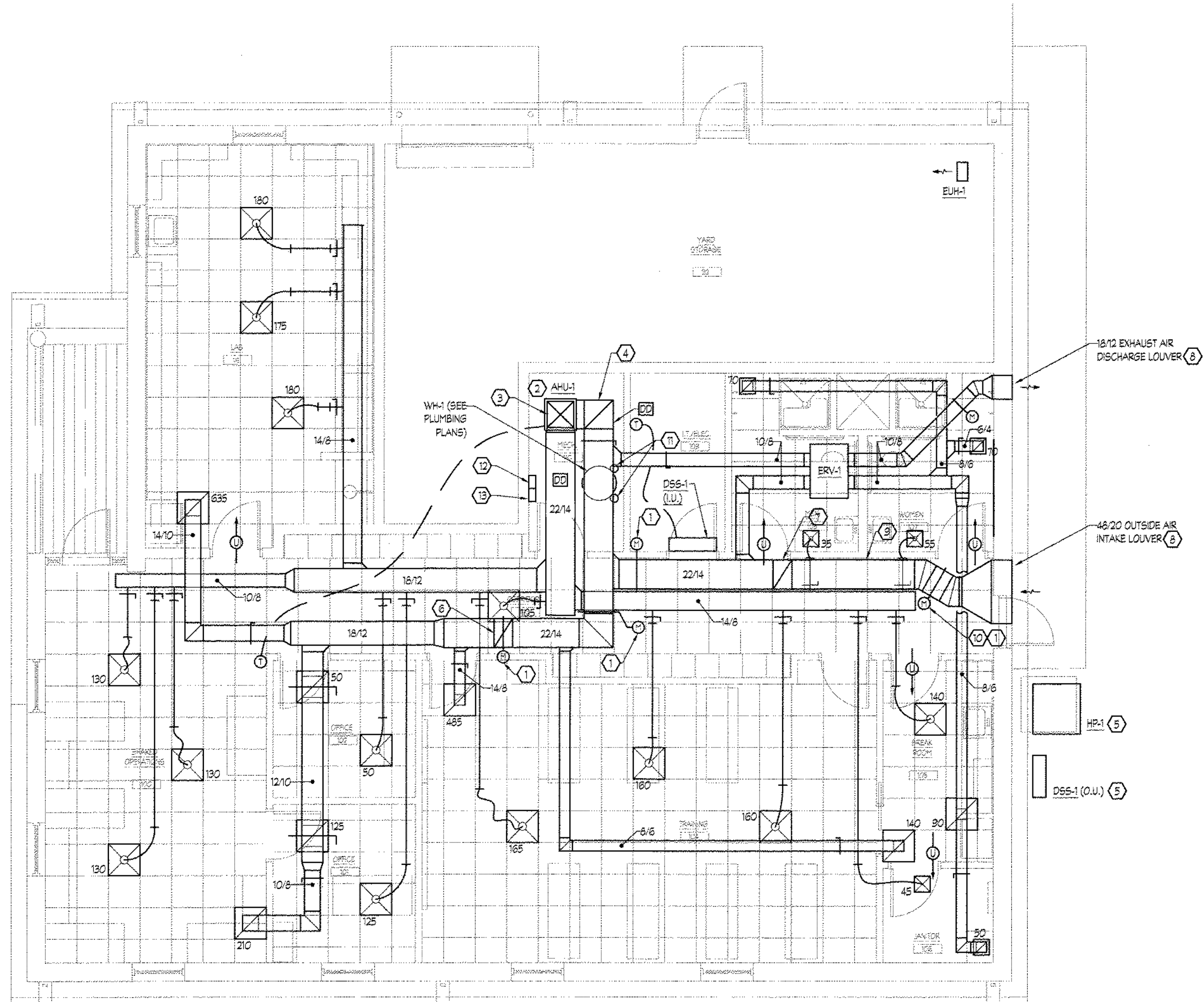
**NEW CONSTRUCTION FOR:**  
**OCEAN PINES WWTP**  
**OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

MECHANICAL DETAILS

SCALE	: NONE
DESIGN BY	: DC
DRAWN BY	: JH
CHECKED BY	: JS
DATE	: 11-16-18

M.1



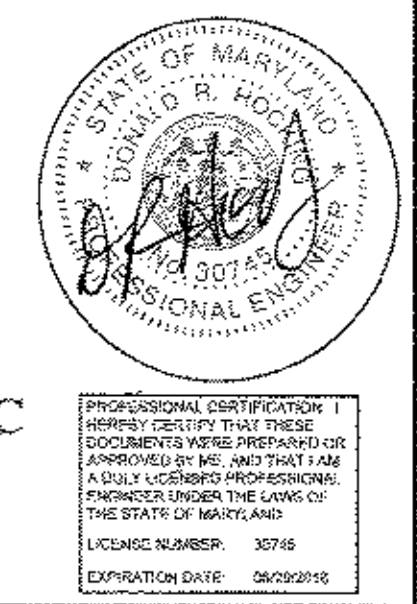


1 MECHANICAL FLOOR PLAN  
M2.0 1/4" = 1'-0"

- DRAWING NOTES:**
1. PROVIDE RETURN AIR, OUTSIDE AIR, AND RELIEF AIR MOTORIZED DAMPERS FOR ECONOMIZER FUNCTION. LOCATE CONTROLLER IN MECHANICAL ROOM WITH AHU.
  2. INSTALL AHU ON INTERNALLY LINED RETURN AIR MOUNTING PLENUM. SAME SIZE UNIT AT 24" HIGH WITH 1" NEOPRENE ISOLATION PAD. POSITION UNIT TO PROVIDE REQUIRED CLEARANCES.
  3. SUPPLY AIR ELBOW WITH DUCT DOWN TO AHU DISCHARGE SAME SIZE AS UNIT WITH FLEXIBLE CONNECTION.
  4. RETURN AIR ELBOW WITH DUCT DOWN TO AHU RETURN AIR MOUNTING PLENUM AND CONNECT WITH FLEXIBLE CONNECTION. INSTALL DUCT DETECTOR IN DROP.
  5. INSTALL OUTDOOR UNIT ON GRADE ON CONCRETE PAD. INSTALL NEOPRENE ISOLATION PAD UNDER UNIT.
  6. 22/14 RELIEF AIR DUCT OFF TOP OF RETURN AIR DUCT AND UP TO ATTIC SPACE WITH CED WITH WMS.
  7. 22/14 OUTSIDE AIR DUCT UP TO ATTIC SPACE AND CONTINUE TO LOUVER CONNECTION AS SHOWN.
  8. EXHAUST AIR AND OUTSIDE AIR LOUVERS TO BE SEPARATED A MINIMUM OF 10'-0" HORIZONTALLY.
  9. OUTSIDE AIR DUCT TO LOUVER INSTALLED IN EXTERIOR WALL IN ATTIC SPACE.
  10. PROVIDE ACCESS DOOR IN DRYWALL FOR MOD. INTERLOCK MOD WITH ERV-1 AND ECONOMIZER CONTROLLER.
  11. 3" SCH. 40 PVC COMBUSTION INTAKE AIR PIPING AND 3" SCH. 40 PVC EXHAUST AIR VENT PIPING FROM WH-1 TO CONCENTRIC VENT KIT THRU ROOF. INSTALL PER WATER HEATER MANUFACTURER'S WRITTEN INSTRUCTIONS.
  12. ERV-1 REMOTE CONTROL PANEL.
  13. AHU-1 ECONOMIZER CONTROLLER.



**Allen & Shariff**  
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NO.	1	1
	1	1
REVISION	1	1
DATE	10-25-16	11-15-16

**EMB**  
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NEW CONSTRUCTION FOR:  
**OCEAN PINES WWTP  
OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

**MECHANICAL FLOOR PLAN**

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

DESIGN BY: JC

DRAWN BY: JH

CHECKED BY: JS

GMR FILE: 160249

DATE: 11-15-16

M2.0

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NUMBER: 35748  
EXPIRATION DATE: 06/30/2019

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PLUMBING CONSTRUCTION NOTES

1. PRODUCTS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, GOVERNMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, ETC. OF ALL AUTHORITIES HAVING JURISDICTION. WORK SHALL COMPLY WITH THE FOLLOWING CODES, STANDARDS AND ORGANIZATIONS:  
2012 NATIONAL STANDARD PLUMBING CODE (NPC)  
2012 INTERNATIONAL MECHANICAL CODE (IMC)  
2012 INTERNATIONAL ENERGY CONSERVATION CODE  
2014 NATIONAL ELECTRIC CODE  
2012 NATIONAL FUEL GAS CODE (NFPA 54)  
NFPA 51, 54 AND 58  
2012 INTERNATIONAL BUILDING CODE  
2012 INTERNATIONAL EXISTING BUILDING CODE  
COMAR 05.02.02 & ADAAG, 2010 ED.  
UNDERWRITERS LABORATORY (UL), IRI, IFI

WHERE CONFLICTS EXIST BETWEEN CODES, STANDARDS OR THIS SPECIFICATION THE HIGHER REQUIREMENT SHALL APPLY. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW, OBTAIN PERMITS AND PAY ALL FEES. ARRANGE FOR ALL REQUIRED INSPECTIONS AND APPROVALS. CONFIRM ALL UTILITY COMPANY REQUIREMENTS AND CONNECTION POINTS IN FIELD, PRIOR TO STARTING WORK.

2. ALL SPECIFICATIONS AND DRAWINGS, I.E., ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL ARE COMPLEMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ANY INFORMATION CONFLICTS WITHIN THE SPECIFICATIONS AND DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION. DRAWINGS ARE DIAGNOSTIC. CONFIRM ALL DIMENSIONS BY FIELD MEASUREMENT. THE EXACT LOCATIONS FOR APPARATUS, FIXTURES, EQUIPMENT AND PIPING WHICH IS NOT COVERED BY DRAWINGS, SHALL BE OBTAINED FROM THE ARCHITECT OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY.

3. WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS. SYSTEMS ARE TO BE COMPLETE AND WORKABLE IN ALL RESPECTS, PLACED IN OPERATION AND PROPERLY ADJUSTED.

