

**INTERIOR RENOVATION TO THE**  
**TRUMBULL POLICE DEPARTMENT**

**158 EDISON ROAD**

**TRUMBULL, CONNECTICUT**

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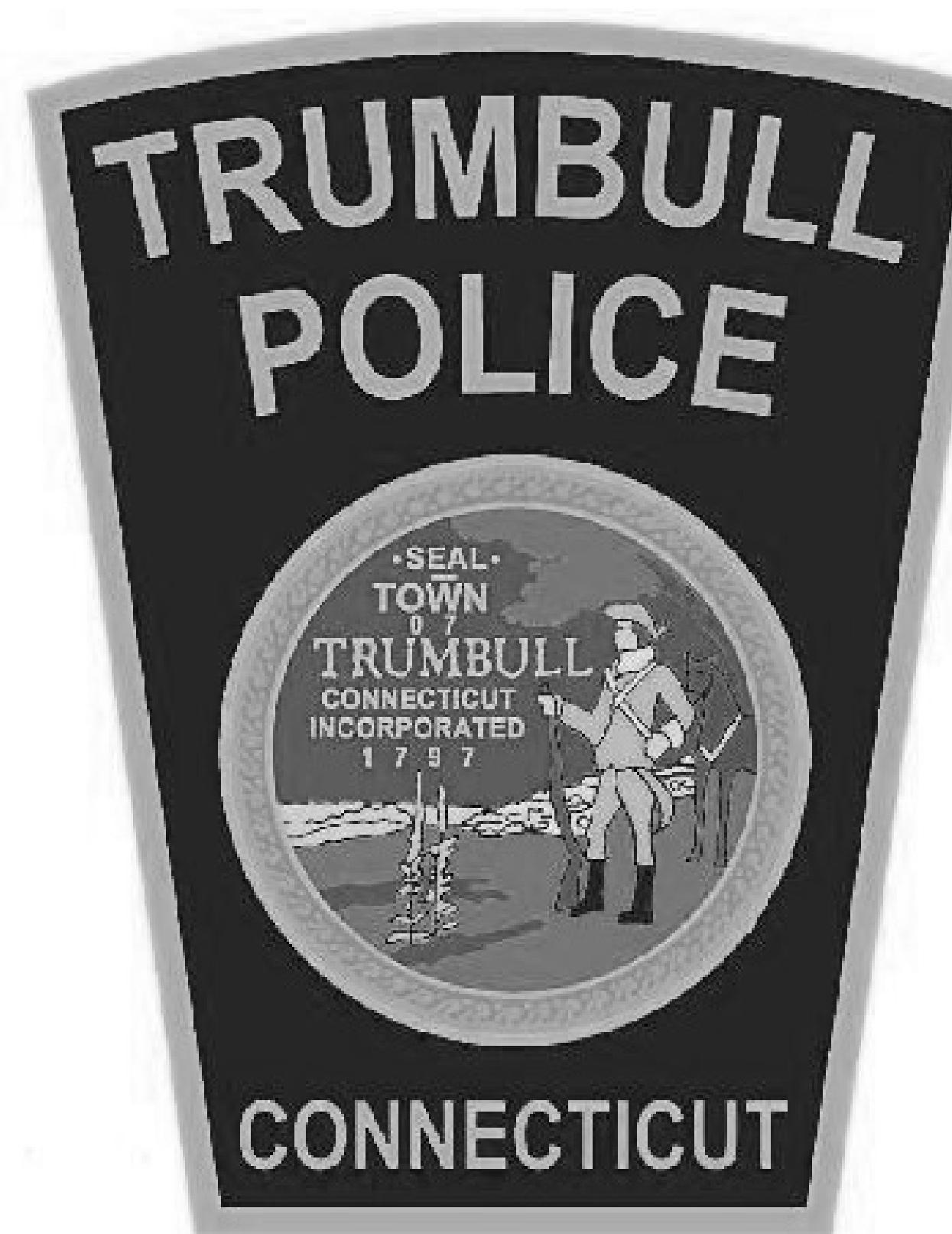
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**NOVEMBER 8, 2018**



**RFP 6320**

	<b>ARCHITECT</b>	<b>P/M/E ENGINEER</b>	<b>INTERIOR DESIGNER</b>
	<b>JACUNSKI HUMES ARCHITECTS, LLC</b> The logo for JACUNSKI HUMES ARCHITECTS, LLC, featuring the letters "JH" in a stylized, blocky font. 15 MASSIRIO DRIVE, SUITE 101 BERLIN, CONNECTICUT 06037 TEL 860-828-9221 FAX 860-828-9223	<b>KOHLER RONAN, LLC</b> The logo for KOHLER RONAN, LLC, featuring a stylized letter "K" inside a square frame. CONSULTING ENGINEERS Kohler Ronan, LLC 93 Lake Avenue Danbury, CT 06810 tel: (203) 778-1017	<b>4D DESIGN &amp; DECORATING</b> The logo for 4D DESIGN & DECORATING, featuring the number "4" and "D" in a stylized, overlapping font. DESIGN & DECORATING 4D Design & Decorating, LLC 127 Park Road West Hartford, CT 06119 tel: (860) 716-2363

## GOVERNING BUILDING CODES:

INTERNATIONAL EXISTING BUILDING CODE  
INTERNATIONAL PLUMBING CODE  
INTERNATIONAL MECHANICAL CODE  
INTERNATIONAL ENERGY CONSERVATION CODE  
NATIONAL ELECTRICAL CODE (NFPA 70)  
FIRE CODE (NFPA 1)  
LIFE SAFETY CODE (NFPA 101)  
NATIONAL FUEL GAS CODE (NFPA 54)  
OSHA-TITLE 29/LABOR  
SECTION 504  
AMERICANS WITH DISABILITY ACT (ADA)  
HANDICAPPED ACCESSIBILITY (ICC ANSI A117.1)  
STATE HEALTH CODE

\*\*: INCLUSIVE OF 2018 CONNECTICUT AMENDMENTS

2015\*\*  
2015\*\*  
2015\*\*  
2015\*\*  
2017  
2018  
2012  
2018  
LATEST  
1973  
2010  
2009  
LATEST

## BUILDING CODE INFORMATION

DATE OF ORIGINAL CONSTRUCTION - 1980 +/-

PROPOSED SCOPE IS AN INTERIOR RENOVATION OF A LOCKER ROOM AND HVAC WORK TO THE FIRING RANGE. NO ADDED SQUARE FOOTAGE. RECONFIGURATION OF SPACES IS CONTAINED WITHIN THE EXISTING LOCKER ROOM AND FITNESS AREA.

1.0 OCCUPANCY CLASSIFICATION (CHAPTER 3):

(PRIMARY) \_\_\_\_\_  
(SECONDARY) \_\_\_\_\_  
(SECONDARY) \_\_\_\_\_

B - BUSINESS  
S-2 - LOW-HAZARD STORAGE  
I-3 - INSTITUTIONAL

2.0 CONSTRUCTION TYPE (CHAPTER 6, SECTION 602.5):

MINIMUM TYPE REQUIRED: \_\_\_\_\_ II B - NONCOMBUSTIBLE

3.0 FIRE RESISTANCE RATED REQUIREMENTS FOR BUILDING ELEMENTS (TABLE 601):

CONSTRUCTION TYPE - II B	0 Hr(s)					
1) STRUCTURAL FRAME	0					
2) BEARING WALLS - EXTERIOR	0					
- INTERIOR	0					
3) NONBEARING WALLS AND PARTITIONS - EXTERIOR	0 Hr(s)					
4) NONBEARING WALLS AND PARTITIONS - INTERIOR	0					
5) FLOOR CONSTRUCTION	0					
6) ROOF CONSTRUCTION	0					

Table 602

4.0 MODIFICATIONS: NONE

5.0 ACCESSIBLE BUILDING:

DESIGNATED   
 NON-DISIGNATED

6.0 SPRINKLER PROTECTION:

THROUGHOUT ENTIRE BUILDING  
 LIMITED AREA

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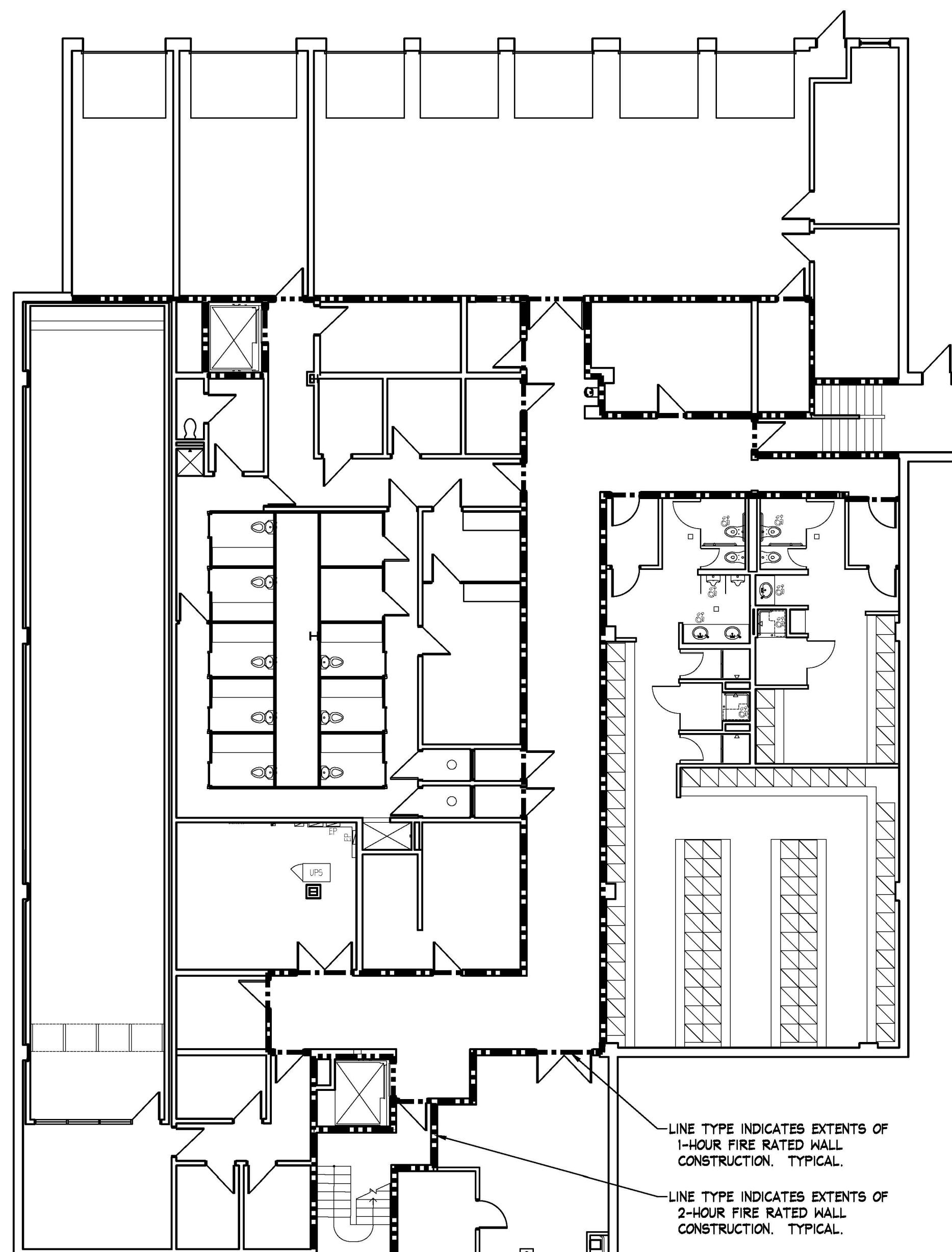
TRUMBULL, CONNECTICUT

158 EDISON ROAD

JH  
JACUNSKI HUMES  
ARCHITECTS, LLC

15 MASSIRIO DRIVE  
SUITE 101  
BERLIN, CT 06087  
TEL 860-828-9221  
FAX 860-828-9223

CODE  
INFORMATION



1 LOWER LEVEL FIRE RATED PARTITION PLAN  
SCALE: 3/32" = 1'-0"

PROJ. NO. JH1626 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016

R-1.0

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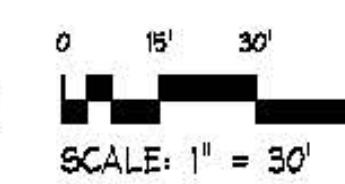
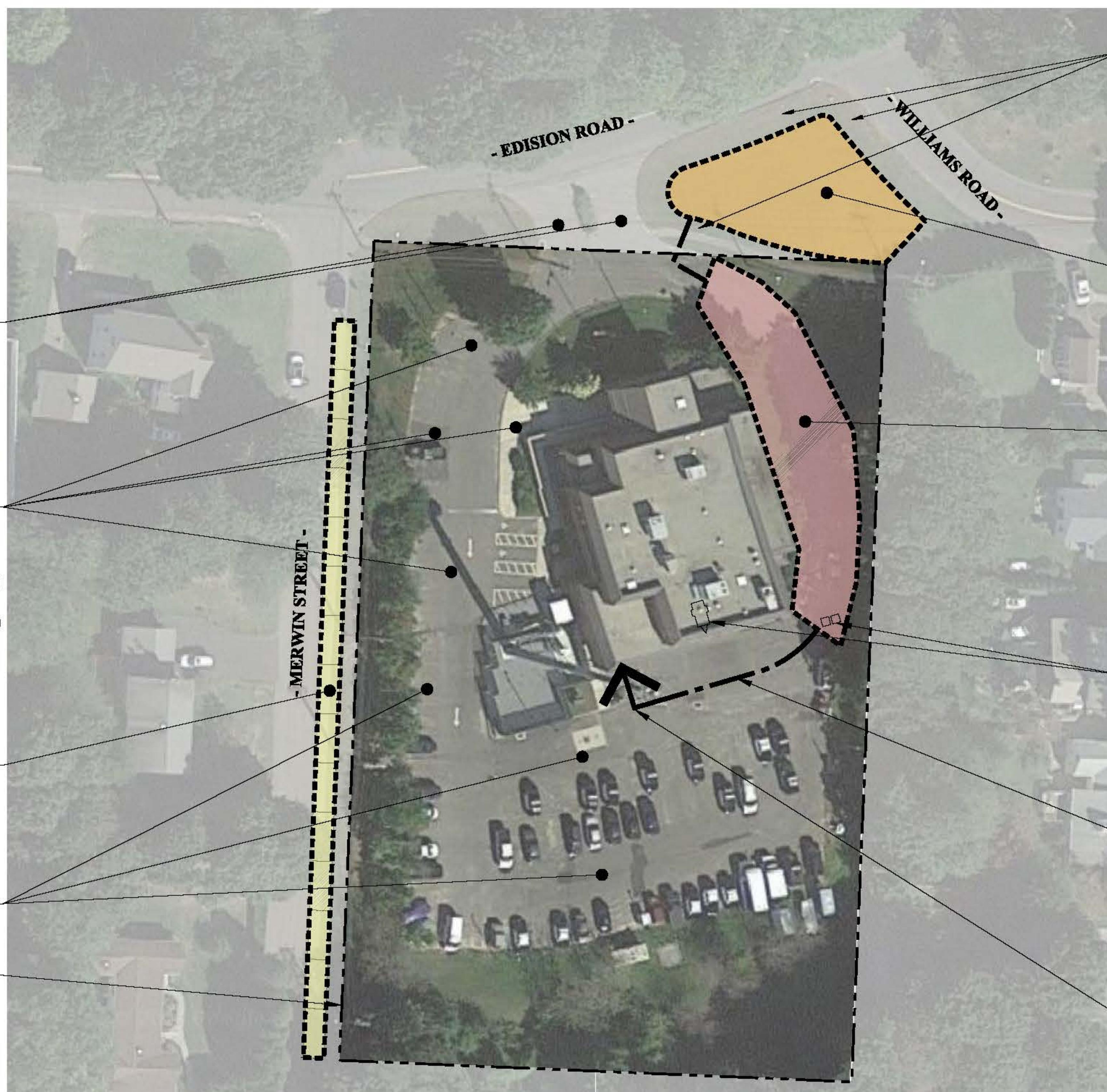
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**OVERALL  
CONTRACTOR  
SITE  
LOGISTICS  
PLAN**

PROJ. NO.	JH6220	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 6, 2010	

**SLP-1**



SCALE: 1" = 30'

1

OVERALL CONTRACTOR SITE LOGISTICS PLAN

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**TRUMBULL POLICE  
DEPARTMENT**

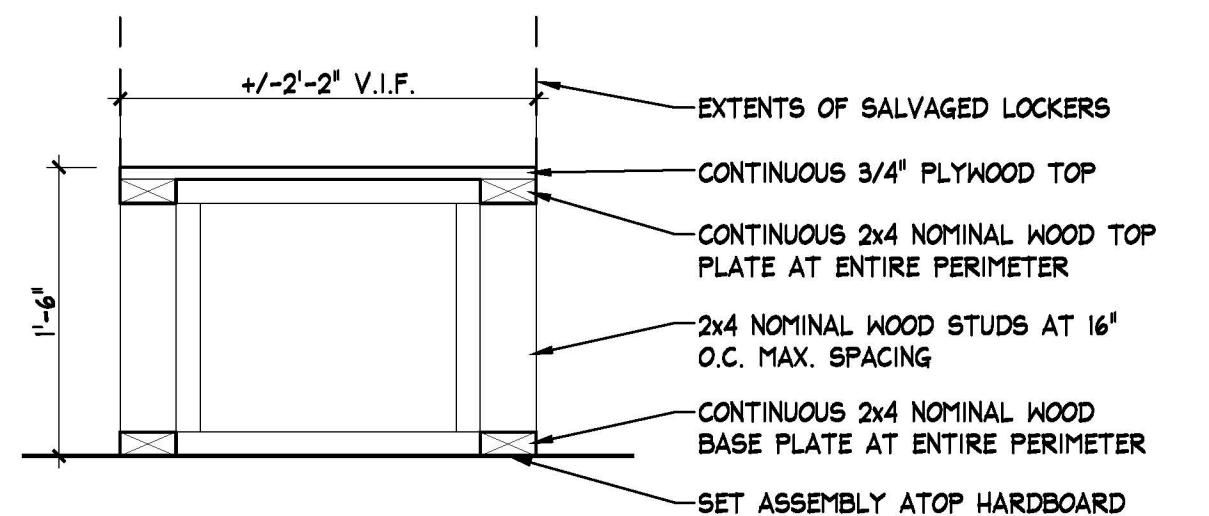
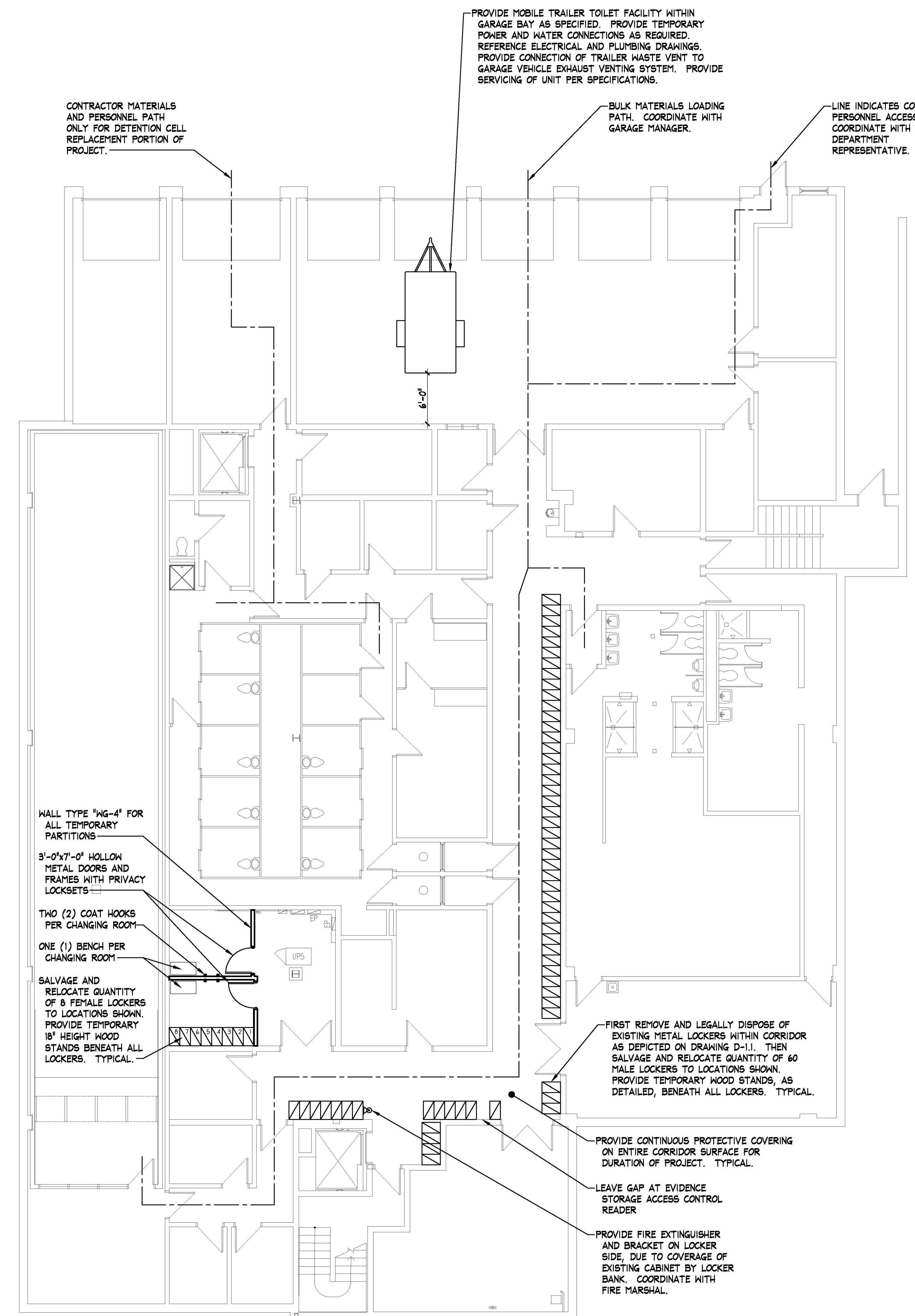
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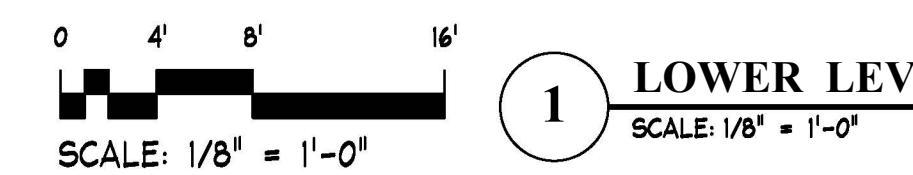
**TEMPORARY  
FACILITIES  
LOWER  
LEVEL  
PLAN**

PRO. NO. JH1628 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016  
**T-1.1**



**2** TEMPORARY LOCKER STAND DETAIL

SCALE: 1" = 1'-0"



**1** LOWER LEVEL TEMPORARY FACILITIES PLAN

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

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**PARTIAL  
LANDSCAPING  
PLAN**

LINE REPRESENTS APPROXIMATE EXTENTS OF  
EXISTING VEGETATION TO REMAIN

LINE REPRESENTS APPROXIMATE EXTENTS OF  
EXISTING CONCRETE CURBING TO REMAIN.  
PROTECT DURING CONSTRUCTION  
OPERATIONS.

APPROXIMATE EXTENTS OF NEW ELEVATED  
DUCTWORK AND HVAC EQUIPMENT.  
REFERENCE MECHANICAL AND ELECTRICAL  
DRAWINGS. TYPICAL.

EXISTING ASPHALT DRIVE SURFACING TO  
REMAIN. PROTECT DURING ANY  
NON-RUBBER-TRACKED MACHINERY  
OPERATIONS.

EXISTING GRASS AREA TO REMAIN.

HATCHING INDICATES EXTENTS OF NEW LOAM  
AND SEED FOLLOWING COMPLETION OF ALL  
CONSTRUCTION ACTIVITIES. GRADE FLUSH  
TO CURB AND PROVIDE WATERING THROUGH  
FIRST MOWING.

APPROXIMATE EXTENTS OF NEW  
CAST-IN-PLACE REINFORCED CONCRETE  
EQUIPMENT PAD PER DETAIL 8/A-61.  
COORDINATE DIMENSIONAL REQUIREMENTS  
WITH APPROVED HVAC UNIT  
MANUFACTURER AND APPROVED  
DUCTWORK SHOP DRAWINGS. TYPICAL.

PROVIDE PEA-GRAVEL SURFACING PER  
DETAIL 5/A-61 BETWEEN MECHANICAL  
PAD AND BUILDING FACE. PROVIDE  
POLYMER LANDSCAPE EDGING  
BETWEEN GRASS AREA AND PEA  
GRAVEL BOTH ENDS. TYPICAL.

APPROXIMATE LOCATIONS OF  
MECHANICAL UNIT SUPPORT POINTS.  
REFERENCE MECHANICAL DRAWINGS  
AND SPECIFICATIONS FOR  
REQUIREMENTS. TYPICAL.

APPROXIMATE LINE OF TRANSITION  
FROM NEW GRASS TO EXISTING  
GRASS SURFACING. BLEND GRADES  
PRIOR TO SEEDING. TYPICAL.

EXISTING GRASS AREA TO REMAIN.  
EXISTING TREES TO REMAIN.

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

2 NEW WORK PARTIAL LANDSCAPING PLAN

LINE REPRESENTS APPROXIMATE EXTENTS OF  
EXISTING VEGETATION TO REMAIN

LINE REPRESENTS APPROXIMATE EXTENTS OF  
EXISTING CONCRETE CURBING TO REMAIN.  
PROTECT DURING CONSTRUCTION  
OPERATIONS.

APPROXIMATE EXTENTS OF NEW CONCRETE  
PAD AND LANDSCAPING SURFACING AS NOTED,  
SPECIFIED, AND DETAILED. TYPICAL.

EXISTING ASPHALT DRIVE SURFACING TO  
REMAIN. PROTECT DURING ANY  
NON-RUBBER-TRACKED MACHINERY  
OPERATIONS.

EXISTING GRASS AREA TO REMAIN.

STRIP TOPSOIL AND EXCAVATE TO DEPTHS  
REQUIRED TO PROVIDE NEW CONCRETE PAD  
AND LANDSCAPING SURFACING AS NOTED,  
SPECIFIED, AND DETAILED. TYPICAL.

LINE REPRESENTS APPROXIMATE  
EXTENTS OF EXISTING VEGETATION.  
REMOVE EXISTING VEGETATION AND  
ALL ASSOCIATED ROOT  
STRUCTURES. DISPOSE OF OFF  
SITE IN COMPLIANCE WITH ALL  
LOCAL, STATE, AND FEDERAL  
REGULATIONS.

REMOVE EXISTING TREE AND ALL  
ASSOCIATED ROOT STRUCTURES.  
DISPOSE OF OFF SITE IN  
COMPLIANCE WITH ALL LOCAL,  
STATE, AND FEDERAL  
REGULATIONS.

EXISTING GRASS AREA TO REMAIN.  
EXISTING TREES TO REMAIN.

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

1 DEMOLITION PARTIAL LANDSCAPING PLAN

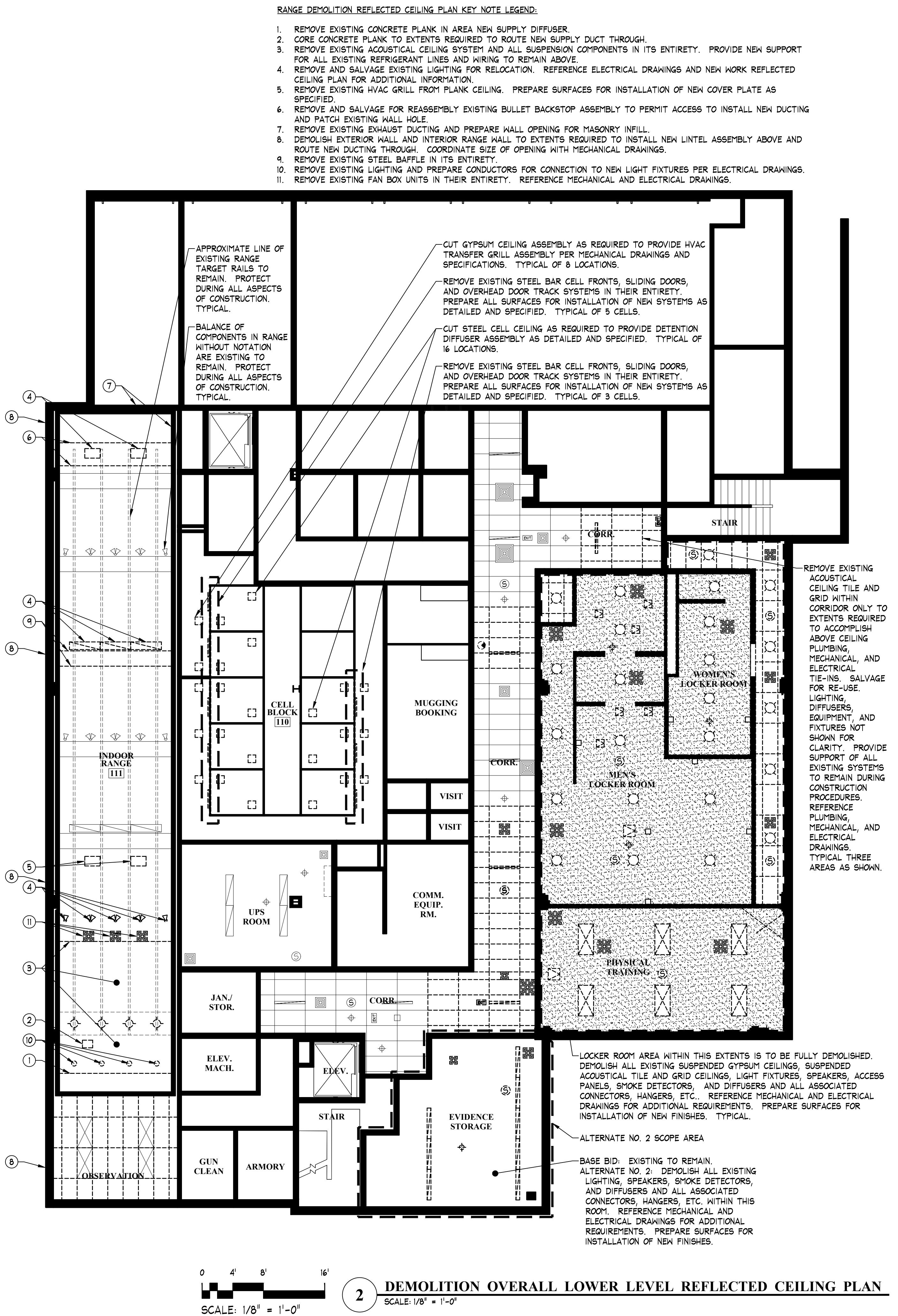
PROJ. NO.	JH1628	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2018	

**L-1.1**

## INTERIOR RENOVATION TO THE TRUMBULL POLICE DEPARTMENT

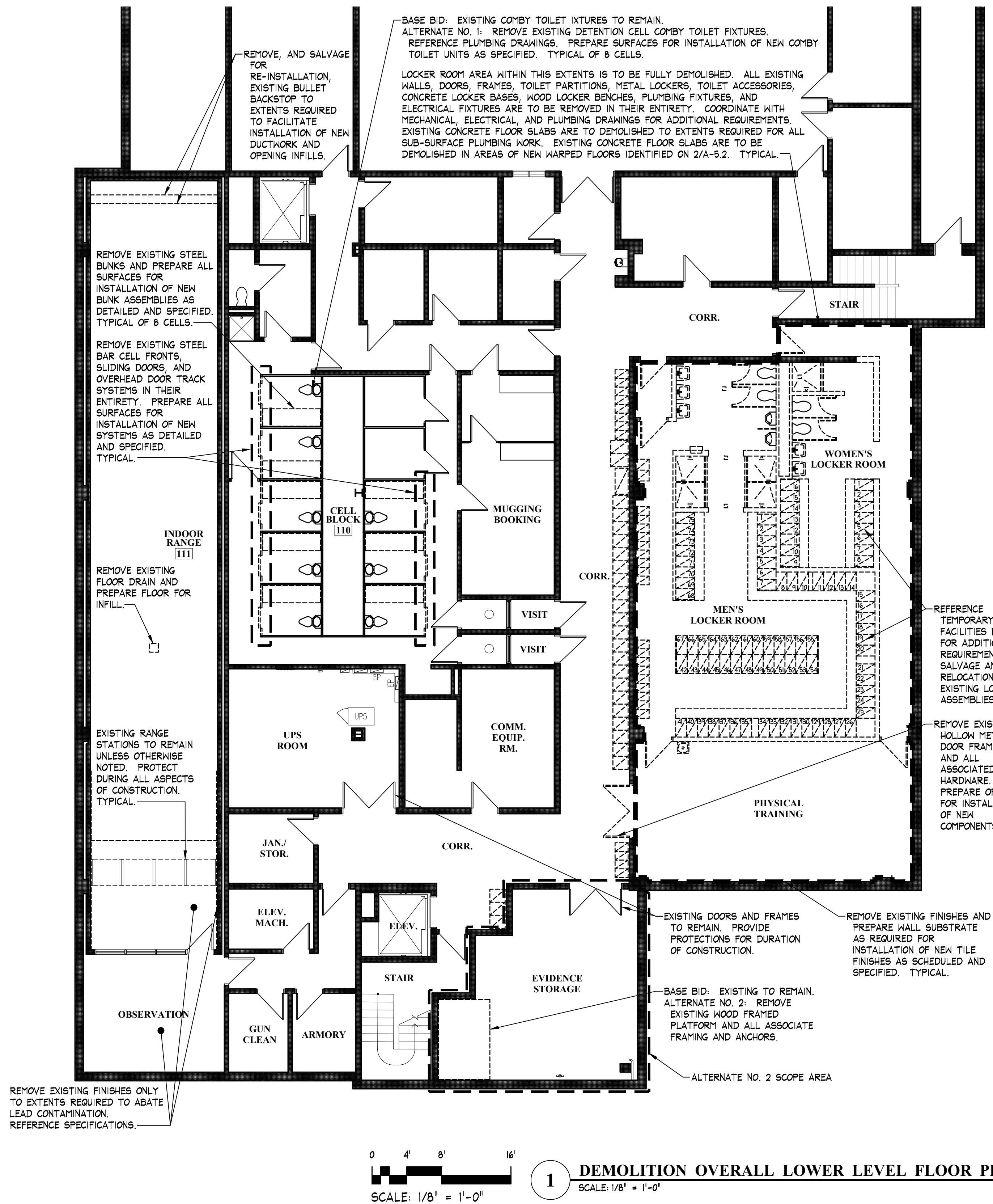
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## DEMOLITION OVERALL LOWER LEVEL PLANS



**TYPICAL DEMOLITION NOTES**

1. ALL DEMOLITION WORK TO BE COORDINATED WITH CORRESPONDING NEW CONSTRUCTION.
2. ALL AREAS AFFECTED BY DEMOLITION TO BE RETURNED TO A STATE OF COMPLETION EQUAL TO OR GREATER THAN THE FINISHED STATE PRIOR TO DEMOLITION.
3. DEMOLITION CONTRACTOR TO BROOM CLEAN ALL DEMOLISHED AREAS PRIOR TO ANY COMMENCEMENT OF NEW CONSTRUCTION.
4. ALL AREAS TO BE DEMOLISHED TO BE VERIFIED IN THE FIELD, AND ANY INCONSISTENCIES ARE TO BE REPORTED TO THE OWNER AND ARCHITECT IMMEDIATELY.
5. DEMOLITION CONTRACTOR TO COORDINATE ARCHITECTURAL DEMOLITION WITH STRUCTURAL, MECHANICAL AND ELECTRICAL DEMOLITION. ANY INCONSISTENCIES ARE TO BE REPORTED TO THE ARCHITECT IMMEDIATELY.
6. REVIEW NEW OPENINGS IN ALL EXISTING WALLS, PRIOR TO DEMOLITION, FOR EXTENTS OF TEMPORARY AND PERMANENT SUPPORT REQUIREMENTS.
7. BLOCK ALL EXISTING RETURN AIR GRILLS AND OPEN DUCT ENDS WITH DUST TIGHT MEDIA, WITHIN THE CONSTRUCTION AREA, FOR DURATION OF CONSTRUCTION OPERATIONS. FOR INSTANCES OF SCOPE OF WORK ON DUCTING, REMOVE COVERS DURING WORK AND REPLACE AT COMPLETION OF WORK.
8. VERIFY THAT ALL INTERIOR PARTITIONS SCHEDULED TO BE REMOVED ARE NON-LOAD BEARING PARTITIONS.
9. COORDINATE DISCONNECTIONS, DEMOLITIONS, AND/OR BAGGING OF FIRE ALARM SYSTEMS WITH LOCAL FIRE MARSHALL PRIOR TO COMMENCEMENT OF ANY RELATED WORK.
10. G.C. TO COORDINATE ALL ROOF PENETRATION REQUIREMENTS WITH STRUCTURAL DRAWINGS. G.C. TO COORDINATE WITH WEATHER PREDICTIONS TO ENSURE OPEN/EXPOSED ROOF SUBSTRATES ARE NOT EXPOSED TO ABUNDANT WATER INFILTRATION. G.C. TO PROVIDE ADEQUATE WEATHER PROTECTION DURING ACTS OF INLEMENT WEATHER DURING OPEN ROOF CONDITIONS.
11. G.C. IS RESPONSIBLE TO COORDINATE WITH HAZARDOUS MATERIALS INSPECTOR DURING ALL ASPECTS OF DEMOLITION TO ENSURE NO UNFORESEEN OR CONCEALED HAZARDOUS MATERIALS ARE DISTURBED WITHOUT PROPER ABATEMENT PROCEDURES.
12. SCOPE INDICATED ON DRAWING MAY NOT BE INDICATIVE OF ENTIRE DEMOLITION SCOPE. G.C. IS RESPONSIBLE TO COORDINATE DEMOLITION REQUIREMENTS FOR MECHANICAL, ELECTRICAL, AND PLUMBING COMPONENTS, CONDUITS, CONDUCTORS, AND PIPING. G.C. IS TO PROVIDE ALL DEMOLITION, CORING, SAW CUTTING, AND SHORING AS REQUIRED TO INSTALL NEW SYSTEMS AND ASSEMBLIES NOTED.
13. NOT ALL DEMOLITION INDICATED IS PERMITTED TO BE PERFORMED AT BEGINNING OF PROJECT. COORDINATE PHASED DEMOLITION REQUIREMENTS WITH TEMPORARY FACILITIES PLAN.



## HAZARDOUS MATERIALS NOTES

1. HAZARDOUS MATERIALS ARE KNOWN TO BE PRESENT. EXTENTS ARE NOTED WITHIN SPECIFICATIONS. G.C. TO COORDINATE EXTENTS OF DEMOLITION AND RECONSTRUCTION WITH ABATEMENT CONTRACTOR, OWNER'S REPRESENTATIVE, AND ALL SUB-CONTRACTORS PRIOR TO THE COMMENCEMENT OF WORK.
2. THIS DEMOLITION DRAWING DESCRIBES THE KNOWN EXTENTS OF DEMOLITION WORK TO BE PERFORMED. IT IS THE RESPONSIBILITY OF THE G.C. TO COORDINATE WHICH SCOPE IS BEING PERFORMED BY THE ABATEMENT CONTRACTOR AND WHICH SCOPE IS BEING PERFORMED BY THEIR NON-ABATEMENT CONTRACTORS.

# ABBREVIATIONS

A.F.F.	ABOVE FINISH FLOOR
AC.	ACOUSTIC, ACOUSTICAL
ACM	ALUMINUM COMPOSITE MATERIAL
ACT or AGT.	ACOUSTICAL TILE & GRID
ADDN	ADDITION
A/G	AIR COMPRESSOR
A.H.U.	AIR HANDLING UNIT
ALT.	ALTERNATE
ALUM.	ALUMINUM
ALF.	ALUMINUM FRAME
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ADA	AMERICANS WITH DISABILITIES ACT
ANCH	ANCHOR, ANCHORAGE
AB	ANCHOR BOLTS
&	AND
L	ANGLE
ANOD.	ANODIZED
APPR.	APPROXIMATELY
APPROX.	APPROXIMATELY
ARCH.	ARCHITECT, ARCHITECTURAL
ASB.	ASBESTOS
ASPH.	ASPHALT
ASSY	ASSEMBLY
ASST.	ASSISTANT
@	AT
A.F.I.S.	AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM
AUTO	AUTOMATIC
BM	BEAM
BRG	BEARING
BET or B/N	BETWEEN
BEV.	BEVEL, BEVELED
BT.	BITUMINOUS
BLK	BLOCK
BLKG.	BLOCKING
BD.	BOARD
BOTT.	BOTTOM
B.O.	BOTTOM OF
BEJ.	BRICK EXPANSION JOINT
BLDG.	BUILDING
BUR.	BUILT-UP ROOFING
CAB	CABINET
CU.H.	CABINET UNIT HEATER
CAP.	CAPACITY
CLG.	CEILING
CH. or CLG HT.	CEILING HEIGHT
CEM.	CEMENT
CTR.	CENTER
CL.	CENTERLINE
CERT.	CERAMIC TILE
CBD.	CHALK BOARD
C	CHANNEL
CLO	CLOSET
COL.	COLUMN
CONC.	CONCRETE
CONF.	CONFERENCE
CJ.	CONTROL JOINT
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
GG.	CORNER GUARD
CORR.	CORRIDOR
CRS.	COURSE, COURSES
DMFPG.	DAMPROOFING
DEG.	DEGREE
DEMO	DEMOLITION
DEPT.	DEPARTMENT
DET. or DTL.	DETAIL
DIA.	DIAMETER
DIM.	DIMENSION
D/W	DISHWASHER
DIST.	DISTANCE
DR.	DOOR
D.F.S.	DOOR FLOOR STOP
D.W.S.	DOOR WALL STOP
DBL.	DOUBLE
D.H.	DOUBLE-HUN
DN	DOWN
D/F	DOWN FLOW
D.S.	DOOPSPUT
DNG.	DRAWING
D.F.	DRINKING FOUNTAIN
EA.	EACH
ELEC.	ELECTRIC, ELECTRICAL
EMT	ELECTRICAL METAL TUBING
ENG	ELECTRIC WATER COOLER
EL. or ELEV.	ELEVATION
ELEV.	ELEVATOR (AS OCCURS)
EMERG.	EMERGENCY
EGAP	EMERGENCY GENERATOR ANNUNCIATOR PANEL
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EQ.	EQUAL
EQUIP.	EQUIPMENT
EXIST.	EXISTING
E.R.R.	EXISTING TO REMAIN
EXP.	EXPANSION
E.J.	EXPANSION JOINT
EXT.	EXTERIOR
E.I.F.S.	EXTERIOR INSULATIVE FINISH SYSTEM
XPS	EXTRUDED POLYSTYRENE
FT	FEET, FOOT
FR.G.P.	FIBER-REINFORCED GYPSUM PANELS
F.G.	FIBERGLASS
FIN.	FINISH, FINISHED
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER IN CABINET
F.R.G.P.	FIBER-REINFORCED GYPSUM PANELS
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F.E.C.	FIRE EXTINGUISHER IN CABINET
F.R.G.P.	FIBER-REINFORCED GYPSUM PANELS
F.G.	FIBERGLASS
FIN.	FINISH, FINISHED
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
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F.R.G.P.	FIBER-REINFORCED GYPSUM PANELS
F.G.	F

**WGA-SERIES - GYPSUM BOARD (METAL STUD), ATTENUATION**

**WGA-4**  
COMPOSITION: 5/8" GYPSUM BOARD, 3-5/8" METAL STUDS AT 16" ON-CENTER, 3-1/2" ACOUSTIC BATTEN INSULATION, 5/8" GYPSUM BOARD.  
TOTAL THICKNESS: 4-7/8"  
TOTAL HEIGHT: FROM FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.  
RATING: NONE

**WGA-4F**  
COMPOSITION: 5/8" GYPSUM BOARD, 3-5/8" METAL STUDS AT 16" ON-CENTER, 3-1/2" ACOUSTIC BATTEN INSULATION.  
TOTAL THICKNESS: 4-1/4"  
TOTAL HEIGHT: FROM FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.  
RATING: NONE

**WGA-6F**  
COMPOSITION: 5/8" GYPSUM BOARD, 6" METAL STUDS AT 16" ON-CENTER, 3-1/2" ACOUSTIC BATTEN INSULATION.  
TOTAL THICKNESS: 6-5/8"  
TOTAL HEIGHT: FROM FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.  
RATING: NONE

**WG-SERIES - GYPSUM BOARD (METAL STUD)**

**WG-4**  
COMPOSITION: 5/8" GYPSUM BOARD, 3-5/8" METAL STUDS AT 16" ON-CENTER, 5/8" GYPSUM BOARD.  
TOTAL THICKNESS: 4-7/8"  
TOTAL HEIGHT: FROM FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.  
RATING: NONE

**WG-4F**  
COMPOSITION: 5/8" GYPSUM BOARD, 3-5/8" METAL STUDS AT 16" ON-CENTER.  
TOTAL THICKNESS: 4-1/4"  
TOTAL HEIGHT: FROM FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.  
RATING: NONE

**WG-6**  
COMPOSITION: 5/8" GYPSUM BOARD, 6" METAL STUDS AT 16" ON-CENTER, 5/8" GYPSUM BOARD.  
TOTAL THICKNESS: 7-1/4"  
TOTAL HEIGHT: FROM FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.  
RATING: NONE

**WFGA-SERIES - FIRE-RATED, GYPSUM BOARD (METAL STUD), ATTENUATION**

**WFGA-4(1)**  
COMPOSITION: 5/8" FIRE-CODE GYPSUM BOARD, 3-5/8" METAL STUDS AT 16" ON-CENTER, 3-1/2" ACOUSTIC BATTEN INSULATION, 5/8" FIRE-CODE GYPSUM BOARD.  
TOTAL THICKNESS: 4-7/8"  
TOTAL HEIGHT: FROM FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.  
RATING: 1-HOUR FIRE RATING (UL #U-465)

**WFB-SERIES - FIRE-RATED, BLOCK**

**WFB-E(1)**  
COMPOSITION: UL CONCRETE MASONRY UNIT, HORIZONTAL REINFORCING AT 16" ON-CENTER VERTICALLY.  
TOTAL THICKNESS: MATCH EXISTING (V.I.F.)  
TOTAL HEIGHT: FROM FLOOR TO UNDERSIDE OF STRUCTURE ABOVE.  
RATING:  
6" NOMINAL THICKNESS OR LESS: 1-HOUR FIRE RATING (UL #U-906)  
8" NOMINAL THICKNESS OR GREATER: 1-HOUR FIRE RATING (UL #U-905)

**FC-SERIES - CONCRETE**

**FC-E**  
COMPOSITION: FINISHES AS SCHEDULED, REINFORCED CONCRETE SLAB, VAPOR BARRIER, COMPACTED SUB-BASE, EXISTING VIRGIN SUB-GRADE.  
TOTAL THICKNESS: V.I.F. - MIN. 1'-0"  
RATING: AIR AND MOISTURE SEALED  
NOTE: REFERENCE STRUCTURAL DRAWINGS. REFERENCE FLOOR FINISHES DRAWINGS AND SPECIFICATIONS FOR SLAB PREPARATION REQUIREMENTS.

**DETAIL - TYPICAL TOP OF FIRE-RATE STUD PARTITION**  
3" = 1'-0"

**DETAIL - TYPICAL TOP OF STUD PARTITION SLIP TRACK**  
3" = 1'-0"

**NOTE:** ALL EXTERIOR AND FIRE RATED WALL FRAMING SHALL UTILIZE BOTH OPTIONS.

**DETAIL - TYPICAL GYPSUM STUD PARTITION TO CMU PARTITION**  
3" = 1'-0"

**WALL / FLOOR / CEILING TYPE KEY**

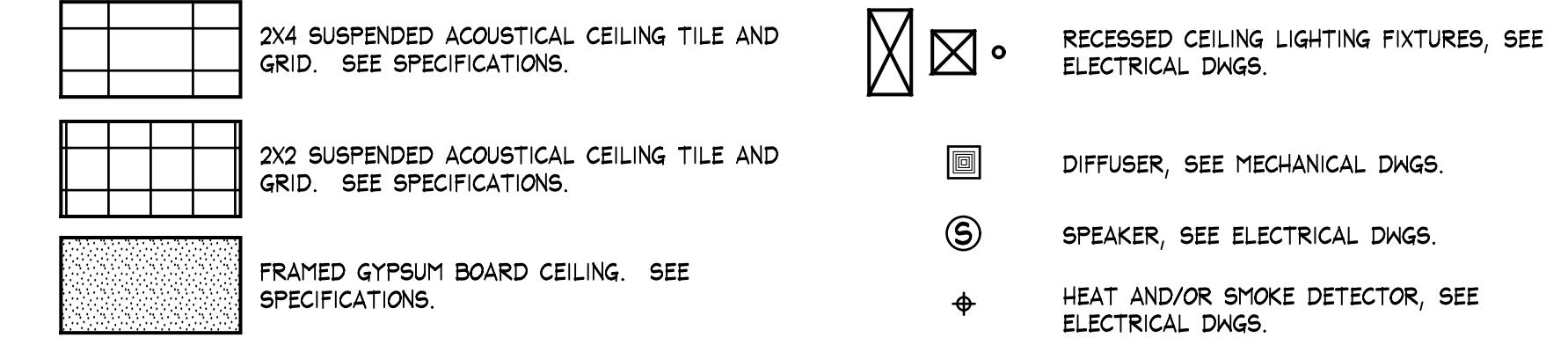
**WALL AND FLOOR TYPES AND DETAILS**

PROJ. NO. JH1828 DRAWING NO. A-0.2

SCALE As indicated

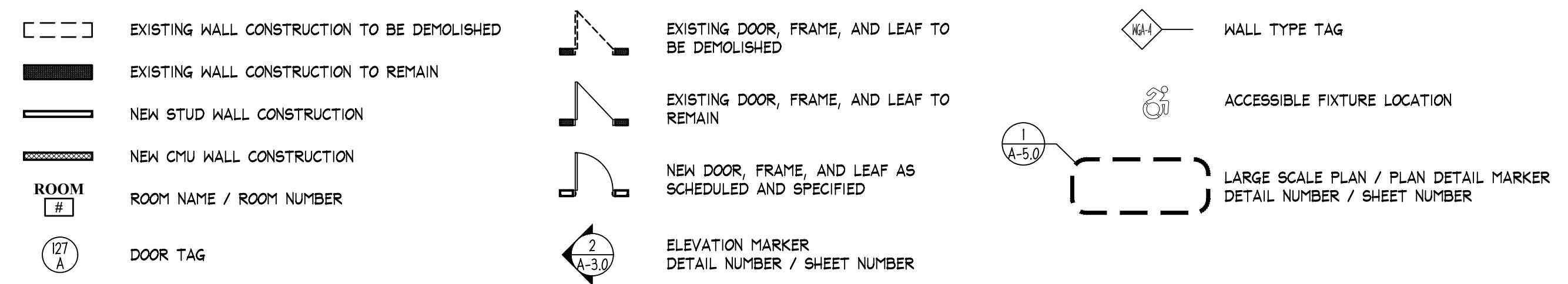
DATE NOVEMBER 8, 2018

## REFLECTED CEILING PLAN LEGEND

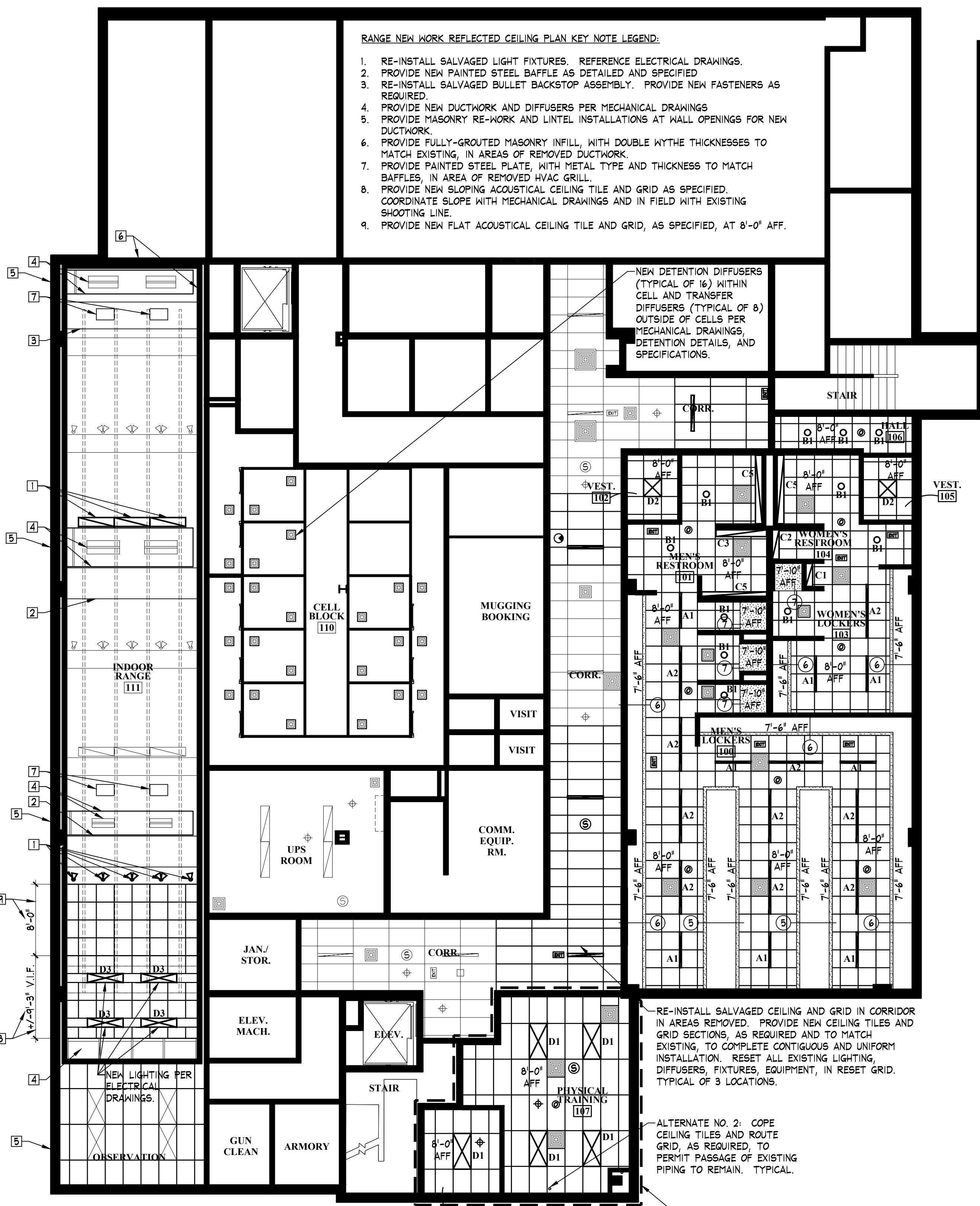


NOTE:  
1. ALL CEILINGS ARE TO BE 8'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.  
2. SEE CODE PLAN FOR LOCATIONS OF ALL RATED CONSTRUCTION, TYPICAL.  
3. COORDINATE ALL LIGHTING QUANTITIES AND LOCATIONS WITH THE ARCHITECT. REPORT ANY DISCREPANCIES BETWEEN CEILING AND ELECTRICAL AND/OR MECHANICAL DRAWINGS TO THE ARCHITECT IMMEDIATELY.

## FLOOR PLAN LEGEND

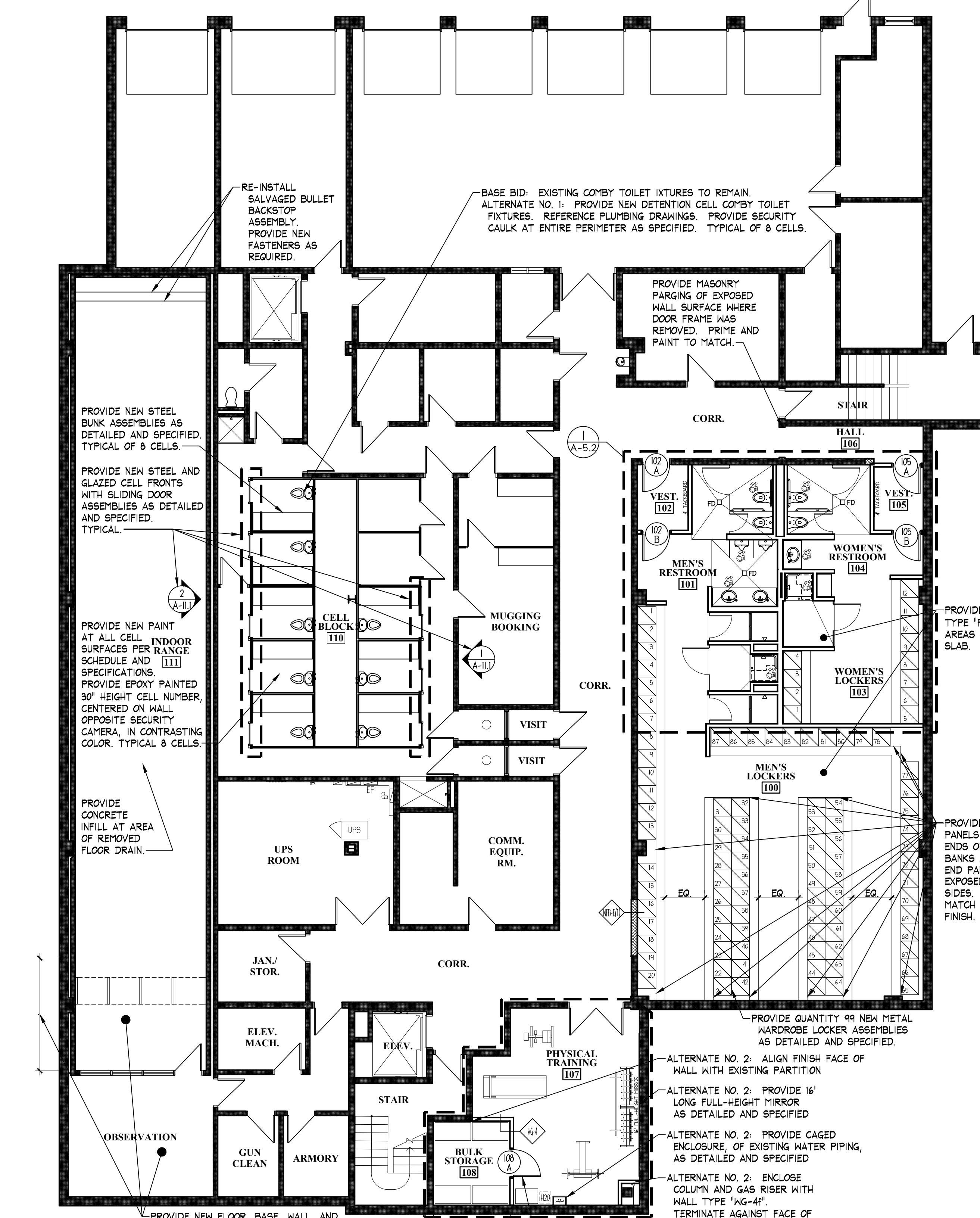


RFP 6320



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

2 NEW WORK OVERALL LOWER LEVEL REFLECTED CEILING PLAN



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

1 NEW WORK OVERALL LOWER LEVEL FLOOR PLAN

## TRUMBULL POLICE DEPARTMENT

TRUMBULL, CONNECTICUT

158 EDISON ROAD

JACUNSKI HUMES ARCHITECTS, LLC

15 MASSIRIO DRIVE  
SUITE 101  
BERLIN, CT 06037  
TEL 860-828-9221  
FAX 860-828-9223

## NEW WORK OVERALL LOWER LEVEL PLANS

PROJ. NO. JH1828 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016

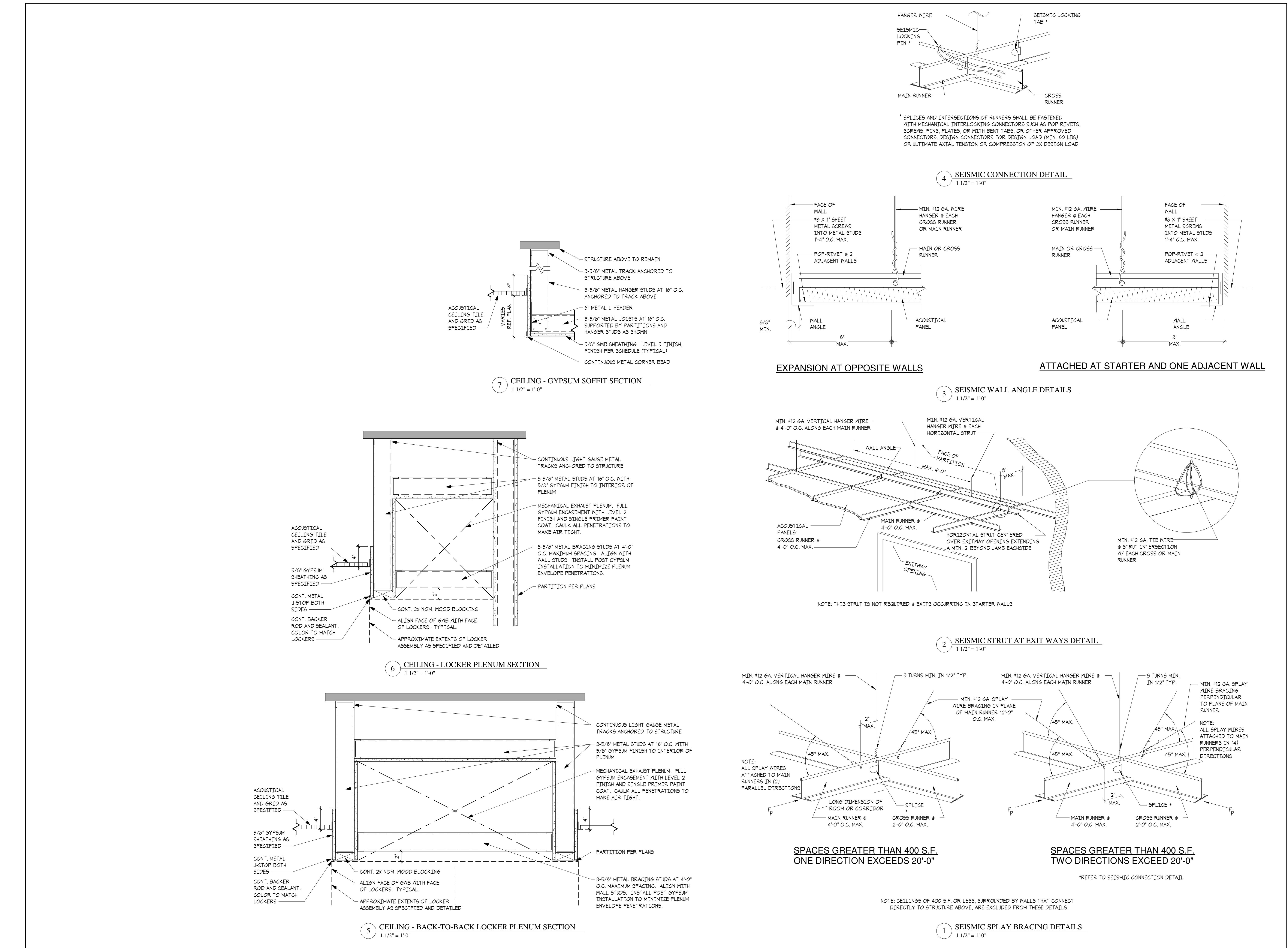
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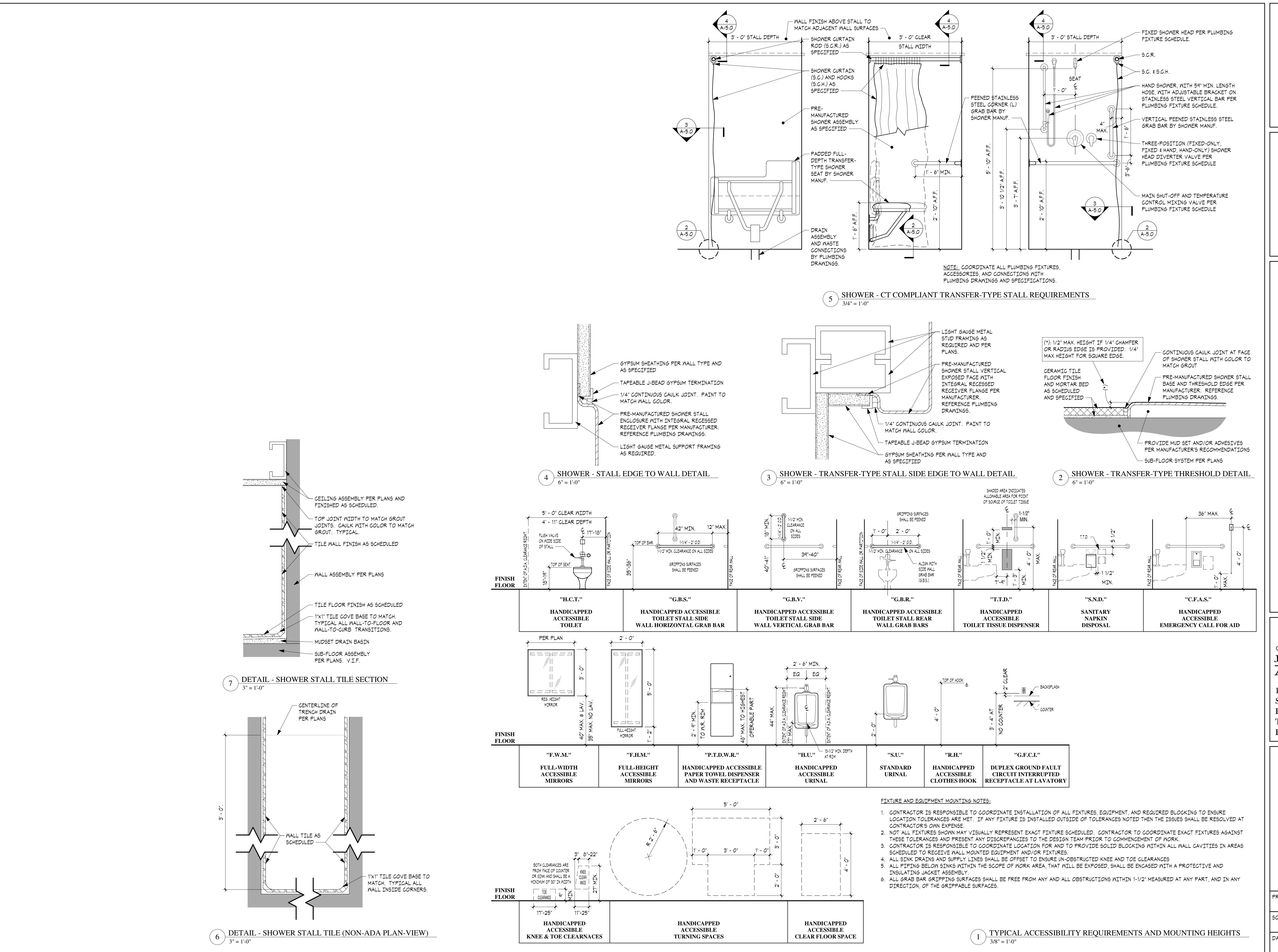
**INTERIOR RENOVATION TO THE  
TRUMBULL POLICE  
DEPARTMENT**

158 EDISON ROAD TRUMBULL, CONNECTICUT

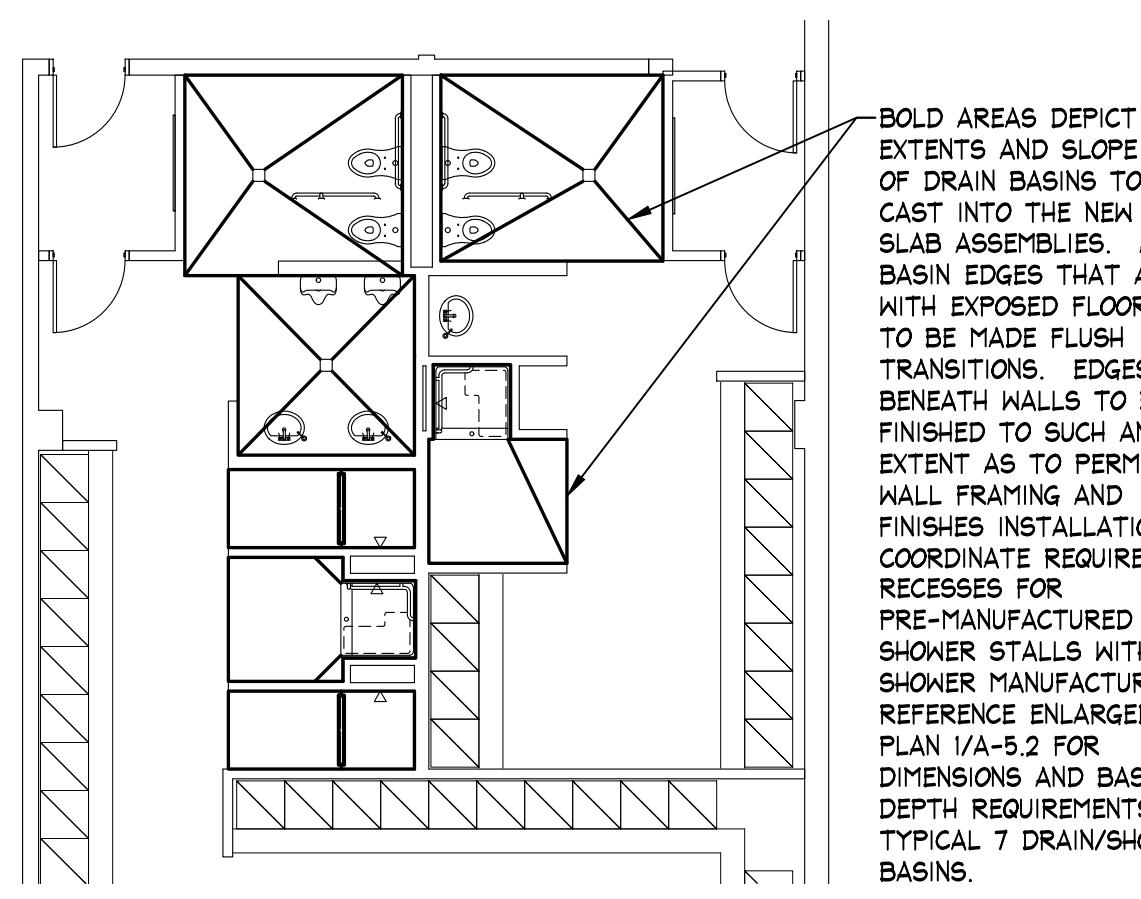
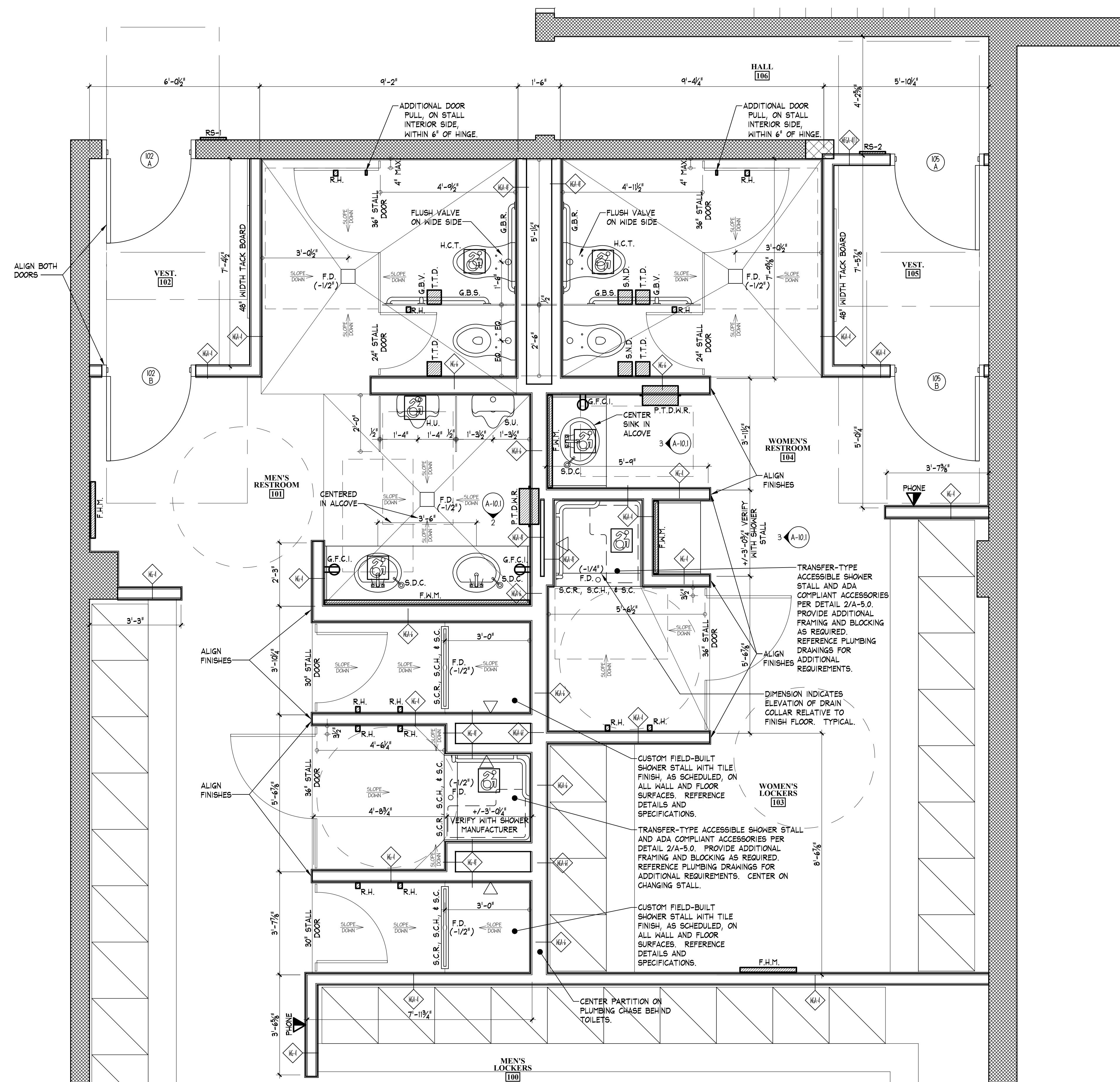
**JH**  
JACUNSKI HUMES  
ARCHITECTS, LLC  
15 MASSIRIO DRIVE  
SUITE 101  
BERLIN, CT 06087  
TEL 860-828-9221  
FAX 860-828-9223

**CEILING  
DETAILS**





RFP 6320



2 WARPED AND DEPRESSED SLAB PLAN  
SCALE: 1/8" = 1'-0"

### SYMBOLS LEGEND

CORR.	ROOM NAME TAG
WALL TAG	
DOOR TAG	
INTERIOR ELEVATION TAG	
ACCESSIBLE FIXTURE TAG	
TOILET ACCESSORY AS IDENTIFIED (REFERENCE SPECIFICATIONS)	
ELECTRICAL FIXTURE INDICATORS (REFERENCE ELECTRICAL DRAWINGS)	
FACE OF FINISH	DIMENSIONS TO FACE OF FINISH
FACE OF STUD	DIMENSIONS TO FACE OF STUD

### ABBREVIATIONS

C.G.	CORNER GUARD
F.D.	FLOOR DRAIN (SEE PLBG. DWGS.)
F.H.M.	FULL-HEIGHT MIRROR
F.W.M.	FULL-WIDTH MIRROR
G.B.R.	GRAB BAR - REAR WALL
G.B.S.	GRAB BAR - SIDE WALL
G.F.C.I.	GROUND-FAULT CIRCUIT INTERRUPTER (SEE ELEC. DWGS.)
H.C.T.	HANDICAPPED ACCESSIBLE TOILET (SEE PLBG. DWGS.)
H.U.	HANDICAPPED ACCESSIBLE URINAL (SEE PLBG. DWGS.)
LAV.	HANDICAPPED ACCESSIBLE LAVATORY (SEE PLBG. DWGS.)
M.W.F.	MIRROR WITH S.S. FRAME
P.C.	ADA COMPLIANT PIPE COVERS (SEE PLBG. DWGS.)
P.T.D.	FULLY RECESSED PAPER TOWEL DISPENSER AND WASTE RECEPTACLE
P.T.D.W.R.	SEMI-RECESSED PAPER TOWEL DISPENSER AND WASTE RECEPTACLE
R.H.	ROBE HOOK
RS-#	ROOM SIGNAGE (SEE DRAWING A-6.2)
S.C.	SHOWER CURTAIN
S.C.H.	SHOWER CURTAIN HOOKS
S.C.R.	SHOWER CURTAIN ROD
S.D.	SOAP DISPENSER (HALL-MOUNTED)
S.D.C.	SOAP DISPENSER (COUNTER-MOUNTED)
S.N.D.	SANITARY NAPKIN DISPOSAL
S.T.	STANDARD TOILET (SEE PLBG. DWGS.)
S.U.	STANDARD URINAL (SEE PLBG. DWGS.)
T.T.D.	TOILET TISSUE DISPENSER

### GENERAL NOTES

1. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL FIXTURE INFORMATION.
2. REFERENCE FINISH DRAWINGS FOR WALL FINISHES THAT MAY IMPACT ROUGH-IN LOCATIONS FROM DIMENSIONS SHOWN.
3. REFERENCE SPECIFICATIONS FOR ADDITIONAL TOILET ACCESSORY INFORMATION.

