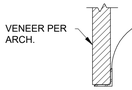
VENEER LINTELS



MARK	SIZE	MAX. SPAN (UNO)
VL4	L4 x 4 x 5/16	6'-0"
VL6	L6 x 4 x 5/16 LLV	8'-4"
VL8*	L8 x 4 x 7/16 LLV	10'-8"

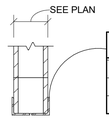
VL(d)

*NOTE FOR "VL8" LINTELS: SPECIAL VENEER SHAPES MUST BE USED, OR TYPICAL SHAPES MUST BE MODIFIED, TO ACCOMMODATE ANGLE THICKNESS AND MAINTAIN EVEN MORTAR JOINT THICKNESS AT BEARING

VENEER LINTEL NOTES

1. LINTELS SHALL BEAR ON SOLID MASONRY OR ON TWO CMU COURSES FULLY GROUTED.
2. FURNISH AND INSTALL ALL LOOSE LINTELS REQUIRED FOR ALL OPENINGS IN MASONRY, INCLUDING MECHANICAL AND ELECTRICAL WORK, WHETHER SPECIFICALLY NOTED ON DRAWINGS OR NOT.
3. ALL LINTELS AT EXTERIOR LOCATIONS OR OTHERWISE SUBJECT TO WEATHER OR CORROSIVE ATMOSPHERE SHALL BE GALVANIZED.
4. PROVIDE 6" MINIMUM BEARING EACH END.
5. PROVIDE TWO LAYERS OF 15-MIL PLASTIC VAPOR BARRIER BELOW ALL LINTEL BEARINGS AND CAULK FACE JOINT.

ANGLE LINTELS

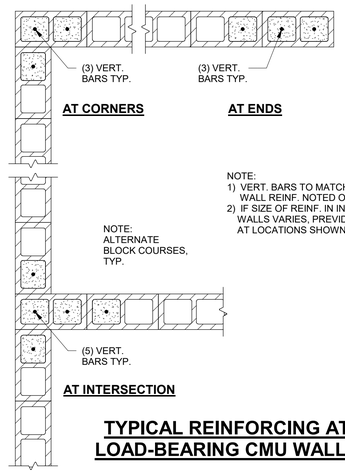


MARK	SIZE (8" CMU)	SIZE (12" CMU)	MAX. SPAN (UNO)
AL4	(2) L4 x 4 x 5/16	(2) L6 x 4 x 5/16 LLH	6'-0"
AL6	(2) L6 x 4 x 5/16 LLV	(2) L6 x 6 x 5/16	8'-4"
AL8	(2) L8 x 4 x 7/16 LLV	(2) L8 x 6 x 7/16 LLV	10'-8"

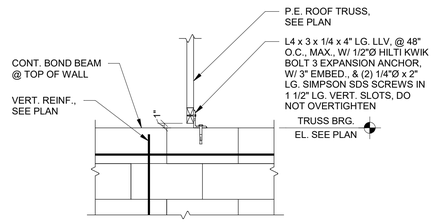
AL(d)

MECHANICAL STEEL ANGLE LINTEL NOTES

1. LINTELS ARE FOR CONCEALED (ABOVE-CEILING) MECHANICAL PENETRATIONS.
2. LINTELS SHALL BEAR A MINIMUM OF 6" EACH END ON SOLID OR GROUT-FILLED MASONRY.
3. PROVIDE TWO LAYERS OF 15-MIL PLASTIC VAPOR BARRIER BELOW ALL LINTEL BEARINGS AND CAULK FACE JOINT.

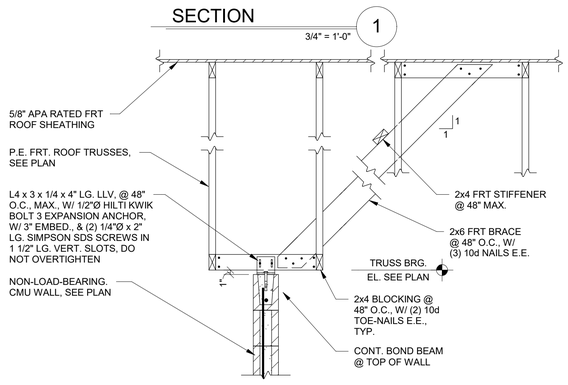


TYPICAL REINFORCING AT LOAD-BEARING CMU WALLS



TYP. NON-LOAD-BEARING CMU PERPENDICULAR TO WOOD FRAMING

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



TYP. NON-LOAD-BEARING CMU PARALLEL TO WOOD FRAMING

SECTION 2
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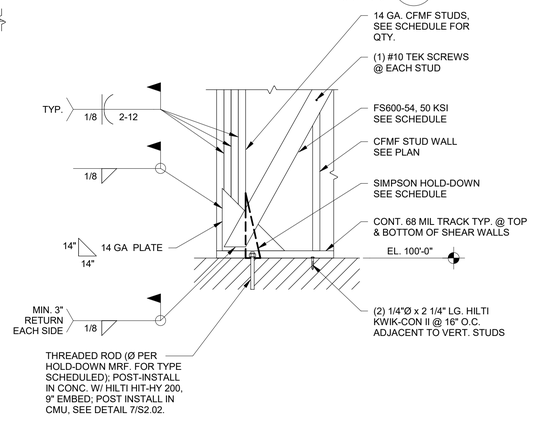
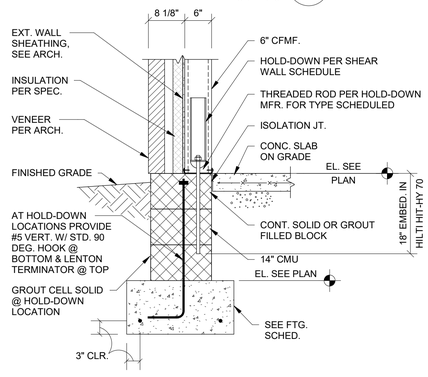
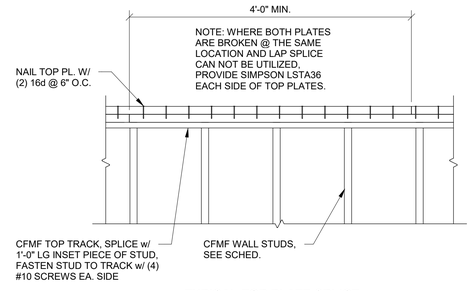


SECTION 3
3/4" = 1'-0"



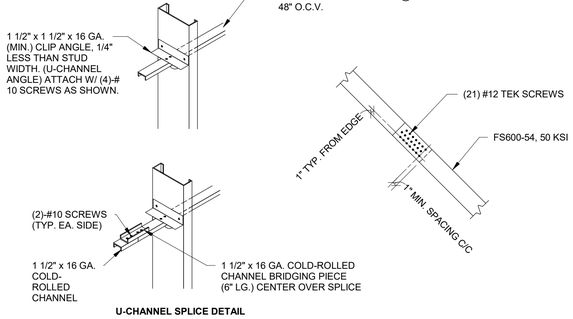
SECTION 4
3/4" = 1'-0"



TYPICAL-TOP PLATE SPLICE

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

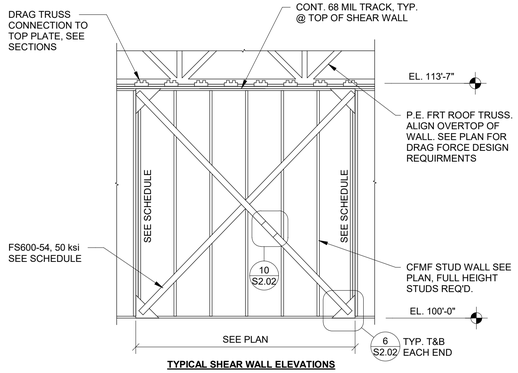
TYPICAL NOTE:
-EACH END OF LATERAL BRIDGING MUST BE RIGIDLY FIXED OR OTHERWISE PREVENTED FROM HORIZONTAL MOVEMENT



U-CHANNEL SPLICE DETAIL

BRIDGING CONNECTION

SECTION 6
3/4" = 1'-0"



TYPICAL SHEAR WALL ELEVATIONS

SECTION 7
3/4" = 1'-0"

SECTION 8
3/4" = 1'-0"

SHEAR WALL CONSTRUCTION SCHEDULE

MARK	WALL CONSTRUCTION		
	END STUDS	SIMPSON HOLDOWN	STRAPPING
SW1	(3) 14 GA. (68 MIL) MATCH DEPTH OF ADJACENT WALL STUDS	-	FS600-54 ONE FACE
SW2	(3) 14 GA. (68 MIL) MATCH DEPTH OF ADJACENT WALL STUDS	S/HDU-6	FS600-54 ONE FACE
SW3	(3) 14 GA. (68 MIL) MATCH DEPTH OF ADJACENT WALL STUDS	S/HDU-4	FS600-54 EACH FACE
SW4	(3) 14 GA. (68 MIL) MATCH DEPTH OF ADJACENT WALL STUDS	S/HDU-6	FS600-54 EACH FACE

NOTES: 1. WHERE STUD MUST BE CUT DUE TO THE PLACEMENT OF ANCHORS BOLTS OR OTHER PRODUCTS, AN ADDITIONAL STUD SHALL BE INSERTED ALONG SIDE.

SECTION 9
1" = 1'-0"

SECTION 10
3/4" = 1'-0"

SECTION 11
1/4" = 1'-0"

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Beavercreek Township
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ISSUE:

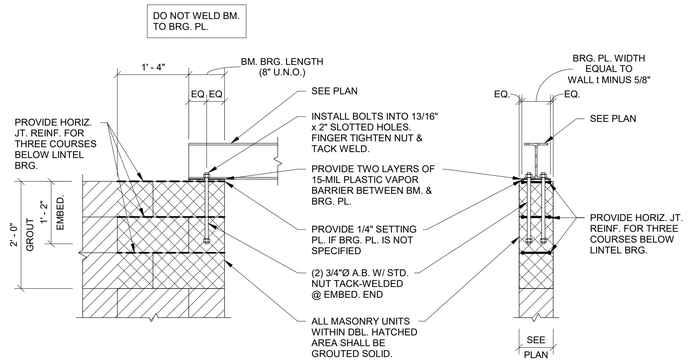
NO.	DATE	DESCRIPTION
	04/03/2020	FOR CONSTRUCTION

DATE	04/03/2020
JOB NO.	3541.00
DRAWN	MJI
CHECKED	SRM
CAD	CAD

TITLE
TYPICAL DETAILS

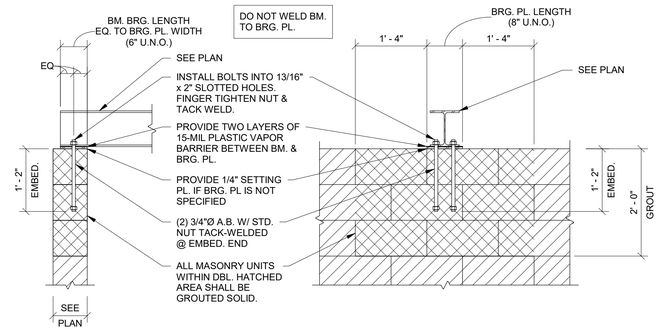
SHEET NO.
S2.02

4/3/2020 3:47:49 PM



TYPICAL BEAM BEARING PARALLEL TO MASONRY WALL OR AT CORNER OF MASONRY WALL

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



TYPICAL BEAM BEARING PERPENDICULAR TO MASONRY WALL

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

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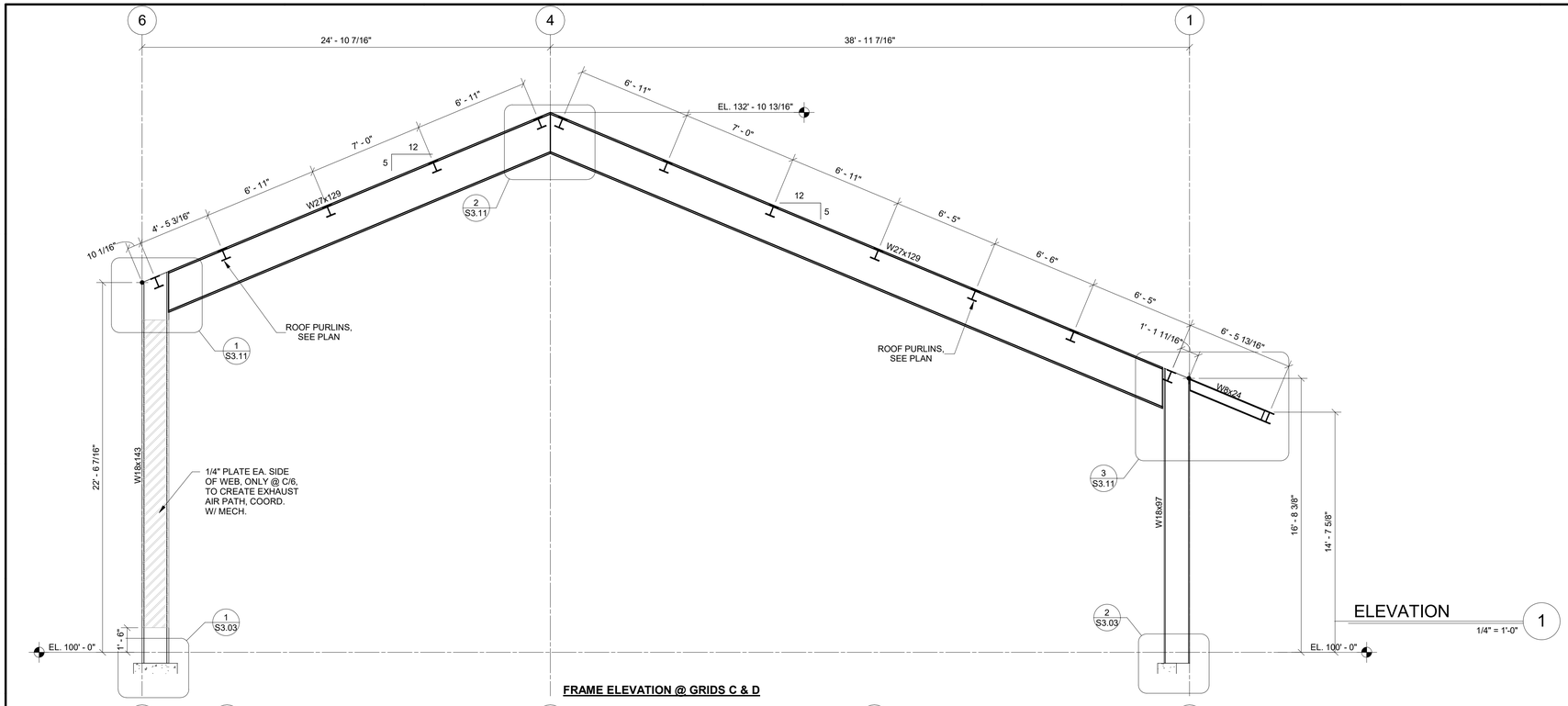
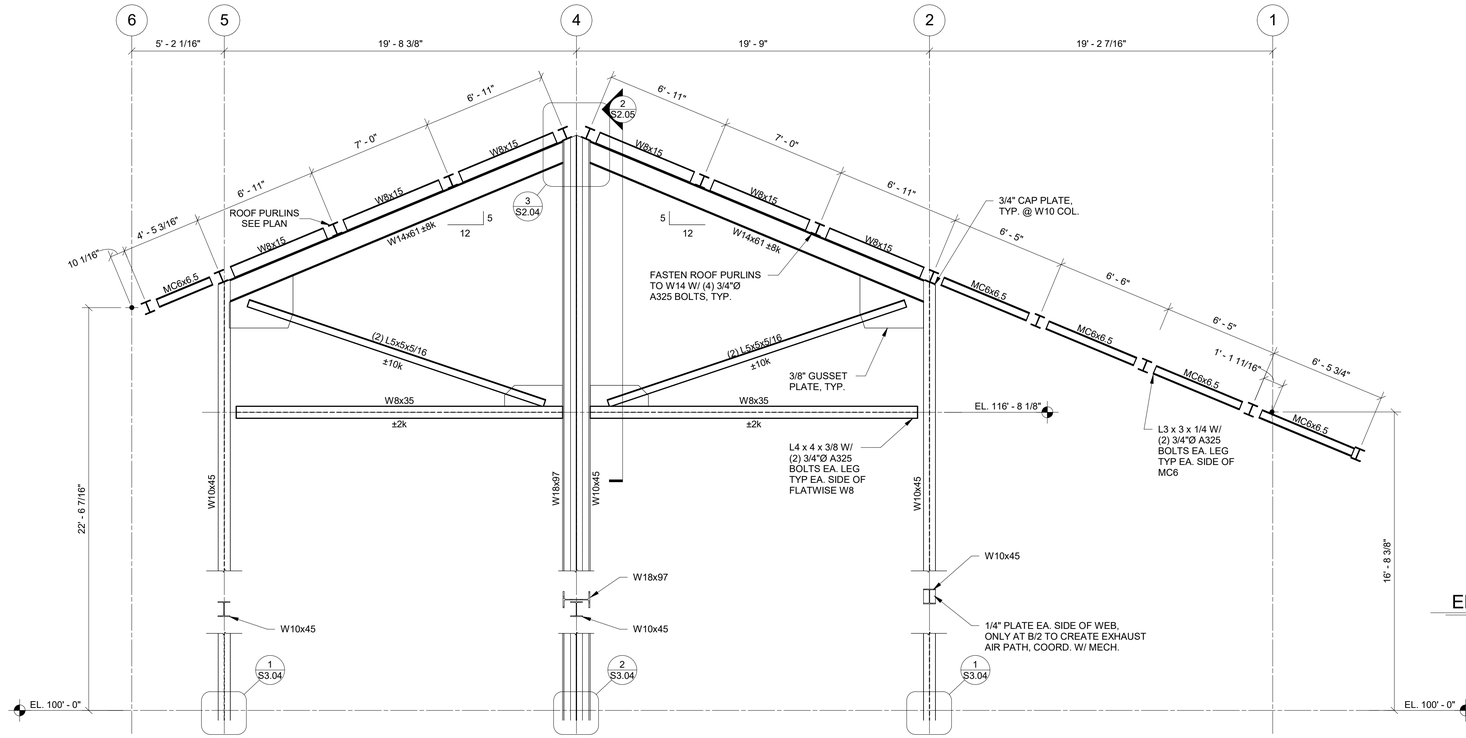
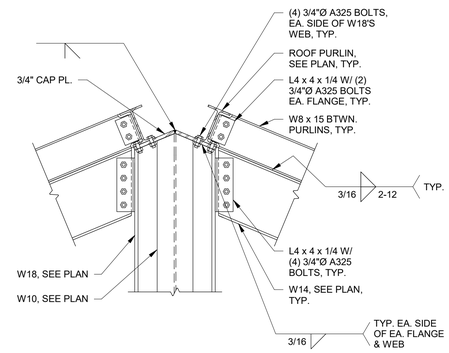
S2.03

4/3/2020 3:47:41 PM



FRAME ELEVATION @ GRIDS C & D





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

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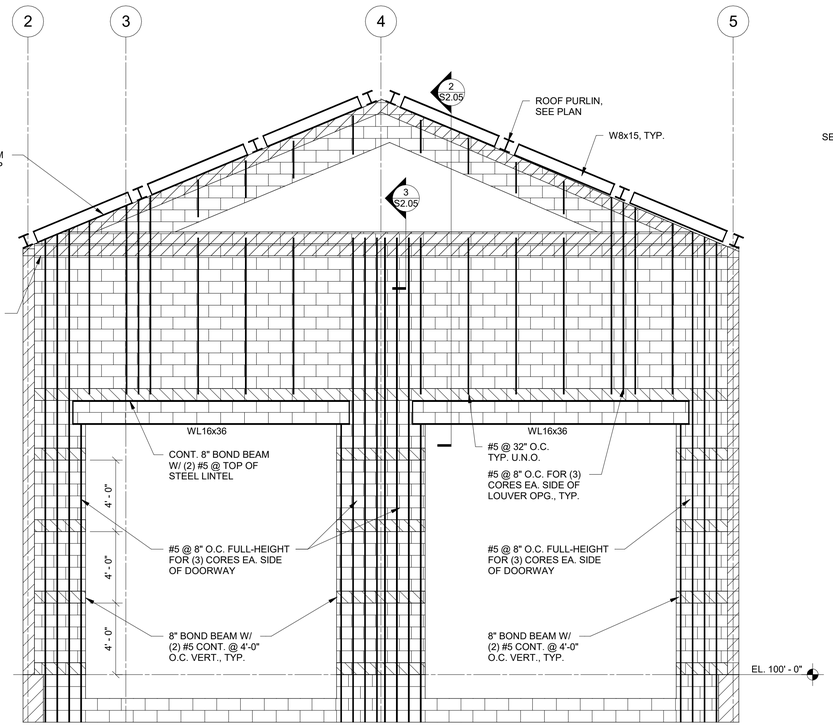
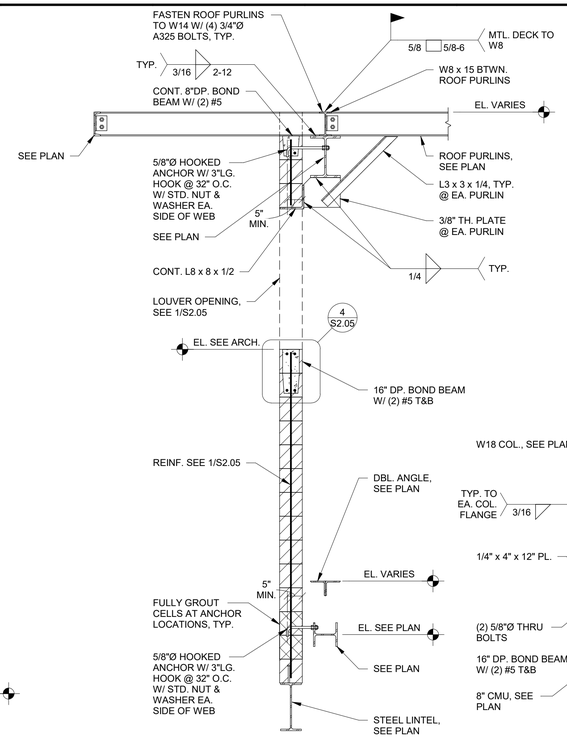
TITLE
FRAMING ELEVATIONS

SHEET NO.
S2.04

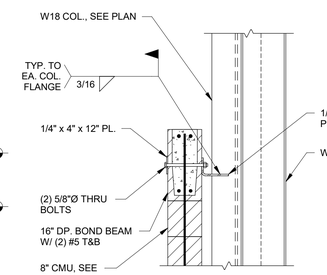
4/3/2020 3:47:41 PM



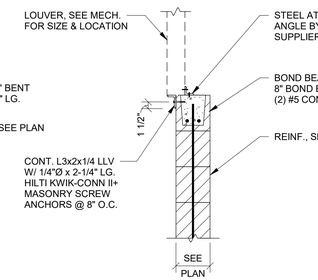
ELEVATION 1
1/4" = 1'-0"



SECTION 2
1/2" = 1'-0"



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



TYPICAL LOUVER SILL DETAIL IN CMU WALL

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

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TITLE
FRAMING ELEVATIONS

SHEET NO.
S2.05

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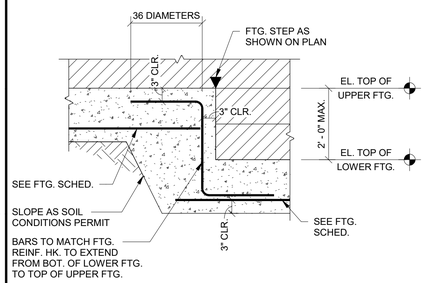
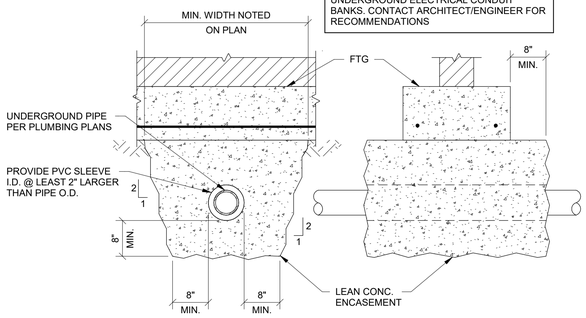
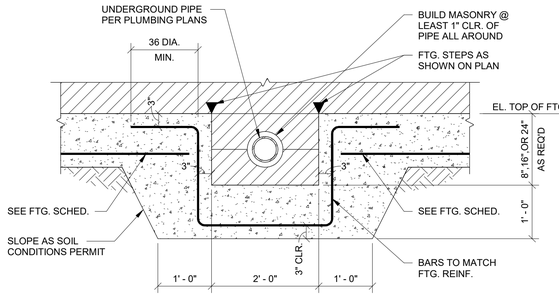