4. MAINTAIN THE CONSTRUCTION PREMISES IN A NEAT AND ORDERLY CONDITION AT THE END OF EACH WORKING DAY. CLEAN-UP, REMOVE AND LEGALLY DISPOSE OF ALL RUBBISH DAILY. CONTRACTOR SHALL PROTECT THEIR WORK AND EXISTING OR ADJACENT PROPERTY AGAINST WEATHER, TO MAINTAIN THEIR WORK, MATERIALS, APPARATUS AND FIXTURES FREE FROM INJURY OR DAMAGE. ANY WORK DAMAGED BY FAILURE TO PROVIDE PROTECTION REQUIRED, SHALL BE REMOVED AND REPLACED WITH NEW WORK AT THE CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY OF HIS WORKERS, ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING THE WORK UNDER THIS CONTRACT. CONFORM TO ALL GENERAL AND SPECIAL CONDITIONS OF CONTRACT AS SPECIFIED BY ARCHITECT AND/OR OWNER.

6. IN CASES OF DOUBT AS TO THE WORK INTENDED, OR IN THE EVENT OF NEED FOR EXPLANATION THEREOF, THE CONTRACTOR SHALL REQUEST SUPPLEMENTARY INSTRUCTIONS FROM THE ENGINEER. NO CHANGES ARE TO BE MADE TO THE WORK OF THIS CONTRACT WITHOUT PRIOR KNOWLEDGE AND APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL HOLD THE OWNER AND ITS CONSULTANTS HARMLESS AGAINST ALL CLAIMS AND JUDGMENTS ARISING OUT OF THE CONTRACTORS PERFORMANCE OF THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK, WHICH HE EXPECTS ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT, WITHOUT WRITTEN AUTHORIZATION FROM THE APPROPRIATE AUTHORITY. FAILURE TO OBTAIN SUCH AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION.

7. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO INSTALL THE PLUMBING SYSTEM SO AS TO INSURE QUIET OPERATION. NO VIBRATION OR SOUND SHALL BE TRANSMITTED TO THE BUILDING, STRUCTURE OR OCCUPIED AREAS. THE DECISION OF THE ENGINEER AS TO THE QUIETNESS OF THE SYSTEM AND EQUIPMENT SHALL BE FINAL. IT SHALL BE THIS CONTRACTORS RESPONSIBILITY TO CORRECT OR REPLACE ANY NOISY SYSTEM OR EQUIPMENT AS REQUIRED.

MISCELLANEOUS EQUIPMENT SCHEDULE (BASIS OF DESIGN)

TRAP PRIMER VALVE - TP-1: PRECISION PLUMBING PRODUCTS MODEL# P2-500 TRAP PRIMER VALVE; TRAP PRIMER VALVE SHALL BE INSTALLED IN AREAS SERVED BY A SINGLE FLOOR DRAIN AS SHOWN ON DRAWINGS

TRAP PRIMER VALVE - TP-2: PRECISION PLUMBING PRODUCTS MODEL# P1-500 TRAP PRIMER VALVE WITH DISTRIBUTION CUP; TRAP PRIMER VALVE SHALL BE INSTALLED IN AREAS SERVED BY A MULTIPLE FLOOR DRAINS AS SHOWN ON DRAWINGS

DOMESTIC AND STORM PIPING INSULATION SCHEDULE

SYSTEM OR SERVICE	FLUID TEMPERATURE RANGE (DEG F)	INSULATION TYPE	INSULATION THICKNESS (INCHES)			
			PIPE SIZE (INCHES)			
			1/2" TO 1-1/4"	1-1/2" TO 4"	4" TO 8"	> 8"
DOMESTIC HOT WATER AND HOT WATER CIRCULATION	105 TO 140	MINERAL FIBER	1"	1-1/2"	1-1/2"	1-1/2"
DOMESTIC COLD WATER	35 TO 104	MINERAL FIBER	1"	1"	1"	1-1/2"

NOTES:

- NOT ALL PIPE SIZES LISTED ARE USED ON PROJECT.
- SIZES LISTED ARE BASED UPON ASHRAE STANDARD 90.1-2010 TABLE 6.8.3A.
- ALL PIPING INSULATION SHALL HAVE A MAXIMUM THERMAL CONDUCTIVITY FACTOR (K) OF 0.27 BTU-IN/HR-FT<sup>2</sup>-F. ADHESIVE SYSTEMS THAT EMPLOY RELEASE PAPER WILL NOT BE ACCEPTABLE.

SHOCK ARRESTOR SCHEDULE

DESG.	W.S.F.U.'S	CONN. SIZE	MODEL NO. (BASIS OF DESIGN)
A	1 TO 11	1/2"	500A
B	12 TO 32	3/4"	750B
C	33 TO 60	1"	1000C
D	61 TO 113	1"	1250D

NOTES:

- W.S.F.U. COUNT BASED UPON PLUMBING DRAINAGE INSTITUTE (PDI) STANDARD PDI-WH 201.
- MODEL NUMBERS BASED ON PRECISION PLUMBING PRODUCTS PISTON TYPE ARRESTORS.
- NOT ALL MODEL #'S LISTED ARE USED ON PROJECT. REFER TO FLOOR PLANS FOR LOCATIONS AND SIZES USED.

PLUMBING FIXTURE SCHEDULE (BASIS OF DESIGN)

DESIGNATION	FIXTURE TYPE	C.W.	H.W.	WASTE	MANUFACTURER	MODEL NO.	TRIM	DRAIN	TRAP	SUPPLY	ACCESSORIES	REMARKS
L-1A	LAVATORY - ADA	1/2"	1/2"	1-1/4"	KOHLER	K-1728	K-7305-SA	K-731-A	K-8898	RIGID CONNECTIONS W/ WHEEL HANDLES	AGSE 1070 MV	1, 2, 3, 4
WC-1A	WATER CLOSET - ADA	1/2"	-	3"	KOHLER	K-3493 / K-3493-RA	-	-	-	-	BEMIS 195555TR SEAT	1, 2, 4, 5, 6
EW-1	EMER. SHOWER W/ EYE & FACE WASH	1"	1"	1-1/4"	SPEAKMAN	SE-603	-	-	-	1-1/4" TEMPERED WATER INLET	SPEAKMAN SE-350 MV CONFORMING TO AGSE 1071	1, 4
KS-1	BREAKROOM SINK	1/2"	1/2"	1-1/2"	ELKAY	LRADQ252155-3	LK100	LK35	CHROME PLATED W/ CLEAN OUT PLUG	RIGID CONNECTIONS W/ WHEEL HANDLES	-	1, 4
LS-1	LAB SINK	1/2"	1/2"	1-1/2"	LAB DESIGN & SUPPLY	W31481-000	WATER SAVER L611VB-BH	GRID STRAINER	ZURN ZH180	RIGID CONNECTIONS W/ WHEEL HANDLES	-	1, 4
IM-1	ICE MAKER SUPPLY	1/2"	-	-	WATER TITE	AB9700HA	-	-	-	-	-	1
S-1A	SHOWER - ADA	1/2"	1/2"	2"	FREEDOM SHOWERS	APF3838BF4.5	SPEAKMAN SM-3080-ADA	ZURN FD2260	-	-	AGSE 1016 MV INCLUDED W/ SHOWER HEAD PACKAGE; GRAB BARS, WEIGHTED SHOWER CURTAIN AND ROD, AND COLLAPSIBLE WATER RETAINER	1, 2, 4
MS-1	MOP SINK	1/2"	1/2"	3"	FIAT	T583010	832-AA / 830-AA	-	-	-	889-CC / M562424	1, 4
HB-1	HOSE BIB - EXTERIOR	3/4"	-	-	PRIER	C-834	-	-	-	-	-	1
FD-1	FLOOR DRAIN	-	-	3"	ZURN	Z415B-P-V	HEEL PROOF GRATE	-	-	-	INTEGRAL BACK WATER VALVE & TRAP PRIMER CONNECTION	1, 4
FD-2	FLOOR DRAIN	-	-	4"	ZURN	Z415B-P-V	HEEL PROOF GRATE	-	-	-	INTEGRAL BACK WATER VALVE & TRAP PRIMER CONNECTION	1, 4

REMARKS:

- PROVIDE ALL REQUIRED COMPONENTS FOR COMPLETE FIXTURE ROUGH-IN, I.E., SUPPLIES, STOPS, TRAPS, CARRIERS, GRID DRAINS, TAILPIECES, ETC. NOT ALL REQUIRED COMPONENTS ARE SPECIFIED ABOVE. CARRIERS FOR LAVATORIES AND WATER CLOSETS SHALL COMPLY WITH ANSI STANDARD A112.6.1M AND PLUMBING DRAIN INSTITUTE (PDI) ARTICLE "MINIMUM SPACE REQUIREMENTS FOR ENCLOSED PLUMBING FIXTURE SUPPORTS."
- FIXTURES SHALL BE ADA COMPLIANT. PROVIDED WITH ADA COMPLIANT ACCESSORIES. MOUNT ADA COMPLIANT. SEE ARCHITECTURAL PLANS FOR ELEVATIONS.
- PROVIDE SKAL-GUARD INSULATING DEVICES ON EXPOSED UNDER-COUNTER PLUMBING.
- REFER TO RISER DIAGRAM FOR VENT PIPE SIZES AND CONNECTIONS.
- COORDINATE ADA GRAB BAR INSTALLATION WITH WATER CLOSET ROUGH-IN. ADA GRAB BARS SHALL NOT INTERFERE WITH USE AND MAINTENANCE OF WATER CLOSET TANK. PROVIDE EXTENSIONS AS REQUIRED.
- COORDINATE WATER CLOSET MODEL NUMBER WITH ROUGH-IN ORIENTATION. TANK LEVER SHALL BE INSTALLED ON THE OPEN/APPROACH SIDE OF FIXTURE.

GAS WATER HEATER SCHEDULE (BASIS OF DESIGN)

DESIGNATION	DESCRIPTION	MANUFACTURER / MODEL#	LOCATION	STORAGE VOLUME	GPH RECOVERY AT 100 DEG. F RISE	PROPANE GAS INPUT IN MBH	VOLTAGE	EFFICIENCY	FLUE SIZE AND TYPE	REMARKS
WH-1	GAS FIRED WATER HEATER	STATE / SUP80-120NE PROPANE	MECHANICAL ROOM	60 GALLONS	138	120	120V/1Ø	MAX. 95%	REFER TO MECH. DRAWINGS	1, 2, 3, 4, 5, 6

REMARKS:

- PROVIDE EXPANSION TANK. REFER TO EXPANSION TANK SCHEDULE ON THIS DRAWING.
- PROVIDE HEAT TRAPS ON WATER HEATER(S).
- DISCONNECTS BY PLUMBING CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.
- PROVIDE CONDENSATE NEUTRALIZATION MODEL# 900798005.
- PROVIDE VENT TERMINATION KIT MODEL# 9006328005.
- REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR FURTHER INSTALLATION REQUIREMENTS.