1 LARGE SCALE NEW WORK RESTROOM PLANS  
SCALE: 1/2" = 1'-0"

## TRUMBULL POLICE DEPARTMENT

TRUMBULL, CONNECTICUT

158 EDISON ROAD

### LARGE SCALE NEW WORK RESTROOM PLANS

JACUNSKI HUMES  
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15 MASSIRIO DRIVE  
SUITE 101  
BERLIN, CT 06071  
TEL 860-828-9221  
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A-5.2

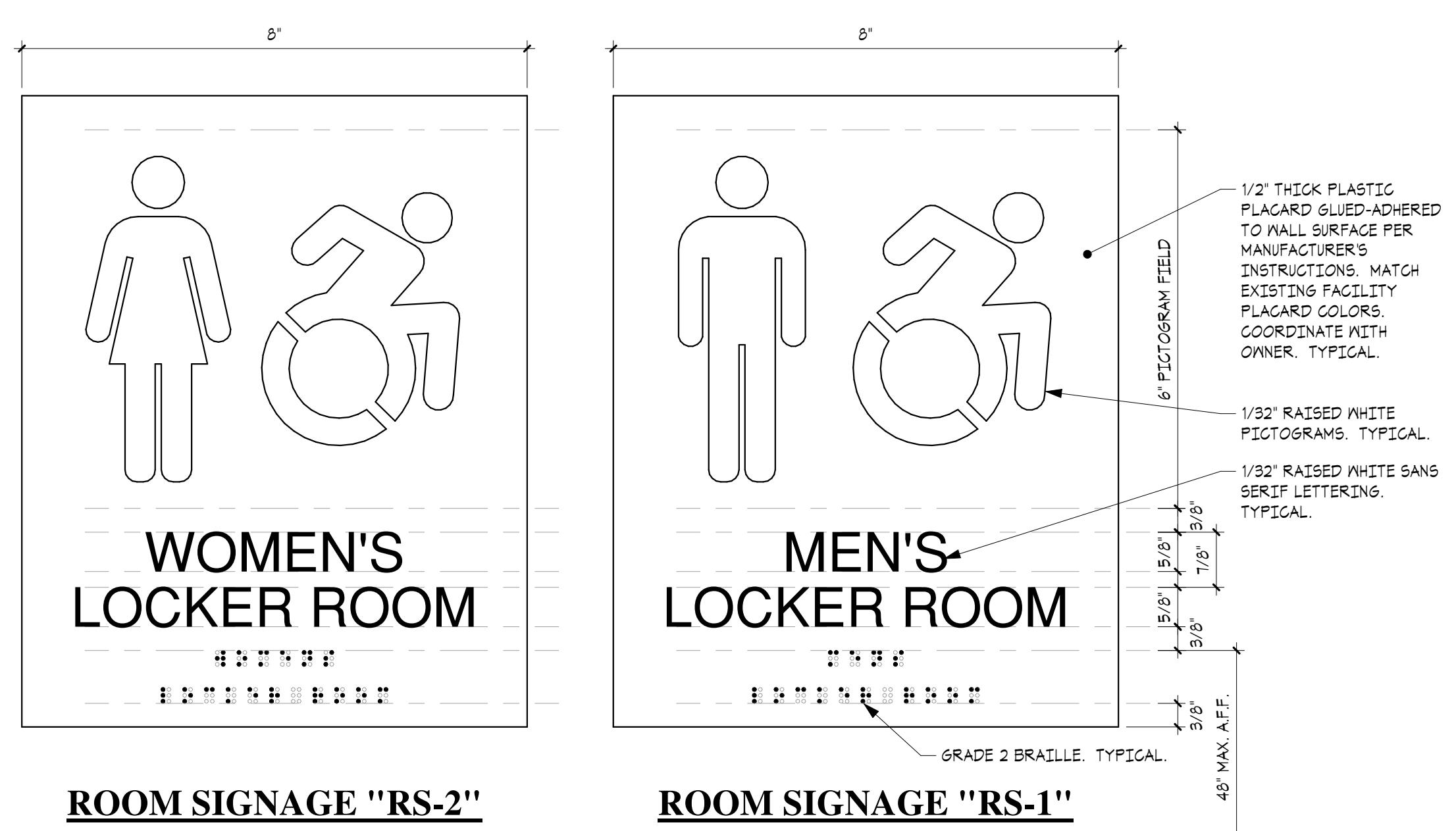
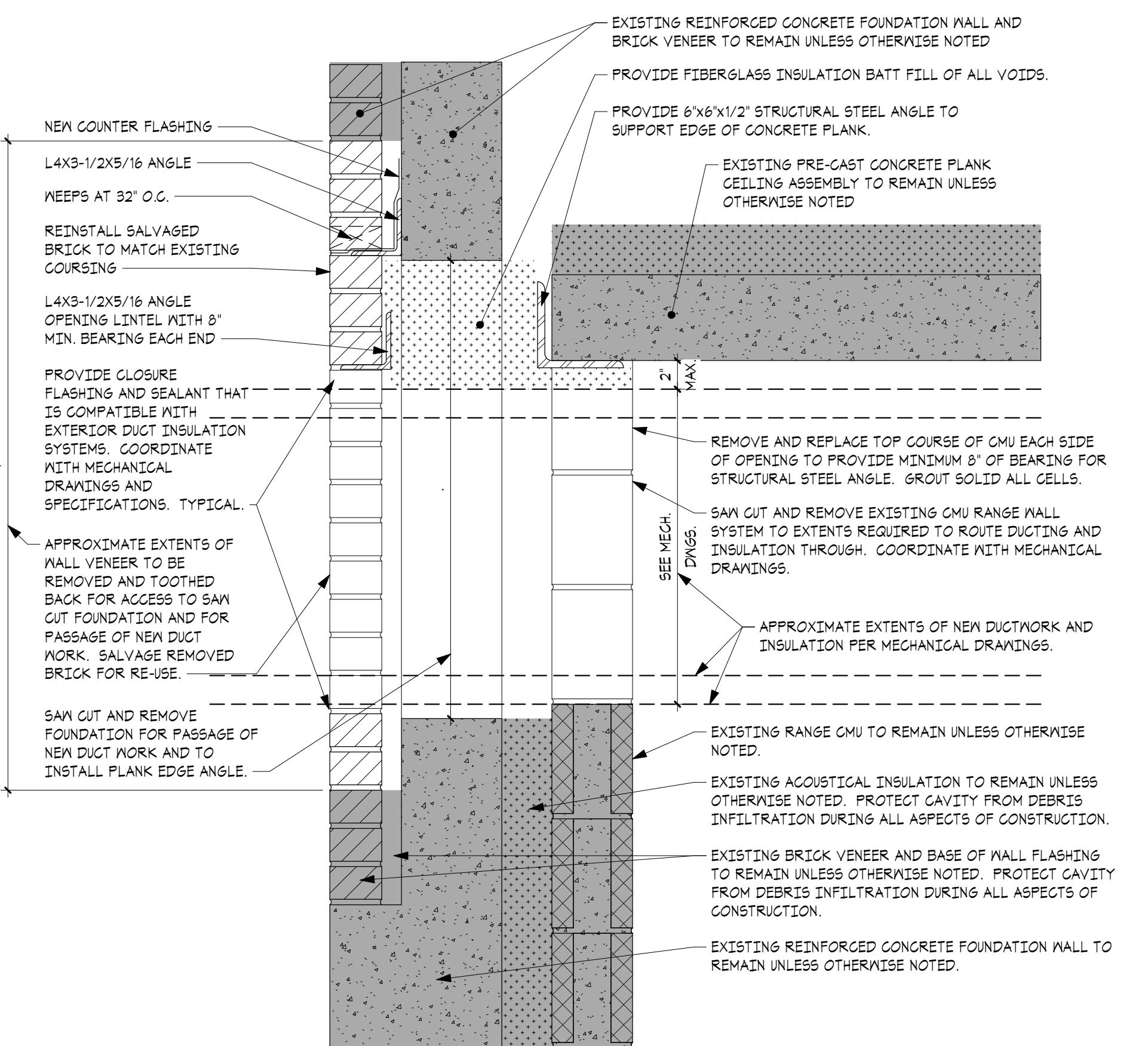
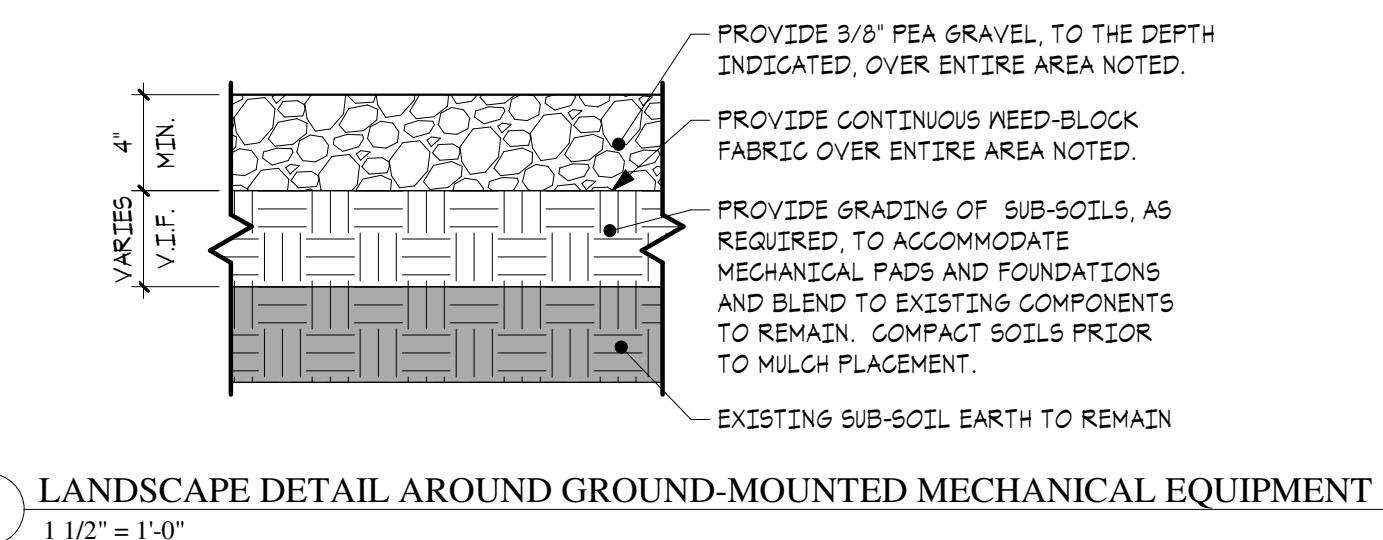
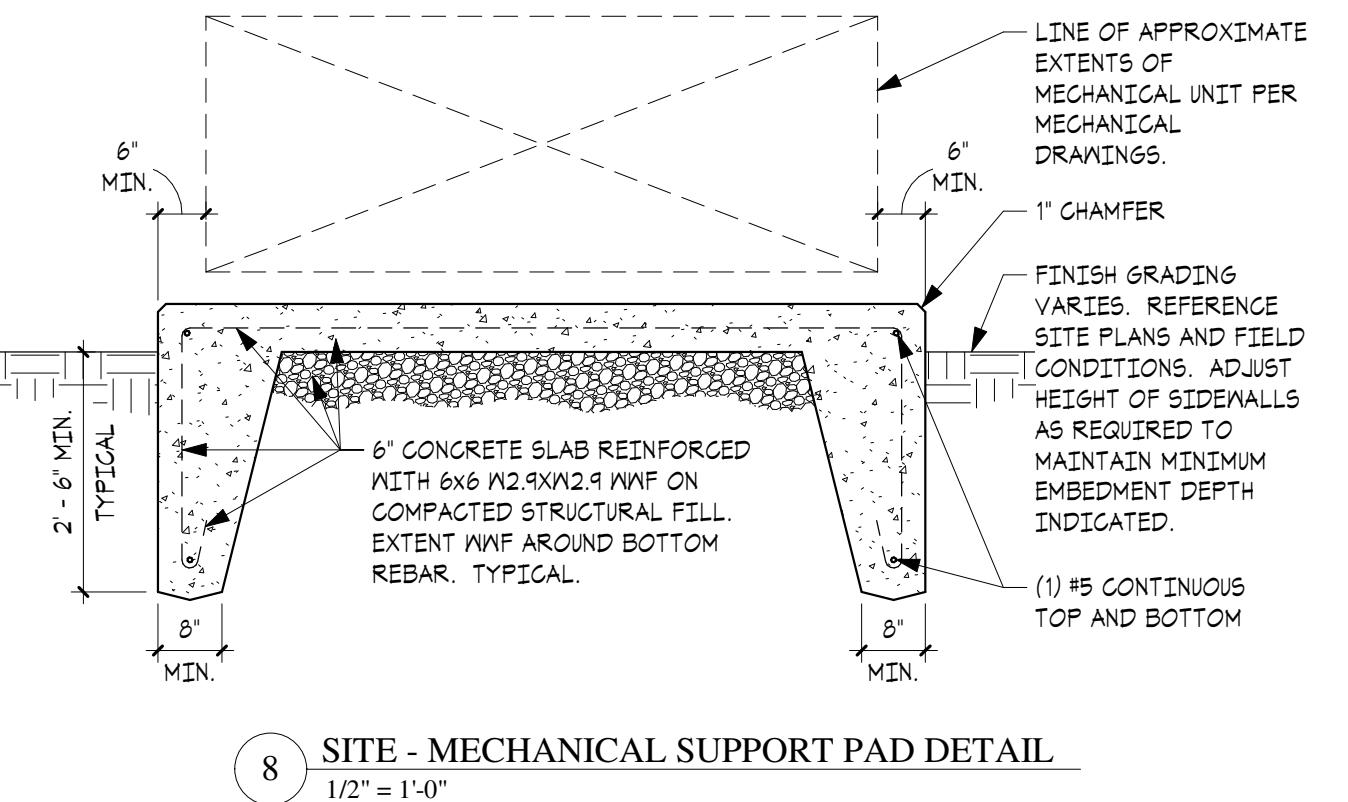
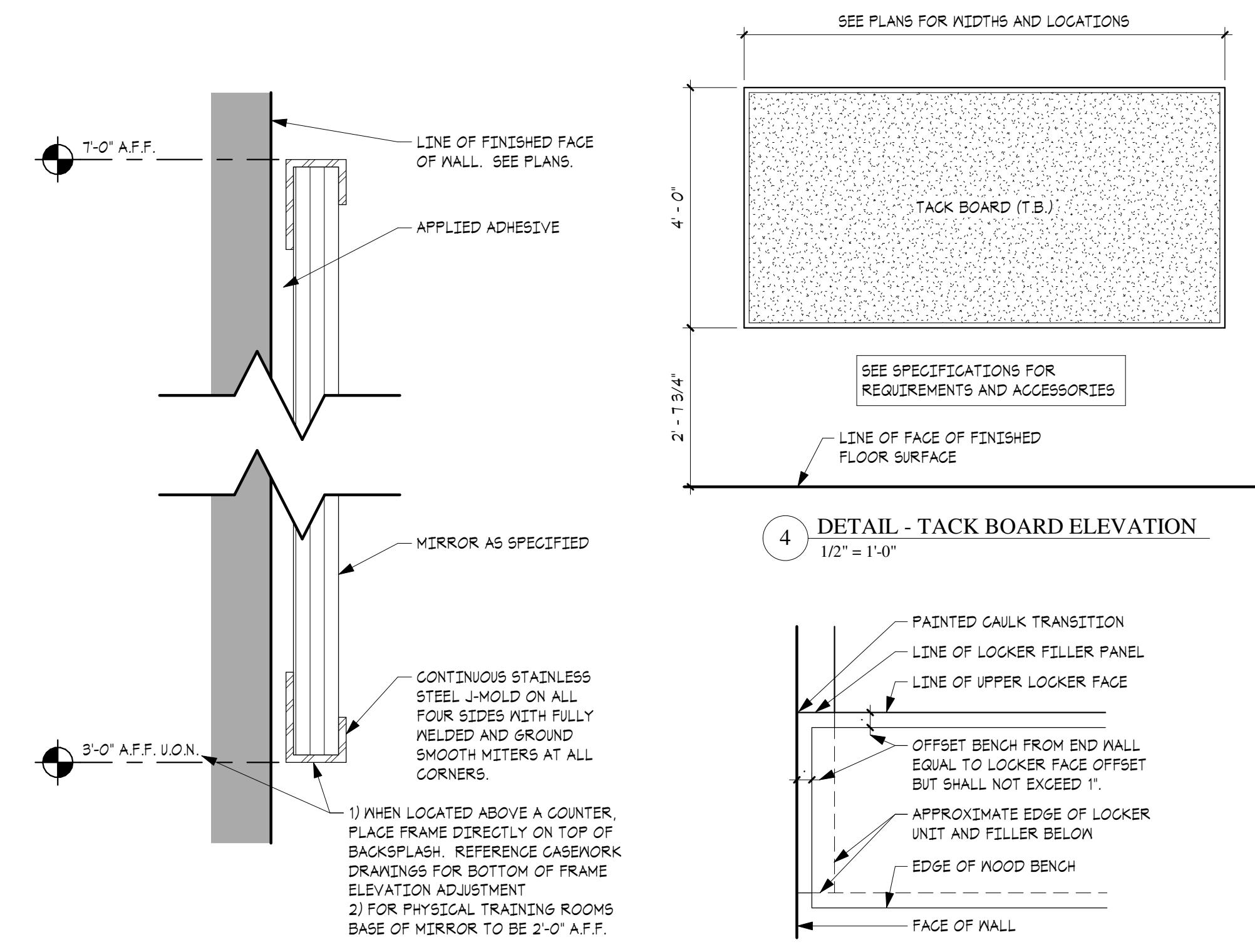
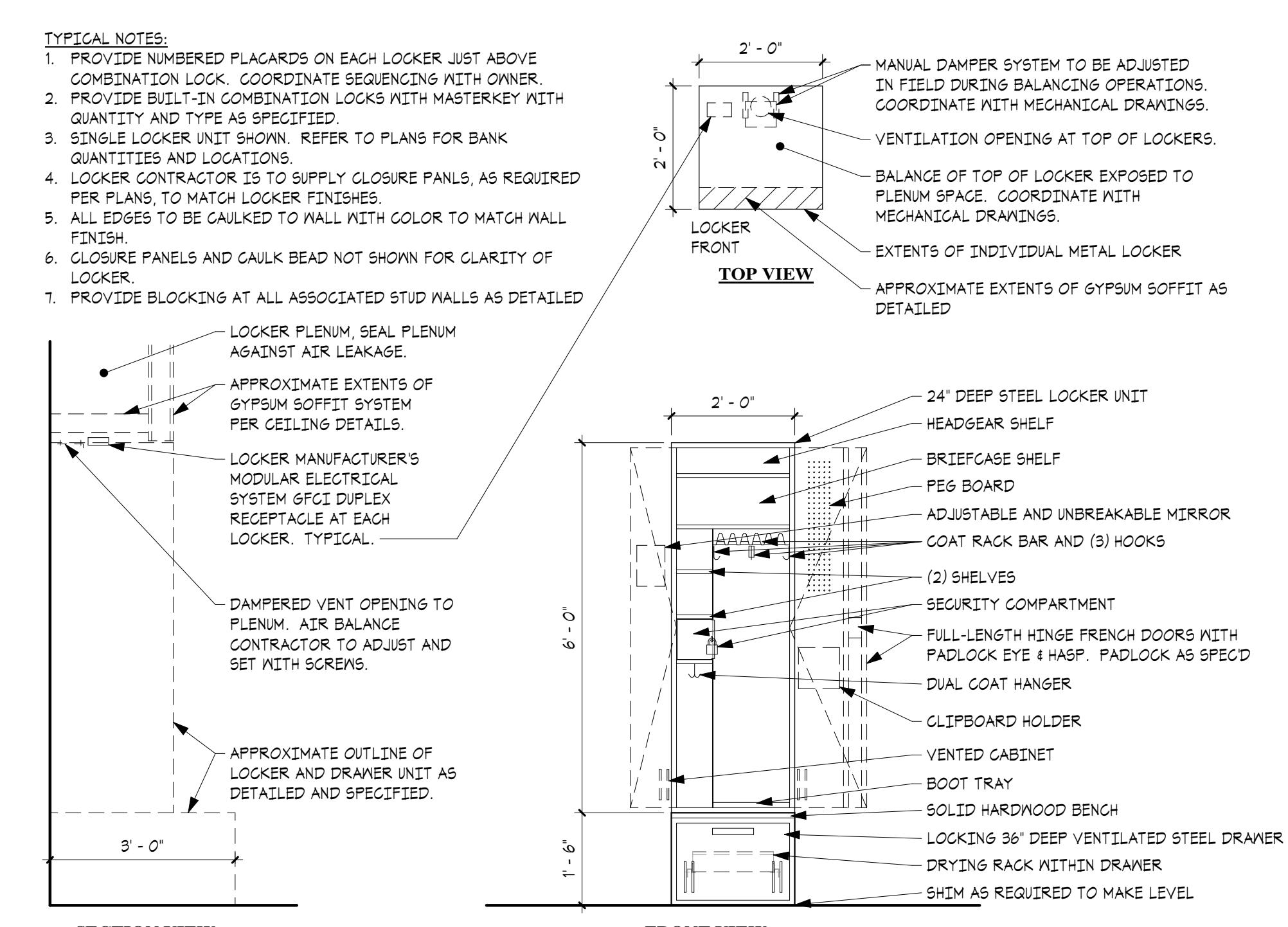
PROJ. NO. JH1828 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016

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MISC.  
DETAILS

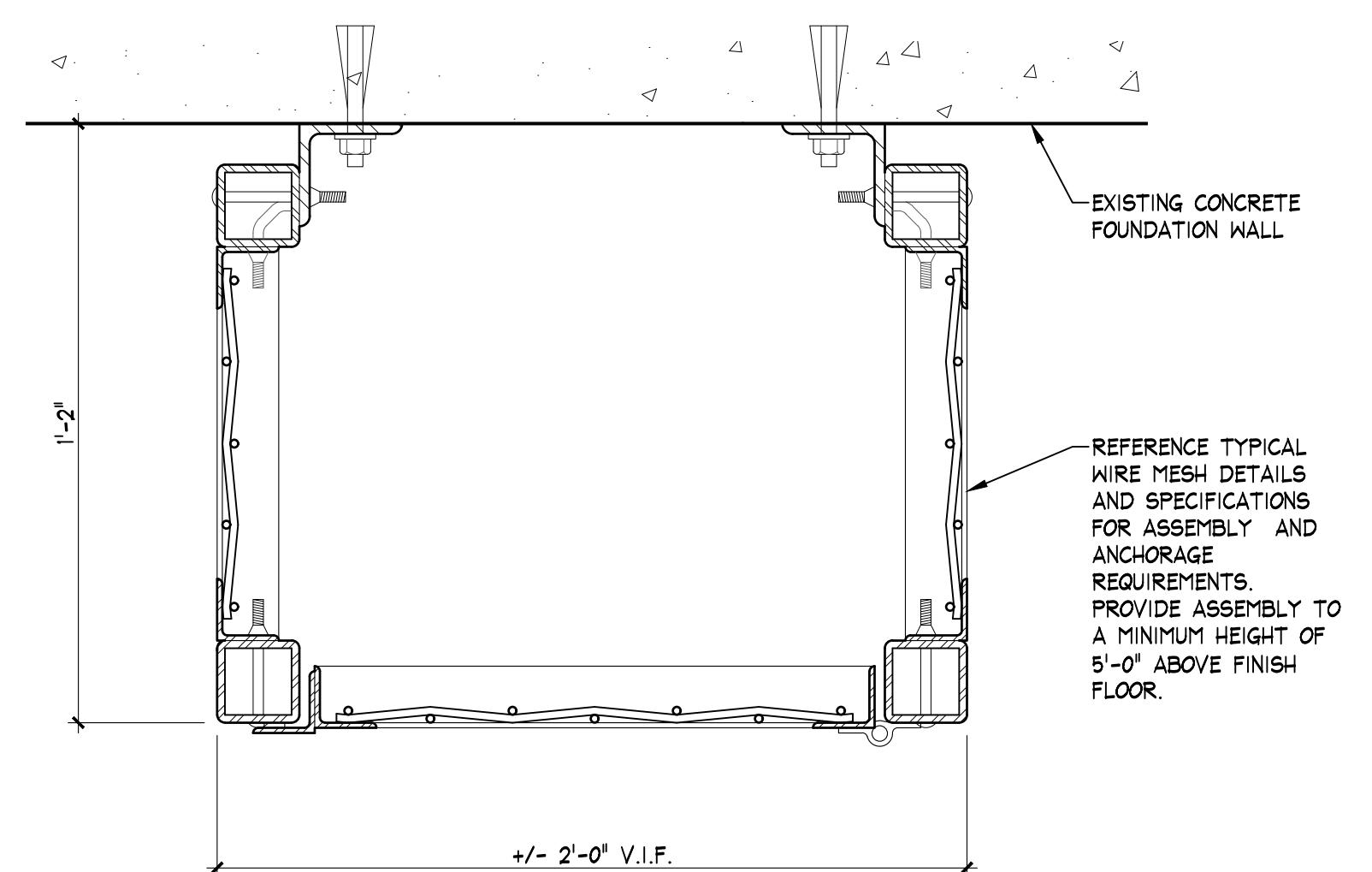
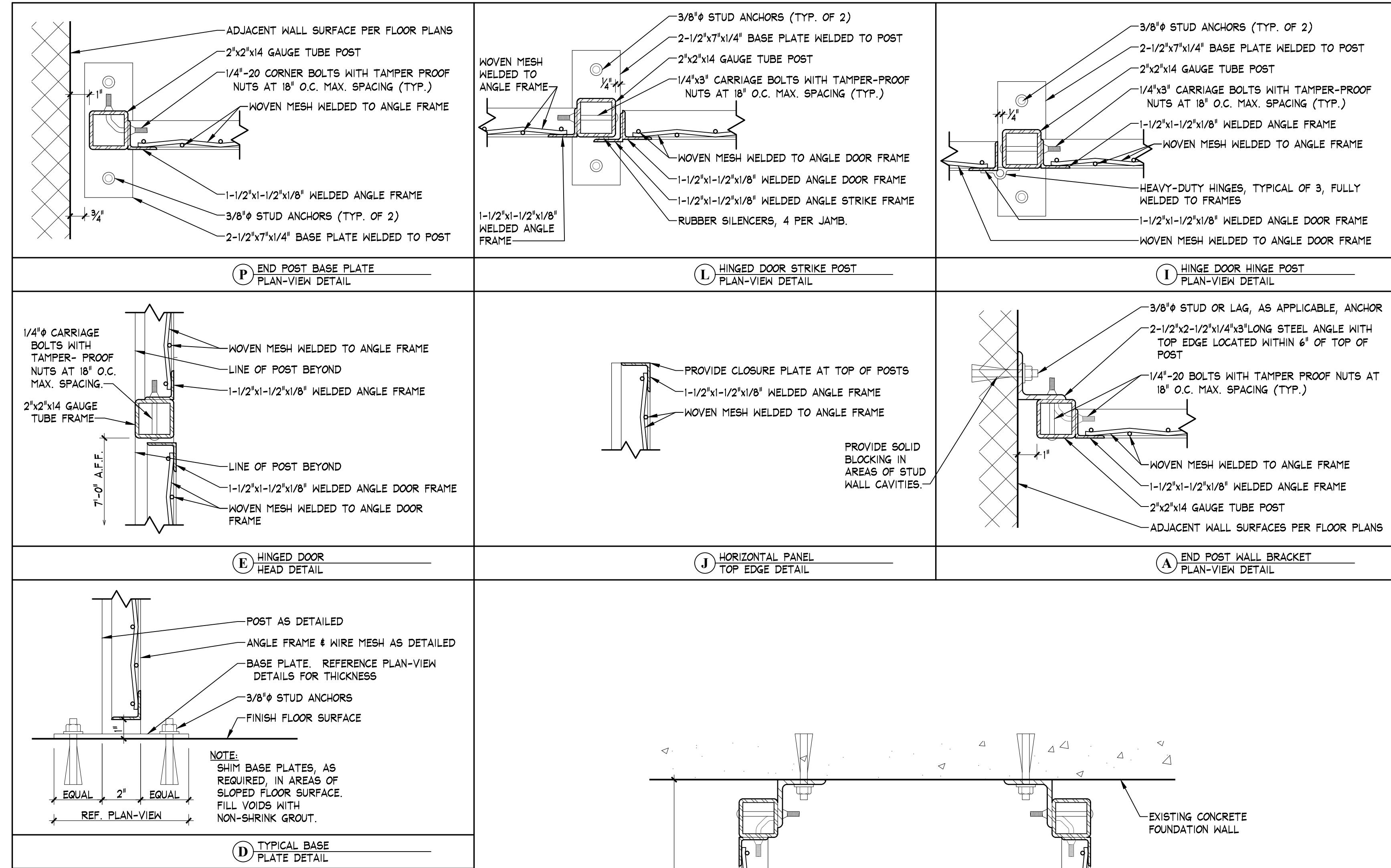
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SCALE	As indicated	
DATE	NOVEMBER 8, 2018	

A-6.1

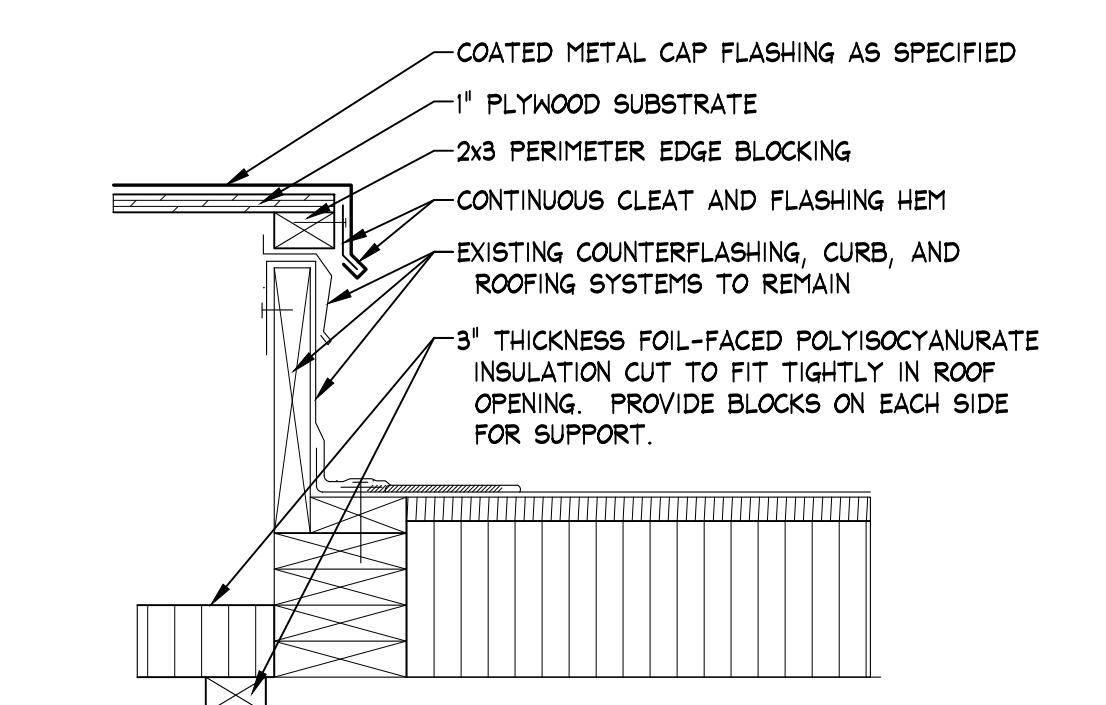
6 SIGNAGE - LOCKER ROOMS  
6" = 1'-0"3 DETAIL - FULL WIDTH MIRROR SECTION  
6" = 1'-0"1 LOCKERS - WARDROBE (24" WIDTH)  
1 1/2" = 1'-0"

MISC.  
DETAILS

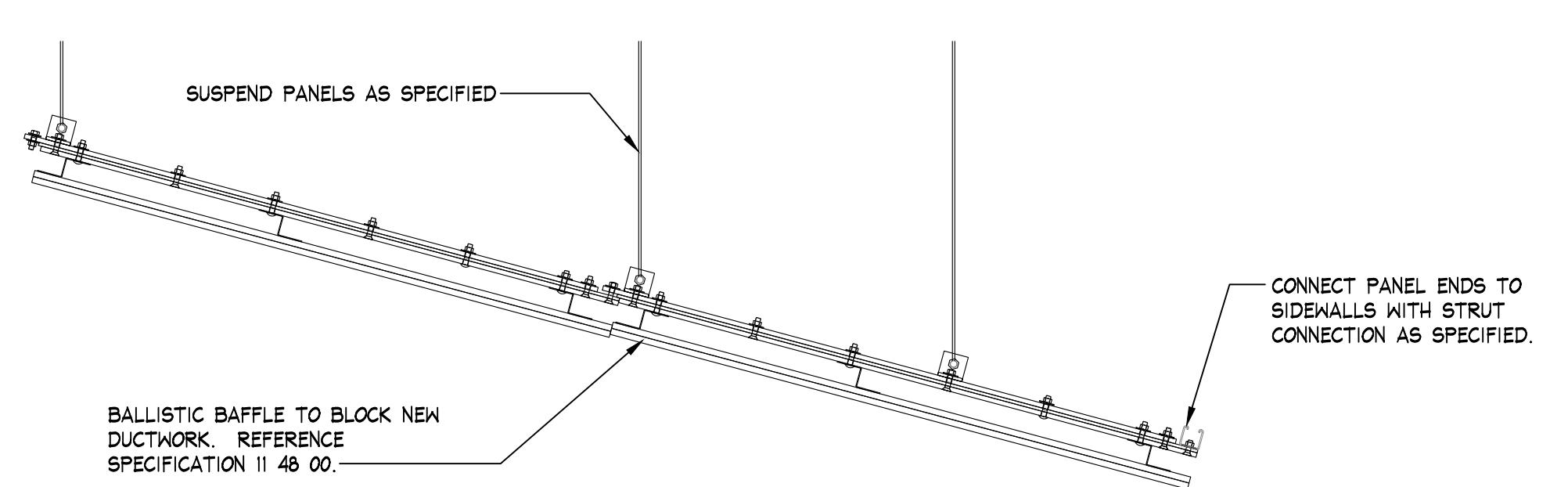
A-6.2



**3** ALTERNATE NO. 2: ENLARGED DETAILS AT WATER PIPING CAGE  
 SCALE: 3" = 1'-0"



**2** SECTION DETAIL AT INSULATED ROOF CURB CAP  
 SCALE: 1-1/2" = 1'-0"



**1** SECTION DETAIL AT FIRING RANGE BAFFLE (TYPICAL OF 1)  
 SCALE: 1" = 1'-0"

PROJ. NO.	JH1628	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2016	

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TRUMBULL, CONNECTICUT

158 EDISON ROAD

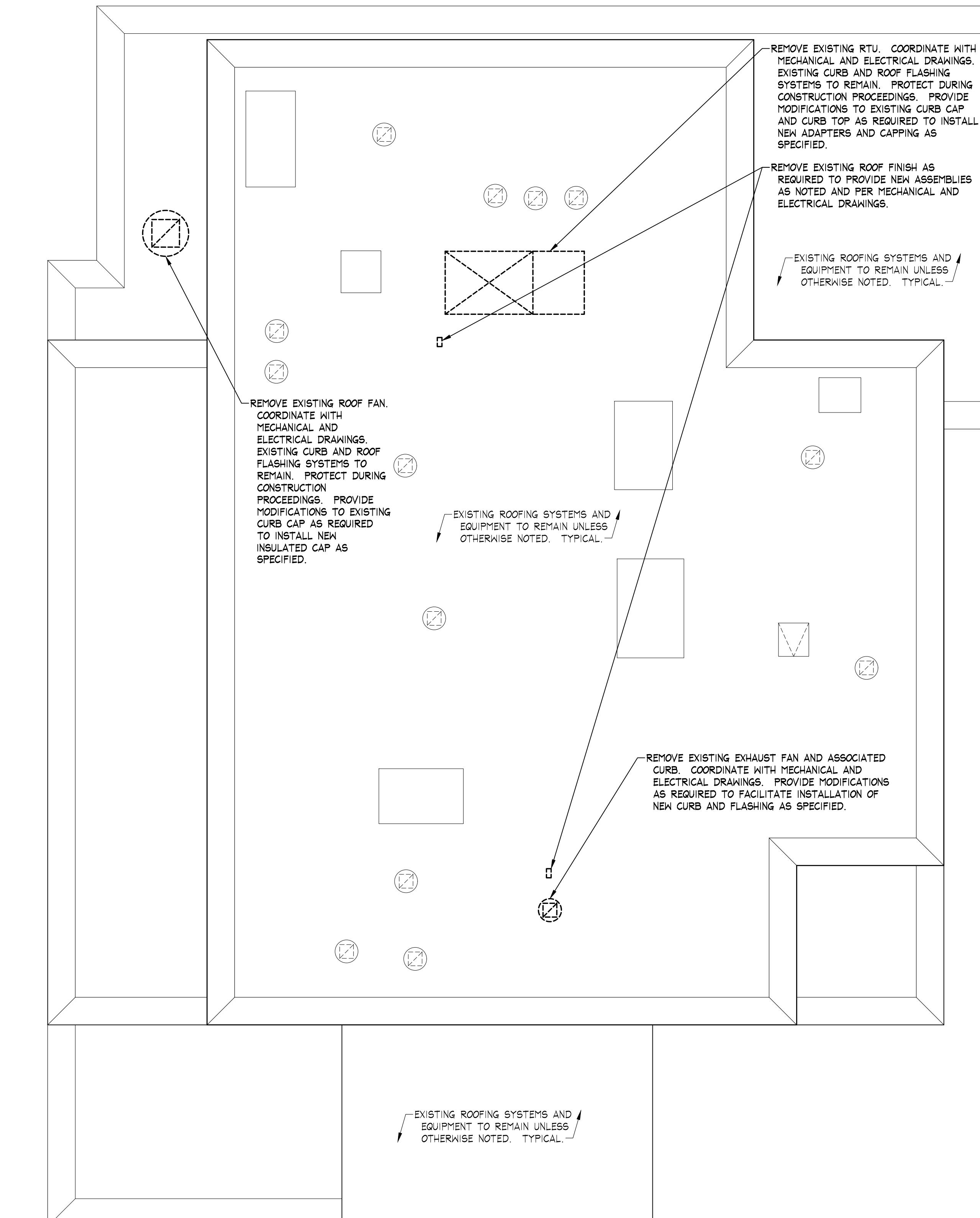
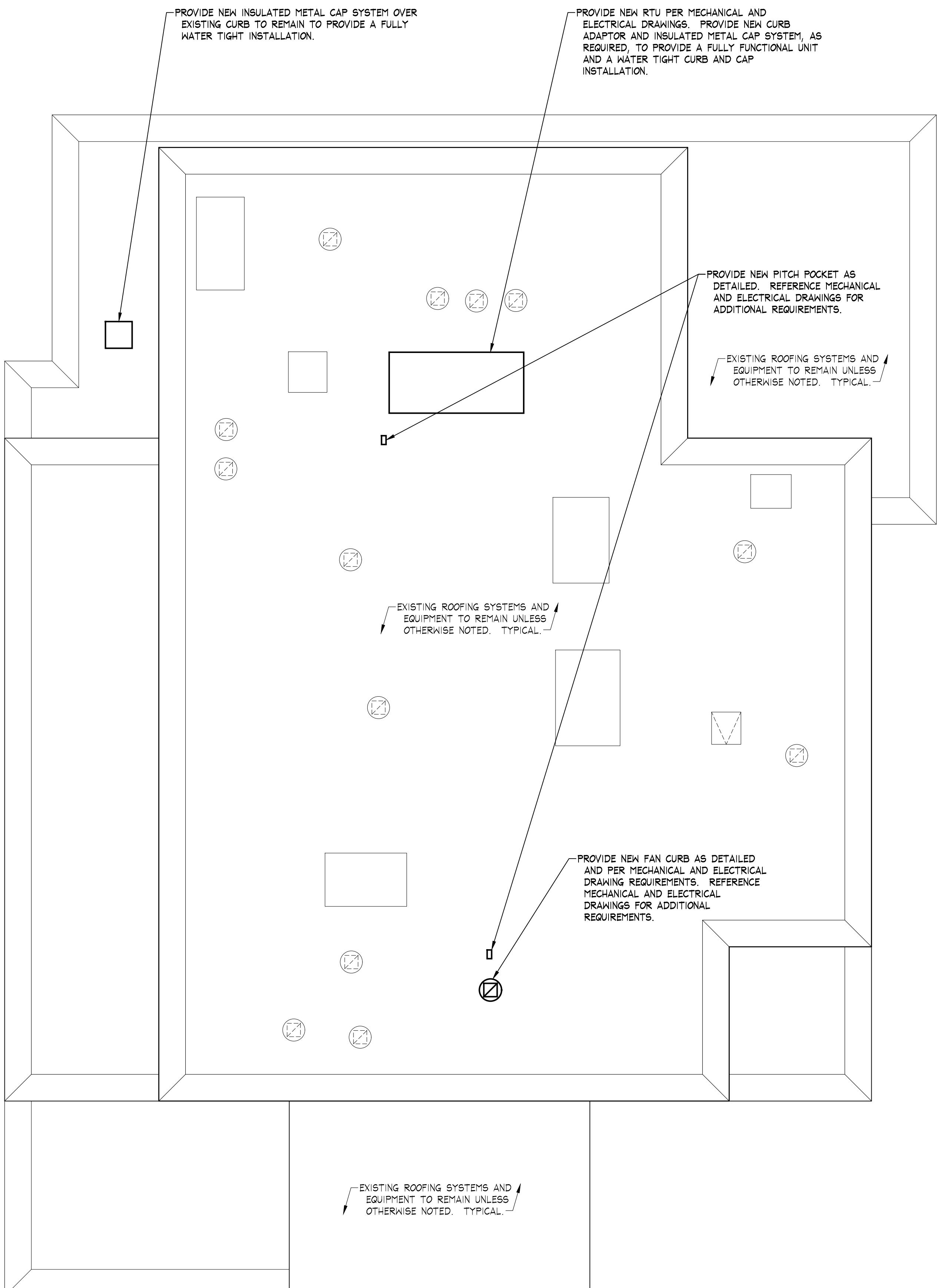
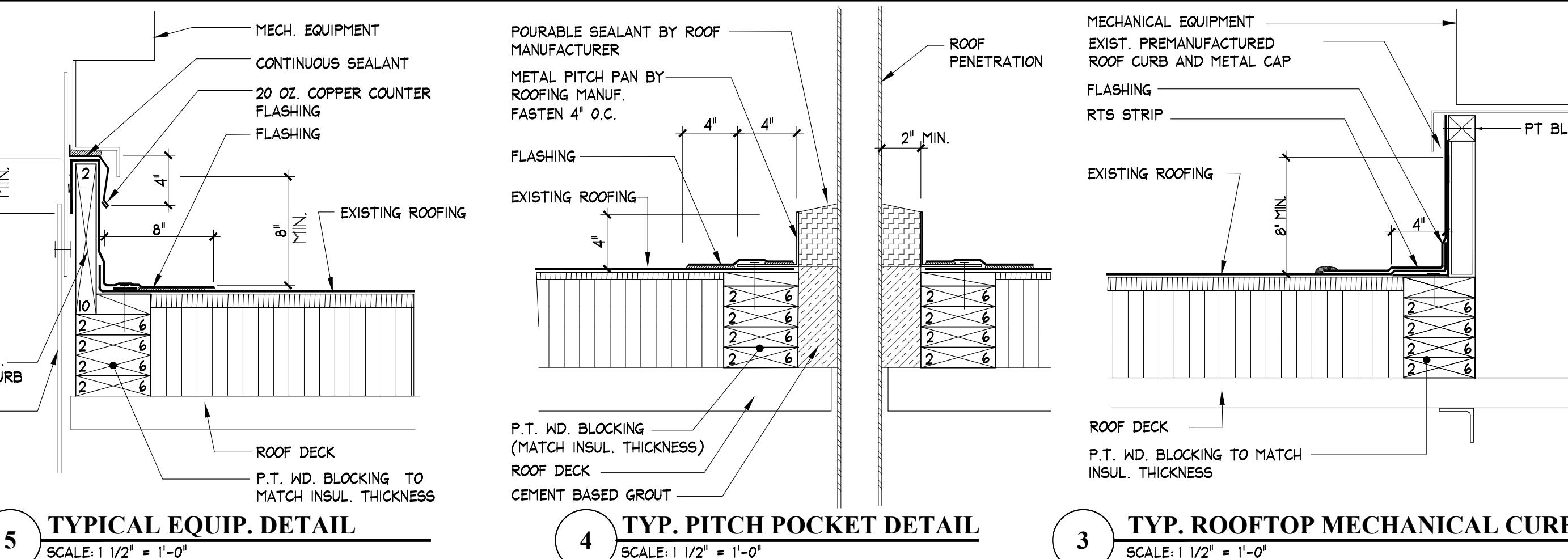
**TRUMBULL POLICE  
DEPARTMENT**

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15 MASSIRIO DRIVE  
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FAX 860-828-9223

**OVERALL  
ROOF  
PLANS**

PROJ. NO.	JH1828	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2016	

**A-7.0**



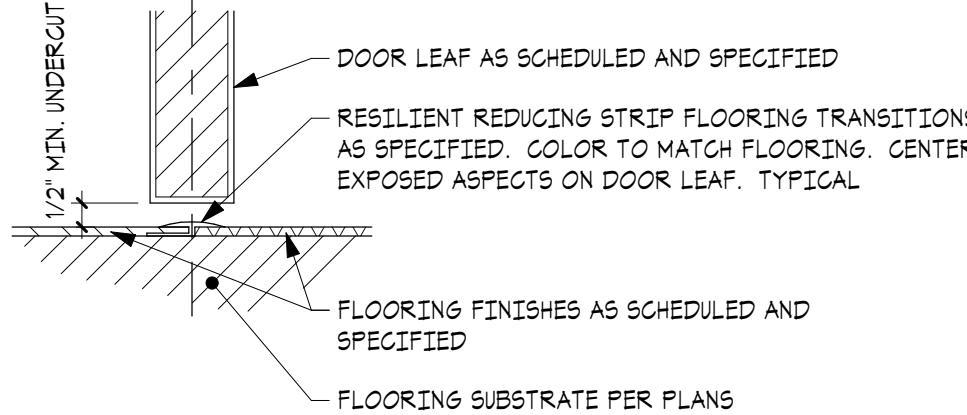
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**INTERIOR RENOVATION TO THE  
TRUMBULL POLICE  
DEPARTMENT**

158 EDISON ROAD TRUMBULL, CONNECTICUT

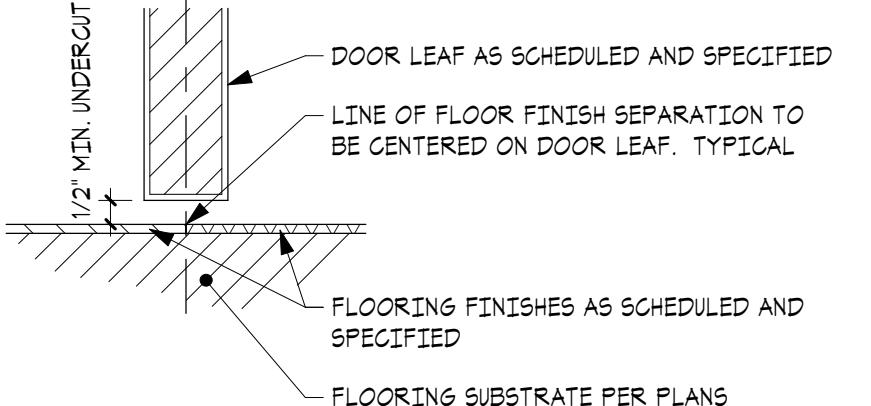
**DOOR  
INFORMATION  
AND DETAILS**

PROJ. NO.	JH1828	DRAWING NO.	A-9.1
SCALE	As indicated		
DATE	NOVEMBER 8, 2018		



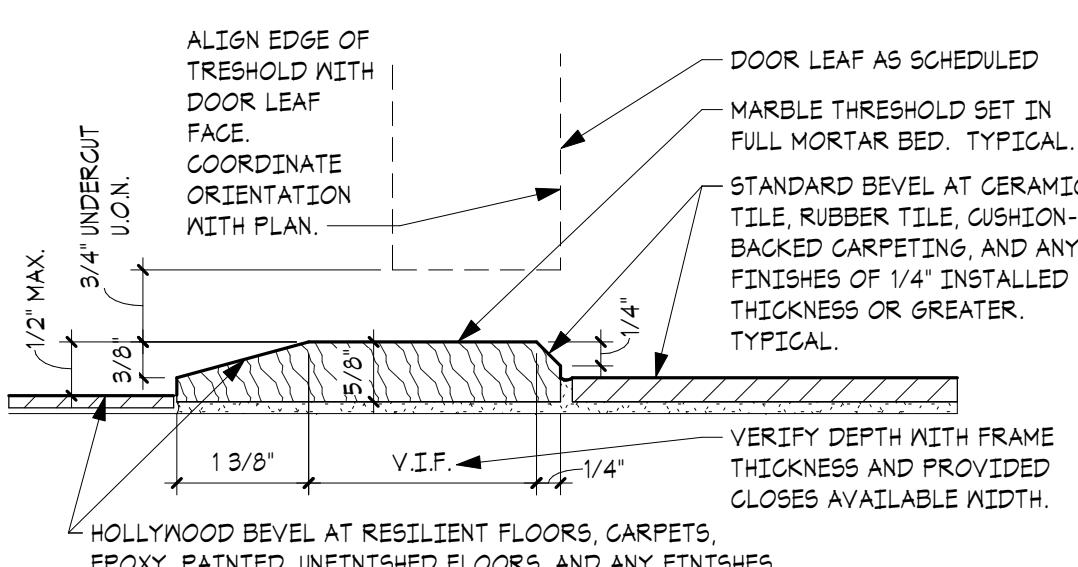
**RRS**

THIS DRAWING IS NOT TO SCALE



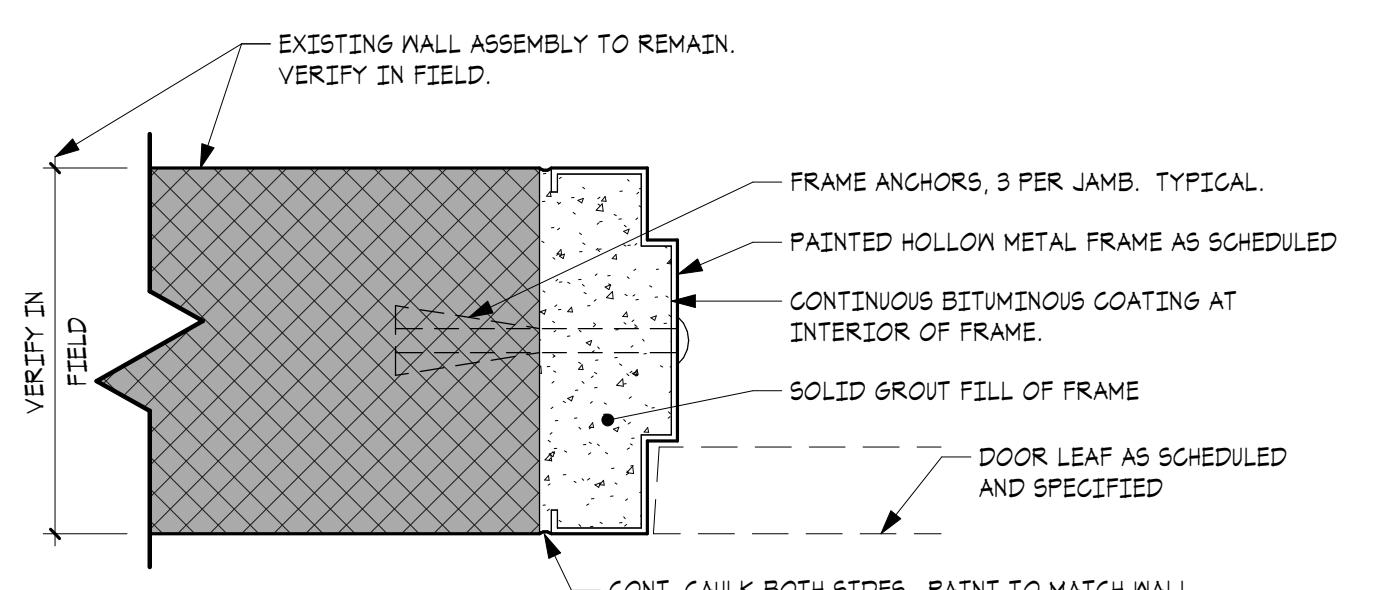
THIS DRAWING IS NOT TO SCALE

**FFS**

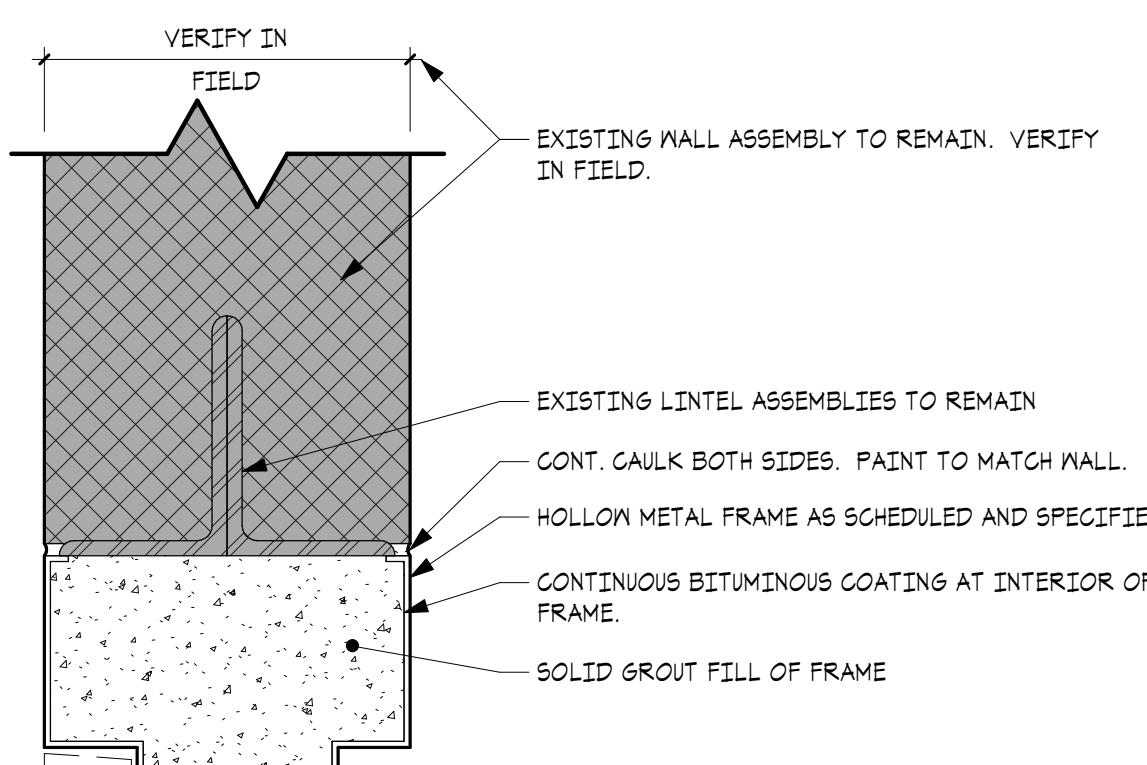


**M.TH.**

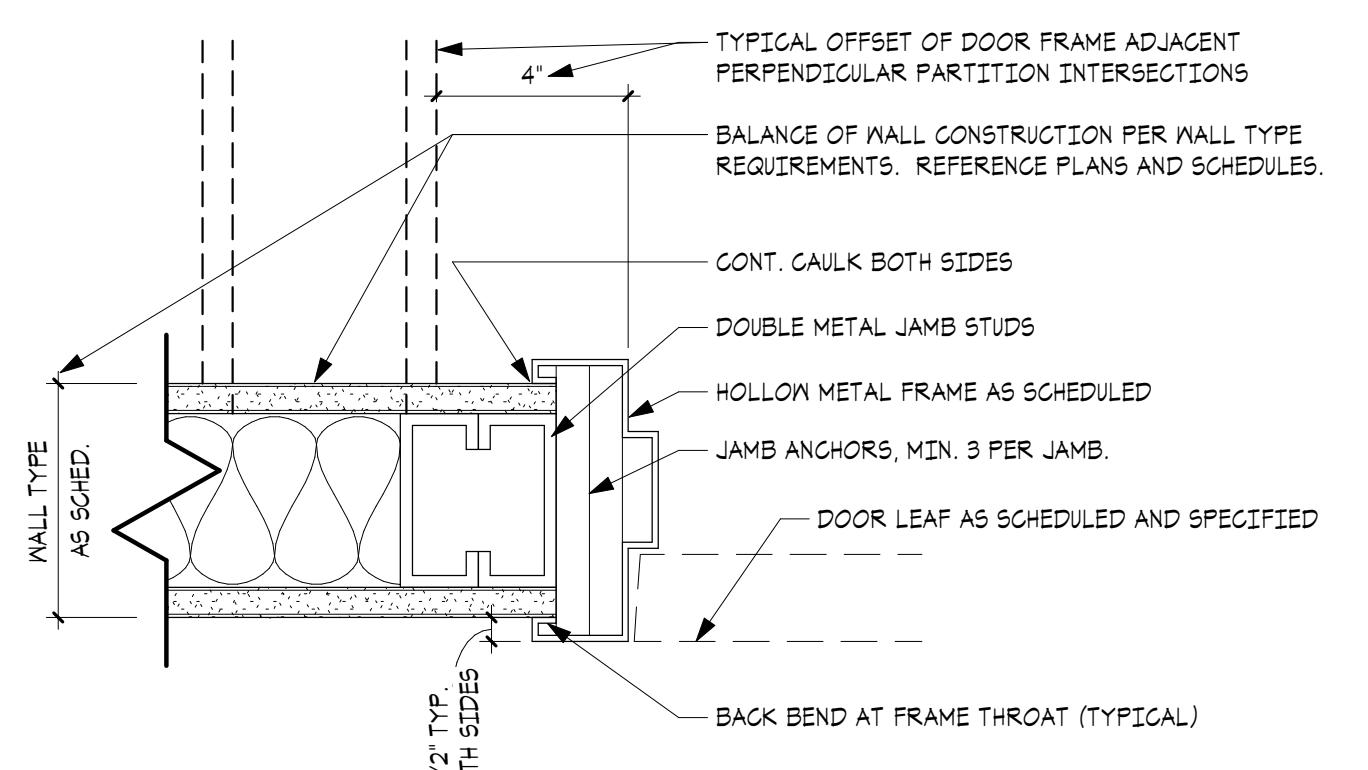
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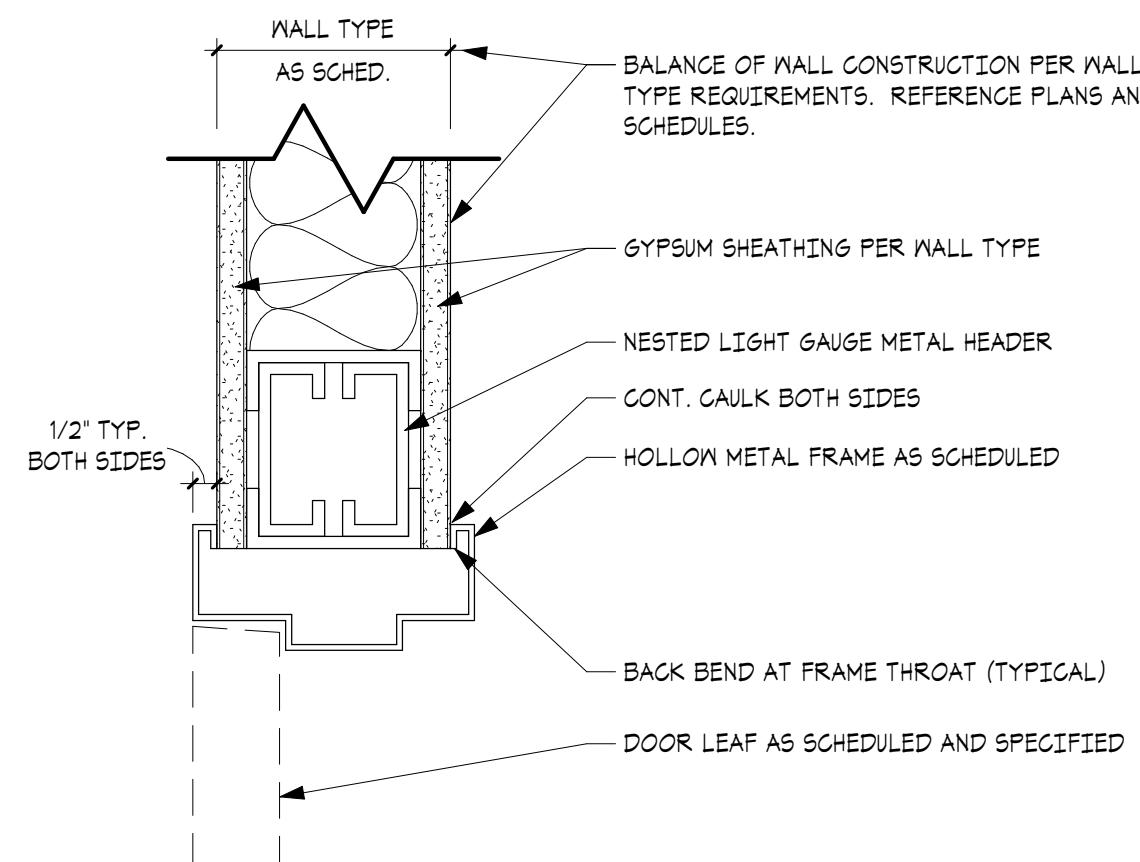
**J2**