TYPICAL FOOTING STEP

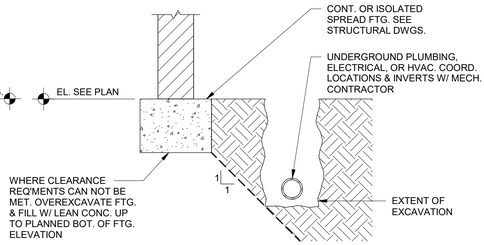
NOTE:
THIS DETAIL IS NOT APPLICABLE TO UNDERGROUND ELECTRICAL CONDUIT BANKS. CONTACT ARCHITECT/ENGINEER FOR RECOMMENDATIONS



TYPICAL PLUMBING UNDER FOOTING



TYPICAL FOOTING TRENCH FOR UNDERGROUND PLUMBING



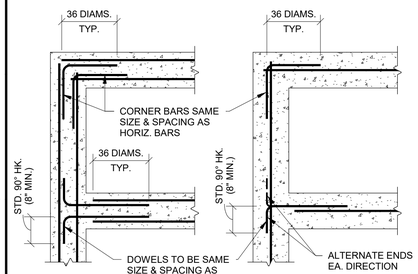
TYPICAL EXCAVATION CLEARANCE REQUIREMENTS

SECTION 1 — 3/4" = 1'-0"

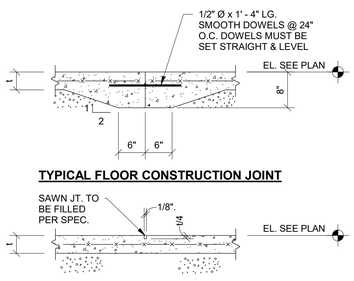
SECTION 2 — 3/4" = 1'-0"

SECTION 3 — 3/4" = 1'-0"

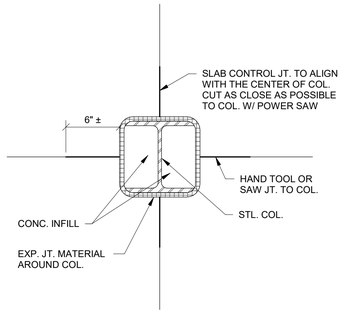
SECTION 4 — 3/4" = 1'-0"



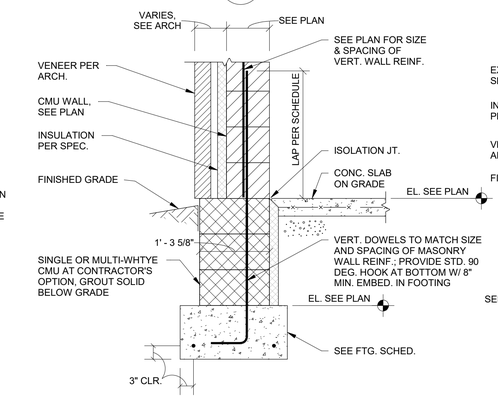
TYPICAL CORNER BARS FOR CONCRETE WALL AND FOOTING CONSTRUCTION

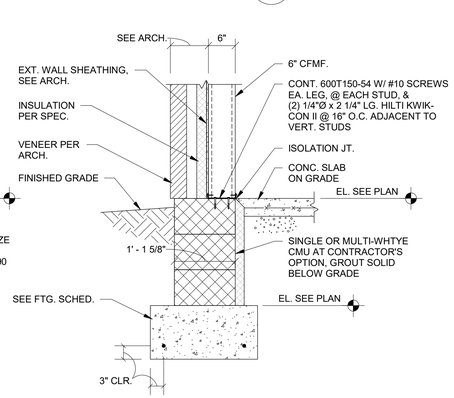


TYPICAL FLOOR CONSTRUCTION JOINT



TYPICAL FLOOR CONTROL JOINT





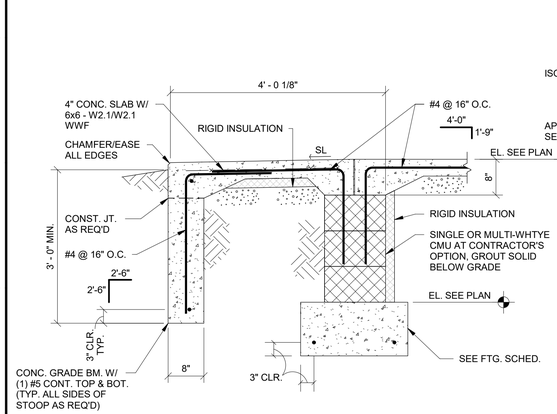
SECTION 5 — 3/4" = 1'-0"

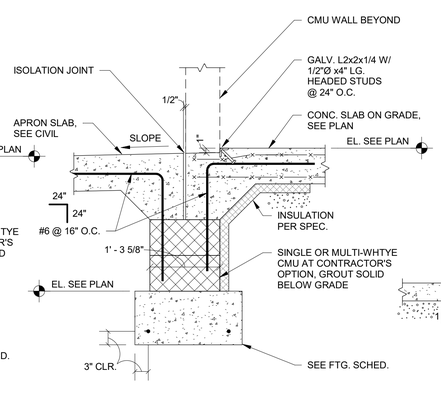
SECTION 6 — 3/4" = 1'-0"

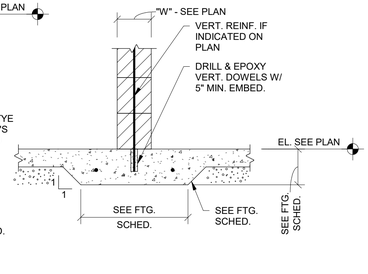
SECTION 7 — 1 1/2" = 1'-0"

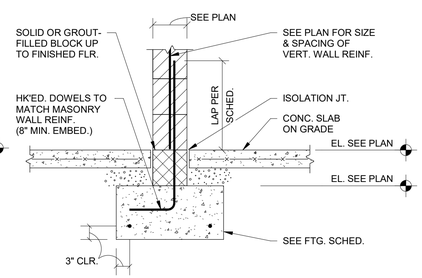
SECTION 8 — 3/4" = 1'-0"

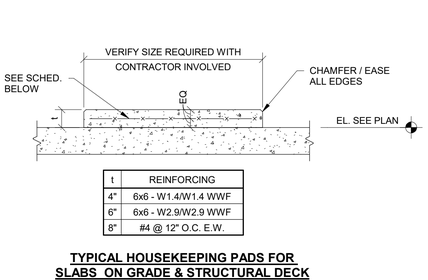
SECTION 9 — 3/4" = 1'-0"











t	REINFORCING
4"	6x6 - W1.4/W1.4 WWF
6"	6x6 - W2.9/W2.9 WWF
8"	#4 @ 12" O.C. E.W.

TYPICAL HOUSEKEEPING PADS FOR SLABS ON GRADE & STRUCTURAL DECK

SECTION 10 — 3/4" = 1'-0"

SECTION 11 — 3/4" = 1'-0"

SECTION 12 — 3/4" = 1'-0"

SECTION 13 — 3/4" = 1'-0"

SECTION 14 — 3/4" = 1'-0"

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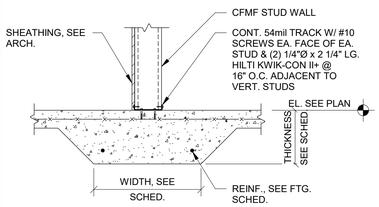
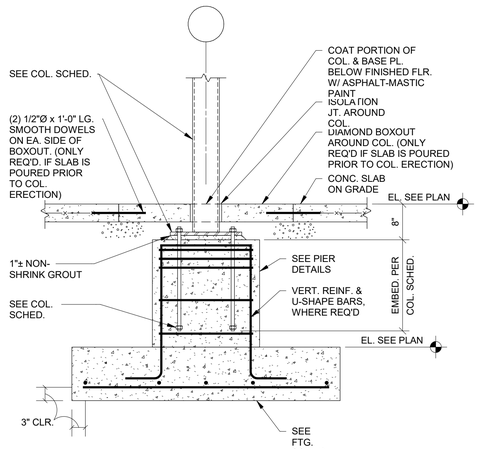
TITLE
FOUNDATION DETAILS

SHEET NO.
S3.01

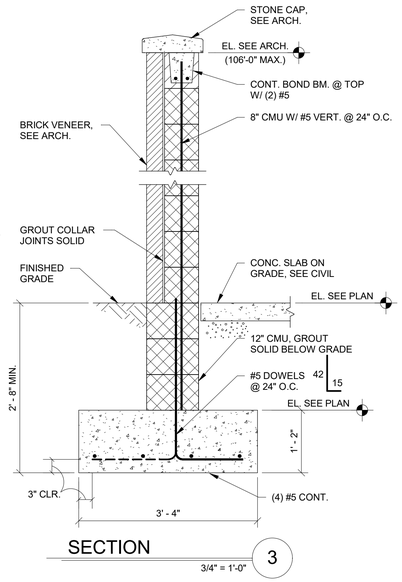
4/3/2020 3:47:43 PM



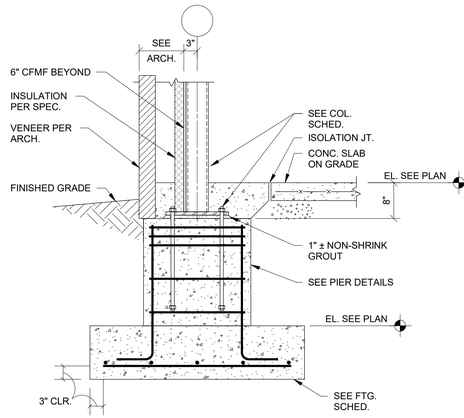
SECTION 1
3/4" = 1'-0"



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



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



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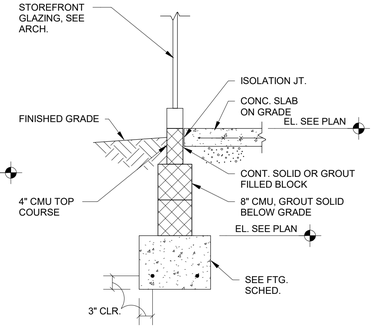
3/4" = 1'-0"



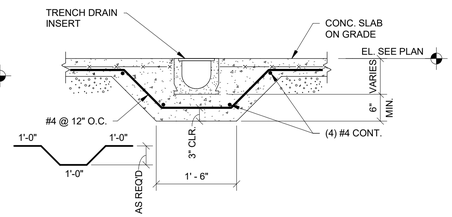
TYP. AT STOREFRONT LOCATIONS

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

TYPICAL EXTERIOR MECHANICAL EQUIPMENT PAD

SECTION 6
3/4" = 1'-0"

SECTION 7
3/4" = 1'-0"



SECTION 8
3/4" = 1'-0"

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Structural Engineering

Beavercreek Township

Fire Station No. 65

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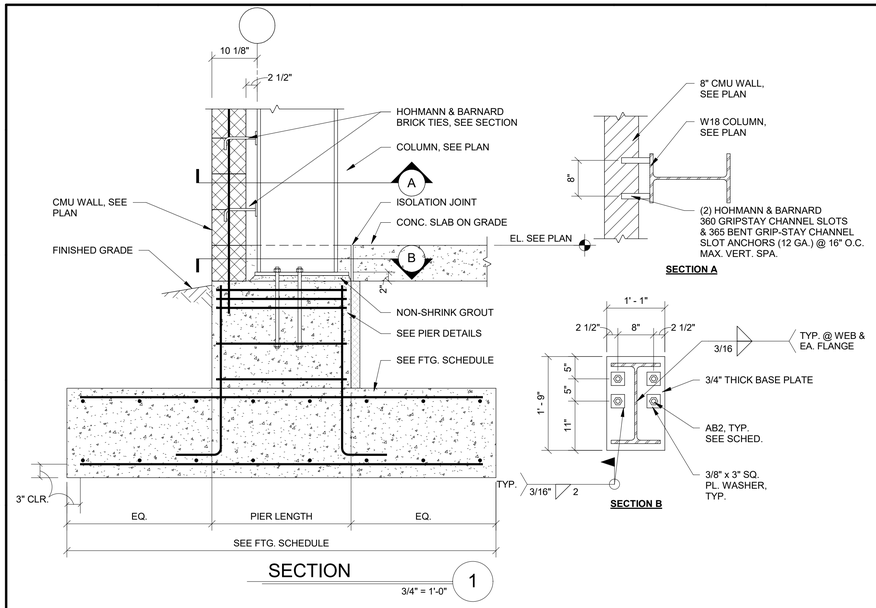
TITLE
FOUNDATION DETAILS

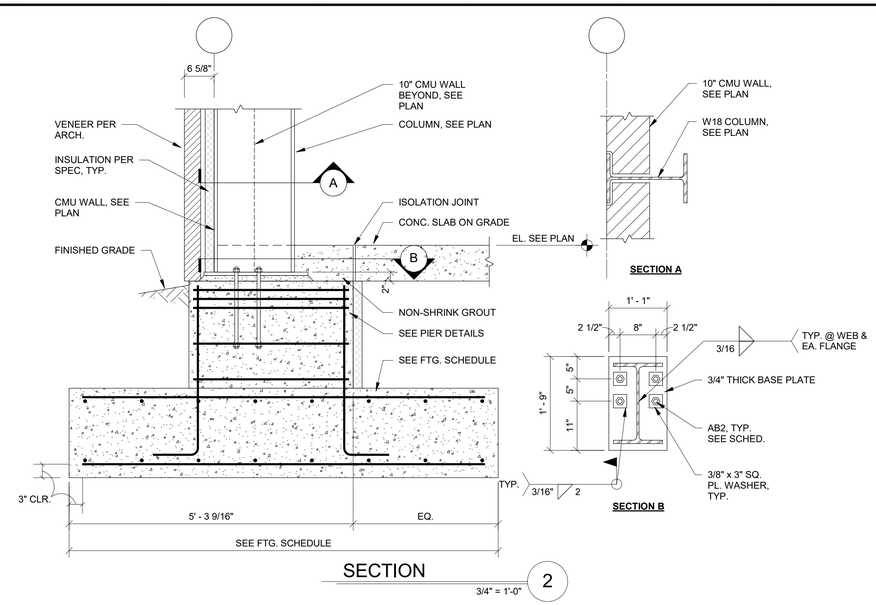
SHEET NO.
S3.02

4/3/2020 3:47:43 PM



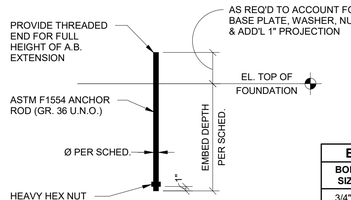
SECTION 1

3/4" = 1'-0"



SECTION 2

3/4" = 1'-0"

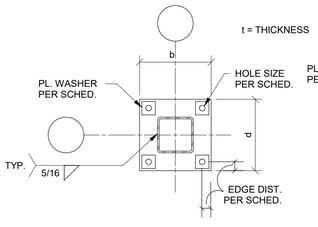


TYPICAL ANCHOR BOLT

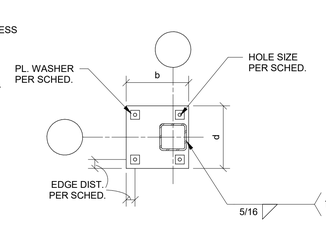
ANCHOR BOLT SCHEDULE		
MARK	QTY. & DIA.	EMBED.
AB1	(4) 3/4"Ø	9"
AB2	(4) 3/4"Ø	20"
AB3	(4) 3/4"Ø	14"

ALL ANCHOR BOLTS TO BE AB1 UNLESS NOTED

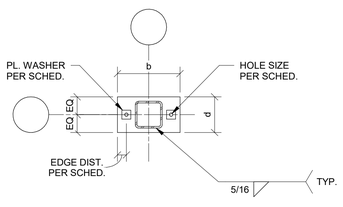
BASE PLATE DETAILING SCHEDULE			
BOLT SIZE	BASE PLATE HOLE SIZE	EDGE DISTANCE	PLATE WASHER
3/4" Ø	1 5/16" Ø	2 1/2"	3/8" x 3" SQ.
1" Ø	1 13/16" Ø	2 1/2"	3/8" x 3" SQ.
1 1/4" Ø	2 1/16" Ø	3"	1/2" x 4" SQ.
1 1/2" Ø	2 5/16" Ø	3"	1/2" x 4" SQ.
1 3/4" Ø	2 3/4" Ø	4"	3/4" x 5" SQ.
2" Ø	3 1/4" Ø	4"	3/4" x 5" SQ.



TYPE A

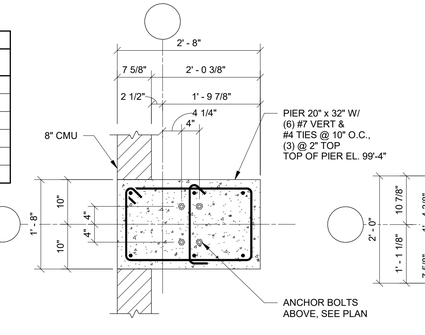


TYPE B

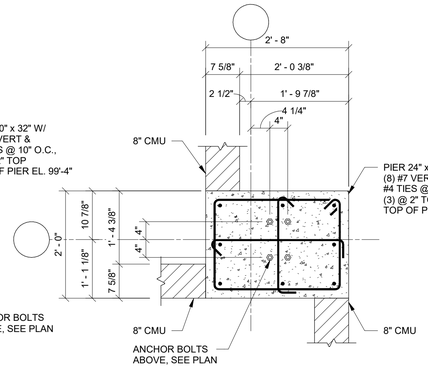


TYPE C

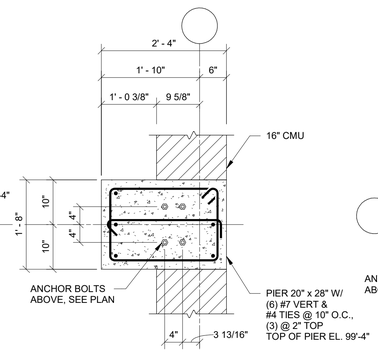
BASE PLATE DETAILS



PIER P1



PIER P2



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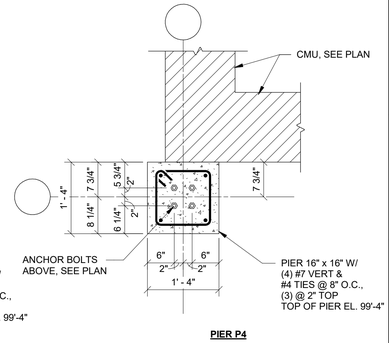

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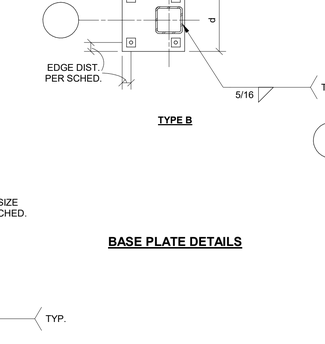
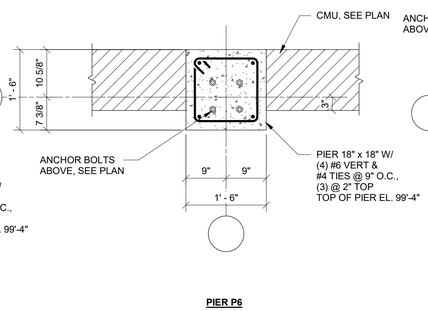


PIER P5



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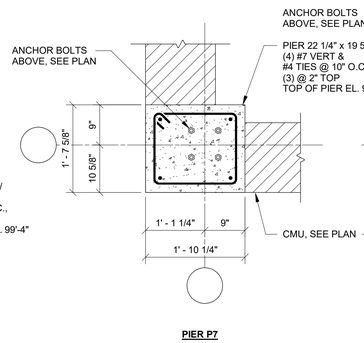
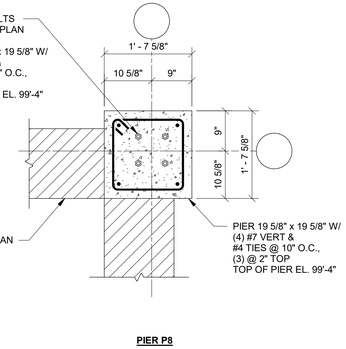


PIER P7



PIER P8

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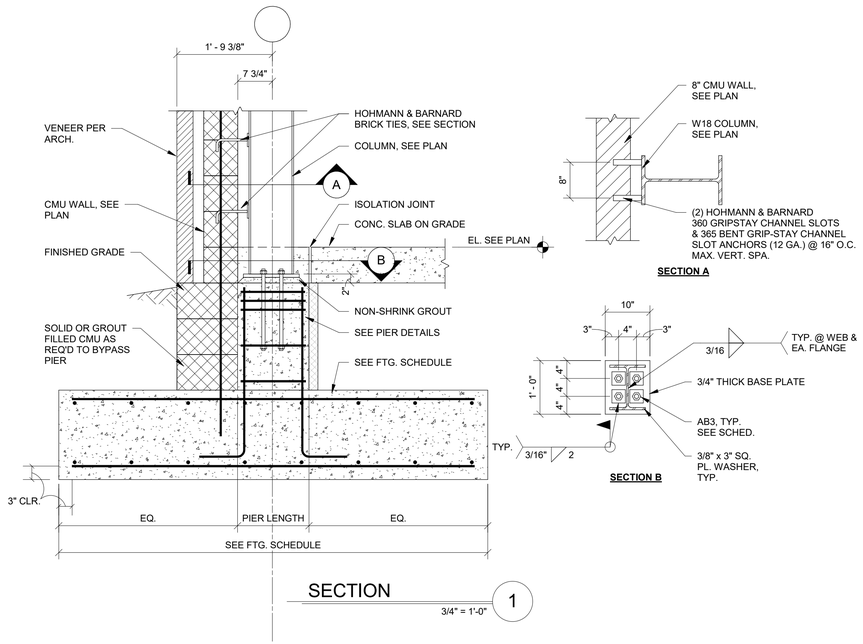
S3.03

4/3/2020 3:47:44 PM

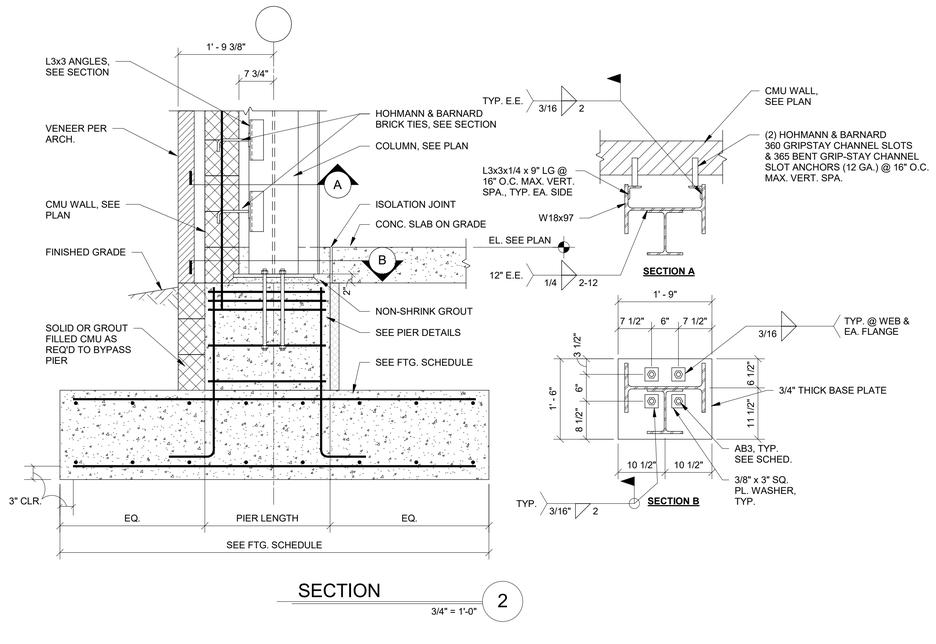


SECTION 1

3/4" = 1'-0"

SECTION A

SECTION B



SECTION 2

3/4" = 1'-0"

SECTION A

SECTION B

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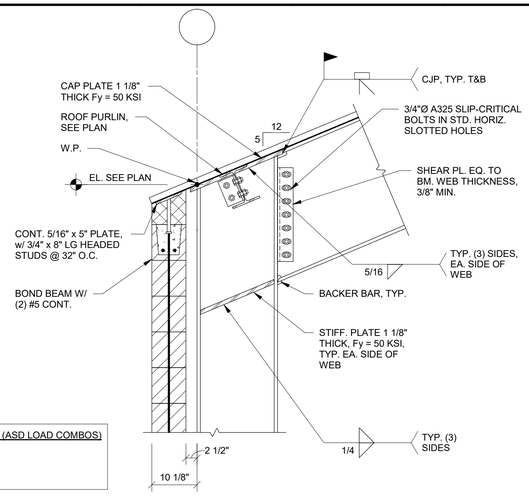
SHEET NO.
S3.04