DIVISION OF MECHANICAL/ ELECTRICAL WORK

ITEM	MECH/ DIV 22 AND 23	ELEC/ DIV 26
AUTOMATIC TEMPERATURE CONTROLS	FURNISH, INSTALL & WIRE	POWER WIRE
CONTROL PANELS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
LOW VOLTAGE CONTROL WIRING FOR MECH EQUIP.	FURNISH & INSTALL	
LINE VOLTAGE CONTROL WIRING FOR MECH. EQUIP.	FURNISH, INSTALL & WIRE	
MECHANICAL FLOW SWITCHES	FURNISH, INSTALL & WIRE	
THERMOSTATS/ SENSORS	FURNISH, INSTALL & WIRE	
P/E & E/P SWITCHES	FURNISH, INSTALL & WIRE	
DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
MECHANICAL EQUIPMENT MONITORS	FURNISH & INSTALL	POWER WIRE
MANUAL STARTERS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
MAGNETIC STARTERS FOR MECHANICAL EQUIPMENT	FURNISH	INSTALL & POWER WIRE
MOTOR CONTROL CENTERS	CONTROL WIRING	FURNISH, INSTALL & POWER WIRE
VARIABLE SPEED CONTROLLERS	FURNISH & INSTALL	POWER WIRE
MOTORIZED DAMPERS & VALVES	FURNISH, INSTALL & WIRE	
DUCT SMOKE DETECTORS	INSTALL	FURNISH & WIRE
HEAT TRACE CABLE FOR PIPING	FURNISH & INSTALL	POWER WIRE
OIL/ GAS EMERGENCY SHUT-OFF SWITCHES		FURNISH, INSTALL & POWER WIRE
SPRINKLER FLOW & TAMPER SWITCHES	BY SPRINKLER CONTRACTOR	WIRE

EXPANSION TANK SCHEDULE (BASIS OF DESIGN)

DESIGNATION	DESCRIPTION	MANUFACTURER / MODEL#	LOCATION	TANK SIZE	REMARKS
EXP-1	DOMESTIC HOT WATER EXPANSION TANK	AMTROL / ST-5	MECHANICAL ROOM	2 GALLON	1, 2

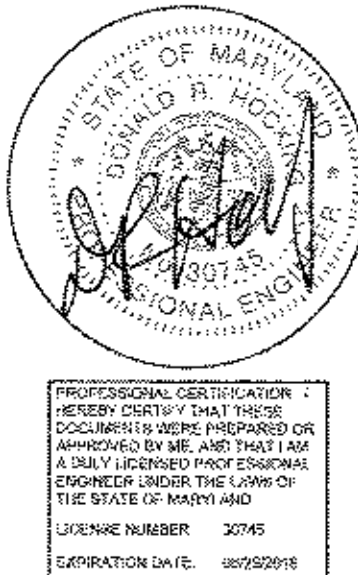
REMARKS:

- MAXIMUM WORKING PRESSURE 150 PSIG.
- MAXIMUM SYSTEM TEMPERATURE 140°F

PLUMBING LEGEND

SYMBOL	ABRV.	DESCRIPTION
	SAN, W.	SANITARY PIPING
	V	VENT PIPING
	CW	COLD WATER PIPING
	HW	HOT WATER PIPING
	HWR	HOT WATER RETURN PIPING
	G	GAS PIPING
	CD	CONDENSATE DRAIN PIPING
		PIPING ROUTED UNDER SLAB / GROUND
		PIPE UP
		PIPE DOWN
		PIPE TEE DOWN
		CAPPED PIPE
		PIPE UNION
		BALL VALVE OR SHUTOFF VALVE
		BALL VALVE OR SHUTOFF VALVE IN RISE
		GAS COCK
	MV	MIXING VALVE
		VACUUM RELIEF VALVE
	BV	BALANCING VALVE
	CV	CHECK VALVE
		Y TYPE STRAINER
	PTRV	PRESSURE AND/OR TEMPERATURE RELIEF VALVE
	BFP	BACK FLOW PREVENTER
		HOSE BIB OR HOSE END DRAIN VALVE
		HOSE BIB, EXTERNAL
		DOMESTIC SHOCK ABSORBER/WATER HAMMER ARRESTOR; TEXT DENOTES SIZE (PDI: A - F)
	CO	CLEAN OUT, FLOOR
	CO	CLEAN OUT, EXPOSED
		FLOOR DRAIN; OPEN SITE DRAIN
		FLOOR DRAIN WITH TRAP PRIMER
		INVERT ELEVATION 8.F.F. (IN FEET)
		DRAWING NOTE
		REVISION NUMBER
	IN. W.C.	INCHES WATER COLUMN
	UNO	UNLESS NOTED OTHERWISE
	GW	GREASE WASTE DRAIN LINE
	FCO	FLOOR CLEAN OUT
	WCO	WALL CLEAN OUT
	COTG	CLEAN OUT TO GRADE
	A.F.F.	ABOVE FINISHED FLOOR ELEVATION
	B.F.F.	BELOW FINISHED FLOOR ELEVATION
	VTR	VENT THROUGH ROOF TERMINATION
	ETR	EXISTING TO REMAIN
	TBD	TO BE DEMOLISHED
	TBR	TO BE RELOCATED

**Allen & Shariff**  
DESIGN | BUILD | MANAGE  
Allen & Shariff Engineering, LLC  
205 East Market Street  
Salsbury, Maryland 21801  
Tel: 410.341.0200



DATE: 10-18-16  
DESIGN: JES  
CHECKED FOR FINAL REVIEW & PERMITTING: JES  
SCALE: NONE  
DESIGN BY: JES  
DRAWN BY: JES  
CHECKED BY: JES  
GMB FILE: 1602048  
DATE: 11-18-16

NEW CONSTRUCTION FOR:  
OCEAN PINES WWTP  
OPERATIONS BUILDING  
WORCESTER COUNTY, MARYLAND

PLUMBING NOTES,  
SCHEDULES, AND LEGEND

GEORGE, MILES & BUHR, LLC  
ARCHITECTS & ENGINEERS  
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P1.0

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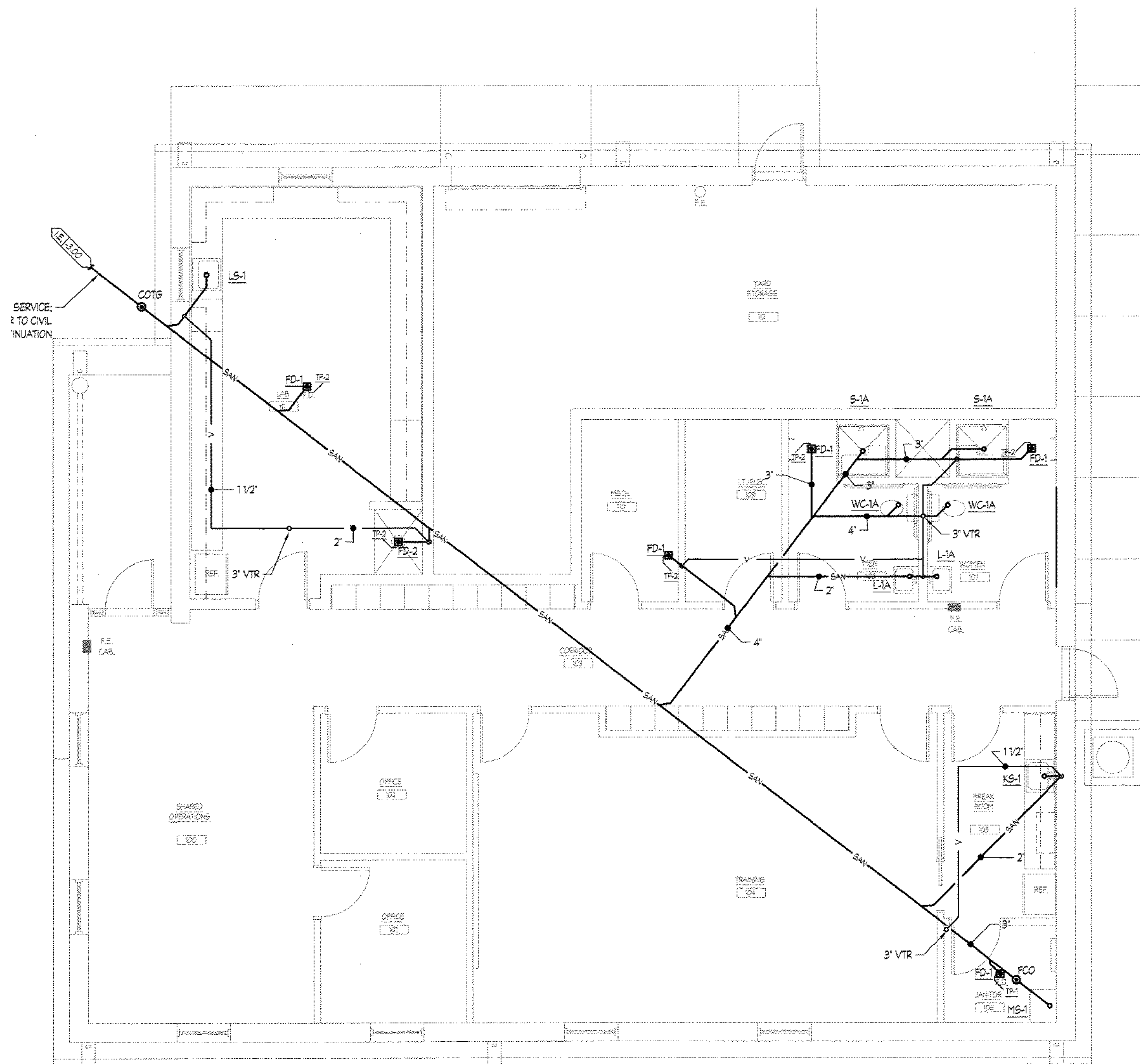
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NEW CONSTRUCTION FOR:  
OCEAN PINES WWTP  
OPERATIONS BUILDING  
WORCESTER COUNTY, MARYLAND

PLUMBING SUPPLY FLOOR  
PLAN





1 PLUMBING WASTE FLOOR PLAN  
P2.1 1/4" = 1'-0"



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205 East Market Street  
Salisbury, Maryland 21801  
Tel: 410.341.0200



PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE  
DOCUMENTS WERE PREPARED BY  
OR UNDER MY CLOSE PERSONAL  
SUPERVISION AND THAT I AM  
A FULLY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF  
THE STATE OF MARYLAND.  
LICENSE NUMBER: 15146  
EXPIRATION DATE: 06/30/2018

NO.		1	DATE	05-20-18
REVISION		1	ISSUED FOR FINAL REVIEW & PERMITTING	05-20-18
2		2	ISSUED FOR PERMIT	05-20-18
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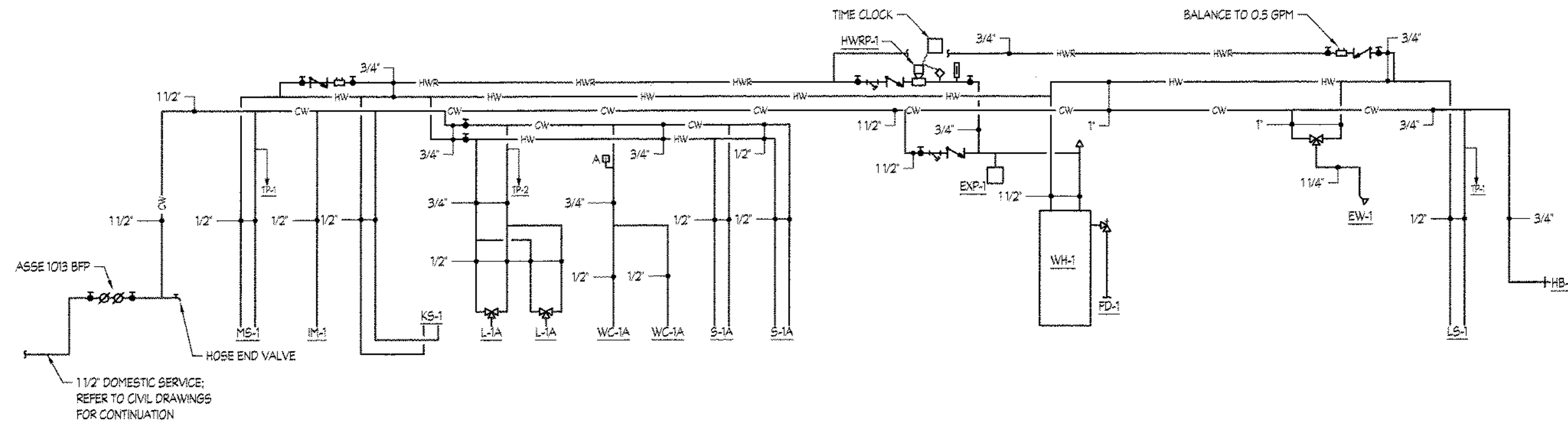
NEW CONSTRUCTION FOR:  
**OCEAN PINES WWTP  
OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

PLUMBING WASTE FLOOR  
PLAN

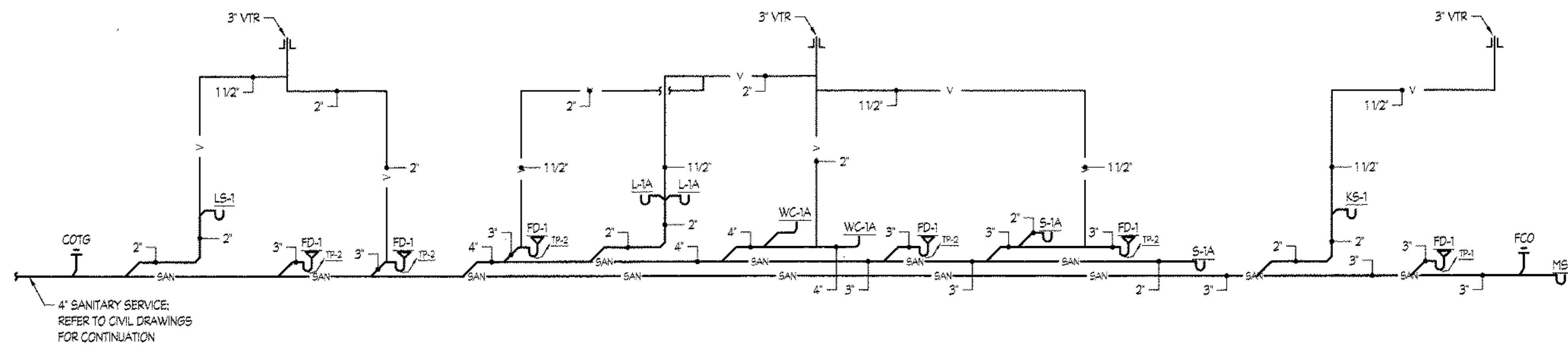
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DATE: 11-18-18

**P2.1**

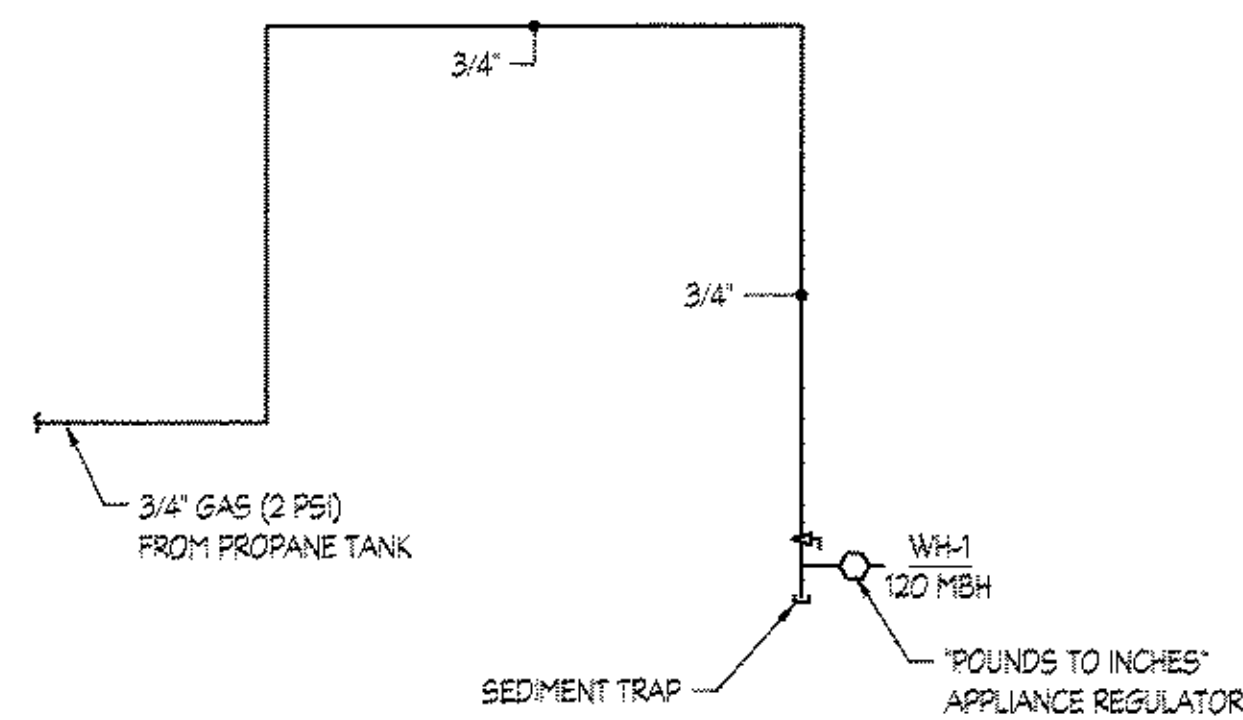




1 PLUMBING SUPPLY RISER DIAGRAM  
P3.0 NONE  
W.S.F.U.S = 21

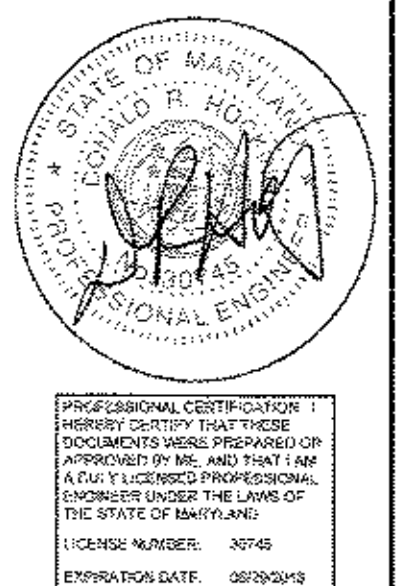


2 PLUMBING WASTE RISER DIAGRAM  
P3.0 NONE  
D.F.U.S = 21



3 PROPANE GAS RISER DIAGRAM  
P3.0 NONE  
NOTES:  
1. GAS LOAD: 120 MBH AT 250' MAXIMUM EQUIVALENT LENGTH.  
2. GAS PIPE SIZING BASED ON 6.3(4) SCHEDULE 40 METALLIC PIPE WITH AN INLET PRESSURE OF 2 PSI.  
3. REFER TO DETAIL 5/P1.2 FOR FURTHER CONNECTION REQUIREMENTS.

**Allen & Shariff**  
DESIGN | BUILD | MANAGE  
Allen & Shariff Engineering, LLC  
205 East Market Street  
Salisbury, Maryland 21801  
Tel: 410.341.0200



DATE	10-01-16
REVISION	06/20/16 FOR FINAL REVIEW & PERMITTING
NO.	1
	2
<b>GMB</b> GEORGE, MILLS & BUHR, LLC ARCHITECTS & ENGINEERS SALISBURY - BALTIMORE - SEAFORD www.gmbinc.com	

NEW CONSTRUCTION FOR:  
**OCEAN PINES WWTP  
OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

PLUMBING RISERS

SCALE	NONE
DESIGN BY	PE
DRAWN BY	JS
CHECKED BY	JS
GMS FILE	180049
DATE	11-18-16
P3.0	



1. ALL WORK AND EQUIPMENT SHALL COMPLY WITH ALL APPLICABLE LAWS, CODES, ETC., OF ALL AUTHORITIES HAVING JURISDICTION, INCLUDING BUT NOT LIMITED TO: THE INTERNATIONAL MECHANICAL CODE, THE LOCAL FIRE MARSHAL, UNDERWRITERS LABORATORY (UL), IFI, IFI, OSHA, AND THE NATIONAL ELECTRICAL CODE (NEC). MODIFICATIONS REQUIRED BY THE ABOVE SAID AUTHORITIES TO BRING THE SPACE UNDER CONTRACT UP TO CODE SHALL BE MADE WITHOUT ADDITIONAL CHARGE. WHERE CONTRACT DOCUMENT REQUIREMENTS ARE IN EXCESS OF CODE REQUIREMENTS, THE CONTRACT DOCUMENTS SHALL GOVERN. DEVIATIONS FROM THE CONTRACT DOCUMENTS REQUIRED BY THE ABOVE AUTHORITIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

3. WORK SHALL BE EXECUTED IN A GOOD WORKMANLIKE MANNER USING MECHANICS SKILLED IN THEIR RESPECTIVE TRADES. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, FREE OF DEFECTS. SYSTEMS ARE TO BE COMPLETE AND WORKABLE IN ALL RESPECTS, PLACED IN OPERATION AND PROPERLY ADJUSTED.