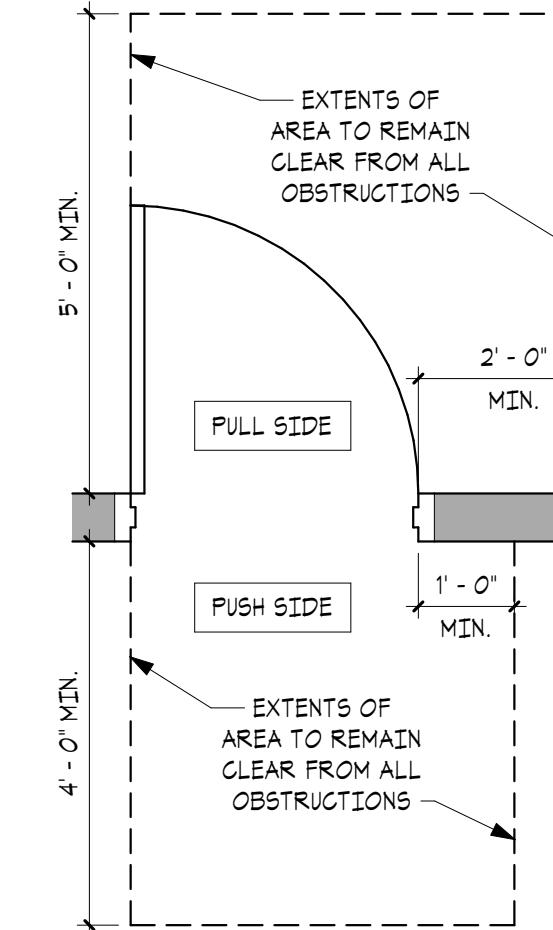
**H2**



**J1**

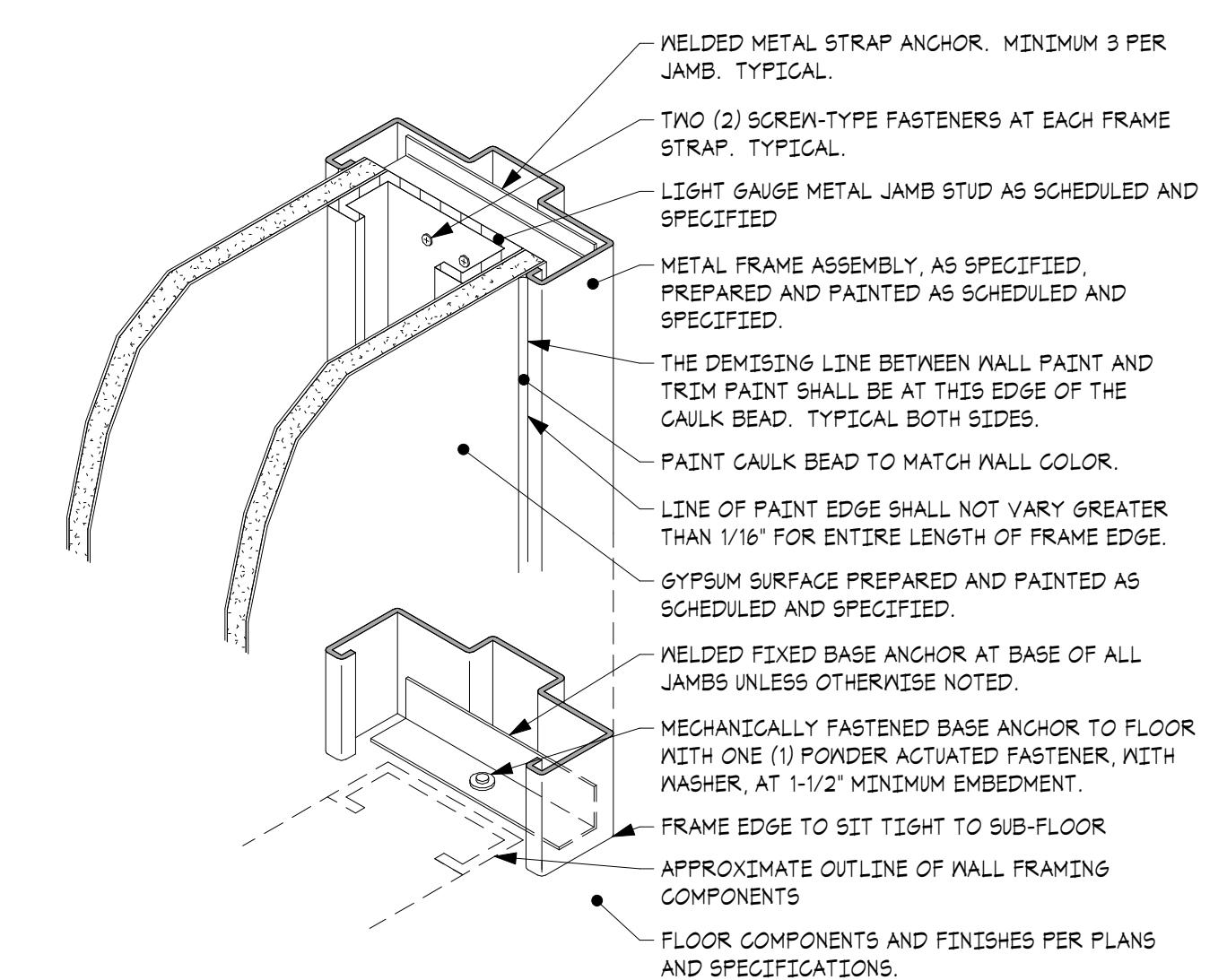


**H1**



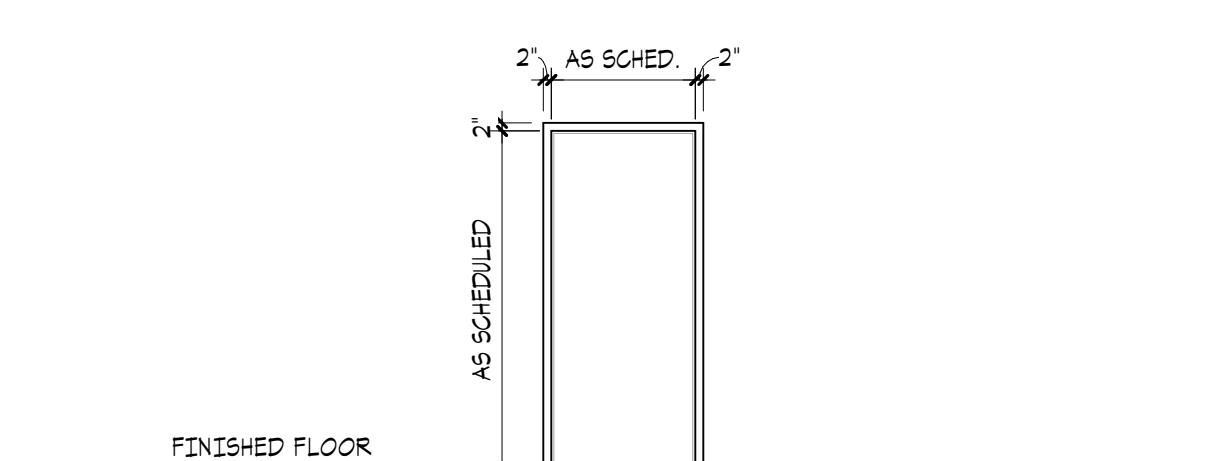
**2 DOORS - TYPICAL ADA (ACCESSIBILITY) CLEARANCES**

1/2" = 1'-0"



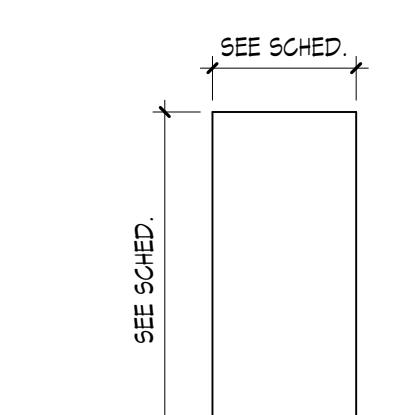
**1 DOORS - TYPICAL GYPSUM AND STUD HOLLOW METAL FRAME DETAIL**

3" = 1'-0"



**HMF-1**

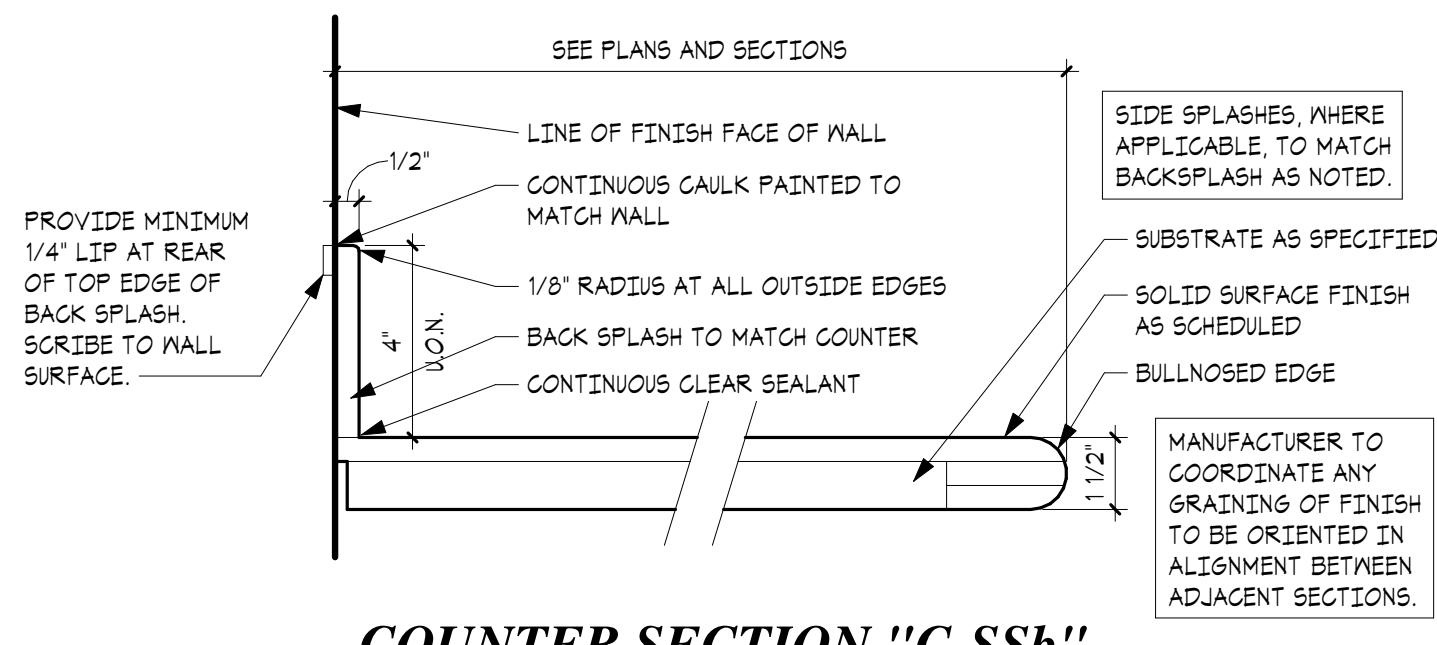
**HOLLOW METAL FRAMES**



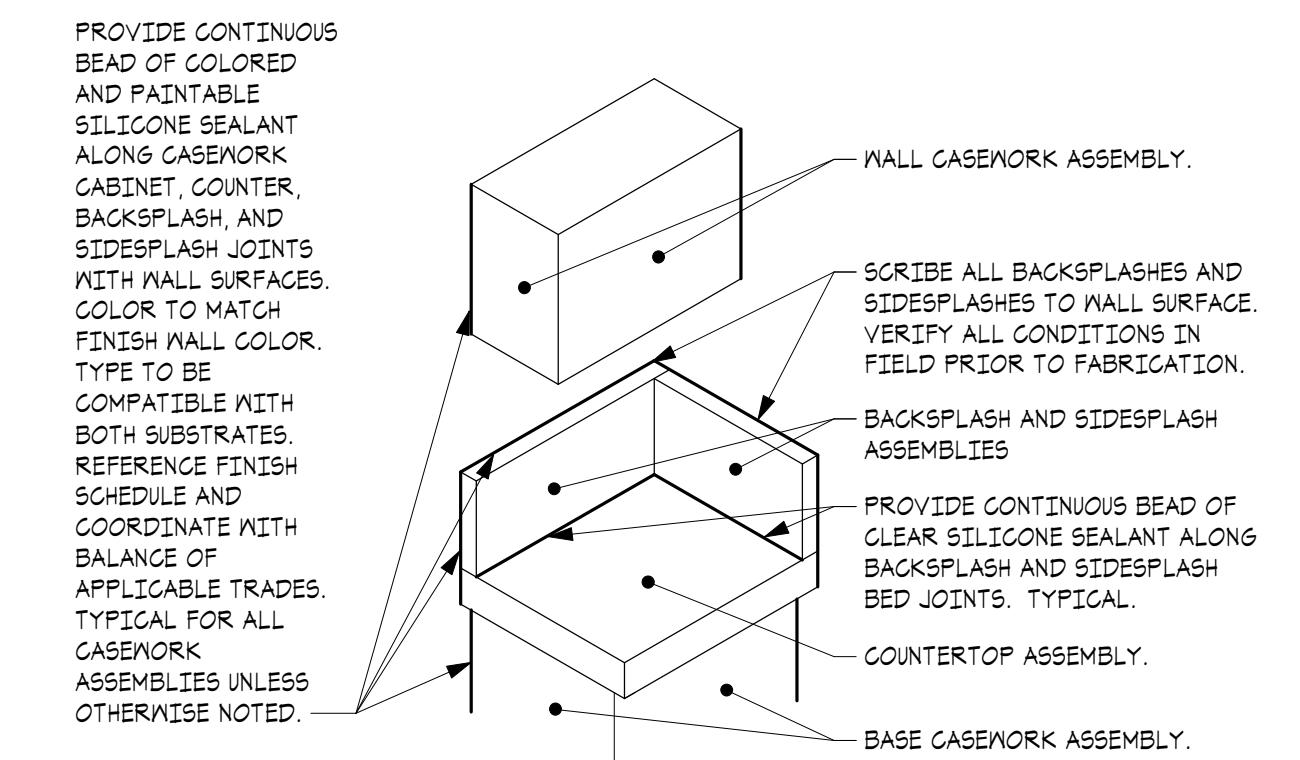
**HM-1**

**HOLLOW METAL DOORS**

**JH**  
JACUNSKI HUMES  
ARCHITECTS, LLC  
15 MASSIRIO DRIVE  
SUITE 101  
BERLIN, CT 06087  
TEL 860-828-9221  
FAX 860-828-9223

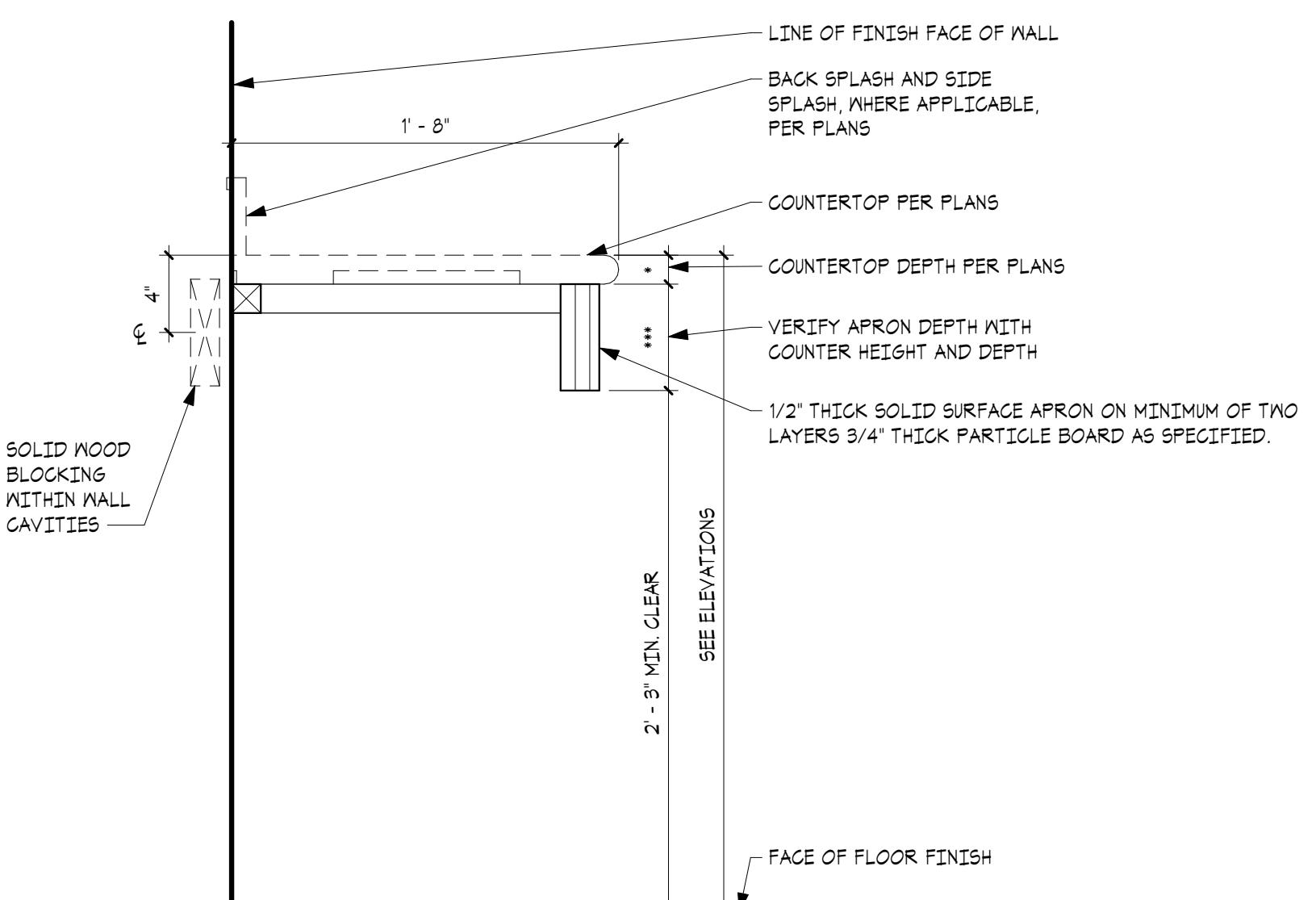


COUNTER SECTION "C-SSb"



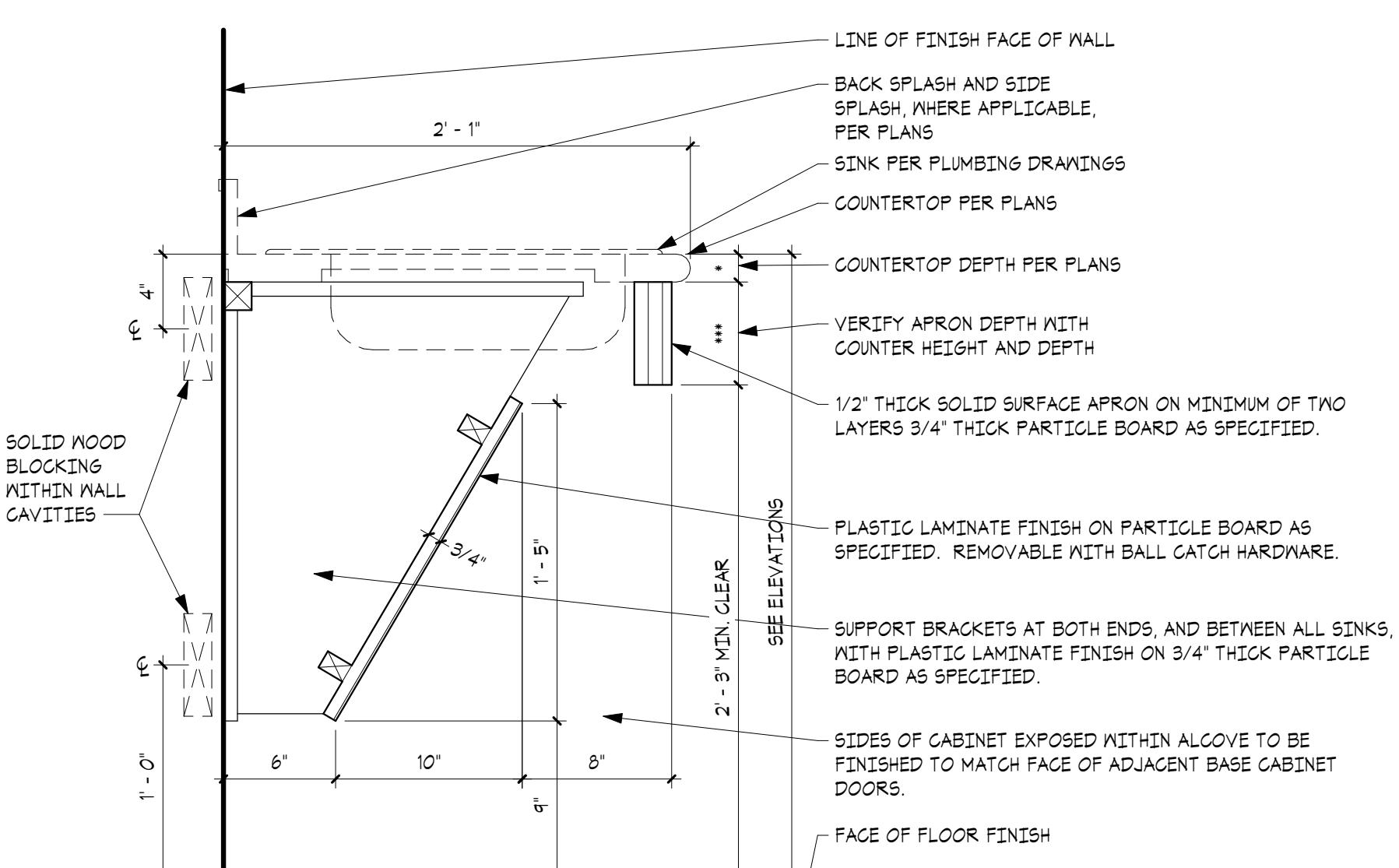
CASEWORK EDGE TREATMENTS

TYPICAL ALL CASEWORK ASSEMBLIES



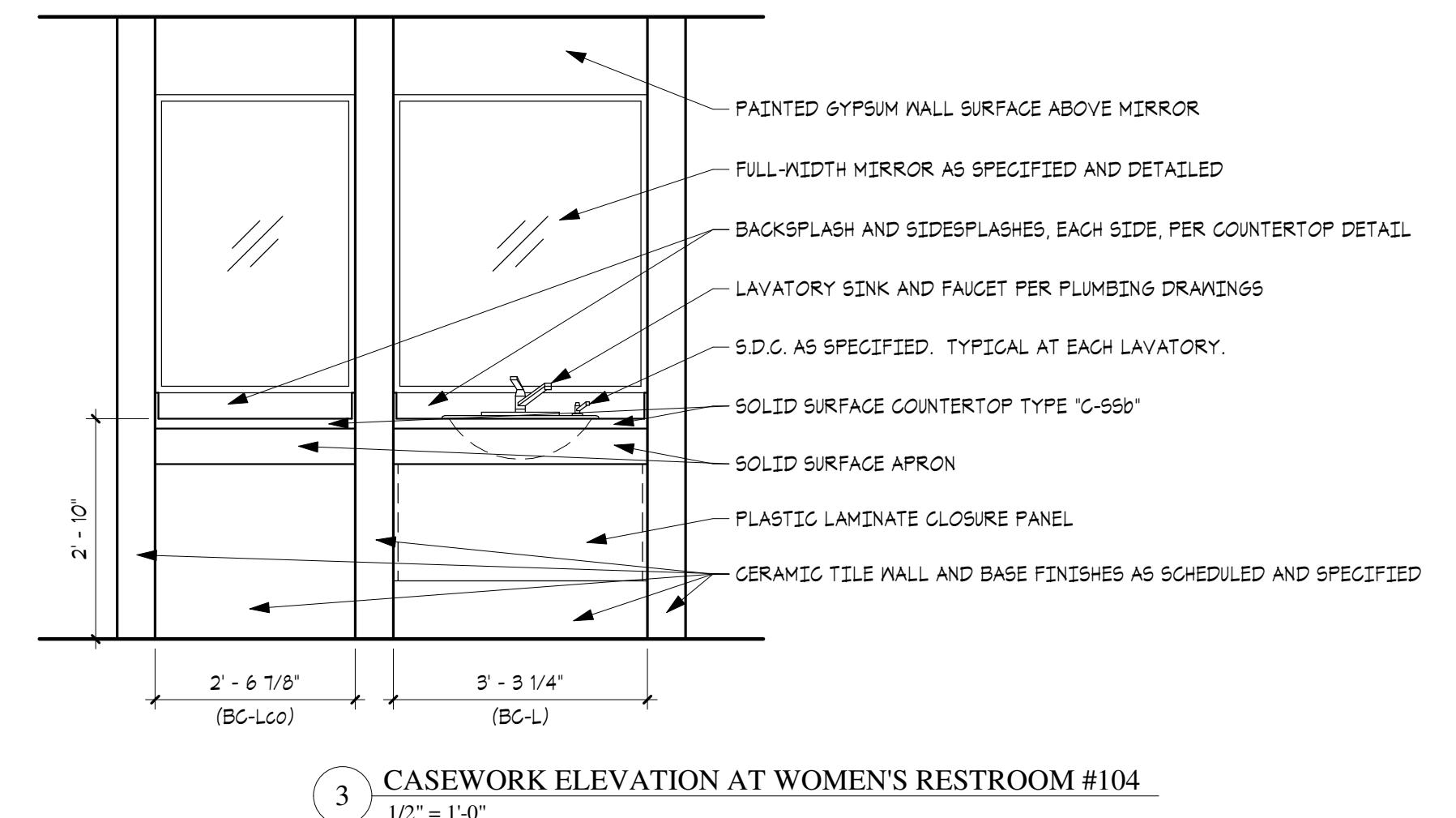
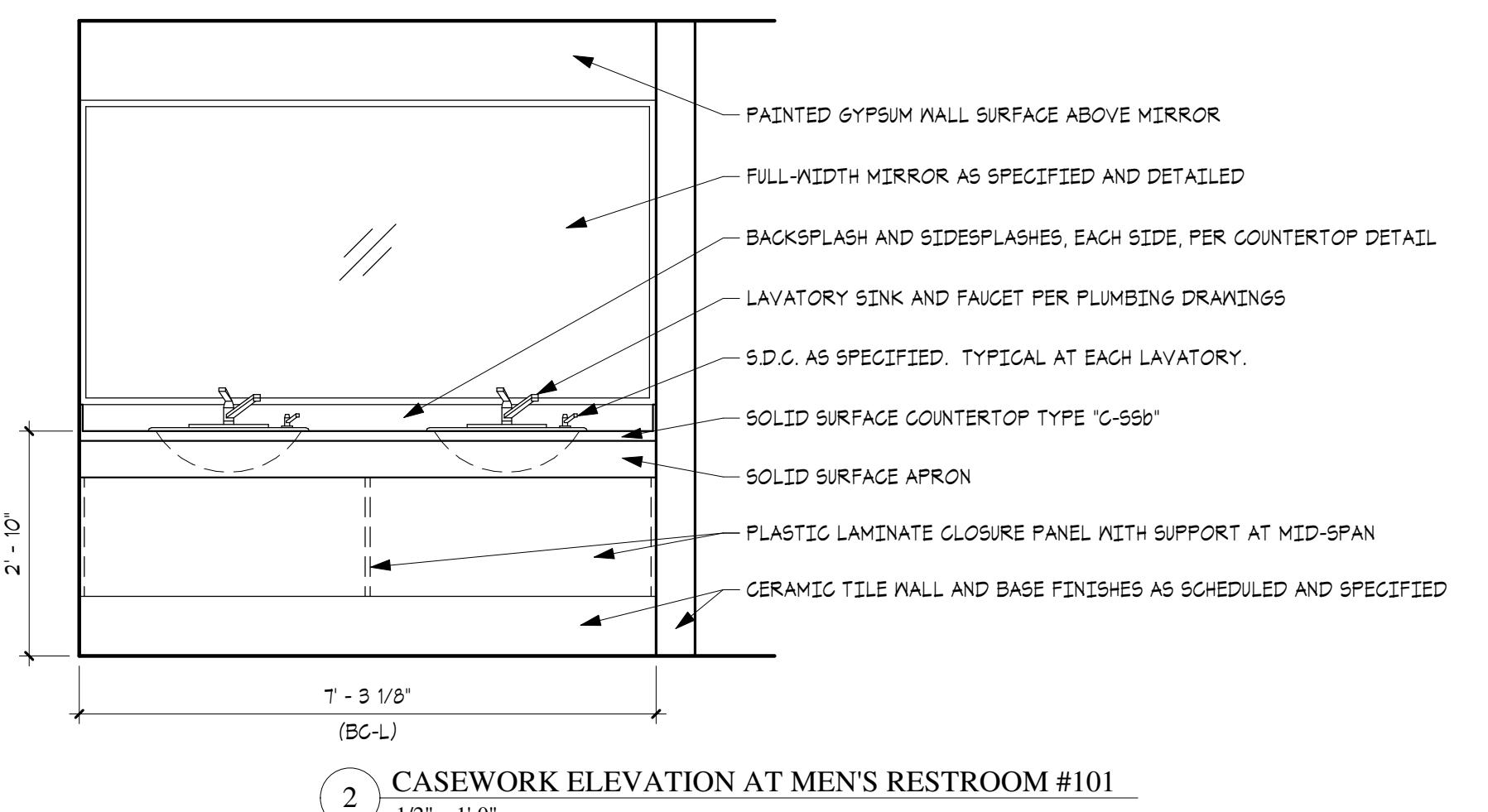
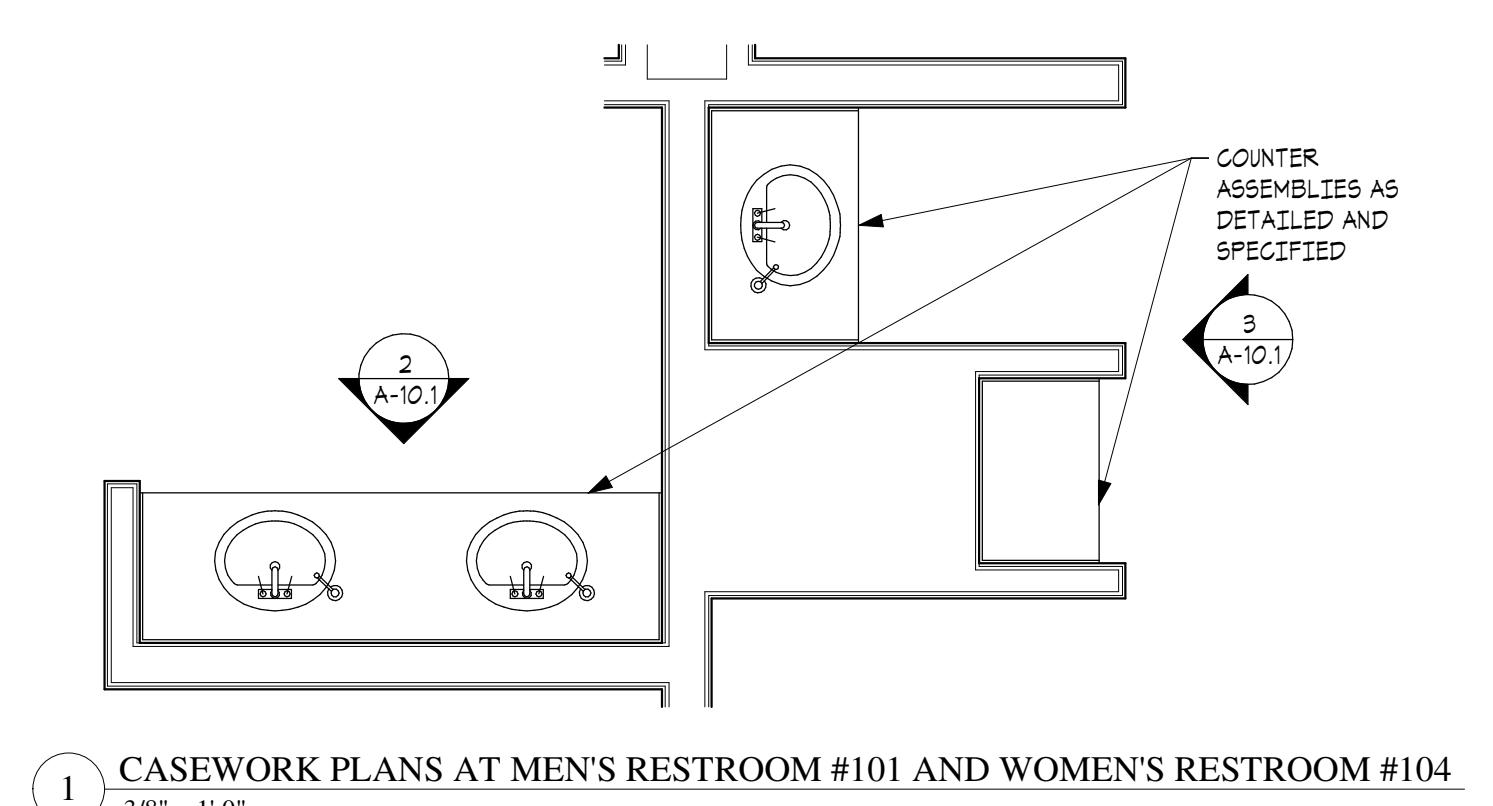
SECTION "BC-Lns"

LAVATORY COUNTER (OPEN BELOW, NO SINK)



SECTION "BC-L"

LAVATORY COUNTER (OPEN BELOW)

3 CASEWORK ELEVATION AT WOMEN'S RESTROOM #104  
1/2" = 1'-0"2 CASEWORK ELEVATION AT MEN'S RESTROOM #101  
1/2" = 1'-0"1 CASEWORK PLANS AT MEN'S RESTROOM #101 AND WOMEN'S RESTROOM #104  
3/8" = 1'-0"

## INTERIOR RENOVATION TO THE TRUMBULL POLICE DEPARTMENT

158 EDISON ROAD TRUMBULL, CONNECTICUT

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15 MASSIRIO DRIVE  
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BERLIN, CT 06087  
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FAX 860-828-9223

## CASEWORK ELEVATIONS AND SECTIONS

PROJ. NO.	JH1828	DRAWING NO.
SCALE	As indicated	
DATE	NOVEMBER 8, 2018	

A-10.1

# TRUMBULL POLICE DEPARTMENT

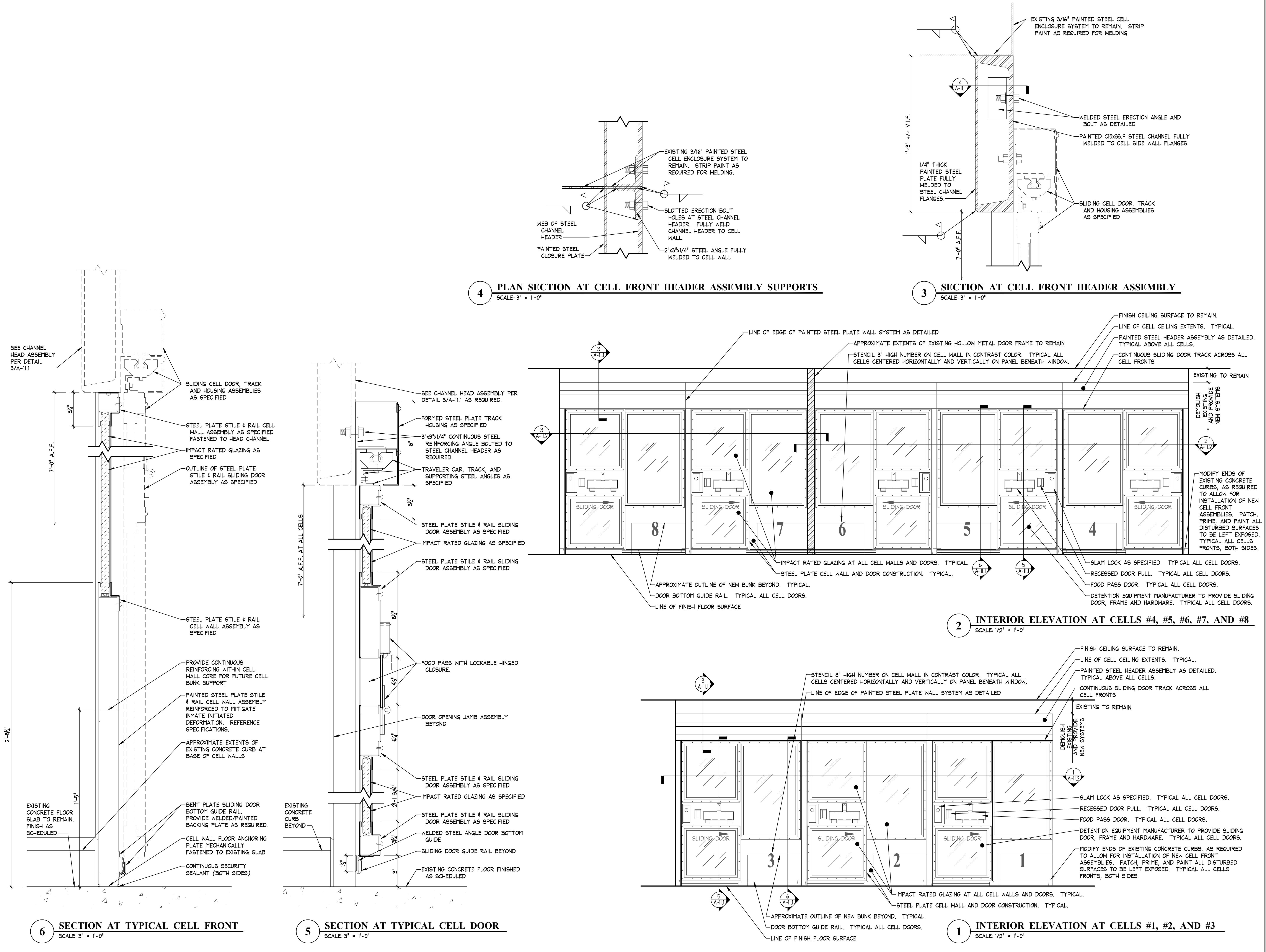
# TRUMBULL, CONNECTICUT

1158 EDISON ROAD

# INTERIOR RENOVATION TO THE

# *DETENTION CELL FRONT ELEVATIONS AND DETAILS*

PROJ. NO.	JH1828	DRAWING NO.
SCALE	As Noted	
DATE		
NOVEMBER 8, 2018		



RFP 6320

**TRUMBULL POLICE  
DEPARTMENT**

TRUMBULL, CONNECTICUT

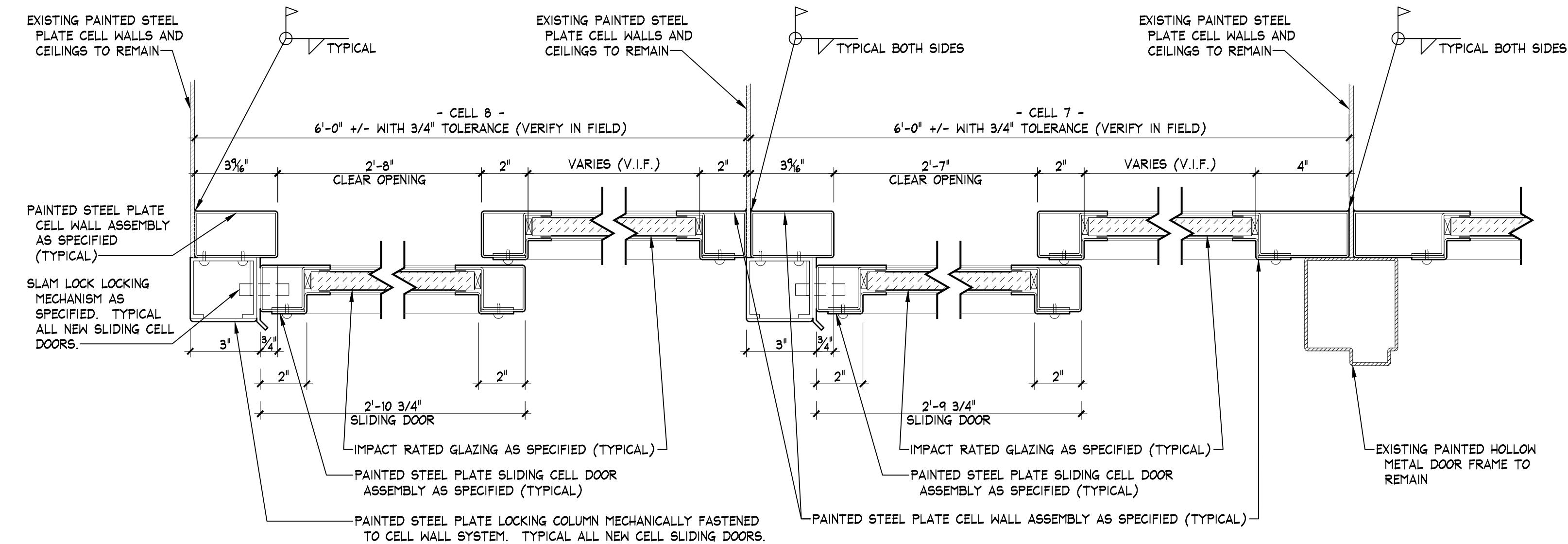
158 EDISON ROAD

**JH**  
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ARCHITECTS, LLC  
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SUITE 101  
BERLIN, CT 06071  
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FAX 860-828-9223

**DETENTION  
CELL FRONT  
PLAN  
DETAILS**

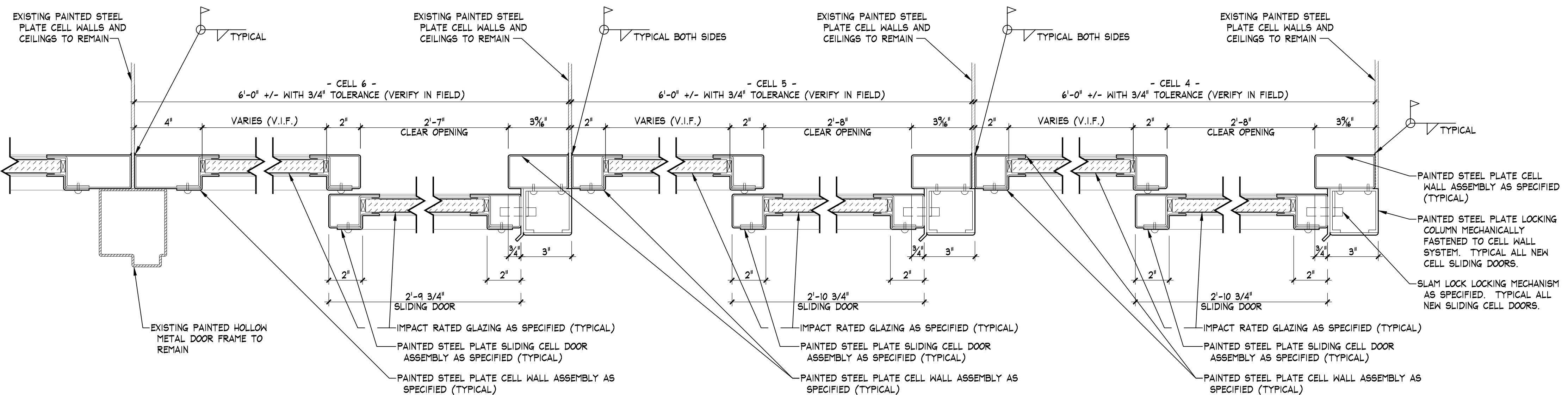
PROJ. NO. JH1828 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016

**A-11.2**



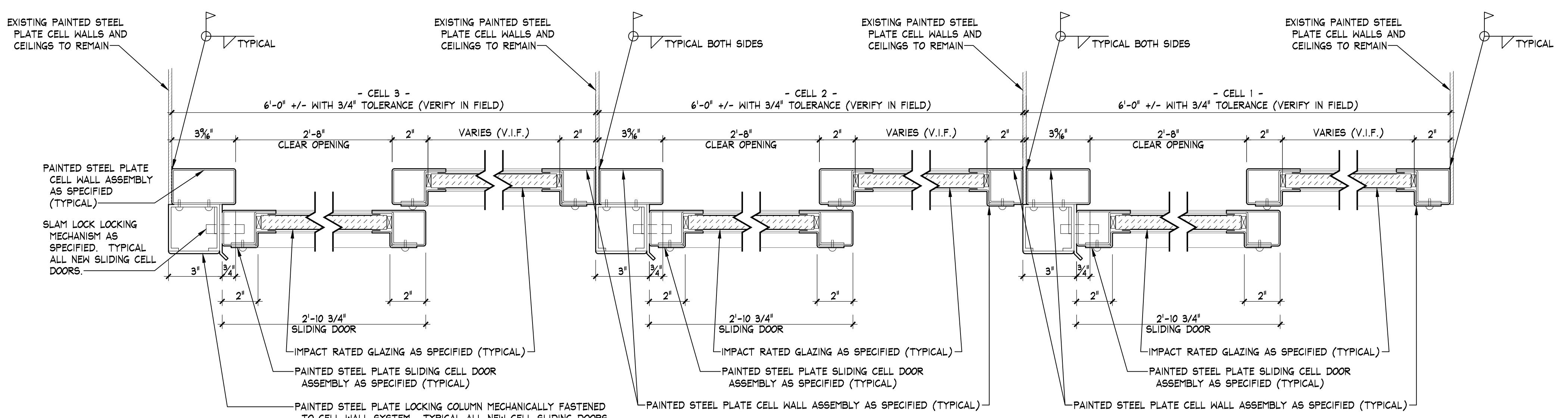
**3 PLAN SECTION DETAIL AT CELLS #7 AND #8 FRONTS**

SCALE: 3' = 1'-0"



**2 PLAN SECTION DETAIL AT CELLS #4, #5, AND #6 FRONTS**

SCALE: 3' = 1'-0"

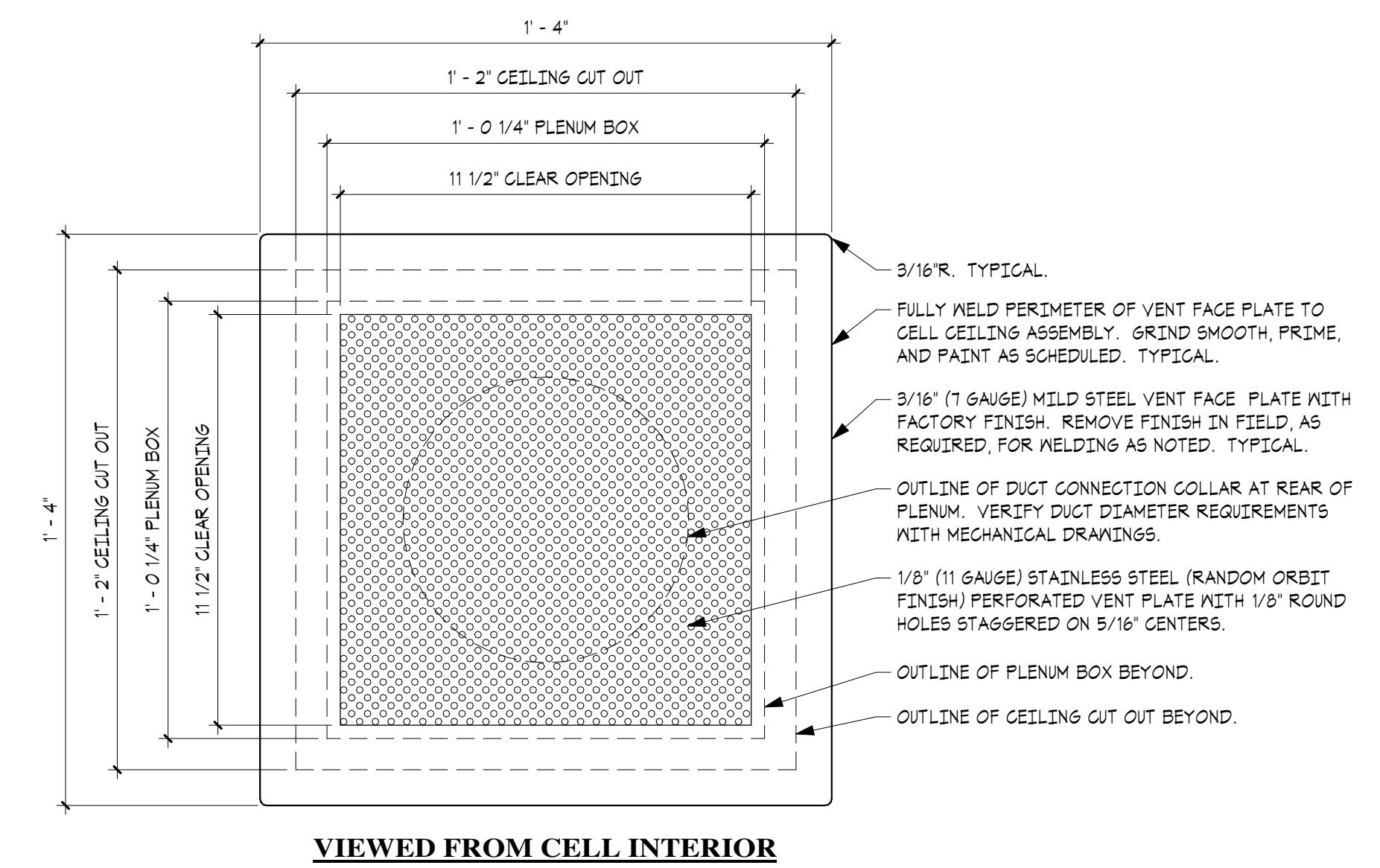


**1 PLAN SECTION DETAIL AT CELLS #1, #2, AND #3 FRONTS**

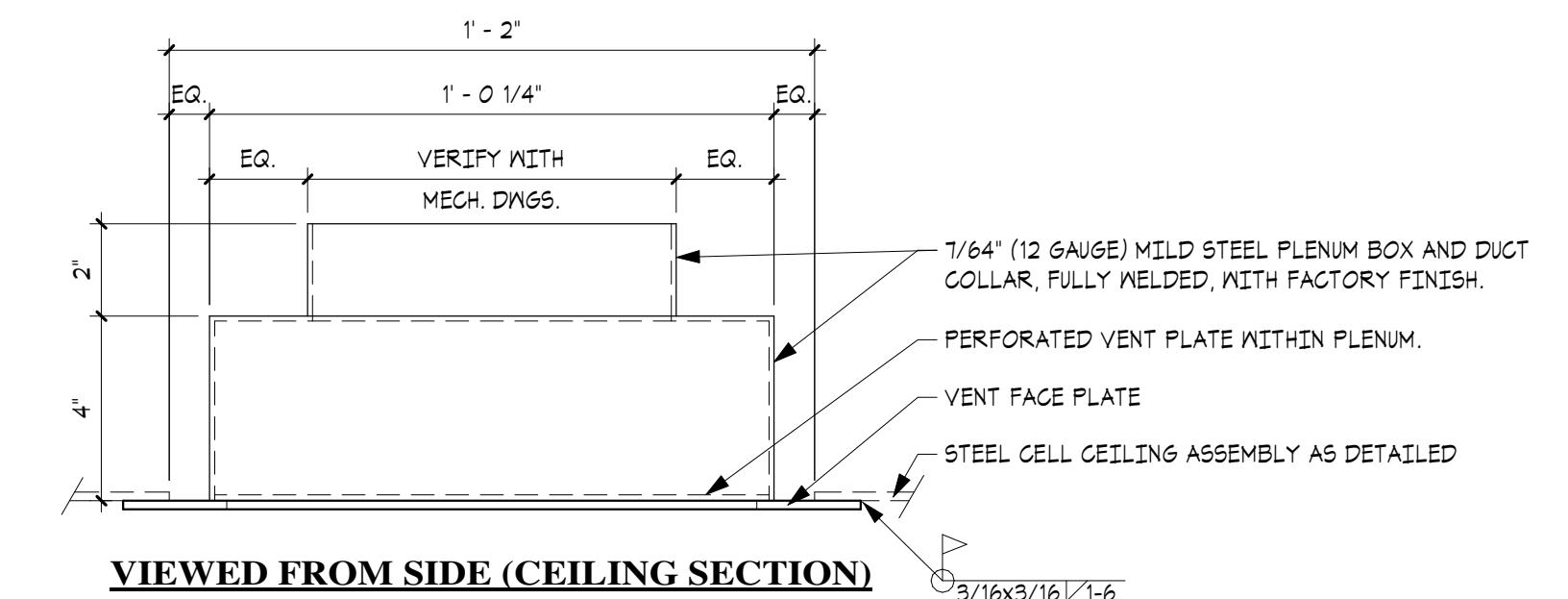
SCALE: 3' = 1'-0"

**INTERIOR RENOVATION TO THE  
TRUMBULL POLICE  
DEPARTMENT**

158 EDISON ROAD TRUMBULL, CONNECTICUT

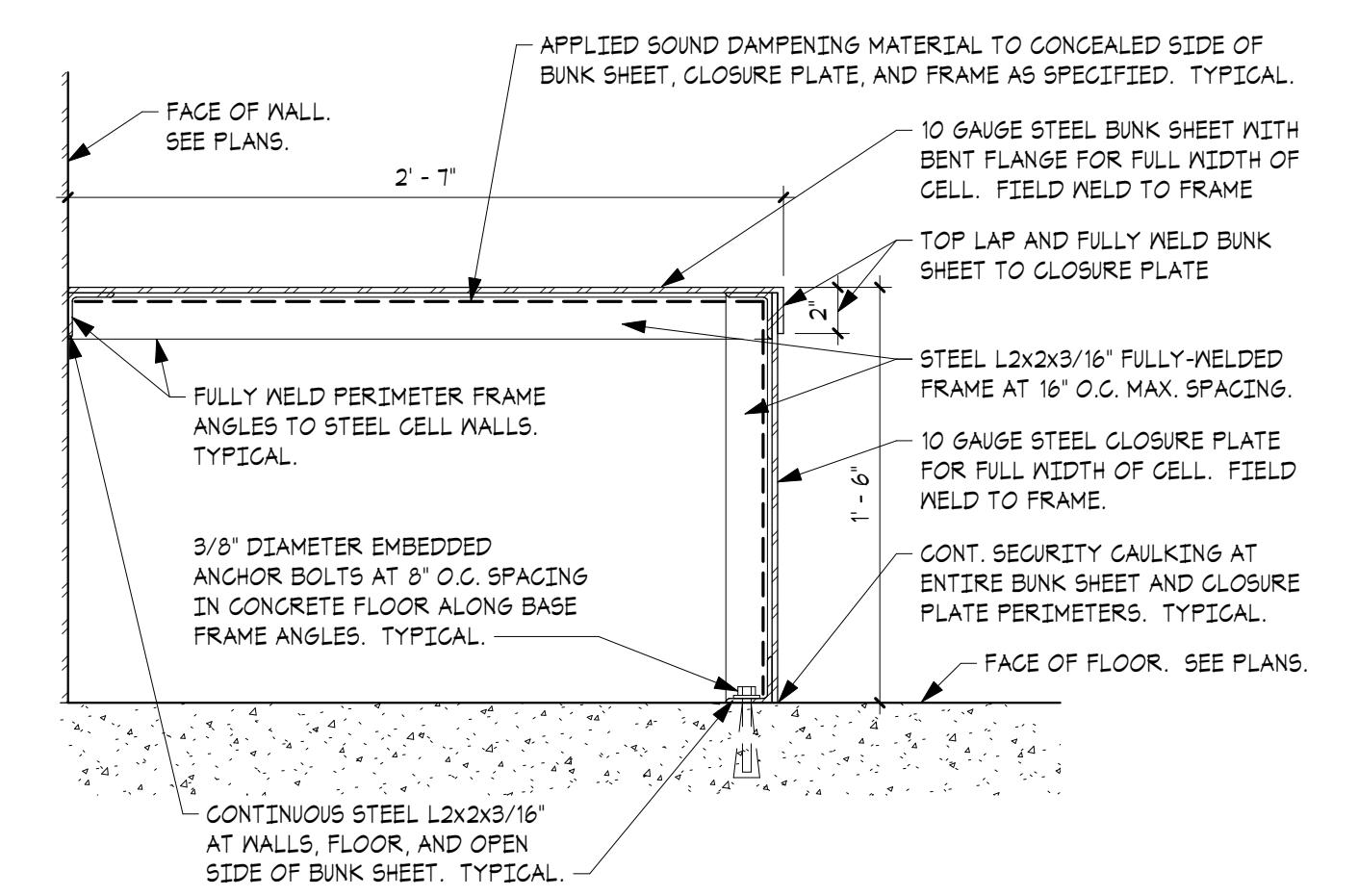


**VIEWED FROM CELL INTERIOR**



**VIEWED FROM SIDE (CEILING SECTION)**

2 DETENTION AREA - DETENTION DIFFUSER AT STEEL CELL CEILING  
3" = 1'-0"



1 DETENTION AREA - CELL BUNK DETAIL (STEEL WALL)  
1 1/2" = 1'-0"

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FAX 860-828-9223

**DETENTION  
DETAILS**

PROJ. NO.	DRAWING NO.
	JH1828
SCALE	As indicated
DATE	NOVEMBER 8, 2018

**A-11.3**

## Legend

X - #	Floor Finish
X - #	Base
X - #	Wall Finish
X - #	Door Frame Finish
B	BASE / RUBBER
CB	CERAMIC BASE
CC	CUBICLE CURTAIN
CONC	CONCRETE
CP	CEILING PAINT
CPT	CARPET TILE
CT	CERAMIC & PORCELAIN TILE
CWT	CERAMIC WALL TILE
D	DOOR FINISH
E	EPoxy FLOOR FINISH
EB	EPoxy BASE
EP	EPoxy WALL PAINT
ESD	ESD VINYL FLOOR
FRP	FIBER REINFORCED PANEL
LK	LOCKERS
M	WALK OFF MAT
MES	METAL EDGE STRIP
M-TH	MARBLE THRESHOLD
P	PAINT
PL	PLASTIC LAMINATE
R	RUBBER TILE
RRS	RESILIENT REDUCING STRIP
RSTR	RESILIENT STAIR/READ/RISER
SIC	SEALED CONCRETE
SIP	SEALED, HARDENED
SS	POLISHED CONCRETE
STN	SEE DIV. 09460
STN	SOLID SURFACE MATERIAL
STN	STAIN - WATERBASE
SVT	SOFT VITREOUS TILE
TM	THRESHOLD
TP	TOILET PARTITIONS
TR	TRIM (PAINTED)
VCT	VINYL COMPOSITION TILE
VET	VINYL ENHANCED TILE
VP	VINYL PLATE
WDB	WOOD STRAIGHT BASE
WDC	WOOD CABINTRY
WB	WINDOW TREATMENT
WMP	WIRE MESH PARTITIONS
WP	SHEET WALL PROTECTION
WS	WINDOW SILLS
WW	WOOD WAINSCOT-BEADBOARD

## Finish Key

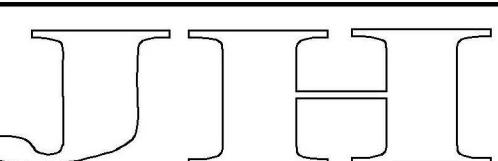
CODE	MANUFACTURER	MATERIAL / STYLE	PATTERN	COLOR	REMARKS / SPECIFICATIONS
<b>Flooring &amp; Base</b>					
SVT-1	AZROCK/TARKETT	SOLID VINYL TILE 16"X16"	CG-404	PUMICE	SVT IS PART OF THE BASE BID AND THE ALTERNATE.
CT-1	DALTILE	HAUT MONDE 12X24	HM07	ARMSTRONG CREAM	GT-1 MAPEI-CQ- DRIFTWOOD #105
CT-2	DALTILE	HAUT MONDE 2" X 2" MOSAIC	HM07	ARMSTRONG CREAM	GT-1 MAPEI-CQ- DRIFTWOOD #105
CT-3	DALTILE	KEYSTONES 2"X2"	D201	URBAN PUTTY	GT-1 MAPEI-CQ- DRIFTWOOD #105
RSF-1	SEE BELOW FOR ALTERNATE				
RT-1	BURKE RUBBER FLOORING ENDURA RUBBER-FLECKSIBLES	SCULPTURED SURFACE size: 18.125" x 18.125"	#010	SHALE GRAY	
<b>Bases</b>					
B-1	JOHNSONITE	RUBBER BASE - 4"	TA5	COLONIAL GREY	
B-2	SEE BELOW FOR ALTERNATE				
B-3	JOHNSONITE	RUBBER BASE - 4"	#82	BLACK PEARL	
CTB-1	DALTILE	HAUT MONDE 6X12	HM07	ARMSTRONG CREAM	S-36C9T
CTB-2	DALTILE	KEYSTONES PORCELAIN-MB-5B	URBAN PUTTY	D201	2"x 2" built up base as required to patch
<b>Walls- Interior</b>					
EP-1	SHERWIN WILLIAMS	Epoxy Paint, Satin Finish Wall Paint	SW-6106	KILIM BEIGE	SEE NOTE # 7/F-1.0
EP-2	SHERWIN WILLIAMS	Epoxy Paint, Satin Finish Wall Paint	XXXXXX	TBD	FOR NUMBER STENCIL
P-1	SHERWIN WILLIAMS	Waterbased- Satin Finish Wall Paint	SW-7562	ROMAN COLUMN	GENERAL WALLS
P-2	SHERWIN WILLIAMS	Waterbased- Satin Finish Wall Paint	SW-6106	KILIM BEIGE	ALTERNATE #1-WALL COLOR
CWT-1	DALTILE	FORMULA 12"X 24"	FM98-POLISHED	PLANES TAUPE	GT-1 MAPEI CQ-BONE #15
CWT-2	DALTILE	KEYSTONES PORCELAIN 2"X2"	URBAN PUTTY	D201	
<b>Door Frames / Misc.</b>					
TR-1	SHERWIN WILLIAMS	Waterbase-Interior Semi-Gloss	SW-6106	KILIM BEIGE	INTERIOR DOOR FRAMES
TR-2	SHERWIN WILLIAMS	Waterbase-Interior Semi-Gloss	SW-XXXX	XXXXXXXX	H.M. DOORS
<b>Ceilings Non-factory Fin.</b>					
CP-1	SHERWIN WILLIAMS	STANDARD Ceiling Paint	Classic	White	Gypsum Board
CP-2	SHERWIN WILLIAMS	Epoxy ceiling paint on Metal Panel	SW-6106	KILIM BEIGE	at cell ceilings (SAME PAINT AS EP-1)
CP-3	SHERWIN WILLIAMS	Water Resistant Ceiling Paint	Classic	White	at shower rooms
<b>MISC</b>					
SS-1	DUPONT CORIAN	SOLID SURFACE	FOSSIL		
LK-1	LINCORA GROUP	LOCKER- PAINT COLOR	910-9032	SAND	
LK-2	LINCORA GROUP	LOCKER- PAINT COLOR	910-9005	PLATINUM	
<b>PRODUCTS FOR ALTERNATE #2</b>					
SVT-1	AZROCK/TARKETT	SOLID VINYL TILE 16"X16"	CG-404	PUMICE	SVT IS PART OF THE BASE BID AND ALTERNATE #2.
RB-2	JOHNSONITE	RUBBER BASE - 4"	#40	BLACK	ALTERNATE #2
RSF-1	BURKE FLOORING	ECO FITNESS	ECOLK24	MOCHA GRAY	ALTERNATE #2

## General Notes

1	All interior faces of non-factory finished doors and door frames to be painted.
2	All floor finishes to extend to the wall, this includes going under casework.
3	In locker rooms, wall tile is tile up to lockers and not behind it, tile is laid out horizontally.
4	See Reflected Ceiling Plans for painted soffits & ceilings. All soffits & ceilings to receive paint. See options.
5	All receptacles, switches, etc as Ivory.
6	All new work marble thresholds to be travertine beige.
7	All new and existing steel cell construction to receive new epoxy paint coatings. New components include the cell fronts, bunks and diffusers. Existing cell components include the wall and ceiling panels. All surfaces to view shud receive new epoxy paint. Finish painting, as specified under section 09 90 00 Painting. NOTE: General Trades Contractor shall coordinate finish painting with Detention Equipment System including new and existing Paint Contractor prior to the jobsite DURING INSTALLATION OF THE DETENTION ENTRANCE SYSTEM to assure that the inaccessible portions of the door and fixed wall system are finish painted prior to hanging the doors. Finish Contractor shall start work two (2) days after written notification by Detention Equipment Contractor (11 19 00).