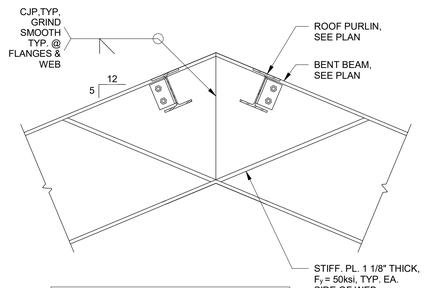
4/3/2020 3:47:45 PM



MEMBER END REACTIONS: (ASD LOAD COMBOS)	
W27	
AXIAL	± 24k
SHEAR	± 29k
MOMENT	318k-ft

NOTES:
1) AN ALTERNATE CONNECTION DESIGNED USING THE LOADS INDICATED ABOVE MAY BE SUBMITTED TO THE EOR FOR REVIEW/APPROVAL CONNECTION DETAILS & CALCULATIONS MUST BE SIGNED & SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OHIO

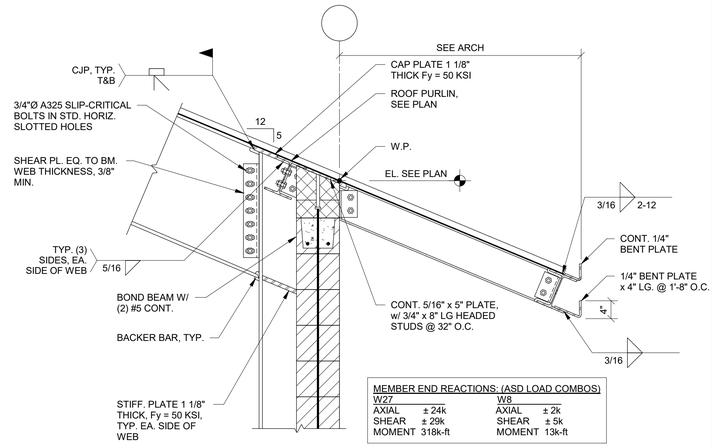
SECTION 1
3/4" = 1'-0"



MEMBER END REACTIONS: (ASD LOAD COMBOS)	
AXIAL	± 14k
SHEAR	± 15k
MOMENT	147k-ft

NOTES:
1) AN ALTERNATE CONNECTION DESIGNED USING THE LOADS INDICATED ABOVE MAY BE SUBMITTED TO THE EOR FOR REVIEW/APPROVAL CONNECTION DETAILS & CALCULATIONS MUST BE SIGNED & SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OHIO

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



MEMBER END REACTIONS: (ASD LOAD COMBOS)			
W27		W8	
AXIAL	± 24k	AXIAL	± 2k
SHEAR	± 29k	SHEAR	± 5k
MOMENT	318k-ft	MOMENT	13k-ft

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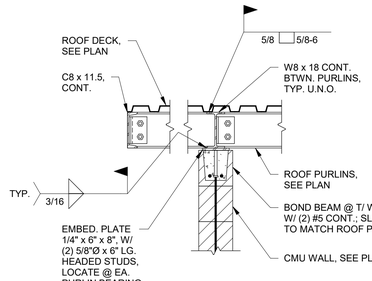
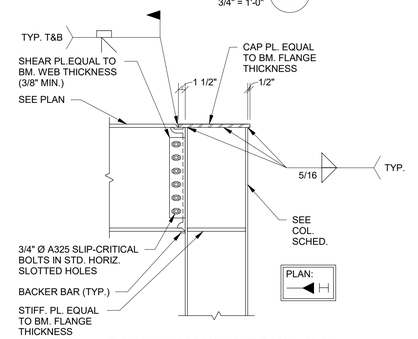
SECTION 3
3/4" = 1'-0"

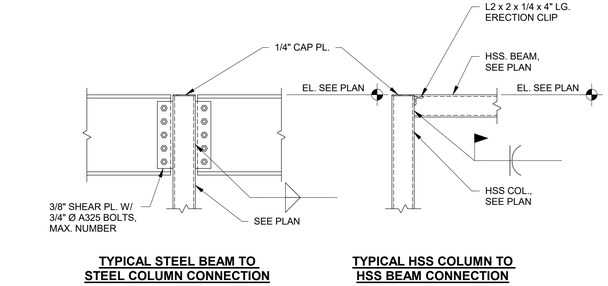


SECTION 4
3/4" = 1'-0"



TYP. COLUMN-TO-BEAM MOMENT CONNECTION

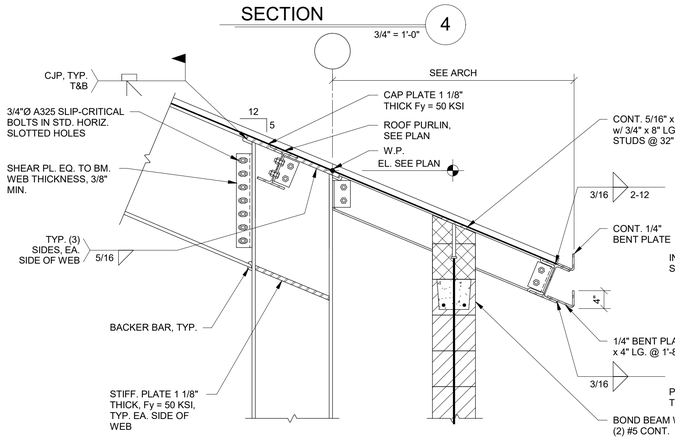
SECTION 5
3/4" = 1'-0"



TYPICAL STEEL BEAM TO STEEL COLUMN CONNECTION

TYPICAL HSS COLUMN TO HSS BEAM CONNECTION

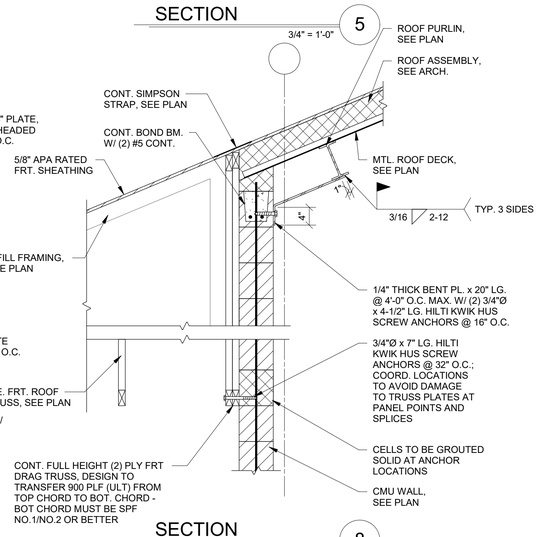
SECTION 6
3/4" = 1'-0"



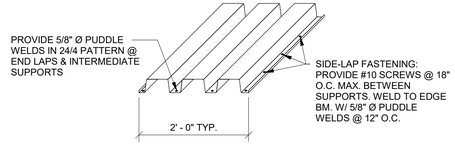
MEMBER END REACTIONS: (ASD LOAD COMBOS)			
W27		W8	
AXIAL	± 24k	AXIAL	± 2k
SHEAR	± 29k	SHEAR	± 5k
MOMENT	318k-ft	MOMENT	13k-ft

NOTES:
1) AN ALTERNATE CONNECTION DESIGNED USING THE LOADS INDICATED ABOVE MAY BE SUBMITTED TO THE EOR FOR REVIEW/APPROVAL CONNECTION DETAILS & CALCULATIONS MUST BE SIGNED & SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OHIO

SECTION 7
3/4" = 1'-0"



SECTION 8
3/4" = 1'-0"



2" METAL ROOF DECK ATTACHMENT TO STEEL STRUCTURE
(24/4 PATTERN)

SECTION 9
3/4" = 1'-0"

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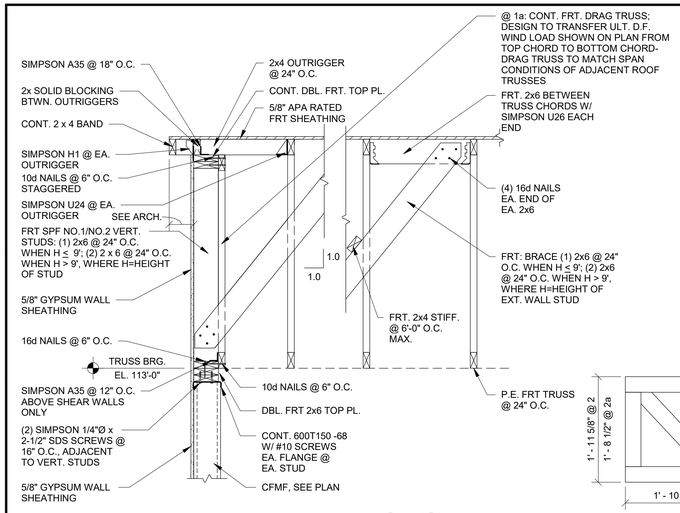
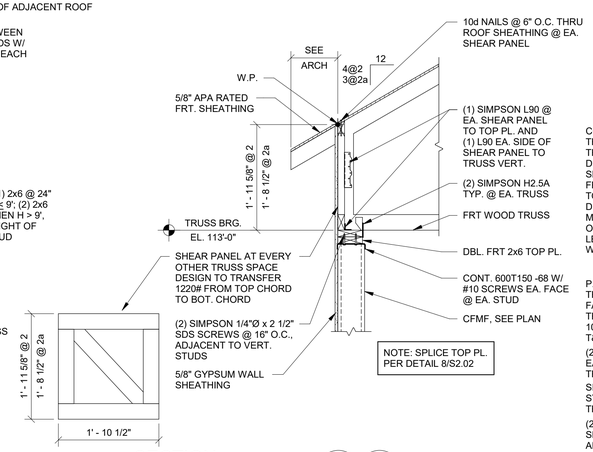
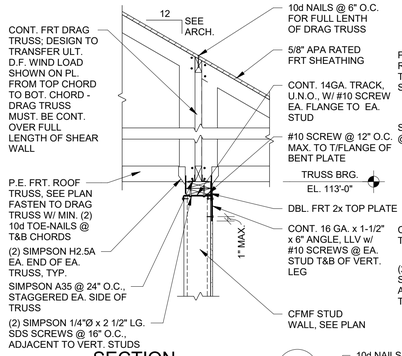
SHEET NO.
S3.11

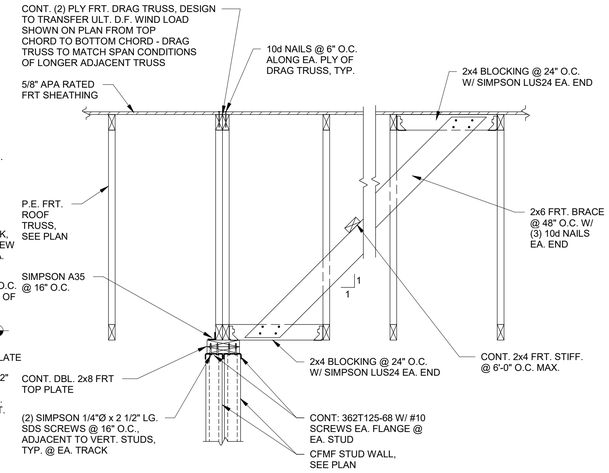
4/3/2020 3:47:45 PM



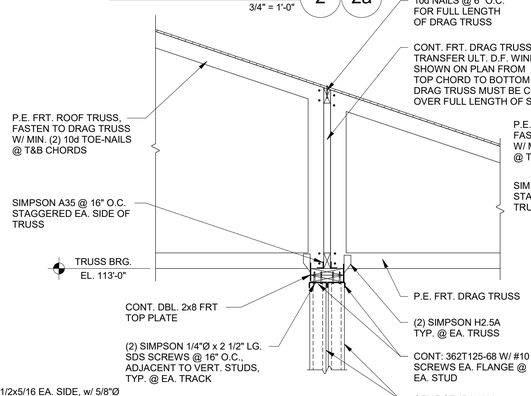
SECTION 1 1a
3/4" = 1'-0"



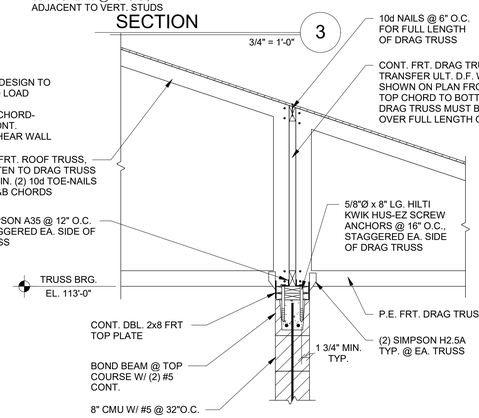




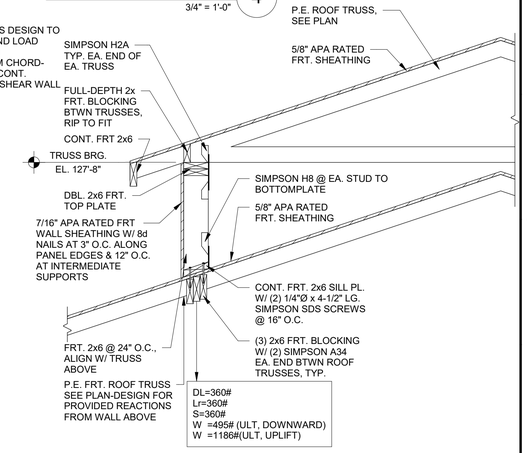
SECTION 2 2a
3/4" = 1'-0"



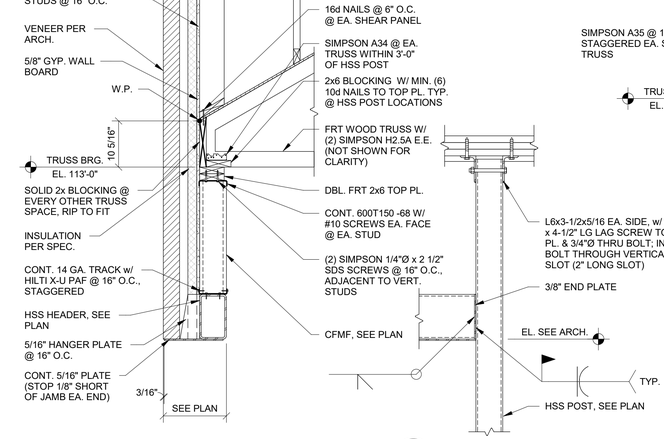
SECTION 3
3/4" = 1'-0"



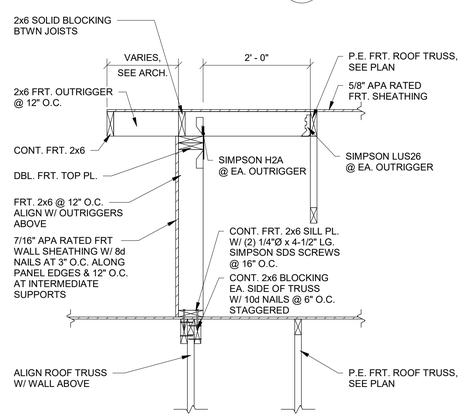
SECTION 4
3/4" = 1'-0"



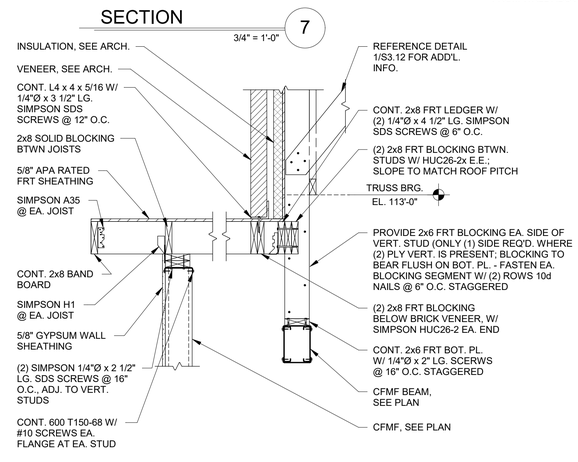
SECTION 8
3/4" = 1'-0"



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



SECTION 9
3/4" = 1'-0"



SECTION 10
3/4" = 1'-0"

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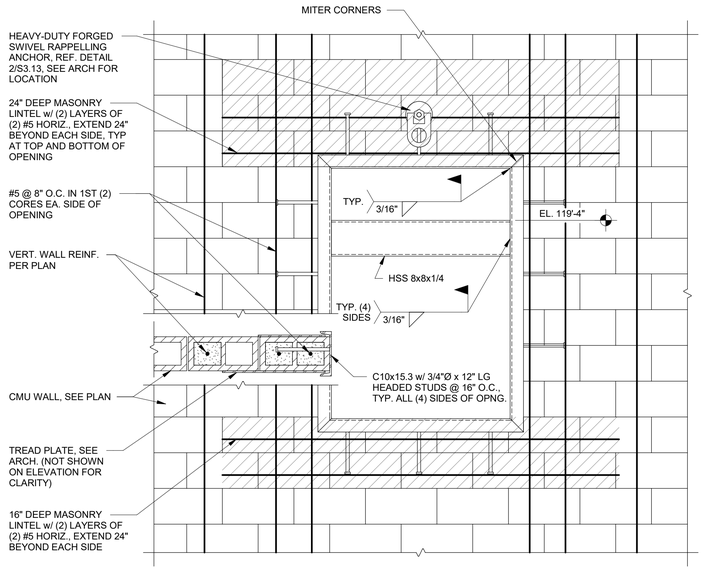
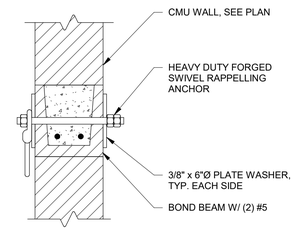
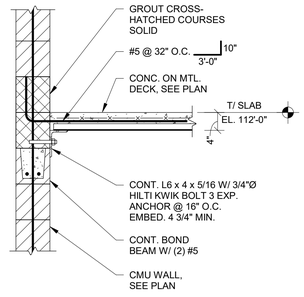
4/3/2020 3:47:46 PM



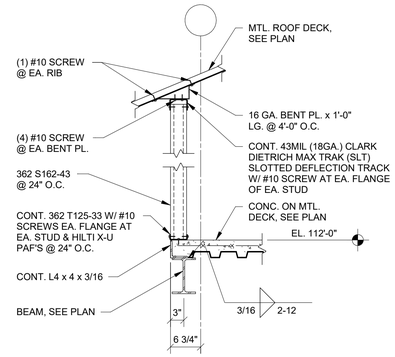
ELEVATION 1
3/4" = 1'-0"



SECTION 2
1 1/2" = 1'-0"



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



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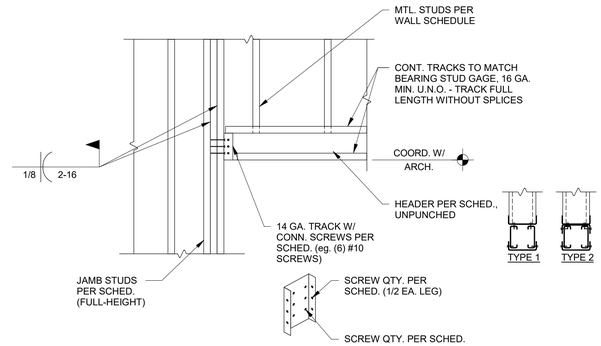
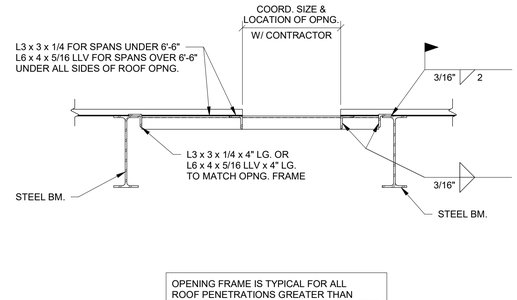
3/4" = 1'-0"



TYPICAL HEADER TO JAMB ATTACHMENT

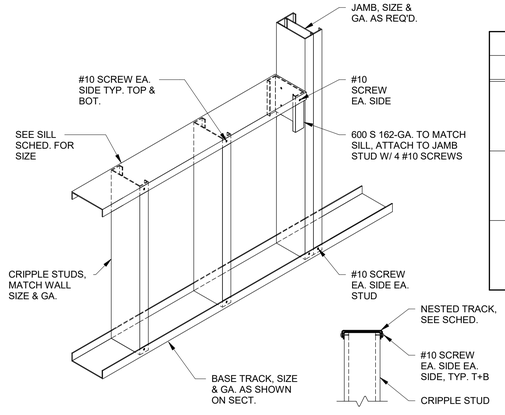
SECTION 6
3/4" = 1'-0"



OPENING FRAME IS TYPICAL FOR ALL ROOF PENETRATIONS GREATER THAN OR EQUAL TO 10" SQUARE OR 10" DIAMETER

TYPICAL ROOF OPENING FRAMING

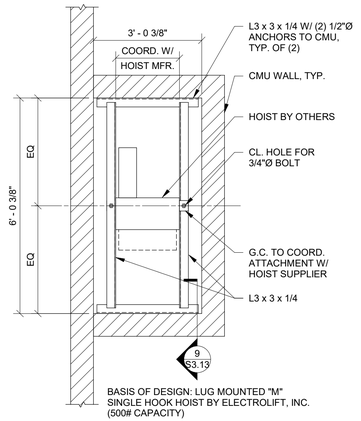
SECTION 7
3/4" = 1'-0"



SILL SCHEDULE	
LOCATION	SILL (IF APPLICABLE)
WINDOW OPENINGS UP TO 4'-0" WD.	600T125-54
WINDOW OPENINGS 4'-1" TO 8'-8" WD.	600T125-54 (FLAT) NESTED IN 600T125-54
WINDOW OPENINGS 8'-9" TO 14'-0" WD.	600T200-54 (FLAT) NESTED IN 600T200-54

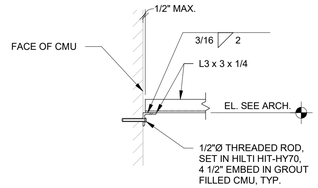
SILL TO JAMB ATTACHMENT

SECTION 5
1" = 1'-0"

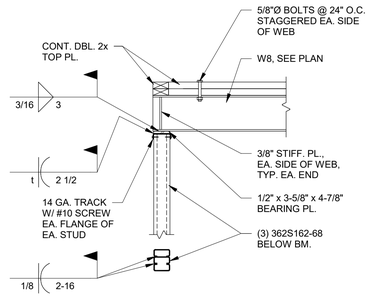


PARTIAL HOIST SUPPORT FRAMING PLAN

SECTION 8
1/2" = 1'-0"



SECTION 9
3/4" = 1'-0"



SECTION 10
3/4" = 1'-0"

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STEVEN R. McCLARREN
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TITLE
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SHEET NO.
S3.13

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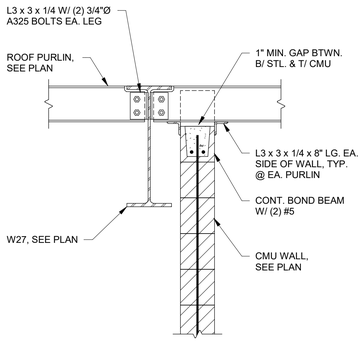
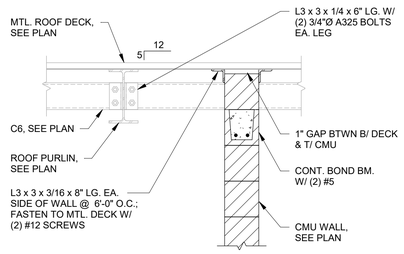


SECTION 1
3/4" = 1'-0"



SECTION 2
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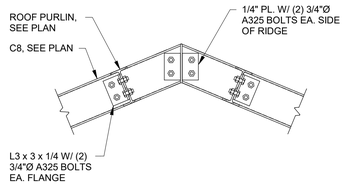
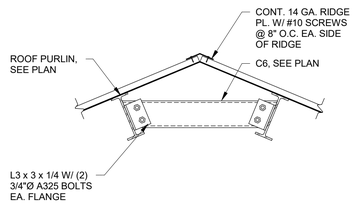


SECTION 3
3/4" = 1'-0"