5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY OF HIS WORKERS, ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATING THE WORK UNDER THIS CONTRACT. CONFORM TO ALL GENERAL AND SPECIAL CONDITIONS OF CONTRACT AS SPECIFIED BY ARCHITECT AND/OR OWNER.

7. ALL PRODUCTS SHALL COMPLY WITH 25/50 FLAME AND SMOKE HAZARD RATINGS PER ASTM E-84, NFPA 255 AND UL 723.

## WORK IN EXISTING BUILDINGS

2. VERIFY POINTS OF CONNECTION BEFORE COMMENCING WORK. COORDINATE WORK WITH EXISTING WORK AND OTHER TRADES. REMOVE WASTE MATERIALS, DEBRIS, AND RUBBISH FROM SITE AND LEGALLY DISPOSE OF IT. THE OWNER HAS THE RIGHT OF FIRST REFUSAL ON EQUIPMENT, FIXTURES, DEVICES, ETC., REMOVED AND NOT REINSTALLED. DELIVER TO THE OWNER, AT THE OWNER'S DESIGNATED LOCATION, ITEMS ACCEPTED BY THE OWNER. DISPOSE OF IN A LEGAL MANNER ITEMS REJECTED BY THE OWNER.

4. SOME WORK SHOWN MAY REQUIRE PREMIUM TIME INCLUDING NOISE PRODUCING ACTIVITIES, ACCESS INTO ADJOINING SPACES & ACTIVITIES DISRUPTING MEP SERVICES. CONFIRM THE REQUIREMENTS FOR PREMIUM TIME OR SPECIAL PROCEDURES WITH THE OWNER/LANDLORD AND INCLUDE THE COST IN BID PROPOSAL. WORK RELATED TO THE EXISTING BUILDING SHALL BE COORDINATED TO MINIMIZE INTERFERENCE OR INTERRUPTION OF NORMAL BUILDING USE BY OWNER. REFER TO ARCHITECTURAL PLANS FOR ANY PHASING REQUIREMENTS. ARRANGE FOR AND OBTAIN OWNER'S PERMISSION FOR ANY SERVICE SHUTDOWNS.

6. WHERE EXISTING PANELBOARDS ARE INDICATED TO BE REUSED, PROVIDE NEW CB'S AS REQUIRED FOR NEW BRANCH CIRCUITING SHOWN. NEW PANELBOARDS SHALL BE SQUARE "D" OR MATCH EXISTING. PROVIDE TYPED PANEL DIRECTORIES IN ALL PANELS. CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL MAGNETIC, QUICK-MAKE, QUICK-BREAK, BOLT-ON TYPE. CIRCUIT BREAKER SHALL BE RATED AT OR ABOVE EXISTING PANELBOARD FAULT CURRENT (AIC) RATING.

8. COORDINATE ALL CONNECTIONS TO EXISTING SYSTEMS WITH BUILDING ENGINEER/LANDLORD AND PROVIDE COMPATIBLE EQUIPMENT AS REQUIRED FOR PROPER OPERATION.

1. DISCONNECT, DISASSEMBLE, CAP, PLUG AND REMOVE ALL MEP ELEMENTS (PIPING, DUCTS, ELECTRICAL DEVICES, WIRING, CONDUIT, EQUIPMENT, HANGERS, SUPPORTS, ETC) INDICATED ON THE DRAWINGS OR NOT OTHERWISE REQUIRED FOR COMPLETED PRODUCT. REROUTE AND RECONNECT ANY CIRCUITS THAT REMAIN IN USE OR ARE RELOCATED. NO MEP ELEMENTS ARE TO BE ABANDONED IN PLACE UNLESS SPECIFICALLY NOTED. NOT ALL ITEMS TO BE REMOVED ARE INDICATED ON DRAWING.

3. ANY EQUIPMENT DESIGNATED BY OWNER TO BE SALVAGED SHALL BE PROTECTED AND DELIVERED TO AN OWNER DESIGNATED AREA ON SITE.

5. WHERE EXISTING ELECTRICAL WORK INTERFERES WITH NEW WORK AND WHERE SUCH INSTALLATIONS ARE TO REMAIN IN USE, THE INSTALLATIONS SHALL BE RELOCATED AND/OR RECONNECTED TO COORDINATE WITH THE WORK INDICATED ON THE CONTRACT DRAWINGS AND AS SPECIFIED. FOR EXISTING INSTALLATION WHICH INVOLVE BASE BUILDING SYSTEMS, OBTAIN APPROVAL OF OWNER'S REPRESENTATIVE PRIOR TO MAKING ANY MODIFICATIONS.

RECORD DRAWINGS

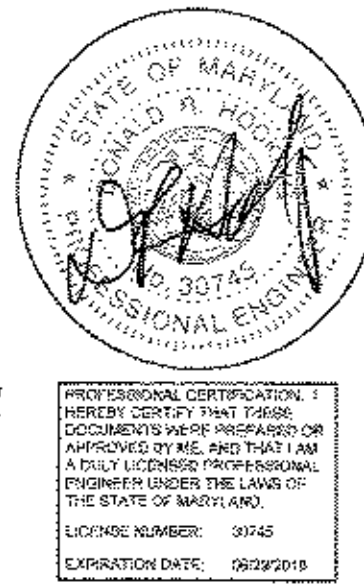
DIVISION OF MECHANICAL/ ELECTRICAL WORK (WHERE APPLICABLE)		
ITEM	MECH/ DIV 22 AND 23	ELEC/ DIV 26
AUTOMATIC TEMPERATURE CONTROLS	FURNISH, INSTALL & WIRE	POWER WIRE
CONTROL PANELS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
LOW VOLTAGE CONTROL WIRING FOR MECH. EQUIP.	FURNISH & INSTALL	
LINE VOLTAGE CONTROL WIRING FOR MECH. EQUIP.	FURNISH, INSTALL & WIRE	
MECHANICAL FLOW SWITCHES	FURNISH, INSTALL & WIRE	
THERMOSTATS/ SENSORS	FURNISH, INSTALL & WIRE	
P/E & E/P SWITCHES	FURNISH, INSTALL & WIRE	
DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
MECHANICAL EQUIPMENT MONITORS	FURNISH & INSTALL	POWER WIRE
MANUAL STARTERS FOR MECHANICAL EQUIPMENT	FURNISH & INSTALL	POWER WIRE
MAGNETIC STARTERS FOR MECHANICAL EQUIPMENT	FURNISH	INSTALL & POWER WIRE
MOTOR CONTROL CENTERS	CONTROL WIRING	FURNISH, INSTALL & POWER WIRE
VARIABLE SPEED CONTROLLERS	FURNISH & INSTALL	POWER WIRE
MOTORIZED DAMPERS & VALVES	FURNISH, INSTALL & WIRE	
DUCT SMOKE DETECTORS	INSTALL	FURNISH & WIRE
HEAT TRACE CABLE FOR PIPING	FURNISH & INSTALL	POWER WIRE
OIL/ GAS EMERGENCY SHUT-OFF SWITCHES		FURNISH, INSTALL & POWER WIRE
SPRINKLER FLOW & TAMPER SWITCHES	BY SPRINKLER CONTRACTOR	WIRE

ELECTRICAL ABBREVIATIONS	
ADA	AMERICANS WITH DISABILITIES ACT COMPLIANCE
AFF	ABOVE FINISHED FLOOR
CLG	CEILING
C/B	CIRCUIT BREAKER
C	CONDUIT
CT	CURRENT TRANSFORMER
D	DEMOLISH
E, EX	EXISTING
EC	ELECTRICAL CONTRACTOR
EM	EMERGENCY
ENCL.	ENCLOSURE
FSS	FUSED SAFETY SWITCH
G, GRO	GROUND
GFC	GROUND FAULT CIRCUIT INTERRUPTER
GC	GENERAL CONTRACTOR
KVA	KILOVOLT-AMPERES
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MCA	MINIMUM CIRCUIT AMPS
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
NFSS	NON-FUSED SAFETY SWITCH
PNL	PANEL
P	POLES
Ø	PHASE
REC	RECEPTACLE
THRU	THROUGH
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHER PROOF
XFMR	TRANSFORMER