INTERIOR RENOVATION TO THE  
TRUMBULL POLICE  
DEPARTMENT

158 EDISON ROAD


  
JACUNSKI HUMES  
ARCHITECTS, LLC

 15 MASSIRIO DRIVE  
 SUITE 101  
 BERLIN, CT 06087  
 TEL 860-828-9221  
 FAX 860-828-9223
FINISH  
SCHEDULE

PROJ. NO.	JH1828	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2018	

F-1.0

## RFP 6320

DEANNA S. DEWEY, NCIDQ  
Owner, Interior Designer

DEANNA S. DEWEY, NCIDQ  
Owner, Interior Designer

● 127 Park Road, West Hartford, CT 06119

800-800-800-800

email: 4Ddesign@comcast.net  
web: www.4Ddesigndec.com

# TRUMBULL POLICE DEPARTMENT

# *TRUMBULL, CONNECTICUT*

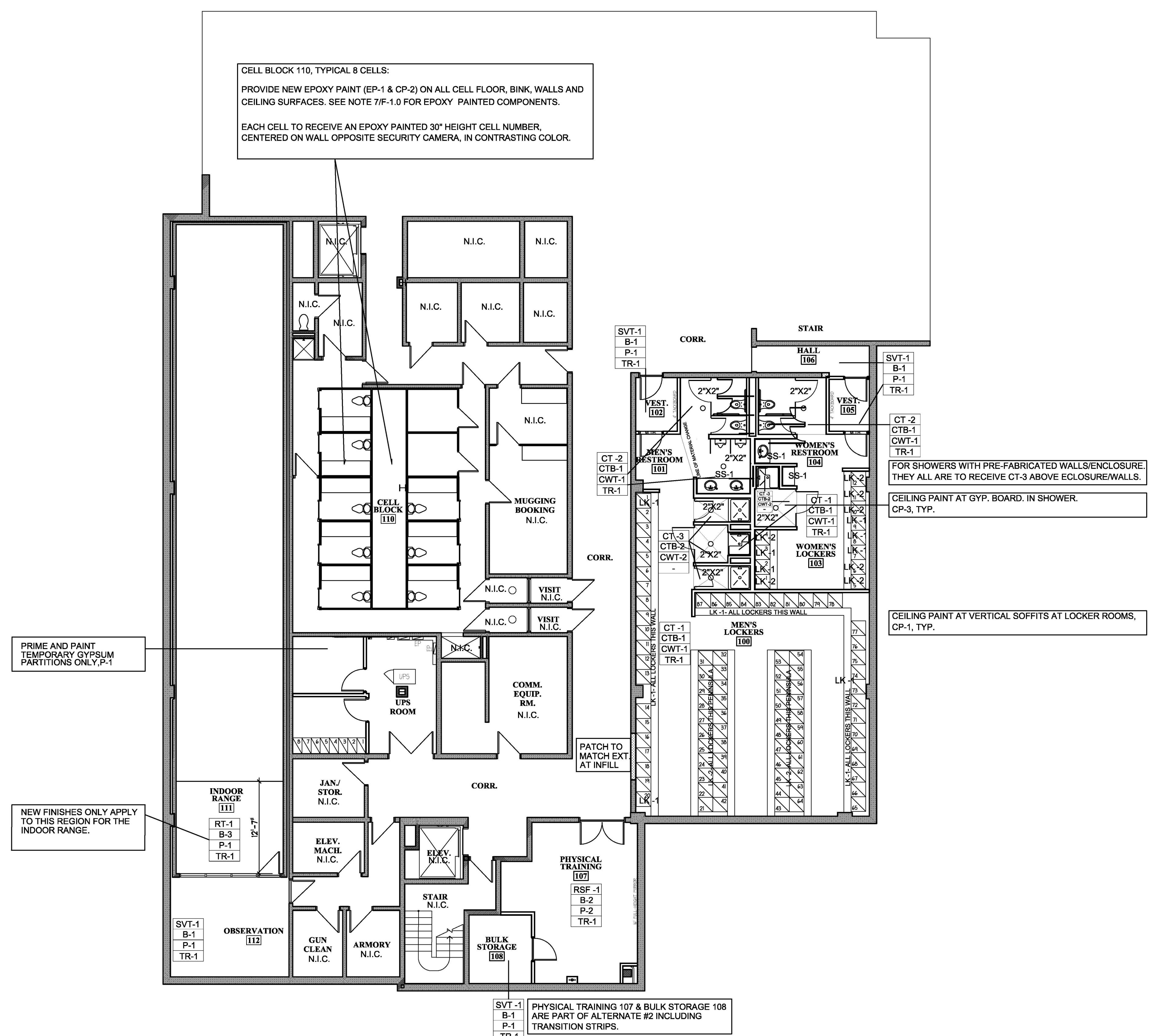
## 158 EDISON ROAD

**JHT**  
ACUNSKI HUMES  
ARCHITECTS, LLC

MASSIRIO DRIVE  
STE 101  
WILTON, CT 06097  
860-828-9221  
860-828-9223

# ***NEW WORK OVERALL LOWER LEVEL FINISH PLANS***

PROJ. NO.	DRAWING NO.
JH1828	
SCALE	As Noted
DATE	NOVEMBER 8 2018



RFP 6320



93 Lake Avenue, Danbury, CT 06810  
171 Madison Avenue, New York, NY 10016  
212.695.3422 F 212.695.2423  
www.kohlerronan.com  
E-mail: krc@kohlerronan.com

**INTERIOR RENOVATION TO THE  
TRUMBULL POLICE  
DEPARTMENT**

158 EDISON ROAD TRUMBULL, CONNECTICUT

**GENERAL DEMOLITION NOTES**

- ALL EQUIPMENT, FIXTURES, PIPING ETC. TO BE REMOVED SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER, OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, FIXTURES, PIPING, DEVICES, ETC. SHALL NOT BE REMOVED FROM THE PREMISES WITH OUT THE OWNER'S APPROVAL.
- ALL ABANDONED PIPING TO REMAIN SHALL BE PROPERLY PLUGGED, VALVED, CAPPED AND/OR BY PASSED SUCH THAT UPON COMPLETION OF WORK ALL ABANDONED SYSTEMS ARE PROPERLY CONCEALED, AND THAT EXISTING SYSTEMS TO REMAIN, REMAIN OPERATIONAL.
- NO DEAD ENDS SHALL BE LEFT ON ANY PIPING SYSTEMS UPON COMPLETION OF WORK.
- EXISTING EXPOSED PIPING SYSTEMS NOT TO BE REUSED, AND NOT SPECIFICALLY NOTED FOR REMOVAL SHALL BE COMPLETELY REMOVED. CONTRACTOR SHALL VERIFY PRIOR TO REMOVAL.
- ALL SYSTEMS SHALL BE LEFT IN PERFECT WORKING ORDER UPON COMPLETION OF ALL NEW WORK.
- ALL EXISTING EXPOSED, UNNECESSARY PIPING RELATED TO NEW WORK SHALL BE COMPLETELY REMOVED.
- REROUTE OR REMOVE ALL EXISTING PIPING, AND SYSTEMS WHERE NECESSARY TO AVOID NEW EQUIPMENT, STRUCTURAL, OR MASONRY WORK AS REQUIRED BY THE PROPOSED ALTERATIONS.
- COORDINATE PLUMBING SERVICES SHUT DOWNS (H&CW, GAS, WASTE, VENT & STORM SYSTEMS) WITH THE BUILDING MANAGER AND UTILITY COMPANY.

**PLUMBING LEGEND**

SYMBOL OR ABBREVIATION	DESCRIPTION		
—	EXISTING PIPE/EQUIPMENT TO REMAIN		
-X-X-X-X-X-X-X-	EXISTING PIPE/EQUIPMENT TO BE REMOVED		
[G]	GAS PIPING (G)		
[S]	SANITARY PIPING ABOVE FINISHED FLOOR/SLAB (S, SAN.)		
[W]	WASTE PIPING ABOVE FINISHED FLOOR/SLAB (W)		
[S/UG]	SANITARY PIPING UNDER FINISHED FLOOR/SLAB (S, SAN.)		
[W/UG]	WASTE PIPING UNDER FINISHED FLOOR/SLAB (W)		
— — — — —	VENT PIPING (V)		
[CW]	DOMESTIC COLD WATER PIPING (CW)		
[HW]	DOMESTIC HOT WATER PIPING (HW)		
[HWC]	DOMESTIC HOT WATER RECIRC. PIPING (HWC)		
—○—	PIPE DROPODOWN (DN)		
○—○—	PIPE RISEUP		
●—●—	BALL VALVE		
—○—	PLUG VALVE		
▼	BALANCING VALVE		
! —	CLEANOUT (CO), WALLPLATE CLEANOUT (WPCO)		
—●—	DECKPLATE CLEANOUT (DPCO)		
○—○—	CONNECT TO EXISTING		
C.I.	CAST IRON	GEN.	GENERATOR
BLDG.	BUILDING	L#	LAVATORY - TYPE
CONN.	CONNECT	M1	MOP SINK
DR.	DRAIN	S#	SINK - TYPE
EWC	EXISTING ELECTRIC WATER COOLER	STK	STACK
EFD	EXISTING FLOOR DRAIN	TP	TRAP PRIMER
EL	EXISTING LAVATORY	TYP.	TYPICAL
ESK	EXISTING SINK	U#	URINAL - TYPE
ESS	EXISTING SERVICE SINK	V.I.F.	VERIFY IN FIELD
EU	EXISTING URINAL	V.T.R.	VENT THROUGH ROOF
EW	EXISTING WATER CLOSET	W#	WATER CLOSET - TYPE
EWC	ELECTRIC WATER COOLER	D#	FLOOR DRAIN - TYPE
EXIST.	EXISTING	GALV.	GALVANIZED
NUMBER SHEET		DETAIL DESIGNATION SYMBOL	

**PLUMBING DRAWING LIST**

DRAWING NUMBER	DRAWING DESCRIPTION
P.0.1	DEMOLITION NOTES, LEGENDS & DRAWING LIST - PLUMBING
P.0.2	GENERAL NOTES - PLUMBING
P.0.11	LOWER LEVEL DEMOLITION FLOOR PLAN - PLUMBING
P.1.1	LOWER LEVEL FLOOR PLAN - PLUMBING
P.3.0	SCHEDULES - PLUMBING
P.3.1	SCHEDULES - PLUMBING
P.4.0	DETAILS - PLUMBING
P.5.0	SPECIFICATIONS - PLUMBING

**JH**  
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BERLIN, CT 06037  
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FAX 860-828-9223

**COVER SHEET  
PLUMBING**

PROJ. NO.	JH1828	DRAWING NO.
SCALE	As Noted	
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**P-0.1**



93 Lake Avenue, Danbury, CT 06810  
203.778.1017 / 203.778.1018  
171 Madison Avenue, New York, NY 10016  
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15 MASSIRIO DRIVE  
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FAX 860-828-9223

## GENERAL PLUMBING NOTES

## GENERAL

## LEAD-FREE STATEMENT

SEVERAL PLUMBING FIXTURES DESCRIBED IN THIS SECTION FALL UNDER JURISDICTION OF THE FEDERAL REDUCTION OF LEAD IN DRINKING WATER ACT (42 USC 300g) WHICH MANDATES THAT EFFECTIVE JANUARY 4, 2014 THE WETTED SURFACES OF ANY VALVE, FITTING OR FIXTURE THAT COMES IN CONTACT WITH POTABLE WATER MUST HAVE A WEIGHTED-AVERAGE LEAD CONTENT OF NO MORE THAN 0.25 PERCENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PRODUCTS THAT ARE LEAD-FREE PRODUCTS AND MEET THE REQUIREMENTS OF SAFE DRINKING WATER ACT SECTION 1417 (E) (SECTION 9 OF NSPIRANSI STANDARD 61) AND AUTHORITIES HAVING JURISDICTION.

WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUANTITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.

IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO PROVIDE FOR FINISHED WORK, TESTED AND READY FOR OPERATION.

ITEMS AND SERVICES NOT SHOWN ON DRAWINGS OR SPECIFICATIONS BUT REQUIRED TO RENDER THE WORK COMPLETE AND READY FOR OPERATION, SHALL BE PROVIDED WITHOUT ADDITIONAL COST.

WORK OF THIS SECTION SHALL BE GOVERNED BY THE CONTRACT DOCUMENTS. PROVIDE MATERIALS, LABOR, EQUIPMENT AND SERVICES NECESSARY TO FURNISH, DELIVER AND INSTALL ALL WORK AS SPECIFIED AND AS REQUIRED BY JOB CONDITIONS. WHERE A CONFLICT EXISTS BETWEEN THESE NOTES, THE DRAWINGS AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.

DRAWINGS ARE DIAGRAMMATIC AND INDICATE A GENERAL ARRANGEMENT OF WORK AND ARE NOT TO BE CONSIDERED SUB-CONTRACTOR DOCUMENTS. IT IS THE INTENT OF THESE DOCUMENTS TO INCLUDE THE PROVISION AND INSTALLATION OF ALL NECESSARY WORK AND MATERIALS FOR COMPLETE, OPERATIONAL AND CODE COMPLIANT SYSTEMS BY THE CONTRACTOR. GENERAL DESIGN CONCEPTS INDICATED MUST BE FOLLOWED OR BETTERED. THE BID SHALL INCLUDE OFFSETS, ADDITIONAL PIPING, VALVES AND EQUIPMENT AND COMPONENTS AS REQUIRED TO MEET CONSTRUCTION CONDITIONS FOR PROPER OPERATION. DO NOT SCALE DRAWINGS. CONSULT ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPACE CONDITIONS AND ADDITIONAL REQUIREMENTS.

PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GENERAL CONDITIONS AND WITH THE PROVISIONS OF ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND LAWS.

WORK SHALL INCLUDE ALL INCIDENTALS, LABOR, MATERIAL EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, CONSUMABLE ITEMS, FEES, LICENSES, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE WORK SHOWN ON THE DRAWINGS, SPECIFIED HEREIN AND AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

STORE MATERIALS INSIDE AND PROTECTED FROM DEBRIS, WEATHER AND MOISTURE.

THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL POWER AND CONTROL WIRING REQUIRED FOR EQUIPMENT OPERATION REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THIS CONTRACTOR SHALL PROVIDE MOTOR STARTERS FOR INSTALLATION. COORDINATE REQUIREMENTS.

PROVIDE AND INSTALL ALL MAKE-UP WATER DISTRIBUTION TO HVAC EQUIPMENT INCLUDING BACKFLOW PREVENTER.

PROVIDE AND INSTALL INDIRECT CONDENSATE WASTE PIPING AND TRAP TO FLOOR DRAIN OR DRAIN RECEPTOR FROM ALL HVAC EQUIPMENT. PROVIDE ADDITIONAL FLOOR DRAINS WITH TRAP PRIMERS OR DRAIN RECEPORS AS REQUIRED.

PLUMBING DEVICES, FAUCETS, VALVES AND FITTINGS REQUIRED FOR SPECIALTY SERVICE EQUIPMENT SHALL BE PROVIDED BY THIS CONTRACTOR UNLESS OTHERWISE SPECIFIED. THIS CONTRACTOR SHALL PROVIDE AND INSTALL PIPING, CONNECTIONS, DEVICES, VALVES AND EQUIPMENT REQUIRED FOR PROPER OPERATION. COORDINATE REQUIREMENTS.

## ALTERATION WORK AND DEMOLITION

ALL EQUIPMENT, FIXTURES, PIPING, ETC. TO BE REMOVED, SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER, OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, FIXTURES, PIPING, DEVICES, ETC. SHALL NOT BE REMOVED FROM THE PREMISES WITHOUT THE OWNER'S APPROVAL.

UPON COMPLETION OF REMOVALS AND MODIFICATIONS, ALL PIPING TO REMAIN SHALL BE PROPERLY PLUGGED, VALVED, CAPPED AND/OR PASSED SUCH THAT UPON COMPLETION OF WORK ALL SYSTEMS TO REMAIN, REMAIN OPERATIONAL.

NO DEAD ENDS SHALL BE LEFT ON ANY PIPING SYSTEMS UPON COMPLETION OF WORK.

EXISTING EXPOSED PIPING SYSTEMS NOT TO BE REUSED, AND NOT SPECIFICALLY NOTED FOR REMOVAL SHALL BE COMPLETELY REMOVED.

ALL SYSTEMS SHALL BE LEFT IN WORKING ORDER TO THE SATISFACTION OF THE OWNER UPON COMPLETION OF ALL NEW WORK.

ALL EXISTING EXPOSED PIPING RELATED TO NEW WORK SHALL BE COMPLETELY REMOVED.

RE-ROUTE OR REMOVE ALL EXISTING PIPING AND SYSTEMS WHERE NECESSARY TO AVOID NEW EQUIPMENT, STRUCTURAL, OR MASONRY WORK AS REQUIRED BY THE PROPOSED ALTERATIONS.

## COORDINATION DRAWINGS

DEVELOP AND SUBMIT COORDINATION DRAWINGS AS OUTLINED.

SHEET METAL, PLUMBING AND FIRE PROTECTION SHOP DRAWINGS THAT HAVE BEEN COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. DRAWINGS MUST BE RETURNED FROM ENGINEER EITHER "REVIEWED" OR "FURNISH AS CORRECTED" PRIOR TO BEING USED AS BASIS FOR COORDINATION DRAWINGS.

AFTER SHEET METAL AND PIPING DRAWINGS HAVE BEEN REVISED PER ENGINEERS COMMENTS, REPRODUCIBLE COPIES SHALL BE SENT TO THE TRADES IN THE FOLLOWING SEQUENCE FOR THE INCLUSION OF THEIR WORK:

- MECHANICAL SHEET METAL
- PLUMBING PIPE
- MECHANICAL PIPING
- SPRINKLER PIPING
- ELECTRICAL WORK

AFTER ALL TRADES HAVE INCLUDED THEIR WORK ON THE COORDINATION DRAWING AND NOTED CONFLICTS, ALL TRADES SHALL MEET TO RESOLVE CONFLICTS AND AGREE TO ACCEPTABLE SOLUTIONS. EACH TRADE SHALL SIGN COORDINATION DRAWINGS. ITEMS NOT SHOWN ON COORDINATION DRAWING IS RESPONSIBILITY OF OMITTING CONTRACTOR AND CONTRACTOR IS SUBJECT TO ADDITIONAL COSTS INCURRED BY OTHER TRADES.

THE ARCHITECT AND ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE FOR NOTED CONFLICTS ONLY. COORDINATION DRAWINGS ARE NOT TO BE CONSIDERED PIPING OR DUCT SHOP DRAWINGS. THE CONTRACTOR IS REQUIRED TO SUBMIT INDIVIDUAL PIPING AND DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. PIPING AND DUCTWORK SHOP DRAWINGS SHALL FOLLOW THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.

## PLUMBING FIXTURES

SUBMIT FINAL SIGNED COORDINATION DRAWING TO ENGINEER FOR REVIEW. ENGINEER WILL REVIEW COORDINATION DRAWINGS FOR GENERAL ARRANGEMENT AND FOR NOTED CONFLICTS ONLY. SPECIFIC INSTALLATION REQUIREMENTS WILL BE REVIEWED ONLY IN INDIVIDUAL TRADE SHOP DRAWINGS.

ANY WORK FABRICATED OR INSTALLED PRIOR TO SIGN OFF BY ALL TRADES WHICH IS DEEMED TO BE IN CONFLICT WITH COORDINATION DRAWINGS SHALL BE REMOVED AND RE-INSTALLED IN CONFORMANCE WITH COORDINATION DRAWINGS.

EACH CONTRACTOR (MENTIONED ABOVE) IS RESPONSIBLE FOR THE COORDINATION OF HIS SUB-CONTRACTORS.

THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BEAD ADDITIONAL COST.

## SHOP DRAWINGS

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO BE APPROVED, REVISED, OR RESUBMITTED AS PER THE ENGINEERS COMMENTS, PRIOR TO CONSTRUCTION. INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

-PLUMBING FIXTURES	-CLEAN CUTS	-DRAINS
-PIPE	-PIPE SEALS	-FITTINGS
-BRAZING	-HANGER/SUPPORTS	-INSULATION

## AS BUILT DRAWINGS

PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC (AUTOCAD VERSION AS REQUIRED BY THE OWNER) VERSION. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.

PROVIDE "AS-BUILT DRAWINGS" INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN OF THE WORK. INDICATE THE FOLLOWING INSTALLED CONDITIONS:

INCLUDE ALL CHANGES AND AN ACCURATE RECORD, ON REPRODUCTION OF THE CONTRACT DRAWINGS OR APPROPRIATE SHOP DRAWINGS, OF ALL DEVIATIONS, BETWEEN THE WORK SHOWN AND WORK INSTALLED.

MAINS AND BRANCHES OF PIPING SYSTEMS, WITH VALVES AND CONTROL DEVICES LOCATED AND NUMBERED, CONCEALED UNIONS LOCATED, AND ITEMS REQUIRING MAINTENANCE LOCATED (I.E., TRAPS, STRAINERS, EXPANSION COMPENSATORS, TANKS, ETC.). VALVE LOCATION DIAGRAMS, COMPLETE WITH VALVE TAG CHART.

EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT BUILDING LINES.

APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.

CONTRACT MODIFICATIONS, ACTUAL EQUIPMENT AND MATERIALS INSTALLED.

SUBMIT FOR REVIEW BOUND SETS OF THE REQUIRED DRAWINGS, MANUALS AND OPERATING INSTRUCTIONS.

SUBMIT A COMPLETE MAINTENANCE MANUAL OF ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT.

## HANGERS AND SUPPORT

SEISMIC RESTRAINT. PROVIDE SEISMIC RESTRAINT AND EXPANSION OF ALL PLUMBING EQUIPMENT AND SYSTEMS IN ACCORDANCE WITH STATE AND FEDERAL BUILDING CODE REQUIREMENTS. SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT INDICATING ALL NECESSARY COMPONENT CUTS, PLAN LOCATIONS AND CALCULATIONS FOR A COMPLETE SYSTEM.

PROVIDE ALL NECESSARY STRUCTURAL MEMBERS INCLUDING ADDITIONAL STRUCTURAL SUPPORT TO SUPPORT PIPING AND EQUIPMENT. HANGERS AND SUPPORTS SHALL BE AN APPROVED DESIGN NECESSARY TO SUPPORT PIPING, EQUIPMENT AND TO KEEP PIPING IN PROPER ALIGNMENT AND PREVENT TRANSMISSION OF INJURIOUS THRUSTS AND VIBRATIONS. IN ALL CASES WHERE HANGER BRACKETS, ETC. ARE SUPPORTED FROM CONCRETE CONSTRUCTION, DO NOT WEAKEN CONCRETE OR PENETRATE WATERPROOFING. ALL HANGERS AND SUPPORTS SHALL BE CAPABLE OF SCREW ADJUSTMENT AFTER THE PIPING IS ERECTED. HANGERS SUPPORTING PIPING EXPANDING INTO TEE'S, BENDS AND OFFSETS SHALL BE SECURED TO THE PIPING STRUCTURE IN SUCH A MANNER THAT HORIZONTAL ADJUSTMENT PERPENDICULAR TO THE RUN OF PIPING SHALL BE PROVIDED TO ACCOMMODATE DISPLACEMENT DUE TO EXPANSION. ALL SUCH HANGERS SHALL BE FINALLY ADJUSTED BOTH IN THE VERTICAL AND HORIZONTAL DIRECTION, AS REQUIRED. HANGERS IN CONTACT WITH COPPER OR BRASS PIPE SHALL BE DIELECTRIC, COMPATIBLE WITH COPPER AND BRASS ALLOY OR PROVIDED WITH FELT SLEEVE.

PROVIDE ADDITIONAL SUPPORT FOR PIPING AND EQUIPMENT WHEN DECK IS NOT CAPABLE OF SUPPORT.

BEAM CLAMPS - HANGERS SUPPORTED FROM STEEL SHALL BE CENTER LOADING BEAM CLAMPS FOR HANGERS SUPPORTING PIPING 2 INCHES. FOR PIPING 2 1/2 INCHES AND LARGER, I BEAM CLAMPS SHALL BE FORGED STEEL. "C" CLAMPS ARE NOT TO BE USED.

PROVIDE AND INSTALL EXPANSION COMPENSATION FOR ALL PIPING. SUBMIT PLANS, CALCULATIONS AND EQUIPMENT DATA.

## PIPE SEALS

SEAL ALL PIPING PASSING THROUGH ALL FIRE AND/OR SMOKE RATED PARTITIONS AND WALLS WITH A UL LISTED, APPROVED AND TESTED FIRE AND/OR SMOKE SEALING MATERIAL INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

ALL PIPING PENETRATING A SLAB ON GRADE OR FOUNDATION WALL BELOW GRADE AND IN CONTACT WITH EARTH SHALL BE PROVIDED WITH A Poured IN PLACE SCHEDULE 80 GALVANIZED STEEL WATER TIGHT SLEEVE WITH INTEGRAL WATER STOP AND SEAL EQUAL TO "LINK SEAL".

FURNISH AND SET STEEL PIPE SLEEVES OF SCHEDULE 40 BLACK STEEL FOR ALL LOCATIONS OF INTERIOR PARTITIONS, WALLS AND FLOORS PROVIDING AT LEAST 1/2" CLEARANCE BETWEEN PIPE INSULATION AND SLEEVE OR PIPE AND SLEEVE. WALL SLEEVES SHALL BE SMOOTH CUT AND SET FLUSH WITH FINISHED WALLS. FLOOR SLEEVES SHALL EXTENDED 2" ABOVE THE FINISHED FLOOR.

ALL PIPING THROUGH WALLS, FLOORS OR CEILINGS SHALL HAVE SLEEVES AND ESCUTCHEONS. PROVIDE A TWO PIECE CHROME ESCUTCHEON WHERE PIPING PASSES THROUGH WALLS OR FLOORS OF FINISHED SPACES.

16" X 16" WHERE PARTIAL BODY ACCESS IS REQUIRED  
24" X 24" WHERE FULL BODY ACCESS IS REQUIRED

PROVIDE AND INSTALL Drip PANS WITH WATER DETECTOR AND DRAIN FOR PIPING REQUIRED BY ACTUAL FIELD CONDITIONS WHERE PIPING PASSES OVER INCLUDING AREA WITHIN 3'-0" OF ELECTRICAL EQUIPMENT.

DO NOT INSTALL AIR GAP BACKFLOW PREVENTERS IN CONCEALED SPACES OR IN AREAS WHERE SPLASHING WATER WILL DAMAGE FINISHES. PROVIDE AND INSTALL AN OVERSIZED COPPER FUNNEL WITH AIR GAP DIRECTLY BELOW RPD PRESSURE RELIEF PORT. PIPE FUNNEL TO SPILL AS AN INDIRECT WASTE TO AN APPROVED DRAIN LOCATION.

INSTALL ELECTRONIC TRAP PRIMERS SERVING ALL DRAINS. INSTALL ALL TRAP PRIMER VALVES IN AN ACCESSIBLE LOCATION. PROVIDE AND INSTALL ACCESS PANELS AND DOORS WHERE REQUIRED TO GAIN ACCESS IN CONCEALED CONSTRUCTION.

## PIPING GENERAL

NO PIPING SHALL BE COVERED UNTIL TESTED APPROVED BY THE AUTHORITIES HAVING JURISDICTION.

ALL PIPING SHALL BE RUN PERPENDICULAR AND/OR PARALLEL TO FLOORS, INTERIOR WALLS, ETC. PIPING AND VALVES SHALL BE GROUPED NEATLY AND SHALL BE RUN AS TO MAXIMIZE HEADROOM OR PASSAGE CLEARANCE. ALL VALVES, CONTROLS AND ACCESSORIES CONCEALED IN FURRED SPACES AND REQUIRING ACCESS FOR OPERATION AND MAINTENANCE SHALL BE ARRANGED TO ASSURE THE USE OF A MINIMUM NUMBER OF ACCESS DOORS.

ALL PIPE LINES MADE WITH SCREWED FITTINGS MUST BE PROVIDED WITH A SUFFICIENT NUMBER OF FLANGES AND/OR UNION TO ALLOW FOR EASY AND CONVENIENT DISMANTLING OF THE SYSTEM WITHOUT BREAKING FITTINGS.

ALL PIPING SHALL RUN CONCEALED IN FURRED SPACES OF OCCUPIED AREAS OR CHASES. CONTRACTOR SHALL OBTAIN PERMISSION TO RUN ANY EXPOSED PIPES.

CAP ALL PIPE AND EQUIPMENT OUTLETS DURING CONSTRUCTION AND KEEP LINES AND INSIDE OF EQUIPMENT FREE OF FOREIGN MATERIALS.

PROVIDE FOR EXPANSION WITHOUT WARPING OR DISLOCATING LINES OR STRAINING CONNECTED EQUIPMENT. INSTALL PIPING TO CLEAR BUILDING CONSTRUCTION AND TO AVOID INTERFERENCE WITH OTHER WORK. THE CONTRACTOR SHALL PROVIDE AND INSTALL COMPLETE PIPING EXPANSION SYSTEM (INCLUDING SEISMIC JOINT EXPANSION) AND DEVICES AS REQUIRED FOR PROPER EXPANSION COMPENSATION STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF THE PROJECT.

THE DRAWINGS INDICATE SCHEMATICALLY THE SIZE AND LOCATION OF PIPING. PIPING SHALL BE SET UP AND DOWN AND OFFSET AS REQUIRED TO MEET CONSTRUCTION CONDITIONS.

THIS CONTRACTOR SHALL INFORM HIMSELF FROM THE GENERAL CONSTRUCTION SPECIFICATIONS AND PLANS, WHERE EQUIPMENT OR PIPES ARE TO BE PLACED AND ARRANGE HIS WORK IN ACCORDANCE WITH THE SCHEDULE OF INTERIOR FINISHES, AS INDICATED ON THE ARCHITECTURAL DRAWINGS.

WATER PIPING SHALL BE RUN FREE OF TRAPS AND UNNECESSARY BENDS. ANY TRAPS FORMED SHALL BE PROVIDED WITH HOSE END DRAIN VALVES WITH THREADED CAP AND CHAIN TO COMPLETELY DRAIN THE SYSTEM.

PROVIDE SECTION CUT-OFF VALVES ON ALL MAINS AND BRANCHES. PITCH AND VALVE ALL WATER PIPING FOR CONVENIENT DRAINAGE.

WHEREVER DISSIMILAR METALS ARE JOINED TOGETHER AN APPROVED DIELECTRIC FITTING SHALL BE USED. THE DIELECTRIC FITTING SHALL BE A LISTED ASSEMBLY.

RUN ALL SOIL, WASTE AND VENT PIPING SHOWN OR REQUIRED BY LOCAL CODES. PIPING SHOWN IS MINIMUM AND IN ACCORDANCE WITH STATE AND FEDERAL CODES. IF LOCAL CODES REQUIRE ADDITIONAL VENTING OR LARGER SIZES, PROVIDE AS REQUIRED.

MAKE ALL CONNECTIONS THROUGH TRAPS. EACH TRAP TO BE VENTED, EITHER BY CIRCUIT, LOOP, OR INDIVIDUAL VENT, AS REQUIRED, BUT NOT LESS THAN SHOWN, OR AS REQUIRED BY LOCAL CODE.

ALL UNDERGROUND PIPING SHALL BE LAID ON 6" SAND AND BACKFILLED WITH CLEAN FINE EARTH COMPACTED TO 12" ABOVE PIPE. COMPLETE BACKFILL WITH AVAILABLE EARTH FREE OF LARGE BOULDERS AND SHARP ROCKS. TAMP BACKFILL IN 6" ELEVATIONS AND OVERFILL TO ALLOW FOR SETTLEMENT.

SET AND PROPERLY CONNECT ALL FIXTURES WITH HOT AND COLD WATER, VENT AND DRAINAGE PIPING, AS REQUIRED AND PROTECT FIXTURES UNTIL ACCEPTANCE AND TEST. CLEAN ALL FLUSH VALVES AFTER TWO WEEKS OF OPERATION.

INSTALL THRUST BLOCKS FOR UNDERGROUND WATER PIPING AT ALL CHANGES IN DIRECTION BOTH HORIZONTALLY AND VERTICALLY. THRUST BLOCKS SHALL BEAR AGAINST UNDISTurbed E







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## TRUMBULL POLICE DEPARTMENT

TRUMBULL, CONNECTICUT

158 EDISON ROAD

PIPE AND FITTING SCHEDULE										
DESCRIPTION	SIZE	PIPE		FITTING		REMARKS	ABBREV.	DESCRIPTION		
		TYPE	SCHEDULE	TYPE	RATING					
SOIL, WASTE AND VENT ABOVE GROUND	ALL	CI - NH	SV	CI	SV	CHARLOTTE PIPE WITH HUSKY SD4000 COUPLINGS	AWWA	AMERICAN WATER WORKS ASSOCIATION		
SOIL, WASTE AND VENT BELOW GROUND	ALL	CI - H&S	SV	CI	SV	-	CI	CAST IRON		
DOMESTIC COLD WATER WITHIN BUILDING	2-1/2" AND BELOW	COPPER	TYPE L	CUS	STD	HARD TEMPERED	CLDI	CEMENT-LINED DUCTILE IRON		
DOMESTIC HOT WATER PIPING	2-1/2" AND BELOW	COPPER	TYPE L	CUS	STD	HARD TEMPERED	CPVC	CHLORINATED POLYVINYL CHLORIDE		
DOMESTIC COLD WATER WITHIN BUILDING	3" AND LARGER	COPPER	TYPE L	GJ	MJ	HARD TEMPERED	CUS	WROUGHT COPPER SOLDER (95/5)		
DOMESTIC HOT WATER PIPING	3" AND LARGER	COPPER	TYPE L	GJ	MJ	HARD TEMPERED	DI	DUCTILE IRON		
DOMESTIC HOT WATER RECIRCULATION PIPING	ALL	COPPER	TYPE L	CUS	STD	HARD TEMPERED	DIMJ	DUCTILE IRON MECHANICAL JOINT		
INDIRECT WASTE AND CONDENSATE PIPING	ALL	COPPER	TYPE L	CUS	STD	HARD TEMPERED	GES	GROOVED END STEEL		
DOMESTIC HOT & COLD WATER PIPING WITHIN BUILDING, BELOW SLAB	ALL	PEX				NO JOINTS ALLOWED BELOW SLAB	GJ	GROOVED JOINT SYSTEM FITTINGS/COUPLINGS		
GAS PIPING	2" AND BELOW	STL-BLK	40	MIT	CLASS 150		GS	GALVANIZED STEEL		
GAS PIPING	ABOVE 2"	STL-BLK	40	WE	SCHED 40		HSS	HUB AND SPOUT		
DOMESTIC WATER SERVICE PIPING	2-1/2" AND BELOW	COPPER	TYPE K	CUS	STD	SOFT TEMPERED - NO JOINTS ALLOWED BELOW SLAB	MJ	MECHANICAL JOINT		
DOMESTIC WATER SERVICE PIPING	3" AND LARGER	CLDI	CLASS 52	DIMJ	250		MIT	MALLEABLE IRON THREADED		
TRAP PRIMER PIPING	ALL	PEX				NO JOINTS ALLOWED BELOW SLAB	NH	NO HUB WHEN HEAVY DUTY 4-BAND HUSKY CLAMP		
							PEX	PEX PIPING		
							PF	PRESSURE FITTINGS		
							STD	STANDARD		
							STL-BLK	BLACK STEEL SEAMLESS		
							SV	SERVICE WEIGHT		
							TJ	THREADED JOINTS		
							WE	BUTT WELD		

NOTE: NO-HUB OR TRANSITION COUPLINGS ARE NOT PERMITTED BELOW GRADE, BELOW SLABS OR BURIED IN CONTACT WITH EARTH.

VALVE SCHEDULE										
DESCRIPTION	SIZE	TYPE						REMARKS	ABBREVIATIONS	
		GATE	GLOBE	CHECK	BALL	PLUG	BALAN.		ABB.	DESCRIPTION
DOMESTIC COLD WATER	2" AND SMALLER	GVT	GLVT	CVT	BVT	-	-	125 PSI	-	BVT
DOMESTIC HOT WATER	2" AND SMALLER	GVT	GLVT	CVT	BVT	-	CBV	125 PSI	-	CBV
DOMESTIC COLD WATER	2-1/2" AND LARGER	GVF	-	CVF	-	-	-	125 PSI	-	CVF
DOMESTIC HOT WATER	2-1/2" AND LARGER	GVF	-	CVF	-	-	CBV	125 PSI	-	GVT
GAS	2" AND SMALLER	-	-	-	-	PGVT	-	125 PSI	-	PGVT
GAS	2-1/2" AND OVER	-	-	-	-	PGVF	-	125 PSI	-	PGVT
SOLENOID VALVE: UL LISTED, FM APPROVED FOR GAS SERVICE, EXPLOSION PROOF, TWO-WAY NORMALLY CLOSED. SOLENOID VALVE: ASCO 8044 SERIES W/ MANUAL RESET. (EMERGENCY GAS SHUT-OFF VALVE ASSEMBLY)										
PRODUCTS INCLUDED IN THIS SECTION SHALL BE "LEAD FREE" IN ACCORDANCE WITH THE REQUIREMENTS OF THE "REDUCTION OF LEAD IN DRINKING WATER ACT".										

PLUMBING CLEANOUT SCHEDULE													
TAG	TYPE	MANUFACTURER & MODEL NUMBER	DESCRIPTION				GENERAL CLEANOUT NOTES						
DPCO	FLOOR CLEANOUT	JOSAM 55000-1-SD-22-41-VP SMITH 4100-NB-FC-Y SERIES WATTS CO-200-RX-C-6 ZURN ZN-1400-HD-KC SERIES	ALL INTERIOR AREAS (EXCEPT CARPETED AREAS) ADJUSTABLE ROUND SCORIATED HEAVY DUTY NICKEL BRONZE SECURED TOP WITH FRAME, CAST IRON BODY, FLASHING FLANGE AND CLAMP, BRONZE PLUG. PROVIDE NICKEL BRONZE FRAME IN WET AREAS.						<ul style="list-style-type: none"> <li>INSTALL EXTERIOR CLEANOUTS WITH A 18" SQUARE X 6" THICK CONCRETE APRON.</li> <li>CLEANOUTS SHALL BE LOCATED AT MINIMUM INTERVALS OF 50 FEET FOR PIPING NPS 4 AND SMALLER AND 100 FEET FOR LARGER PIPING.</li> <li>BUILDING SEWERS SHALL BE PROVIDED WITH CLEANOUTS LOCATED NOT MORE THAN 100 FEET APART MEASURED FROM THE UPSTREAM ENTRANCE OF THE CLEANOUT.</li> <li>CLEANOUTS SHALL BE INSTALLED AT EACH CHANGE OF DIRECTION OF THE BUILDING DRAIN OR HORIZONTAL WASTE OR SOIL LINES GREATER THAN 45 DEGREES (INCLUDING P-TRAPS), WHERE MORE THAN ONE CHANGE OF DIRECTION OCCURS IN A RUN OF PIPING, ONLY ONE CLEANOUT SHALL BE REQUIRED FOR EACH 40 FEET OF DEVELOPED LENGTH OF THE DRAINAGE PIPING.</li> <li>A CLEANOUT SHALL BE PROVIDED AT THE BASE OF EACH WASTE OR SOIL STACK.</li> <li>THERE SHALL BE A CLEANOUT NEAR THE JUNCTION OF THE BUILDING DRAIN AND THE BUILDING SEWER. THE CLEANOUT SHALL BE EITHER INSIDE OR OUTSIDE THE BUILDING WALL AND SHALL BE BROUGHT UP TO THE FINISHED GROUND LEVEL OR TO THE ASSOCIATED FLOOR LEVEL.</li> <li>MINIMUM SIZE: CLEANOUTS SHALL BE THE SAME NOMINAL SIZE AS THE PIPE THEY SERVE UP TO 4 INCHES. FOR PIPES LARGER THAN 4 INCHES NOMINAL SIZE, THE MINIMUM SIZE OF THE CLEANOUT SHALL BE 4 INCHES.</li> <li>CLEARANCES: CLEANOUTS ON 6-INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING. CLEANOUTS ON 8-INCH AND LARGER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 36 INCHES FOR RODDING.</li> <li>PROVIDE CLEANOUT ON ALL HORIZONTAL RUNS GREATER THAN 3 FEET. FLOOR DRAINS, ROOF DRAINS AND FLOOR SINKS ARE NOT CONSIDERED AN ACCEPTABLE CLEANOUT.</li> </ul>				
DPCO	FLOOR CLEANOUT	JOSAM 55000-1-SD-14-22-41-VP SMITH 4250-M SERIES WATTS CO-200-RC-6	CARPETED AREAS, ADJUSTABLE ROUND SCORIATED HEAVY DUTY NICKEL BRONZE SECURED TOP WITH FRAME, CARPET MARKER, CAST IRON BODY, FLASHING FLANGE AND CLAMP, BRONZE PLUG. PROVIDE NICKEL BRONZE FRAME IN WET AREAS.										
DPCO	FLOOR CLEANOUT	JOSAM 58670-5-VP-C04 SMITH 4250-M SERIES WATTS CO-300-MF-6 WITH CO-380	EXTERIOR AREAS, ROUND FLANGED HOUSING WITH HEAVY DUTY SCORIATED DUCTILE IRON TOP, CLEANOUT FERRULE BODY WITH BRONZE PLUG. INSTALL CLEANOUTS WITH 18" SQUARE X 6" DEEP CONCRETE APRON IN NON-PAVED AREAS. PROVIDE NICKEL BRONZE FRAME.										
WPCO	WALL PLATE CLEANOUT COVER	JOSAM 58640-QO 1-VP SERIES SMITH 4700-NB-U SERIES WATTS CO-300-S7-6 ZURN ZANB-1460-VP SERIES	PROVIDE AT CAST IRON CLEANOUTS WITH TAPERED BRONZE PLUG A 6" X 6" (OR 7" X 7") POLISHED NICKEL BRONZE SQUARE FRAME AND COVER SECURED WITH NICKEL BRONZE SCREWS. *MATCH CLEANOUT TO FLOOR CONDITIONS. USE *COT OPTION, IF NECESSARY. MAKE ACCESS COVER SIZE APPROPRIATE TO CLEANOUT.										

PLUMBING DRAIN/EQUIPMENT SCHEDULE											
FIXTURE TAG	FIXTURE TYPE	FIXTURE MANUFACTURER MODEL, MODEL NO.	MATERIAL	DESCRIPTION	MINIMUM BRANCH SIZES						REMARKS
					SUPPLY SIZE	TRAP SIZE	WASTE/SANITARY	VENT	COLD WATER	HOT WATER	
D1	8" SQUARE FLOOR DRAIN	JOSAM 3000-S SERIES MIFAB F1100-C-S SERIES SMITH 2010 SERIES WADE 1100-S SERIES WATTS FD-100-M-7 ZURN Z416S SERIES	CAST IRON	CAST IRON BODY, BOTTOM OUTLET, 8" X 6" SQUARE NICKEL BRONZE TOP, TRAP PRIMER CONNECTION, SEEPAGE PAN AND COMBINATION MEMBRANE FLASHING CLAMP	-	AS NOTED ON DWG.	-	-	-	-	
D2	SHOWER DRAIN - TILE BASE	PROLINE TRENCH DRAIN	STAINLESS STEEL	18 GAUGE 316L STAINLESS STEEL, FULLY SLOPED, LOW PROFILE 1" DEEP AND 1" WIDE TROUGH, 2" ID SCHEDULE 10 STAINLESS STEEL WASTE OUTLET	-	AS NOTED ON DWG.	-	-	-	-	

NOTE: PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS. SHOWER DRAINS INCORPORATING A CONSTANT AND REGULAR INDIRECT WASTE, ARE NOT REQUIRED TO INTEGRATE TRAP PRIMERS.

## SCHEDULES PLUMBING

PROJ. NO. JH1625  
SCALE As Noted  
DATE NOVEMBER 8, 2016  
DRAWING NO. P-3.0



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## TRUMBULL POLICE

DEPARTMENT

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TRUMBULL, CONNECTICUT

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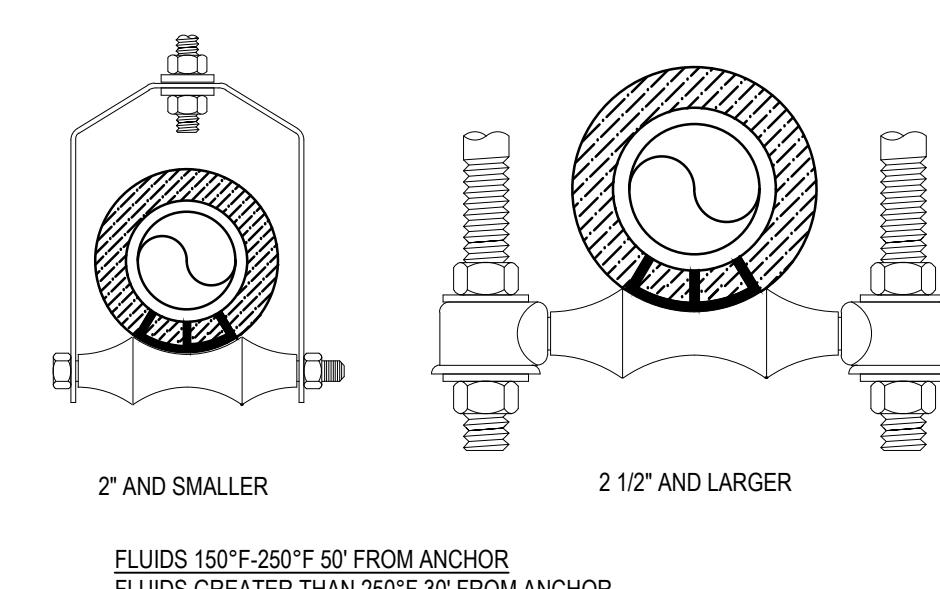
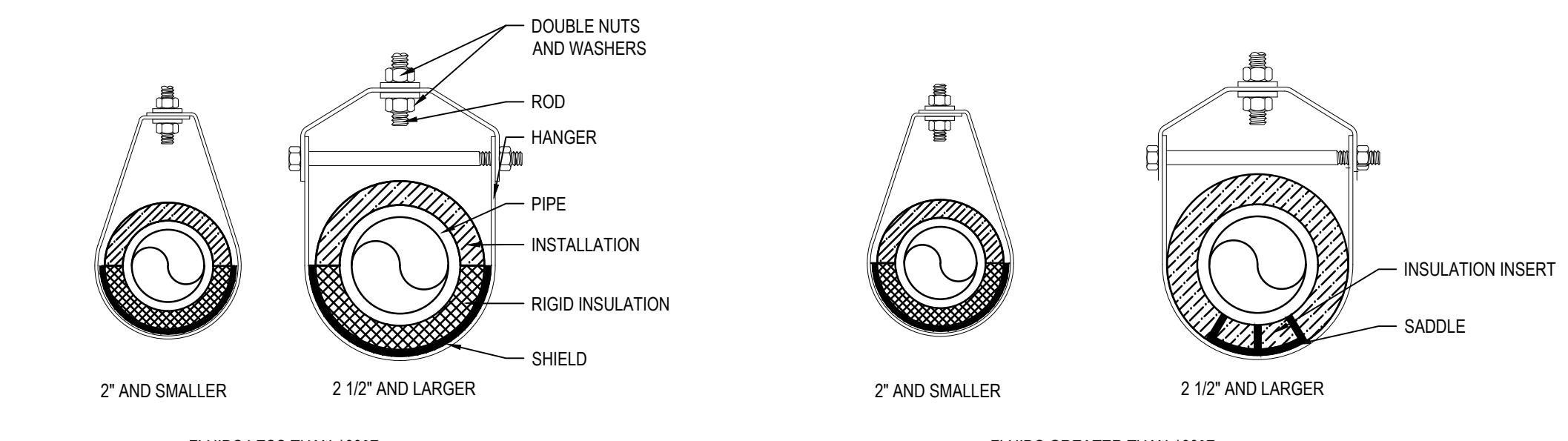
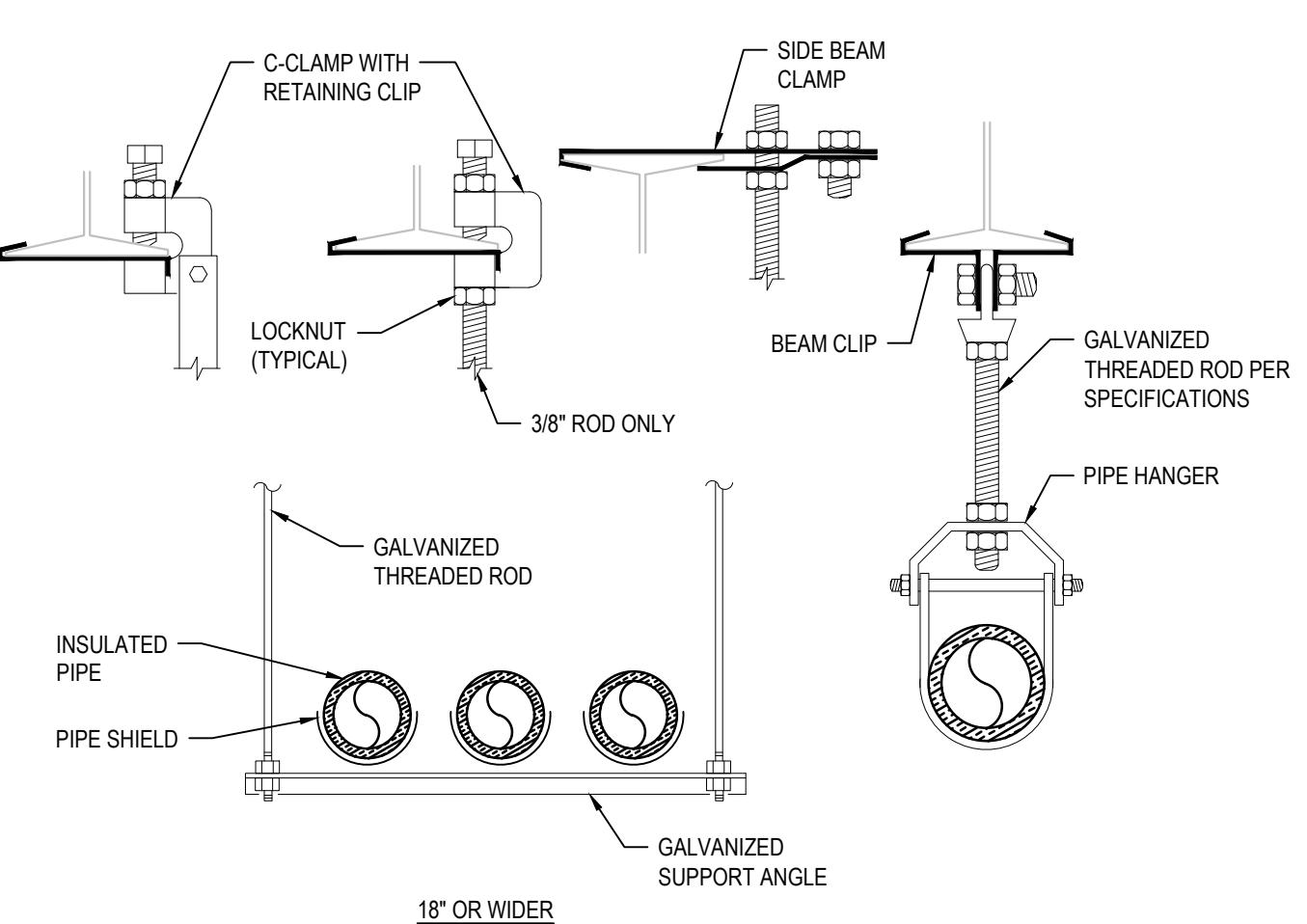
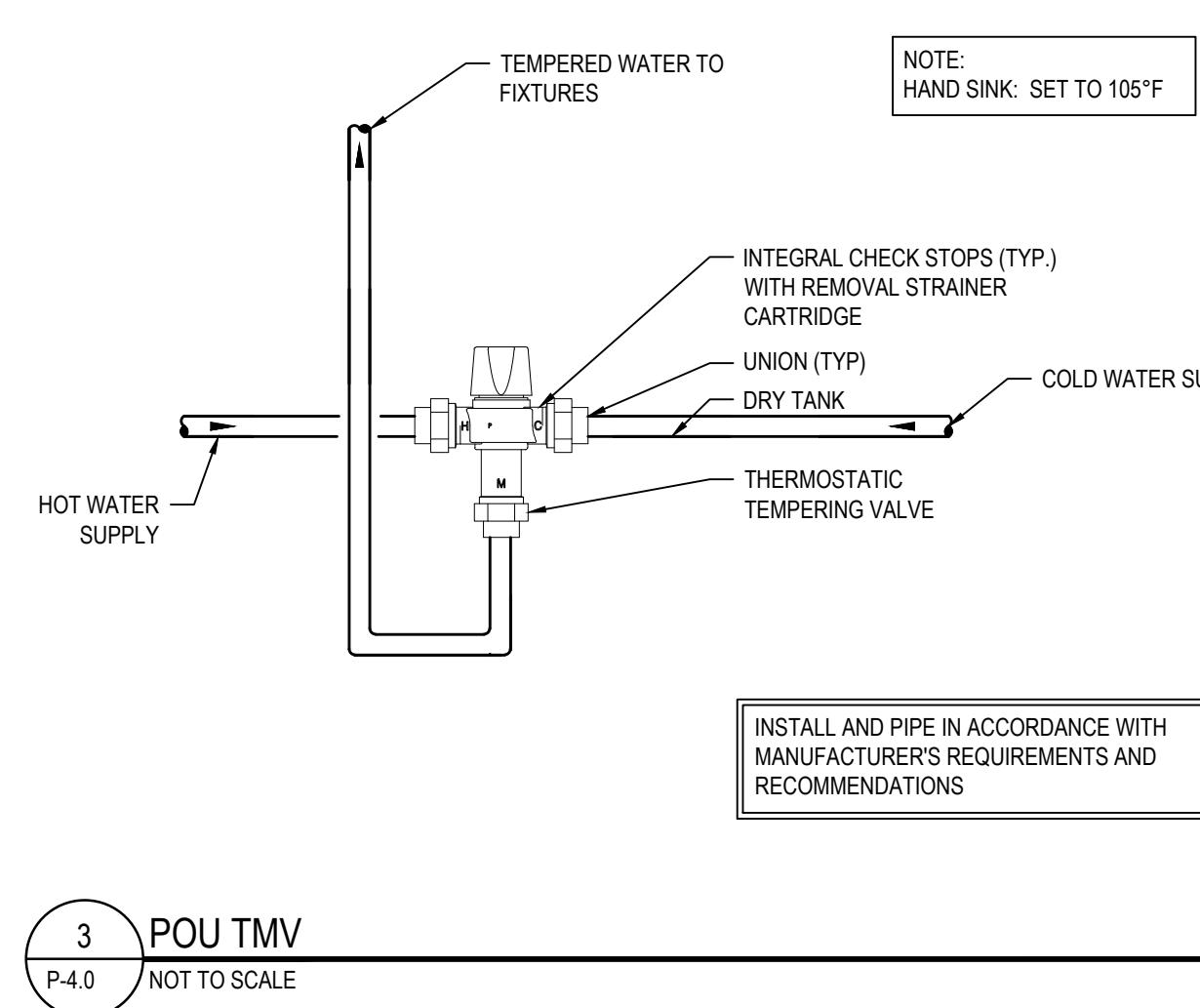
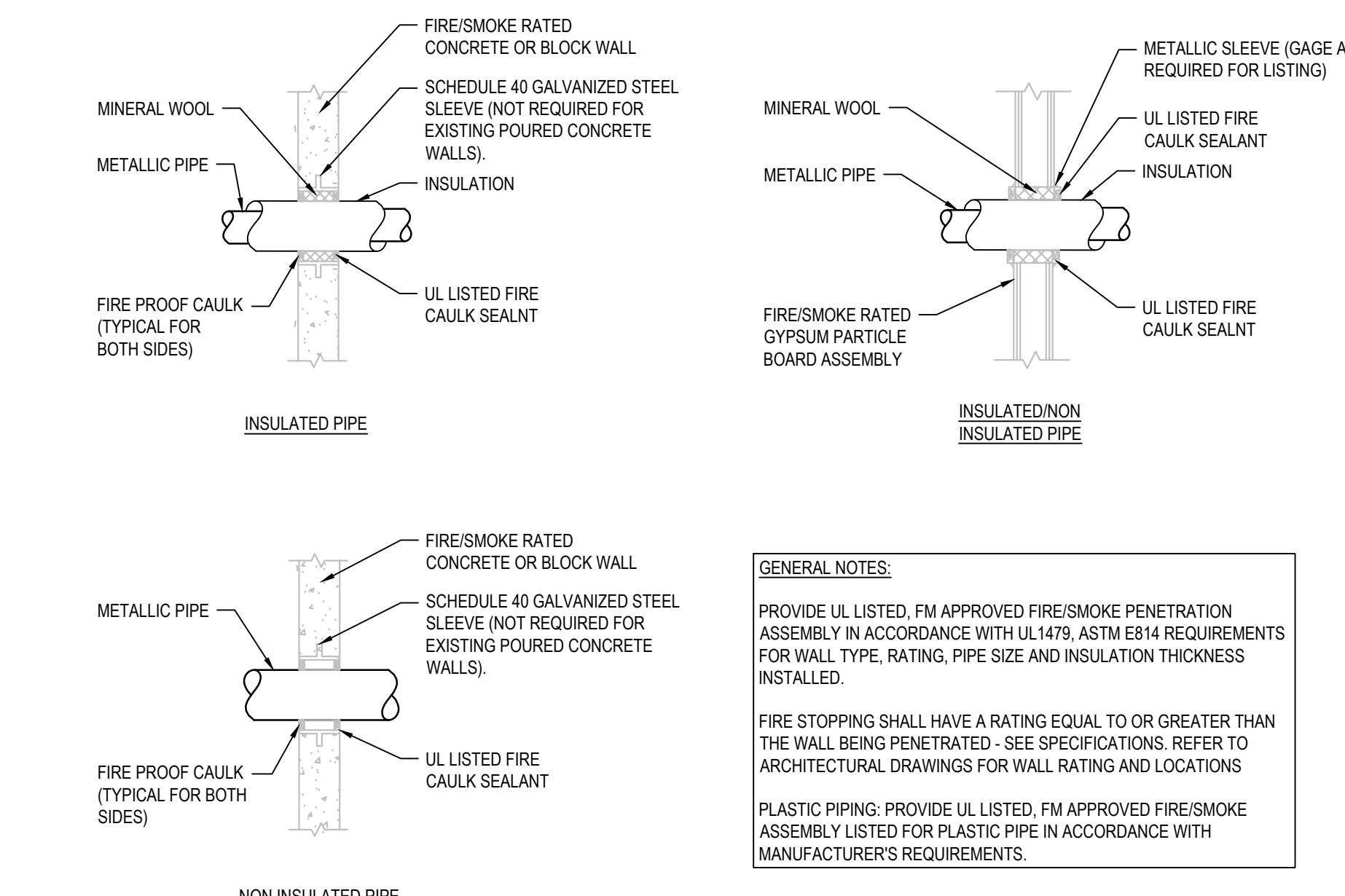
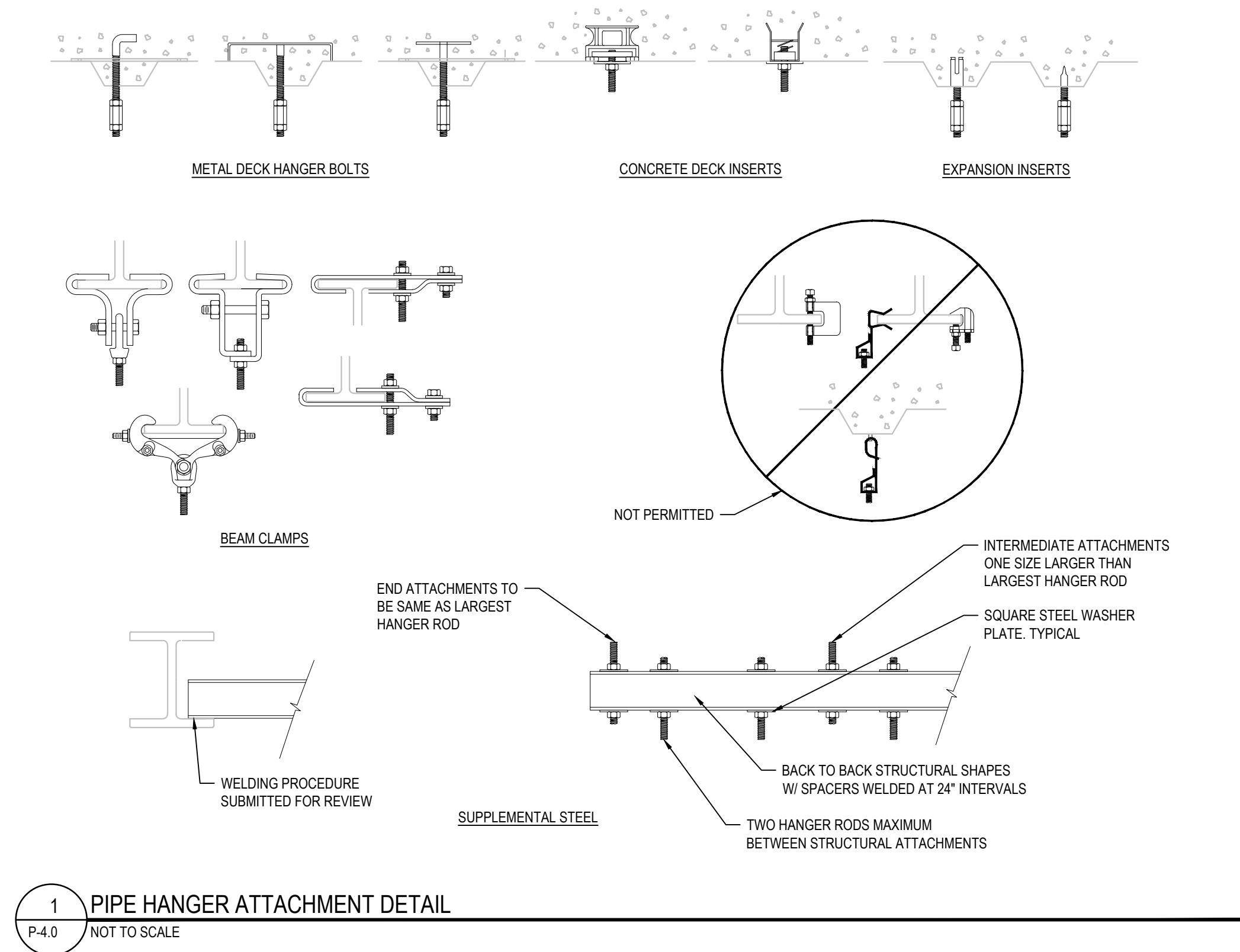
SCHEDULES  
PLUMBING

INSULATION SCHEDULE							
SYSTEM	PIPE SIZE	PIPE INSULATION TYPE	PIPE INSULATION THICKNESS	FITTINGS, VALVES, FLANGES - INSULATION TYPE			REMARKS
DOMESTIC COLD WATER	ALL	MINERAL FIBER, ASJ, SSL	1"	MOLDED, PRE-FORMED MINERAL FIBER PVC JACKET			TYPE I
DOMESTIC HOT WATER	ALL	MINERAL FIBER, ASJ, SSL	1"	MOLDED, PRE-FORMED MINERAL FIBER PVC JACKET			TYPE I
DOMESTIC WATER UNDERGROUND & IN SLAB INSTALLATION	ALL	FLEXIBLE ELASTOMERIC, CLOSED CELL	1"	ARMAFLEX			
1. FIBERGLASS INSULATION: THERMAL CONDUCTIVITY .22 TO .28 BTU x IN/H x FT x °F W/ 100°F MEAN TEMP. THICKNESS BASED ON IECC 2012 2. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS 3. ALL EXPOSED INDOOR PIPING/TUBING AND FITTINGS WITHIN OCCUPIED SPACES, CORRIDORS, MECHANICAL ROOMS AND OTHER NON-CONCEALED LOCATIONS SHALL BE FITTED WITH PVC FITTING COVERS AND PVC PIPE COVERS FROM THE FLOOR LEVEL TO 12' ABOVE THE FINISHED FLOORS, PLATFORMS, AND MEZZANINES. PVC FITTING AND PIPE COVERS SHALL BE 25/50 FLAME AND SMOKE SPREAD RATED. COVERS AND JACKETING COLOR TO BE SELECTED BY ARCHITECT. PROVIDE TEMPLATE OF JACKET COLORS FOR THE ARCHITECT'S REVIEW. 4. ALL ELBOWS; CONCEALED OR EXPOSED, SHALL BE INSULATED WITH PRE-MOLDED, FACTORY FORMED FIBROUS GLASS WITH 3.5 PCF MINIMUM DENSITY AS MANUFACTURED BY HAMFAB OR APPROVED EQUAL. ALL ELBOWS; CONCEALED OR EXPOSED, SHALL BE COVERED WITH PVC FITTING COVERS. PVC FITTING COVERS SHALL BE 25/50 FLAME AND SMOKE SPREAD RATED. COVER COLOR TO BE SELECTED BY ARCHITECT. PROVIDE TEMPLATE OF JACKET COLORS FOR THE ARCHITECT'S REVIEW. 5. DIAPER AND LOOSE FILL STYLE INSULATION ON PIPE FITTINGS IS NOT ACCEPTABLE. ELBOWS WITHOUT PVC COVERS ARE NOT ACCEPTABLE.							

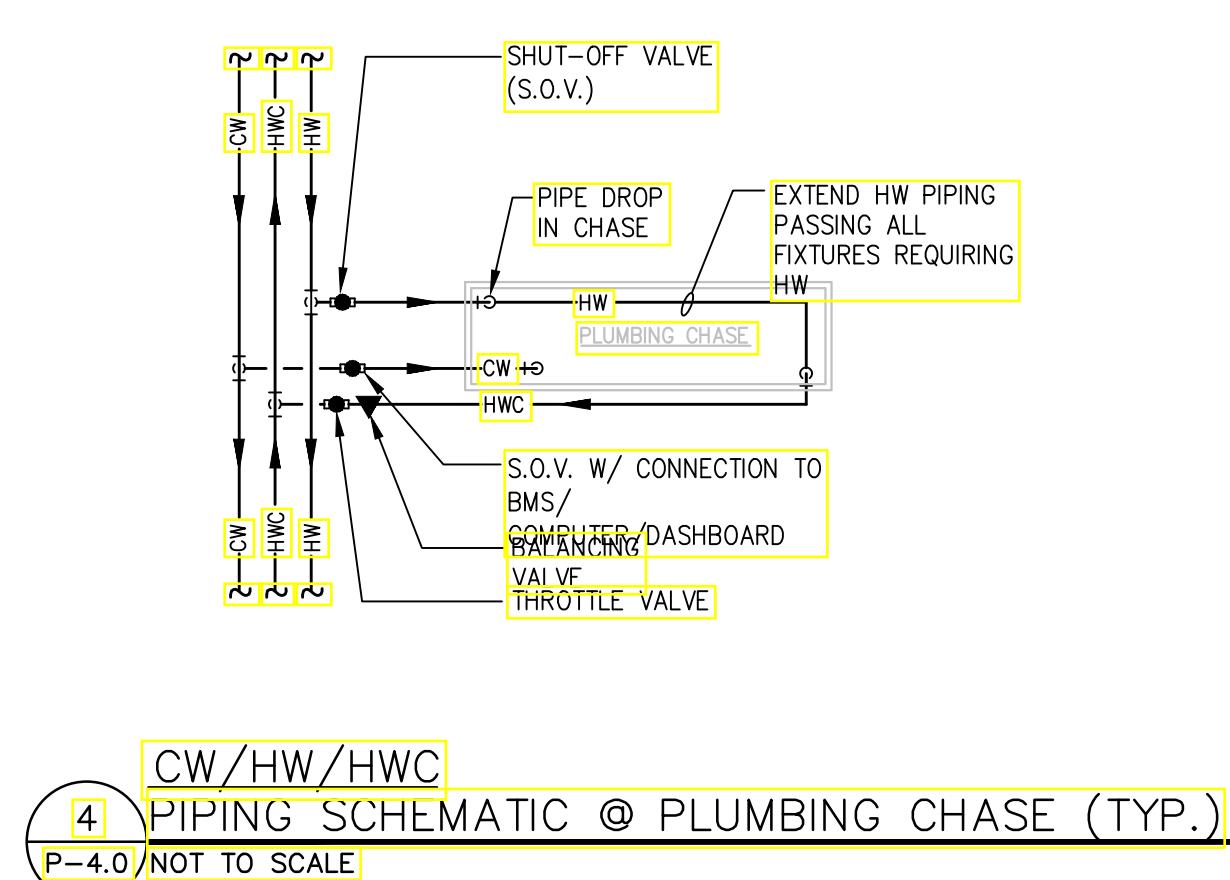
PLUMBING FIXTURE SCHEDULE											
Fixture Tag	Fixture Type	Fixture Manufacturer Model, Model No.	Material	Description	Minimum Branch Sizes						Remarks
					Supply Size	Trap Size	Waste/Sanitary	Vent	Cold Water	Hot Water	
W1	WATER CLOSET	WATER CLOSET: KOHLER KINGSTON K-4325 SEAT: KOHLER LUSTRA K-4670-C	VITREOUS CHINA COLOR: AS SELECTED BY ARCHITECT	WATER CLOSET: STANDARD & A.D.A. COMPLIANT, 1.28 GPF LOW FLOW, ELONGATED, SIPHON JET, WITH 1-1/2" TOP SPUD. FLUSH VALVE: ELECTRONIC INFRARED SENSOR FLUSH VALVE WITH WAVE TECHNOLOGY AND 30-YEAR HYBRID ENERGY CELL SEAT: HEAVY DUTY SOLID PLASTIC ELONGATED OPEN FRONT, COMBINED CONCEALED CARRIER & SUPPORT.	1"	--	4"	2"	1-1/2"	--	--
W2 (ADA)	WALL HUNG FLUSH VALVE										
U1	URINAL	URINAL: KOHLER BARDON K-4991-ETSS FLUSH VALVE: KOHLER WAVE K-7528	VITREOUS CHINA COLOR: AS SELECTED BY ARCHITECT	STANDARD AND ADA COMPLIANT, 0.125 GPF LOW FLOW, WASHOUT URINAL. FLUSH VALVE: ELECTRONIC INFRARED SENSOR FLUSH VALVE WITH WAVE TECHNOLOGY AND 30-YEAR HYBRID ENERGY CELL.	3/4"	--	2"	1-1/2"	1-1/4"	--	--
U2 (ADA)	FLUSH VALVE										
L1	LAVATORY COUNTER MOUNTED	LAVATORY: KOHLER BRYANT OVAL K-2699-4 FAUCET: KOHLER TRITON BOWE K-400T20-5AKL MIXING VALVE: ACORN STP7069 INSULATION KIT: TRUEBRO LAV GUARD 2	VITREOUS CHINA COLOR: AS SELECTED BY ARCHITECT	STANDARD & A.D.A. COMPLIANT, OVAL, 1-1/2" CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT PLUG, CHROME PLATED BRASS ANGLE STOPS WITH LOOSE KEY OPERATOR, AND GRID DRAIN. FAUCET: 4" CENTERSET FAUCET, CHROME PLATED 1.0 GPM, LAMINAR FLOW OUTLET, WRISTBLADE HANDLES PROVIDE THERMOSTATIC MIXING VALVE ON HOT WATER SUPPLY	3/8"	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"	INSULATE TRAP & WATER PIPING BELOW LAVATORY WITH INSULATION KIT. PROVIDE EACH FAUCET WITH AN ASSE 1070 COMPLIANT MIXING VALVE FOR HOT WATER SUPPLY
SH1	SHOWER ASSEMBLY	SHOWER SYSTEM: SYMONS TEMPTROL C-96-1-X-2.0-X-CHKS SHOWER HEAD: SYMONS #4-137 MIXING VALVE: ACORN STP7069	BASE AND ENCLOSURE BY ARCHITECT	PRESSURE BALANCING SHOWER VALVE WITH ADJUSTABLE STOP SCREW TO LIMIT HANDLE TURN, SINGLE MODE 2.0 GPM SHOWER HEAD: TYPE D2 SHOWER DRAIN. PROVIDE THERMOSTATIC MIXING VALVE ON HOT WATER SUPPLY	1/2"	--	2"	1-1/2"	3/4"	3/4"	--
SH2 (A.D.A.)	SHOWER ENCLOSURE AND ASSEMBLY	SHOWER ENCLOSURE: COMFORT DESIGNS SST 3838 TR .75 RF MS ADA SHOWER VALVE: SYMONS TEMPTROL C-96-500-B30-V-2.0-CHKS SHOWER HEAD: SYMONS #4-137 HAND SHOWER: SYMONS #T-300-V MIXING VALVE: ACORN STP7069	SOLID SURFACE COLOR: AS SELECTED BY ARCHITECT	SHOWER ENCLOSURE: A.D.A. COMPLIANT 36"(L.D.) X 36"(L.D.), ONE PIECE SANITARY GRADE SOLID SURFACE SHOWER UNIT WITH REINFORCED 3/4" THRESHOLD & BASE, MOLDED ADA FOLD DOWN SEAT, (1) 18" X 33-1/2" X 1-1/2" L-GRAB BAR, (1) 24" X 1-1/2" STAINLESS STEEL GRAB BAR VERTICAL ON THE VALVE WALL, INTEGRAL FRONT TRENCH DRAIN. CHROME PLATED SHOWER AND HAND SHOWER SYSTEM WITH 30" SLIDE BAR, DUAL SEPARATE DUAL OUTLET DIVERTER VALVE, 5 FOOT FLEXIBLE METAL HOSE WITH INLINE VACUUM BREAKER, CHECK STOPS, 2.0 GPM SHOWER HEAD. PROVIDE THERMOSTATIC MIXING VALVE ON HV SUPPLY	1/2"	--	2"	1-1/2"	3/4"	3/4"	--
TP1	ELECTRONIC TRAP PRIMER	PRECISION PLUMBING PRODUCTS MPB-500 SERIES PROVIDE WITH CABINET & ACCESS DOOR BASED ON WALL CONDITIONS. COORDINATE ACCESS PANEL FINISH & LOCATION WITH ARCHITECT. (REFER TO PIPE & FITTING SCHEDULE FOR MATERIALS)		ELECTRONIC TRAP PRIMER ASSEMBLY: CONSISTING OF CIRCUIT BREAKER (MINIMUM 2 AMP), SWITCH, TIMER SOLENOID VALVE, 115V, MOUNT PER MANUFACTURER'S REQUIREMENTS & RECOMMENDATIONS. COORDINATE NUMBER OF OUTLETS AS REQUIRED BY QUANTITY OF DRAINS SERVED (1 - 4).	1/2	--	--	--	--	--	*NOTE: RECESSED OR SURFACE MOUNTED CABINET TYPE BASED ON WALL CONDITIONS. CONTRACTOR TO COORDINATE WITH ARCHITECT. INCLUDE ACCESS DOORS/PANELS.
SC1	CELL BLOCK COMBINED WATER CLOSET/ LAVATORY	ACORN PENAL-WARE LR1418-CT-2-04-M-MTP2-1.28 GPF-MTPV-PHL-MT	14 GAGE 304 STAINLESS STEEL	LIGATURE RESISTANT 18" WIDE LAV/TOILET COMBY. PROVIDE HEMISPHERICAL CABINET DESIGN TO REDUCE RISK OF FIXTURE BEING USED AS A LIGATURE DEVICE. CONSTRUCTION SHALL BE SEAMLESS WELDED AND EXPOSED SURFACES SHALL HAVE A SATIN FINISH. PROVIDE OVAL SHAPED LAVATORY BOWL. FIXTURE SHALL HAVE AN AIR-CONTROL PNEUMATICALLY OPERATED, PUSH-BUTTON VALVE. HEMISPHERICAL PENAL BUBBLER AND HEMISPHERICAL PENAL PUSH-BUTTON. PROVIDE TOILET BOWL HOUSING TO PROHIBIT THE ATTACHMENT OF OBJECTS. CONCEALED BLOWOUT JET TYPE: ELONGATED BOWL. SELF DRAINING FLUSHING RIM, AND AN INTEGRAL CONTOURED SEAT. TOILET TRAP SHALL HAVE A MINIMUM 3-1/2" SEAL THAT SHALL PASS A 2-1/8" DIAMETER BALL AND SHALL BE FULLY ENCLOSED. CABINET INTERIOR SHALL BE SOUND-DEADENED WITH FIRE-RESISTANT MATERIAL. FIXTURE SHALL WITHSTAND LOADING OF 5,000 POUNDS WITHOUT PERMANENT DAMAGE.	1"	--	4"	2"	1-1/2"	--	INCLUDE TRAP PRIMER ON ONE FLUSH VALVE IN EACH TOILET ROOM EQUIPPED WITH FLOOR DRAIN.