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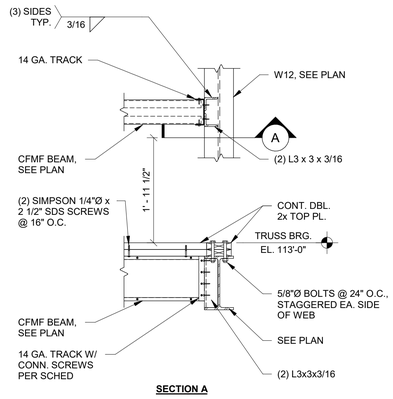
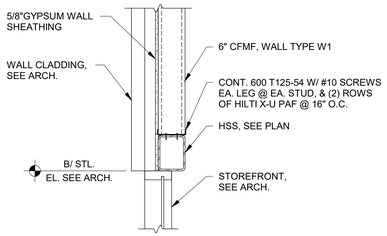


SECTION A

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



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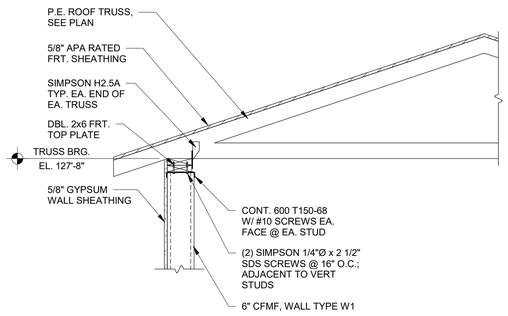
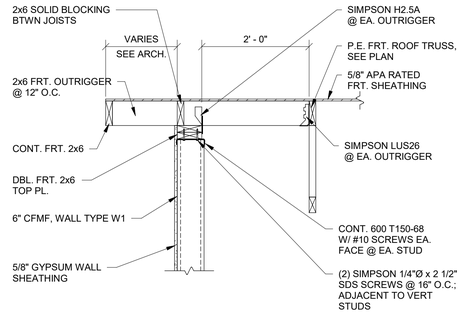
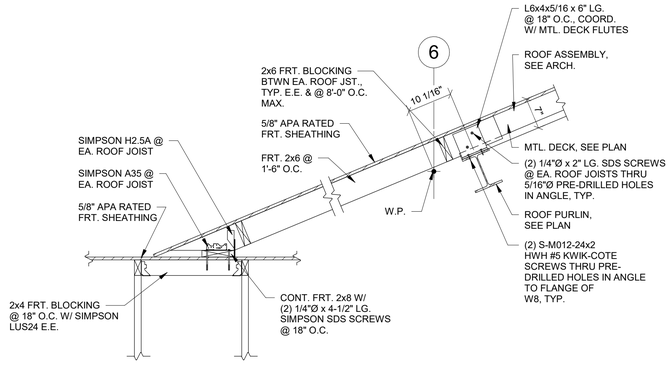


SECTION 7
3/4" = 1'-0"



SECTION 8
3/4" = 1'-0"



SECTION 9
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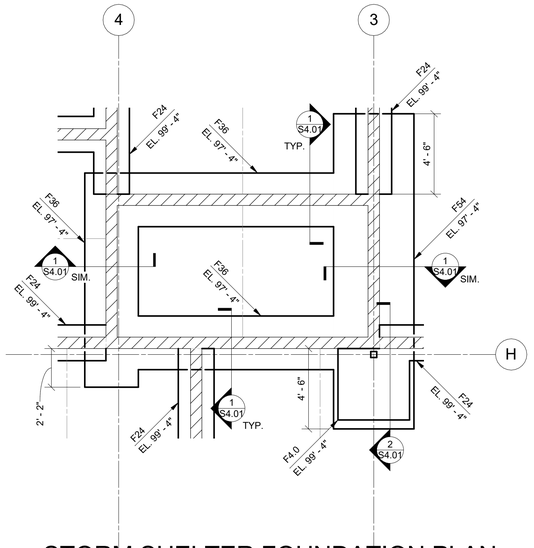
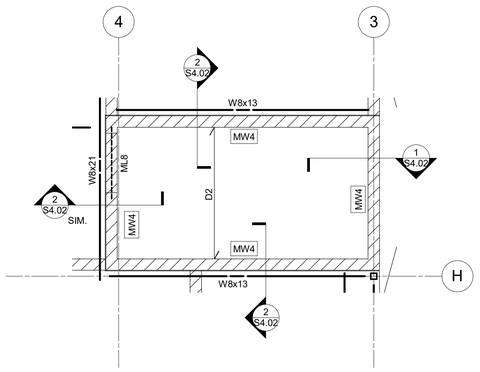
4/3/2020 3:47:48 PM



STORM SHELTER FOUNDATION PLAN

1/4" = 1'-0"



STORM SHELTER FRAMING PLAN

1/4" = 1'-0"

STORM SHELTER ROOF FRAMING NOTES

1. DESIGN LIVE/SNOW LOADS:

ROOF LIVE	268 PSF
WIND UPLIFT	-209 PSF (INTERIOR ZONES)
	-292 PSF (WITHIN 3-FT. OF EDGES)
	-388 PSF (WITHIN 6-FT. OF CORNERS)

2. ROOF CONSTRUCTION:
   8" (OVERALL) CONCRETE SLAB W/ #5 REINFORCING BARS AT 12 INCHES ON CENTER EACH WAY, TOP AND BOTTOM.

3. PROVIDE PLATE SHROUDS PER SECTION 3/S4.02 AT ALL WALL OPENINGS (MECHANICAL, ELECTRICAL, PLUMBING, ETC.) EXCEEDING 3-1/2 SQUARE INCHES OR 2-1/16 INCH DIAMETER.

4. CONSTRUCT CORNERS OF STORM SHELTER MASONRY WALLS PER DETAIL 4/S4.02.

5. SEE SHEET S0.01 FOR GENERAL STRUCTURAL INFORMATION.

GENERAL STORM SHELTER NOTES

1. DESIGN CRITERIA:

TYPE OF STORM SHELTER:	COMMUNITY TORNADO
MINIMUM SOIL BEARING PRESSURE:	3000 PSF
ROOF LIVE LOADS:	
- SHELTER ROOF	100 PSF
WIND LOADS:	
- BASIC WIND SPEED (Vu)	250 MPH
- EXPOSURE CATEGORY	EXPOSURE C
- INTERNAL PRESSURE COEFF. (Gcpi)	+/- 0.55
- TOPOGRAPHIC FACTOR (Kzt)	1.0
- DIRECTIONALITY FACTOR (Kd)	1.0

2. THE STORM SHELTER AREA HAS BEEN DESIGNED IN ACCORDANCE WITH THE STRUCTURAL PROVISIONS OF ICC 500-2014, "STANDARD FOR THE DESIGN AND CONSTRUCTION OF STORM SHELTERS".

3. IMPACT RESISTANCE:

   A. WALL AND ROOF SYSTEMS HAVE BEEN SELECTED FOR DEBRIS IMPACT RESISTANCE TESTED IN ACCORDANCE WITH ASTM E 1886. SEE THE "SUMMARY ON DEBRIS IMPACT TESTING OF BUILDING ASSEMBLIES" BY TEXAS TECH UNIVERSITY (et. al.), DATED AUGUST 2006 FOR REFERENCED TEST SPECIMEN NUMBERS.

   B. WALL SYSTEMS ARE TO BE 8 INCH MINIMUM REINFORCED CONCRETE MASONRY WITH #4 VERTICAL REINFORCING BARS GROUTED INTO EVERY CELL. ASSEMBLY HAS BEEN TESTED FOR A 15-POUND 2x4 TRAVELING AT 100 MPH PER TTU TABLE A.5, TEST NO. 1.

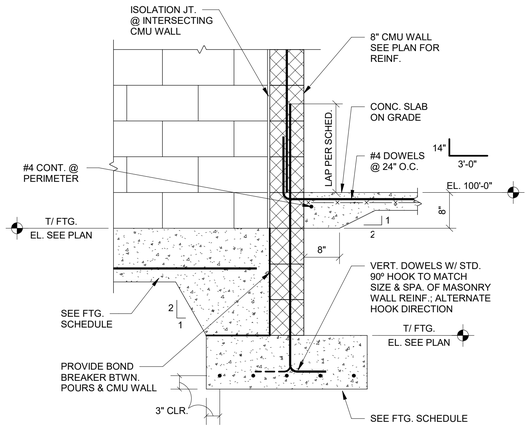
   C. ROOF SYSTEMS ARE TO BE 4-INCH MINIMUM REINFORCED CONCRETE WITH #4 REINFORCING BARS AT 12 INCHES O.C. EACH WAY. ASSEMBLY HAS BEEN TESTED FOR A 15-POUND 2x4 TRAVELING AT 67 MPH PER TTU TABLE A.6, TEST NO. 37.

2. OPENINGS AND WALL JOINTS:

   A. WINDOW AND DOOR SYSTEMS ARE TO BE SELECTED TO WITHSTAND THE DESIGN WIND LOADS SPECIFIED BELOW, AND FOR DEBRIS IMPACT RESISTANCE TESTED IN ACCORDANCE WITH ASTM E 1886 FOR A 15-POUND 2x4 TRAVELING AT 100 MPH.

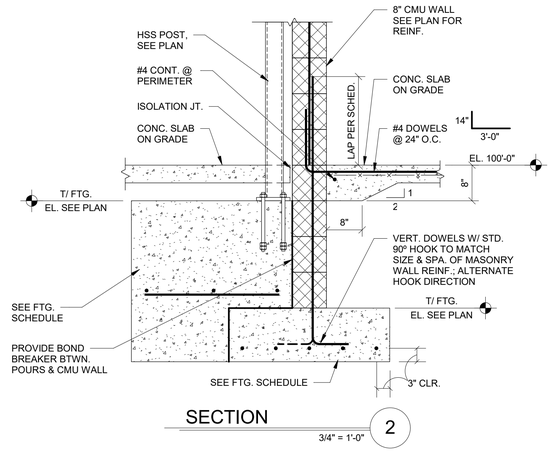
   B. PROVIDE PLATE SHROUDS AS INDICATED AT ALL OPENINGS (MECHANICAL, ELECTRICAL, PLUMBING, ETC.) IN THE STORM SHELTER ENVELOPE EXCEEDING 1 7/8 INCH SQUARE OR 1 5/8 INCH DIAMETER.

   C. ALL VERTICAL CONTROL JOINTS IN MASONRY CONSTRUCTION ARE TO BE SEALED IN ACCORDANCE WITH TMS 602, SECTION 2.5 A; JOINT WIDTH MAY NOT EXCEED 3/8".



SECTION 1

3/4" = 1'-0"



SECTION 2

3/4" = 1'-0"

STORM SHELTER QUALITY ASSURANCE PLAN

JGA PROJECT NAME: BEAVERCREEK TOWNSHIP FIRE STATION NO. 65
JGA PROJECT NUMBER: 17.05.097

1. PRIOR TO CONSTRUCTION OF THE STORM SHELTER PORTION OF THE PROJECT, THE OWNER IS TO RETAIN AN INDEPENDENT AGENCY TO PERFORM THE SPECIAL INSPECTIONS, TESTING, AND STRUCTURAL OBSERVATIONS REQUIRED IN THIS QUALITY ASSURANCE PLAN. WHERE APPLICABLE, INDIVIDUALS PERFORMING SPECIAL INSPECTIONS AND TESTING ARE TO BE QUALIFIED THROUGH RECOGNIZED INDUSTRY CERTIFICATION. INDIVIDUALS PERFORMING STRUCTURAL OBSERVATIONS ARE TO REGISTERED DESIGN PROFESSIONALS IN THE JURISDICTION OF THE PROJECT.

2. THE REQUIREMENTS SPECIFIED IN THIS QUALITY ASSURANCE PLAN ARE APPLICABLE TO THE STORM SHELTER PORTION OF THE PROJECT, ITS REFERENCED DETAILS, AND ALL COMPONENTS THEREOF. SEE THE PLANS FOR AREA(S) DESIGNATED AS PART OF THE STORM SHELTER CONSTRUCTION.

3. ON A REGULAR BASIS, THE SPECIAL INSPECTION AND STRUCTURAL OBSERVATION AGENCY SHALL SUBMIT WRITTEN REPORTS IDENTIFYING DEFICIENCIES IN THE STORM SHELTER CONSTRUCTION. AT THE COMPLETION OF THE STORM SHELTER CONSTRUCTION, THE AGENCY SHALL SUBMIT A STATEMENT INDICATING THAT ALL DEFICIENCIES IDENTIFIED DURING CONSTRUCTION HAVE BEEN PROPERLY ADDRESSED, AND THAT STRUCTURAL OBSERVATIONS HAVE BEEN REGULARLY PERFORMED. ALL REPORTS ARE TO BE SUBMITTED TO THE OWNER, ARCHITECT, CONSTRUCTION MANAGER, AND THE AUTHORITY HAVING JURISDICTION.

4. EACH CONTRACTOR RESPONSIBLE FOR CONSTRUCTING ELEMENTS OF THE STORM SHELTER SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE OWNER, ARCHITECT, CONSTRUCTION MANAGER, AND THE AUTHORITY HAVING JURISDICTION. PARTIES RESPONSIBLE FOR THIS STATEMENT INCLUDE, BUT ARE NOT LIMITED TO, THE SITE GRADING CONTRACTOR, CAST-IN-PLACE CONCRETE SUPPLIER AND CONTRACTOR, STRUCTURAL STEEL FABRICATOR AND ERECTOR, MASONRY CONTRACTOR, REINFORCING STEEL FABRICATOR AND IRON WORKERS, PRECAST MANUFACTURER AND ERECTOR, DOOR MANUFACTURER AND INSTALLER, AND OPENING PROTECTIVE DEVICE FABRICATOR AND ERECTOR. THIS STATEMENT IS TO INCLUDE THE FOLLOWING:

   A. ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS IN THE QUALITY ASSURANCE PLAN.

   B. ACKNOWLEDGMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS.

   C. PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING, AND THE DISTRIBUTION OF REPORTS.

   D. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.

5. THE FOLLOWING SPECIAL INSPECTIONS AND TESTING OF THE STORM SHELTER CONSTRUCTION ARE TO BE PERFORMED AS PART OF THIS QUALITY ASSURANCE PLAN. THESE REQUIREMENTS ARE IN ADDITION TO THE TESTING AND INSPECTIONS REQUIRED FOR THE REMAINDER OF THE BUILDING:

   A. SOILS

      i. PERIODICALLY INSPECT SOILS BELOW FOOTINGS FOR ADEQUATE BEARING CAPACITY AND CONSISTENCY WITH GEOTECHNICAL REPORT. INSPECT REMOVAL OF UNSUITABLE MATERIAL AND PREPARATION OF SUBGRADE PRIOR TO PLACEMENT OF CONTROLLED FILL.

      ii. PERIODICALLY VERIFY DEPTH AND WIDTH OF FOUNDATION EXCAVATIONS.

   B. CONCRETE (FOOTINGS, PIERS, TOPPINGS SLABS, SLABS ON METAL DECK, SLABS ON GRADE, CAPS/ROOFS)

      i. PERIODICALLY INSPECT SIZE, SPACING, COVER, POSITIONING, AND GRADE OF REINFORCING STEEL. VERIFY THAT REINFORCING BARS ARE FREE OF FORM OIL OR OTHER DELETERIOUS MATERIALS. INSPECT BAR LAPS AND MECHANICAL SPLICES. VERIFY THAT BARS ARE ADEQUATELY TIED AND SUPPORTED ON CHAIRS OR BOLSTERS.

      ii. PERIODICALLY INSPECT SIZE, POSITIONING, AND EMBEDMENT OF ANCHOR RODS, WELD PLATES, AND ALL OTHER CAST-IN EMBEDDED ITEMS. INSPECT CONCRETE PLACEMENT AND CONSOLIDATION AROUND ANCHORS.

      iii. CONTINUOUSLY INSPECT SIZE, POSITIONING, EMBEDMENT, AND INSTALLATION OF POST-INSTALLED CHEMICAL AND MECHANICAL ANCHORS. VERIFY INSTALLATION PROCEDURE IS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PULL-TEST ANCHORS THAT ARE DEEMED SUSPECT DUE TO IMPROPER TORQUE AND/OR INADEQUATE EMBEDMENT DEPTH.

      iv. PERIODICALLY VERIFY USE OF PROPER MIX DESIGN.

      v. PERIODICALLY VERIFY FORM WORK FOR SHAPE, LOCATION, AND DIMENSIONS OF CONCRETE BEING FORMED.

      vi. PERIODICALLY INSPECT PLACEMENT OF CONCRETE. VERIFY THAT CONCRETE CONVEYANCE AND DEPOSITING AVOIDS SEGREGATION OR CONTAMINATION. VERIFY THAT CONCRETE IS PROPERLY CONSOLIDATED. INSPECT CURING, COLD-WEATHER PROTECTION, AND HOT-WEATHER PROTECTION PROCEDURES.

      vii. PERIODICALLY SAMPLE AND TEST CONCRETE FOR COMPRESSIVE STRENGTH, SLUMP, AIR CONTENT, AND TEMPERATURE. SAMPLE EACH 50 CUBIC YARDS OF CONCRETE, OR FRACTION THEREOF, PLACED IN ANY ONE DAY.

   C. MASONRY

      i. PERIODICALLY INSPECT PROPORTIONING, MIXING, AND RETEMPERING OF MORTAR AND GROUT. INSPECT CONSTRUCTION OF MORTAR JOINTS INCLUDING TOOLING AND FILLING OF HEAD JOINTS.

      ii. PERIODICALLY INSPECT SIZE, LAYOUT, BONDING, GROUT SPACE, AND PLACEMENT OF MASONRY UNITS.

      iii. PERIODICALLY INSPECT PLACEMENT, SIZE, GRADE, POSITIONING, AND LAPPING OF REINFORCING STEEL.

      iv. CONTINUOUSLY INSPECT PLACEMENT AND CONSOLIDATION OF GROUT. INSPECT MASONRY CLEAN-OUTS FOR HIGH-LIFT GROUTING.

      v. PERIODICALLY INSPECT SIZE, POSITIONING, AND EMBEDMENT OF ANCHOR RODS, WELD PLATES, AND ALL OTHER CAST-IN EMBEDDED ITEMS. INSPECT CONCRETE PLACEMENT AND CONSOLIDATION AROUND ANCHORS.

      vi. CONTINUOUSLY INSPECT SIZE, POSITIONING, EMBEDMENT AND INSTALLATION OF POST-INSTALLED CHEMICAL AND MECHANICAL ANCHORS. VERIFY INSTALLATION PROCEDURE IS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PULL-TEST ANCHORS THAT ARE DEEMED SUSPECT DUE TO IMPROPER TORQUE AND/OR INADEQUATE EMBEDMENT DEPTH.

      vii. PERIODICALLY INSPECT COLD-WEATHER PROTECTION AND HOT-WEATHER PROTECTION PROCEDURES. VERIFY THAT WALL CAVITIES ARE PROTECTED AGAINST PRECIPITATION.

      viii. PERIODICALLY SAMPLE AND TEST COMPRESSIVE STRENGTH OF MORTAR AND GROUT CUBE SAMPLES. TEST COMPRESSIVE STRENGTH OF ASSEMBLED MASONRY PRISMS.

   D. OPENING PROTECTIVE DEVICES

      i. CONTINUOUSLY INSPECT INSTALLATION OF DOOR ANCHORAGES AND ANCHORAGE OF PROTECTIVE BAFFLES FOR OPENINGS.

      ii. UPON COMPLETION, VERIFY THE PROPER OPERATION OF DOORS AND SHUTTERS. CONFIRM MAXIMUM ALLOWABLE GAPS AT THRESHOLDS, SILLS, JAMBS, AND HEADS OF OPENING LEAFS.

6. THE FOLLOWING STRUCTURAL OBSERVATIONS OF THE STORM SHELTER CONSTRUCTION ARE TO PERFORMED AS PART OF THIS QUALITY ASSURANCE PLAN. THESE OBSERVATIONS ARE TO VISUALLY VERIFY THAT THE IDENTIFIED ASSEMBLIES ARE BEING BUILT IN GENERAL CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. ADDITIONAL OBSERVATIONS OF THE CONSTRUCTION ARE TO BE PERFORMED AT THE OBSERVER'S DISCRETION.

   A. FOUNDATIONS

      i. VERIFY THAT DOWEL BARS IN FOUNDATIONS AND SLABS ARE BEING PROVIDED WHERE INDICATED. VERIFY THAT DOWELS HAVE BEEN SHORTENED AT LOCATIONS WHERE THE HOST BUILDING IS DESIGNED TO BREAK-FREE FROM THE STORM SHELTER CONSTRUCTION.

      ii. VERIFY THAT ANCHOR BOLTS HAVE BEEN PROVIDED WITH SUFFICIENT LENGTHS TO RECEIVE FURTHER CONSTRUCTION. VERIFY THAT ANCHORS HAVE NOT BEEN BENT OR OTHERWISE MODIFIED.

   B. WALLS

      i. VERIFY THAT OPENINGS AND PORTALS ARE BEING BUILT AS INDICATED.

      ii. VERIFY THAT SUFFICIENT LAP LENGTHS ARE BEING PROVIDED BETWEEN SEQUENCES OF CONSTRUCTION.

      iii. VERIFY THAT CAST-IN AND POST-INSTALLED ANCHORS HAVE SUFFICIENT LENGTH TO RECEIVE FURTHER CONSTRUCTION. VERIFY THAT ANCHORAGES HAVE NOT BEEN BENT OR OTHERWISE MODIFIED.

      iv. VERIFY THAT PROPER CAST-IN ITEMS FOR DOORS AND SHUTTERS ARE BEING PROVIDED.

      v. VERIFY THAT VERTICAL CONTROL JOINTS ARE 3/8" OR LESS IN WIDTH, AND HAVE BEEN FILLED ACCORDING TO TMS 602 FOR MASONRY OR ASTM C920 FOR CONCRETE.

      vi. VERIFY THAT BOND PATTERN AT CORNERS HAS BEEN CONSTRUCTED AS INDICATED.

   C. ROOFS

      i. VERIFY THAT ANCHORAGES BETWEEN THE STORM SHELTER WALLS AND ROOFS ARE BEING PROVIDED AS INDICATED.

      ii. VERIFY THAT MEMBER BRACING, CONFIGURATION, AND CONNECTIONS HAVE BEEN PROVIDED AS INDICATED.

      iii. VERIFY THAT DOWELS, BARS, AND/OR ANCHORAGES HAVE BEEN SHORTENED AT LOCATIONS WHERE THE HOST BUILDING IS DESIGNED TO BREAK-FREE FROM THE STORM SHELTER CONSTRUCTION.

      iv. VERIFY FILLING OF GAPS AND JOINTS BETWEEN ROOF FRAMING MEMBERS, AND AT BEARING LOCATIONS.

   D. OPENINGS

      i. VERIFY THAT POST-INSTALLED ANCHORAGES OF OPENING PROTECTIVE DEVICES HAVE BEEN INSTALLED.

      ii. VERIFY THAT PROTECTIVE BAFFLES HAVE BEEN PROVIDED FOR ALL PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE.