SYMBOL	ABRV.	DESCRIPTION	MTG	REMARKS
	PNL	ELECTRICAL PANEL 208Y/120V		
		HOME RUN CONNECT TO CIRCUIT BREAKER INDICATED		ARROWHEADS INDICATE # OF CIRCUITS
		WIRE RUN, AS REQUIRED		
		WIRE RUN IN OR BELOW FLOOR SLAB		
		CAT 5e NON-BOOTED LIGHTING CONTROL CABLE, GREEN JACKET, OR LOW VOLTAGE CABLE		WATTSTOPPER # LMRJ OR EQUAL
		EXIT SIGN SINGLE FACE, DOUBLE FACE, DIRECTIONAL		
		SWITCH 1 POLE, 2 POLE, 3WAY, 4WAY	48" AFF UNO	
	LD	LOW VOLTAGE DIGITAL DIMMING SWITCH, WHITE FINISH	48" AFF UNO	WATTSTOPPER # LMDM-101-W OR EQUAL
	SO	PASSIVE DUAL TECHNOLOGY SINGLE POLE WALL SWITCH SENSOR, MANUAL ON/OFF, LINE VOLTAGE 120/277V, WHITE	48" AFF UNO	WATTSTOPPER # DSW-100-W OR EQUAL
	OS	DUAL TECHNOLOGY CEILING MOUNTED LOW VOLTAGE DIGITAL OCCUPANCY SENSOR, WHITE FINISH, 30 MIN. TIME DELAY		WATTSTOPPER # LMDC-100 OR EQUAL
	OBI	DUAL TECHNOLOGY CEILING MOUNTED LINE VOLTAGE OCCUPANCY SENSOR, WHITE FINISH, 30 MIN. TIME DELAY		WATTSTOPPER # DT-355 OR EQUAL
	RP	SWITCHING DIGITAL ROOM RELAY CONTROLLER, SINGLE RELAY		WATTSTOPPER # LMRC-101 OR EQUAL
	RC	0-10V DIMMING DIGITAL ROOM RELAY CONTROLLER, SINGLE RELAY		WATTSTOPPER # LMRC-211 OR EQUAL
	RC2	0-10V DIMMING DIGITAL ROOM RELAY CONTROLLER, DUAL RELAY		WATTSTOPPER # LMRC-212 OR EQUAL
		20A DUPLEX OR QUADRAPLEX RECEPTACLE, SUBMIT COLORS TO ARCHITECT FOR APPROVAL, RECEPTABLES WITH LETTER 'C' DESIGNATION ARE TO BE MOUNTED 6" ABOVE COUNTER	18" AFF UNO	
		20A DUPLEX GFCI RECEPTACLE, GFCI WITH THE LETTER 'C' DESIGNATION ARE TO BE MOUNTED 6" ABOVE COUNTER	18" AFF UNO	
		20A DUPLEX GFCI RECEPTACLE, 'WP' INDICATES RECEPTACLE WITH EXTRA DUTY WHILE IN USE FLIP-UP COVER	18" AFF UNO	
		SIMPLEX RECEPTACLE - NEMA L5-30R	18" AFF UNO	
	FSS NFSS	DISCONNECT SWITCH; FUSED, NON-FUSED; DISCONNECTS WITH 'WP' DESIGNATION SHALL BE NEMA 3R		
		JUNCTION BOX		
		COMMUNICATIONS OUTLET, PROVIDE 3/4" EMT TO ABOVE ACCESSIBLE CEILING AND A MINIMUM OF 2 CAT 6 TO NETWORK PATCH PANEL, COORDINATE WITH OWNER	18" AFF UNO	CAT 6 CABLING PER SPEC SECTION 27313
		MOTORIZED DAMPER CONNECTION, COORDINATE WITH MECHANICAL CONTRACTOR		
	PC	120V BUTTON STYLE PHOTOCELL, MOUNT IN WEATHER PROOF BOX	10'-0" AFF	INTERMATIC # K4021C OR EQUAL
		DUCT DETECTOR AND REMOTE TEST SWITCH, COORDINATE WITH MECHANICAL CONTRACTOR		

[illegible]

Allen & Shariff Engineering, LLC  
205 East Market Street  
Salisbury, Maryland 21801  
Tel: 410.341.0200

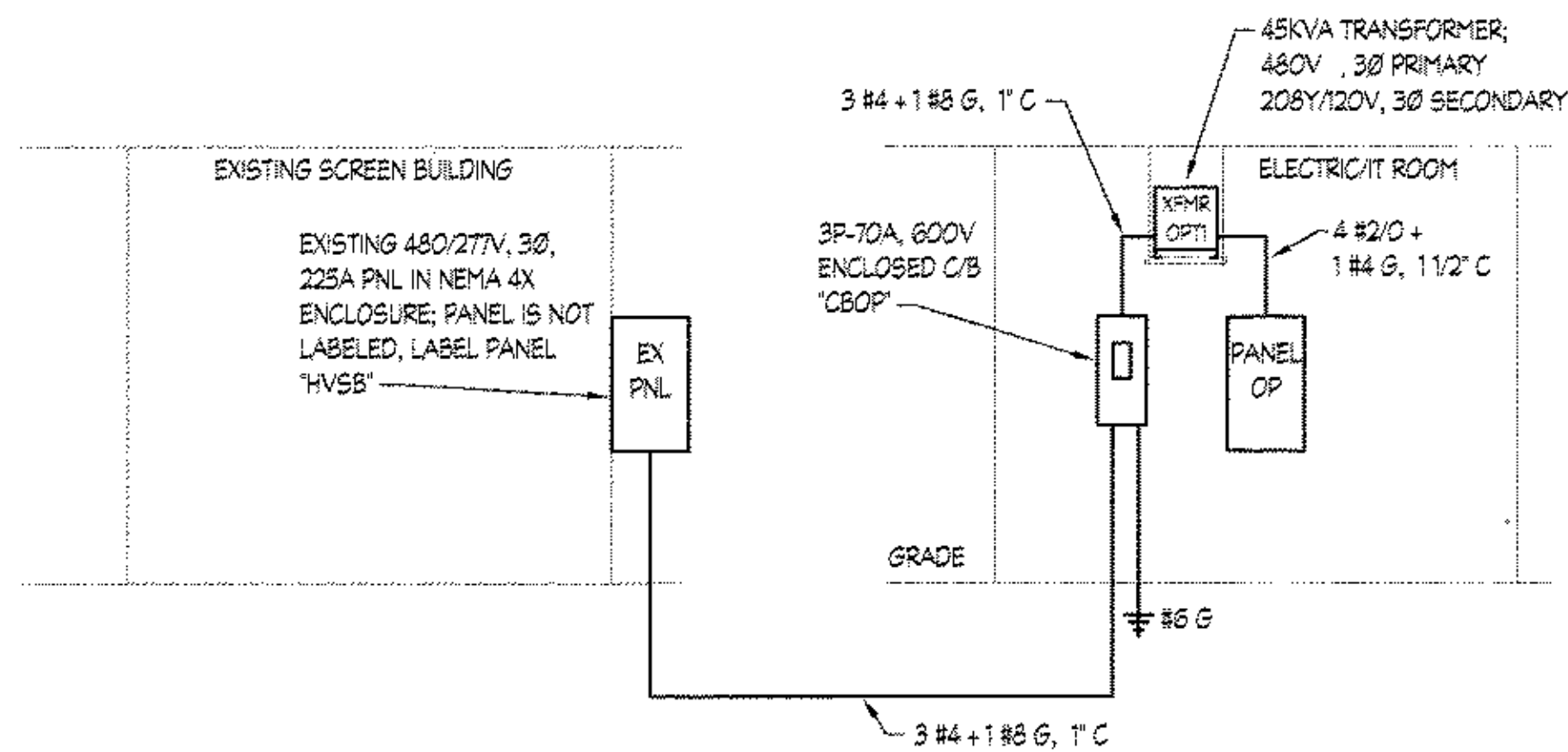




LIGHTING FIXTURE SCHEDULE										
TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS		BF	WATTS	MOUNTING	VOLTAGE	REMARKS
				QTY	TYPE					
DL	4" APERTURE LED DOWNLIGHT FIXTURE, SELF-FLANGED WHITE PAINTED TRIM, MEDIUM REFLECTOR, GASKET KIT FOR SHOWERS, 120V ELECTRONIC DRIVER	PORTFOLIO	LD4A-09D010TE-ERM4A-09B35-4LM1W-WF-HB26 LGSKT4IP66 GASKET KIT IN SHOWERS	1	14W LED 3500K	1	14	RECESSED	120V	1, 2, 3, 4
LG	2' X 4' LED PRISMATIC LAY-IN TROFFER, .125" ACRYLIC LENS, 120V 0-10V DIMMING DRIVER	METALUX	24GR-LD4-38-FI-UNV-1835-CD1-U	1	36W LED 3500K	1	36	RECESSED	120V	1, 2, 3, 4
LG1	2' X 4' LED VOLUMETRIC LAY-IN TROFFER, DIFFUSED CENTER BASKET, 120V 0-10V DIMMING DRIVER	PHILIPS	2AVEG43L835-4-ACR-UNV-D	1	39W LED 3500K	1	39	RECESSED	120V	1, 2, 3, 4
LW	LED WALL PACK, WEATHERPROOF DIE-CAST ALUMINUM HOUSING, BLACK POWDER COAST FINISH, TYPE IV WIDE DISTRIBUTION, 120V ELECTRONIC DRIVER	McGRAW-EDISON	ISW-E01-LED-EI-BL4-BK-ULG	1	25W LED 4000K	1	25	WALL MOUNT @ 10'-0" AFF UNO	120V	1, 2, 3, 4
FS	4' FLUORESCENT INDUSTRIAL STRIP FIXTURE, SOLID TOP REFLECTOR, MEDIUM DUTY, WIRE GUARD, 120/277V PROGRAM START BALLAST	METALUX	DIF-232-120V-EB81-UJ-WG/DIF-4FT-U	2	32W T8 3500K	.88	56	SURFACE/SUSPENDED	120V	1, 2, 3, 4, 5
EM	LED DUAL HEAD EMERGENCY LIGHTING UNIT, BLACK THERMOPLASTIC HOUSING, BATTERY CAPACITY FOR DUAL REMOTE HEAD, 120/277V	EVENLITE	TCL4-B-SD	2	LED	1	2	WALL MOUNT @ 8'-0" AFF UNO	120/277V	1, 2, 3, 4
X	UNIVERSAL MOUNT EXIT LIGHT WITH DIRECTIONAL ARROWS AS INDICATED, BLACK PLASTIC HOUSING, RED LETTERS, BATTERY BACKUP, 120/277V	EVENLITE	TLX-EM-RU-B-SD	1	LED	1	1.5	WALL MOUNT @ 8'-0" AFF UNO	120/277V	1, 2, 3, 4
XE	UNIVERSAL MOUNT COMBINATION EXIT/EMERGENCY LIGHT WITH DIRECTIONAL ARROWS AS INDICATED, INTEGRATED LED EMERGENCY LIGHT BAR, BLACK THERMOPLASTIC HOUSING, RED LETTERS, BATTERY CAPACITY FOR DUAL REMOTE HEAD, 120/277V	EVENLITE	TLP-R-U-W	2	LED	1	3	WALL MOUNT @ 8'-0" AFF UNO	120/277V	1, 2, 3, 4
ER	LED SINGLE REMOTE HEAD, 3.6VDC, WEATHERPROOF HOUSING, CONNECT TO NEAREST 'XE' EXIT/EMERGENCY FIXTURE OR 'EM' FIXTURE	EVENLITE	PRWLED1	1	LED	1	1	SURFACE	3.6VDC	1, 2, 3, 4