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6 PIPE HANGER DETAIL  
P-4.0 NOT TO SCALE



PIPE SIZE	ROD DIAMETER	SUPPORT ANGLE OR EQUIVALENT CHANNEL	MAX SPACING STEEL PIPE	MAX SPACING COPPER PIPE	MAXIMUM AREA*
1/2" TO 1"	3/8"	1-1/2" X 1-1/2" X 1/8"	8'-0" O.C.	6'-0" O.C.	4 SQ. FT.
1-1/4" TO 2"	3/8"	1-1/2" X 1-1/2" X 1/8"	10'-0" O.C.	8'-0" O.C.	10 SQ. FT.
2-1/2" TO 4"	1/2"	2" X 2" X 1/4"	12'-0" O.C.	10'-0" O.C.	10 SQ. FT.

\*REDUCE SPACING TO NEXT SMALLER INTERVAL IF PIPE AREA EXCEEDS MAXIMUM

HANGER SCHEDULE		
PIPE SIZE	ROD SIZE	MAX. SPACING
UP TO 1 1/4"	3/8" DIA.	8' STEEL
UP TO 1 1/4"	3/8" DIA.	6' COPPER & BRASS
1 1/2" & 2"	3/8" DIA.	10'
2 1/2" & 3"	1/2" DIA.	10'
4" & 5"	5/8" DIA.	10'
6"	3/4" DIA.	10'
8", 10", 12"	7/8" DIA.	10'
14" & 16"	1" DIA.	10'
18"	1 1/8" DIA.	10'
20" & 24"	1 1/4" DIA.	10'

## DETAILS PLUMBING

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PROJ. NO. JH1828 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016  
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## INTERIOR RENOVATION TO THE TRUMBULL POLICE DEPARTMENT

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## SPECIFICATIONS PLUMBING

PRO. NO.	JH1625	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2016	

P-5.0

## PLUMBING SPECIFICATIONS

### GENERAL

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT AS NECESSARY TO PROVIDE A COMPLETE INSTALLATION INCLUDING COORDINATION, SYSTEM CHECK OUT AND START UP ON EACH ITEM AND SYSTEM.

THIS CONTRACTOR SHALL INFORM HIMSELF FROM THE GENERAL CONSTRUCTION SPECIFICATIONS AND PLANS, OF THE EXACT DIMENSION OF FINISHED WORK AND OF THE HEIGHT OF FINISHED CEILINGS IN ALL ROOMS WHERE EQUIPMENT OR PIPES ARE TO BE PLACED AND ARRANGE HIS WORK IN ACCORDANCE WITH THE SCHEDULE OF INTERIOR FINISHES, AS INDICATED ON THE ARCHITECTURAL DRAWINGS.

MANUFACTURER'S QUALIFICATIONS: FIRMS REGULARLY ENGAGED IN THE MANUFACTURER OF FIXTURES, APPLIANCES, PIPES AND PIPE FITTINGS OF TYPES AND SIZES REQUIRED, WHOSE PRODUCTS HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR NOT LESS THAN 5 YEARS.

MATERIAL QUALIFICATIONS: SHALL CONFORM TO ALL LOCAL, STATE, AND NATIONAL/FEDERAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THESE SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

WELDING: QUALITY WELDING PROCEDURES, WELDERS, AND OPERATORS IN ACCORDANCE WITH ASME B31.1, OR ASME B31.9, AS APPLICABLE. CERTIFY WELDING OF PIPING WORK USING STANDARD PROCEDURE SPECIFICATIONS BY, AND WELDERS TESTED UNDER SUPERVISION OF, NATIONAL CERTIFIED PIPE WELDING BUREAU (NCPWB).

BRAZING: CERTIFY BRAZING PROCEDURES, BRAZERS, AND OPERATORS IN ACCORDANCE WITH ASME BOILER AND PRESSURE VESSEL CODE, SECTION IX, FOR SHOP AND JOB-SITE BRAZING OF PIPING WORK.

### RELATED DOCUMENTS

DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

### DEFINITIONS

FINISHED SPACES: SPACES OTHER THAN MECHANICAL AND ELECTRICAL EQUIPMENT ROOMS, FURRED SPACES, PIPE CHASES, UNHEATED SPACES IMMEDIATELY BELOW ROOF, SPACES ABOVE CEILINGS, UNEXCAVATED SPACES, CRAWL SPACES, AND TUNNELS.

EXPOSED INTERIOR INSTALLATIONS: EXPOSED TO VIEW INDOORS. EXAMPLES INCLUDE FINISHED OCCUPIED SPACES AND MECHANICAL EQUIPMENT ROOMS.

EXPOSED EXTERIOR INSTALLATIONS: EXPOSED TO VIEW OUTDOORS OR SUBJECT TO OUTDOOR AMBIENT TEMPERATURES AND WEATHER CONDITIONS. EXAMPLES INCLUDE ROOFTOP LOCATIONS.

CONCEALED INTERIOR INSTALLATIONS: CONCEALED FROM VIEW AND PROTECTED FROM PHYSICAL CONTACT BY BUILDING OCCUPANTS. EXAMPLES INCLUDE ABOVE CEILINGS AND IN CHASES.

CONCEALED EXTERIOR INSTALLATIONS: CONCEALED FROM VIEW AND PROTECTED FROM WEATHER CONDITIONS AND PHYSICAL CONTACT BY BUILDING OCCUPANTS BUT SUBJECT TO OUTDOOR AMBIENT TEMPERATURES. EXAMPLES INCLUDE INSTALLATIONS WITHIN UNHEATED SHELTERS.

### QUALITY ASSURANCE

STEEL SUPPORT WELDING: QUALITY PROCESSES AND OPERATORS ACCORDING TO AWS D1.1, "STRUCTURAL WELDING CODE-STEEL."

STEEL PIPE WELDING: QUALITY PROCESSES AND OPERATORS ACCORDING TO ASME BOILER AND PRESSURE VESSEL CODE: SECTION IX, "WELDING AND BRAZING QUALIFICATIONS."

COMPLY WITH PROVISIONS IN ASME B31 SERIES, "CODE FOR PRESSURE PIPING."

CERTIFY THAT EACH WELDER HAS PASSED AWS QUALIFICATION TESTS FOR WELDING PROCESSES INVOLVED AND THAT CERTIFICATION IS CURRENT.

ELECTRICAL CHARACTERISTICS FOR PLUMBING EQUIPMENT: EQUIPMENT OF HIGHER ELECTRICAL CHARACTERISTICS MAY BE FURNISHED PROVIDED SUCH PROPOSED EQUIPMENT IS APPROVED IN WRITING AND CONNECTING ELECTRICAL SERVICES, CIRCUIT BREAKERS, AND CONDUIT SIZES ARE APPROPRIATELY MODIFIED. IF MINIMUM ENERGY RATINGS OR EFFICIENCIES ARE SPECIFIED, EQUIPMENT SHALL COMPLY WITH REQUIREMENTS.

### DELIVERY, STORAGE, AND HANDLING

DELIVER PIPES AND TUBES WITH FACTORY-APPLIED END CAPS. MAINTAIN END CAPS THROUGH SHIPPING, STORAGE, AND HANDLING TO PREVENT PIPE END DAMAGE AND TO PREVENT ENTRANCE OF DIRT, DEBRIS, AND MOISTURE.

STORE PLASTIC PIPES PROTECTED FROM DIRECT SUNLIGHT. SUPPORT TO PREVENT SAGGING AND BENDING.

### COORDINATION

PREPARE AND SUBMIT COORDINATION DRAWINGS. REFER TO OTHER DIVISION 15 SECTIONS FOR REQUIREMENTS.

CLOSELY SCHEDULE THE WORK SO THAT WORK WILL BE INSTALLED AT THE PROPER TIME WITHOUT DELAYING THE COMPLETION OF THE ENTIRE PROJECT.

WHERE THE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO THE WORK OF OTHER TRADES, OR WHERE THERE IS EVIDENCE THAT WORK WILL INTERFERE WITH THE WORK OF OTHER TRADES, ARRANGE SPACE CONDITIONS TO MAKE A SATISFACTORY ADJUSTMENT. IF WORK IS INSTALLED BEFORE COORDINATING WITH OTHER TRADES, MAKE NECESSARY CHANGES TO THE WORK TO CORRECT THE CONDITION WITHOUT ADDITIONAL COST TO THE OWNER.

PREPARE COMPLETE SET OF DRAWINGS SHOWING ALL NECESSARY SLAB OPENINGS AND STRUCTURAL SUPPORTS THAT REQUIRE STRUCTURAL FRAMING. DRAWINGS SHALL CLEARLY INDICATE SIZES AND LOCATION RELATIVE TO ESTABLISHED COLUMN LINES. DRAWINGS SHALL BE COMPLETED IN SUFFICIENT TIME TO ALLOW FOR STRUCTURAL STEEL FABRICATION SO AS NOT TO DELAY PROJECT SCHEDULE.

SHOP DRAWING SUBMISSIONS SHALL DEMONSTRATE A KNOWLEDGE OF THE WORK OF OTHER TRADES, AND SHALL SHOW THE LOCATIONS OF THE WORK OF OTHER TRADES WHICH AFFECTS THE WORK OF THIS CONTRACT.

ARRANGE FOR PIPE SPACES, CHASES, SLOTS, AND OPENINGS IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR PLUMBING INSTALLATIONS.

COORDINATE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN Poured-IN-Place CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.

COORDINATE REQUIREMENTS FOR ACCESS PANELS AND DOORS FOR PLUMBING ITEMS REQUIRING ACCESS THAT ARE CONCEALED BEHIND FINISHED SURFACES. ACCESS PANELS AND DOORS ARE SPECIFIED IN DIVISION 8 SECTION "ACCESS DOORS AND FRAMES."

### COORDINATION DRAWINGS

sheet metal, plumbing and fire protection shop drawings that have been coordinated with architectural and structural drawings shall be submitted to engineer for review. drawings must be returned from engineer either "reviewed" or "furnished as corrected" prior to being used as basis for coordination drawings.

After sheet metal and piping drawings have been revised per engineer's comments, reproducible copies shall be sent to the others trades in the following sequence for the inclusion of their work:

PLUMBING CONTRACTOR  
ELECTRICAL WORK  
MECHANICAL PIPING  
Prior to inclusion of sprinkler piping and equipment, contractor shall have submitted sprinkler plans and calculations to engineer for review and to rating bureau for review.

After all trades have included their work on the coordination drawing and noted conflicts, all trades shall meet to resolve conflicts and agree to acceptable solutions. each trade shall sign coordination drawings. items not shown on coordination drawing is responsibility of omitting contractor and contractor is subject to additional costs incurred by other trades.

THE ARCHITECT AND ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE RELATIVE TO ACCEPTABILITY OF INSTALLATIONS.

SUBMIT FINAL SIGNED COORDINATION DRAWING TO ENGINEER FOR REVIEW. ENGINEER WILL REVIEW FOR ACCEPTABILITY OF INSTALLATIONS.

ANY WORK FABRICATED OR INSTALLED PRIOR TO SIGN OFF BY ALL TRADES SHALL BE REMOVED AND RE-INSTALLED IN CONFORMANCE WITH COORDINATION DRAWINGS.

EACH CONTRACTOR (MENTIONED ABOVE) IS RESPONSIBLE FOR THE COORDINATION OF HIS SUB-CONTRACTORS.

THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BE ADDITIONAL COST.

### AS BUILT DRAWINGS

PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL NOT BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEER'S COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC (AUTOCAD VERSION AS REQUIRED BY THE OWNER) NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.

PROVIDE AS-BUILT DRAWINGS<sup>1</sup> INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN. THE OWNER WILL INDICATE THE FOLLOWING INSTALLED CONDITIONS:

INCLUDE ALL CHANGES AND AN ACCURATE RECORD, ON REPRODUCTION OF THE CONTRACT DRAWINGS OR APPROPRIATE SHOP DRAWINGS, OF ALL DEVIATIONS, BETWEEN THE WORK SHOWN AND WORK INSTALLED.

MAINS AND BRANCHES OF PIPING SYSTEMS, WITH VALVES AND CONTROL DEVICES LOCATED AND NUMBERED, CONCEALED UNIONS LOCATED, AND WITH ITEMS REQUIRING MAINTENANCE LOCATED (I.E., TRAPS, STRAINERS, EXPANSION COMPENSATORS, TANKS, ETC.). VALVE LOCATION DIAGRAMS, COMPLETE WITH VALVE TAG CHART.

EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT BUILDING LINES.

APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.

CONTRACT MODIFICATIONS, ACTUAL EQUIPMENT AND MATERIALS INSTALLED.

SUBMIT FOR REVIEW BOUND SETS OF THE REQUIRED DRAWINGS, MANUALS AND OPERATING INSTRUCTIONS.

### PIPE MATERIALS

REFER TO SCHEDULE ON DRAWING.

### PIPE LABELS

DO NOT USE PIPE LABELS OR PLASTIC TAPES FOR BARE PIPES CONVEYING FLUIDS AT TEMPERATURES OF 125 DEG F (52 DEG C) OR HIGHER.

GENERAL REQUIREMENTS FOR MANUFACTURED PIPE LABELS: PREPRINTED, COLOR-CODED, WITH LETTERING INDICATING SERVICE, AND SHOWING FLOW DIRECTION.

PRETENSIONED PIPE LABELS: PRECOILED, SEMIRIGID PLASTIC FORMED TO COVER FULL CIRCUMFERENCE OF PIPE AND TO ATTACH TO PIPE WITHOUT FASTENERS OR ADHESIVE.

SELF-ADHESIVE PIPE LABELS: PRINTED PLASTIC WITH CONTACT-TYPE, PERMANENT-ADHESIVE BACKING.

PIPE LABEL CONTENTS: INCLUDE INDICATION OF PIPING SYSTEM SERVICE USING SAME DESIGNATIONS OR ABBREVIATIONS AS USED ON DRAWINGS, PIPE SIZE, AND AN ARROW INDICATING FLOW DIRECTION.

FLOW-DIRECTION ARROWS: INTEGRAL WITH PIPING SYSTEM SERVICE LETTERING TO ACCOMMODATE BOTH DIRECTIONS OR AS SEPARATE UNIT ON EACH PIPE LABEL TO INDICATE FLOW DIRECTION.

LETTERING SIZE: AT LEAST 1-1/2 INCHES HIGH.

### VALVE TAGS

VALVE TAGS: STAMPED OR ENGRAVED WITH 1/4-INCH LETTERS FOR PIPING SYSTEM ABBREVIATION AND 1/2-INCH NUMBERS.

TAG MATERIAL: BRASS, 0.032-INCH MINIMUM THICKNESS, AND HAVING PREDRILLED OR STAMPED HOLES FOR ATTACHMENT HARDWARE.

FASTENERS: BRASS WIRE-LINK OR BEADED CHAIN; OR S-HOOK.

VALVE SCHEDULES: FOR EACH PIPING SYSTEM, ON 8-1/2-BY-11-INCH BOND PAPER. TABULATE VALVE NUMBER, PIPING SYSTEM, SYSTEM ABBREVIATION (AS SHOWN ON VALVE TAG), LOCATION OF VALVE (ROOM OR SPACE), NORMAL-OPERATING POSITION (OPEN, CLOSED, OR MODULATING), AND VARIATIONS FOR IDENTIFICATION. MARK VALVES FOR EMERGENCY SHUTOFF AND SIMILAR SPECIAL USES.

VALVE-TAG SCHEDULE SHALL BE INCLUDED IN OPERATION AND MAINTENANCE DATA.

### PIPE HANGERS, SUPPORTS, SEISMIC RESTRAINT, AND VIBRATION ISOLATION

SEISMIC RESTRAINT: PROVIDE SEISMIC RESTRAINT OF ALL PLUMBING EQUIPMENT AND SYSTEMS IN ACCORDANCE WITH STATE BUILDING CODE REQUIREMENTS. SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT INDICATING ALL NECESSARY COMPONENT CUTS, PLAN LOCATIONS AND CALCULATIONS FOR A COMPLETE SYSTEM. REFER TO OTHER DIVISION 15 REQUIREMENTS.

PROVIDE NECESSARY STRUCTURAL MEMBERS, HANGERS AND SUPPORTS OF APPROVED DESIGN TO KEEP PIPING IN PROPER ALIGNMENT AND PREVENT TRANSMISSION OF INJURIOUS THRUSTS AND VIBRATIONS. IN ALL CASES WHERE HANGERS, BRACKETS, ETC., ARE SUPPORTED FROM CONCRETE CONSTRUCTION DO NOT WEAKEN CONCRETE OR PENETRATE WATERPROOFING. ALL HANGERS AND SUPPORTS SHALL BE CAPABLE OF SCREW ADJUSTMENT AFTER PIPING IS ERECTED. HANGERS SUPPORTING PIPING EXPANDING INTO LOOPS, BENDS AND OFFSETS SHALL BE SECURED TO THE BUILDING STRUCTURE IN SUCH A MANNER THAT HORIZONTAL ADJUSTMENT PERPENDICULAR TO THE RUN OF PIPING SUPPORTED MAY BE MADE TO ACCOMMODATE DISPLACEMENT DUE TO EXPANSION. ALL SUCH HANGERS SHALL BE FINALLY ADJUSTED BOTH IN THE VERTICAL AND HORIZONTAL DIRECTION, AS REQUIRED. HANGERS IN CONTACT WITH COPPER OR BRASS PIPE SHALL BE DIELECTRIC, COMPATIBLE WITH COPPER AND BRASS ALLOY OR PROVIDED WITH FELT SLEEVE.

### INSULATION

### INSULATION

REFER TO SCHEDULE ON DRAWING.

ALL INSULATING MATERIALS SHALL COMPLY WITH THE FOLLOWING RATINGS:

### FLAMESPREAD -25

### SMOKE DEVELOPED -50

### FUEL CONTRIBUTED -50

### FIBERGLASS PIPING INSULATION (INTERIOR)

MOLDED FIBROUS GLASS WITH 3.5 POUNDS MINIMUM DENSITY, MAXIMUM K = 3 AT 200 DEGREE F, MEAN AND RATED TO 450 DEGREE F. THE INSULATION SHOULD BE SECTIONAL PIPE JACKETED WITH AN EMBOSSED VAPOR BARRIER LAMINATE.

### MANUFACTURERS:

OWENS-CORNING, TYPE 25 ASJ

KNAUF - PIPE INSULATION WITH ASJ

CERTAINTEED - TYPE 500 SNAP-ON WITH ASJ

MANVILLE - MICRO-LOK 650 WITH AP JACKET

D.TYPE G - FIBERGLASS INSULATION FOR VALVES, FITTINGS, FLANGES (VAPOR SEAL INSULATION).

MOLDED, FACTORY-FORMED FIBROUS GLASS WITH 3.5 POF MINIMUM DENSITY, MAX. K = 3 AT 200F, MEAN, RATED TO 450 DEGREE F. ALL JOINTS TO BE SEALED WITH VAPOR BARRIER ADHESIVE AND WRAPPED WITH GLASS MESH TAPE. EACH FITTING TO BE FINISHED WITH TWO COATS OF BENJAMIN FOSTER 30-38 VAPOR SEAL.

### VALVES

GENERAL: APPROVED MANUFACTURERS: NOBO, APOLLO, STOCKHOLM.

REFER TO SCHEDULE ON DRAWING.

### PIPE SLEEVES AND SEALS

MASONRY WALLS AND SLABS: SCHEDULE 40 GALVANIZED STEEL PIPE WITH INTEGRAL WATER STOP.

SLEEVE ADAPTERS: COATED CAST IRON, EQUIPPED WITH FLASHING CLAMP.

CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH PARTITIONS, SLABS AND/OR CEILINGS WITH A UL APPROVED FIRE/SMOKE STOP TO MAINTAIN THE INTEGRITY OF THE RESPECTIVE RATING INCLUDING SMOKE TIGHT PARTITIONS.

### CLEANOUTS

REFER TO SCHEDULE ON DRAWING.

### PLUMBING FIXTURES

GENERAL MECHANICAL NOTES	
<b>GENERAL</b>	
1. WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUANTITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.	CONTRACTOR IS RESPONSIBLE FOR ALL THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS, REGARDLESS OF WHERE IT IS SHOWN. FOR EXAMPLE, ELECTRICAL WORK IS SHOWN ON M-SERIES DRAWINGS AS WELL AS A-SERIES DRAWINGS AND P-SERIES DRAWINGS. MISCELLANEOUS METALS AND STRUCTURAL ELEMENTS ARE SHOWN ON A-SERIES DRAWINGS AS WELL AS ON M-SERIES DRAWINGS. TO AVOID OMITTING ANY COMPONENT OF THE PROJECT, REFER TO ALL THE CONTRACT DOCUMENTS IN THEIR ENTIRETY.
2. IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO PROVIDE FOR FINISHED WORK, TESTED AND READY FOR OPERATION.	B. AFTER SHEET METAL DRAWINGS HAVE BEEN REVISED PER ENGINEERS COMMENTS, REPRODUCIBLE COPIES SHALL BE SENT TO THE TRADES IN THE FOLLOWING SEQUENCE FOR THE INCLUSION OF THEIR WORK:  -MECHANICAL SHEET METAL -PLUMBING PIPING -ELECTRICAL WORK
3. ITEMS AND SERVICES NOT SHOWN ON DRAWINGS OR SPECIFICATIONS BUT REQUIRED TO RENDER THE WORK COMPLETE AND READY FOR OPERATION, SHALL BE PROVIDED WITHOUT ADDITIONAL COST.	27. CONTRACTOR TO PROVIDE INTERNAL MIXING BAFFLES IN AIR HANDLING UNITS, PLENUMS AND FAN COILS TO ALLOW PROPER MIXING OF OUTSIDE AIR AND RETURN AIR IN THE EVENT THERE IS INSUFFICIENT SPACE FOR MIXING TO PREVENT NUISANCE FREEZE STAT TRIPS. CONTRACTOR REVIEW DRAWING AND INSTALLATION AND PROVIDE BAFFLES AS REQUIRED.
4. WORK OF THIS SECTION SHALL BE GOVERNED BY THE CONTRACT DOCUMENTS. PROVIDE MATERIALS, LABOR, EQUIPMENT AND SERVICES NECESSARY TO FURNISH, DELIVER AND INSTALL ALL WORK AS SPECIFIED AND AS REQUIRED BY JOB CONDITIONS. WHERE A CONFLICT EXISTS BETWEEN THESE NOTES, THE DRAWINGS AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.	28. WHEREVER EXISTING SYSTEMS ARE ALTERED OR EXTENDED THE INTEGRITY OF THE SYSTEM IS TO BE MAINTAINED AND FUNCTION FULLY AS BEFORE. COORDINATE SCHEDULE FOR HOOK-UPS TO EXISTING SYSTEMS AND EQUIPMENT REMOVAL OR RELOCATION WITH THE OWNER AND PERFORM THIS WORK AT SUCH TIMES TO ENSURE THAT PERIODS OF SHUTDOWN WILL BE ACCEPTABLE TO THE OWNER.
5. DRAWINGS ARE DIAGRAMMATIC AND INDICATE A GENERAL ARRANGEMENT OF WORK AND ARE NOT TO BE CONSIDERED SUB-CONTRACTOR DOCUMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND ALL SUB-CONTRACTORS TO INCLUDE THE PROVISIONS AND INSTALLATION OF ALL NECESSARY WORK AND MATERIALS FOR COMPLETE, OPERATIONAL AND CODE COMPLIANT SYSTEMS. GENERAL DESIGN CONCEPTS INDICATED MUST BE FOLLOWED OR BETTERED. THE BID SHALL INCLUDE OFFSETS, EQUIPMENT AND COMPONENTS AS REQUIRED TO MEET CONSTRUCTION CONDITIONS FOR PROPER OPERATION. DO NOT SCALE DRAWINGS. CONSULT ARCHITECTURAL DRAWINGS FOR SPACE CONDITIONS AND ADDITIONAL REQUIREMENTS.	29. VERIFY EXACT LOCATION OF CONNECTION POINTS (NEW TO EXISTING) IN FIELD PRIOR TO CONSTRUCTION.
6. PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GENERAL CONDITIONS AND WITH THE PROVISIONS OF ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND LAWS.	30. RELOCATE EXISTING DUCTWORK AND/OR PIPE WORK IN EXISTING CEILING SPACES TO ACCOMMODATE ALL RENOVATIONS AND ADDITIONS.
7. WORK SHALL INCLUDE ALL INCIDENTALS, LABOR, MATERIAL, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, CONSUMABLE ITEMS, FEES, LICENSES, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE WORK SHOWN ON THE DRAWINGS, SPECIFIED HEREIN AND AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.	31. TAKE DOWN AND REINSTALL EXISTING CEILINGS IN ALL AREAS WHERE MECHANICAL WORK IS INDICATED AND EXISTING CEILINGS REMAIN. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN DRAWINGS FOR LOCATIONS WHERE EXISTING CEILINGS REMAIN. REPLACE CEILING TILES DAMAGED DURING WORK.
8. STORE MATERIALS INSIDE AND PROTECTED FROM DEBRIS, WEATHER AND MOISTURE.	32. PATCH ALL WALLS, FLOORS, CEILINGS, AND ROOFS TO MATCH EXISTING IN ALL CASES WHERE EXISTING WALLS, FLOORS, CEILINGS, AND ROOFS REMAIN AND HVAC DEMOLITION IS INDICATED.
9. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL POWER AND CONTROL WIRING REQUIRED FOR EQUIPMENT OPERATION NOT SPECIFICALLY PROVIDED BY OTHERS BUT REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THIS CONTRACTOR SHALL PROVIDE MOTOR STARTERS. COORDINATE REQUIREMENTS WITH DIVISION 26.	33. THIS PROJECT CONSISTS OF MULTIPLE PHASES OF CONSTRUCTION OVER A SPECIFIED TIME PERIOD. PROVIDE ALL WORK NECESSARY TO KEEP EXISTING SYSTEMS IN SAFE OPERATION. PROVIDE ISOLATION (SHUTOFF) VALVES AT ALL CONNECTION POINTS TO EXISTING SYSTEMS.
10. COORDINATE ALL HVAC WORK AND EQUIPMENT WITH STRUCTURAL-STEEL, FIRE PROTECTION PIPING, PLUMBING PIPING, LIGHT FIXTURES, ELECTRICAL EQUIPMENT AND OWNER'S EQUIPMENT.	<b>ALTERATION WORK AND DEMOLITION</b>
11. ALL EXISTING CONDITIONS AS INDICATED ARE APPROXIMATIONS OF EXACT CONDITIONS TO BE VERIFIED IN THE FIELD. CONTRACTOR SHALL VISIT THE SITE TO VERIFY THE CONSTRUCTION CONDITIONS BEFORE SUBMITTING BID.	1. ALL EQUIPMENT, DUCTWORK, PIPING, CONTROL DEVICES, ETC. TO BE REMOVED, SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER, OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, DUCTWORK, PIPING, CONTROL DEVICES, ETC. SHALL NOT BE REMOVED FROM THE PREMISES WITHOUT THE OWNER'S APPROVAL.
12. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING GRILLES, REGISTERS AND DIFFUSERS.	2. UPON COMPLETION OF REMOVALS AND MODIFICATIONS, ALL DUCTWORK AND PIPING TO REMAIN SHALL BE PROPERLY VALVED, CAPPED AND/OR PASSED SUCH THAT UPON COMPLETION OF WORK ALL SYSTEMS TO REMAIN, REMAIN OPERATIONAL.
13. PROVIDE VOLUME DAMPERS IN EACH BRANCH DUCTWORK SERVING REGISTERS, GRILLES AND DIFFUSERS WHETHER INDICATED OR NOT.	3. NO DEAD ENDS SHALL BE LEFT ON ANY DUCTWORK OR PIPING SYSTEM UPON COMPLETION OF WORK.
14. PROVIDE CABLE OPERATED DAMPERS IN BRANCH DUCTWORK SERVING REGISTERS, GRILLES, AND DIFFUSERS IN INACCESSIBLE CEILING LOCATIONS WHETHER INDICATED OR NOT.	4. EXISTING DUCTWORK AND PIPING SYSTEMS NOT TO BE REUSED, AND NOT SPECIFICALLY NOTED FOR REMOVAL SHALL BE COMPLETELY REMOVED.
15. LOCATE ALL BALANCING DAMPERS AT MAIN DUCTWORK ABOVE ACCESSIBLE CEILINGS, OR PROVIDE ACCESS DOORS.	5. ALL SYSTEMS SHALL BE LEFT IN WORKING ORDER TO THE SATISFACTION OF THE OWNER UPON COMPLETION OF ALL NEW WORK.
16. PROVIDE TRAPPED CONDENSATION DRAIN PIPING FROM COOLING COIL DRAIN PAN TO AN APPROVED POINT OF DISCHARGE WHETHER INDICATED OR NOT.	6. ALL EXISTING UNNECESSARY DUCTWORK AND PIPING NOT RELATED TO NEW WORK SHALL BE COMPLETELY REMOVED.
17. PROVIDE FIRE DAMPERS, SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS AS REQUIRED TO MAINTAIN WALL & FLOOR RATINGS AS DEFINED IN ARCHITECTURAL DRAWINGS.	7. RE-ROUTE ALL EXISTING DUCTWORK, PIPING AND SYSTEMS WHERE NECESSARY TO AVOID NEW EQUIPMENT, STRUCTURAL, OR MASONRY WORK AS REQUIRED BY THE PROPOSED ALTERATIONS.
18. PROVIDE PITCH CORRECTION CURBS FOR ALL MECHANICAL EQUIPMENT AS REQUIRED. ROOF MOUNTED EQUIPMENT TO BE INSTALLED PLUMB AND LEVEL ACCORDING TO EQUIPMENT MANUFACTURERS INSTALLATION INSTRUCTIONS.	8. WHERE PORTIONS OF EXISTING DUCT SYSTEMS ARE TO REMAIN CONTRACTOR SHALL TAKE AIRFLOW READINGS AT ALL AIR REGISTER, GRILLES AND DIFFUSERS ASSOCIATED WITH THE DUCT SYSTEM TO BE MODIFIED BEFORE COMMENCEMENT OF WORK AND AFTER ALTERATION WORK IS COMPLETE. AIR BALANCING WORK SHALL BE PERFORMED BY AN INDEPENDENT NEB CERTIFIED COMPANY, NOT ASSOCIATED WITH THE CONTRACTOR. REPORTS ARE TO BE ISSUED TO THE OWNER AND ENGINEER AT BOTH OCCURRENCES. IF AS-BUILTS ARE AVAILABLE, DISCREPANCIES NOTED BETWEEN THE AS BUILT DRAWINGS AND THE INITIAL AIR FLOW READINGS ARE TO BE NOTED ON THE AIR FLOW REPORT. EXISTING AIR REGISTERS, GRILLES AND DIFFUSERS ARE TO BE BALANCED TO THE ORIGINAL READINGS AT COMPLETION OF WORK UNLESS OTHERWISE IDENTIFIED.
19. PROVIDE SEISMIC EXPANSION JOINTS AT ALL PIPING AND DUCTWORK PASSING THROUGH SEISMIC EXPANSION JOINTS.	<b>SHOP DRAWINGS</b>
20. REFER TO THESE DRAWINGS AND DIVISION 7 FOR ADDITIONAL PENETRATION SEALING REQUIREMENTS. PENETRATIONS TO COMPLY WITH ASTM E94 & E914 AND APPROVED UL 1479 AND SPECIFIC UL ASSEMBLIES AS REQUIRED TO SUIT PENETRATION CONDITIONS.	1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION. SHOP DRAWINGS SHALL BE SUBMITTED FOR DUCTWORK LAYOUT, PIPING LAYOUT, SHEET METAL SHOP STANDARDS AND ALL EQUIPMENT FURNISHED.
21. LOCATE ALL ROOF MOUNTED EQUIPMENT REQUIRING SERVICE A MINIMUM OF 10'-0" FROM EDGE OF ROOF. CONTRACTOR MUST COMPLY W/ THIS SET BACK.	2. ELECTRONIC DRAWING FILES SHALL BE GENERATED BY THE CONTRACTOR. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC VERSION (AUTOCAD VERSION AS REQUIRED BY THE OWNER) OR AUTOCAD VERSION 2010 IF NOT SPECIFIED.
22. DO NOT RUN ANY MECHANICAL OR CONTROL SERVICES THROUGH RATED STAIR ENCLOSURES UNLESS SYSTEMS ARE DESIGNED AND DESIGNATED TO SERVICE STAIRS.	3. PRIOR TO THE SUBMISSION AND REVIEW OF SHEET METAL SHOP DRAWINGS, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHEET METAL SHOP STANDARDS. ANY SHEET METAL SHOP DRAWINGS SUBMITTED PRIOR TO THE SUBMISSION OF THE SHOP STANDARDS SHALL BE RETURNED "NOT REVIEWED".
23. COORDINATE ALL ROOF AND WALL PENETRATIONS W/ EXISTING CONDITIONS AND PROVIDE STRUCTURAL CONTRACTOR W/ WALL & ROOF OPENING SIZES.	<b>COORDINATION DRAWINGS</b>
24. TEMPERATURE CONTROL CONTRACTOR (TCC) IS RESPONSIBLE FOR ALL CONTROL WIRING 120 VOLT AND LESS. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS. SHARED TRANSFORMERS ARE NOT ALLOWED. RUN POWER PER DIVISION 26 REQUIREMENTS.	1. ELECTRONIC DRAWING FILES SHALL BE GENERATED BY THE CONTRACTOR, IF REQUESTED. ELECTRONIC FILES OF THE MECHANICAL FLOOR PLANS, SECTIONS AND ELEVATIONS ONLY WILL BE MADE AVAILABLE. ELECTRONIC FILES WILL BE RELEASED ONLY UPON RECEIPT OF THE SIGNED AGREEMENT FOR TRANSFER OF ELECTRONIC FILE DATA, AGREEMENT FOR TRANSFER OF BUILDING INFORMATION MODEL AND ALL FEES INDICATED THEREIN.
25. TCC SHALL EXTEND ALL POWER FOR DAMPER ACTUATORS, AND OTHER CONTROL DEVICES FROM LOCAL ELECTRICAL PANEL. DIVISION 26 TO SUPPLY POWER TO TCCS. REFER TO ELECTRICAL DRAWINGS FOR PANEL LOCATIONS.	2. DEVELOP AND SUBMIT COORDINATION DRAWINGS AS OUTLINED.
26. THE DRAWINGS AND SPECIFICATIONS ARE DIVIDED INTO SECTIONS TO MEET THE NEEDS OF THE ARCHITECT, THE ENGINEERS, AND THE DESIGN CONSULTANTS. THEY ARE NOT PREPARED AS INSTRUCTIONS TO THE CONTRACTOR FOR HOW TO BUY OUT OR SUBCONTRACT THE WORK. THE	A. SHEET METAL AND PLUMBING SHOP DRAWINGS THAT HAVE BEEN COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. DRAWINGS MUST BE RETURNED FROM ENGINEER EITHER "REVIEWED" OR "FURNISH AS CORRECTED" PRIOR TO BEING USED AS BASIS FOR COORDINATION DRAWINGS.

MECHANICAL DRAWING LIST	
DRAWING NUMBER	DRAWING DESCRIPTION
M-0.1	COVER SHEET - MECHANICAL
M-0.2	NOTES, SYMBOLS, ABBREVIATIONS - MECHANICAL
M-0.3	FLOW AND CONTROL DIAGRAMS - MECHANICAL
MD-1.1	LOWER LEVEL DEMOLITION FLOOR PLAN - MECHANICAL
MD-1.2	ROOF DEMOLITION PLAN - MECHANICAL
M-1.1	LOWER LEVEL FLOOR PLAN - MECHANICAL
M-1.2	ROOF PLAN - MECHANICAL
M-3.1	SCHEDULES - MECHANICAL
M-4.1	DETAILS - MECHANICAL
M-4.2	DETAILS - MECHANICAL
M-5.1	SPECIFICATIONS - MECHANICAL
M-5.2	SPECIFICATIONS - MECHANICAL
M-5.3	SPECIFICATIONS - MECHANICAL

PROJECT ALTERNATES
PROJECT ALTERNATE # 1: DETENTION CELL PLUMBING REFURBISHMENT SCOPE (REFER TO P-SERIES AND A-SERIES DRAWINGS FOR SCOPE)
PROJECT ALTERNATE # 2: NEW PHYSICAL TRAINING ROOM RELOCATION SCOPE

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**COVER SHEET -  
MECHANICAL**

PROJ. NO.	JH1628	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2016	

**M-0.1**



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## TRUMBULL POLICE

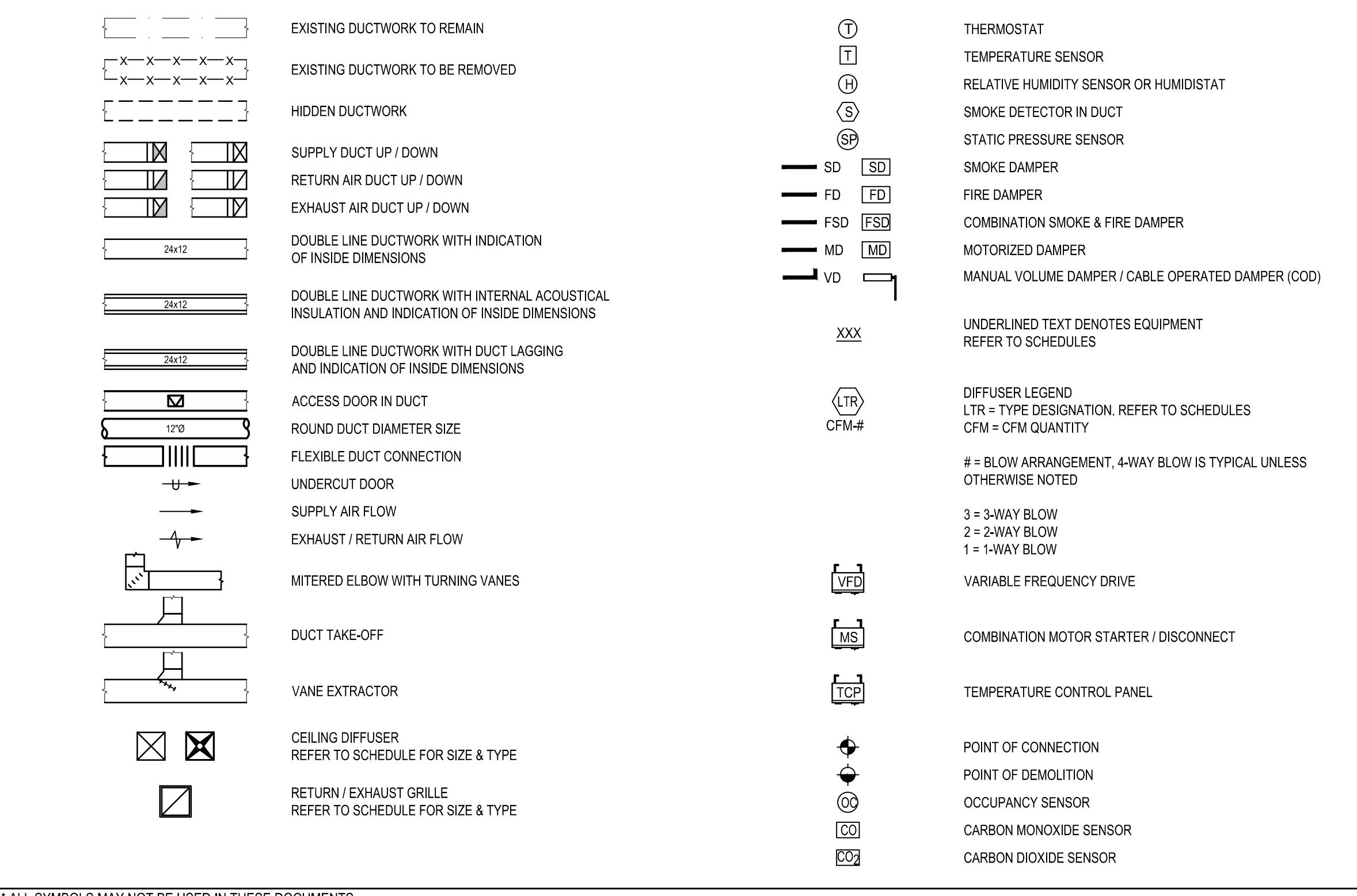
DEPARTMENT



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NOTES, SYMBOLS,  
ABBREVIATIONS -  
MECHANICAL

## GENERAL MECHANICAL SYMBOLS



\* ALL SYMBOLS MAY NOT BE USED IN THESE DOCUMENTS.

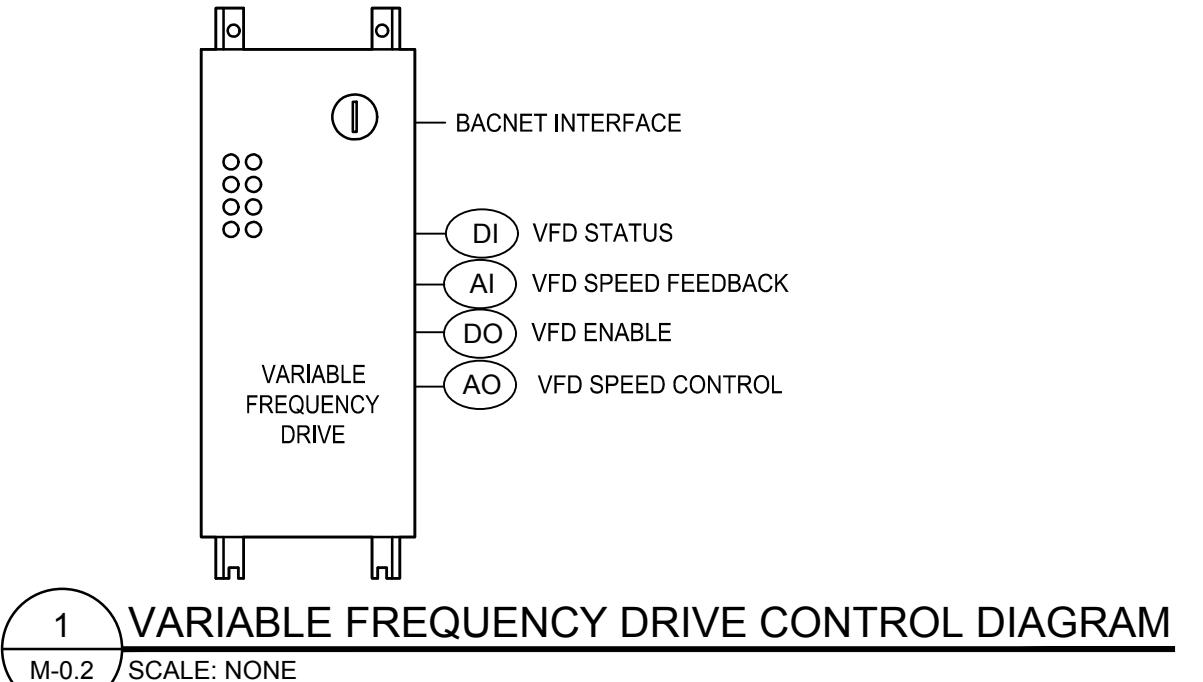
## MECHANICAL DEMOLITION NOTES

- COORDINATE PHASING OF DEMOLITION WITH C.M./G.C. AND PROPOSED CONSTRUCTION SCHEDULE TO MAINTAIN MECHANICAL SERVICES (HEATING, TEMPERATURE CONTROLS, EXHAUSTS, MAKE UP AIR ETC.) TO OCCUPIED AREAS OF THE BUILDING DURING CONSTRUCTION.
- THE EXISTING FACILITY WILL BE OCCUPIED AND IN OPERATION DURING THE PERFORMANCE OF THE WORK.
- WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING PIPING OR DUCTWORK WHICH MAY CAUSE DISRUPTION TO OCCUPIED FACILITIES, CONFER WITH THE OWNER, AND SCHEDULE A MUTUALLY AGREEABLE PERIOD OF INTERRUPTION.
- WHERE REPLACEMENT, RELOCATION OR MODIFICATION OF EXISTING EQUIPMENT IS INDICATED, PROVIDE AND MAINTAIN ALL TEMPORARY SERVICES, CONNECTIONS, CONTROLS, AND ANY OTHER MATERIALS AND APPURTENANCES REQUIRED TO MAINTAIN SERVICES TO OCCUPIED AREAS.
- NO WORK SHALL BE LEFT INCOMPLETE, NOR ANY HAZARDOUS SITUATION CREATED, WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS, AT NO TIME SHALL THE WORK INTERFERE WITH OR CUT OFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S PRIOR WRITTEN PERMISSION.
- THE OWNER RESERVES THE RIGHT TO OPERATE ALL EXISTING MECHANICAL EQUIPMENT UNTIL THE NEW SYSTEMS COME ON LINE.
- IT IS REQUIRED THAT THE WORK INDICATED AND/OR SPECIFIED SHALL BE CARRIED OUT WITH A MINIMUM OF INTERFERENCE TO THE ESTABLISHED OPERATIONS OF THE BUILDING.
- REMOVED MATERIALS SHALL BE DISPOSED OF USING LICENSED CARTING SERVICE.
- HAZARDOUS MATERIALS - SHALL BE DISPOSED OF BY AN EPA APPROVED, LICENSED DISPOSAL SERVICE. CONTRACTOR SHALL OBTAIN AND HAVE ON FILE, AFFIDAVIT, AND RECEIPTS STATING HOW AND WHERE THE WASTE WAS DISPOSED OF OR CONVERTED.
- IT IS THE INTENTION OF THESE DEMO DRAWINGS TO INDICATE GENERAL SYSTEMS AND MATERIALS TO BE REMOVED. CONTRACTOR SHALL REMOVE ALL OBSOLETE PIPING, DUCTWORK, EQUIPMENT, CONTROLS, ETC, INDICATED OR NOT.
- DUCTWORK, EQUIPMENT AND TERMINAL DEVICES HAVE BEEN TAKEN FROM FIELD OBSERVATION AND ARE TO BE USED FOR REFERENCE AND SHALL NOT BE CONSTRUED TO BE ACTUAL FIELD CONDITIONS. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL SYSTEMS PRIOR TO COMMENCEMENT OF DEMOLITION WORK.
- ALL EQUIPMENT TO BE REMOVED SHALL BE DISPOSED OF PER OR STORED PER DIRECTION OF OWNER. ANY ITEM NOT RETAINED BY OWNER SHALL BE REMOVED FROM SITE AND DISCARDED IN AN APPROVED MANNER.
- IT IS THE INTENTION OF THESE SPECIFICATION TO REMOVE ALL MATERIALS ABANDONED BY THE SCOPE OF THIS CONSTRUCTION PROJECT. NO OBSOLETE MATERIALS (IE. HANGERS, SUPPORTS, INSULATION, DUCTWORK, ETC.) SHALL REMAIN.
- DISCONNECT AND REMOVE ALL DUCTWORK AND ASSOCIATED SUPPLY, RETURN OR EXHAUST GRILLES INCLUDING BUT NOT LIMITED TO ALL HANGERS, SUPPORTS, VOLUME DAMPERS AND FLEXIBLE DUCTWORK.
- CONTRACTOR SHALL PROVIDE TEMPORARY PROTECTION TO ANY EXPOSED OR UNAPPED NEW OR EXISTING DUCTWORK TO REMAIN TO MINIMIZE DUST CONTAMINATION IN ANY AND ALL OF THE AIR SYSTEMS. THIS SHALL INCLUDE BUT IS NOT LIMITED TO TEMPORARY FILTERS, CAPS, ENCLOSURES, ETC.

## GENERAL MECHANICAL ABBREVIATIONS

ABV	ABOVE	FA	FACE AREA	NTS	NOT TO SCALE
AC	AIR COMPRESSOR	FC	FORWARD CURVE	OA	OUTSIDE AIR
ACC-#	AIR COOLED CONDENSER	F.C.	FLEX CONNECTION	OAT	OUTDOOR AIR TEMPERATURE
ACU-#	AIR CONDITIONING UNIT	FCU	FAN COIL	OAI	OUTDOOR AIR INTAKE
ACCU-#	AIR COOLED CONDENSING UNIT	FCU#	FAN COIL UNIT	OBD	OPPOSED BLADE DAMPER
AD	ACCESS DOOR	FD	FIRE DAMPER WITH ACCESS DOOR	OD	OUTSIDE DIMENSION
AF	AIRFOIL	FF	FINAL FILTER	O.E. T.D.	OPEN END TRANSFER DUCT
AFC	ADJUSTABLE FREQUENCY CONTROLLER	FIN FL	FINISH FLOOR	OED	OPEN END DUCT
AFF	ABOVE FINISHED FLOOR	FL	FLOOR	P.#	PUMP
AFMS	AIR FLOW MEASURING STATION	FLA	FULL LOAD AMPERES	PB	PUSH BUTTON
AHU-#	AIR HANDLING UNIT	FLEX	FLEXIBLE	PBD	PARALLEL BLADE DAMPER
AL	ACOUSTIC LINING	FO	FLAT OVAL	PD	PRESSURE DROP
ALD	ACOUSTICALLY LINED PLenum	FFP	FINS PER FOOT	PF	PREFILTER
ALP	ACOUSTICALLY LINED PLENUM	FE	FEET	PH	PHASE
AMP	AMBIENT PRESSURE DROP	F.T.	FLOAT & THERMOSTATIC TRAP	PHC	POUNDS/HOUR
AUTO	AUTOMATIC	FT.#	FT. PER FOOT	PHI	POUND PER HOUR
B-#	BOILER	FV	FLOW VELOCITY	PRV	PRESSURE REDUCING VALVE
BC	BACKWARD CURVED	GC	GENERAL CONTRACTOR	PSI	POUND PER SQUARE INCH
BD	BYPASS DAMPER	GH	GRAVITY INTAKE HOOD	RA	RETURN AIR
BMCS	BUILDING MANAGEMENT & CONTROL SYSTEM	GPH	GALLONS PER HOUR	RAD	RETURN AIR DAMPER
BTU	BUTHER THERMAL UNIT	GPM	GALLONS PER MINUTE	RAF-#	RETURN AIR FAN
BYV	BYPASS VALVE	H/C	HEATING/COOLING	RAT	RETURN AIR TEMPERATURE
CH#	CHILLER	H/#	HUMIDIFIER	REG	REGISTER
CHR	CHILLED WATER RETURN	H-O-A	HAND-OFF-AUTOMATIC	RH	RELATIVE HUMIDITY
CHS	CHILLED WATER SUPPLY	H/C	HEATING COIL	RHC	REHEAT COIL
CAP	CAPACITY	HD	FEET OF HEAD	RLA	RATED LOAD AMPERES
CB-#	CONTROL BOX	HP	HORSEPOWER	RM	ROOM
CC-#	COOLING COIL	HTG	HEATING	RP	RELIEF PENTHOUSE
CD	CEILING DIFFUSER	HTR	HEATER	RPM	REVOLUTIONS PER MINUTE
CFM	CUBIC FEET PER MINUTE	HV#	HEATING AND VENTILATING UNIT	RTU#	ROOFTOP AIR CONDITIONING UNIT
CG	CEILING GRILLE	HVAC	HEATING, VENTILATING &	RV	RADIATION VALVE
CLG	CEILING		AIR CONDITIONING	SA	SUPPLY AIR
C-#	CONVECTOR	HX#	HEAT EXCHANGER CONVERTOR	SAF-#	SUPPLY AIR FAN
C.O.D.	CABLE OPERATED DAMPER	IBT	INVERTED BUCKET TRAP	SAT	SUPPLY AIR TEMPERATURE
CP	CABLE/PARTICLE RECEIVER/PUMPING SYSTEM	ID	INSIDE DIMENSION	SB	SECURITY BARS
CR	CEILING REGISTER	IN	INCHES	VSC	VERTICAL SPLIT CASE
CT-#	COOLING TOWER	IP	INTAKE PENTHOUSE	HSC	HORIZONTAL SPLIT CASE
CTD	CEILING TRANSFER DUCT	IV	INLET GUIDE VANES	SD	SMOKE DAMPER
CUH-#	CABINET UNIT HEATER	KW	KILOWATT	SG	SUPPLY GRILLE
CV	CONTROL VALVE	KWH	KILOWATT HOUR	SP	STATIC PRESSURE
D&T	Drip and Trap	IL	INLINE	SQ.FT	SQUARE FOOT (AREA)
DB	DRY BULB	LAT	LEAVING AIR TEMPERATURE	ST	SINGLE POLE SWITCH
DD	DIRECT DRIVE	LD	LINEAR DIFFUSER	TSTAT	TERMOSTAT
DDC	DIRECT DIGITAL CONTROL	LIN	LINEAR	TB	TERMINAL BOX
DIFF	DIFFUSER	LRA	LOCKED ROTOR AMPERES	TCP	TEMPERATURE CONTROL PANEL
DL	DOOR LOUVER	LPR	LOW PRESSURE RETURN	TD	TEMPERATURE DIFFERENCE
DN	DOWN	LPS	LOW PRESSURE SUPPLY	TEMP	TEMPERATURE
DP	DEWPPOINT TEMPERATURE	LVG	LEAVING	TG	AIR TRANSFER GRILLE
DR	DROP	LWT	LEAVING WATER TEMPERATURE	TOT	TOTAL
DX	DIRECT EXPANSION	MAN	MIXED AIR TEMPERATURE	TN-HR	TON HOUR REFRIGERATION
EF-#	EXHAUST FAN	MAX	MAXIMUM	TRD	TRANSFER DUCT
EAT	ENTERING AIR TEMPERATURE	MBH	1000 BTUS	TT	THERMOSTATIC TRAP
EER	ENERGY EFFICIENCY RATIO	MCA	MINIMUM CIRCUIT AMPACITY	TYP	TYPE
EG	EXHAUST GRILLE	MD	MOTOR DAMPER	UD	UNDERCUT DOOR
EHC-#	ELECTRIC HEATING COIL	MER	MECHANICAL EQUIPMENT ROOM	UH-#	UNIT HEATER HOT WATER
ENT	ENTERING	MESZ	MECHANIC	UV-#	UNIT VENTILATOR
HEPA	HIGH EFFICIENCY PARTICULATE FILTER	MFS	MATERIAL FUSE SIZE	VD	VOLUME DAMPER
ER	EXHAUST REGISTER	MIN	MINIMUM	VE	VOLUME EXTRACTOR
ES	END SUCTION	MTR	MOTOR	VFD	VARIABLE FREQUENCY DRIVE
ESP	EXTERNAL STATIC PRESSURE	MUA	MAKE-UP AIR	VI	VIBRATION ISOLATOR
ET-#	EXPANSION TANK	MV	MOTORIZED VALVE	VSF	VARIABLE SPEED FAN SWITCH
ETR	EXISTING TO REMAIN	NC	NOISE CRITERIA	W/	WITH
EUH-#	ELECTRIC UNIT HEATER	NFA	NET FREE AREA	WB	WET BULB
EWT	ENTERING WATER TEMPERATURE	NIC	NOT IN THIS CONTRACT	WFM	WATER FLOW MEASURING STATION
EXP-#	EXPANSION LOOP	NO	NORMALLY OPEN	WMS	WIRE MESH SCREEN
EX	EXISTING			WPD	WATER PRESSURE DROP
EXH	EXHAUST			WT	WEIGHT (LBS)
EXT	EXTERNAL			ZD	ZONE DAMPER
F	DEGREES FAHRENHEIT				
F&B	FACE & BYPASS DAMPER				

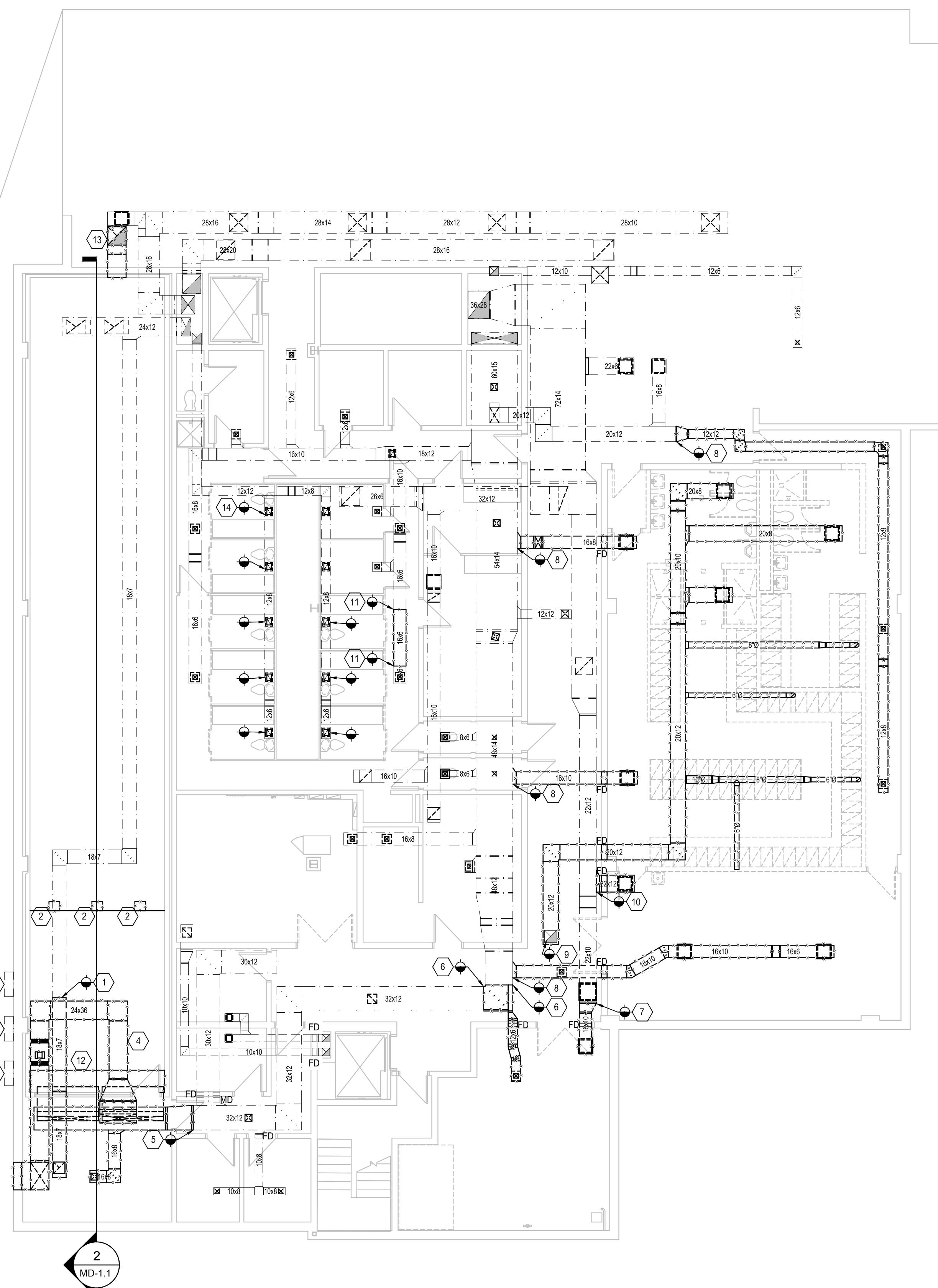
\* ALL ABBREVIATIONS MAY NOT BE USED IN THESE DOCUMENTS.