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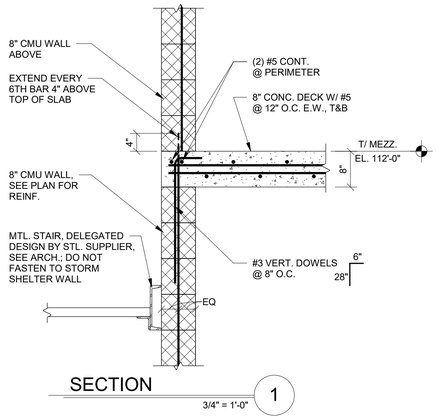
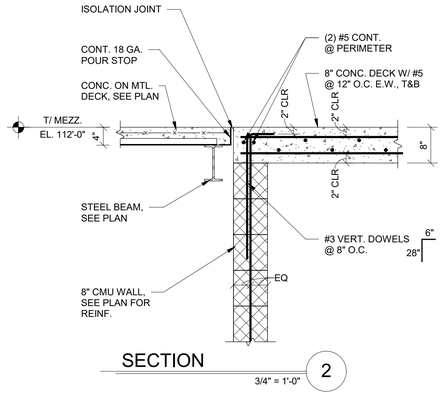


SECTION 1
3/4" = 1'-0"



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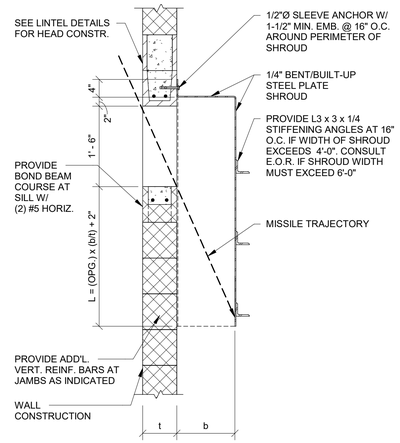
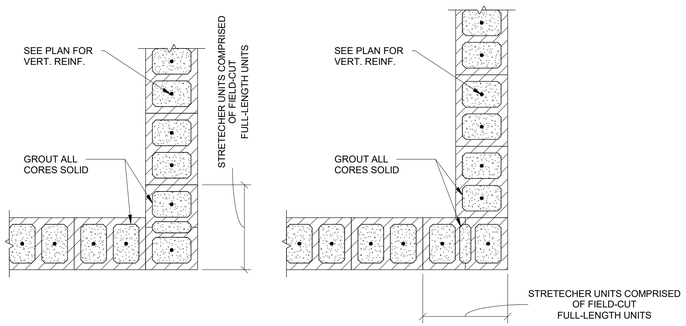


STORM SHELTER WALL
OPENING PLATE SHROUD

NOTES:
1. PLATE SHROUDS ARE REQUIRED FOR ALL OPENINGS (MECHANICAL, ELECTRICAL, PLUMBING, ETC.) EXCEEDING 3-1/2 SQUARE INCHES OR 2-1/16 INCH DIAMETER
2. SHROUD MAY BE ORIENTED IN ANY DIRECTION
3. CONSULT ENGINEER OF RECORD IF SHROUD DIMENSIONS MUST DEVIATE FROM THOSE INDICATED

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



TYPICAL STORM SHELTER CORNER CONSTRUCTION

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

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Beavercreek Township

Fire Station No. 65

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ISSUE:

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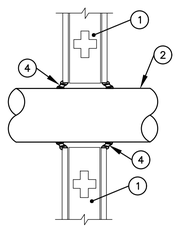
DATE	04/03/2020
JOB NO.	3541.00
DRAWN	MJI
CHECKED	SRM
CAD	CAD

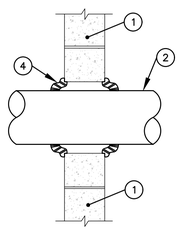
TITLE
STORM SHELTER

SHEET NO.
S4.02

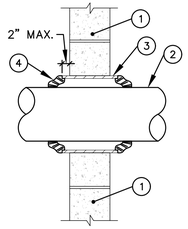
4/3/2020 3:47:49 PM



GYPSUM CONSTRUCTION
ALL PIPE SIZES



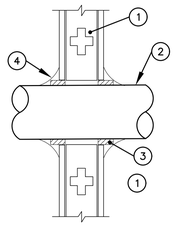
CONCRETE/MASONRY CONSTRUCTION
1/2" - 1-1/2" PIPES



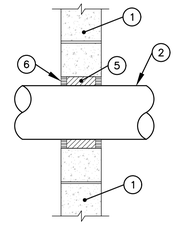
CONCRETE/MASONRY CONSTRUCTION
2" AND LARGER PIPES

1. FULL HEIGHT INTERIOR WALL.
2. PIPE OR TUBING.
3. SCHEDULE 40 STEEL PIPE SLEEVE CAST OR GROUTED INTO WALL ASSEMBLY. ENDS FLUSH OR MAX. 2" BEYOND WALL SURFACE.
4. CAULK TO FILL VOID AT WALL/SLEEVE OPENING TO PREVENT THE PASSAGE OF SMOKE.

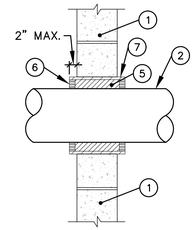
1 PIPE PENETRATIONS THRU NON-RATED WALLS
N.T.S.



GYPSUM CONSTRUCTION
ALL PIPE SIZES



CONCRETE/MASONRY CONSTRUCTION
1/2" - 1-1/2" PIPES



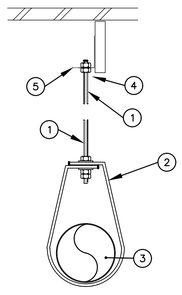
CONCRETE/MASONRY CONSTRUCTION
2" AND LARGER PIPES

FIRESTOPPING MATERIALS/INSTALLATION

- MANUFACTURERS: 3M FIRE PROTECTION PRODUCTS HILTI FIRESTOP SYSTEMS
- FIRESTOPPING MATERIAL INSTALLATION SHALL BE PER THE MANUFACTURERS DETAILED INSTALLATION DIAGRAMS AND INSTRUCTIONS.
- F-RATING OF PENETRATION SHALL BE NO LESS THAN THE FIRE RATING OF THE WALL.
- SUBMITTAL SHALL INCLUDE PRODUCT DATA AND DETAILED INSTALLATION SYSTEM DIAGRAMS.

1. RATED WALL ASSEMBLY.
2. METALLIC PIPE OR TUBING.
3. APPROVED FIRESTOPPING VOID/CAVITY MATERIAL.
4. APPROVED FIRESTOPPING CAULK OR SEALANT.
5. PACKING MATERIAL, MINERAL WOOL BATT INSULATION.
6. APPROVED FIRESTOPPING CAULK OR SEALANT FLUSH WITH SURFACE OF WALL OR EDGE OF SLEEVE.
7. SCHEDULE 40 STEEL PIPE SLEEVE CAST OR GROUTED INTO WALL ASSEMBLY. ENDS FLUSH OR MAX. 2" BEYOND WALL SURFACE.

2 PIPE PENETRATIONS THRU FIRE RATED WALLS
N.T.S.



1. THREADED ROD. ATTACH TO STRUCTURE. PROVIDE DOUBLE NUT. ADJUST NUTS & RODS FOR PROPER ELEVATION.
2. STEEL BAND PIPE HANGER. EQUAL TO ANVIL FIG. 260.
3. PIPE.
4. GALVANIZED RETAINING NUTS & WASHERS.
5. STEEL ANGLE CLIP ENGINEERED FASTENER FOR THREADED ROD INTO WOOD.

3 TYPICAL PIPE HANGER
N.T.S.

DESIGN CRITERIA

1. DESIGN AND INSTALLATION OF SERVICE MAIN AND WET PIPE SPRINKLER SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST OHIO BUILDING CODE, N.F.P.A. 13 (2010 EDITION), AND ALL AUTHORITIES HAVING JURISDICTION (AHJ).
2. WORKING PLANS AND HYDRAULIC CALCULATIONS SHALL BE PREPARED, SUBMITTED, AND APPROVED PRIOR TO INSTALLATION, BY THE FIRE SUPPRESSION CONTRACTOR. PLANS SHALL INCLUDE ALL ITEMS LISTED IN N.F.P.A. 13.
3. WATER SUPPLY DATA: THE FIRE SUPPRESSION CONTRACTOR IS RESPONSIBLE FOR CONDUCTING A FLOW TEST TO OBTAIN CURRENT WATER SUPPLY DATA FROM THE NEW WATER DISTRIBUTION SYSTEM FOR USE IN THE HYDRAULIC CALCULATIONS.
4. HYDRAULIC DESIGN CRITERIA FOR LIGHT HAZARD AREAS: (ALL AREAS EXCEPT WHERE NOTED OTHERWISE)

DENSITY:	0.10 GPM/SQ.FT.
DESIGN AREA:	MOST DEMANDING 1500 SQ. FT. (REDUCTION WITH QUICK RESPONSE HEADS PERMITTED)
MAX. SPRINKLER COVERAGE:	225 SQ. FT./HEAD
HOSE DEMAND:	100 GPM
DURATION:	30 MINUTES

5. HYDRAULIC DESIGN CRITERIA FOR ORDINARY HAZARD (GROUP 1) AREAS: (STORAGE ROOMS, MECHANICAL ROOMS, JANITOR'S ROOMS, KITCHEN, COMMUNICATION ROOMS)

DENSITY:	0.15 GPM/SQ.FT.
DESIGN AREA:	MOST DEMANDING 1500 SQ. FT.
MAX. SPRINKLER COVERAGE:	130 SQ. FT./HEAD
HOSE DEMAND:	250 GPM
DURATION:	60 MINUTES

6. HYDRAULIC DESIGN CRITERIA FOR ORDINARY HAZARD (GROUP 2) AREAS: (APPARATUS BAY)

DENSITY:	0.2 GPM/SQ.FT.
DESIGN AREA:	MOST DEMANDING 1500 SQ. FT.
MAX. SPRINKLER COVERAGE:	130 SQ. FT./HEAD
HOSE DEMAND:	250 GPM
DURATION:	60 MINUTES

7. ALL SPRINKLER HEADS SHALL BE QUICK RESPONSE TYPE.
8. SPRINKLER HEADS IN AREAS WITH FINISHED CEILINGS SHALL BE CONCEALED PENDENT TYPE WITH FLAT PLATE AND WHITE FINISH.
9. SPRINKLER HEADS IN AREAS WITH NO CEILINGS SHALL BE UPRIGHTS.. SIDEWALL SPRINKLER HEADS MAY ALSO BE USED IN STAIRWELLS WHERE PROPER COVERAGE CAN BE PROVIDED.

GENERAL NOTES

A. PROVIDE A COMPLETE SPRINKLER SYSTEM THROUGHOUT THE BUILDING. BUILDING SHALL BE CONSIDERED FULLY SUPPRESSED AT COMPLETION OF PROJECT.

B. ALL FIRE SUPPRESSION EQUIPMENT SHALL BE UL LISTED FOR FIRE SUPPRESSION SERVICE.

PROVIDE A FIRE WATCH IN ACCORDANCE WITH "AHJ" REQUIREMENTS.

C. ALL FIRE SUPPRESSION SYSTEMS (SERVICE MAIN, FIRE DEPT. CONNECTION, SPRINKLER SYSTEM, INSPECTOR TEST, DRAIN, ETC.) SHALL BE HYDROSTATICALLY TESTED AT 200 PSI FOR 2 HOURS WITH NO VISIBLE LEAKAGE. ALL CONCEALED PIPING SHALL BE AIR TESTED, WITH NO LEAKAGE, PRIOR TO FILLING SYSTEM WITH WATER. THE FIRE PROTECTION CONTRACTOR SHALL NOTIFY ALL AUTHORITIES HAVING JURISDICTION 24 HOURS PRIOR TO THE TEST TO ALLOW AHJ TO WITNESS ALL TESTS.

D. ALL VALVES CONTROLLING WATER SUPPLIES SHALL BE PROVIDED WITH TAMPER SWITCHES (SEE NOTE E).

E. THE FIRE SPRINKLER SYSTEM SHALL BE SUPERVISED BY AN APPROVED CENTRAL STATION FIRE ALARM SYSTEM IN ACCORDANCE WITH O.B.C. AND N.F.P.A. 72.

F. THE FIRE SUPPRESSION CONTRACTOR SHALL COORDINATE WIRING OF ELECTRICAL FIRE SUPPRESSION DEVICES AND EQUIPMENT WITH THE ELECTRICAL AND/OR FIRE ALARM CONTRACTOR. ALL FIRE ALARM WIRING BY ELECTRICAL CONTRACTOR. ALL DEVICES SHALL BE FURNISHED AND INSTALLED BY THE FIRE SUPPRESSION CONTRACTOR.

G. THE FIRE SUPPRESSION CONTRACTOR SHALL COORDINATE THE LAYOUT OF THE FIRE SUPPRESSION SYSTEM WITH ALL TRADES PRIOR TO INSTALLATION.

H. THE FIRE SUPPRESSION CONTRACTOR SHALL CENTER (WITHIN 1") ALL CONCEALED SPRINKLER HEADS INSTALLED IN ACOUSTICAL LAY-IN CEILING TILES. ALL PENDENT SPRINKLER HEADS IN CEILINGS SHALL BE SYMMETRICAL WITH LIGHTING AND AIR DEVICES.

I. VERIFY THE LOCATION AND TYPE OF FIRE DEPARTMENT CONNECTION WITH THE FIRE DEPARTMENT.

J. LOCAL SPRINKLER ALARM AND REMOTE ALARM AND SUPERVISION SHALL BE THRU THE FIRE ALARM SYSTEM PROVIDED BY THE E.C.

K. CONCEALED, NONCOMBUSTIBLE ATTIC SPACES DO NOT REQUIRE SPRINKLERS.

L. FINAL APPROVAL IS SUBJECT TO ACCEPTANCE AND TESTING BY ALL AHJ.

SEISMIC REQUIREMENTS

THIS PROJECT HAS SEISMIC REQUIREMENTS.

REFER TO DRAWING H0.1.

GENERAL LEGEND

EC	ELECTRICAL CONTRACTOR.
FC	FIRE PROTECTION CONTRACTOR.
GC	GENERAL CONTRACTOR.
HC	HVAC CONTRACTOR.
PC	PLUMBING CONTRACTOR.
NIC	NOT IN CONTRACT.
AFF	ABOVE FINISHED FLOOR – TO BOTTOM OF ITEM UNLESS INDICATED OTHERWISE IN DRAWING.
(3)	NOTE SYMBOL – APPLIES ONLY TO SHEET ON WHICH IS SHOWN.
(2)	DETAIL NOTE SYMBOL – APPLIES ONLY TO DETAIL ON WHICH IS SHOWN.
H-1	EQUIPMENT REFERENCE SYMBOL. ELECTRICAL CONNECTION REQUIRED.
	CONNECTION, NEW TO EXISTING.
	1 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.
	2 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.
	3 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.
	ITEM TO BE REMOVED.
	EXISTING ITEM TO REMAIN.
	NEW ITEM.

FIRE SUPPRESSION

F	FIRE SUPPRESSION SYSTEM
S	SPRINKLER SYSTEM
	GATE VALVE
	VALVE
	VALVE ON RISER
	CHECK VALVE, SWING GATE
	SUPERVISED VALVE
FS	FLOW SWITCH
	CAP
	CONNECTION, BOTTOM
	CONNECTION, TOP
	ELBOW, 90 deg., LONG RADIUS
	ELBOW, 45 deg.
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	TEE
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	UNION, SCREWED
P	PRESSURE GAUGE
	SPRINKLER BEING REMOVED
	PENDENT SPRINKLER
	UPRIGHT SPRINKLER
	SEMI-RECESSED SPRINKLER
	CONCEALED SPRINKLER
	INSTITUTIONAL PENDANT SPRINKLER
	SIDEWALL SPRINKLER

FIRE SUPPRESSION PIPING

GENERAL NOTES:

PIPING SHALL CONFORM TO OBC REQUIREMENTS.

PIPING INSTALLATION AND TESTING SHALL COMPLY WITH NFPA 13 (2010 EDITION).

PROVIDE PIPING SLEEVES AT WALLS IN NEW CONSTRUCTION.

PIPING SHALL BE PITCHED FOR DRAINAGE.

CLOSE OPEN ENDS OF PIPING DURING CONSTRUCTION.

PIPE AND TUBING SHALL BE CUT AND FABRICATED TO FIELD MEASUREMENTS AND RUN PARALLEL TO NORMAL BUILDING LINES. PIPE INTERIOR SHALL BE CLEANED OF FOREIGN MATTER AND BURRS BEFORE ERECTION OF PIPE.

PIPING SHALL NOT BE RUN ABOVE ELECTRICAL SWITCHGEAR OR PANELBOARDS, NOR ABOVE THE ACCESS SPACE OF SUCH EQUIPMENT – NEC ARTICLE 384.

PIPING SYSTEM	TYPE
FIRE SERVICE PIPING	P1
FIRE SUPPRESSION PIPING	S2, S3
WET PIPE SPRINKLER 2" AND SMALLER	S2
WET PIPE SPRINKLER 2" AND LARGER	S1, S2, S3

TYPE	DESCRIPTION	TYPE	DESCRIPTION
S1	**ROLL GROOVED BLACK STEEL** SCHEDULE 10, ASTM A-135 OR ASTM A 795/A TYPE E OR F MALLEABLE/DUCTILE FITTINGS NITRILE /EPDM GASKETS ASTM A47/A47M OR A536	S3	**ROLL/CUT GROOVED BLACK STEEL** SCHEDULE 40, ASTM A-53 TYPE E OR F MALLEABLE/DUCTILE FITTINGS NITRILE /EPDM GASKETS ASTM A47/A47M OR A536
S2	**THREADED BLACK STEEL** SCHEDULE 40, ASTM A-53 TYPE E OR F 150 LB. MALLEABLE OR C.I. SCREWED FITTINGS	P1	**PVC AWWA C900 CLASS 200,** BELL AND SPIGOT FABRICATED FITTINGS WITH ELASTROMERIC GASKET, UL1285

INDEX OF DRAWINGS

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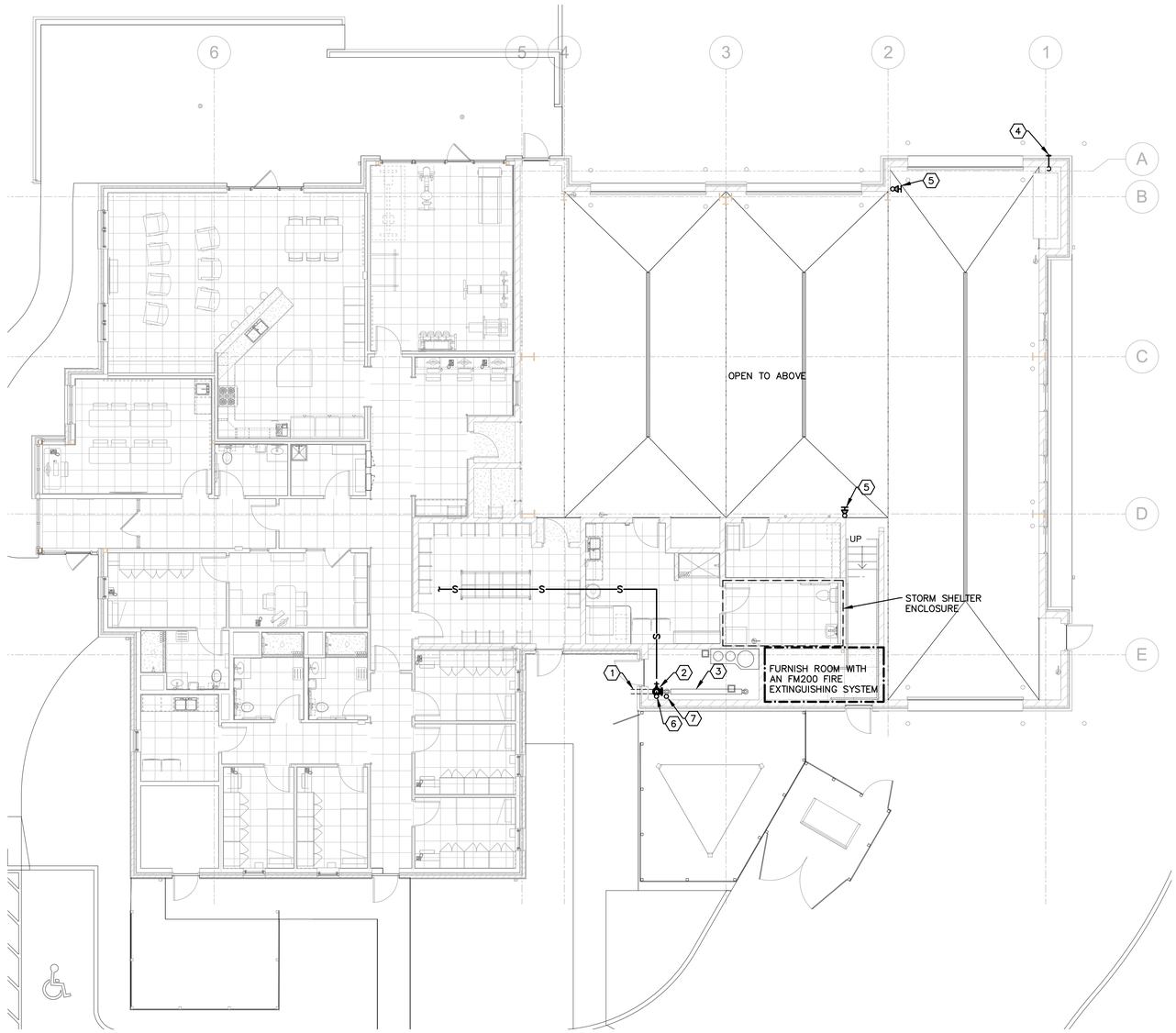
DRAWN	DEG
CHECKED	DEG
CAD	18102F0.dwg

TITLE
LEGEND, SCHEDULES, AND DETAILS

SHEET NO.
F0.1



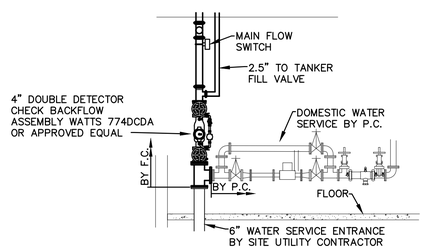
CONSTRUCTION NOTES

1. 6" COMBINATION WATER SERVICE BY SITE UTILITY CONTRACTOR.
2. FIRE SERVICE RISER WITH DOUBLE DETECTOR CHECK BACKFLOW PREVENTOR IN THE VERTICAL POSITION. SEE DETAIL THIS SHEET
3. 3" DOMESTIC WATER SERVICE BY P.C.. SEE DETAIL SHEET P4.3.
4. 5" STORTZ CONNECTION.
5. 2.5" FIRE DEPARTMENT VALVE WITH 1.5" ADAPTER ON EXPOSE PIPE DROP FOR FILLING TANKER TRUCK. SEE SHEET F2.2 FOR CONTINUATION.
6. 4" SPRINKLER RISER UP. SEE SHEET F2.2 FOR CONTINUATION.
7. 2.5" FIRE WATER UP AND ACROSS MEZZANINE TO FIRE DEPARTMENT VALVE (NOTE 5). SEE SHEET F2.2 FOR CONTINUATION.
8. SPRINKLER PIPING FROM MEZZANINE. EXTEND TO FIRST FLOOR SPRINKLER SYSTEM.

LEVEL 1 FLOOR PLAN

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

0 4 8 16 24 32 40



WATER SERVICE

SCALE: NONE

STORM SHELTER NOTES

PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE LARGER THAN 3-1/2 SQUARE INCHES IN AREA FOR RECTANGULAR OPENINGS OR 2-1/16" IN DIAMETER SHALL BE CONSIDERED OPENING AND SHALL BE PROVIDED WITH AN OPENING PROTECTIVE DEVICE. REFERENCE STRUCTURAL DRAWINGS.

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TITLE

LEVEL 1 FLOOR PLAN

SHEET NO.

F2.1

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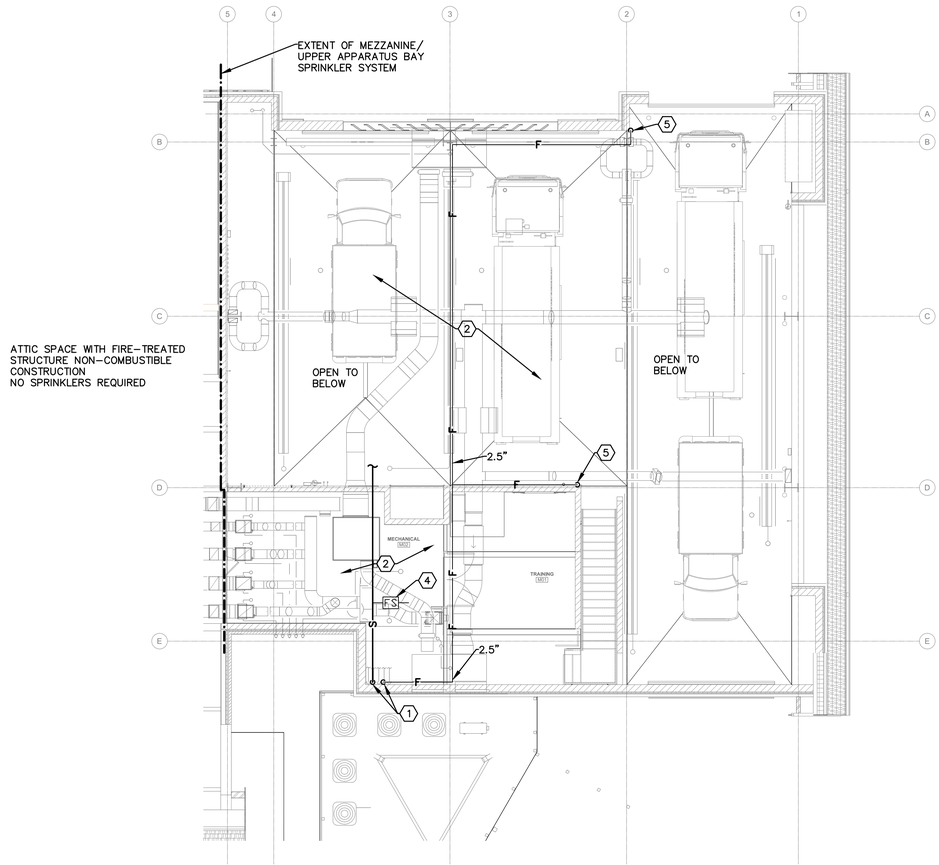

MEZZANINE AND UPPER APPARATUS BAY PLAN

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

0 4 8 16 24 32 40

CONSTRUCTION NOTES

1. PIPING FROM FIRE SERVICE RISER BELOW. SEE LEVEL 1 FLOOR PLAN.
2. PIPING RUN AT UNDERSIDE OF SLOPED STRUCTURE.
3. DROP PIPING TO NEAR TOP OF MEZZANINE FLOOR AND RUN THRU WALL INTO SPACE ABOVE LEVEL 1 CEILING. SEE LEVEL 1 FLOOR PLAN FOR CONTINUATION.
4. ADDITIONAL FLOW SWITCH SERVING ONLY YHT SPRINKLER ON THE MEZZANINE.
5. 2.5" TANKER FILL LINE DOWN. SEE FIRST FLOOR PLAN FOR CONTINUATION.