# REMARKS:

- ALL FIXTURES SHOWN ESTABLISH THE BASIS OF DESIGN OR LEVEL OF QUALITY EXPECTED. IF ALTERNATE FIXTURES ARE SUBSTITUTED DURING THE SUBMITTAL PROCESS, THE ENGINEER AND ARCHITECT RESERVE THE RIGHT TO REJECT THE SUBSTITUTED FIXTURE BASED UPON OUR PROFESSIONAL JUDGEMENT.
- COORDINATE WITH ARCHITECT FOR FIXTURES FINAL MOUNTING HEIGHTS AND LOCATIONS.
- ALL WALL/CEILING TYPES SHALL BE VERIFIED PRIOR TO FIXTURES BEING ORDERED.
- ALL FIXTURES PROVIDED ARE EXPECTED TO HAVE ALL APPURTENANCES, MOUNTING HARDWARE AND ETC. PROVIDED IN ORDER TO PROVIDE A PROPER INSTALLATION.
- ALL FLUORESCENT FIXTURES SHALL BE PROVIDED WITH HIGH POWER FACTOR ELECTRONIC BALLASTS



POWER RISER DIAGRAM  
NOT TO SCALE

①③③ EXISTING PANEL HVSB (EXISTING CONFIGURATION)																	
3 PHASE 4 WIRE			480Y/277 VOLT 125 AMP						MCB TYPE 14,000 MIN AIC								
CKT	FOR		P	CKT	BKR	VOLT	LOAD	KVA	Ø	KVA	CKT	FOR		P	CKT	BKR	VOLT
1	EXISTING SPACE						0.00 a	0.00	2	EXISTING SPACE							
3	EXISTING SPACE						0.00 b	0.00	4	EXISTING SPACE							
5	EXISTING SPACE						0.00 c	0.00	6	EXISTING SPACE							
7	EXISTING SPACE						0.00 d	0.00	8	EXISTING SPACE							
9	EXISTING SPACE						0.00 e	0.00	10	EXISTING SPACE							
11	EXISTING SPACE						0.00 f	0.00	12	EXISTING SPACE							
13	EXISTING UNKNOWN	3	20	480	1.00 a	11.00	14	EXISTING UNKNOWN	3	20	480						
15	EXISTING UNKNOWN	-	-	-	1.00 b	11.00	16	EXISTING UNKNOWN	-	-	-						
17	EXISTING UNKNOWN	-	-	-	1.00 c	11.00	18	EXISTING UNKNOWN	-	-	-						
19	EXISTING UNKNOWN	3	20	480	1.00 d	0.00	20	EXISTING FET MIXER	3	40	480						
21	EXISTING UNKNOWN	-	-	-	1.00 e	0.00	22	EXISTING UNKNOWN	-	-	-						
23	EXISTING UNKNOWN	-	-	-	1.00 f	0.00	24	EXISTING UNKNOWN	-	-	-						
25	EXISTING FET PUMP 2	3	30	480	2.00 a	2.00	26	EXISTING FET PUMP 1	3	30	480						
27	EXISTING UNKNOWN	-	-	-	2.00 b	2.00	28	EXISTING UNKNOWN	-	-	-						
29	EXISTING UNKNOWN	-	-	-	2.00 c	2.00	30	EXISTING UNKNOWN	-	-	-						
31	EXISTING UNKNOWN	3	20	480	1.00 a	1.00	32	EXISTING UNKNOWN	3	20	480						
33	EXISTING UNKNOWN	-	-	-	1.00 b	1.00	34	EXISTING UNKNOWN	-	-	-						
35	EXISTING UNKNOWN	-	-	-	1.00 c	1.00	36	EXISTING UNKNOWN	-	-	-						
37	EXISTING UNKNOWN	3	30	480	2.00 a	2.50	38	EXISTING UNKNOWN	3	40	480						
39	EXISTING UNKNOWN	-	-	-	2.00 b	2.50	40	EXISTING UNKNOWN	-	-	-						
41	EXISTING UNKNOWN	-	-	-	2.00 c	2.50	42	EXISTING UNKNOWN	-	-	-						

- NOTES:
- EXISTING LOADS SHOWN ARE BASED OFF AS-BUILT DRAWINGS AND MAY NOT MATCH ACTUAL FIELD CONDITIONS. CONTRACTOR TO MODIFY CIRCUITS IN THE FIELD AS REQUIRED TO MEET DESIGN INTENT.
  - EXISTING SQUARE D NEHB PANELBOARD.
  - LABEL PANELBOARD 'PANEL HVSB'

①② EXISTING PANEL HVSB (NEW CONFIGURATION)														
3 PHASE 4 WIRE			480Y/277 VOLT 125 AMP LOAD					MCB TYPE 14,000 MIN AIC						
CKT	FOR		P	CKT BKR	VOLT	KVA	Ø	KVA	CKT	FOR		P	CKT BKR	VOLT
1	EXISTING SPACE		0.00	a	0.00	2	EXISTING SPACE		0.00	a	0.00	3	30	480
3	EXISTING SPACE		0.00	b	0.00	4	EXISTING SPACE		0.00	b	0.00	5	30	480
5	EXISTING SPACE		0.00	c	0.00	6	EXISTING SPACE		0.00	c	0.00	7	30	480
7	NEW OPS BUILDING	3	70	480	18.67	a	0.00	8	EXISTING SPACE		0.00	1	20	277
9	EXISTING UNKNOWN	3	20	480	1.00	b	11.00	10	EXISTING SPACE		0.00	1	20	277
11	EXISTING UNKNOWN	3	20	480	1.00	c	11.00	12	EXISTING SPACE		0.00	1	20	277
13	EXISTING UNKNOWN	3	20	480	1.00	d	11.00	14	EXISTING UNKNOWN		0.00	3	20	480
15	EXISTING UNKNOWN	3	20	480	1.00	e	11.00	16	EXISTING UNKNOWN		0.00	3	20	480
17	EXISTING UNKNOWN	3	20	480	1.00	f	11.00	18	EXISTING UNKNOWN		0.00	3	20	480
19	EXISTING UNKNOWN	3	20	480	1.00	a	0.00	20	EXISTING FET MIXER		0.00	3	40	480
21	EXISTING UNKNOWN	3	20	480	1.00	b	11.00	22	EXISTING UNKNOWN		0.00	3	20	480
23	EXISTING UNKNOWN	3	20	480	1.00	c	11.00	24	EXISTING UNKNOWN		0.00	3	20	480
25	EXISTING FET PUMP 2	3	30	480	2.00	a	2.00	26	EXISTING FET PUMP 1		2.00	3	30	480
27	EXISTING UNKNOWN	3	20	480	1.00	b	11.00	28	EXISTING UNKNOWN		0.00	3	20	480
29	EXISTING UNKNOWN	3	20	480	1.00	c	11.00	30	EXISTING UNKNOWN		0.00	3	20	480
31	EXISTING UNKNOWN	3	20	480	1.00	d	11.00	32	EXISTING UNKNOWN		0.00	3	20	480
33	EXISTING UNKNOWN	3	20	480	1.00	e	11.00	34	EXISTING UNKNOWN		0.00	3	20	480
35	EXISTING UNKNOWN	3	20	480	1.00	f	11.00	36	EXISTING UNKNOWN		0.00	3	20	480
37	EXISTING UNKNOWN	3	30	480	2.00	a	2.00	38	EXISTING UNKNOWN		2.00	3	40	480
39	EXISTING UNKNOWN	3	20	480	1.00	b	11.00	40	EXISTING UNKNOWN		0.00	3	20	480
41	EXISTING UNKNOWN	3	20	480	1.00	c	11.00	42	EXISTING UNKNOWN		0.00	3	20	480

- NOTES:
- EXISTING LOADS SHOWN ARE BASED OFF AS-BUILT DRAWINGS AND MAY NOT MATCH ACTUAL FIELD CONDITIONS. CONTRACTOR TO MODIFY CIRCUITS IN THE FIELD AS REQUIRED TO MEET DESIGN INTENT.
  - EXISTING SQUARE D NEHB PANELBOARD.
  - PROVIDE NEW BREAKER AS INDICATED

PANEL OP											
3 PHASE 4 WIRE			208Y/120 VOLT 150 AMP			MCB TYPE 10,000 MIN AIC					
CKT	FOR		P	AMP	VOLT	KVA	Ø	KVA	CKT	FOR	
1	AHU-1		2	80	208	5.40	a	3.74	2	HP-1	
3	EXISTING SPACE		0.00	b	0.00	4	EXISTING SPACE		0.00	b	0.00
5	EXISTING SPACE		0.00	c	0.00	6	EXISTING SPACE		0.00	c	0.00
7	EXISTING SPACE		0.00	d	0.00	8	EXISTING SPACE		0.00	d	0.00
9	EXISTING SPACE		0.00	e	0.00	10	EXISTING SPACE		0.00	e	0.00
11	EXISTING SPACE		0.00	f	0.00	12	EXISTING SPACE		0.00	f	0.00
13	EXISTING SPACE		0.00	g	0.00	14	EXISTING SPACE		0.00	g	0.00
15	EXISTING SPACE		0.00	h	0.00	16	EXISTING SPACE		0.00	h	0.00
17	EXISTING SPACE		0.00	i	0.00	18	EXISTING SPACE		0.00	i	0.00
19	EXISTING SPACE		0.00	j	0.00	20	EXISTING SPACE		0.00	j	0.00
21	EXISTING SPACE		0.00	k	0.00	22	EXISTING SPACE		0.00	k	0.00
23	EXISTING SPACE		0.00	l	0.00	24	EXISTING SPACE		0.00	l	0.00
25	EXISTING SPACE		0.00	m	0.00	26	EXISTING SPACE		0.00	m	0.00
27	EXISTING SPACE		0.00	n	0.00	28	EXISTING SPACE		0.00	n	0.00
29	EXISTING SPACE		0.00	o	0.00	30	EXISTING SPACE		0.00	o	0.00
31	EXISTING SPACE		0.00	p	0.00	32	EXISTING SPACE		0.00	p	0.00
33	EXISTING SPACE		0.00	q	0.00	34	EXISTING SPACE		0.00	q	0.00
35	EXISTING SPACE		0.00	r	0.00	36	EXISTING SPACE		0.00	r	0.00
37	SPARE		1	20	120	0.00	a	1.90	38	LIFT STATION	
39	SPARE		1	20	120	0.00	b	0.00	40	SPARE	
41	SPARE		1	20	120	0.00	c	0.00	42	SPARE	

- NOTES:
- PANEL SHALL BE SURFACE MOUNTED.
  - FEED WITH 2 #6 + 1 #10 G, 3/4" C

**Allen & Shariff**  
DESIGN | BUILD | MANAGE  
Allen & Shariff Engineering, LLC  
205 East Market Street  
Salisbury, Maryland 21801  
Tel: 410.341.0200



PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE  
DOCUMENTS WERE PREPARED OR  
APPROVED BY ME, AND I AM A  
FULLY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF  
THE STATE OF MARYLAND  
LICENSE NUMBER: 20745  
EXPIRATION DATE: 06/30/2018

DATE: 12-18-16  
REVISION: 1  
ISSUED FOR FINAL REVIEW & PERMITTING  
2  
ISSUED FOR PERMIT

**ENB**  
GEORGE, MILES & BUHR, LLC  
ARCHITECTS & ENGINEERS  
SALISBURY - BALTIMORE - SEAFORD  
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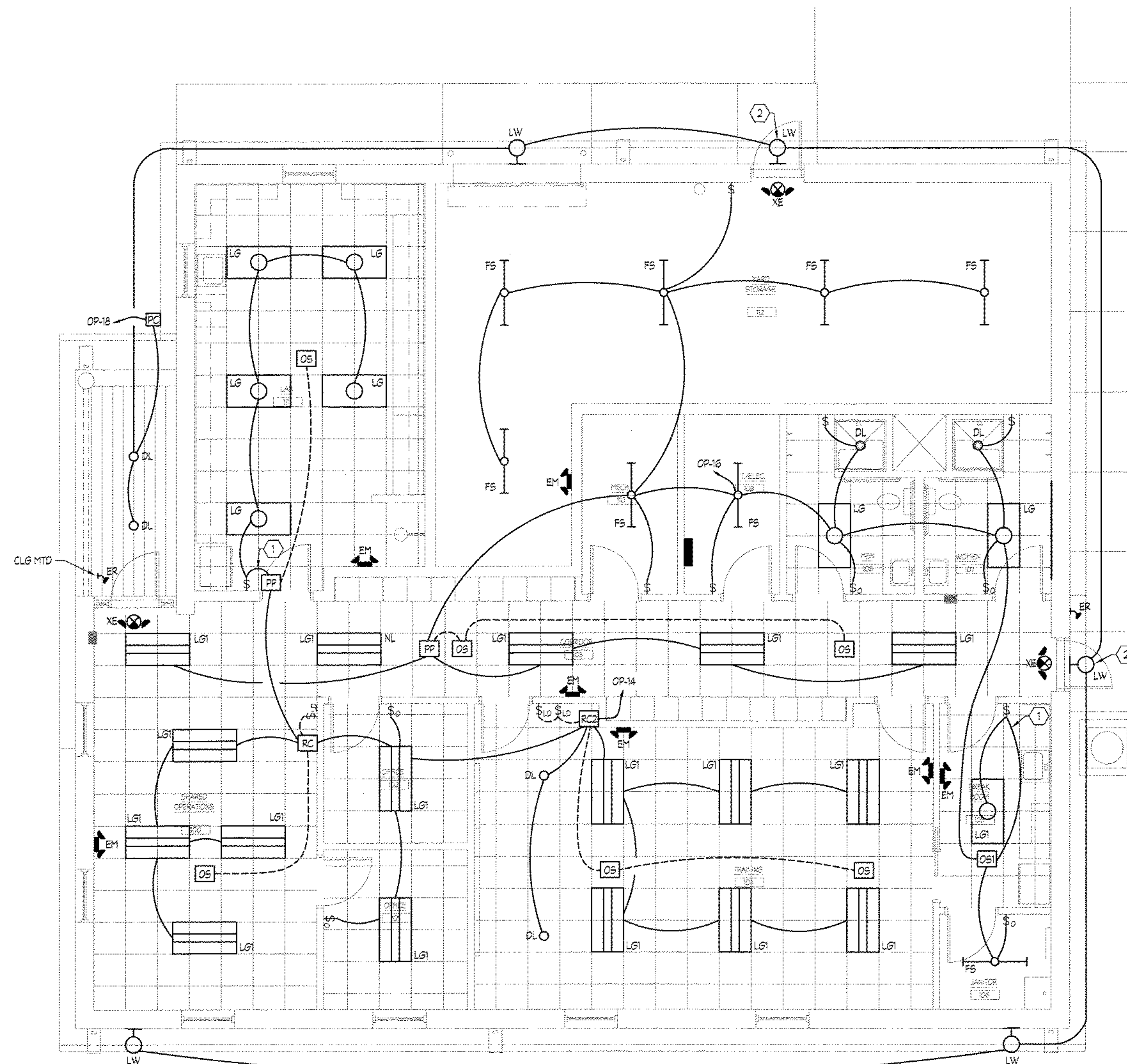
NEW CONSTRUCTION FOR:  
**OCEAN PINES WWTP  
OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

ELECTRICAL SCHEDULES AND  
POWER RISER

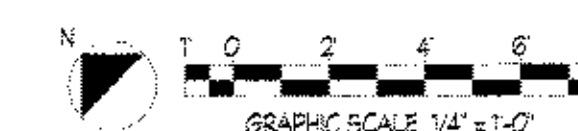
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DATE: 11-18-16

E.1





1 LIGHTING FLOOR PLAN  
E2.0 1/4" = 1'-0"



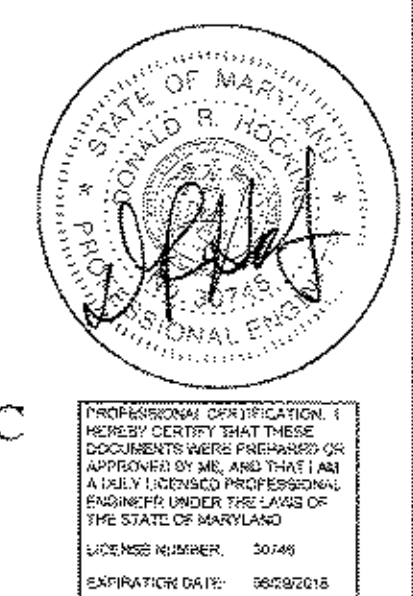
#### GENERAL NOTES:

1. COORDINATE WITH TENANT ON ELEVATIONS FOR ALL MOUNTING HEIGHTS AND FINAL LOCATIONS OF FIXTURES AND DEVICES.
2. EXIT SIGNS, EMERGENCY LIGHTING UNITS AND FIXTURES WITH 'NL' DESIGNATION SHALL BE WIRED TO THE UNSWITCHED SIDE OF THE LOCAL LIGHTING CIRCUIT, CARRY EXTRA HOT WIRE TO BEST SUITE FIELD CONDITIONS.
3. 0-10V WIRING IS NOT SHOWN, INSTALL 0-10V WIRING FROM ROOM CONTROLLERS TO LED DIMMABLE FIXTURES AS REQUIRED.
4. KEEP CEILING MOUNTED OCCUPANCY SENSORS A MINIMUM OF 3 FEET FROM AIR DIFFUSERS.

#### DRAWING NOTES:

1. ROUTE LOAD SIDE OF POWER PACK THROUGH SWITCH FOR MANUAL ON/OFF CONTROL.
2. MOUNT FIXTURE 12" ABOVE DOOR; ALL OTHER 'LW' FIXTURES SHALL BE MOUNTED AS DIRECTED BY OWNER/ARCHITECT.

**Allen & Shariff**  
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205 East Market Street  
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Tel: 410.341.0200



**GMB**  
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NEW CONSTRUCTION FOR:  
**OCEAN PINES WWTP  
OPERATIONS BUILDING**  
WORCESTER COUNTY, MARYLAND

LIGHTING FLOOR PLAN

SCALE: 1/4" = 1'-0"  
DESIGN BY: JS  
DRAWN BY: JS  
CHECKED BY: JS  
GMB FILE: 160049  
DATE: 11-18-16

E2.0



1. COORDINATE WITH MECHANICAL AND PLUMBING CONTRACTORS FOR EXACT LOCATIONS OF EQUIPMENT AND CONNECTIONS.
2. COORDINATE WITH OWNER FOR EXACT MOUNTING LOCATIONS OF RECEPTACLES IN ELEC/IT ROOM PRIOR TO ROUGH-IN.

1. PROVIDE (2) 2 1/2" CONDUITS FROM IDF BACKBOARD TO MDF IN EXISTING OPERATIONS BUILDING AS DIRECTED BY OWNER. INSTALL TWO SHEETS OF 4' X 8' X 3/4" PLYWOOD PLYWOOD WRAPPING CORNERS. INSTALL 12" X 4" X 1/4" TELECOM GROUND BAR W/ INSULATED STAND-OFFS AT 24" AFF; PROVIDE #10 GROUND TO PANEL "OP" GROUND BAR.
2. DSS-1 INDOOR UNIT POWER VIA OUTDOOR UNIT, COORDINATE WITH MECHANICAL CONTRACTOR, PROVIDE DISCONNECT SWITCH AS REQUIRED.
3. COORDINATE EXACT LOCATION OF RECEPTACLE FOR CONDENSATE PUMP WITH MECHANICAL CONTRACTOR.
4. ERV CONTROL PANEL AND AHU-1 CONTROLLER; COORDINATE EXACT CONNECTION REQUIREMENTS AND ROUGH-IN LOCATIONS WITH MECHANICAL CONTRACTOR.
5. PROVIDE 2" PVC CONDUIT FROM LIFT STATION CONTROL PANEL TO SUMP AND INTERCEPT HDPE CABLE SHROUD, REFER TO DETAIL ON CIVIL DRAWING C1.3; RUN ALL CABLES ASSOCIATED WITH PUMPS, FLOATS AND ALARMS INTO CONTROL PANEL. TERMINATE PUMP CABLES PER MANUFACTURER'S INSTRUCTIONS. COORDINATE ALL REQUIREMENTS OF LIFT STATION PRIOR TO ROUGH-IN AND MAKE NECESSARY ADJUSTMENTS.



PROFESSIONAL CERTIFICATION  
 HEREBY CERTIFY THAT THESE  
 DOCUMENTS WERE PREPARED OR  
 APPROVED BY ME, AND THAT I AM  
 A FULLY LICENSED PROFESSIONAL  
 ENGINEER UNDER THE LAWS OF  
 THE STATE OF MARYLAND

LICENSE NUMBER: 30745

© ALLEN & SHARIFF ENGINEERING, LLC JOB# 1631015

POWER FLOOR PLAN

SCALE : 1/4"=1'-0"  
DESIGN BY : JG  
DRAWN BY : JG  
CHECKED BY : JG  
GMB FILE : 160049  
DATE : 11-18-16

## E2.1