VARIABLE FREQUENCY DRIVE CONTROL DIAGRAM

NOTES, SYMBOLS,  
ABBREVIATIONS -  
MECHANICAL

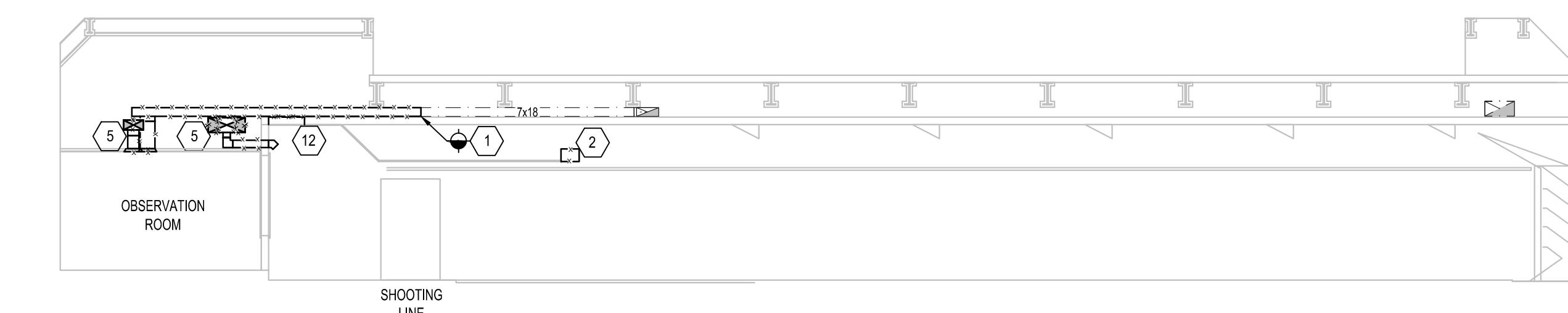




1 LOWER LEVEL DEMOLITION FLOOR PLAN - MECHANICAL  
MD-1.1  
Scale: 1/8"=1'-0"

## MECHANICAL DEMOLITION KEYNOTES

- 1 REMOVE SECTION OF EXISTING EXHAUST DUCT, DUCT SUPPORTS, GRILLE, AND APPURTENANCES SERVING FIRING RANGE OBSERVATION ROOM AS REQUIRED TO FACILITATE INSTALLATION OF SUPPLY AND RETURN DUCTWORK SERVING NEW FIRING RANGE UNIT. EXISTING DUCTWORK TO REMAIN SHALL BE ABANDONED IN PLACE AND CAPPED. REFER TO ARCHITECTURAL DRAWINGS FOR SCOPE.
- 2 DISCONNECT AND REMOVE EXISTING BOOSTER FANS AND ALL APPURTENANCES SERVING FIRING RANGE.
- 3 EXISTING EXTERIOR WALL MOUNTED HEAT PUMP CONDENSING UNITS TO REMAIN. SHIFT EXISTING REFRIGERANT PIPING IN CEILING CAVITY AS REQUIRED TO FACILITATE INSTALLATION OF NEW DUCTWORK.
- 4 COMPLETELY REMOVE EXISTING MAKEUP AIR FAN, DUCTWORK, SUPPORTS, WIRING AND CONTROLS, AND EXTERIOR LOUVER SERVING FIRING RANGE. PROVIDE TEMPORARY PATCHWORK OVER EXTERIOR PENETRATION.
- 5 DISCONNECT AND REMOVE SECTION OF SUPPLY DUCT, SUPPORTS, LAY-IN DIFFUSER, AND APPURTENANCES SERVING FIRING RANGE AND OBSERVATION ROOM. CONTRACTOR TO CAP EXISTING SUPPLY DUCT AIRTIGHT.
- 6 REMOVE SECTION OF FLEXICORE CEILING TO ACCOMMODATE NEW RADIAL DIFFUSER AND DUCTWORK. COORDINATE WITH ARCHITECTURAL PLANS.
- 7 REMOVE EXISTING EXHAUST DUCT AT BACK OF RANGE UP TO EXISTING ROOF PENETRATION SEAL WALL PENETRATION TO MATCH EXISTING CONSTRUCTION. DISCONNECT AND COMPLETELY REMOVE EXISTING EXHAUST FAN. EXISTING CURB TO REMAIN SHALL BE FITTED WITH INSULATED CAP.
- 8 DISCONNECT AND REMOVE SECTION OF SUPPLY DUCT, SUPPORTS, LAY-IN DIFFUSER, AND APPURTENANCES AS INDICATED ON PLAN TO ACCOMMODATE NEW DUCT CONNECTIONS SERVING LOCKER ROOM. REFER TO M-1.1 FOR NEW DUCT LAYOUT. (PROJECT ALTERNATE #2)
- 9 DISCONNECT AND REMOVE EXISTING EXHAUST DUCTWORK SERVING LOCKER ROOM BACK TO 16x16 EXHAUST RISER. EXHAUST RISER TO REMAIN. CONTRACTOR TO PROVIDE TEMPORARY CAP OVER OPEN END.
- 10 DISCONNECT AND REMOVE SECTION OF RETURN DUCT, SUPPORTS, LAY-IN GRILLE, AND APPURTENANCES AS INDICATED ON PLAN TO ACCOMMODATE NEW DUCT CONNECTIONS SERVING LOCKER ROOM. REFER TO M-1.1 FOR NEW DUCT LAYOUT.
- 11 DISCONNECT AND REMOVE SECTION OF SUPPLY DUCT AND SUPPORTS AT LOCATIONS INDICATED ON PLAN TO ACCOMMODATE ADDITION CEILING GRILLE AND DUCT SERVING CELL BLOCK. REFER TO M-1.1 FOR NEW DUCT LAYOUT.
- 12 REMOVE SECTION OF FLEXICORE CEILING TO ACCOMMODATE NEW RADIAL DIFFUSER AND DUCTWORK. COORDINATE WITH ARCHITECTURAL PLANS.
- 13 REMOVE EXHAUST DUCT AT BACK OF RANGE UP TO EXISTING ROOF PENETRATION SEAL WALL PENETRATION TO MATCH EXISTING CONSTRUCTION. DISCONNECT AND COMPLETELY REMOVE EXISTING EXHAUST FAN. EXISTING CURB TO REMAIN SHALL BE FITTED WITH INSULATED CAP.
- 14 DISCONNECT AND REMOVE SECTION OF RETURN DUCT, SUPPORTS, LAY-IN GRILLE, AND APPURTENANCES AS INDICATED ON PLAN TO ACCOMMODATE NEW DUCT CONNECTIONS SERVING PHYSICAL TRAINING ROOM. REFER TO M-1.1 FOR NEW DUCT LAYOUT. (PROJECT ALTERNATE #2)



2 EXISTING FIRING RANGE DEMOLITION SECTION - MECHANICAL  
MD-1.1  
Scale: 1/8"=1'-0"



INTERIOR RENOVATION TO THE  
TRUMBULL POLICE  
DEPARTMENT  
158 EDISON ROAD  
TRUMBULL, CONNECTICUT

158 EDISON ROAD  
TRUMBULL, CONNECTICUT



LOWER LEVEL  
DEMOLITION  
FLOOR PLAN -  
MECHANICAL

PROJ. NO. JH1828 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016  
MD-1.1





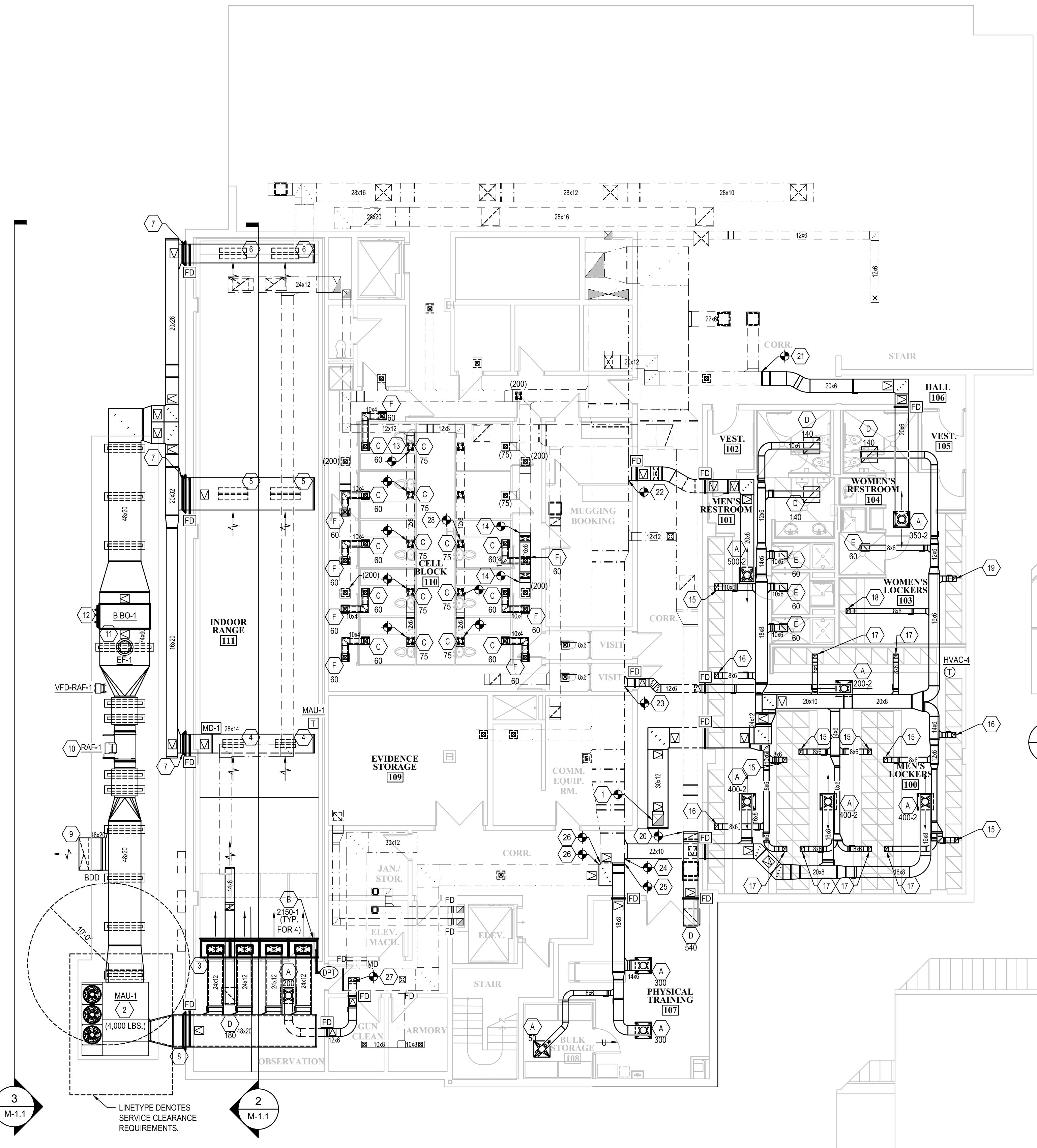
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## TRUMBULL POLICE DEPARTMENT

TRUMBULL, CONNECTICUT

158 EDISON ROAD

INTERIOR RENOVATION TO THE



**MECHANICAL CONSTRUCTION KEYNOTES**

1 CONNECT NEW 30x12 EXHAUST DUCT SERVING LOCKER ROOM TO EXISTING 16x16 EXHAUST RISER.

2 PROVIDE NEW FIRING RANGE MAKE-UP UNIT AT GRADE ON STEEL SUPPORTS AND CONCRETE PAD. ROUTE 1" CONDENSATE DRAIN TO GRAVEL BED. REFER TO PROJECT SCHEDULES FOR PERFORMANCE DATA. REFER TO DETAILS FOR EQUIPMENT SUPPORTS.

3 PROVIDE NEW RADIAL DIFFUSER SERVING FIRING RANGE MAKE-UP. PROVIDE PERFORATED BLANK-OFF PLATES OF MATCHING STYLE BETWEEN DIFFUSERS FOR CONTINUOUS LOOPS. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED TO SUPPORT RADIAL DIFFUSER FROM LOAD BEARING WALL. REFER TO SCHEDULES FOR PERFORMANCE DATA. TYPICAL FOR 4.

4 28x14 RETURN DUCT WITH (2) 30x12 OPENINGS BALANCED TO 1,200 CFM EACH. OPENINGS SHALL HAVE OPPOSED BLADE DAMPERS AND 3" WMS. LOCATION OF DUCT AND OPENINGS SHALL BE BEHIND CEILING BAFFLES PROVIDED BY ARCHITECT. CONTRACTOR SHALL COORDINATE LOCATIONS OF DUCTS AND CEILING BAFFLES WITH ARCHITECTURAL PLANS. CONTRACTOR SHALL COORDINATE INDIVIDUAL DUCT SECTION LENGTHS AS TO NOT COMPROMISE DUCT FLANGE WHILE LOCATING BOTTOM TAPS.

5 48x14 RETURN DUCT WITH (2) 44x18 OPENINGS BALANCED TO 2,900 CFM EACH. OPENINGS SHALL HAVE OPPOSED BLADE DAMPERS AND 3" WMS. LOCATION OF DUCT AND OPENINGS SHALL BE BEHIND CEILING BAFFLES PROVIDED BY ARCHITECT. CONTRACTOR SHALL COORDINATE LOCATIONS OF DUCTS AND CEILING BAFFLES WITH ARCHITECTURAL PLANS. CONTRACTOR SHALL COORDINATE INDIVIDUAL DUCT SECTION LENGTHS AS TO NOT COMPROMISE DUCT FLANGE WHILE LOCATING BOTTOM TAPS.

6 28x16 RETURN DUCT WITH (2) 40x16 OPENINGS BALANCED TO 1,900 CFM EACH. OPENINGS SHALL HAVE OPPOSED BLADE DAMPERS AND 3" WMS. LOCATION OF DUCT AND OPENINGS SHALL BE BEHIND BULLET TRAP. COORDINATE LOCATION WITH ARCHITECTURAL PLANS. CONTRACTOR SHALL COORDINATE INDIVIDUAL DUCT SECTION LENGTHS AS TO NOT COMPROMISE DUCT FLANGE WHILE LOCATING BOTTOM TAPS.

7 CONTRACTOR TO PROVIDE NEW PENETRATIONS IN EXTERIOR WALL SERVING FIRING RANGE EXHAUST POINTS. PROVIDE FIRE DAMPER IN WALL. CONTRACTOR TO FLASH EXTERIOR PENETRATIONS WATERTIGHT. COORDINATE PENETRATION SIZES AND LOCATIONS WITH ARCHITECTURAL DRAWINGS.

8 CONTRACTOR TO RE-WORK EXISTING LOUVER PENETRATION IN EXTERIOR WALL IN ORDER TO SERVE FIRING RANGE MAKE-UP AIR. PROVIDE FIRE DAMPER IN WALL. CONTRACTOR TO FLASH EXTERIOR PENETRATION WATERTIGHT. COORDINATE PENETRATION SIZES AND LOCATIONS WITH ARCHITECTURAL DRAWINGS.

9 45" ANGLE CUT FACING DOWNWARD, AND 2" WMS SERVING FIRING RANGE RELIEF.

10 NEW INLINE FAN RAF-1 WITH INLET AND OUTLET SILENCERS SERVING FIRING RANGE EXHAUST LOCATED AT GRADE ON CONCRETE HOUSEKEEPING PAD. REFER TO SCHEDULES AND DETAILS FOR PERFORMANCE AND INSTALLATION REQUIREMENTS.

11 NEW FAN EF-1 SERVING FIRING RANGE EXHAUST. REFER TO SCHEDULES AND DETAILS FOR PERFORMANCE AND INSTALLATION REQUIREMENTS. FAN SHALL BE MOUNTED DIRECTLY TO DUCTWORK DOWNSTREAM OF BIBO-1. CONTRACTOR TO PROVIDE ALL STIFFENERS AND SUPPORTS FOR EXHAUST FAN INSTALLATION.

12 PROVIDE NEW BIBO HEPA FILTRATION BANK MOUNTED ON 18" HIGH EQUIPMENT RAILS AND CONCRETE PAD. REFER TO SCHEDULES AND DETAILS FOR PERFORMANCE AND INSTALLATION REQUIREMENTS.

13 PROVIDE NEW SECURITY GRILLE TYPE C SERVING CELL BLOCK MAKE-UP AIR. CONTRACTOR TO CUT HOLE IN EXISTING CELL CEILING TO ACCOMMODATE SECURITY GRILLE. EXTEND 10x4 ACOUSTICALLY LINED DUCT TO NEW TYPE F GRILLE IN CEILING CORRIDOR CEILING. TYPICAL FOR 8.

14 OFFSET EXISTING 16x6 AS REQUIRED TO ACCOMMODATE NEW MAKE-UP AIR GRILLE. CONTRACTOR TO COORDINATE WITH EXISTING STRUCTURE.

15 8x6 EXHAUST DUCT DOWN TO CONNECT TO ARCHITECTURAL PLUMEN ABOVE LOCKERS. BALANCE TO 90 CFM.

16 8x6 EXHAUST DUCT DOWN TO CONNECT TO ARCHITECTURAL PLUMEN ABOVE LOCKERS. BALANCE TO 105 CFM.

17 8x6 EXHAUST DUCT DOWN TO CONNECT TO ARCHITECTURAL PLUMEN ABOVE LOCKERS. BALANCE TO 75 CFM.

18 8x6 EXHAUST DUCT DOWN TO CONNECT TO ARCHITECTURAL PLUMEN ABOVE LOCKERS. BALANCE TO 60 CFM.

19 8x6 EXHAUST DUCT DOWN TO CONNECT TO ARCHITECTURAL PLUMEN ABOVE LOCKERS. BALANCE TO 120 CFM.

20 EXTEND NEW 22x10 TO NEW CEILING GRILLE IN PHYSICAL TRAINING ROOM - 107. OFFSET DUCT UP AS REQUIRED TO ACCOMMODATE FIRE DAMPER ACCESS DOOR ON MAKEUP AIR TO LOCKER ROOM. (PROJECT ALTERNATE #2)

21 CONNECT NEW 20x6 SUPPLY DUCT TO EXISTING, ROUTE IN NEW CEILING TO MAKEUP AIR DIFFUSER SERVING WOMEN'S LOCKER ROOM. PROVIDE BALANCING DAMPER IN ACCESSIBLE PART OF NEW DROP CEILING.

22 CONNECT NEW 20x8 SUPPLY DUCT TO EXISTING MAIN. PROVIDE FIRE DAMPERS AT RATED WALL PENETRATIONS. OFFSET DUCT AS REQUIRED TO ROUTE UNDERNEATH EXISTING RETURN MAIN. CONNECT TO NEW MAKEUP AIR DIFFUSER SERVING MEN'S LOCKER ROOM. PROVIDE BALANCING DAMPER IN ACCESSIBLE PART OF NEW DROP CEILING.

23 CONNECT NEW 12x6 SUPPLY DUCT TO EXISTING MAIN. PROVIDE FIRE DAMPERS AT RATED WALL PENETRATIONS. OFFSET DUCT AS REQUIRED TO CLEAR EXISTING RETURN MAIN. CONNECT TO NEW MAKEUP AIR DIFFUSER SERVING MEN'S LOCKER ROOM. PROVIDE BALANCING DAMPER IN ACCESSIBLE PART OF NEW DROP CEILING.

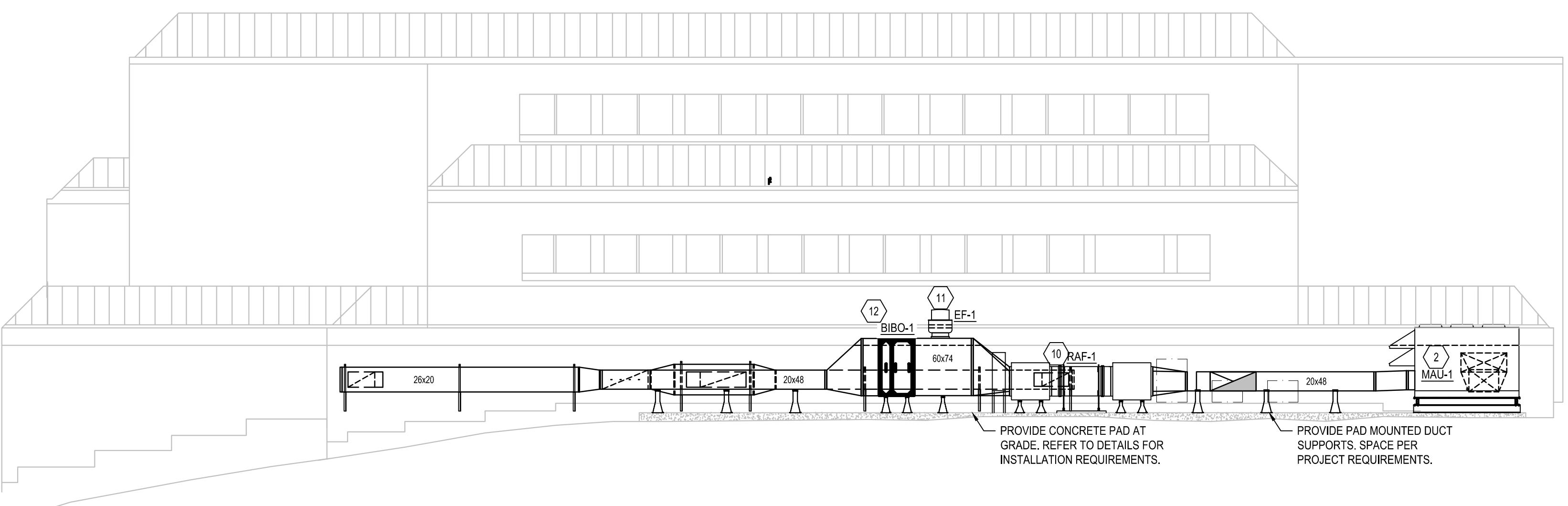
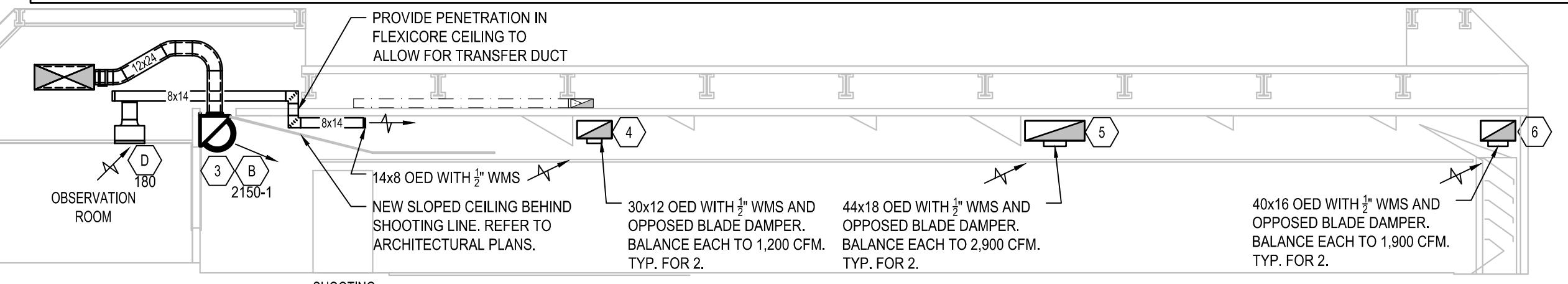
24 CONNECT NEW 22x10 SUPPLY DUCT TO EXISTING MAIN. PROVIDE FIRE DAMPERS AT RATED WALL PENETRATIONS. OFFSET DUCT AS REQUIRED TO CLEAR EXISTING RETURN MAIN. CONNECT TO NEW MAKEUP AIR DIFFUSER SERVING MEN'S LOCKER ROOM. PROVIDE BALANCING DAMPER IN ACCESSIBLE PART OF NEW DROP CEILING.

25 CONNECT NEW 18x8 SUPPLY DUCT TO EXISTING MAIN. PROVIDE FIRE DAMPER AT RATED WALL PENETRATION. CONNECT TO NEW SUPPLY DIFFUSERS SERVING PHYSICAL TRAINING ROOM AND STORAGE ROOM. (PROJECT ALTERNATE #2)

26 PROVIDE TRANSITION ELBOW TO RECONNECT EXISTING SUPPLY MAIN. CUT IN NEW DUCT MOUNTED ACCESS DOORS (PROJECT ALTERNATE #2)

27 CONNECT NEW 12x6 SUPPLY DUCT TO EXISTING MAIN. PROVIDE FIRE DAMPERS AT RATED WALL PENETRATIONS. KEEP DUCT BELOW NEW SUPPLY MAIN SERVING FIRING RANGE. CONNECT TO NEW SUPPLY DIFFUSER IN OBSERVATION ROOM. PROVIDE BALANCING DAMPER IN ACCESSIBLE CEILING.

28 PROVIDE NEW SECURITY TYPE C GRILLE SERVING CELL BLOCK EXHAUST AIR. CONTRACTOR TO CUT HOLE IN EXISTING CELL CEILING TO ACCOMMODATE NEW SECURITY GRILLE. EXTEND NEW 6x0 DUCT FROM SECURITY GRILLE AND CONNECT TO EXISTING EXHAUST DUCT. TYPICAL FOR 8.



**JH**  
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LOWER LEVEL  
FLOOR PLAN -  
MECHANICAL

PROJ. NO. JH1828 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016  
M-1.1

RFP 6320



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INTERIOR RENOVATION TO THE  
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TRUMBULL, CONNECTICUT

158 EDISON ROAD

158 EDISON ROAD

JH  
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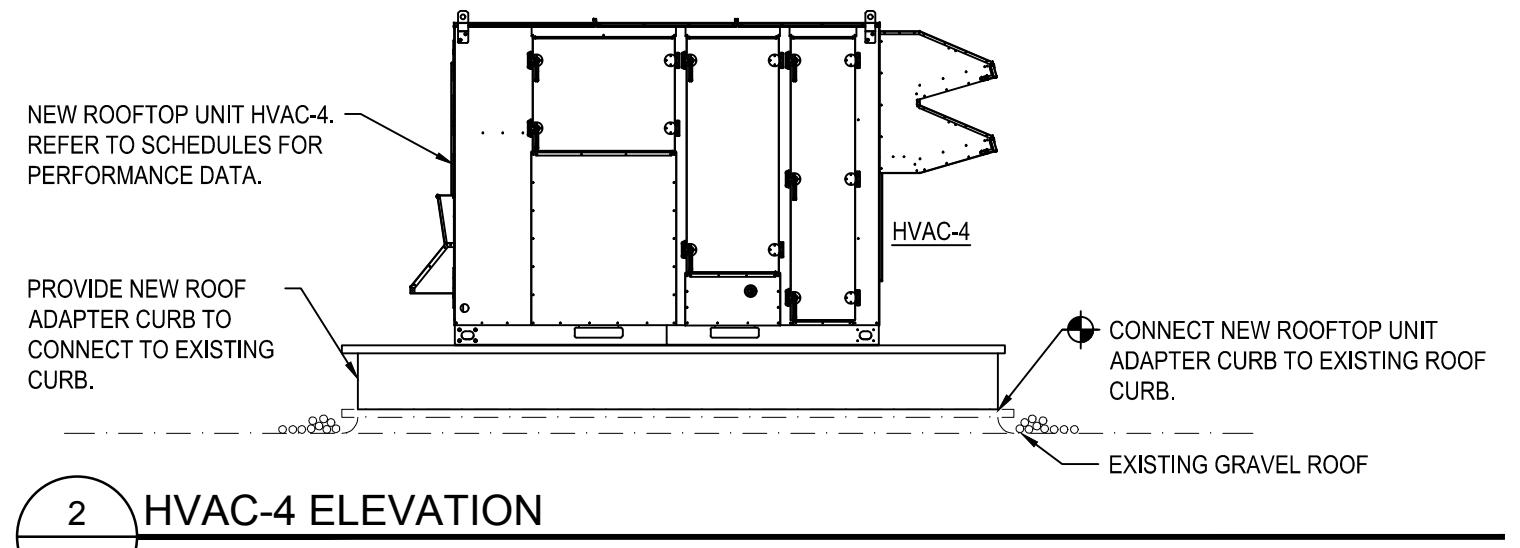
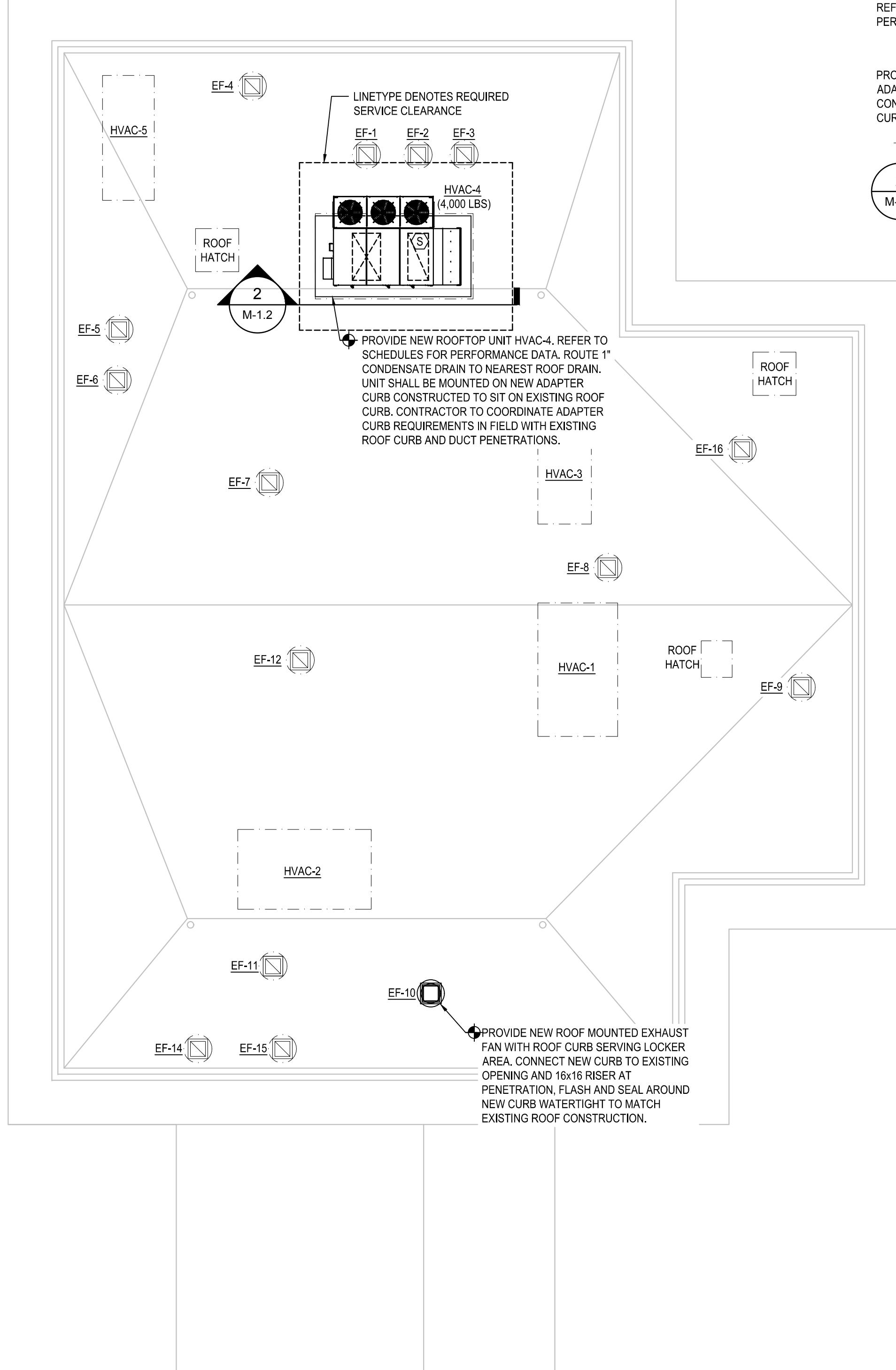
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ROOF PLAN-  
MECHANICAL

1

ROOF PLAN - MECHANICAL

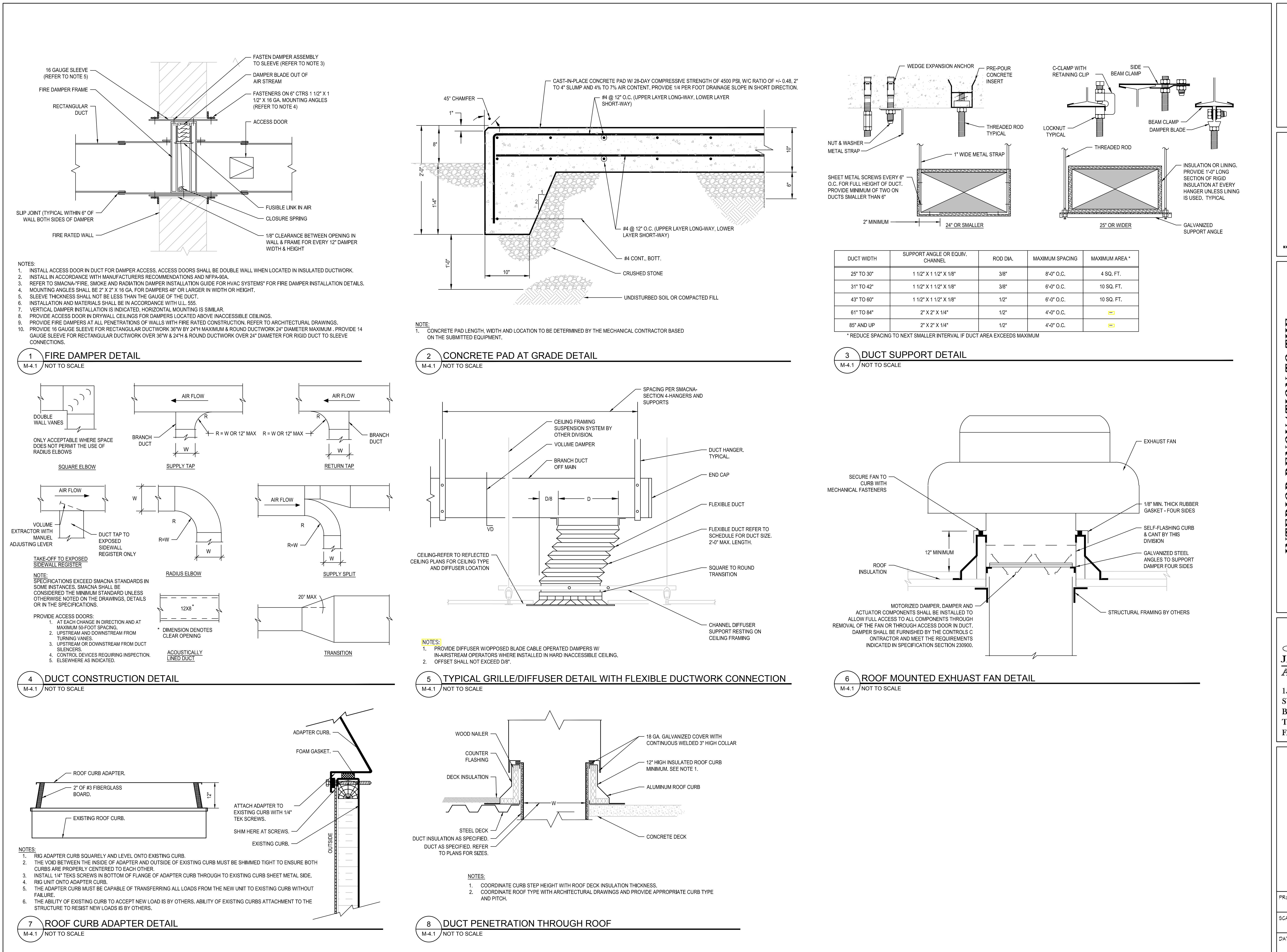
M-1.2 Scale: 1/8"=1'-0"



PROJ. NO.	DRAWING NO.
	JH1828
SCALE	As Noted
DATE	NOVEMBER 8, 2016

M-1.2





# TRUMBULL POLICE DEPARTMENT

*1158 EDISON ROAD*  
*TRUMBULL, CONNECTICUT*

## *DETAILS - MECHANICAL*

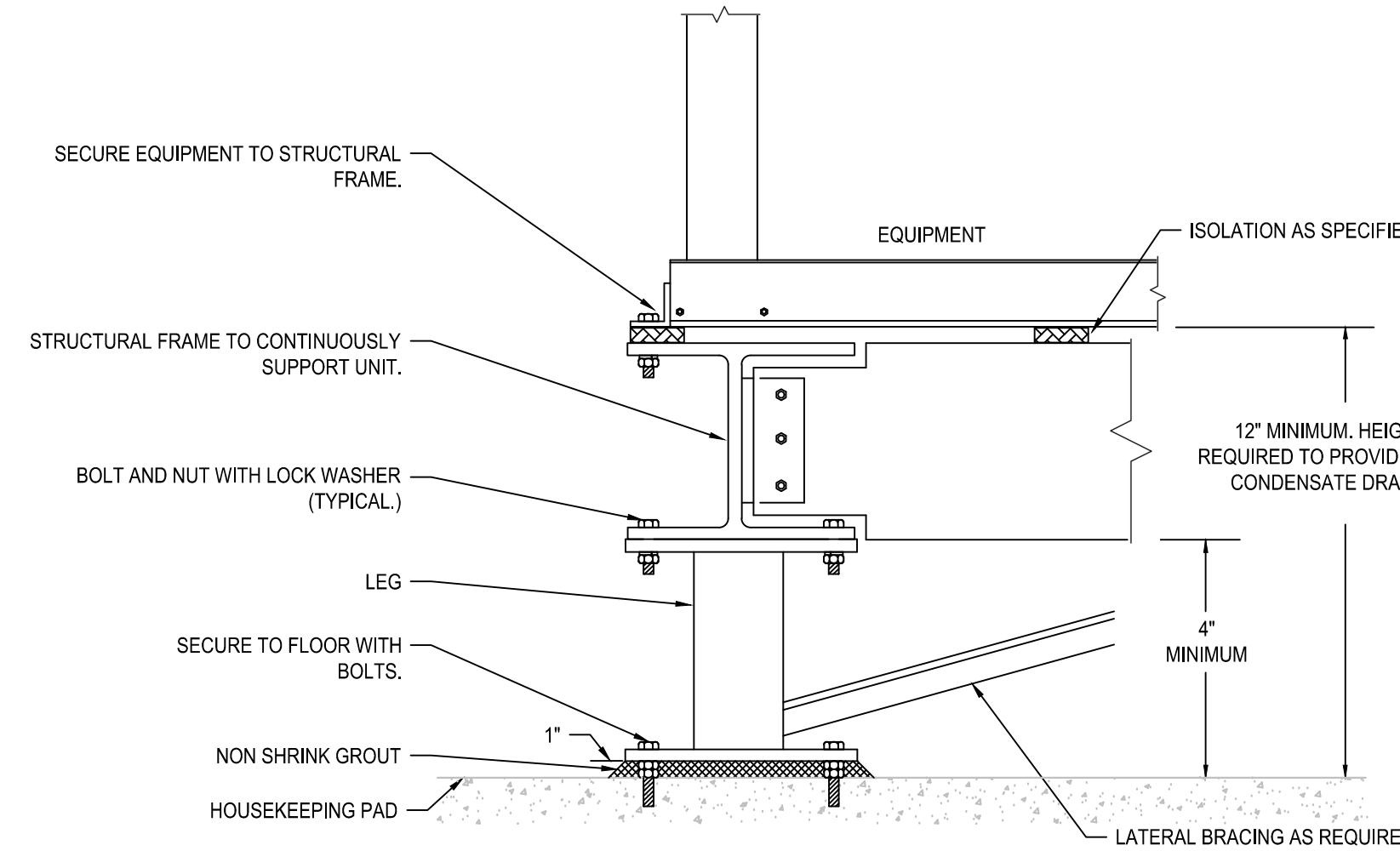
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JH1828	
SCALE	As Noted
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NOVEMBER 8, 2018	

## TRUMBULL POLICE DEPARTMENT

TRUMBULL, CONNECTICUT

158 EDISON ROAD

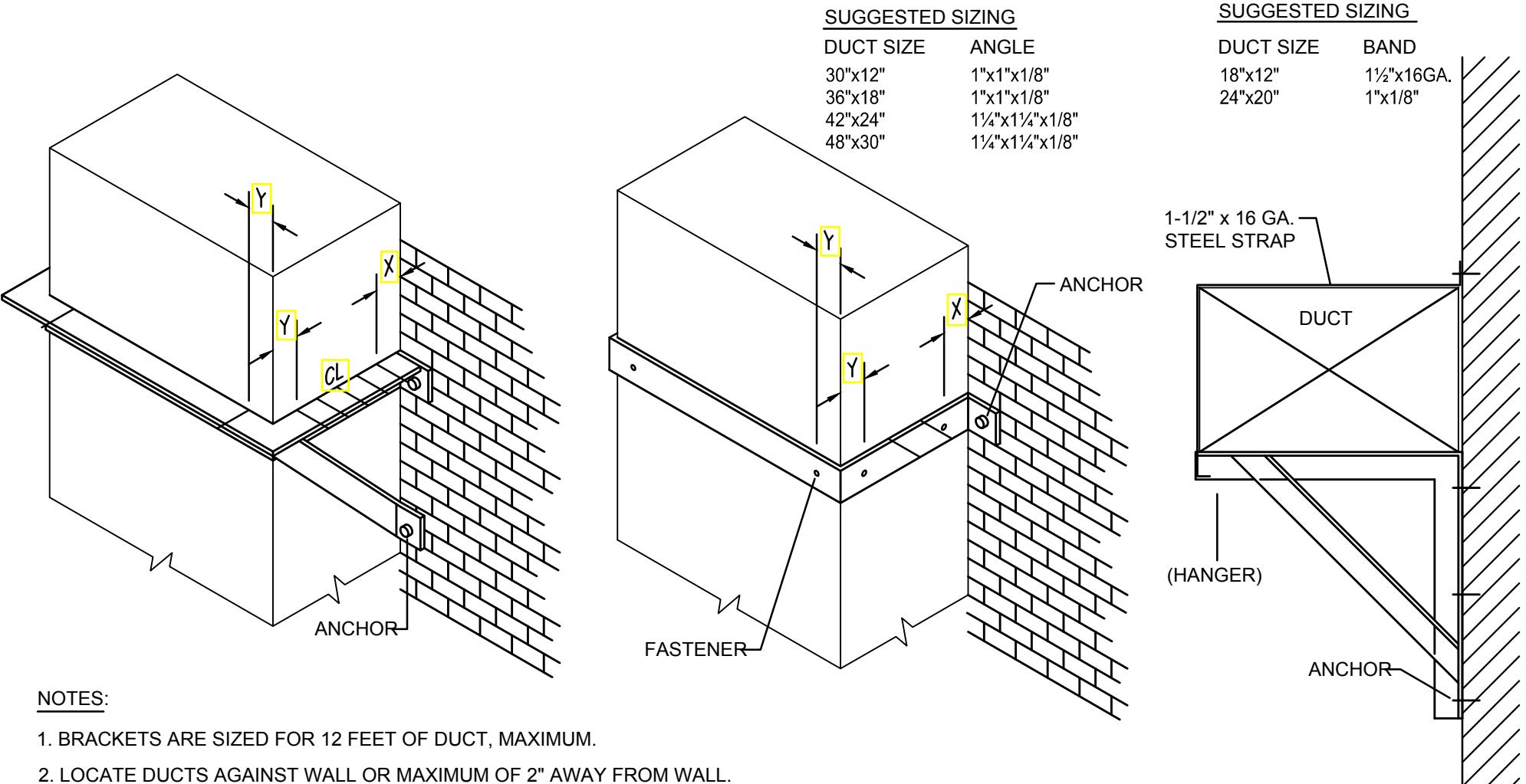
## DETAILS - MECHANICAL



NOTES  
1. STRUCTURAL FRAME MEMBERS SIZE AND QUANTITY OF LEGS TO PROVIDE MAXIMUM DEFLECTION OF LENGTH/360 AND NOT TO EXCEED 1/2 INCH.  
2. PROVIDE LATERAL BRACING AS REQUIRED BY UNIT MANUFACTURER.  
3. ALL FRAME COMPONENTS SHALL BE GALVANIZED OR SAND BLASTED PRIMED AND FINISH COATED WITH MACHINERY ENAMEL.  
4. BOLTS AND NUTS SHALL BE GALVANIZED OR CADMIUM PLATED.  
5. ALL EQUIPMENT SUPPORT STEEL SHALL BE BY THIS DIVISION.

### 1 EQUIPMENT SUPPORT DETAIL

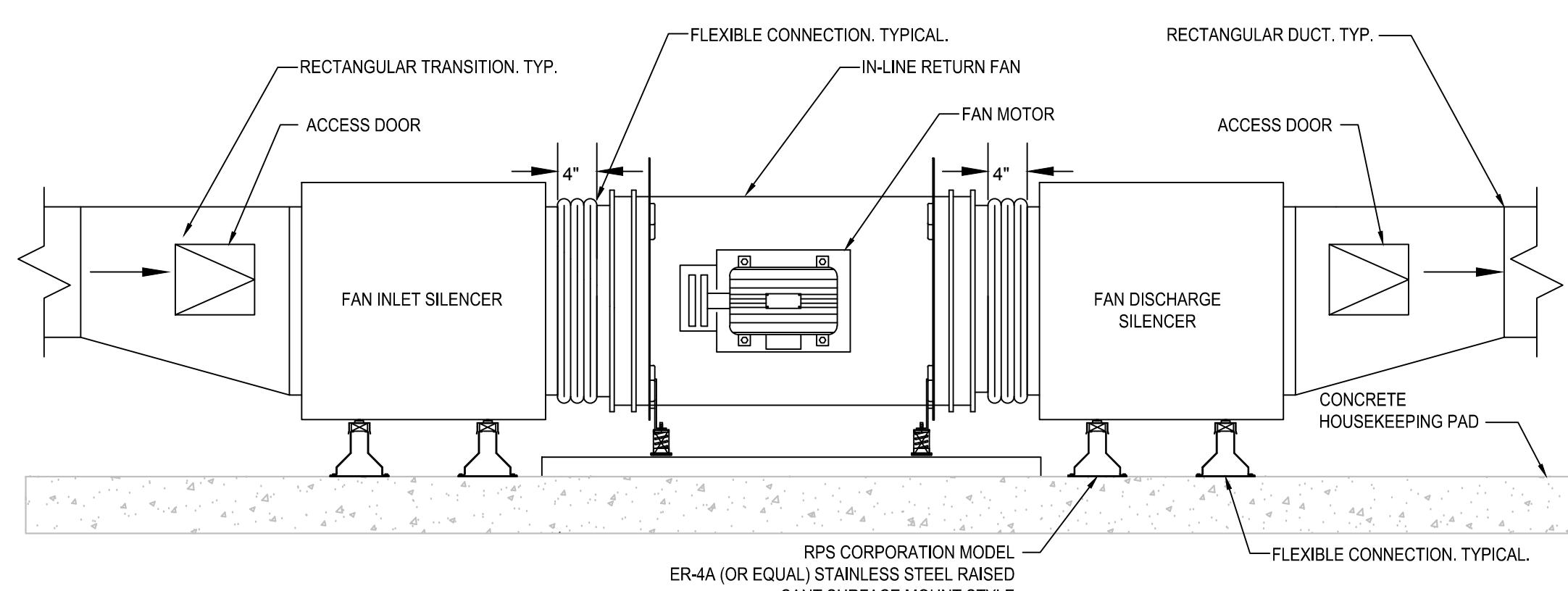
M-4.2 NOT TO SCALE



NOTE:  
ALL FASTENERS SHALL BE CADMIUM PLATED OR STAINLESS STEEL

### 2 EXPOSED PAD-MOUNTED DUCT INSTALLATION AND SUPPORT DETAIL

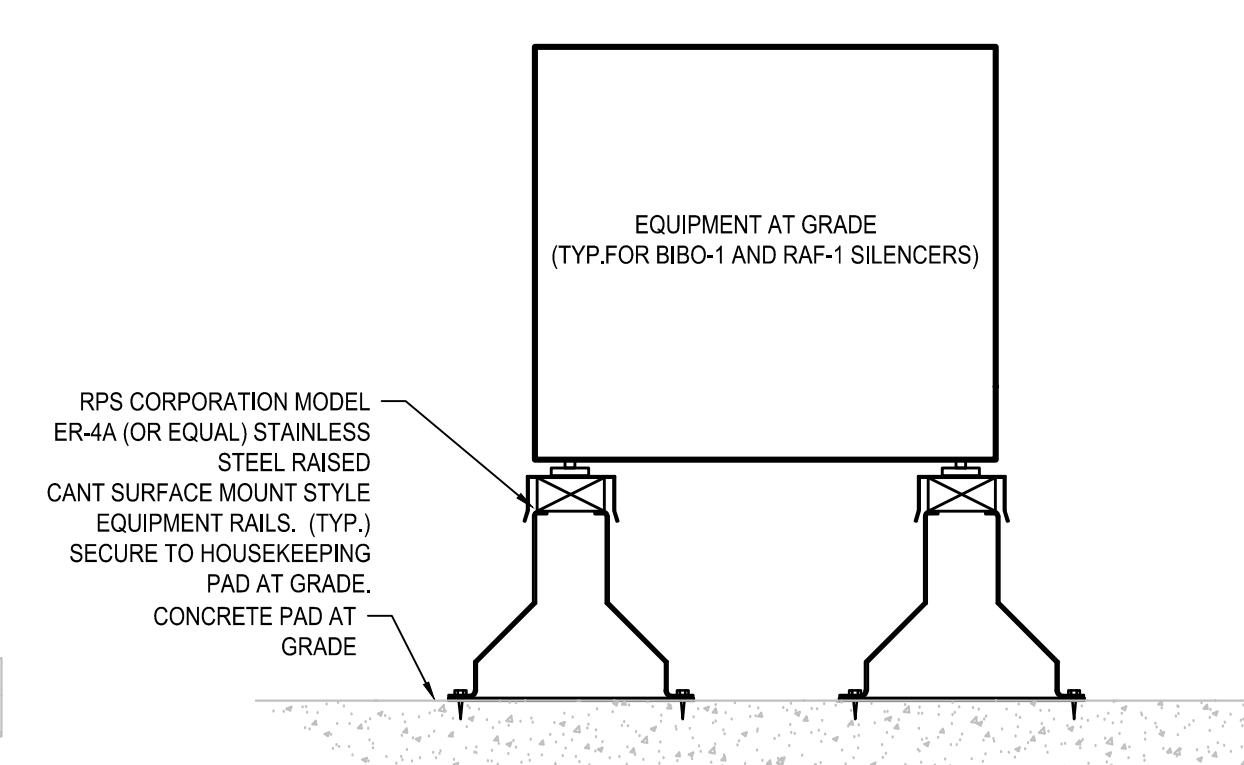
M-4.2 NOT TO SCALE



NOTE:  
1. SECURE FAN TO CURB WITH MECHANICAL FASTENERS  
2. SECURE FAN TO CURB WITH MECHANICAL FASTENERS  
3. SELF-FLASHING CURB & CANT BY THIS DIVISION  
4. GALVANIZED STEEL ANGLES TO SUPPORT DAMPER FOUR SIDES  
5. ANGLE IRON BY THIS DIVISION  
6. MOTORIZED DAMPER, DAMPER AND ACTUATOR COMPONENTS SHALL BE INSTALLED TO ALLOW FULL ACCESS TO ALL COMPONENTS THROUGH REMOVAL OF THE FAN OR THROUGH ACCESS DOOR IN DUCT. DAMPER SHALL BE FURNISHED BY THE CONTROLS CONTRACTOR AND MEET THE REQUIREMENTS INDICATED IN THESE DRAWINGS.

### 3 DUCT MOUNTED JOCKEY FAN DETAIL

M-4.2 NOT TO SCALE



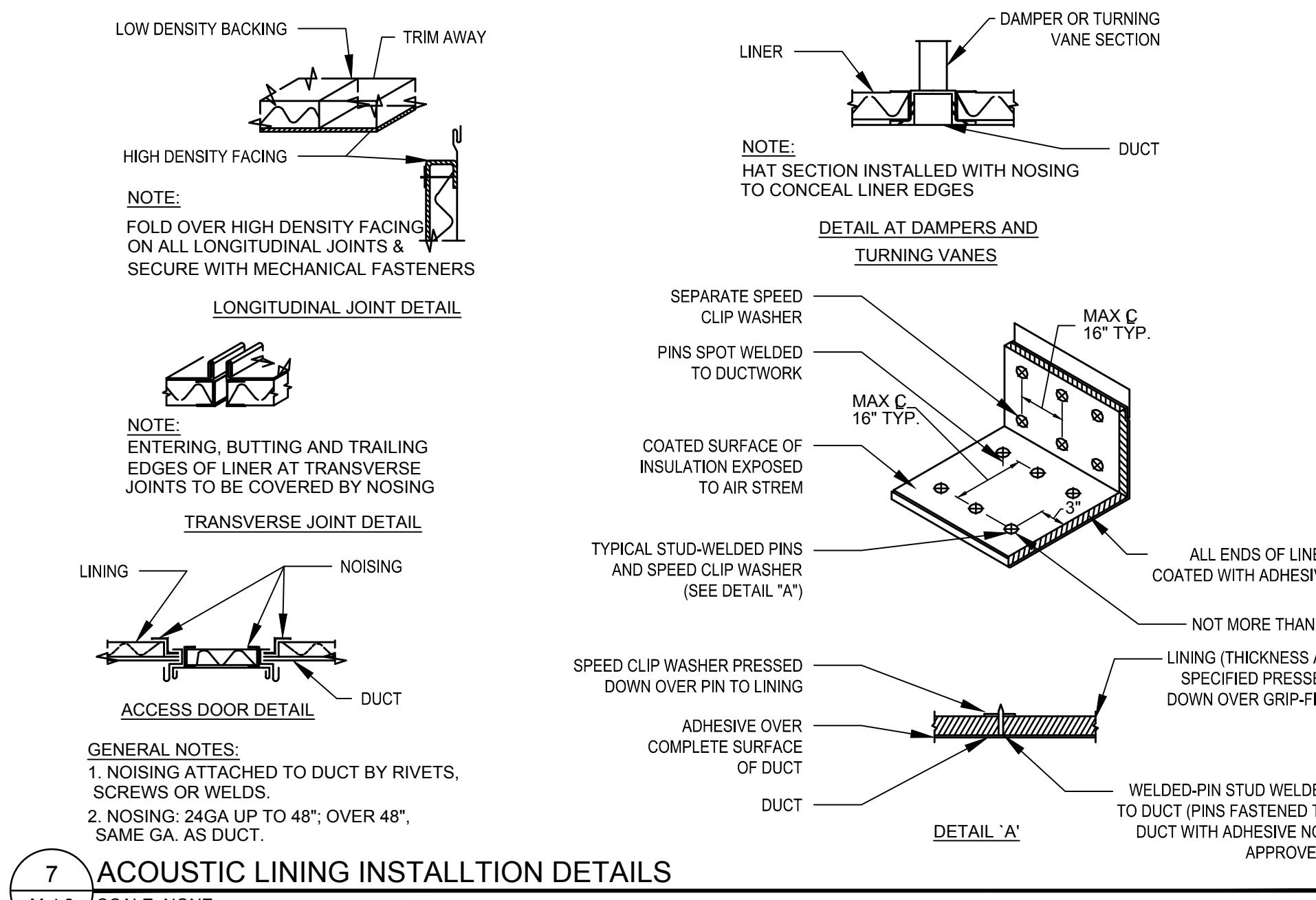
NOTE:  
1. SECURE UNIT TO EQUIPMENT SUPPORT NAILER W/(4) 1/4" LAG BOLTS.

### 6 PAD MOUNTED EQUIPMENT SUPPORT DETAIL

M-4.2 NOT TO SCALE

### 4 ROOF MOUNTED EXHAUST/RELIEF FAN DETAIL

M-4.2 NOT TO SCALE

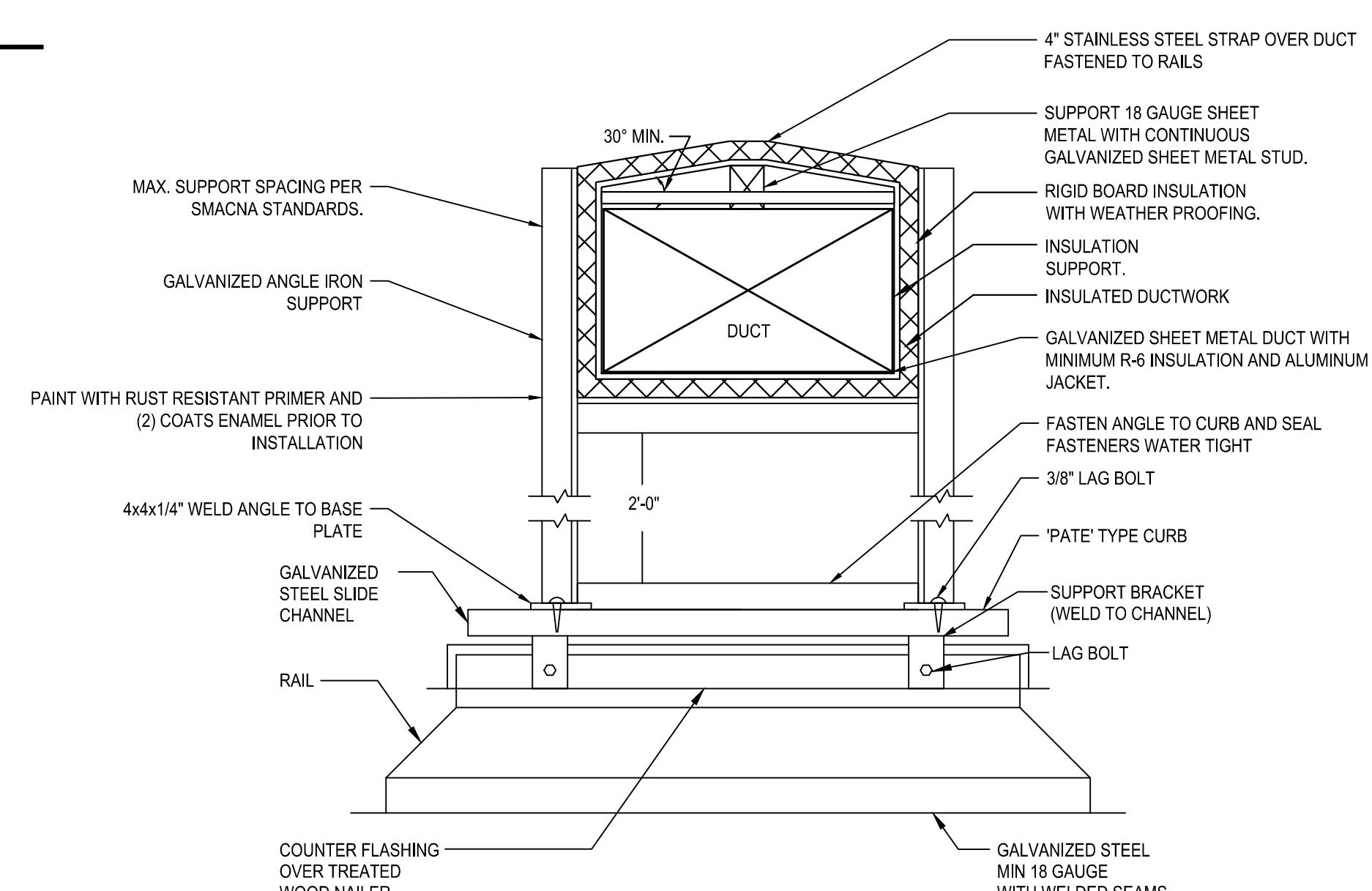


### 7 ACOUSTIC LINING INSTALLTION DETAILS

M-4.2 SCALE: NONE

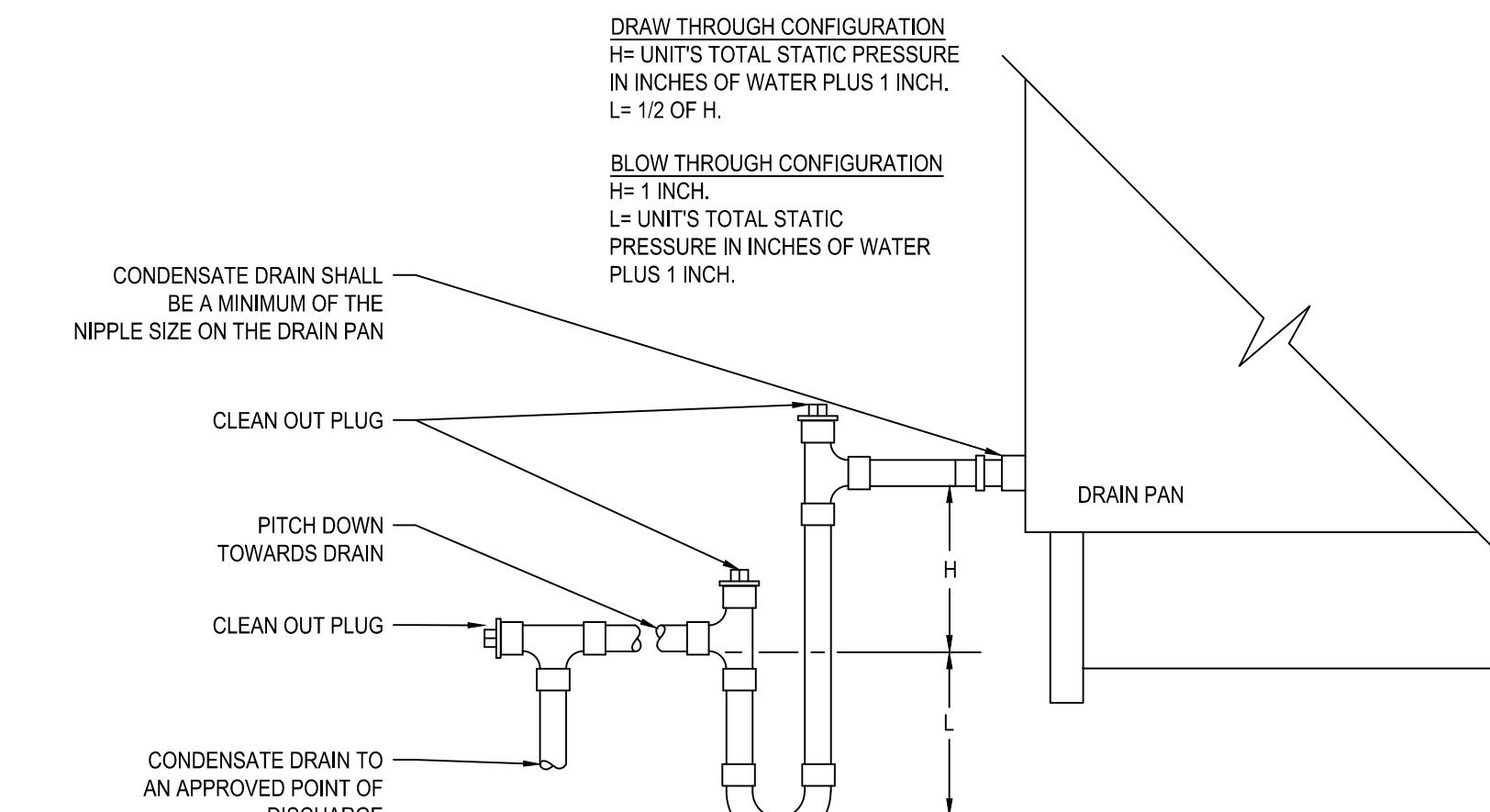
### 5 INLINE CENTRIFUGAL FAN INSTALLATION DETAIL

M-4.2 NOT TO SCALE



### 8 EXPOSED PAD MOUNTED DUCT INSTALLATION AND SUPPORT DETAIL

M-4.2 NOT TO SCALE



### 9 COOLING COIL DRAIN TRAP DETAIL

M-4.2 NOT TO SCALE



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## MECHANICAL SPECIFICATIONS

### EQUIPMENT AND DUCTWORK IDENTIFICATION

CONSULT THE OWNER AS TO ANY LABELING STANDARDS INCLUDING NAMING CONVENTIONS, STANDARD LABELING MATERIALS AND LABELING COLOR CONVENTIONS. ALL NEW VALVE AND EQUIPMENT TAGS SHALL MATCH THE BUILDING STANDARD, WHERE NO STANDARD EXISTS, PROVIDE THE FOLLOWING:

### ACTION SUBMITTALS:

PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

SAMPLES: FOR COLOR, LETTER STYLE, AND GRAPHIC REPRESENTATION REQUIRED FOR EACH IDENTIFICATION MATERIAL AND DEVICE.

EQUIPMENT LABEL SCHEDULE: INCLUDE A LISTING OF ALL EQUIPMENT TO BE LABELED WITH THE PROPOSED CONTENT FOR EACH LABEL.

### COORDINATION:

COORDINATE INSTALLATION OF IDENTIFYING DEVICES WITH COMPLETION OF COVERING AND PAINTING OF SURFACES WHERE DEVICES ARE TO BE APPLIED. COORDINATE INSTALLATION OF IDENTIFYING DEVICES WITH LOCATIONS OF ACCESS PANELS AND DOORS. INSTALL IDENTIFYING DEVICES BEFORE INSTALLING CEILINGS AND SIMILAR CONCEALMENT.

### EQUIPMENT LABELS:

#### PLASTIC LABELS FOR EQUIPMENT:

MATERIAL AND THICKNESS: MULTILAYER, MULTICOLOR, PLASTIC LABELS FOR MECHANICAL ENGRAVING, 1/8" THICK, AND HAVING PREDRILLED HOLES FOR ATTACHMENT HARDWARE.

LETTER COLOR: WHITE.

BACKGROUND COLOR: BLACK.

MINIMUM LABEL SIZE: LENGTH AND WIDTH VARY FOR REQUIRED LABEL CONTENT, BUT NOT LESS THAN 5 BY 3 INCHES.

MINIMUM LETTER SIZE: 1 INCH FOR NAME OF UNITS IF VIEWING DISTANCE IS LESS THAN 24 INCHES, 2 INCH FOR VIEWING DISTANCES UP TO 72 INCHES, AND PROPORTIONATELY LARGER LETTERING FOR GREATER VIEWING DISTANCES. INCLUDE SECONDARY LETTERING TWO-THIRDS TO THREE-FOURTHS THE SIZE OF PRINCIPAL LETTERING.

FASTENERS: STAINLESS-STEEL RIVETS OR SELF-TAPPING SCREWS; ADHESIVE FOR LOCATIONS WHERE SCREWS OR RIVETS WOULD VOID WARRANTY OF EQUIPMENT.

LABEL CONTENT: INCLUDE EQUIPMENT DRAWING DESIGNATION OR UNIQUE EQUIPMENT NUMBER, EQUIPMENT DESCRIPTION, AND ELECTRICAL PANEL DESIGNATION SERVING THE EQUIPMENT.

EQUIPMENT LABEL SCHEDULE: FOR EACH ITEM OF EQUIPMENT TO BE LABELED, ON 8-1/2 BY 11-INCH BOND PAPER, TABULATE EQUIPMENT IDENTIFICATION NUMBER AND IDENTIFY DRAWING NUMBERS WHERE EQUIPMENT IS INDICATED (PLANS, DETAILS, AND SCHEDULES), PLUS THE SPECIFICATION SECTION NUMBER AND TITLE WHERE EQUIPMENT IS SPECIFIED. EQUIPMENT SCHEDULE SHALL BE INCLUDED IN OPERATION AND MAINTENANCE DATA.

### IDENTIFICATION FOR HVAC DUCTWORK:

#### DUCT LABELS

STENCILS: MINIMUM LETTER HEIGHT OF 2 INCHES FOR DUCTS; AND MINIMUM LETTER HEIGHT OF 1 INCH FOR ACCESS PANEL AND DOOR LABELS, EQUIPMENT LABELS, AND SIMILAR OPERATIONAL INSTRUCTIONS.

STENCIL MATERIAL: FIBERBOARD OR METAL.

PAINT: EXTERIOR, ACRYLIC ENAMEL IN COLORS AS INDICATED.

LABEL CONTENTS: INCLUDE IDENTIFICATION OF DUCT SERVICE USING SAME DESIGNATIONS AS USED ON DRAWINGS, DUCT SIZE, AND AN ARROW INDICATING FLOW DIRECTION.

### EXECUTION

#### PREPARATION

CLEAN EQUIPMENT SURFACES OF SUBSTANCES THAT COULD IMPAIR BOND OF IDENTIFICATION DEVICES, INCLUDING DIRT, OIL, GREASE, RELEASE AGENTS, AND INCOMPATIBLE PRIMERS, PAINTS, AND ENCAPSULATIONS.

### EQUIPMENT LABEL INSTALLATION

PERMANENTLY FASTEN LABELS ON EACH MAJOR ITEM OF MECHANICAL EQUIPMENT.

LOCATE EQUIPMENT LABELS WHERE ACCESSIBLE AND VISIBLE. WHERE EQUIPMENT IS LOCATED WITHIN FINISHED SPACES, EQUIPMENT LABELS SHALL NOT BE LOCATED ON THE FACE OF THE EQUIPMENT; WHERE POSSIBLE, THE LABEL SHALL BE LOCATED ON THE LEAST CONSPICUOUS SIDE.

ALL MOTOR DRIVEN EQUIPMENT, HVAC COMPONENTS, AND MAJOR ELECTRICAL BOXES SHALL BE INDIVIDUALLY NUMBERED. (EXAMPLE: FOR UNIT HEATERS, USE UH-1, UH-2, ETC., EVEN THOUGH BOTH UNITS ARE OF THE SAME SIZE AND TYPE.) ALL DESIGNATIONS SHALL BE UNIQUE, INTEGRATED WITH AND DISTINGUISHED FROM OTHER DESIGNATIONS.

THE CONTRACTOR SHALL MAKE IT POSSIBLE FOR THE PERSONNEL OPERATING AND MAINTAINING THE EQUIPMENT AND SYSTEMS IN THIS PROJECT TO READILY IDENTIFY THE VARIOUS PIECES OF EQUIPMENT, VALVES, PIPING, ETC., BY MARKING THEM. ALL ITEMS OF EQUIPMENT SUCH AS FANS, PUMPS, ETC., SHALL BE CLEARLY MARKED USING ENGRAVED NAMEPLATES AS HERINAFTER SPECIFIED. THE ITEM OF EQUIPMENT SHALL INDICATE THE SAME NUMBER AS SHOWN ON THE DRAWINGS.

### DUCT LABEL INSTALLATION

STENCILED DUCT LABEL: STENCILED LABELS, SHOWING SERVICE AND FLOW DIRECTION.

LETTERING AND ARROWS COLOR SHALL MEET THE OWNER'S STANDARDS. IF NO STANDARD EXISTS, CONFIRM THE FOLLOWING COLOR SCHEME IS ACCEPTABLE PRIOR TO COMMENCEMENT OF WORK.

BLUE: FOR OUTSIDE AIR SUPPLY DUCTS.

YELLOW: FOR HOT AIR SUPPLY DUCTS, COLD AIR SUPPLY DUCTS, AND COMBINED HOT/COLD AIR SUPPLY DUCTS.

GREEN: FOR EXHAUST, RELIEF, RETURN, AND MIXED AIR DUCTS.

### LOCATE LABELS/STENCILS:

NEAR POINTS WHERE DUCTS ENTER INTO CONCEALED SPACES.

AT MAXIMUM INTERVALS OF 25 FEET IN EACH SPACE WHERE DUCTS ARE EXPOSED OR CONCEALED BY REMOVABLE CEILING SYSTEM.

AT ALL CHANGES OF DIRECTION.

### DUCTWORK

BOTH SIDES OF PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND INACCESSIBLE ENCLOSURES.

NEAR MAJOR EQUIPMENT ITEMS AND OTHER POINTS OF ORIGINATION AND TERMINATION.

LABELING/STENCILING OF ALL EXPOSED DUCTWORK SHALL BE COORDINATED WITH THE ARCHITECT AND ENGINEER PRIOR TO THE COMMENCEMENT.

### DUCTWORK

REFER TO "HVAC DUCT MATERIAL" SCHEDULE, FOR DUCT MATERIALS PER APPLICATION.

DUCT CONSTRUCTION, INCLUDING SHEET METAL THICKNESSES, SEAM AND JOINT CONSTRUCTION, REINFORCEMENTS, ELBOWS, TURNING VANES, AND HANGERS AND SUPPORTS, SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" LATEST EDITION, AND PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA BASED ON PRESSURE & LEAKAGE CLASSES INDICATED IN THE "DUCT PRESSURE CLASS" SCHEDULE; UNLESS OTHERWISE NOTED.

ROUND DUCTWORK SHALL BE SPIRAL SEAM.

MINIMUM DUCT SHEET METAL THICKNESS SHALL BE 24 GAUGE.

### LEAKAGE CLASS:

RECTANGULAR SUPPLY-AIR DUCT: 6 CFM/100 SQ. FT. AT 1-INCH WG.

FLEXIBLE SUPPLY-AIR DUCT: 6 CFM/100 SQ. FT. AT 1-INCH WG.

DUCT ACCESS DOORS SHALL BE CONSTRUCTED OF DOUBLE WALL OF THE SAME OR GREATER GAUGE AS DUCTWORK. PROVIDE INSULATED ACCESS DOORS FOR INSULATED DUCTWORK. GASKET ALL EDGES AIRTIGHT. SIZE ACCESS DOORS TO PERMIT MAINTENANCE. MINIMUM SIZE 16" X 16" OR AS LARGE AS AVAILABLE DUCT SPACE WILL ALLOW. ACCESS DOORS LESS THAN 12 INCHES SQUARE: PLAIN HINGE AND LOCKS; ACCESS DOORS UP TO 18 INCHES SQUARE: TWO HINGES AND TWO LOCKS, SIMILAR TO VENTLOCK 100.