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TITLE
MEZZANINE AND UPPER APPARATUS BAY PLAN

SHEET NO.
F2.2

NAUMAN & ZELINSKI LLC.
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PLUMBING FIXTURE SCHEDULE

ITEM	FIXTURE DESCRIPTION	FIXTURE	SERVICES H.W.	C.W.	R.O.	SAN.	VENT	MTG. HGT.	TRIM REQUIREMENTS SUPPLY	STOPS	WASTE	TRAP	CARRIER	ACCESSORIES	NOTES
W1	WATER CLOSET/ FLOOR SET/ FLOOR OUTLET/ VIT. CHINA/ FLUSH VALVE/ 1.6 GPF/ ELONGATED/ OPEN FRONT SEAT W LID	AM. STANDARD # 3040.001	–	1"		4"	2"	–	SLOAN # SLOAN 111	UNIT	UNIT	INTEGRAL	––	BEMIS # 1950SS	
W2	WATER CLOSET/ FLOOR SET/ FLOOR OUTLET/ VIT. CHINA/ FLUSH VALVE/ 1.6 GPF/ ELONGATED/ OPEN FRONT SEAT	AM. STANDARD # 3040.001	–	1"		4"	2"	–	SLOAN # SLOAN 111	UNIT	UNIT	INTEGRAL	––	BEMIS # 1955SSCT	
W3	WATER CLOSET/ FLOOR SET/ FLUSH TANK/ RIGHT HEIGHT/ 1000 G MoP RATED/ OPEN SEAT WITH LID/ ACCESSIBLE	AM. STANDARD # 215AB.004	–	0.5"		4"	2"		UNIT	MCGUIRE # LFBV172	UNIT	INTEGRAL	––	BEMIS # 1950SS	
L1	LAVATORY/ INTEGRAL WITH C'TOP/ SOLID SURFACE/ SINGLE LEVER FAUCET/ POP–UP WASTE/ 1.2 GPM	BY OTHERS	0.5"	0.5"		1.25"	1.25"	34" TO RIM	AM. STANDARD # 1480.101	MCGUIRE # LFBV170	UNIT	MCGUIRE # PW2150WC	––	POWERS # LFE480	
L2	LAVATORY/ INTEGRAL WITH C'TOP/ SOLID SURFACE/ SINGLE LEVER FAUCET/ GRID STRAINER/ 0.5 GPM	BY OTHERS	0.5"	0.5"		1.25"	1.25"	–	AM. STANDARD # 1480.100–F05	MCGUIRE # LFBV170	MGUIRE # 155A	MCGUIRE # PW2150WC	––	POWERS # LFE480	
L3	LAVATORY/ WALL HUNG/ VIT CHINA/ SINGLE LEVER FAUCET/ GRID STRAINER/ 0.5 GPM	AM. STANDARD # 0355.012	0.5"	0.5"		1.25"	1.25"	34" TO RIM	AM. STANDARD # 1480.100–F05	MCGUIRE # LFBV170	UNIT	MCGUIRE # PW2150WC	J.R.SMITH # 0710	POWERS # LFE480	
S1	SINK/ ST. ST./ UNDERCOUNTER MOUNTING/ SINGLE BOWL/ SINGLE LEVER FAUCET W SPRAY	ELKAY # EFRU131610	0.5"	0.5"		1.5"	1.25"	–	AM. STANDARD # 4433.001	MCGUIRE # LFBV170	MCGUIRE # 151A	MCGUIRE # 8912F	––		
S2	SINK/ C'TOP/ DOUBLE BOWL/ SINGLE LEVER FAUCET W SPRAY/ DISPOSAL/ RO FAUCET	ELKAY # LR3319	0.5"	0.5"	0.5"	(2) 1.5"	1.25"	–	AM. STANDARD # 4332.350 WATTS # WTMFAG–C	MCGUIRE # LFBV170	MCGUIRE # 151A	MCGUIRE # 8912F & # 111	––	INSINKERATOR # ESSENTIAL XTR	
S3	SINK/ ST. ST./ C'TOP/ DOUBLE BOWL/ SINGLE LEVER FAUCET W SPRAY	ELKAY # LR2219	0.5"	0.5"		(2) 1.5"	1.25"	–	AM. STANDARD # 4433.001	MCGUIRE # LFBV170	MCGUIRE # 151A	MCGUIRE # 8912F	––		
S4	SINK/ ST. ST./ INTEGRAL W C'TOP/ DOUBLE BOWL/ SINGLE LEVER FAUCET W PULL DOWN SPRAY W COIL/ BASKET STRAINER/ EMERG. DRENCH HOSE WITH MIXING VALVE	BY OTHERS	0.5"	0.5"		(2) 1.5"	1.25"	–	AM. STANDARD # 4332.350	MCGUIRE # LFBV170	MCGUIRE # 151A	MCGUIRE # 8912F & # 111	––	GUARDIAN # G5022–TMV	
SH1	SHOWER/ STALL BY OTHERS/ MIXING VALVE WITH FIXED HEAD AND HAND HELD ON SLIDE BAR/ DIVERTER VALVE IN WALL	BY OTHERS	0.5"	0.5"		2"	1.5"	VALVE 42"	POWERS # E710–M–2–N–Y–W						
SH2	DECONTAM SHOWER STALL/ STALL BY OTHERS/ MIXING VALVE WITH FIXED HEAD AND HAND HELD ON SLIDE BAR/ DIVERTER VALVE IN WALL	BY OTHERS	0.5"	0.5"		3"	1.5	VALVE 42" HEAD 86"	POWERS # E710–M–2–N–Y–W						
M1	MOP SINK/ FLOOR SET/ 24" SQ. 10" DEEP/ MOLDED STONE/DROP FRONT/ ST. SAT. CAP ON DROP/	FLORESTONE # 91	0.5"	0.5"		3"	1.5"	36" ℄ FAUCET	AM. STANDARD # 8354.112	UNIT	UNIT	SAME AS DWV PIPING	–––		
M2	MOP SINK FAUCET ONLY	NONE	0.5"	0.5"		–	–	36" ℄ FAUCET	AM. STANDARD # 8354.112	UNIT	–	–	–––	–––	
HR1	HOSE REEL/ WALL MOUNTED/ OPEN/ SPRING DRIVEN/ 75' OF 0.75" HOSE/ 250 PSI MAX	REELCRAFT # GCD83075 OLP	–	0.75"		–	–	SUPPLY @ 36" REEL @ 60"	T&S BRASS # B–2301						
WB1	WASHER UTILITY CONNECTION BOX/ 1/4 TURN BALL VALVES WITH WATER HAMMER ARRESTOR	OATEY # 38655	0.5"	0.5"		2"	1.5"	36"	UNIT	BALL VALVES ABOVE CLG.	UNIT	SAME AS DWV			
WB2	ICE MAKER CONNECTION BOX/ 1/4 TURN BALL VALVE/ 6' ST. ST. HOSE	OATEY # 39142	–	–	0.5"	–	–	24"	UNIT	BALL VALVES ABOVE CLG.					
WB3	WASHER UTILITY CONNECTION BOX/ SUPPLY ONLY/ 1/4 TURN BALL VALVES WITH WATER HAMMER ARRESTOR	OATEY # 38655	0.5"	0.5"		–	–	36"	UNIT	BALL VALVES ABOVE CLG.	UNIT	–			

EQUALS
AMERICAN STANDARD CHINA – KOHLER, ZURN
AMERICAN STANDARD FAUCETS – KOHLER, ZURN, CHICAGO FAUCET.
SLOAN – ZURN, DELANEY
BRADLEY – ACORN, WILLOUGHBY
ELKAY – JUST, ADVANCED TABCO,
WOODFORD – ZURN, J.R.SMITH,
LEONARD – SYMMONS, POWERS, ACORN
J.R.SMITH – SEE SPECIFICATIONS
MCGUIRE – WATTS, BRASSCRAFT

NOTES
1. COORDINATE ROUGH–IN WITH CASEWORK SUPPLIER.
2. TRAP SAME MATERIAL AS SANITARY PIPING.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS
4. SINK OUTLET TO BE BACK CENTER.
5. PROVIDE COPPER AIR GAP FITTING FOR DISHWASHER WASTE DEARBORN BRASS # DB–CD–3. COORDINATE LOCATION CAREFULLY WITH CASEWORK INSTALLER.

PLUMBING DRAIN AND CLEANOUT SCHEDULE

DRAIN TYPES
FD – FLOOR DRAIN
FS – FLOOR SINK
RD – ROOF DRAIN
SRD – SECONDARY ROOF DRAIN
SSO – SECONDARY STORM OUTLET

CLEANOUT TYPES
FCO – FLOOR CLEANOUT
WCO – WALL CLEANOUT

ITEM	DRAIN DESCRIPTION	MANUFACTURER	OUTLET SIZE	FEATURES ANCHOR FLANGE	FLASHING CLAMP	UNDERDECK CLAMP	DOUBLE DRAINAGE	SEDIMENT BUCKET	STRAINER TOP/STRAINER SIZE	FLAT	DOME	OPEN TOP NO GRATE	HALF OPEN	ADJUSTABLE	NOTES
FD1	FLOOR DRAIN/CAST IRON BODY AND TOP/ MED DUTY/ LOOSE GRATE	J.R.SMITH # 2110	3"	●					8"ø	●					
FD2	FLOOR DRAIN/CAST IRON BODY/ NICKEL–BRONZE TOP/ ADJUSTABLE	J.R.SMITH # 2005–C06–NB	3"	●					6"ø.	●				●	1.
FD3	FLOOR DRAIN/CAST IRON BODY/ NO TOP GRATE/ FLAT GRATE IN BOTTOM/ MED DUTY/	J.R.SMITH # 2130–LG–FBS	4"	●					12"ø			●			
FD4	FLOOR DRAIN/CAST IRON BODY/ NICKEL–BRONZE SQUARE TOP/ ADJUSTABLE	J.R.SMITH # 2005–K06–NB	3"	●					6"SQ	●				●	1.
FD5	FLOOR DRAIN/CAST IRON BODY/ NICKEL–BRONZE TOP/ FLAT GRATE IN BOTTOM/ MED DUTY/	J.R.SMITH # 2130–S–FBS–NB	3"	●					12"SQ	●			●		3.
TD1	TRENCH DRAIN/ HDPE W HEAVY DUTY GRAY IRON FRAME/ DUCTILE IRON SLOTTED GRATE/ DIN/EN 1433 LOAD CLASS F/	POLYCAST # DG0700AA W/ DG0675HD GRATE & DA0642BH LOCK	4"						6" W 20' LONG	●					
TD2	TRENCH DRAIN/ HDPE W HEAVY DUTY GRAY IRON FRAME/ DUCTILE IRON SLOTTED GRATE/ DIN/EN 1433 LOAD CLASS F/	POLYCAST # DG0700AA W/ DG0675HD GRATE & DA0642BH LOCK	4"						6" W 40' LONG	●					
FCO	CLEANOUT/ FLOOR SET/ NICKEL BRONZE TOP/ CAST IRON BODY/ MIP THREADED CONN./ ABS PLUG	J.R.SMITH # 4020S SERIES							6"ø	●					2.
ECO	EXTRA HEAVY DUTY CLEANOUT/ FLOOR SET/ NICKEL BRONZE TOP/ CAST IRON BODY/ MIP THREADED CONN./ ABS PLUG	J.R.SMITH # 4100S SERIES							6"ø	●					2.
WCO	CLEANOUT/ WALL MOUNTED/ ST.ST. COVER WITH THREADED BOLT AND BRONZE PLUG	J.R.SMITH # 4472T SERIES							7"ø	●					2.

NOTES
1. PROVIDE ASSE 1072 TRAP SEAL PROTECTION DEVICE EQUAL TO MIFAB "MI–GARD" OR J.R.SMITH # 2692
2. CLEANOUT TO BE SAME SIZE AS PIPING FOR PIPING UP TO 4", AND 4" FOR LARGER PIPE SIZES.
3. GRATE TO BE MODIFIED ON SITE TO BE OPEN BELOW INDIRECT LINE.

PLUMBING LEGEND

———	SANITARY DRAIN
– – –	VENT
—– —–	COLD WATER
—HCW—	HARD COLD WATER (CITY WATER NO SOFTENING)
—– – —–	HOT WATER
————	HOT WATER RETURN
—G—	NATURAL GAS
—A—	COMPRESSED AIR
C.O.	CLEAN OUT
	SHUT–OFF VALVE, SEE SCHEDULE FOR TYPE
	CHECK VALVE
	BALANCING VALVE
	VALVE ON RISER
	UNION, SCREWED
Ⓡ	REGULATOR
Ⓟ	PRESSURE GAUGE
Ⓣ	TEMPERATURE GAUGE
	CONNECTION, BOTTOM
	CONNECTION, TOP
	INDICATES DIRECTION OF FLOW
	CAP
V.R.	VENT RISER
V.T.R.	VENT THRU ROOF
S.S.	SOIL STACK
V.S.	VENT STACK
D.S.	DOWNSPOUT (STORM)

GENERAL LEGEND

EC	ELECTRICAL CONTRACTOR.
FC	FIRE PROTECTION CONTRACTOR.
GC	GENERAL CONTRACTOR.
HC	HVAC CONTRACTOR.
PC	PLUMBING CONTRACTOR.
TC	TEMPERATURE CONTROLS CONTRACTOR.
NIC	NOT IN CONTRACT.
AFF	ABOVE FINISHED FLOOR – TO BOTTOM OF ITEM UNLESS INDICATED OTHERWISE IN DRAWING.
③	NOTE SYMBOL – APPLIES ONLY TO SHEET ON WHICH IS SHOWN.
②	DETAIL NOTE SYMBOL – APPLIES ONLY TO DETAIL ON WHICH IS SHOWN.
H–1	EQUIPMENT REFERENCE SYMBOL.
FD1	"UP TO" SYMBOL – INDICATES ITEM SERVED ON FLOOR ABOVE.
	1 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.
	2 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.
	3 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.
	NEW ITEM.

GENERAL NOTES - PLUMBING

A. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE OHIO BUILDING AND PLUMBING CODES, INCLUDING REFERENCED CODES AND STANDARDS.

B. OBTAIN A PLUMBING PERMIT AND SECURE INSPECTION AND APPROVAL OF THE CODE OFFICIAL.

C. COORDINATE EACH ROUGH–IN INSTALLATION REQUIREMENTS AND LOCATIONS WITH OTHER TRADES, ACTUAL EQUIPMENT OR CABINETRY PROVIDED AND FILED CONDITIONS BEFORE PERFORMING WORK.

D. REFER TO ARCHITECTURAL CODE PLANS FOR LOCATIONS OF FIRE WALLS AND SMOKE PARTITIONS.
IN SMOKE PARTITIONS FILL SPACE AROUND PENETRATIONS WITH AN APPROVED MATERIAL TO LIMIT THE FREE PASSAGE OF SMOKE.
IN FIRE WALLS SEAL ALL PENETRATIONS WITH AN APPROVED FIRE STOPPING PRODUCT, SEE SPECIFICATIONS.

E. REFER TO DIAGRAMS, DETAILS, AND SCHEDULES FOR PIPING AND PIPE SIZES NOT SHOWN ON PLAN OR ON DIAGRAMS.

F. ALL PIPING IS ABOVE THE CEILING (AT THE CEILING IN EXPOSED STRUCTURE AREAS) AND BELOW THE BOTTOM CHORD OF THE TRUSSES UNLESS OTHERWISE INDICATED ON PLAN. VENT AND NATURAL GAS PIPING MAY BE RUN IN ATTIC SPACES.

G. ALL EQUIPMENT AND MATERIAL REQUIRED FOR COMPLETE AND FUNCTIONAL PLUMBING SYSTEMS ARE INCLUDED IN THE CONTRACT. THE WORK SCOPE IN THE PROJECT MANUAL DEFINES THE FINAL CONTRACTUAL RESPONSIBILITY TO PROVIDE SUPPORTING EQUIPMENT, MATERIALS, FINISHING, UTILITY COST, ETC (EXAMPLES: CONCRETE PADS, PAINTING, TEMPORARY ELECTRIC/GAS COSTS) FOR THE PLUMBING SYSTEMS. THE WORK SCOPE TAKES PRECEDENCE OVER OTHER SPECIFICATION SECTIONS OR DRAWING REQUIREMENTS.

SEISMIC REQUIREMENTS

THIS PROJECT HAS SEISMIC REQUIREMENTS.

REFER TO DRAWING H0.1.

INDEX OF DRAWINGS

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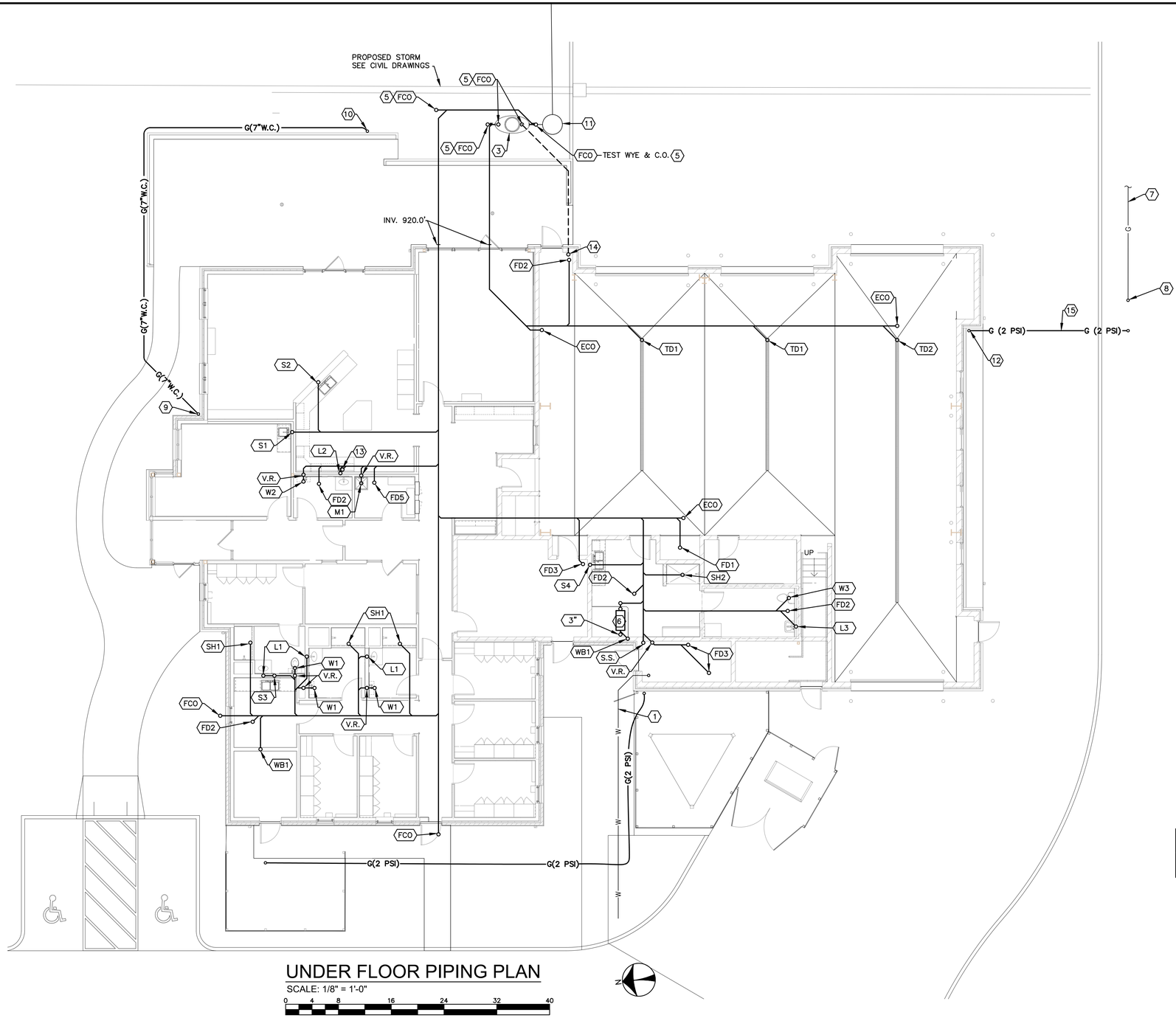
TITLE
INDEX, LEGEND, AND SCHEDULES

SHEET NO.
P0.1



UNDER FLOOR PIPING PLAN

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

0 4 8 16 24 32 40

CONSTRUCTION NOTES

1. COMBINED WATER SERVICE BY SITE UTILITY CONTRACTOR.
2. NATURAL GAS SERVICE BY VECTREN.
3. OIL INTERCEPTOR. SEE DETAIL SHEET P4.2.
4. SANITARY PIPING CONTINUED BY SITE UTILITY CONTRACTOR.
5. ANCHOR CLEANOUT IN 12"X 12" X 6" DEEP CONCRETE PAD WITH TOP AT NEW FINISHED GRADE.
6. DRAIN TROUGH. TROUGH IS TO BE RECESSED INTO EXTRACTOR/WASHER CONCRETE PAD. SEE LEVEL 1 FLOOR PLAN.
7. GAS SERVICE BY VECTREN.
8. UP TO NATURAL GAS METER AND REGULATOR SETTING BY VECTREN.
9. NATURAL GAS PIPING FROM ABOVE. PROVIDE ANODELESS RISER.
10. NATURAL GAS PIPING UP TO ABOVE PATIO LEVEL. PROVIDE ANODELESS RISER.
11. SEWAGE LIFT STATION. SEE CIVIL DRAWINGS.
12. 1.25" NATURAL GAS UP SEE FIRST FLOOR PLAN SHEET P2.1 FOR CONTINUATION AND SHEET P4.3 FOR SCHEMATIC OF ENTIRE NATURAL GAS SERVICE.
13. 1.5" HUB DRAIN WITH 2" ADAPTER FOR ICE MAKER DRAIN.
14. 3" BASIN VENT UP.
15. GAS PIPING UNDER DRIVE TO BE MINIMUM 48" DEEP.

GENERAL NOTE

ALL PIPING INDICATED ON THIS PLAN IS LOCATED BELOW THE FIRST FLOOR SLAB OR BELOW GRADE UNLESS OTHERWISE NOTED.

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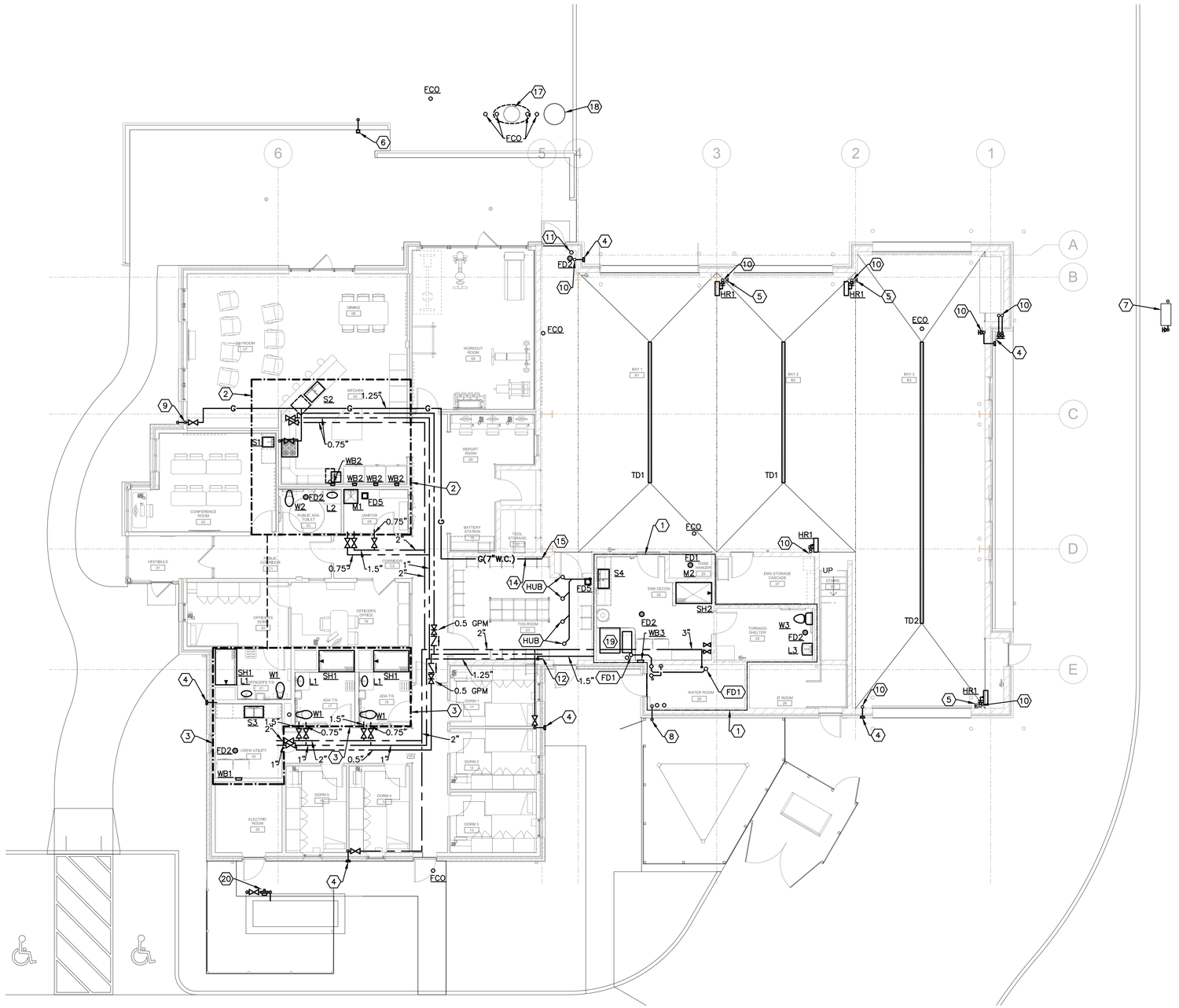
TITLE
UNDER FLOOR PIPING PLAN

SHEET NO.
P2.0F



LEVEL 1 FLOOR PLAN

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

0 4 8 16 24 32 40

CONSTRUCTION NOTES

1. SEE ENLARGED EMS AND WATER SERVICE ROOMS PLAN SHEET P3.1 FOR PIPING IN THIS AREA.
2. SEE ENLARGED KITCHEN AREA PLAN SHEET P3.1 FOR PIPING IN THIS AREA.
3. SEE ENLARGED BATHROOM AREA PLAN SHEET P3.1 FOR PIPING IN THIS AREA.
4. FREEZE–PROOF HOSE BIBB IN RECESSED BOX. WOODFORD # B65 OR APPROVED EQUAL. MOUNT APPROX. 24" A.F.F.
5. INTERIOR HOSE BIBB. WOODFORD # 46–PC–VB WITH BRASS HANDLE OR APPROVED EQUAL. MOUNT 24" A.F.F.
6. GAS SUPPLY BOX FOR GRILL. MOUNT 18" A.F.F. BURNABY # G0101–SS–50–BI OR APPROVED EQUAL. GAS PIPING TO ENTER BOX FROM BOTTOM AND TURN AND RUN THRU WALL IN SLEEVE.
7. NATURAL GAS SERVICE REGULATOR AND METER BY VECTREN. VALVE AND CONNECT TO OUTLET. SEE DETAIL SHEET P4.3.
8. DROP GAS PIPING INTO GROUND EXTEND PIPING TO EMERGENCY GENERATOR. PROVIDE ANODELESS RISER. SEE DETAIL SHEET P4.3.
9. DROP 1" GAS IN WALL TO THE GRILL.
10. PIPING CONTINUED ON UPPER APPARATUS BAY PLAN. SEE SHEET P2.2.
11. 3" BASIN VENT FROM BELOW.
12. 2" HOT WATER AND 0.75" HOT WATER RETURN CONTINUED ON MEZZANINE PLAN.
13. 2 PSI GAS RISER FROM SERVICE. PROVIDE ANODELESS RISER, VALVES AND REGULATOR PER DETAIL SHEET P4.3
14. NATURAL GAS PIPING RUN IN ATTIC SPACE.
15. NATURAL GAS PIPING CONTINUED ON MEZZANINE PLAN.
16. PIPING UNDER MEZZANINE FLOOR ABOVE.
17. OIL INTERCEPTOR. SEE FOUNDATION PLAN.
18. LIFT STATION. SEE CIVIL ENGINEERING DRAWINGS.
19. COMMERCIAL 60# WASHER BY OWNER. SEE P3.1.
20. EMERGENCY GENERATOR NATURAL GAS REGULATOR. 2 PSI INLET PRESSURE, 11" W.C. OUTLET PRESSURE, 1965 CFH FLOW. SEE DETAIL SHEET P4.3.

STORM SHELTER NOTES

PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE LARGER THAN 3–1/2 SQUARE INCHES IN AREA FOR RECTANGULAR OPENINGS OR 2–1/16" IN DIAMETER SHALL BE CONSIDERED OPENING AND SHALL BE PROVIDED WITH AN OPENING PROTECTIVE DEVICE. REFERENCE STRUCTURAL DRAWINGS.

WATER NOTE
SHELTER CAPACITY IS 13 PEOPLE. ONE WATER CLOSET IS REQUIRED. THE LAVATORY IS NOT REQUIRED. HAND SANITIZER WILL BE STORED BY THE OWNER.
BASED ON 3 WATER CLOSET USES PER 8HR PERIOD PER OCCUPANT (FROM L.E.E.D.), IN A 2 HR PERIOD THAT IS 3/4 USES PER PERSON. FOR 13 PEOPLE THAT IS 10 FLUSHES WILL BE REQUIRED. THE TANK WILL BE FILLED ON ENTRY INTO THE SPACE AS A STORM SHELTER, THE FIRE DEPARTMENT WILL NEED TO STORE ENOUGH WATER TO ACCOMMODATE 9 ADDITIONAL FLUSHES. EACH TANK FILL/FLUSH REQUIRES 1.6 GALLONS OF WATER, 1.6 GALLONS PER FLUSH X 9 = 14.4 GALLONS MINIMUM OF POTABLE WATER NEED TO BE MADE AVAILABLE FOR WATER CLOSET USAGE.
ADDITIONAL POTABLE WATER SHALL BE STORED FOR DRINKING. INCLUDE THESE REQUIREMENTS IN THE OWNER'S INSTRUCTIONS.

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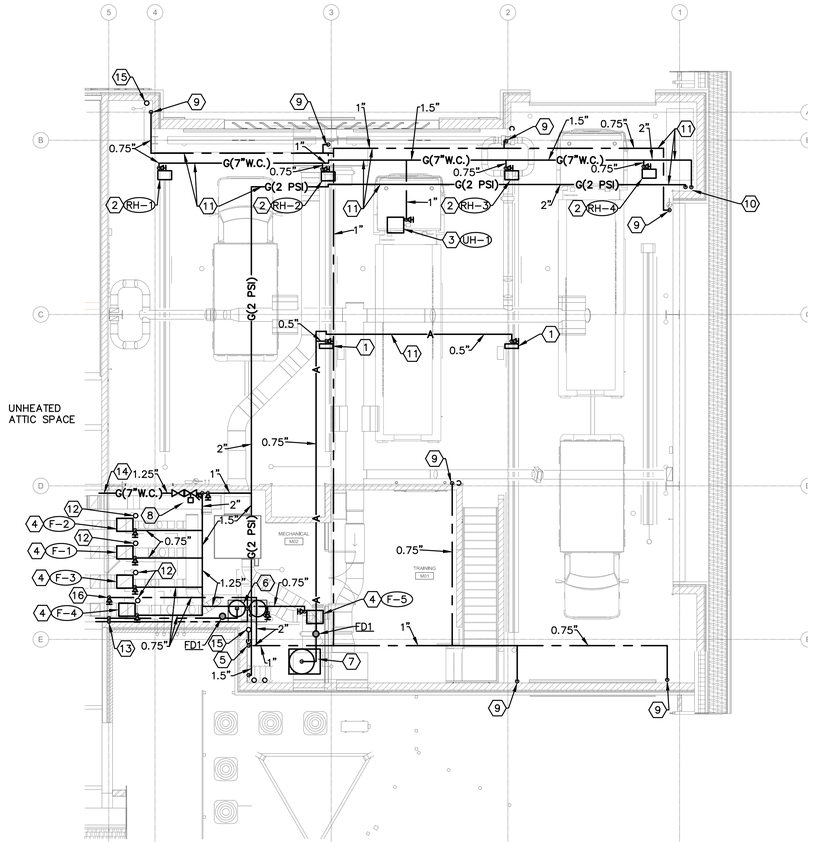
TITLE
LEVEL 1 FLOOR PLAN

SHEET NO.
P2.1



MEZZANINE AND UPPER APPARATUS BAY PLAN

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

0 4 8 16 24 32 40

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

CONSTRUCTION NOTES

1. AIR HOSE REEL WITH MOUNTING BRACKET AND 50 LF OF 3/8" 300 PSI HOSE. REELCRAFT # 5650 OLP.
2. GAS-FIRED RADIANT HEATER BY H.C. VALVE AND CONNECT NATURAL GAS TO HEATER. PROVIDE FULL SIZE DIRT LEG ON DROP.
3. GAS-FIRED UNIT HEATER BY H.C. VALVE AND CONNECT NATURAL GAS TO HEATER. PROVIDE FULL SIZE DIRT LEG ON DROP.
4. GAS-FIRED FURNACE BY H.C. VALVE AND CONNECT NATURAL GAS TO HEATER. PROVIDE FULL SIZE DIRT LEG ON DROP.
5. 2" WATER (SOFT) RISER FROM WATER SERVICE ROOM BELOW.
6. DOMESTIC WATER HEATER SEE DETAIL SHEET P4.3.
7. AIR COMPRESSOR. SEE DETAIL SHEET P4.3.
8. GAS SOLENOID VALVE CONTROLLING GAS TO KITCHEN RANGE AND OUTDOOR GRILL. SEE DETAIL SHEET P4.3.
9. 0.75" DOMESTIC WATER DROP DOWN. SEE SHEET P2.1 FOR CONTINUATION.
10. DROP 2" GAS (7"W.C.) AND 2" HIGH PRESSURE GAS (2 PSI) DOWN. SEE LEVEL ONE PLAN FOR CONTINUATION.
11. SLOPE PIPING TO FOLLOW PITCH OF ROOF/STRUCTURE
12. 1.5" HUB DRAIN WITH 3" ADAPTER ON END. TOP TO BE MOUNTED APPROXIMATELY 1" ABOVE MEZZANINE FLOOR.
13. DROP PIPING TO NEAR MEZZANINE FLOOR AND OFFSET INTO SPACE BETWEEN THE BOTTOM OF THE TRUSSES AND THE FIRST FLOOR CEILING. SEE FIRST FLOOR PLAN FOR CONTINUATION.
14. PIPING INTO SPACE BETWEEN THE BOTTOM OF THE TRUSSES AND THE FIRST FLOOR CEILING. SEE FIRST FLOOR PLAN FOR CONTINUATION.
15. 3" VENT THRU ROOF.
16. 0.5" COLD WATER DOWN TO HUMIDIFIER BY H.C. PROVIDE VALVE AND ATMOSPHERIC VACUUM BREAKER (EQUAL TO WATTS # LF288A) AT 36" A.F.F. PIPING CONTINUED FOR OUTLET OF VACUUM BREAKER BY H.C.

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TITLE
MEZZANINE AND UPPER APPARATUS BAY PLAN

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P2.2

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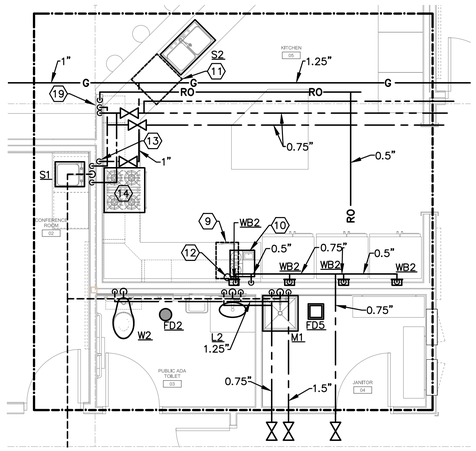
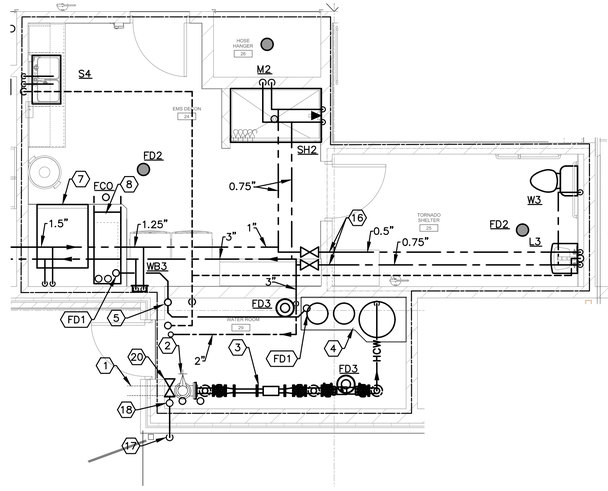


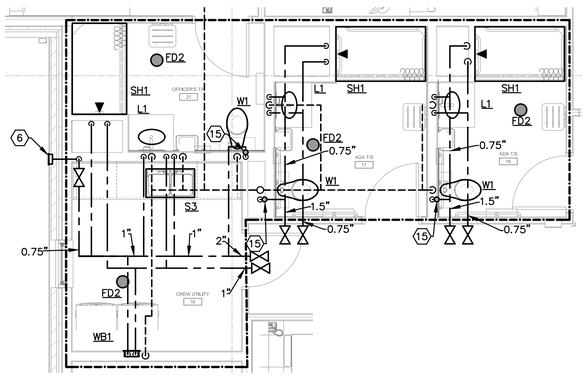
ENLARGED KITCHEN AREA PLAN

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



ENLARGED EMS AND WATER SERVICE ROOMS PLAN

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



ENLARGED BATHROOM AREA PLAN

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

CONSTRUCTION NOTES

1. COMBINATION FIRE AND DOMESTIC WATER SERVICE BY SITE UTILITY CONTRACTOR. SEE SITE UTILITY PLAN FOR CONTINUATION.
2. FIRE SERVICE BY FIRE SUPPRESSION CONTRACTOR. SEE FIRE SUPPRESSION DRAWINGS
3. 3" DOMESTIC WATER SERVICE. SEE DETAIL SHEET P4.3.
4. DUPLEX WATER SOFTENER. SEE DETAIL SHEET P4.2.
5. 3" SANITARY DOWN AND 1.5" VENT RISER UP.
6. FREEZE–PROOF HOSE BIBB IN RECESSED BOX. WOODFORD # B65 OR APPROVED EQUAL. MOUNT APPROX. 24" A.F.F.
7. COMMERCIAL EXTRACTOR/WASHER. VALVE AND CONNECT 1" COLD AND 1" HOT WATER. PIPE 3" DISCHARGE TO TOP OF DRAIN TROUGH. PROVIDE A PDI "B" WATER HAMMER ARRESTOR ON BOTH COLD AND HOT WATER SUPPLIES.
8. DRAIN TROUGH WITH LINT TRAP 48"X18"X12" H. H–M COMPANY OR APPROVED EQUAL. PROVIDE 3" INLET FOR COMMERCIAL WASHER AND 3" STAND PIPE FOR ADJACENT FRONT LOAD WASHER IN BACK OF TRAP LID. RECESS FLUSH WITH 4" WASHER CONCRETE PAD.
9. UNDER COUNTER ICE MACHINE. VALVE AND CONNECT COLD WATER. PIPE DISCHARGE TO FLOOR DRAIN.
10. COUNTERTOP COFFEE MACHINE. VALVE AND CONNECT RO WATER.
11. UNDER COUNTER RESIDENTIAL DISHWASHER.CONNECT TO HOT WATER AND WASTE FROM ADJACENT SINK.
12. 1.5" HUB DRAIN WITH 2" ADAPTER FOR ICE MAKER DRAIN. CENTER DRAIN IN OPENING FOR ICE MAKER AND KEEP 2" ADAPTER TIGHT TO WALL. TERMINATE APPROXIMATELY 1" ABOVE FINISHED FLOOR TO MAINTAIN 2" AIR GAP
13. DROP 1" GAS DOWN IN WALL AND OFFSET IN KNEE WALL TO THE RANGE.
14. GAS RANGE. VALVE AND CONNECT NATURAL GAS TO RANGE.
15. WATER HAMMER ARRESTOR MOUNTED ON COLD WATER PIPING ABOVE CEILING.
16. REDUCE OR COMPRESS INSULATION THRU WALL TO FIT A 2" (MAXIMUM) HOLE IN WALL. (NO OFFSET OR SHIELDING REQUIRED)
17. DROP GAS PIPING INTO GROUND EXTEND PIPING TO EMERGENCY GENERATOR. PROVIDE ANODELESS RISER. SEE DETAIL SHEET P4.3.
18. 1.5" NATURAL GAS (2 PSI) FROM MEZZANINE ABOVE. SEE DRAWING P2.2.
19. DROP 0.5" COLD WATER, 0.5" HOT WATER AND 0.5" RO WATER PIPING DOWN IN WALL AND OFFSET HORIZONTALLY IN "PONY" WALL TO SERVE KITCHEN SINK.
20. VALVE AND CAP 0.75" GAS (@ 2 PSI) FOR FUTRE REGULATOR AND EXTENSION TO DRYER IN DECONTAM. ROOM.

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VALVE SCHEDULE

GENERAL NOTES FOR VALVES:

VALVES SHALL COMPLY WITH ANSI, ASTM AND ASME.

WORKING PRESSURES SHALL EXCEED THOSE IMPOSED BY THE SERVICE APPLIED.

VALVES WHICH ARE INSULATED SHALL HAVE EXTENDED SHAFTS.

PROVIDE FLOW MEASURING GAUGES WITH COCKS, HOSES & CONNECTORS FOR BALANCING VALVES. PROVIDE METERING TOOL.

VALVES SHALL BE INSTALLED WITH STEM ABOVE CENTERLINE OF PIPE.

PROVIDE HOSE ADAPTORS ON DRAIN VALVES.

SWEAT END VALVES OF EQUAL CONSTRUCTION ARE ACCEPTABLE IN LIEU OF SCREWED ENDS.

IN MECHANICALLY JOINED SYSTEMS, VALVES OF EQUAL CONSTRUCTION WITH COMPATIBLE ENDS ARE ACCEPTABLE AND MAY BE MANUFACTURED BY THE COUPLING MANUFACTURER. GROOVED END VALVES SHALL CONFORM TO ANSI/AWWA C-606.

VALVES ON DOMESTIC WATER SYSTEMS SHALL BE "LEAD FREE" IN ACCORDANCE WITH THE FEDERAL SAFE WATER ACT (S3874) DEFINITION.

VALVE MANUFACTURERS:
BALL VALVES – NIBCO, WATTS, MILWAUKEE, CONBRACO, CRANE.
BALANCING VALVES – BELL & GOSSETT, ARMSTRONG, WATTS.
CHECK VALVES – NIBCO, STOCKHAM, WATTS.

PIPING SYSTEM	VALVE TYPE				
	GATE	BALL	CHECK	BALANCING	LUB. PLUG
DOMESTIC WATER SERVICE 2" & LARGER	D18				
DOMESTIC WATER (CW, HW, & HWR) 2" & SMALLER		B11, B14	C11, C13	E11	
DOMESTIC WATER (CW, HW, & HWR) 2.5" & LARGER		B14	C12, C14, C16		
COMPRESSED AIR 2" & SMALLER		B15			
INTERIOR NAT. GAS 4" AND SMALLER		B17			
INTERIOR NAT. GAS 4" AND LARGER					P11
EXTERIOR NAT. GAS 3" AND SMALLER		B18			

TYPE	DESCRIPTION	TYPE	DESCRIPTION
A11	NIBCO LD-2000, 175 W.W.P., DUCTILE OR CAST IRON TAPPED LUG BODY, ALUMINUM BRONZE DISC, EPDM SEAT, 416 S.S. STEM, 10-POSITION HANDLE. MSS SP-67, NSF/ANSI 372-2010	C11	NIBCO T-413-Y-LF, 125 W.S.P., BRONZE BODY, SCREWED ENDS, RENEWABLE BRONZE SWING DISC WITH TFE SEAT RING. NSF 61
B11	NIBCO T-585-80-LF, 150 W.S.P., TWO-PIECE BRONZE BODY, SCREWED ENDS, BRONZE BALL AND BRONZE STEM, TFE SEAT AND SEAL, HANDLE. NSF/ASME 61	C12	NIBCO T-938-33, 250 PSI WORKING WATER PRESSURE., DUCTILE IRON BODY, STAINLESS STEEL TRIM, FLANGED ENDS, RENEWABLE STAINLESS STEEL SWING DISC AND SEAT RING. NSF/ANSI 61-8
B14	APOLLO 70LF-240, 150 WSP TWO-PIECE, LEAD-FREE BRONZE BODY, 316 STAINLESS STEEL BALL AND STEM, STANDARD PORT, TEFLON SEAT AND SEAL, HANDLE, NSF/ASME 61	C13	NIBCO T-480-Y-LF, 125 W.S.P., IN-LINE SPRING ACTUATED CENTER GUIDED SILENT CHECK,BRONZE BODY, SCREWED ENDS, TFE DISC AND SEAT RING, NSF/ASME 61
B15	NIBCO T-580-CS-R-66 1500 W.O.G., TWO-PIECE CARBON STEEL BODY, SCREWED ENDS, STAINLESS STEEL BALL AND STEM, TFE SEAT AND SEAL, HANDLE.	C14	NIBCO F-910-LF 125 W.O.G., IN-LINE SPRING ACTUATED CENTER GUIDED SILENT CHECK, GLOBE STYLE, IRON BODY FOR INSTALLATION BETWEEN FLANGES, BRONZE SEAT AND DISC. NSF/ASME 61
B17	NIBCO T-FP-600A, 600 PSI NON-SHOCK COLD., 2 PIECE, BRASS BODY, SCREWED ENDS, FULL PORT, BRASS BALL, TFE SEAT, HANDLE. UL LISTED FOR GAS. ASME B16.44	C16	WATTS SERIES LFWCV, 125 W.S.P. BRONZE BODY, SCREWED ENDS, BRONZE SWING DISC, NSF/ASME 61
B18	NIBCO T-585-70-UL, 600 PSI NON-SHOCK COLD, 2 PIECE, BRONZE BODY, SCREWED ENDS, FULL PORT, BRASS BALL, TFE SEAT, HANDLE. UL LISTED FOR GAS. ASME B16.33	E11	BELL & GOSSETT CB-1LF 400 PSI, BRONZE BODY WITH BRASS BALL, SCREW CONNECTION, READOUT & DRAIN PORTS, TFE SEATS, CALIBRATED NAMEPLATE, HANDLE WITH MEMORY STOP, NSF/ASME 61
D18	KENNEDY KS-FW 8068A, 200 PSI, NSF 61 EPOXY COATED CAST IRON BODY, RESILIENT WEDGE, O.S.& Y., FLANGED ENDS	P11	NORDSTROM NO. 143, 200 PSI, IRON BODY, ST. ST. STEM, FLANGED ENDS, WRENCH

PIPE INSULATION SCHEDULE - PLUMBING

GENERAL NOTES FOR PIPE INSULATION:

FIRE, SMOKE RATINGS: FLAME SPREAD RATING OF 25 OR LESS, SMOKE DEVELOPED RATING OF 50 OR LESS.

GREEN GUARD INDOOR AIR QUALITY CERTIFIED.

INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.

COLD SERVICE PIPE INSULATION AND VAPOR BARRIER/JACKET TO BE CONTINUOUS THRU FLOOR AND WALL SLEEVES AT ALL PIPE DEVICES AND PUMP CASINGS.

INSULATION AND VAPOR BARRIER TO BE CONTINUOUS AT PIPE HANGERS AND SUPPORTS ON HORIZONTAL PIPING. PROVIDE HARDWOOD INSERT SUPPORT FOR PIPES 2.5" AND LARGER.

VERTICAL PIPE SUPPORTS SHALL ATTACH DIRECTLY TO PIPE. INSULATE SUPPORT AND OTHER SURFACES WITH FLEXIBLE CLOSED CELL INSULATION, SAME THICKNESS AS SYSTEM INSULATION ON COLD SERVICE PIPES TO PREVENT CONDENSATION.