WATER-BASED JOINT AND SEAM SEALANT: APPLICATION BRUSH ON, SYNTHETIC RUBBER RESIN BASE, SOLVENT, TOLUENE AND HEPTANE, SOLIDS CONTENT: MINIMUM 90 PERCENT, SHORE A HARDNESS: MINIMUM 60. WATER RESISTANT, MOLD AND MILDEW RESISTANT, VOC: MAXIMUM 950 G/L, MAXIMUM STATIC-PRESSURE CLASS: 10-INCH WG, POSITIVE OR NEGATIVE. SERVICE: INDOOR OR OUTDOOR. SUBSTRATE: COMPATIBLE WITH GALVANIZED SHEET STEEL (BOTH PVC COATED AND BARE), STAINLESS STEEL, OR ALUMINUM SHEETS.

FLANGED JOINT SEALANT: COMPLY WITH ASTM C 920; GENERAL: SINGLE-COMPONENT, ACID-CURING, SILICONE, ELASTOMERIC, TYPE: S, GRADE: NS, CLASS: 25, USE: O.

FLANGE GASKETS: BUTYL RUBBER, NEOPRENE, OR EPDM POLYMER WITH POLYISOBUTYLENE PLASTICIZER.

MAKE CONNECTIONS TO EQUIPMENT WITH FLEXIBLE CONNECTORS OF FLAME-RETARDANT OR NONCOMBUSTIBLE FABRICS. MANUFACTURERS: DUCTIMATE INDUSTRIES, INC., DURDYNE INC., VENTFABRICS, INC., WARD INDUSTRIES, INC.; A DIVISION OF HART & COOLEY, INC.

VOLUME DAMPERS: PROVIDE SOLID, SQUARE AXLES FULL LENGTH OF DAMPER BLADES, ZERO LEAK BEARINGS AT BOTH ENDS OF OPERATING SHAFT AND POSITIVE LOCKING QUADRANTS. PROVIDE STAND-OFFS FOR EXTERNALLY LINED DUCTS. DAMPER BLADES SHALL BE MINIMUM 22 GAUGE. DAMPER BLADES, END BEARINGS, LOCKING QUADRANTS SHALL BE SIMILAR TO ROSSI EVERLOCK OR ELCEN.

SEAL OPENING AROUND DUCTS THROUGH WALLS WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL.

SEAL ALL PENETRATIONS THROUGH FIRE SEPARATION WITH AN APPROVED UL LISTED ASSEMBLY AND FIRE STOPPING MATERIALS.

CONSTRUCT FLEXIBLE CONNECTIONS OF NEOPRENE-COATED FLAMEPROOF FABRIC CRIMPED INTO DUCT FLANGES FOR ATTACHMENT TO DUCT AND EQUIPMENT.

FLEXIBLE DUCT SHALL BE CONSTRUCTED OF TWO-PLY LAMINATE MECHANICALLY CORRUGATED BONDED ALUMINUM MINER CORE COVERED BY ONE INCH THICK FIBERGLASS INSULATION OF ONE POUND DENSITY. FIBERGLASS SHALL BE COVERED WITH A 2.5 MIL POLYETHYLENE VAPOR BARRIER. FLEXIBLE DUCT SHALL MEET THE LATEST REQUIREMENTS OF UL STANDARD 181, CLASS 7, FLEXIBLE AIR DUCT. DUCT TO BE RATED FOR 10 INCHES POSITIVE OR NEGATIVE PRESSURE. MANUFACTURERS: FLEXMASTER U.S.A., INC., MCGILL AIRFLOW LLC., WARD INDUSTRIES, INC., A DIVISION OF HART & COOLEY, INC.

### DUCT LINING

REFER TO "HVAC DUCT INSULATION" SCHEDULE FOR APPLICATIONS & VALUES.

FLEXIBLE ELASTOMERIC DUCT LINER: PREFORMED, CELLULAR, CLOSED-CELL, SHEET MATERIALS COMPLYING WITH ASTM C 534, TYPE II, GRADE 1; AND WITH NFPA 90A OR NFPA 90B.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

AEROFLEX USA INC. AEROCELL  
ARMACELL LLC SA DUCT LINER  
K-FLEX DUCTLINER

SURFACE-BURNING CHARACTERISTICS: MAXIMUM FLAME-SPREAD INDEX OF 25 AND MAXIMUM SMOKE-DEVELOPED INDEX OF 50 WHEN TESTED ACCORDING TO UL 723; CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.

LINEAR ADHESIVE: AS RECOMMENDED BY INSULATION MANUFACTURER AND COMPLYING WITH NFPA 90A OR NFPA 90B.

FOR INDOOR APPLICATIONS, ADHESIVE SHALL HAVE A VOC CONTENT OF 50 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

INSULATION PINS AND WASHERS: CUPPED-HEAD, CAPACITOR-DISCHARGE-WELD PINS: COPPER-OR-ZINC-COATED STEEL PIN, FULLY ANNEALED FOR CAPACITOR-DISCHARGE WELDING, 0.135-INCH-DIAMETER SHANK, LENGTH TO SUIT DEPTH OF INSULATION INDICATED WITH INTEGRAL 1-1/2-INCH GALVANIZED CARBON-STEEL WASHER.

### DUCT INSULATION

REFER TO "HVAC DUCT INSULATION" SCHEDULE FOR APPLICATIONS & VALUES.

COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL ENERGY CONSERVATION CODE, LATEST ADOPTED VERSION.

PRODUCTS SHALL NOT CONTAIN ASBESTOS, LEAD, MERCURY, OR MERCURY COMPOUNDS.

ACCEPTABLE MANUFACTURERS INCLUDE: CERTAINTEAD CORP., COMMERCIAL BOARD, FIBREX INSULATIONS INC., FBX, JOHNS MANVILLE, 800 SERIES SPIN-GLAS, KNAUF INSULATION, INSULATION BOARD., MANSION INSULATION INC., AK BOARD., OWENS CORNING, FIBERGLAS 700 SERIES.

### PIPE, FITTINGS & PIPING ACCESSORIES

REFER TO "HVAC PIPING/TUBING MATERIAL, JOINTS & FITTINGS" SCHEDULE FOR PIPE MATERIALS, APPLICATION, RATINGS & FITTINGS.

DIELECTRIC FITTINGS: MANUFACTURERS, HART INDUSTRIES INTERNATIONAL, INC., WATTS REGULATOR CO.; A DIVISION OF WATTS WATER TECHNOLOGIES, INC.

DESCRIPTION: COMBINATION FITTING OF COPPER-ALLOY AND FERROUS MATERIALS WITH THREADED, SOLDER-JOINT, PLAIN, OR WELD-NECK END CONNECTIONS THAT MATCH PIPING SYSTEM MATERIALS.

INSULATING MATERIAL: SUITABLE FOR SYSTEM FLUID, PRESSURE, AND TEMPERATURE.

DIELECTRIC UNIONS: FACTORY-FABRICATED UNION ASSEMBLY, FOR 250-PSIG MINIMUM WORKING PRESSURE AT 180°F.

DIELECTRIC COUPLINGS: GALVANIZED-STEEL COUPLING WITH INERT AND NON-CORROSIVE THERMOPLASTIC

LINING; THREADED ENDS; AND 300-PSIG MINIMUM WORKING PRESSURE AT 225°F.

### PIPE JOINT CONSTRUCTION

REAM ENDS OF PIPES AND TUBES AND REMOVE BURRS. REMOVE SCALE, SLAG, DIRT, AND DEBRIS FROM INSIDE AND OUTSIDE OF PIPE AND FITTINGS BEFORE ASSEMBLY.

SOLDERED JOINTS: APPLY ASTM B 813, WATER-FLUSHABLE FLUX, UNLESS OTHERWISE INDICATED, TO TUBE END. CONSTRUCT JOINTS ACCORDING TO ASTM B 928 OR CDA'S "COPPER TUBE HANDBOOK," USING LEAD-FREE SOLDER ALLOY COMPLYING WITH ASTM B 32.

### ROOF MOUNTED EXHAUST FANS

BELT-DRIVEN CENTRIFUGAL FAN CONSISTING OF HOUSING, WHEEL, FAN SHAFT, BEARINGS, MOTOR AND DISCONNECT SWITCH, DRIVE ASSEMBLY, CURB BASE, AND ACCESSORIES. ACCEPTABLE MANUFACTURERS INCLUDE GREENHECK, COOK, AND EQUIVALENT PRODUCTS.

FAN WHEEL: ALUMINUM HUB AND WHEEL WITH BACKWARD-INCLINED BLADES.

BELT-DRIVEN DRIVE ASSEMBLY: RESILIENTLY MOUNTED TO THE HOUSING, WITH THE FOLLOWING FEATURES:

PULLEYS: CAST-IRON, ADJUSTABLE-PITCH.

SHAFT BEARINGS: PERMANENTLY LUBRICATED, PERMANENTLY SEALED, SELF-ALIGNING BALL BEARINGS.

FAN SHAFT: TURNED, GROUND, AND POLISHED STEEL DRIVE SHAFT KEYED TO WHEEL HUB.

FAN DRIVE AND MOTOR ISOLATED FROM EXHAUST AIR STREAM.

DISCONNECT SWITCH: NONFUSIBLE TYPE, (WITH INTERNAL MOTOR THERMAL OVERLOAD PROTECTION MOUNTED INSIDE FAN HOUSING), FACTORY-WIRED THROUGH AN INTERNAL ALUMINUM CONDUIT.

DAMPERS: COUNTERBALANCED, PARALLEL-BLADE, MOTORIZED DAMP



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## SPECIFICATIONS - MECHANICAL

PRO. NO. JH1625 DRAWING NO.  
SCALE As Noted  
DATE NOVEMBER 8, 2016  
M-5.2

## MECHANICAL SPECIFICATIONS

MECHANICAL SPECIFICATIONS		
<b>ROOFTOP AIR HANDLING UNIT HVAC-4</b>		INTERNAL COMPONENTS FOR MAINTENANCE.
THE CONTRACTOR SHALL FURNISH AND INSTALL PACKAGED OUTDOOR AIR UNIT(S) AS SHOWN AND SCHEDULED ON THE CONTRACT DOCUMENTS. THE UNIT(S) SHALL BE INSTALLED IN ACCORDANCE WITH THIS SPECIFICATION AND PERFORM AT THE SPECIFIED CONDITIONS AS SCHEDULED.	FACTORY TO MOUNT AND WIRE 120 VOLT CONVENIENCE OUTLET. FIELD WIRING OF CONVENIENCE OUTLET NOT ACCEPTABLE.	EVAPORATOR COIL SHALL HAVE SIX INTERLACED ROWS FOR SUPERIOR SENSIBLE AND LATENT COOLING WITH A MAXIMUM OF 12 FPI.
APPROVED MANUFACTURERS:	FACTORY MOUNT AND WIRE LINE TO 120 VOLT CONVENIENCE OUTLET TRANSFORMER. FIELD WIRING OF CONVENIENCE OUTLET NOT ACCEPTABLE LOW VOLTAGE CONTROLS.	REHEAT COIL SHALL BE FULLY INTEGRATED INTO THE SUPPLY AIR AND FAN SYSTEM AND CAPABLE OF DELIVERING DESIGN SUPPLY AIR TEMPERATURE.
TRANE: HORIZON SERIES	FACTORY WIRED 24 VOLT CONTROL SYSTEM COMPLETE WITH REQUIRED TRANSFORMERS AND FUSING.	TO PREVENT RE-HYDRATION OF CONDENSATE FROM EVAPORATOR COIL, THE EVAPORATOR COIL FACE AND THE HOT GAS REHEAT COIL FACE SHALL BE SEPARATED A MINIMUM OF SIX INCHES.
ADDISON: TRS-SERIES	MAIN CONTROL MODULE (MCM) SHALL PREVENT SIMULTANEOUS OPERATION OF ANY MODES AND SHALL ENABLE OPERATION IN DEHUMIDIFICATION, COOLING, HEATING OR ECONOMIZER MODE BASED ON PROGRAMMED SETTINGS FOR:	CONDENSER COIL SHALL BE PROVIDED WITH FACTORY INSTALLED HAIL GUARDS.
VENMAR	OUTDOOR AIR CONDITIONS AND DISCHARGE AIR TEMPERATURE	UNIT SHALL BE EQUIPPED WITH AN ADJUSTABLE 6" FILTER RACK UPSTREAM OF THE EVAPORATOR TO MATCH THE FILTER REQUIREMENTS SPECIFIED IN THE AIR FILTRATION SECTION
SUBSTITUTIONS: AS INDICATED UNDER THE GENERAL AND/OR SUPPLEMENTAL CONDITIONS OF THESE SPECIFICATIONS, BIDDING CONTRACTOR SHALL BE RESPONSIBLE FOR ELECTRICAL AND MECHANICAL AND STRUCTURAL MODIFICATIONS REQUIRED WHEN SUBSTITUTING A PRODUCT OTHER THAN THE SPECIFIED PRODUCT. IT SHALL BE THE RESPONSIBILITY OF THE BIDDING CONTRACTOR TO MAKE THE SPECIFIER AWARE OF ANY MODIFICATIONS. AS BUILT DRAWING CHANGES IS THE RESPONSIBILITY OF THE CONTRACTOR SUBMITTING THE SUBSTITUTION.	MCM SHALL ACCEPT SEPARATE SETPOINTS FOR OCCUPIED AND UNOCCUPIED STATES.	CONDENSER SECTION:
GENERAL UNIT DESCRIPTION	MCM SHALL CONTROL BASED ON DEW POINT DESIGN SETTINGS FOR DEHUMIDIFICATION AND ECONOMIZER MODES, AND SENSIBLE TEMPERATURE SETTINGS FOR HEATING AND COOLING MODES.	OUTDOOR FANS: VERTICAL DISCHARGE, DIRECT DRIVE FANS WITH CONSTRUCTED OF POLYMER GLASS REINFORCED POLYPROPYLENE BLADES. FANS SHALL BE LOW-NOISE AND CORROSION RESISTANT. OTHER FAN CONSTRUCTION IS NOT ACCEPTABLE.
UNIT(S) FURNISHED AND INSTALLED SHALL BE DX PACKAGED OUTDOOR AIR UNIT (S) AS SCHEDULED ON CONTRACT DOCUMENTS AND THESE SPECIFICATIONS. UNIT(S) SHALL CONSIST OF INSULATED WEATHER-TIGHT CASING WITH COMPRESSOR(S), AIR-COOLED CONDENSER COIL, CONDENSER FANS, EVAPORATOR COIL, AIR FILTERS, SUPPLY MOTORS AND UNIT CONTROLS.	MCM SHALL HAVE ONBOARD CLOCK AND SCHEDULING FUNCTION FOR OCCUPANCY.	FANS SHALL BE STATICALLY BALANCED.
BEFORE SHIPMENT, EACH UNIT(S) SHALL BE LEAK TESTED, DEHYDRATED, CHARGED WITH REFRIGERANT (R-410A) AND COMPRESSOR OIL, AND FACTORY RUN TESTED FOR PROPER CONTROL OPERATION.	MCM SHALL INCLUDE NON-VOLATILE MEMORY TO RETAIN ALL PROGRAMMED VALUES WITHOUT THE USE OF A BATTERY, IN THE EVENT OF A POWER FAILURE.	REFRIGERANT CAPACITY CONTROL:
CONDENSER COILS MUST HAVE A SERIES OF FLAT TUBES CONTAINING A SERIES OF MULTIPLE, PARALLEL FLOW MICROCHANNELS LAYERED BETWEEN THE REFRIGERANT MANIFOLDS. COIL CONSTRUCTION SHALL CONSIST OF ALUMINUM ALLOYS FOR FINS, TUBES, AND MANIFOLDS IN COMBINATION WITH A CORROSION-RESISTANT COATING.	FACTORY INSTALLED AND WIRED SENSORS SHALL MONITOR OUTDOOR AIR (OA) TEMPERATURE, HUMIDITY AND EVAPORATOR LEAVING AIR TEMPERATURE.	UNITS WITH SCROLL COMPRESSORS SHALL BE EQUIPPED WITH REFRIGERANT CAPACITY CONTROL (RCC) ON THE LEAD CIRCUIT TO MODULATE COMPRESSOR CAPACITY DURING DEHUMIDIFICATION OR COOLING MODES TO MAINTAIN EVAPORATOR DEHUMIDIFICATION OR COOLING SETPOINT AND PREVENT EVAPORATOR FROSTING OR FREEZING. RCC SHALL BE (STANDARD MECHANICAL / OPTIONAL ELECTRICAL). HOT GAS BY PASS IS NOT ACCEPTABLE AS A CAPACITY CONTROL..
DIRECT-DRIVE, VERTICAL DISCHARGE CONDENSER FANS MUST BE PROVIDED WITH BUILT-IN THERMAL OVERLOAD PROTECTION.	SUPPLY AIR SENSOR SHALL BE FURNISHED WITH UNIT. INSTALLING CONTRACTOR SHALL INSTALL REMOTE MOUNTED SUPPLY AIR SENSOR IN SUPPLY AIR DUCT AND LAND FIELD WIRE TO CONNECTIONS TO THE UNIT.	THE RCC SETPOINT IS FACTORY SET, AND FIELD ADJUSTABLE, TO MAINTAIN DESIRED SUCTION PRESSURE AND COMPRESSOR DISCHARGE PRESSURE.
UNIT(S) SHALL HAVE LABELS, DECALS, AND/OR TAGS TO AID IN THE SERVICE OF THE UNIT AND INDICATE CAUTION AREAS.	SPACE TEMP AND RH HUMIDITY STAT(S) SHALL BE FURNISHED AND FIELD WIRED TO UNIT BY THE INSTALLING CONTRACTOR.	CAPACITY CONTROL FOR UNITS EQUIPPED WITH DIGITAL SCROLL COMPRESSORS AND SHALL BE ACCOMPLISHED THROUGH A 0-10V SIGNAL BY THE MCM TO THE COMPRESSOR CONTROLS.
UNIT(S) SHALL BE DEDICATED DOWNFLOW OR DEDICATED, THRU CURB HORIZONTAL AIRFLOW AS MANUFACTURED.	FULLY MODULATING HOT-GAS REHEAT SHALL BE ENABLED IN DEHUMIDIFICATION MODE AND COOLING MODE WITH MODULATION CONTROLLED BY MCM TO MAINTAIN (SUPPLY AIR TEMPERATURE / SPACE TEMPERATURE).	REFRIGERATION SYSTEM:
WIRING INTERNAL TO THE UNIT SHALL BE COLORED AND NUMBERED FOR IDENTIFICATION.	SYSTEMS CONTROLS SHALL BE DIGITAL, PROGRAMMABLE TYPE WITH ACCESS VIA FACTORY INSTALLED AND WIRED TOUCHSCREEN, OR THROUGH PORTABLE COMPUTER CONNECTION. ALL SETPOINTS, UNIT FUNCTIONS, AND STATUS SHALL BE ACCESSIBLE VIA THE TOUCHSCREEN OR PORTABLE COMPUTER.	COMPRESSOR(S): ALL UNITS SHALL HAVE DIRECT-DRIVE, HERMETIC, SCROLL TYPE COMPRESSORS OR DIGITAL SCROLL WITH CENTRIFUGAL TYPE OIL PUMPS.
UNIT CASING	FACTORY PROVIDED DDC CONTROLLER WITH INTERFACE TO UNITY CONTROLLER SHALL BE PROVIDED. COORDINATE UNITY CONTROLLER INTEGRATION REQUIREMENTS WITH CONTROLS VENDOR FOR TOWN OF TRUMBULL.	MOTOR SHALL BE SUCTION GAS-COOLED AND SHALL HAVE A VOLTAGE UTILIZATION RANGE OF PLUS OR MINUS 10 PERCENT OF UNIT NAMEPLATE VOLTAGE.
CABINET: ZINC-COATED, HEAVY GAUGE, GALVANIZED STEEL. EXTERIOR SURFACES SHALL BE CLEANED, PHOSPHATED, AND FINISHED WITH A WEATHER-RESISTANT BAKED ENAMEL FINISH. UNIT'S SURFACE SHALL BE TESTED 672 HOURS IN A SALT SPRAY TEST IN COMPLIANCE WITH ASTM B46. STRUCTURAL MEMBERS SHALL BE A MINIMUM OF 16 GAUGE WITH ACCESS DOORS AND REMOVABLE PANELS OF MINIMUM 20 GAUGE.	FANS AND MOTORS	INTERNAL OVERLOADS SHALL BE PROVIDED WITH THE SCROLL COMPRESSORS.
PANELS: 2" DOUBLE-WALL, FOAMED PANEL CONSTRUCTION THROUGHOUT THE INDOOR SECTION OF UNIT TO PROVIDE NON-POROUS, CLEANABLE INTERIOR SURFACES. ALL INTERIOR SEAMS EXPOSED TO AIRFLOW SHALL BE SEALED.	INDOOR FAN SHALL BE DIRECT DRIVE PLENUM FAN, FACTORY INSTALLED AND WIRED TO ON-BOARD VARIABLE FREQUENCY DRIVE AND SHALL BE EQUIPPED WITH SLIDE OUT SERVICE ACCESS.	EACH COMPRESSOR SHALL HAVE A CRANKCASE HEATER TO MINIMIZE THE AMOUNT OF LIQUID REFRIGERANT PRESENT IN THE OIL SUMP DURING OFF CYCLES.
INSULATION: 2" POLYISOCYANURATE FOAM METAL ENCAPSULATED WITH NO EXPOSED EDGES. INITIAL R VALUE OF 6.6 PER INCH OF THICKNESS.	ALL FAN MOTORS SHALL BE PREMIUM EFFICIENCY ODP AND MEET THE U.S. ENERGY POLICY ACT OF 2005/10 (EPACT).	EACH COMPRESSOR SHALL BE MOUNTED ON RUBBER VIBRATION ISOLATORS, TO REDUCE THE TRANSMISSION OF NOISE.
CABINET CONSTRUCTION SHALL PROVIDE ACCESS PANELS FOR ALL PARTS REQUIRING SERVICE.	ALL FAN MOTORS SHALL EITHER BE PERMANENTLY LUBRICATED AND/ OR HAVE INTERNAL THERMAL OVERLOAD PROTECTION.	PROVIDE EACH UNIT WITH HERMETICALLY SEALED REFRIGERANT CIRCUIT(S) FACTORY-SUPPLIED COMPLETELY PIPED WITH LIQUID LINE FILTER-DRIER, LIQUID LINE CHARGING PORT, SUCTION AND LIQUID LINE PRESSURE PORTS, SIGHT GLASS, AND THERMAL EXPANSION VALVE.
CABINET TOP COVER SHALL BE A ONE PIECE CONSTRUCTION OR WHERE SEAMS EXIST, IT SHALL BE DOUBLE-HEMMED AND GASKET-SEALED.	OUTDOOR FANS SHALL BE DIRECT DRIVE WITH PREMIUM EFFICIENCY MOTORS, STATICALLY AND DYNAMICALLY BALANCED, DRAW THROUGH IN THE VERTICAL DISCHARGE POSITION.	PROVIDE EACH CIRCUIT WITH AUTOMATIC RESET HIGH AND LOW PRESSURE SWITCHES FOR SAFETY CONTROL.
PANELS: WATER- AND AIR-TIGHT HINGED PANELS WITH HANDLES SHALL PROVIDE ACCESS TO FILTERS, HEATING SECTION: OPTIONAL ERV AND POWER EXHAUST FAN SECTION, SUPPLY AIR FAN SECTION, EVAPORATOR COIL SECTION, AND UNIT CONTROL SECTION. DOOR HARDWARE SHALL BE ORIENTED TO ALLOW THE DOOR SWING TO BE REVERSED.	PROVIDE SHAFTS CONSTRUCTED OF SOLID HOT ROLLED STEEL, GROUND AND POLISHED, WITH KEY-WAY, AND PROTECTIVELY COATED WITH LUBRICATING OIL.	BUILDING MANAGEMENT SYSTEM:
LATCHES WITH HOLD DOWN HOOKS WILL BE FACTORY INSTALLED ON HINGED ACCESS DOORS.	MODULATING INDIRECT GAS-FIRED BURNER HEATING SECTION	INTERFACE CONTROL MODULE SYSTEM TO BE FURNISHED AND MOUNTED BY ROOFTOP UNIT MANUFACTURER. THE INTERFACE MODULE WITH NECESSARY CONTROLS AND SENSORS SHALL ALL BE FACTORY MOUNTED (NOT FIELD MOUNTED).
UNIT SHALL INCLUDE A MOTOR OPERATED OUTSIDE AIR DAMPER AND OPTIONAL RETURN AIR DAMPER. ASSEMBLY CONSTRUCTED OF GALVANIZED STEEL, AND AIR FOIL BLADES WITH RUBBER EDGE SEALS. DAMPER BLADES SHALL BE DESIGNED TO HAVE NO MORE THAN 4 CFM OF LEAKAGE PER SQ FT OF DAMPER AREA AND SHALL EXCEED ASHRAE 90.1 REQUIREMENTS. LINKAGE SHALL BE CONCEALED OUT OF AIRSTREAM, WITHIN THE DAMPER FRAME TO REDUCE PRESSURE AND NOISE. DAMPER ASSEMBLY SHALL BE CONTROLLED BY A SPRING RETURN TWO POSITION FOR FULLY MODULATING ACTUATOR. DAMPERS SHALL NOT BE SIZED FOR AIR VELOCITIES EXCEEDING 2000 FPM.	COMPLETELY ASSEMBLED AND FACTORY INSTALLED HEATING SYSTEM SHALL BE INTEGRAL TO UNIT AND APPROVED FOR USE DOWNSTREAM FROM REFRIGERANT COOLING COILS IN UNITS MOUNTED OUTDOORS. THREADED GAS CONNECTION SHALL TERMINATE AT MANUAL SHUT-OFF VALVE PROVIDED WITH UNIT. PROVIDE CAPABILITY FOR SIDEWALL OR THRU-BASE GAS PIPING.	CONTROL FUNCTIONS: OCCUPIED/UNOCCUPIED MODE, DEMAND LIMITING, CONDITIONING MODE SET POINTS, DISCHARGE AIR SET POINT ADJUSTMENT, AND ALARM SHUTDOWN
TYPE 430 STAINLESS STEEL DRAIN PAN SLOPED IN TWO DIRECTIONS TO ENSURE POSITIVE DRAINAGE. PAN SHALL HAVE A MINIMUM DEPTH OF 2". SEAMS EXPOSED TO STANDING WATER SHALL BE WELDED LIQUID TIGHT. BASE OF PAN SHALL BE INSULATED WITH 1" THICK FOAM INSULATION.	THE UNIT SHALL HAVE FULLY MODULATING, HIGH TURNDOWN AND INDIRECT GAS-FIRED HEAT. THE HEATING SECTION WILL INCLUDE HIGH TURN-DOWN BURNERS FIRING INTO INDIVIDUAL STAINLESS STEEL TUBULAR HEAT EXCHANGERS. THE HEAT EXCHANGERS SHALL BE CONSTRUCTED OF TYPE 409 STAINLESS STEEL AND BE A TUBULAR DESIGN CAPABLE OF DRAINING INTERNAL CONDENSATE. EXTERNAL FLUE TO BE CONSTRUCTED OF STAINLESS STEEL AND BE FULLY INSULATED. UNITS WITH MULTIPLE HEATERS SHALL INCLUDE ONE FULLY MODULATING HIGH TURNDOWN HEATER WITH ADDITIONAL ON-OFF HEATER SECTIONS. TOTAL HEATER TURNDOWN SHALL BE MINIMUM LISTED BELOW OR HIGHER.	DIAGNOSTIC FUNCTIONS: INCLUDE SUPPLY FAN STATUS, FILTER STATUS, OUTSIDE AIR DAMPER STATUS,
PROVIDE OPENINGS EITHER ON SIDE OF UNIT OR THRU THE BASE FOR POWER, CONTROL, AND GAS CONNECTIONS.	GAS BURNER SAFETY CONTROLS: PROVIDE SAFETY CONTROLS FOR THE PROVING OF COMBUSTION AIR PRIOR TO IGNITION, AND CONTINUOUS FLAME SUPERVISION.	PROVIDE CAPABILITIES FOR BOOLEAN PROCESSING AND TREND LOGS AS WELL AS "TEMPLATED" REPORTS AND LOGS.
THE BASE OF THE UNIT SHALL HAVE PROVISIONS FOR FORKLIFT AND CRANE LIFTING	TIMED FREEZE STAT SHALL MONITOR HEAT OUTPUT AND SHALL DISCONTINUE ALL HEATING ATTEMPTS AND OR UNIT OPERATION IN THE EVENT THE HEATING SECTION FAILS TO IGNITE OR FAILS TO MAINTAIN PROGRAMMED SUPPLY AIR TEMPERATURE/TIME.	ROOF CURB:
POWER WIRING	INDUCER FAN SHALL BE DIRECT DRIVE HIGH PRESSURE CENTRIFUGAL TYPE WITH TWO SPEEDS AND SHALL INCLUDE BUILT-IN THERMAL OVERLOAD PROTECTION.	CONTRACTOR SHALL PROVIDE ROOF ADAPTER CURB WITH 2" SPRING ISOLATORS. 18 GAUGE PERIMETER MADE OF ZINC COATED STEEL WITH SUPPLY AND RETURN AIR GASKETING AND WOOD NAILER STRIPS. SHIP KNOCKED DOWN AND PROVIDED WITH INSTRUCTIONS FOR EASY ASSEMBLY.
FIELD WIRING ACCESS TO BE PROVIDED THRU UNIT BASE INTO ISOLATED ENCLOSURE WITH REMOVABLE COVER.	LIMIT CONTROLS: HIGH TEMPERATURE AUTOMATIC RESET LIMIT CONTROLS WILL SHUT OFF GAS FLOW IN THE EVENT OF EXCESSIVE TEMPERATURES RESULTING FROM RESTRICTED INDOOR AIRFLOW, LOSS OF INDOOR AIRFLOW OR FLAME ROLLOUT.	CURB SHALL BE MANUFACTURED IN ACCORDANCE WITH THE NATIONAL ROOFING CONTRACTORS ASSOCIATION GUIDELINES.
POWER WIRING TO BE SINGLE POINT CONNECTION.	EVAPORATOR CONDENSER AND REHEAT COILS:	ACCESSORIES:
UNIT SHALL BE FACTORY WIRED TO FIELD WIRING TERMINAL BLOCK MOUNTED IN ISOLATED ENCLOSURE.	EVAPORATOR AND HOT GAS REHEAT COILS SHALL BE CONSTRUCTED OF COPPER TUBES MECHANICALLY BONDED TO A CONFIGURED ALUMINUM PLATE FIN. HOT GAS REHEAT COIL SHALL HAVE A SERIES OF FLAT TUBES CONTAINING A SERIES OF MULTIPLE PARALLEL FLOW MICROCHANNELS LAYERED BETWEEN THE REFRIGERANT MANIFOLDS. COIL CONSTRUCTION SHALL CONSIST OF ALUMINUM ALLOYS FOR FINS, TUBES, AND MANIFOLDS IN COMBINATION WITH A CORROSION-RESISTANT COATING.	DUPLEX RECEPTACLE: FACTORY MOUNTED IN UNIT SUPPLY-FAN SECTION, WITH 20 AMP 120 V GFI DUPLEX RECEPTACLE AND WEATHERPROOF COVER.
FACTORY WIRED MAIN POWER DISCONNECT DEVICE, OVERCURRENT AND SCCA RATED FOR TOTAL UNIT POWER CONNECTION.	COILS SHALL BE LEAK TESTED AT THE FACTORY TO ENSURE PRESSURE INTEGRITY. THE EVAPORATOR COIL, REHEAT COIL AND CONDENSER COIL SHALL BE LEAK TESTED TO 500 PSIG AND PRESSURE TESTED TO 500 PSIG.	FIRING RANGE UNIT (MAU-1):
FACTORY INSTALLED SAFETY BARRIER SHALL ISOLATE ALL HIGH VOLTAGE COMPONENTS, MOUNTED INSIDE ELECTRICAL COMPARTMENT, TO PROTECT SERVICE PERSONNEL FROM INCIDENTAL CONTACT.	THE CONDENSER COIL SHALL HAVE A FIN DESIGNED FOR EASE OF CLEANING.	AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH SPECIFICATIONS CONTAINED WITHIN THIS DOCUMENT, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE BUT ARE NOT LIMITED TO: GREENHECK FAN CORPORATION
FACTORY WIRED PHASE MONITOR SHALL BE INCLUDED AS STANDARD.	CABINET:	MANUFACTURED UNITS:
		UNIT SHALL BE FULLY ASSEMBLED AT THE FACTORY AND CONSIST OF AN INSULATED METAL CABINET, [DOWNTURN OUTDOOR AIR INTAKE WITH 2" ALUMINUM MESH FILTER ASSEMBLY] EVAPORATOR COIL, CONDENSATE DRAIN PAN, HOT GAS REHEAT COIL, INDIRECT GAS FURNACE, PACKAGED DX SYSTEM, [PHASE AND BROWNSTONE PROTECTION], (MOTORIZED DAMPERS), MOTORIZED RECYCLING DAMPER, SENSORS, CURB ASSEMBLY, SERVICE RECEPTACLE, FILTER ASSEMBLY FOR INTAKE AIR, SUPPLY AIR BLOWER ASSEMBLY, AND AN ELECTRICAL CONTROL CENTER. ALL SPECIFIED COMPONENTS AND INTERNAL ACCESSORIES FACTORY INSTALLED ARE TESTED AND PREPARED FOR SINGLE-POINT HIGH VOLTAGE CONNECTION.
		MATERIALS: FORMED, DOUBLE WALL INSULATED METAL CABINET, FABRICATED TO PERMIT ACCESS TO



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SPECIFICATIONS -  
MECHANICAL

PROJ. NO.	JH1626	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2016	

M-5.3

## MECHANICAL SPECIFICATIONS

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## COVER SHEET - ELECTRICAL

GENERAL NOTES	
<u>GENERAL</u>	<u>MECHANICAL EQUIPMENT WIRING:</u>
1. WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUANTITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.	1. UNLESS OTHERWISE INDICATED OR SPECIFIED HEREIN, ALL MOTORS, MOTOR STARTERS, MOTOR CONTROLLERS, VARIABLE SPEED/FREQUENCY DRIVES, AND ASSOCIATED CONTROL DEVICES ARE FURNISHED UNDER OTHER DIVISIONS AND INSTALLED UNDER THIS DIVISION. COORDINATE INSTALLATION AND LOCATIONS WITH OTHER DIVISION CONTRACTORS.
<u>WIRING &amp; RACEWAY:</u>	
1. THE DRAWINGS SHOW THE GENERAL LAYOUT AND TYPICAL DETAILS. PROVIDE COMPLETE SYSTEMS. DRAWINGS ARE BASED ON THE SPECIFIED EQUIPMENT, RACEWAY LAYOUTS, BOXES, AND WIRING OF THE SYSTEMS ARE SUBJECT TO APPROVED SHOP DRAWINGS.	2. POWER WIRING FROM THE INDICATED SOURCE TO THE STARTER/CONTROLLER/DRIVE UNIT, AND FROM THE STARTER/CONTROLLER/DRIVE UNIT TO THE MOTOR, INCLUDING ANY LOCAL DISCONNECT SWITCHES PROVIDED AND INSTALLED BY THIS DIVISION, AND ALL ASSOCIATED LUGS, TERMINALS, AND CONNECTIONS, IS THE WORK OF THIS DIVISION.
2. ENSURE THAT ITEMS TO BE FURNISHED FIT THE SPACE AVAILABLE. MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS, AND PROVIDE SUCH SIZES AND SHAPES OF EQUIPMENT THAT FINAL INSTALLATION SHALL SATISFY THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.	3. CONTROL CIRCUIT WIRING IS GENERALLY FURNISHED AND INSTALLED UNDER OTHER DIVISIONS, EXCEPT THAT ANY SUCH WIRING SHOWN ON ELECTRICAL DRAWINGS IS WORK OF THIS DIVISION.
3. LOCATIONS OF OUTLETS, SWITCHES, APPLIANCES, ETC. AS SHOWN ON ELECTRICAL PLANS ARE APPROXIMATE; COORDINATE WITH ARCHITECTURAL AND MECHANICAL PLANS AND DETAILS. AND WITH JOB CONDITIONS, INSTALL SWITCHES WITH 'OFF' POSITION DOWN. INSTALL RECEPTACLES WITH GROUNDING POLE IN THE UP POSITION FOR VERTICAL MOUNTING AND AT LEFT FOR HORIZONTAL MOUNTING.	4. COOPERATE AND COORDINATE WITH THE OTHER TRADES IN THE INSTALLATION, CONNECTION, AND TESTING OF MECHANICAL EQUIPMENT. PERFORM WORK OF THIS SECTION IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS' INSTRUCTIONS.
<u>RACEWAY INSTALLATION:</u>	<u>COORDINATION DRAWINGS:</u>
1. IN ALL ARCHITECTURALLY FINISHED SPACES, CONDUITS AND CABLES SHALL BE RUN CONCEALED IN HUNG OR FURRED CEILINGS, SLABS, MASONRY, AND PARTITIONS UNLESS OTHERWISE INDICATED. SAW CUTTING AND FINISHED PATCHING SHALL BE REQUIRED IN EXISTING SLABS AND MASONRY WALLS. IN UNFINISHED SPACES, RACEWAYS MAY BE RUN EXPOSED.	1. DEVELOP AND SUBMIT COORDINATION DRAWINGS AS OUTLINED.
2. UNLESS OTHERWISE INDICATED, EXACT ROUTING OF RACEWAYS SHALL BE DETERMINED BY THE CONTRACTOR TO SUIT PROJECT REQUIREMENTS AND FIELD CONDITIONS.	A. SHEET METAL AND PLUMBING SHOP DRAWINGS THAT HAVE BEEN COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. DRAWINGS MUST BE RETURNED FROM ENGINEER EITHER "REVIEWED" OR "FURNISH AS CORRECTED" PRIOR TO BEING USED AS BASIS FOR COORDINATION DRAWINGS.
3. PROVIDE SEPARATE RACEWAYS, JUNCTION BOXES, PULL BOXES AND WIREWAYS FOR ALL EMERGENCY SYSTEM WIRING.	B. AFTER SHEET METAL AND PIPING DRAWINGS HAVE BEEN REVISED PER ENGINEERS COMMENTS, REPRODUCIBLE COPIES SHALL BE SENT TO THE TRADES IN THE FOLLOWING SEQUENCE FOR THE INCLUSION OF THEIR WORK:
	MECHANICAL SHEET METAL -PLUMBING PIPING -MECHANICAL PIPING -ELECTRICAL WORK
<u>WIRING INSTALLATION:</u>	2. AFTER ALL TRADES HAVE INCLUDED THEIR WORK ON THE COORDINATION DRAWING AND NOTED CONFLICTS, ALL TRADES SHALL MEET TO RESOLVE CONFLICTS AND AGREE TO ACCEPTABLE SOLUTIONS. EACH TRADE SHALL SIGN COORDINATION DRAWINGS. ITEMS NOT SHOWN ON COORDINATION DRAWING IS RESPONSIBILITY OF OMITTING CONTRACTOR AND CONTRACTOR IS SUBJECT TO ADDITIONAL COSTS INCURRED BY OTHER TRADES.
1. DO NOT USE WIRE SMALLER THAN NO. 12 AWG FOR ANY POWER OR LIGHTING CIRCUIT. USE LARGER SIZES WHERE INDICATED, AS REQUIRED BY CODES, AND AS FOLLOWS:	3. THE ARCHITECT AND ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE FOR NOTED CONFLICTS ONLY. COORDINATION DRAWINGS ARE NOT TO BE CONSIDERED PIPING OR DUCT SHOP DRAWINGS. THE CONTRACTOR IS REQUIRED TO SUBMIT INDIVIDUAL PIPING AND DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. PIPING AND DUCTWORK SHOP DRAWINGS SHALL FOLLOW THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.
30 AMPERE CIRCUIT: NO. 10 40 AMPERE CIRCUIT: NO. 8 50 AMPERE CIRCUIT: NO. 6 60 AMPERE CIRCUIT: NO. 4	4. SUBMIT FINAL SIGNED COORDINATION DRAWING TO ENGINEER FOR REVIEW. ENGINEER WILL REVIEW COORDINATION DRAWINGS FOR GENERAL ARRANGEMENT AND FOR NOTED CONFLICTS ONLY. SPECIFIC INSTALLATION REQUIREMENTS WILL BE REVIEWED ONLY IN INDIVIDUAL TRADE SHOP DRAWINGS.
A. MINIMUM HOMERUN AND BRANCH CIRCUIT WIRING SIZES AND MAXIMUM HOMERUN CONDUIT FILL FOR 120 VOLT, 20 AMPERE CIRCUITS SHALL BE AS FOLLOWS:	5. ANY WORK FABRICATED OR INSTALLED PRIOR TO SIGN OFF BY ALL TRADES WHICH IS DEEMED TO BE IN CONFLICT WITH COORDINATION DRAWINGS SHALL BE REMOVED AND RE-INSTALLED IN CONFORMANCE WITH COORDINATION DRAWINGS.
LENGTH CIRCUIT WIRE SIZE HOME RUN WIRE SIZE CONDUIT SIZE (8 WIRES/CONDUIT)	6. EACH CONTRACTOR (MENTIONED ABOVE) IS RESPONSIBLE FOR THE COORDINATION OF HIS SUB-CONTRACTORS.
0' TO 50' #12 #12 3/4"	7. THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BEAR ADDITIONAL COST.
51' TO 100' #12 #10 3/4"	<u>AS BUILT DRAWINGS</u>
101' TO 200' #10 #8 1"	1. PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC (AUTO-CAD VERSION AS REQUIRED BY THE OWNER) VERSION. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.
	2. PROVIDE "AS-BUILT DRAWINGS" INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN OF THE WORK. INDICATE THE FOLLOWING INSTALLED CONDITIONS:
<u>UNIT PRICING:</u>	A. INCLUDE ALL CHANGES AND AN ACCURATE RECORD, ON REPRODUCTIONS OF THE CONTRACT DRAWINGS OR APPROPRIATE SHOP DRAWINGS, OF ALL DEVIATIONS, BETWEEN THE WORK SHOWN AND WORK INSTALLED.
1. CONTRACTOR SHALL PROVIDE UNIT COST FOR THE PROVISION AND INSTALLATION OF AN EXIT SIGN AND 50' OF CONDUIT AND WIRE AT TIME OF BID. THIS PRICING WILL BE HELD FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL ASSUME 6 EXIT SIGNS SHALL BE PROVIDED. WORK SHALL BE COMPLETED PRIOR TO SYSTEM APPROVAL AND AS-BUILT DOCUMENTATION, PATCH AND PAINT WORK SHALL NOT BE INCLUDED IN THE ELECTRICAL CONTRACTOR'S UNIT PRICE VALUES. FIRE STOPPING PENETRATIONS SHALL BE INCLUDED.	B. EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT BUILDING LINES.
<u>GROUNDING INSTALLATION:</u>	C. APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.
1. EQUIPMENT GROUNDING	D. CONTRACT MODIFICATIONS, ACTUAL EQUIPMENT AND MATERIALS INSTALLED.
A. INCLUDE AN INSULATED GROUND CONDUCTOR IN ALL CONDUIT RUNS CONTAINING SECTIONS OF FLEXIBLE CONDUIT UNLESS OTHERWISE NOTED.	E. SUBMIT FOR REVIEW BOUND SETS OF THE REQUIRED DRAWINGS, MANUALS AND OPERATING INSTRUCTIONS.
B. INCLUDE AN INSULATED GROUND CONDUCTOR IN ALL BRANCH CIRCUIT RACEWAYS OR CABLES UNLESS OTHERWISE NOTED.	F. SUBMIT A COMPLETE MAINTENANCE MANUAL OF ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT.
<u>RACEWAYS FOR TELECOMMUNICATION SYSTEMS:</u>	
1. PROVIDE EMPTY CONDUIT SYSTEMS FOR TELECOMMUNICATION WORK, COMPLETE WITH PULL BOXES, OUTLET BOXES, AND CONDUIT AS INDICATED ON THE DRAWINGS.	
2. PROVIDE MINIMUM INSIDE BENDING RADIUS OF 10 TIMES CONDUIT INSIDE DIAMETER FOR TELECOMMUNICATIONS RACEWAYS.	
3. WHEN COMPLETED THE CONDUIT SYSTEMS SHALL BE READY FOR THE INSTALLATION OF WIRING AND EQUIPMENT.	
4. FROM EACH OUTLET PROVIDE AN EMPTY EMT CONDUIT ROUTED INTO THE CEILING CAVITY OR TO THE CLOSEST TELECOMMUNICATIONS CLOSET. PROVIDE A DRAG LINE IN EACH RUN AND TERMINATE IN A BUSHED ELBOW. REFER TO DETAIL 3(E-6).	

ELECTRICAL DRAWING LIST	
DRAWING NUMBER	DRAWING DESCRIPTION
E-0.1	COVER SHEET - ELECTRICAL
E-0.2	LIGHTING FIXTURE SCHEDULE - ELECTRICAL
ED-1.1	LOWER LEVEL DEMOLITION FLOOR PLAN - ELECTRICAL
ED-1.2	ROOF DEMOLITION PLAN - ELECTRICAL
E-1.1	LOWER LEVEL FLOOR PLAN - ELECTRICAL
E-1.2	ROOF PLAN - ELECTRICAL
E-2.1	LOWER LEVEL REFLECTED CEILING PLAN - LIGHTING
E-6.1	DETAILS - ELECTRICAL
E-7.1	SPECIFICATIONS - ELECTRICAL

ELECTRICAL SYMBOLS	
A	LIGHTING FIXTURE, UPPERCASE LETTER INDICATES TYPE, # INDICATES CIRCUIT, LOWERCASE LETTER INDICATES LIGHTING ZONE (TYP)
A	EMERGENCY LIGHTING FIXTURE WITH EMERGENCY BATTERY
S <sub>a</sub>	SINGLE POLE SWITCH, LETTER INDICATES LIGHTING ZONE (TYP)
S <sub>lv</sub>	LOW VOLTAGE SWITCH
S <sub>lp</sub>	LOW VOLTAGE PILOT LIGHT SWITCH
S <sub>ld</sub>	LOW VOLTAGE DIMMER SWITCH
S <sub>oc</sub>	WALL MOUNTED OCCUPANCY SENSOR WITH MANUAL OVERRIDE
D <sub>360</sub>	CEILING MOUNTED DUAL TECHNOLOGY 360° OCCUPANCY SENSOR
V <sub>360</sub>	CEILING MOUNTED DUAL TECHNOLOGY 360° VACANCY SENSOR
R	EMERGENCY LIGHTING BYPASS RELAY - COORDINATE WITH ARCHITECT FOR MOUNTING HEIGHT AND LOCATION, (REFER TO DETAIL)
D	DUPLEX CONVENIENCE RECEPTACLE - 18" AFF U.O.N.
D <sub>GF</sub>	DUPLEX CONVENIENCE RECEPTACLE - GROUND FAULT INTERRUPTING - 18" AFF U.O.N.
D <sub>U</sub>	DUPLEX CONVENIENCE RECEPTACLE MOUNTED ABOVE COUNTERTOP
D <sub>GU</sub>	DUPLEX CONVENIENCE RECEPTACLE - GROUND FAULT INTERRUPTING - MOUNTED ABOVE COUNTERTOP
Q	QUAD CONVENIENCE RECEPTACLE - 18" AFF U.O.N.
D <sub>Q</sub>	NON-FUSED DISCONNECT SWITCH
F	FUSED DISCONNECT SWITCH
M <sub>HP</sub>	MOTOR, # INDICATES HORSEPOWER
FAS	FIRE ALARM MANUAL PULL STATION - 48" AFF U.O.N.
FS	FIRE ALARM SPEAKER/STROBE - 80" AFF U.O.N.
FL	FIRE ALARM STROBE LIGHT - 80" AFF U.O.N.
S	SMOKE DETECTOR
H	HEAT DETECTOR
D <sub>DM</sub>	DUCT MOUNTED SMOKE DETECTOR
SP	SURFACE MOUNTED PANELBOARD AND CLEARANCE
CONDUCTOR	CONDUCTOR
X#	BRANCH CIRCUIT HOMERUN (X = PANELBOARD, # = CIRCUIT NO.)

ELECTRICAL ABBREVIATIONS	
A	AMPERES
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
C/B	CIRCUIT BREAKER
CKT	CIRCUIT
E.C.	ELECTRICAL CONTRACTOR
EM	EMERGENCY
ER	EXISTING RELOCATED
ETBR	EXISTING TO BE RELOCATED
ETR	EXISTING TO REMAIN
FBO	FURNISHED BY OTHERS
G	GROUND
JB	JUNCTION BOX
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
MTD	MOUNTED
PNL	PANEL
TP	TRAP PRIMER
U.O.N.	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT-AMPERES
WP	WEATHER PROOF

ALTERNATES	
1.	ADD ALTERNATE #1: EXISTING CELL COMBY TOILETS SHALL BE REPLACED. PROVIDE 20A/H CIRCUIT BREAKER IN PANEL A TO ENERGIZE ALL COMBY TOILET ELECTRONIC VALVES. PROVIDE BOXES AS REQUIRED AND CONNECT WITH #H12 + G - 3/4".
2.	ADD ALTERNATE #2: ALL WORK ASSOCIATED WITH EVIDENCE STORAGE AND PHYSICAL TRAINING ROOMS.

TEMPORARY TOILET FACILITY	
1.	PROVIDE (4) 20A/1 CIRCUIT BREAKERS IN PANEL A TO ENERGIZE TEMPORARY TOILET FACILITY. CIRCUIT BREAKERS SHALL BE COMPATIBLE WITH EXISTING PANELBOARD. COORDINATE EXACT LOCATION WITH OWNER. TEMPORARILY CONNECT WITH #H12 + G MC CABLE.



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**LIGHTING FIXTURE SCHEDULE - ELECTRICAL**

PROJ. NO.	JH1828	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2018	

**E-0.2**

## DEMOLITION AND REMOVALS

- THE EXISTING FACILITY WILL BE OCCUPIED AND IN OPERATION DURING THE PERFORMANCE OF THE WORK.
- WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING FEEDER OR BRANCH CIRCUIT SUPPLYING OCCUPIED FACILITIES, CONFER WITH THE OWNER, AND SCHEDULE A MUTUALLY AGREEABLE PERIOD OF INTERRUPTION.
- WHERE REPLACEMENT, RELOCATION OR MODIFICATION OF EXISTING EQUIPMENT IS INDICATED, PROVIDE AND MAINTAIN ALL TEMPORARY FEEDERS, CONNECTIONS, CIRCUIT PROTECTION, AND ANY OTHER MATERIALS AND APPURTENANCES REQUIRED TO MAINTAIN SERVICES TO OCCUPIED AREAS.
- NO WORK SHALL BE LEFT INCOMPLETE, NOR ANY HAZARDOUS SITUATION CREATED, WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. AT NO TIME SHALL THE WORK INTERFERE WITH OR CUT OFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S PRIOR WRITTEN PERMISSION.
- THE OWNER RESERVES THE RIGHT TO OPERATE ALL EXISTING ELECTRICAL AND MECHANICAL EQUIPMENT NOT INCLUDED IN THIS WORK, AND TO PERFORM ALL REQUIRED SERVICING AND REPAIRS TO SAME, AT ALL TIMES.
- IT IS REQUIRED THAT THE WORK INDICATED AND/OR SPECIFIED SHALL BE CARRIED OUT WITH A MINIMUM OF INTERFERENCE TO THE ESTABLISHED OPERATIONS OF THE BUILDING.
- REMOVE, ABANDON, REROUTE, OR RELOCATE ANY CONDUIT, WIRING, LIGHTING FIXTURES, OUTLETS, AND OTHER ELECTRICAL ITEMS, WHICH ARE LAID BARE IN THE COURSE OF, OR INTERFERE WITH, THE ALTERATIONS REMOVE ALL EXPOSED OUTLETS, CONDUIT, AND BRANCH CIRCUIT WORK, WHICH INTERFERE WITH THE ALTERATIONS.
- IT IS THE INTENTION OF THESE SPECIFICATIONS TO PROVIDE FOR THE CONTINUANCE OF ALL ELECTRICAL SERVICES PRESENTLY INSTALLED IN THE UNALTERED AREAS. PROVIDE ALL CONDUIT, WIRING, AND DEVICES NECESSARY TO MAINTAIN SERVICES TO THESE AREAS.
- COMPARE THE PLANS WITH THE EXISTING CONDITIONS TO DETERMINE THE AMOUNT OF WORK AFFECTED. REMOVE ALL UNUSED EXPOSED CIRCUIT WORK, OUTLETS, FIXTURES AND THE LIKE NOT REQUIRED BY THE ALTERATIONS.
- ALL MATERIALS REQUIRED TO BE REMOVED AND NOT REINSTALLED UNDER THIS DIVISION OF THE WORK, UNLESS OTHERWISE INDICATED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE REMOVED FROM THE SITE.
- WHERE FEEDERS AND BRANCH CIRCUITS OR DEVICES AND EQUIPMENT ARE INDICATED TO BE REMOVED, CONDUCTORS AND CABLES SHALL BE COMPLETELY REMOVED BACK TO THEIR SOURCE, EXPOSED OR ACCESSIBLE CONDUITS SHALL BE REMOVED COMPLETELY; CONDUITS EMBEDDED IN CONCRETE OR MASONRY SHALL BE CUT OFF FLUSH AND THE SURFACE PATCHED SMOOTH AND LEVEL.
- WHERE DEVICES AND/OR EQUIPMENT ARE INDICATED TO BE RELOCATED, CONDUCTORS AND RACEWAY SHALL BE EXTENDED TO THE NEW LOCATION AND RECONNECTED TO PROVIDE A COMPLETE WORKING SYSTEM. IF THERE ARE ASSOCIATED DEVICES WITH THE RELOCATED EQUIPMENT THEY SHALL BE RELOCATED AS WELL, UNLESS OTHERWISE NOTED, AND CONNECTED INTO THE SYSTEM.
- REMOVED MATERIALS SHALL BE DISPOSED OF USING LICENSED CARTING SERVICE.
- HAZARDOUS MATERIALS - CONTAINING PCB'S (BALLASTS), AND THE LIKE SHALL BE DISPOSED OF BY AN EPA APPROVED, LICENSED DISPOSAL SERVICE. CONTRACTOR SHALL OBTAIN AND HAVE ON FILE, AFFIDAVIT, AND RECEIPTS STATING HOW AND WHERE THE WASTE WAS DISPOSED OF OR CONVERTED.
- CONTRACTOR SHALL REMOVE ALL ELECTRICAL EQUIPMENT IN OR ON WALLS THAT ARE TO BE REMOVED. MAINTAIN CONTINUITY OF ALL EXISTING BRANCH CIRCUITRY TO EXISTING ROOMS NOT BEING RENOVATED. REWIRE ALL EXISTING BRANCH CIRCUITS (THAT ARE TO REMAIN AS REQUIRED. REFER TO ARCHITECTURAL DEMOLITION DRAWINGS FOR WALLS BEING REMOVED - REFER TO CONSTRUCTION SCHEDULE FOR TIME DELAY).
- CONDUIT IN EXISTING OR NEW CEILINGS THAT IS NOT INTENDED FOR REUSE SHALL BE REMOVED BACK TO THE PANEL FROM WHICH IT ORIGINATES.
- CONDUCTORS THAT ARE NOT DEEMED REUSABLE SHALL BE REMOVED BACK TO THE NEAREST JUNCTION BOX WHERE THE ENTIRE CIRCUIT IS TO BE REMOVED. THE CONDUCTORS SHALL BE REMOVED BACK TO THE PANELBOARD FROM WHICH THEY ORIGINATE.
- OUTAGES OF EXISTING ELECTRICAL (LIGHTING, POWER, AND SIGNAL) SYSTEMS NECESSITATED BY WORK OF ALL TRADES SHALL BE IN ACCORDANCE WITH FIELD SCHEDULES BY THE GENERAL CONTRACTOR AND OWNER - INCLUDE ALL ELECTRIC WORK OVERTIME AND SUPERVISION TO COMPLY - CONTRACTOR SHALL OBTAIN OWNER'S GENERAL CONTRACTOR'S APPROVAL PRIOR TO DISRUPTING EXISTING ELECTRICAL SYSTEM.
- CONTRACTOR TO MAINTAIN CONTINUITY AND ACCESSIBILITY OF ALL EXISTING SYSTEMS AND SYSTEM EQUIPMENT FEEDERS WHICH MAY BE DISRUPTED FOR WORK OF ANY TRADE.
- CONTRACTOR TO MAINTAIN CONTINUITY AND ACCESSIBILITY OF ALL EXISTING ELECTRICAL (POWER, LIGHTING, AND SIGNAL) SYSTEMS; EQUIPMENT FEEDERS AND BRANCH CIRCUITS ON FLOORS OR AREAS THAT ARE NOT AFFECTED BY DEMOLITION OR NEW CONSTRUCTION - REFER TO CONSTRUCTION SCHEDULE FOR ADDITIONAL INFORMATION.
- ANY EXISTING ELECTRICAL WORK WHICH IS PULLED OUT OR CUT AWAY SHALL BE REMOVED FROM THE SITE AS DIRECTED BY THE GENERAL CONTRACTOR AND THE OWNER.
- EXISTING ELECTRICAL EQUIPMENT WHICH IS NOT TO BE REUSED SHALL BE REMOVED FROM DRYWALL PARTITIONS. ANY OPENING IN EXISTING PARTITIONS LEFT BY REMOVAL OF EXISTING ELECTRICAL EQUIPMENT SHALL BE PATCHED BY THIS CONTRACTOR WITH MATERIALS TO MATCH EXISTING.
- FOR PURPOSES OF THE CONTRACT, WHAT IS NOTED OR SHOWN ON DRAWINGS INDICATES THE SCOPE OF WORK REQUIRED AND QUALITY OF MATERIALS REQUIRED.
- CONTRACTOR TO EXAMINE ALL CONTRACT DOCUMENTS AND PERFORM ALL DEMOLITION BOTH FOR AREAS BEING RENOVATED AND FOR AREAS WHICH MUST BE REWORKED TO PERMIT THE INSTALLATION OF WORK BY THE VARIOUS TRADES.
- CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE EXTENT OF DEMOLITION AND REMOVALS PRIOR TO THE SUBMISSION OF BIDS. NO CONSIDERATION SHALL BE GIVEN FOR FAILURE TO VISIT THE SITE.
- CONTRACTOR SHALL UTILIZE ALL THE BREAKERS IN THE EXISTING PANELS THAT BECOME AVAILABLE WHEN BRANCH CIRCUITS ASSOCIATED WITH THEM ARE DISCONNECTED AND REMOVED DUE TO DEMOLITION OF THE ELECTRICAL WORK.

## LIGHTING CONTROL SEQUENCE OF OPERATIONS

SPACE TYPE	LIGHTING CONTROL STRATEGY	DETAIL / DRAWING
LOCKER ROOM LIGHTING	LOCKER ROOM LIGHTING SHALL BE CONTROLLED BY EITHER A WALL SWITCH OCCUPANCY SENSOR (AUTOMATIC ON / AUTOMATIC OFF AFTER 30 MINUTES), OR A LOW VOLTAGE SWITCH(S) AND OCCUPANCY SENSOR(S) (AUTOMATIC ON / AUTOMATIC OFF AFTER 30 MINUTES). LOW VOLTAGE SWITCH SHALL NOT ALLOW THE OCCUPANT TO MANUALLY TURN OFF THE LIGHTING FIXTURES WITHIN THE SPACE. REFER TO THE RCPS FOR CONTROL TYPE.	4 / E-6.1
CLOSET, STORAGE, AND MISC. ROOM LIGHTING	STORAGE, CLOSET, AND ALL OTHER MISC. ROOM LIGHTING SHALL BE CONTROLLED BY EITHER A WALL SWITCH VACANCY SENSOR (MANUAL ON / AUTOMATIC OFF AFTER 30 MINUTES), OR A LOW VOLTAGE SWITCH(S) AND VACANCY SENSOR(S) (MANUAL ON / AUTOMATIC OFF AFTER 30 MINUTES). REFER TO THE RCPS FOR CONTROL TYPE.	4 / E-6.1
HALL LIGHTING	HALL LIGHTING SHALL BE CONTROLLED BY AN OCCUPANCY SENSOR(S) (AUTOMATIC ON / AUTOMATIC OFF AFTER 30 MINUTES).	4 / E-6.1

## LIGHTING FIXTURE NOTES

- ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LIGHTING FIXTURES COMPLETE WITH MOUNTING HARDWARE, LAMPS, DRIVERS, TRANSFORMERS, ETC.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND ARCHITECTURAL INTERIOR ELEVATIONS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHT FIXTURES.
- THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL CEILING TYPES AND/OR COORDINATE ALL FIXTURE TRIMS PRIOR TO PURCHASE OF LIGHT FIXTURES.
- WHERE DRIVERS AND CONTROL MODULES ARE TO BE MOUNTED REMOTE FROM FIXTURE, CONTRACTOR SHALL PROVIDE ALL CONDUIT, WIRE, BOXES AND MOUNTING HARDWARE FOR SUCH EQUIPMENT. CONTRACTOR SHALL COORDINATE LOCATION WITH FINISHES AND MILLWORK IN SPACE. SUCH REMOTE MOUNTED EQUIPMENT SHALL BE NOTED ON SUBMITTAL AND PROPOSED LOCATION INDICATED ON MARKED-UP LAYOUT DRAWING FOR REVIEW BY ARCHITECT AND ENGINEER.

## LIGHTING CONTROL NOTES

- IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL LIGHTING FIXTURES, LIGHTING CONTROL DEVICES, LOW-VOLTAGE & 120V WIRING, RACEWAYS, TRANSFORMERS, ETC. REFER TO LIGHTING LIGHTING FIXTURE SCHEDULE AND LIGHTING CONTROL DIAGRAMS FOR ALL REQUIREMENTS AND SPECIFICATIONS ON LIGHT FIXTURES, EQUIPMENT, DEVICES AND WIRING TO BE PROVIDED.
- FIXTURES DESIGNATED FOR USE AS EMERGENCY LIGHTING SHALL BE PROVIDED WITH ALL CONTROLS AND WIRING NECESSARY FOR AUTOMATIC ACTIVATION UPON LOSS OF POWER TO LIGHTING SERVING THE AREA. THE CONTROL MECHANISMS FOR ALL EMERGENCY LIGHTING FIXTURES SHALL BE ACCESSIBLE FROM FLOOR FOR MAINTENANCE, TESTING, AND VISUAL INDICATION OF STATUS OF EMERGENCY SYSTEM OPERATION. THE LOCATION OF SUCH DEVICES SHALL BE COORDINATED WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION. SUBMIT LAYOUT DRAWING FOR REVIEW.

## LIGHTING FIXTURE SCHEDULE

TYPE	LAMP	VOLTAGE	LUMENS	MOUNTING	DESCRIPTION
LED	120/277V	-	CEILING SURFACE	EDGE LIT LED EXIT SIGN, ALUMINUM HOUSING, RED STANDARD LETTER COLOR, MIRROR BACKGROUND, PROVIDE CHEVRONS AND SINGLE OR DOUBLE FACE AS INDICATED ON RCP, BATTERY BACKUP EVENLITE SOVEREIGN #SOV	
LED	120/277V	-	WALL SURFACE	EDGE LIT LED EXIT SIGN, ALUMINUM HOUSING, RED STANDARD LETTER COLOR, MIRROR BACKGROUND, SINGLE FACE, PROVIDE CHEVRONS AS INDICATED ON RCP, BATTERY BACKUP EVENLITE SOVEREIGN #SOV	
5.5W / FT LED	120/277V	650 LM / FT	CEILING SURFACE	4" FIXTURE, 3000K, MEDIUM OUTPUT, SATIN ACRYLIC SHIELDING, TEXTURED MATT WHITE, T-BAR EXPOSED, 10% 0-10V DIMMING, #EMH BATTERY WHERE IDENTIFIED ON DRAWINGS PRUDENTIAL LIGHTING #AERO-LED3-MO-4-SAL-TMV-UNV-SUR-X1-DM10	
5.5W / FT LED	120/277V	650 LM / FT	CEILING SURFACE	6" FIXTURE, 3000K, MEDIUM OUTPUT, SATIN ACRYLIC SHIELDING, TEXTURED MATT WHITE, T-BAR EXPOSED, 10% 0-10V DIMMING, #EMH BATTERY WHERE IDENTIFIED ON DRAWINGS PRUDENTIAL LIGHTING #AERO-LED3-MO-6-SAL-TMV-UNV-SUR-X1-DM10	
11W LED	120/277V	750 LM	CEILING RECESSED	6" SHALLOW ROUND DOWNLIGHT, 0-10V DIMMING, 93+ CRI, 3000K, SMOOTH STYLE, WHITE FINISH DMF LIGHTING #DRDH-N-IC-6S-70/DRD2M-7-9-30-A/DRD2T-R-6-S-WH	
8W / FT LED	120V	533 LM / FT	CEILING RECESSED	2" WALL WASH FIXTURE, 6" APERTURE, STANDARD OUTPUT, 3000K, TELESCOPING END, 0-10V DIMMING, RECESSED WALL TO WALL, ADJUSTMENT TRIM, GYP OR GRID FLAGNE, WHITE GAMMALUX LIGHTING #GPCAR8N-1SOLED30T-120V-ZTVL-3N-RECWAT/GFW-OP-WH	
8W / FT LED	120V	533 LM / FT	CEILING RECESSED	3" WALL WASH FIXTURE, 6" APERTURE, STANDARD OUTPUT, 3000K, TELESCOPING END, 0-10V DIMMING, RECESSED WALL TO WALL, ADJUSTMENT TRIM, GYP OR GRID FLAGNE, WHITE GAMMALUX LIGHTING #GPCAR8N-1SOLED30T-120V-ZTVL-3N-RECWAT/GFW-OP-WH	
8W / FT LED	120V	533 LM / FT	CEILING RECESSED	5" WALL WASH FIXTURE, 6" APERTURE, STANDARD OUTPUT, 3000K, TELESCOPING END, 0-10V DIMMING, RECESSED WALL TO WALL, ADJUSTMENT TRIM, GYP OR GRID FLAGNE, WHITE GAMMALUX LIGHTING #GPCAR8N-1SOLED30T-120V-ZTVL-5N-RECWAT/GFW-OP-WH	
8W / FT LED	120V	533 LM / FT	CEILING RECESSED	6" WALL WASH FIXTURE, 6" APERTURE, STANDARD OUTPUT, 3000K, TELESCOPING END, 0-10V DIMMING, RECESSED WALL TO WALL, ADJUSTMENT TRIM, GYP OR GRID FLAGNE, WHITE GAMMALUX LIGHTING #GPCAR8N-1SOLED30T-120V-ZTVL-6N-RECWAT/GFW-OP-WH	
8W / FT LED	120V	533 LM / FT	CEILING RECESSED	7" WALL WASH FIXTURE, 6" APERTURE, STANDARD OUTPUT, 3000K, TELESCOPING END, 0-10V DIMMING, RECESSED WALL TO WALL, ADJUSTMENT TRIM, GYP OR GRID FLAGNE, WHITE GAMMALUX LIGHTING #GPCAR8N-1SOLED30T-120V-ZTVL-7N-RECWAT/GFW-OP-WH	
24W LED	120/277V	3,000 LM	CEILING RECESSED	2' X 4' FIXTURE, FLAT WHITE STEEL DOOR, A12.095 HP SHIELDING, 3000K, 10% 0-10V DIMMING, 1 DRIVER, #EL14W BATTERY WHERE IDENTIFIED ON DRAWINGS METALUX LIGHTING #24GR-LD5-30-F1-UVN-L830-CD-1	
20W LED	120/277V	2,400 LM	CEILING RECESSED	2' X 2' FIXTURE, FLAT WHITE STEEL DOOR, A12.095 HP SHIELDING, 3000K, 10% 0-10V DIMMING, 1 DRIVER, #EL14W BATTERY WHERE IDENTIFIED ON DRAWINGS METALUX LIGHTING #24GR-LD5-24-F1-UVN-L830-CD-1	
24W LED	120/277V	2,400 LM	CEILING RECESSED	1' X 4' FIXTURE, FLAT WHITE STEEL DOOR, A12.095 HP SHIELDING, 3000K, 10% 0-10V DIMMING, 1 DRIVER, #EL14W BATTERY WHERE IDENTIFIED ON DRAWINGS METALUX LIGHTING #14GR-LD5-24-F1-UVN-L830-CD-1	

**LIGHTING FIXTURE SCHEDULE - ELECTRICAL**

PROJ. NO.	JH1828	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2018	

### DEMOLITION KEY NOTES

- 1 REFER TO ARCHITECTURAL DRAWINGS FOR EXACT EXTENT OF DEMOLITION WORK.
- 2 DISCONNECT AND REMOVE ALL EXISTING INTERIOR LIGHTING FIXTURES, CONTROLS, AND BACKBOXES; DISCONNECT EXISTING CONDUIT AND WIRING AND COIL IN CEILING FOR FUTURE REUSE (TYPICAL FOR ALL AREAS).
- 3 DISCONNECT AND REMOVE ALL EXISTING RECEPTACLES, BACKBOXES, CONDUIT AND WIRING BACK TO PANELBOARD (TYPICAL FOR ALL AREAS, U.O.N.).
- 4 DISCONNECT AND REMOVE ALL EXISTING TELEPHONE/DATA OUTLETS, JUNCTION BOXES, RACEWAYS AND WIRING BACK TO TELECOMMUNICATIONS BACKBOARD (TYPICAL FOR ALL AREAS). COORDINATE CABLE REMOVAL WITH OWNER.
- 5 DISCONNECT AND REMOVE ALL FINAL CONNECTIONS, DISCONNECT SWITCHES, OUTLETS, CONDUIT AND WIRING FOR HVAC EQUIPMENT BACK TO PANELBOARD (TYPICAL FOR ALL EQUIPMENT TO BE REMOVED).
- 6 DISCONNECT AND REMOVE ALL EXISTING HARDWIRED FIRE ALARM DEVICES, BACKBOXES, CONDUIT AND WIRING BACK TO RESPECTIVE FIRE ALARM TERMINAL CABINET OR NEXT ETR UPSTREAM DEVICE. SMOKE DETECTORS SHALL BE REMOVED PRIOR TO OTHER DEMOLITION SCOPE. (TYPICAL FOR ALL AREAS, U.O.N.).
- 7 PROVIDE TEMPORARY HEAT DETECTORS AND WIRING CONNECTED TO THE EXISTING FIRE ALARM SYSTEM DURING CONSTRUCTION. UPON COMPLETION OF NEW WORK, HEAT DETECTORS SHALL BE TURNED OVER TO OWNER.
- 8 MAINTAIN/RECONNECT ALL EXISTING BRANCH CIRCUIT WIRING DISTURBED DURING CONSTRUCTION BUT OUTSIDE OF NEW CONSTRUCTION AREA.
- 9 DISCONNECT AND REMOVE EXISTING INTERIOR LIGHTING FIXTURE AND BACKBOX. DISCONNECT EXISTING ASSOCIATED CONDUIT AND WIRING AND COIL IN CEILING FOR FUTURE REUSE.

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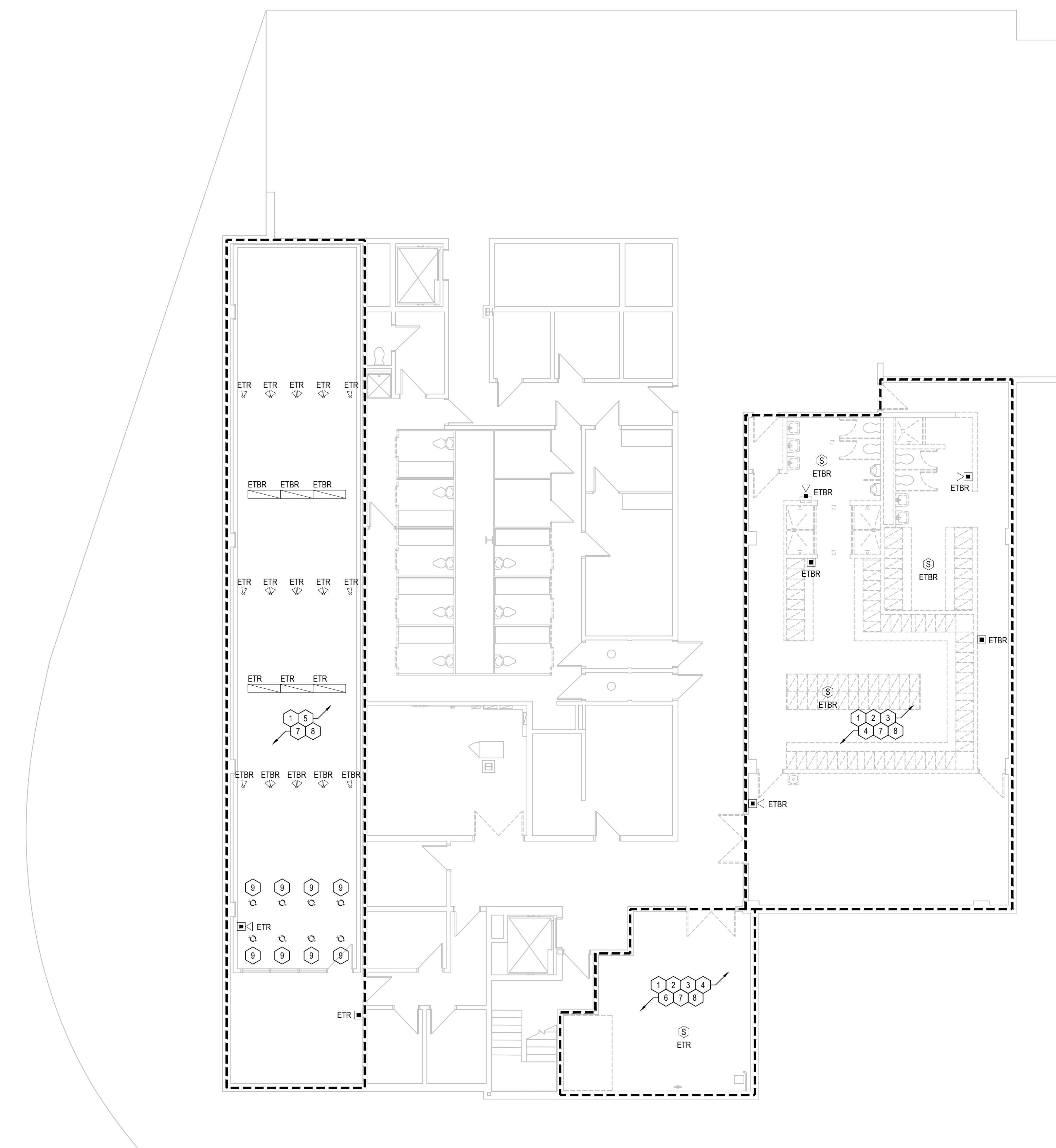
### INTERIOR RENOVATION TO THE TRUMBULL POLICE DEPARTMENT

TRUMBULL, CONNECTICUT

158 EDISON ROAD

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### LOWER LEVEL DEMOLITION FLOOR PLAN- ELECTRICAL



1 LOWER LEVEL DEMOLITION FLOOR PLAN  
ED-1.1 Scale: 1/8"=1'-0"

PROJ. NO.	JH1828	DRAWING NO.
SCALE	As Noted	
DATE	NOVEMBER 8, 2018	

**ED-1.1**

DEMOLITION KEY NOTES

- 1 REFER TO ARCHITECTURAL DRAWINGS FOR EXACT EXTENT OF DEMOLITION WORK.
- 2 DISCONNECT AND REMOVE ALL FINAL CONNECTIONS, DISCONNECT SWITCHES, AND WIRING SERVING HVAC EQUIPMENT BACK TO SOURCE. DISCONNECT CONDUIT. CONDUIT SHALL BE REUSED FOR NEW EQUIPMENT.

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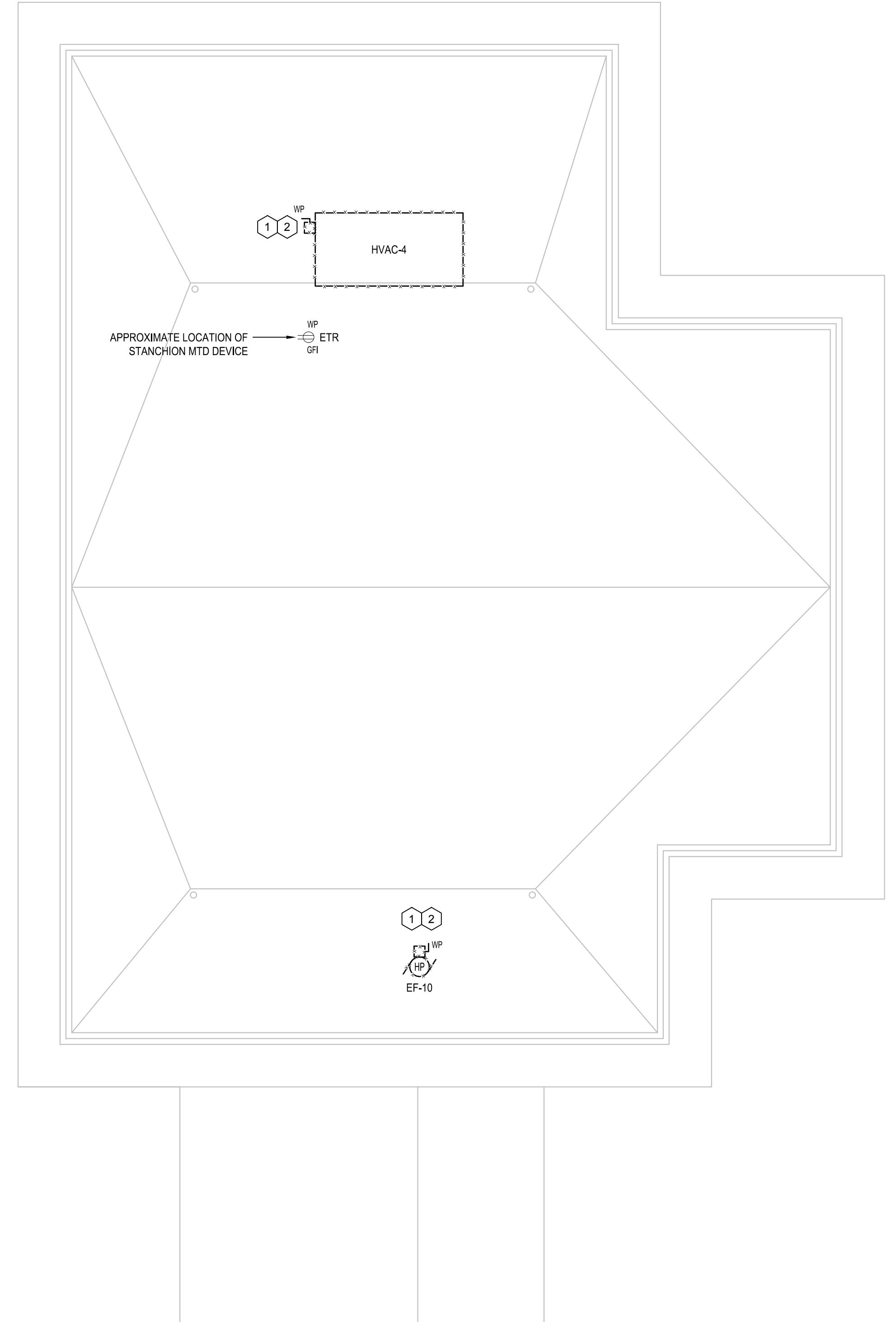
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ROOF DEMOLITION  
PLAN - ELECTRICAL



1 ROOF DEMOLITION PLAN  
ED-1.2 Scale: 1/8"=1'-0"

PROJ. NO.	DRAWING NO.
	JH1828
SCALE	As Noted
DATE	NOVEMBER 8, 2018

NOTES

1. EXTEND EXISTING FIRE ALARM BRANCH CIRCUITS TO EXISTING RELOCATED FIRE ALARM DEVICES. EXTEND EXISTING NEARBY FIRE ALARM BRANCH CIRCUITS TO NEW FIRE ALARM DEVICES. PROVIDE ALL NECESSARY HARDWARE AND PROGRAMMING (TYP FOR ALL FIRE ALARM DEVICES).
2. REPLACE EXISTING 175A/OP CIRCUIT BREAKER LABELED "SPARE" IN NORMAL DISTRIBUTION SECTION OF MDP WITH 175A/3P CIRCUIT BREAKER TO ENERGIZE MAU-1. CIRCUIT BREAKER SHALL BE COMPATIBLE WITH EXISTING SWITCHBOARD. CONNECT WITH 3/2/0 + #6G - 2C.
3. PANELBOARD CIRCUIT NUMBERS ARE NOT TO INDICATE ACTUAL AVAILABLE CIRCUIT NUMBERS IN THE PANELBOARD, BUT SHOULD BE USED TO DELINATE BETWEEN CIRCUITS. E.C. SHALL FIELD VERIFY AVAILABLE CIRCUITS AND UPDATE ALL PANELBOARD DIRECTORIES.
4. PROVIDE 20A/1P GFCI CIRCUIT BREAKER COMPATIBLE WITH EXISTING PANELBOARD (TYP FOR BRANCH CIRCUITS A/1 THROUGH A/12).
5. ALL BRANCH CIRCUITS SHALL BE 2H12 + G - 3/4°C, U.O.N.
6. PROVIDE 20A/1P CIRCUIT BREAKER COMPATIBLE WITH EXISTING PANELBOARD (TYP FOR ALL BRANCH CIRCUITS, U.O.N.).
7. PROVIDE 60A/3P CIRCUIT BREAKER COMPATIBLE WITH EXISTING PANELBOARD. CONNECT WITH 3/4A + #10G - 1-1/4C.

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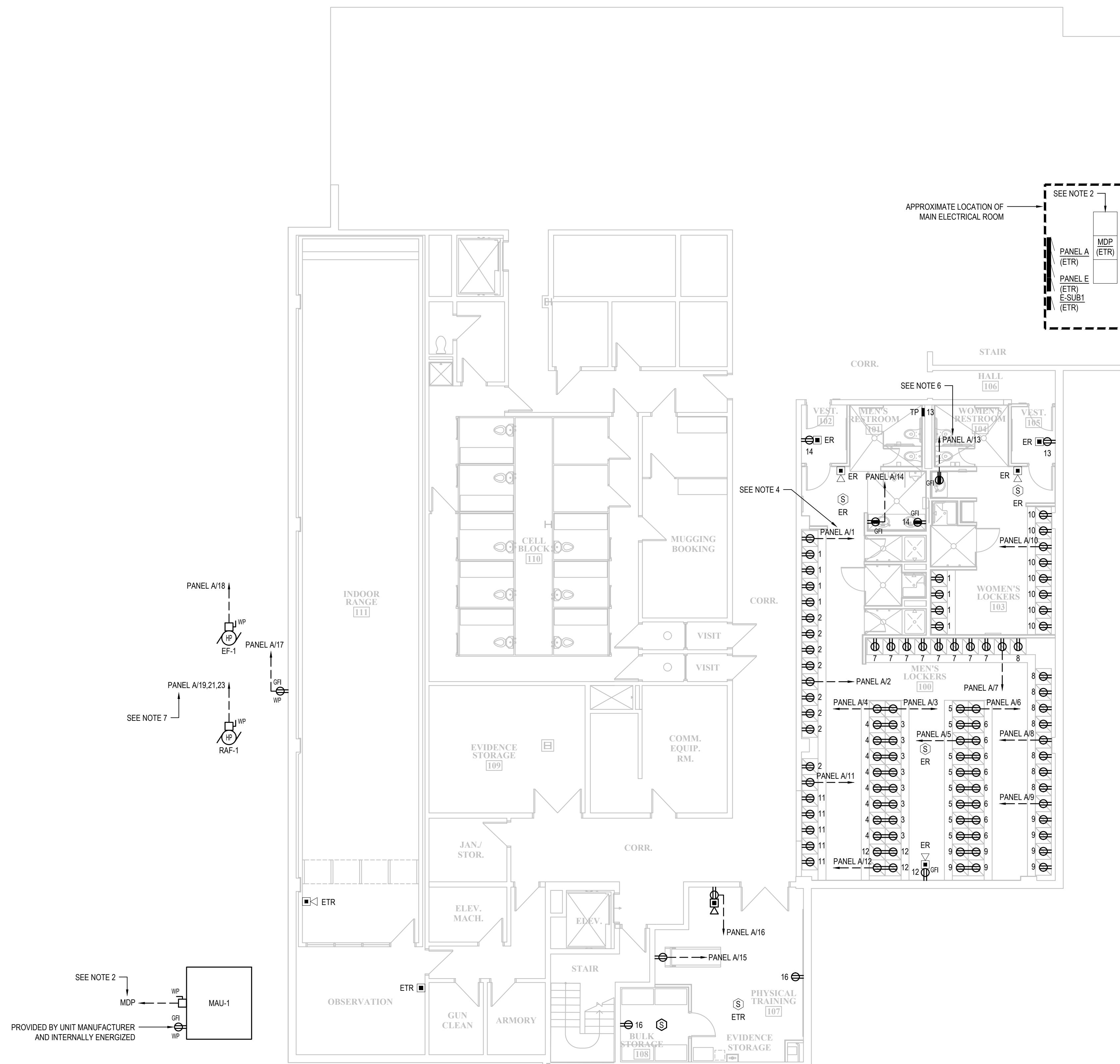
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LOWER LEVEL  
FLOOR PLAN-  
ELECTRICAL



1 LOWER LEVEL FLOOR PLAN  
E-1.1 Scale: 1/8=1'-0"

PROJ. NO.	DRAWING NO.
	JH1828
SCALE	As Noted
DATE	NOVEMBER 8, 2018

E-1.1

NOTES

1. REPLACE EXISTING 125A/3P CIRCUIT BREAKER LABELED "BASEMENT A/C" IN NORMAL DISTRIBUTION SECTION OF MDP WITH 150/3P CIRCUIT BREAKER TO ENERGIZE HVAC-4. CIRCUIT BREAKER SHALL BE COMPATIBLE WITH EXISTING SWITCHBOARD. CONNECT WITH 3#10 + #6G. REUSE EXISTING CONDUIT PREVIOUSLY SERVING REMOVED UNIT. EXTEND CONDUIT AS REQUIRED.
2. PANELBOARD CIRCUIT NUMBERS ARE NOT TO INDICATE ACTUAL AVAILABLE CIRCUIT NUMBERS IN THE PANELBOARD, BUT SHOULD BE USED TO DELINATE BETWEEN CIRCUITS. E.C. SHALL FIELD VERIFY ALL AVAILABLE CIRCUITS AND UPDATE ALL PANELBOARD DIRECTORIES.
3. PROVIDE 20A/3P CIRCUIT BREAKER COMPATIBLE WITH EXISTING PANELBOARD. CONNECT WITH 3#12 + G. REUSE EXISTING CONDUIT PREVIOUSLY SERVING REMOVED FAN. EXTEND CONDUIT AS REQUIRED.
4. EXTEND EXISTING FIRE ALARM BRANCH CIRCUIT ON FLOOR BELOW TO NEW FIRE ALARM DEVICE. PROVIDE ALL NECESSARY HARDWARE AND PROGRAMMING.
5. RECEPTACLE SHALL BE ENERGIZED BY EXISTING NEARBY BRANCH CIRCUIT SERVING CORRIDOR ON FLOOR BELOW. EXTEND CONDUIT AND WIRE AS REQUIRED.

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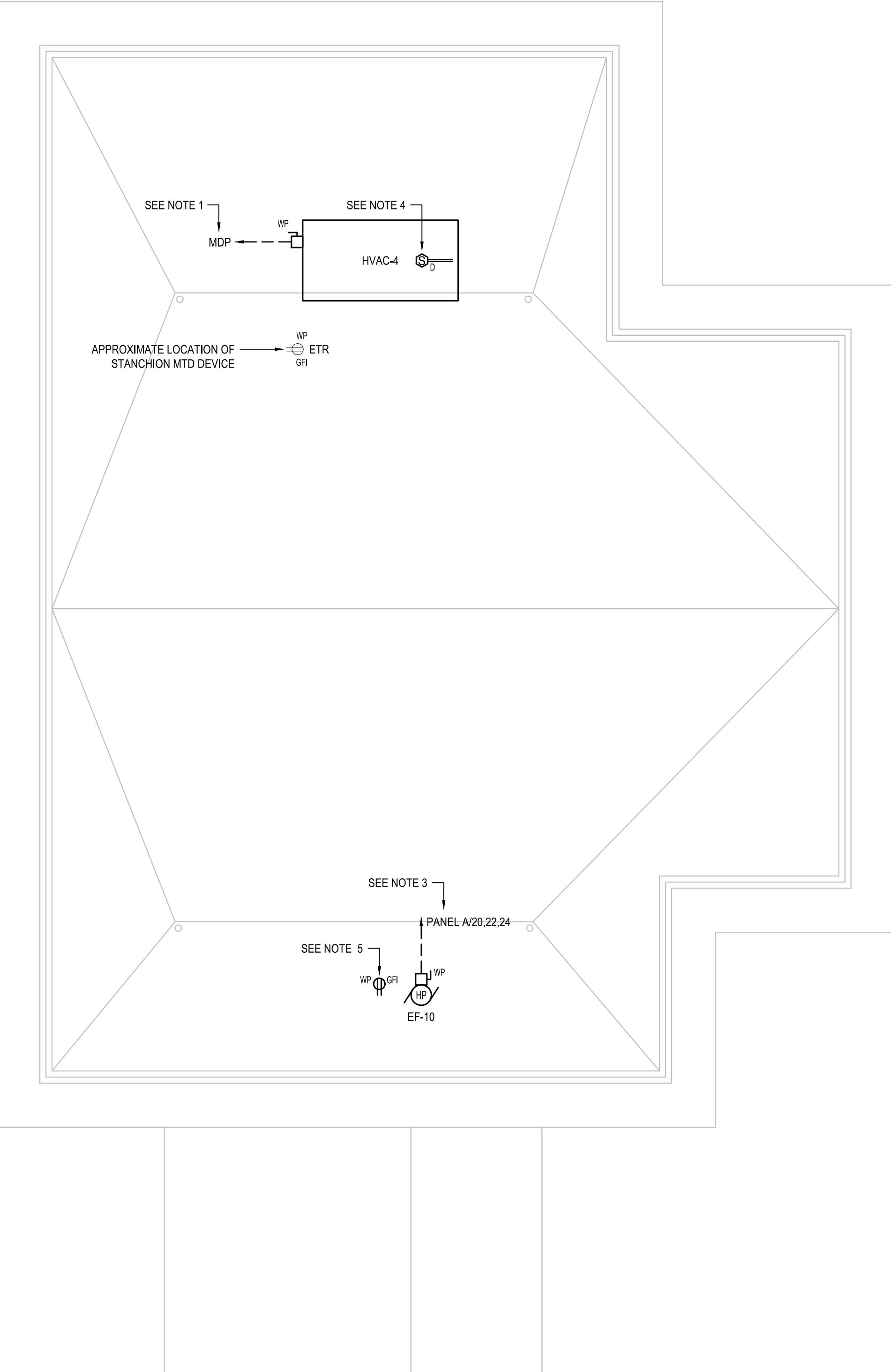
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ROOF PLAN-  
ELECTRICAL



1  
ROOF PLAN  
E-1.2 Scale: 1/8"=1'-0"

PROJ. NO.	DRAWING NO.
	JH1828
SCALE	As Noted
DATE	NOVEMBER 8, 2018

E-1.2

## NOTES

1. EXTEND EXISTING COILED LIGHTING BRANCH CIRCUITS TO NEW LIGHTING FIXTURE (TYP FOR ALL, U.O.N.).
2. PROVIDE 20A/1P CIRCUIT BREAKER COMPATIBLE WITH EXISTING PANELBOARD. CONNECT WITH 2#12 + G - 3/4"C. UPDATE PANELBOARD DIRECTORY (TYP FOR ALL BRANCH CIRCUITS, U.O.N.).
3. EXTEND EXISTING COILED LIGHTING BRANCH CIRCUITS TO NEW LIGHTING FIXTURE. NEW LIGHTING FIXTURE SHALL BE CONTROLLED AS PER PREVIOUS LIGHTING FIXTURE. CONTROLS ARE EXISTING TO REMAIN (TYP FOR ALL, U.O.N.).

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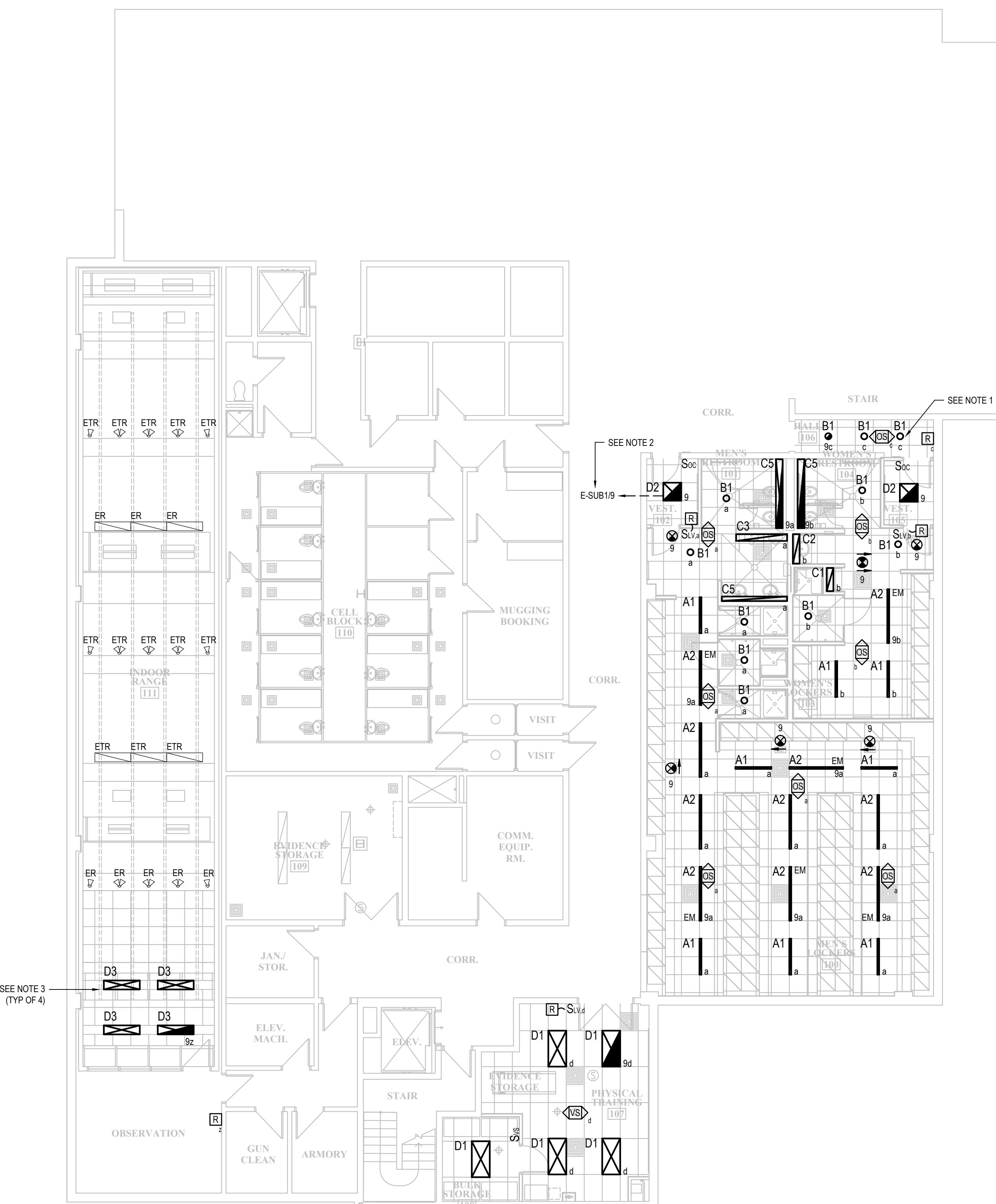
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# TRUMBULL POLICE DEPARTMENT

# *TRUMBULL, CONNECTICUT*

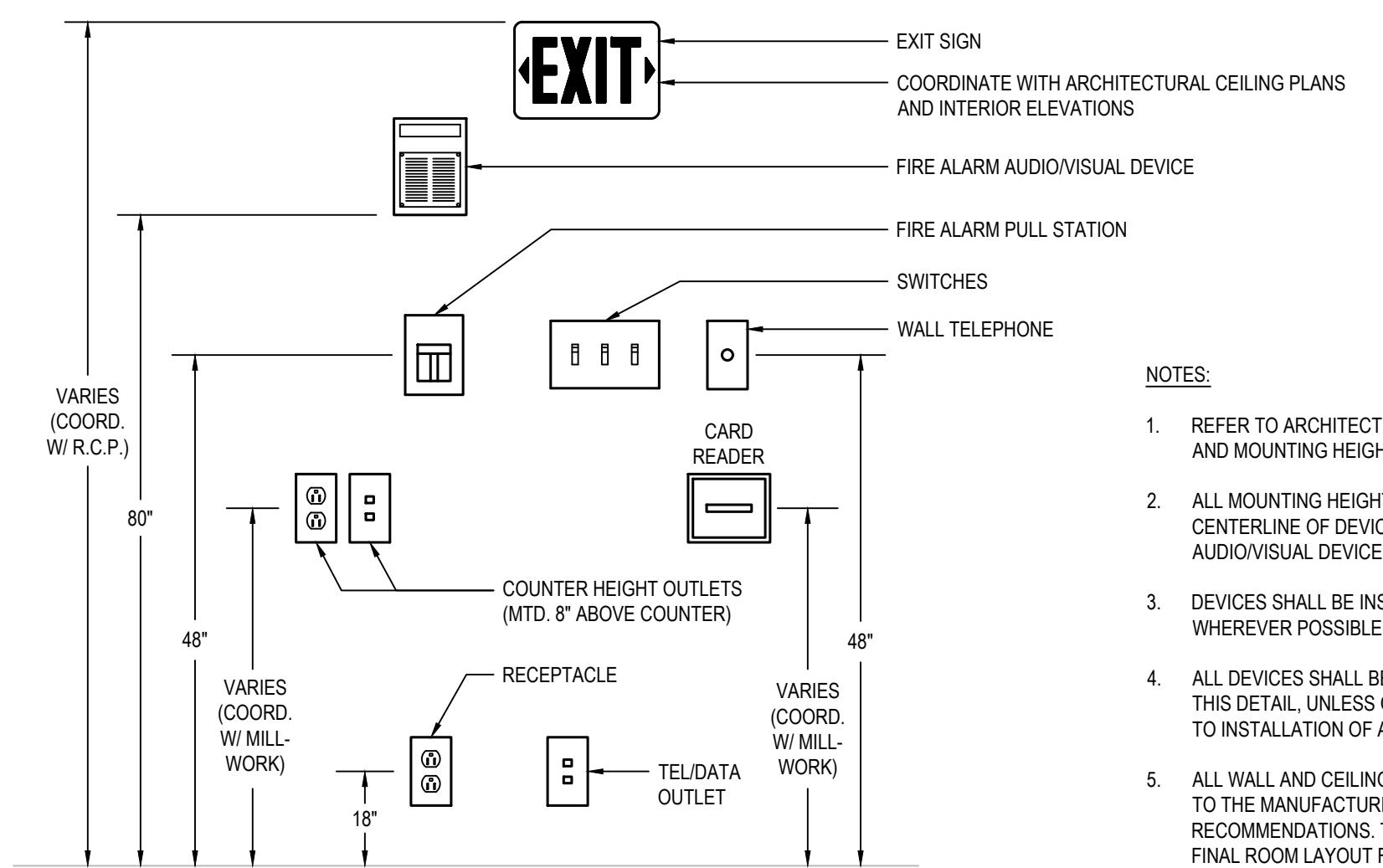
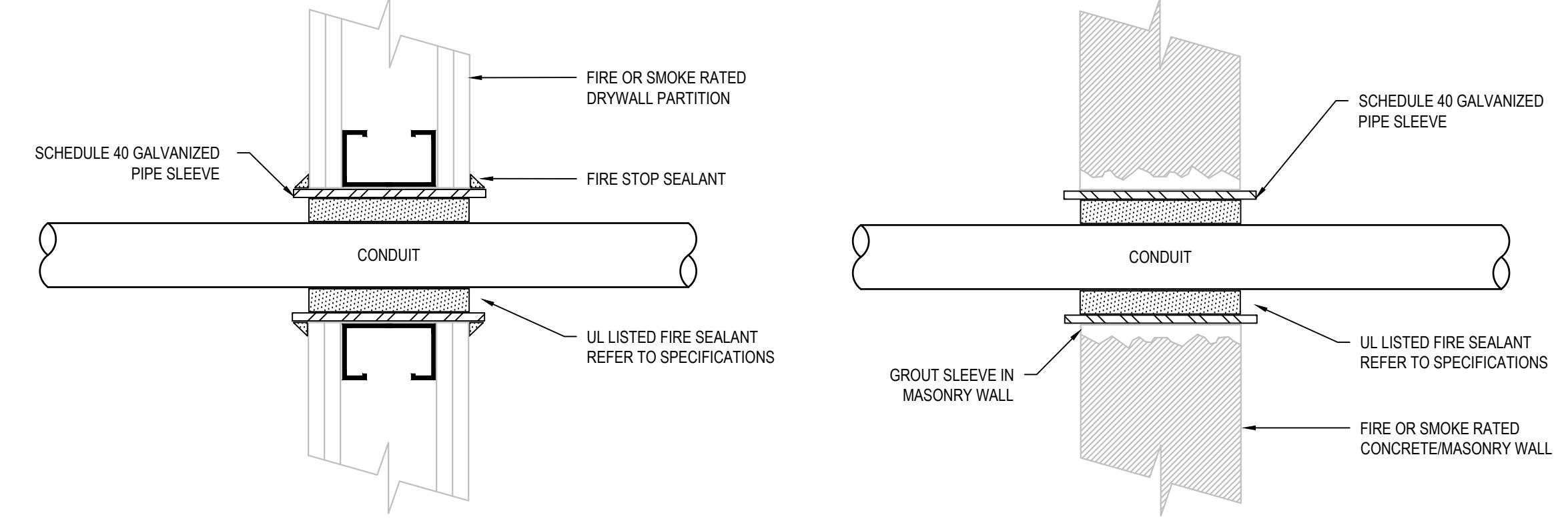
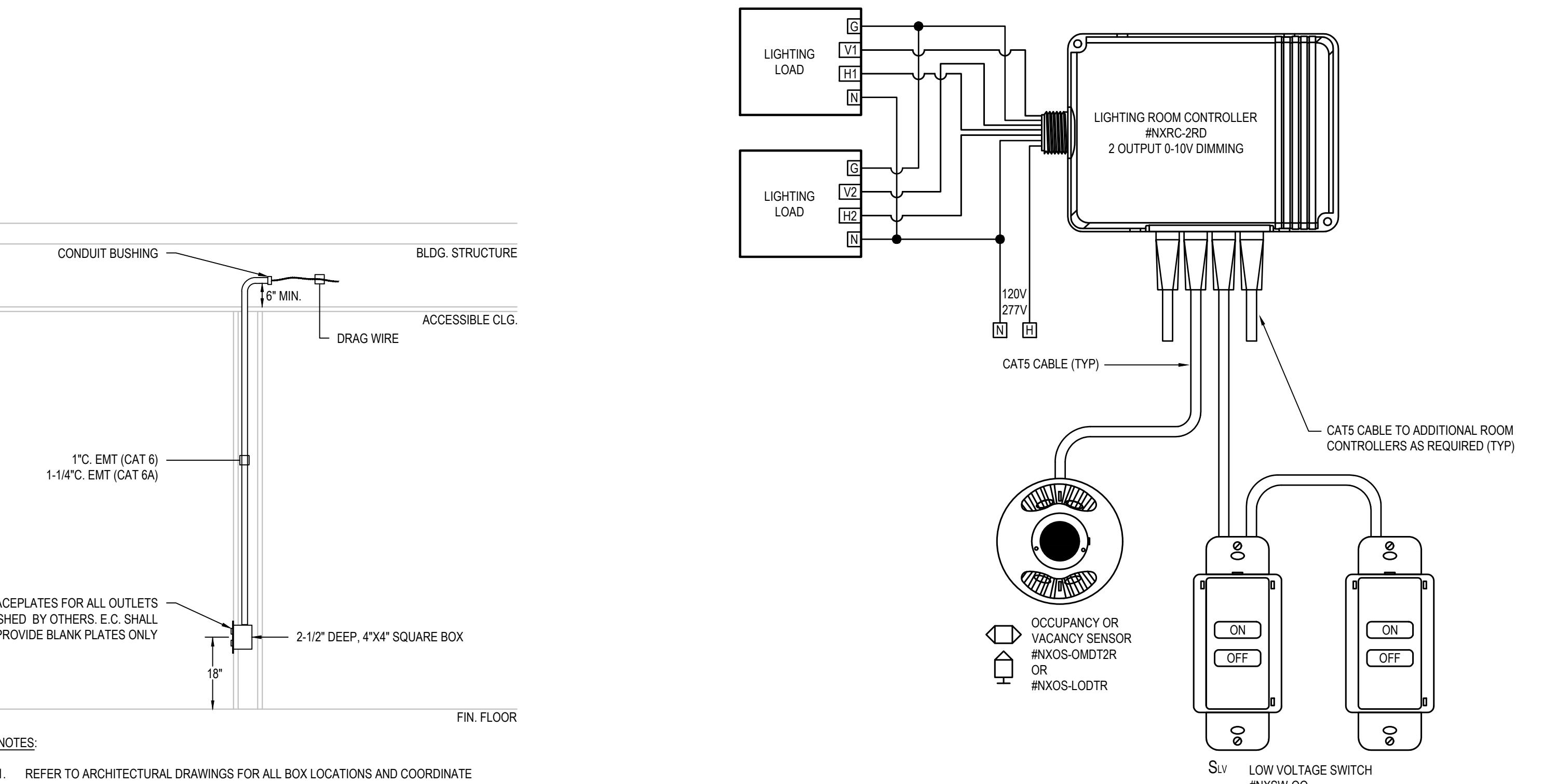
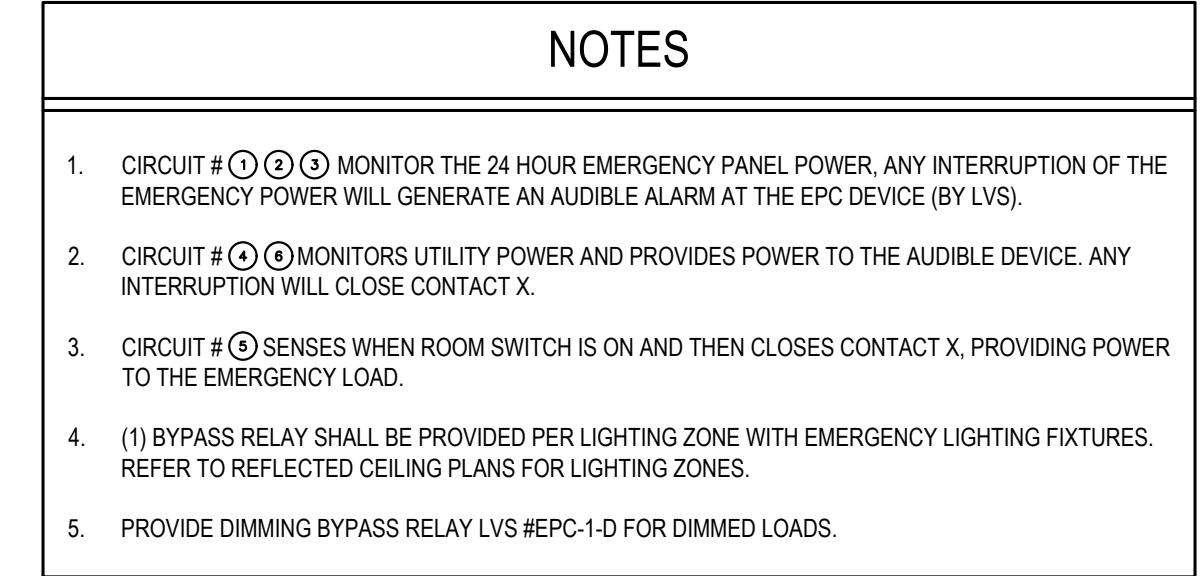
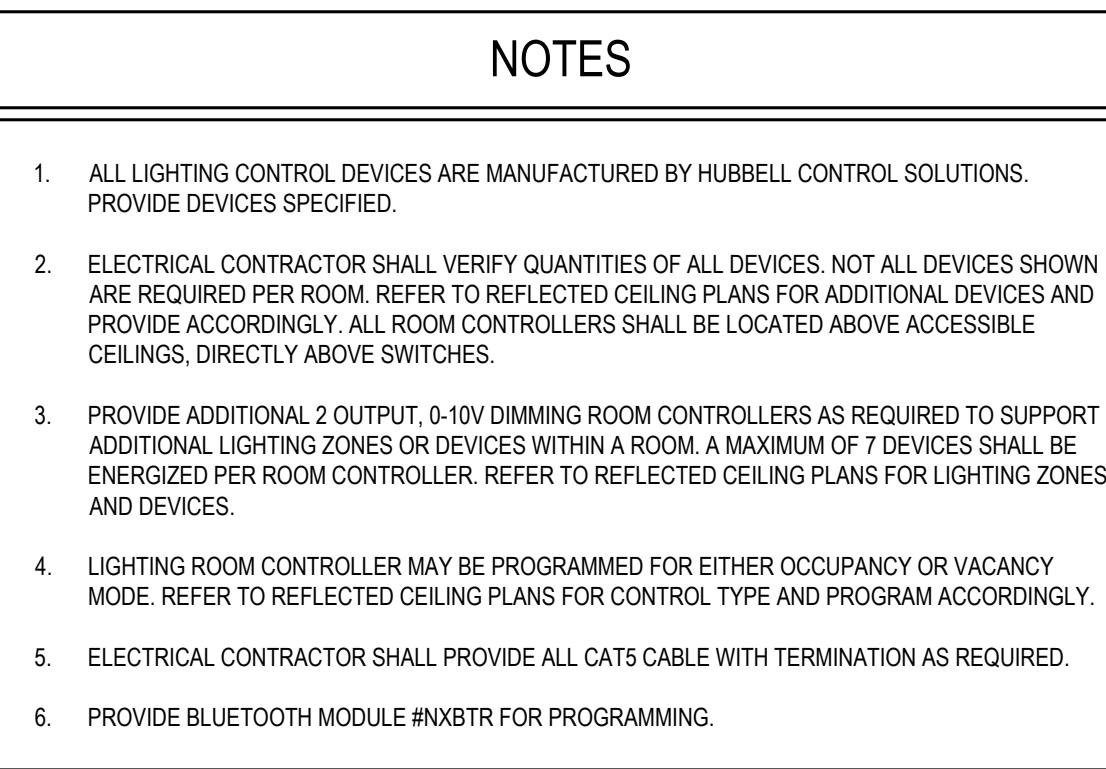
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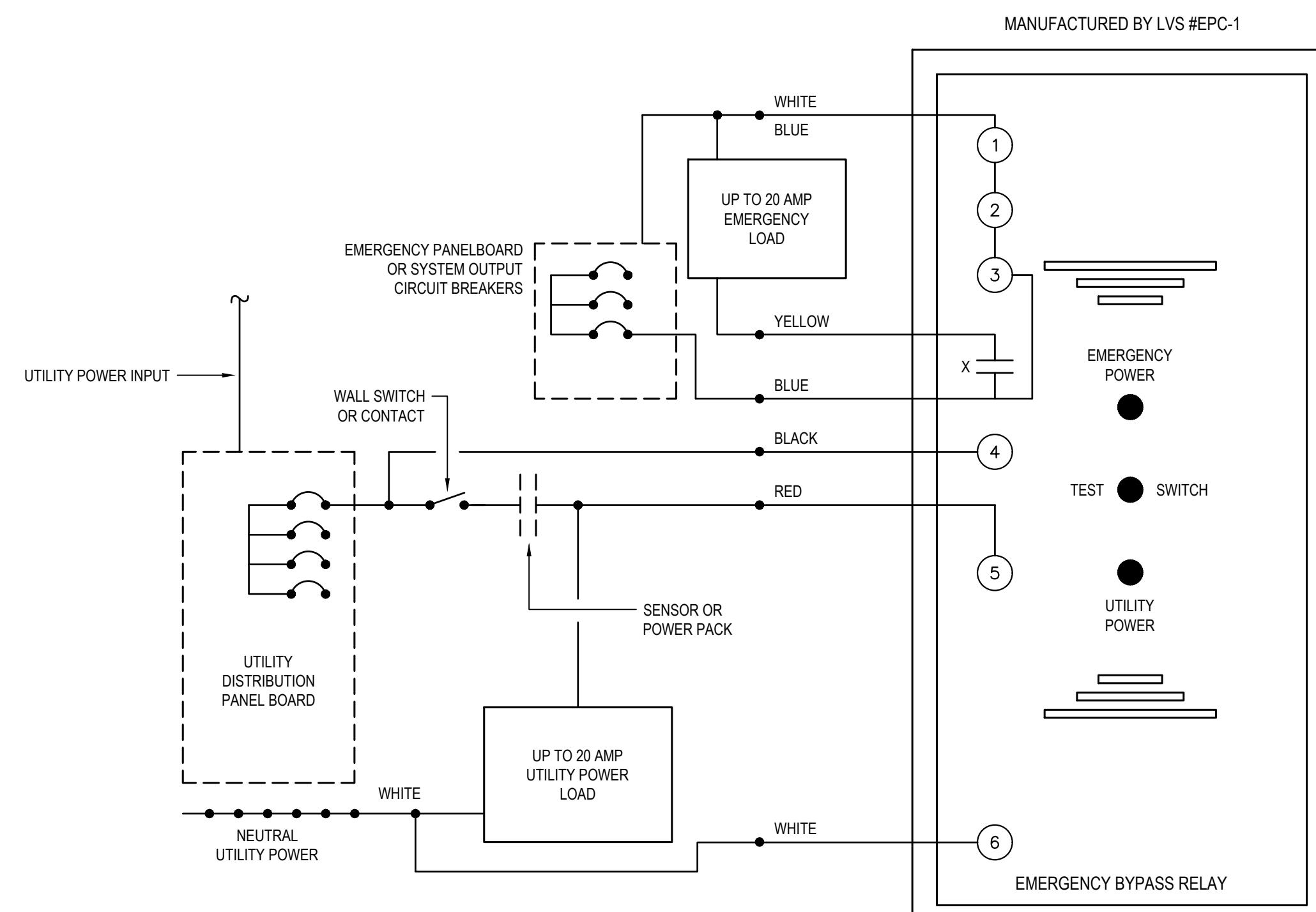


1 LOWER LEVEL REFLECTED CEILING PLAN  
E-2.1 Scale: 1/8"=1'-0"

# **LOWER LEVEL REFLECTED CEILING PLAN - LIGHTING**

	DRAWING NO.
28	
ed	<i>E-2.1</i>
18	


 1 TYPICAL DEVICE MOUNTING HEIGHT DETAIL  
 E-6.1 SCALE: NONE

 2 WALL PENETRATION W/ FIRE/SMOKE SEAL DETAIL  
 E-6.1 SCALE: NONE

 3 VOICE / DATA / AV OUTLET INSTALLATION DETAIL  
 E-6.1 SCALE: NONE

 4 TYPICAL SWITCHED LIGHTING CONTROL DIAGRAM  
 E-6.1 SCALE: NONE

 5 EMERGENCY LIGHTING BYPASS RELAY WIRING DIAGRAM  
 E-6.1 SCALE: NONE



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### SPECIFICATIONS - ELECTRICAL

## ELECTRICAL SPECIFICATIONS

### GENERAL:

PROVIDE LABOR, MATERIALS, EQUIPMENT AND SERVICES FOR COMPLETE ELECTRICAL SYSTEMS FOR EXISTING AND NEW SYSTEMS AND AS REQUIRED BY APPLICABLE BUILDING CODES, NATIONAL ELECTRICAL CODES, INCLUDING OSHA, PAY ALL FEES, OBTAIN ALL PERMITS, CERTIFICATES AND ALL CONTROLLED INSPECTIONS. USE NEW U.L. APPROVED EQUIPMENT. INCLUDE ALL TEMPORARY LIGHT AND POWER DURING CONSTRUCTION.

PROVIDE ALL LABOR MATERIAL AND EQUIPMENT TO ACCOMPLISH ANY REQUIRED DEMOLITION OR REMOVAL WORK.

ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. ALL MATERIALS SHALL BE OF THE BEST QUALITY FOR THE PURPOSE INTENDED. TRADE NAMES AND CATALOG NUMBERS ARE INTENDED TO INDICATE THIS GRADE AND QUALITY.

RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK OF CONTRACTOR WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. THE CONTRACTOR SHALL ASSIST IN WORKING OUT SPACE CONDITIONS, VERIFY POWER REQUIREMENTS WITH ALL OTHER TRADES.

ON ACCEPTANCE OF CONTRACT, CONTRACTOR AGREES TO GUARANTEE ALL OF HIS WORK AND EQUIPMENT FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF INITIAL OPERATION. MANUFACTURED EQUIPMENT SHALL CARRY FULL PERIOD OF MANUFACTURER'S GUARANTEE, AND SHALL NOT BE LESS THAN ONE (1) YEAR.

THE CONTRACTOR SHALL PERFORM ALL CUTTING NECESSARY FOR THE PROPER INSTALLATION OF ELECTRICAL WORK.

KEEP CONDUITS AND OTHER OPENINGS CLOSED TO PREVENT ENTRY OF FOREIGN MATTER. COVER FIXTURES, EQUIPMENT AND APPARATUS AND PROTECT AGAINST DIRT, WATER, CHEMICAL OR MECHANICAL DAMAGE BEFORE AND DURING THE CONSTRUCTION PERIOD UNTIL THE FINAL ACCEPTANCE. EQUIPMENT SHALL BE DELIVERED AND STORED AT SITE, PROPERLY PACKED AND CREATED UNTIL FINALLY INSTALLED.

FURNISH, INSTALL, SET AND LAMP NEW LIGHTING FIXTURES. INCLUDE ALL NECESSARY SUPPORTS AND HANGERS WHERE REQUIRED. ALL FIXTURES SHALL HAVE U.L. LABEL. LIGHTING FIXTURES SHALL BE AS INDICATED ON ARCHITECTURAL DRAWINGS AND SHALL BE MADE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

IT IS THE INTENT OF THESE SPECIFICATIONS AND DRAWINGS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATION. IF AN ITEM OF WORK IS SHOWN ON THE DRAWINGS, IT SHALL BE CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION, WHERE SPECIFICALLY MENTIONED OR NOT.

SHOP DRAWINGS AND OTHER INFORMATION REQUIRED: PRIOR TO PURCHASING ANY EQUIPMENT OR MATERIALS, A MANUFACTURER'S LIST SHALL BE SUBMITTED FOR REVIEW. PRIOR TO ASSEMBLING OR INSTALLING THE WORK, THE FOLLOWING SHALL BE SUBMITTED FOR REVIEW:

CATALOG INFORMATION, FACTORY ASSEMBLY DRAWINGS AND FIELD INSTALLATION DRAWINGS AS REQUIRED FOR A COMPLETE EXPLANATION AND DESCRIPTION OF ALL ITEMS OR EQUIPMENT. THE PURPOSE FOR REVIEW SHOP DRAWINGS IS TO MAINTAIN INTEGRITY OF THE DESIGN, UNLESS THE CONTRACTOR CLEARLY INDICATED IN WRITING AND ON HIS LETTERHEAD, ANY CHANGES, SUBSTITUTIONS, DELETIONS OR ANY OTHER DIFFERENCES BETWEEN THE SUBMISSION AND CONTRACT DOCUMENTS, APPROVAL BY THE ENGINEER DOES NOT CONSTITUTE ACCEPTANCE. IT IS NOT TO BE ASSUMED THAT THE ENGINEER HAS READ THE TEXT NOR REVIEWED THE TECHNICAL DATA OF A MANUFACTURED ITEM AND ITS COMPONENTS EXCEPT WHERE THE VENDOR HAS POINTED OUT DIFFERENCES BETWEEN HIS PRODUCT AND THE SPECIFIED MODEL.

THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE CONSTRAINTS OF THE EXISTING AVAILABLE SPACE PERTAINING TO EQUIPMENT SIZE AND CONFIGURATION AND TO EXAMINE THE CONDITIONS UNDER WHICH THE EQUIPMENT WILL BE INSTALLED. CONTRACTOR SHALL, AT THIS TIME REPORT ANY DISCREPANCIES OR QUESTIONS TO THE ARCHITECT/ENGINEER.

WHERE CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, OR WITHIN EITHER DOCUMENT, THE CONTRACTOR SHALL ASK FOR AND OBTAIN A WRITTEN CLARIFICATION FROM THE ENGINEER PRIOR TO SUBMITTING HIS BID. OTHERWISE, THE ITEMS OR ARRANGEMENTS OF SUPERIOR QUALITY, GREATER QUANTITY OR HIGHER COST SHALL PREVAIL AND BE INCLUDED IN THE CONTRACT PRICE.

WHERE DEVICES AND/OR EQUIPMENT ARE INDICATED TO BE RELOCATED, CONDUCTORS AND RACEWAY SHALL BE EXTENDED TO THE NEW LOCATION AND RECONNECTED TO PROVIDE A COMPLETE WORKING SYSTEM. IF THERE ARE ASSOCIATED DEVICES WITH THE RELOCATED EQUIPMENT THEY SHALL BE RELOCATED AS WELL, UNLESS OTHERWISE NOTED, AND CONNECTED INTO THE SYSTEM.

### WIRING DEVICES:

WIRING DEVICES SHALL BE "PREMIUM SPECIFICATION GRADE" MANUFACTURED BY LEVITON, HUBBELL, OR LEGRAND.

RECEPTACLES SHALL BE NEMA 5-20R, TWO-POLE, THREE-WIRE GROUNDING TYPE, WITH MOLDED NYLON BODY AND FACE, PREMIUM SPECIFICATION GRADE, RATED 20 AMPS AT 125 VOLTS. RECEPTACLES SHALL COME WITH A 10 YEAR LIMITED WARRANTY FROM THE MANUFACTURER. GROUND FAULT CIRCUIT INTERRUPTER (GFCI) RECEPTACLES SHALL BE 15 AMP, 125 VOLT DUPLEX, NEMA 5-15R, WITH 20 AMP, 125 VOLT FEED-THROUGH AND TRIP INDICATOR. RECEPTACLES MARKED "W" SHALL BE WEATHER RESISTANT TYPE.

ALL OCCUPANCY/VACANCY SENSORS AND OCCUPANCY/VACANCY SWITCH SENSORS SHALL BE DUAL TECHNOLOGY TYPE. ALL OCCUPANCY/VACANCY SENSOR SWITCHES SHALL BE CAPABLE OF CONTROLLING 120 VOLT LOADS, WITH INTEGRAL SWITCH FOR MANUAL OVERRIDE TO "OFF", AND ADJUSTABLE TIME DELAY TO "OFF". REFER TO LIGHTING CONTROL DIAGRAMS FOR ADDITIONAL SPECIFICATIONS.

OCCUPANCY/VACANCY SWITCH SENSORS SHALL BE MODEL #LHMTS-1 AS MANUFACTURED BY HUBBELL CONTROL

EMERGENCY BYPASS RELAY SHALL BE LVS #EPC-1

DEVICE COLOR: WIRING DEVICE CATALOG NUMBERS IN SECTION TEXT DO NOT DESIGNATE DEVICE COLOR.

1. WIRING DEVICES CONNECTED TO NORMAL POWER SYSTEM: AS SELECTED BY ARCHITECT, UNLESS OTHERWISE INDICATED OR REQUIRED BY NFPA 70 OR DEVICE LISTING.

COVERPLATES SHALL BE SATIN-FINISHED STAINLESS STEEL OR AS SELECTED BY ARCHITECT.

RECEPTACLES: IDENTIFY PANELBOARD AND CIRCUIT NUMBER FROM WHICH SERVED. USE PRESS ON LABEL, BLACK LETTERING ON WHITE BACKGROUND ON FACE OF PLATE AND IN EASILY READABLE LOCATION INSIDE DEVICE BACKBOX, AND DURABLE WIRE MARKERS OR TAGS ON CONDUCTORS INSIDE OUTLET BOXES.

### OUTLET BOXES:

PROVIDE GALVANIZED PRESSED STEEL OUTLET BOXES OF PROPER SIZE AND TYPE AS REQUIRED BY THE BUILDING CONDITIONS TO SERVE ALL INTERIOR OUTLETS FOR MOTOR CIRCUITS, LIGHTING, SWITCHES, RECEPTACLES, SIGNALS, AND THE LIKE.

### LIGHTING:

REFER TO LIGHTING FIXTURE SCHEDULE FOR LIGHTING FIXTURE SPECIFICATIONS.

CONTRACTOR SHALL PERFORM A COORDINATION REVIEW BETWEEN THE SUBMITTED LIGHTING CONTROLS AND LIGHTING FIXTURES TO ENSURE THEY ARE COMPATIBLE WITH EACH OTHER. CONTRACTOR SHALL SUBMIT LETTER WITH SHOP DRAWINGS CONFIRMING COMPATIBILITY OF THE ABOVE.

### TELECOMMUNICATIONS SERVICE AND RACEWAY SYSTEMS:

EMPTY CONDUIT SYSTEMS SHALL BE PROVIDED FOR TELECOMMUNICATIONS AND CABLE TELEVISION SYSTEMS. OUTLET DEVICES AND WIRING SHALL BE PROVIDED AND INSTALLED BY OTHERS.

THE EMPTY CONDUIT SYSTEM SHALL CONSIST OF ALL INTERIOR CONDUIT, PULL BOXES, OUTLET BOXES, BUSHED COVER PLATES AND OTHER MATERIALS TO LEAVE THE SYSTEM READY FOR INSTALLATION OF DEVICES.

### FIRE ALARM AND SMOKE DETECTION SYSTEM:

WORK CONSISTS OF ADDITIONS AND EXTENSIONS TO AN EXISTING NOTIFIER FIRE ALARM SYSTEM. PRIOR TO STARTING WORK, ESTABLISH THAT SYSTEM IS IN PROPER WORKING ORDER. IF CONDITION EXISTS WHICH PREVENTS NORMAL OPERATION OF SPECIFIED ADDITIONS AND EXTENSIONS, BRING THIS FACT TO ARCHITECT'S ATTENTION PRIOR TO DOING WORK AFFECTING EXISTING SYSTEM.

WHERE WORK IS DONE WITHOUT SUCH NOTIFICATION, IT SHALL BE ASSUMED THAT CONNECTIONS HAVE BEEN MADE TO A WORKING SYSTEM, AND PERFORMANCE REQUIREMENTS AND GUARANTEE WILL APPLY TO ENTIRE SYSTEM.

### ALL FIRE ALARM AND DETECTION SYSTEM WIRING:

THE EXISTING FIRE ALARM AND SMOKE DETECTION SYSTEM CONSISTS OF A CENTRAL CONTROL PANEL FOR MONITORING AND CONTROL OF SMOKE DETECTING DEVICES, MANUAL ALARM SYSTEMS, WATER FLOW AND TAMPER SWITCHES, AUDIBLE AND VISUAL ALARM SYSTEMS, DOOR RELEASE, AND FAN SHUTDOWN SYSTEMS. PROVIDE ALL MODIFICATIONS AS REQUIRED TO ACCOMMODATE NEW DEVICES SHOWN ON PLANS OR INDICATED IN SPECIFICATION.

ALL NEW INITIATING DEVICES SHALL BE MULTIPLEXED ADDRESSABLE TYPES, COMPATIBLE WITH EXISTING SYSTEM.

SPEAKER/STROBE ALARM UNITS SHALL BE PROVIDED AND SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 101, NFPA 72, AND THE AMERICANS WITH DISABILITIES ACT (ADA), AND SHALL THEREFORE HAVE A MINIMUM STROBE OUTPUT OF 15.75 CANDELA.

AFTER DATE OF SUBSTANTIAL COMPLETION, CONTRACTOR SHALL TEST THE FIRE ALARM SYSTEM COMPLYING WITH TESTING AND VISUAL INSPECTION REQUIREMENTS IN NFPA 72. CONTRACTOR SHALL SUPPLEMENT AUDIBLE DEVICES TO MEET CODE SOUND LEVELS.

### MECHANICAL EQUIPMENT CONNECTIONS:

ALL POWER CONNECTIONS TO HEATING, AIR CONDITIONING, AND PLUMBING EQUIPMENT, WHICH SHALL INCLUDE SUPPLYING AND MOUNTING OF SAFETY DISCONNECT SWITCHES, SHALL BE PROVIDED. INCLUDE THE MOUNTING OF MOTOR STARTERS, WHICH SHALL BE FURNISHED BY THE SUPPLIERS OF MECHANICAL EQUIPMENT.

SAFETY SWITCHES SHALL BE PROVIDED AND SHALL CONSIST OF METAL ENCLOSED, EXTERNALLY OPERATED FUSED, OR UNFUSED SAFETY SWITCHES OF SUCH TYPE AND SIZE AS REQUIRED TO PROTECT AND DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.

WHERE WEATHERPROOF SWITCHES ARE INDICATED OR REQUIRED, NEMA 3R RAIN-TIGHT ENCLOSURES SHALL BE PROVIDED.

### SUPPORTS:

PROVIDE SUPPORTS, BRANCHES AND HANGERS FOR THE INSTALLATION OF OUTLETS, CONDUITS, PANELS, STARTING AND CONTROL EQUIPMENT.

### 600 VOLT CABLE:

ALL WIRE NO. 10, 12, AND 14 AWG SHALL BE SOLID CONDUCTOR TYPE THHN/THWN; NO. 8 AWG THROUGH NO. 1 AWG SHALL BE STRANDED CONDUCTOR TYPE THHN/THWN; NO. 10 AWG AND LARGER SHALL BE STRANDED CONDUCTOR TYPE XHHW.

TYPE MC CABLE SHALL CONFORM TO UL AND NEC ARTICLE 330, AND SHALL BE CONSTRUCTED OF MINIMUM NO. 12 AWG STRANDED COPPER CONDUCTORS, WITH THIN INSULATION.

### CONDUIT:

ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING:

ALL BRANCH CIRCUITS TO MECHANICAL EQUIPMENT, AND HOMERUNS SHALL BE INSTALLED IN EMT. FINAL CONNECTIONS TO MECHANICAL EQUIPMENT SHALL BE IN FLEXIBLE METALLIC CONDUIT.

ALL BRANCH CIRCUIT WORK RUN CONCEALED ABOVE INACCESSIBLE CEILINGS AND WITHIN STUD PARTITIONS OF FINISHED AREAS SHALL BE MC CABLE.

ALL BRANCH CIRCUIT WORK RUN ABOVE ACCESSIBLE CEILINGS OR IN AREAS WITHOUT CEILINGS SHALL BE INSTALLED IN EMT.

BRANCH CIRCUIT HOMERUNS FROM LAST J-BOX TO PANELBOARD SHALL BE EMT CONDUIT. J-BOX SHALL BE LOCATED IN AREA SERVED BY BRANCH CIRCUIT. DOWNSTREAM FROM J-BOX SHALL BE MC CABLE.

ELECTRICAL METALLIC TUBING (EMT) SHALL BE GALVANIZED STEEL, CONFORMING TO ANSI C80.3, UL 797, AND NEC ARTICLE 358. PROVIDE WITH COMPRESSION TYPE FITTINGS, COUPLINGS, AND CONNECTORS.

CONNECTORS FOR METAL CONDUIT SHALL BE INSULATED THROAT TYPE. PROVIDE GROUNDING BUSHINGS OR LOCKNUTS AT ALL METALLIC RACEWAY CONNECTIONS TO SHEET STEEL BOXES AND ENCLOSURES.

EXTERIOR CONDUIT SHALL BE LIQUIDTIGHT FLEXIBLE METAL CONDUIT.

### GROUNDING:

A COMPLETE CONTINUOUS GROUNDING SYSTEM TO THOROUGHLY GROUND THE NON-CURRENT CARRYING METAL PARTS OF EVERY NEW PIECE OF INSTALLED EQUIPMENT SHALL BE PROVIDED. THE SYSTEM SHALL BE CONNECTED TO PROVIDE AN INDEPENDENT FAULT RETURN TO SOURCE.

### FIRE-STOPPING:

FIRE STOPPING SHALL BE PROVIDED FOR ALL PENETRATIONS OF CONDUIT, WIREWAYS, ETC, THROUGH FIRE-RATED WALLS AND FLOORS AND OTHER FIRE-RATED SEPARATIONS AS FOLLOWS:

CONDUIT PENETRATION THROUGH Poured CONCRETE OR MASONRY WALLS SHALL BE GROUTED IN WITH CONCRETE AND PROVIDED WITH TIGHT FITTING ESCUTCHEON PLATES ON BOTH SIDES.

CONDUIT PENETRATIONS THROUGH FIRE-RATED DRY WALLS SHALL BE WITH SLEEVES THROUGH THE WALL FITTED WITH ESCUTCHEON PLATES ON BOTH SIDES WITH EXCESS OPENINGS FILLED WITH FIRE STOP MATERIAL SPECIFICALLY MANUFACTURED FOR THE PURPOSE.

EXCESS SPACE WITHIN CONDUIT SLEEVES OR STUBS THROUGH FLOOR SLAB OR WALLS WHERE LOW VOLTAGE CABLES PASS THROUGH SHALL BE FILLED WITH FIRESTOPPING MATERIAL SPECIFICALLY MANUFACTURED FOR THE PURPOSE.

ALL MATERIALS USED FOR FIRESTOPPING SHALL BE APPROVED FOR THE PURPOSE AND THE RATING OF THE WALL OR FLOOR AND ALL METHODS EMPLOYED SHALL MEET WITH THE APPROVAL OF THE LOCAL AUTHORITIES.

### SLEEVE AND SLEEVE SEALS:

PROVIDE STEEL PIPE SLEEVES ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, ZINC COATED, PLAIN ENDS. PROVIDE SLEEVES FOR CONDUITS PENETRATING NON-FIRE-RATED GYPSUM BOARD ASSEMBLIES WITH GALVANIZED-STEEL SHEET.

PROVIDE SLEEVE-SEAL SYSTEMS MODULAR SEALING DEVICE, DESIGNED FOR FIELD ASSEMBLY, TO FILL ANNUAL SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE.

PROVIDE MODULAR SEALING DEVICE, DESIGNED FOR FIELD ASSEMBLY, TO FILL ANNUAL SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE. PROVIDE SEALING ELEMENTS (EPDM), PRESSURE PLATES (CARBON STEEL) AND CONNECTING BOLTS AND NUTS (CARBON STEEL).

PROVIDE SLEEVE-SEAL FITTINGS MANUFACTURED PLASTIC, SLEEVE-TYPE, WATERSTOP ASSEMBLY MADE FOR EMBEDDING IN CONCRETE SLAB OR WALL. UNIT SHALL HAVE PLASTIC OR RUBBER WATERSTOP COLLAR WITH CENTER OPENING TO MATCH PIPING OD.

PROVIDE SILICONE SEALANTS WITH SINGLE COMPONENT, SILICONE-BASED, NEUTRAL-CURING ELASTOMERIC SEALANTS. SILICON FOAMS SHALL BE PROVIDED MULTICOMPONENT, SILICONE-BASED LIQUID ELASTOMERS.

### INSTALLATION:

INSTALL WORK IN A NEAT AND WORKMAN LIKE MANNER.

CONTRACTOR SHALL BALANCE THE LOAD CONNECTED ON THE PANELBOARDS EQUALLY AMONG THE PHASES. MEASURED PHASE IMBALANCE SHALL NOT EXCEED 10%. AS INSTALLED CIRCUIT NUMBERS SHALL BE REFLECTED ON THE PANELBOARD DIRECTORIES.

CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH PARTITIONS OR SLABS WITH A U.L. APPROVED SMOKE STOP TO MAINTAIN THE INTEGRITY OF THE RESPECTIVE FIRE RATING.

FOR EXACT LOCATIONS OF LIGHTING FIXTURES, RECEPTECLES, DATA AND TELEPHONE OUTLETS, REFER TO ARCHITECT'S DRAWINGS. COORDINATE ALL WORK WITH DATA AND TELEPHONE CONTRACTORS.

PRIOR TO FINAL ACCEPTANCE, CLEAN ALL LIGHTING FIXTURES, GLASSWARE, CABINETS, DEVICE PLATES AND OTHER ITEMS FURNISHED UNDER THIS CONTRACT.

### AS-BUILT DRAWINGS:

PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC (AUTO-CAD VERSION AS REQUIRED BY THE OWNER) VERSION. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.

### TESTS:

TEST ALL WIRING, LIGHTING FIXTURES, SWITCHES, CONTROLLERS, STARTERS, MOTORS, ETC., WIRED UNDER THIS DIVISION. LEAVE FREE FROM GROUNDS, CROSSES, SHORTS, OPENS, ETC., AND LEAVE MATERIALS AND APPARATUS IN PROPER AND SATISFACTORY WORKING CONDITION.

PERFORM ADDITIONAL TESTS REQUIRED BY OWNER, ARCHITECT OR ANY OTHER AUTHORITIES HAVING JURISDICTION. CORRECT OR REPLACE ANY CIRCUIT, MATERIAL OR EQUIPMENT WHICH IS FOUND TO BE DEFECTIVE BY THESE TESTS. CORRECT DEFECTS, WHETHER DUE TO FAULTY WORKMANSHIP OR MATERIAL FURNISHED, IN A MANNER ACCEPTABLE TO ENGINEER WITHOUT ADDITIONAL COST.

TEST FOR PROPER OPERATION OF EMERGENCY LIGHTING EQUIPMENT UNDER SIMULATED EMERGENCY CONDITIONS.

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DATE	NOVEMBER 8, 2018	

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