INSULATION MAY BE OMITTED ON HOT WATER VALVES AND DEVICES 2" AND SMALLER PIPE SIZE.

PRIMARY AND SECONDARY ROOF DRAIN SUMPS SHALL BE INSULATED WITH 1" THICK INSULATION.

THE FIRST 10 FEET OF SECONDARY STORM PIPING AFTER THE DRAIN SHALL BE INSULATED.

ABOVE GRADE SANITARY DRAINAGE RECEIVING CONDENSATE SHALL BE INSULATED AS INDICATED BELOW FOR CONDENSATE DRAINAGE. WHERE THE DRAIN SUMP IS EXPOSED ON THE FLOOR BELOW, IT TOO SHALL BE INSULATED WITH 1" INSULATION.

SYSTEM & SIZE	INSULATION THICKNESS	TYPE	LOCATION
DOMESTIC COLD WATER 1.5" & SMALLER	0.5"	F1, P1	INTERIOR
DOMESTIC COLD WATER 2" & LARGER	1"	F1, P1	INTERIOR
DOMESTIC HOT WATER 4" AND SMALLER	1"	F1, P1	INTERIOR
DOMESTIC HOT WATER RETURN 4" AND SMALLER	1"	F1, P1	INTERIOR
CONDENSATE DRAINAGE	1"	F1, P1	INTERIOR

TYPE	BASIS OF DESIGN	APPROVED EQUALS	DESCRIPTION
F1	OWENS-CORNING SSL1-ASJ	KNAUF 1000° PIPE, JOHNS MANVILLE MICRO-LOK HP	* INORGANIC GLASS FIBER WITH RESIN BONDING. * K=0.024 @ 100 DEG. F. * 3.5 – 5.5 PCF. * PREFORMED TUBULAR. * WHITE FSRK JACKET. * LONGITUDINAL LAP WITH SELF-SEALING ADHESIVE. * ELBOWS, TEES, VALVES, CAPS, ETC., WHITE ONE PIECE, PREMOLDED 25/50 0.20" PVC FITTING COVERS WITH HIGH DENSITY FIBERGLASS INSULATION INSERTS SAME THICKNESS, K=0.26 EQUAL TO ZESTON OR PROTO.
P1	AEROFLEX – AEROCEL EPDM	RUBATEX	* PREFORMED, FLEXIBLE CLOSED CELL EPDM, TUBULAR INSULATION, OR SHEET INSULATION. * K=0.25 @ 75 DEG. F. * CLEAN PIPE SURFACE WITH DENATURED ALCOHOL PRIOR TO INSULATING.

BUILDING DRAIN SYSTEMS SCHEDULE STORM, SANITARY WASTE, & VENT

GENERAL NOTES:

PIPING SHALL CONFORM TO OBC REQUIREMENTS.

PIPING SHALL COMPLY WITH ASME B31.9 "BUILDING SERVICES PIPING".

ANNULAR SPACE AROUND PIPING THRU ALL WALLS SHALL BE SEALED OFF WITH PERMANENT PLIABLE CAULKING OR APPROVED PATCHING SEALANT.

PROVIDE PIPING SLEEVES AT FLOORS, WALLS & ROOFS IN NEW CONSTRUCTION. EXISTING WALLS TO BE SAW CUT TO PASS NEW PIPING.

LAY BURIED BUILDING DRAINAGE PIPING BEGINNING AT LOW POINT OF EACH SYSTEM. INSTALL TRUE TO GRADES AND ALIGNMENT INDICATED, WITH UNBROKEN CONTINUITY OF INVERT.

SUPPORT PIPING FROM BUILDING STRUCTURE WITH RODS, ANGLES & CLAMPS ATTACHED TO STRUCTURE. HANG PIPING WITH CLEVIS HANGER OR ROLLER SUPPORTS. HANGERS SHALL BE INSTALLED ON CENTERS AS RECOMMENDED BY MANUFACTURER.

INSTALL CAST-IRON SOIL PIPING ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK," CHAPTER IV, "INSTALLATION OF CAST IRON SOIL PIPE AND FITTINGS."

INSTALL PVC SOIL AND WASTE DRAINAGE AND VENT PIPING ACCORDING TO ASTM D 2665.

ON PIPING 5" AND LARGER PROVIDE BRACING AT EVERY BRANCH OPENING OR CHANGE IN DIRECTION AS REQUIRED BY CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK," CHAPTER IV, "INSTALLATION OF CAST IRON SOIL PIPE AND FITTINGS."

SLOPE DRAINAGE PIPING AT 1/4" PER FOOT (2%) FOR PIPING SMALLER THAN 3" AND 1/8" PER FOOT (1%) FOR PIPING 3" AND LARGER.

VENT PIPING SHALL BE PITCHED FOR DRAINAGE.

CLOSE OPEN ENDS OF PIPING DURING CONSTRUCTION.

COUPLINGS AND GASKETS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

MAKE CHANGES IN DIRECTION FOR SOIL AND WASTE DRAINAGE AND VENT PIPING USING APPROPRIATE BRANCHES, BENDS, AND LONG-SWEEP BENDS. SANITARY TEES AND SHORT-SWEEP 1/4 BENDS MAY BE USED ON VERTICAL STACKS IF CHANGE IN DIRECTION OF FLOW IS FROM HORIZONTAL TO VERTICAL.

PIPE AND TUBING SHALL BE CUT AND FABRICATED TO FIELD MEASUREMENTS AND RUN PARALLEL TO NORMAL BUILDING LINES. PIPE INTERIOR SHALL BE CLEANED OF FOREIGN MATTER AND BURRS BEFORE ERECTION OF PIPE.

PVC PIPING SHALL NOT BE USED IN SPACES USED AS PLENUMS.

PIPING SHALL NOT BE RUN ABOVE ELECTRICAL SWITCHGEAR OR PANELBOARDS, NOR ABOVE THE ACCESS SPACE OF SUCH EQUIPMENT – NEC ARTICLE 384.

DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT IS INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.

PIPING SHALL BE TESTED IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION.

PIPING SYSTEM	TYPE
SANITARY PIPING BELOW FLOOR SLAB IN GRADE	P1,
SANITARY & VENT PIPING ABOVE THE FLOOR	CI1, CI2, P1
INDIRECT DRAINS/CONDESATE DRAIN LINES 1" AND SMALLER	C1, C5, C8

TYPE	DESCRIPTION	TYPE	DESCRIPTION
CI1	**NO-HUB CAST IRON (STD)** SERVICE WEIGHT ASTM A888 OR CISPI 301 SHEILDED COUPLINGS ASTM C1277 OR CISPI 310 RUBBER SLEEVE ASTM C564	C5	**PRESS-FIT COPPER** TYPE "L" HARD COPPER ASTM B88 COPPER OR BRONZE FITTINGS ASTM B16.18 OR B16.22 250 DEG. F. EPDM SEALS
CI2	**HUB & SPIGOT CAST IRON** ASTM A74, SERVICE CLASS DWV FITTING RUBBER GASKET ASTM C564	C8	**TYPE "K" SOFT COPPER** ASTM B88 WROUGHT COPPER OR CAST BRONZE FITTINGS 95-5 SOLDER
C1	**SOLDERED COPPER** TYPE "L" HARD COPPER ASTM B88 WROUGHT COPPER OR CAST BRONZE FITTINGS 95-5 SOLDER	P1	**PVC** SCHEDULE 40 PVC ASTM D2665 AND D2321 DWV FITTINGS, ASTM D3311 GLUED JOINTS

BUILDING SUPPLY SYSTEMS SCHEDULE WATER, COMPRESSED AIR, & GAS

GENERAL NOTES:

PIPING SHALL CONFORM TO OBC REQUIREMENTS.

PIPING SHALL COMPLY WITH ASME B31.9 "BUILDING SERVICES PIPING".

DIELECTRIC CONNECTORS SHALL BE PROVIDED AT CONNECTIONS BETWEEN FERROUS & COPPER PIPING.

ANNULAR SPACE AROUND PIPING THRU ALL WALLS SHALL BE SEALED OFF WITH PERMANENT PLIABLE CAULKING OR APPROVED PATCHING SEALANT.

PROVIDE PIPING SLEEVES AT FLOORS, WALLS & ROOFS IN NEW CONSTRUCTION. EXISTING WALLS TO BE SAW CUT TO PASS NEW PIPING.

PIPING SHALL BE PITCHED FOR DRAINAGE.

SUPPORT PIPING FROM BUILDING STRUCTURE WITH RODS, ANGLES & CLAMPS ATTACHED TO STRUCTURE. HANG PIPING WITH CLEVIS HANGER OR ROLLER SUPPORTS. HANGERS SHALL BE INSTALLED ON CENTERS AS RECOMMENDED BY MANUFACTURER.

CLOSE OPEN ENDS OF PIPING DURING CONSTRUCTION.

MECHANICALLY FORMED TEES AND COUPLINGS (T-DRILL) ARE NOT PERMITTED.

DOMESTIC WATER PIPE SHALL BE TESTED AT 125 PSI FOR 6 HOURS AT THE LOW POINT IN THE SYSTEM. ALL NEW DOMESTIC WATER PIPING SHALL BE DISINFECTED IN CONFORMANCE WITH AWWA C651-86.

COMPRESSED AIR PIPING SHALL BE TESTED AT 200 PSI FOR 6 HOURS.

NATURAL GAS PIPING SHALL BE TESTED AT 100 PSI COMPRESSED AIR FOR 6 HOURS.

MECHANICAL JOINT PIPING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

CLEAN INTERIOR WATER PIPING AFTER INSTALLATION BY FLUSHING WITH CLEAN POTABLE WATER TO CLEAR ALL INTERNAL DEBRIS.

DOMESTIC WATER PIPING SHALL BE SANITIZED PRIOR TO PUTTING SYSTEM IN OPERATION BY A COMPANY OR PERSONNEL REGULARLY ENGAGED IN THE PERFORMANCE OF THIS SERVICE.

UNIONS
COPPER TUBING – WROUGHT OR CAST COPPER, CLASS 150, SOLDERED ENDS
THREADED STEEL PIPE – MALLEABLE IRON W/GROUND SEAT, 300 LB SCREWED ENDS.

PIPE AND TUBING SHALL BE CUT AND FABRICATED TO FIELD MEASUREMENTS AND RUN PARALLEL TO NORMAL BUILDING LINES. PIPE INTERIOR SHALL BE CLEANED OF FOREIGN MATTER AND BURRS BEFORE ERECTION OF PIPE.

PIPING SHALL NOT BE RUN ABOVE ELECTRICAL SWITCHGEAR OR PANELBOARDS, NOR ABOVE THE ACCESS SPACE OF SUCH EQUIPMENT – NEC ARTICLE 384.

ALL COMPONENTS OF DOMESTIC WATER SYSTEMS (CW, HW, HWR, & RO) SHALL BE "LEAD FREE" IN ACCORDANCE WITH THE FEDERAL SAFE WATER ACT (S3874) DEFINITION AND CONFORM TO NSF 61.

PIPING SYSTEM	TYPE
DOMESTIC HOT, COLD WATER BRANCH PIPING IN SPACES OTHER THAN APPARATUS BAY	C1, C5, PX1
DOMESTIC HOT, COLD & RECIRCULATING WATER IN THE APPARATUS BAY	C1, C5
DOMESTIC COLD WATER BELOW GRADE	C8, PX1
DOMESTIC RO WATER	PX1
NATURAL GAS LESS THAN 5 PSI PRESSURE	S1, S2
MISCELLANEOUS UNDERGROUND NATURAL GAS (OUTSIDE OF BLDG.)	PE1
COMPRESSED AIR 2.5" AND SMALLER	S3

TYPE	DESCRIPTION	TYPE	DESCRIPTION
C1	**SOLDERED COPPER** TYPE "L" HARD COPPER ASTM B88 WROUGHT COPPER OR CAST BRONZE FITTINGS 95-5 SOLDER	S2	**THREADED BLACK STEEL** SCHEDULE 40, ASTM A53 TYPE F 150 LB. C.I. FITTINGS
C5	**PRESS-FIT COPPER** TYPE "L" HARD COPPER ASTM B88 COPPER OR BRONZE FITTINGS ASTM B16.18 OR B16.22 250 DEG. F. EPDM SEALS	S3	**THREADED GALVANIZED STEEL** SCHEDULE 40, ASTM A53 TYPE E OR F CLASS 300 FITTINGS W/ PTFE TAPE ASME B16.3
C8	**TYPE "K" SOFT COPPER** ASTM B88 WROUGHT COPPER OR CAST BRONZE FITTINGS 95-5 SOLDER	PE1	**POLYETHYLENE** PE 2306, 2406 TYPE II GRADE 3, PE 3406, 3408 TYPE III, ASTM D2513 HEAT FUSION JOINTS
S1	**WELDED BLACK STEEL** SCHEDULE 40, ASTM A53 TYPE E WROUGHT-STEEL WELDING FITTINGS: ASTM A 234/A 234M 150 LB. C.I. FITTINGS	PX1	**PEX TUBING** CROSSLINKED POLYETHYLENE TUBING, SDR 9, ASTM F877 METAL INSERT FITTINGS WITH COPPER OR STEEL CRIMP RING

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JEFFREY D. ZELINSKI
63822
REGISTERED PROFESSIONAL ENGINEER

Beavercreek Township

Fire Station No. 65

1777 Trebein Road, Beavercreek Township, Ohio 45385

ISSUE:

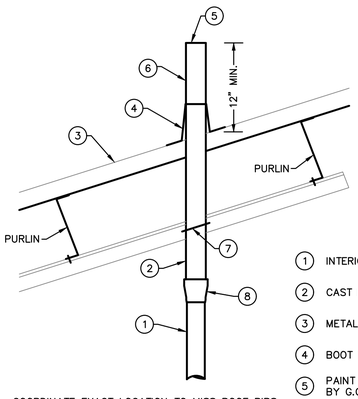
NO.	DATE	DESCRIPTION
	04/03/20	FOR CONSTRUCTION

DATE	04/03/20
JOB NO.	3541.00
DRAWN	DEG
CHECKED	DEG
CAD	18102P4.dwg

TITLE
MATERIAL SCHEDULES

SHEET NO.
P4.1

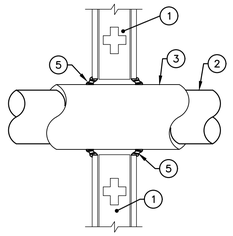
NAUMAN & ZELINSKI LLC.
204 S. Ludlow Street Suite 400 Dayton, Ohio 45402
Phone: (937) 223-3821 – Fax: (937) 223-3849



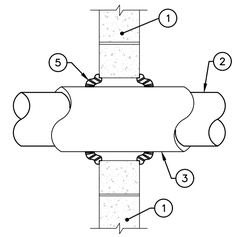
COORDINATE EXACT LOCATION TO MISS ROOF RIBS

1. INTERIOR PLUMBING VENT PIPE.
2. CAST IRON PIPING THRU ROOF.
3. METAL ROOF PANEL.
4. BOOT BY G.C.
5. PAINT TO MATCH ROOF COLOR BY G.C.
6. PLUMBING VENT.
7. U-BOLT TYPE CLAMP.
8. PIPE INCREASER (IF REQUIRED).

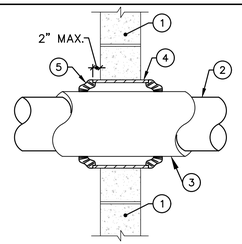
B1 VENT THRU SLOPED ROOF
N.T.S.



GYPSUM CONSTRUCTION
ALL PIPE SIZES



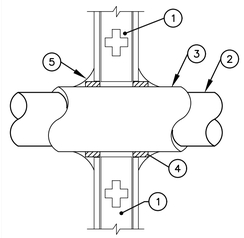
CONCRETE/MASONRY CONSTRUCTION
1/2" - 1-1/2" PIPES



CONCRETE/MASONRY CONSTRUCTION
2" AND LARGER PIPES

1. FULL HEIGHT INTERIOR WALL.
2. PIPE OR TUBING.
3. PIPE INSULATION, CONTINUOUS THROUGH WALL OPENING, SEE SCHEDULE FOR THICKNESS.
4. SCHEDULE 40 STEEL PIPE SLEEVE CAST OR GROUTED INTO WALL ASSEMBLY. ENDS FLUSH OR MAX. 2" BEYOND WALL SURFACE.
5. CAULK TO FILL VOID AT WALL/SLEEVE OPENING TO RESIST THE PASSAGE OF SMOKE.

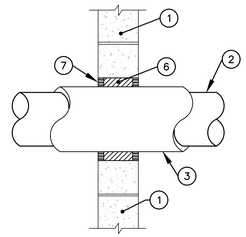
B2 PIPE PENETRATIONS THRU NON-RATED WALL
N.T.S.



GYPSUM CONSTRUCTION
ALL PIPE SIZES

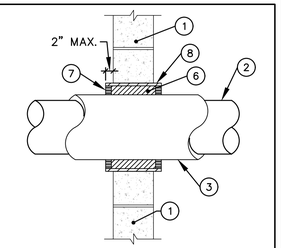
FIRESTOPPING MATERIALS/INSTALLATION

- MANUFACTURERS: 3M FIRE PROTECTION PROD. HILTI FIRESTOP SYSTEMS
- FIRESTOPPING MATERIAL INSTALLATION SHALL BE PER THE MANUFACTURERS DETAILED INSTALLATION DIAGRAMS AND INSTRUCTIONS.
- F-RATING OF PENETRATION SHALL BE NO LESS THAN THE FIRE RATING OF THE WALL.
- SUBMITTAL SHALL INCLUDE PRODUCT DATA AND DETAILED INSTALLATION SYSTEM DIAGRAMS.



CONCRETE/MASONRY CONSTRUCTION
1/2" - 1-1/2" PIPES

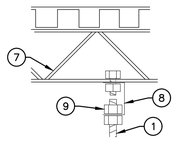
1. RATED WALL ASSEMBLY.
2. METALLIC PIPE OR TUBING.
3. PIPE INSULATION, CONTINUOUS THROUGH WALL OPENING, SEE SCHEDULE FOR THICKNESS.
4. APPROVED FIRESTOPPING VOID/CAVITY MATERIAL.



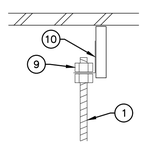
CONCRETE/MASONRY CONSTRUCTION
2" AND LARGER PIPES

5. APPROVED FIRESTOPPING CAULK OR SEALANT.
6. PACKING MATERIAL, MINERAL WOOL BATT INSULATION.
7. APPROVED FIRESTOPPING CAULK OR SEALANT FLUSH WITH SURFACE OF WALL OR EDGE OF SLEEVE.
8. SCHEDULE 40 STEEL PIPE SLEEVE CAST OR GROUTED INTO WALL ASSEMBLY. ENDS FLUSH OR MAX. 2" BEYOND WALL SURFACE.

B5 PIPE PENETRATIONS THRU FIRE RATED WALL
N.T.S.



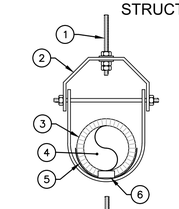
STEEL CONSTRUCTION

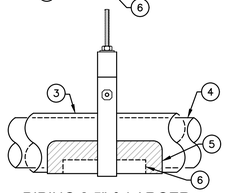


WOOD CONSTRUCTION

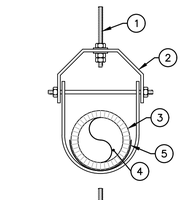
NO ATTACHMENT TO DECKING ALLOWED.
PROVIDE SUPPLEMENTAL STEEL BETWEEN STRUCTURAL MEMBERS WHERE NEEDED.

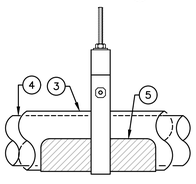
STRUCTURAL CONNECTIONS





PIPING 2.5" & LARGER

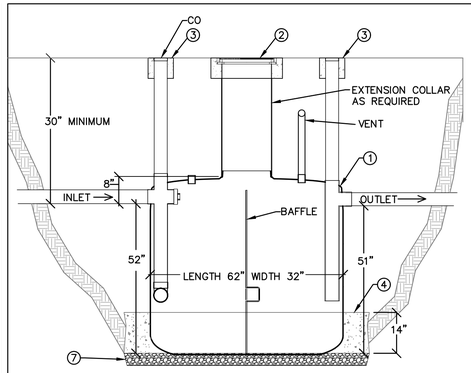




PIPING 2.0" & SMALLER

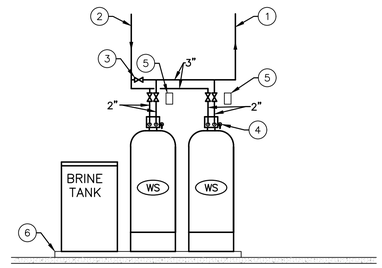
1. THREADED ROD. PROVIDE DOUBLE NUT AT HANGER AND AT STRUCTURAL ATTACHMENT. ADJUST NUTS & RODS FOR PROPER ELEVATION.
2. CLEVIS PIPE HANGER. EQUAL TO ANVIL FIG. 260. FOR UNINSULATED COPPER PIPING USE ANVIL FIG. CT-65 OR FIG. 260 WITH EPOXY COATING.
3. PIPE INSULATION.
4. PIPE.
5. 12" LONG, 18 GA. GALVANIZED INSULATION SHIELD. EQUAL TO ANVIL FIG. 168. CONTINUOUS INSULATION.
6. 6" LONG x 1" WIDE WOOD BLOCKING. CUT AND REMOVE INSULATION FROM THE INSIDE TO ACCEPT THE WOOD INSERT. MAINTAIN CONTINUOUS VAPOR BARRIER JACKET. WOOD BLOCK SHALL BE FRICTION FIT TIGHT AND SHALL BE COATED ON ALL SURFACES WITH VAPOR BARRIER ADHESIVE.
7. STEEL JOIST OR BEAM.
8. UNISTRUT CHANNEL SPANNING TWO JOIST OR BEAMS. ATTACH TO BOTTOM CHORDS OF TWO BEAMS OR JOIST WITH "C" CLAMP.
9. GALVANIZED RETAINING NUTS & WASHERS.
10. STEEL ANGLE CLIP ENGINEERED FASTENER FOR THREADED ROD INTO WOOD.

E1 TYPICAL PIPE HANGER
N.T.S.



1. 270 GALLON MINIMUM FIBERGLASS OIL INTERCEPTOR. PROCEPTOR #OMC 300 OR APPROVED EQUAL.
2. 24"ø FRAME AND COVER SECURED IN CONCRETE.
3. ANCHOR CLEANOUTS AND MANHOLE IN CONCRETE.
4. ANTI-BUOYANCY SLAB 3000 PSI CONCRETE READY MIX POUR 12" HORIZONTALLY ALL AROUND BASE OF UNIT TO HEIGHT OF BUOYANCY SLAB (86" LENGTH X 56" WIDTH X HBS)
5. 8" POURED CONCRETE PAD PER MANUFACTURER'S RECOMMENDATIONS.
6. 2"ø. BASIN VENT.
7. MIN. 6" PEA GRAVEL (OR APPROVED BACKFILL COMPACTED TO 98% SPD)

D3 OIL INTERCEPTOR
N.T.S.



1. 3" COLD WATER SERVICE (HARD WATER)
2. 3" SOFT WATER TO BUILDING
3. BY-PASS/BLENDING VALVE
4. PIPE BACKWASH DISCHARGE TO FLOOR DRAIN (TYPICAL EACH TANK)
5. E.C. TO PROVIDE A RECEPTACLE FOR EACH TANK. COORDINATE LOCATIONS WITH E.C.
6. 4" CONCRETE PAD WITH SURFACE APPLIED TREATMENT TO MINIMIZE DETERIORATION FROM SALT

(WS) DUPLEX SOFTENING SYSTEM WITH PROGRESSIVE ELECTRONIC CONTROLLER AND SINGLE BRINE TANK.
CONTINUOUS FLOW (EA. TANK) @ 15 PSI LOSS - 51 GPM
PEAK FLOW (EA. TANK) @ 25 PSI LOSS - 69 GPM
GRAIN CAP.(EA. TANK) - 59,000 GRAINS @ 30 LBS SALT
RESIN VOLUME (EA. TANK)- 2 CF
BRINE TANK - 24"ø X 40"
BASIS OF DESIGN - CULLIGAN # CTM60 PF WITH BRINE RECLAIMATION SYSTEM OR APPROVED EQUAL.
SEE SPECIFICATIONS AND DETAIL FOR FURTHER REQUIREMENTS AND ADDITIONAL MANUFACTURERS.

E6 DOMESTIC WATER SOFTENER SCHEMATIC
N.T.S.

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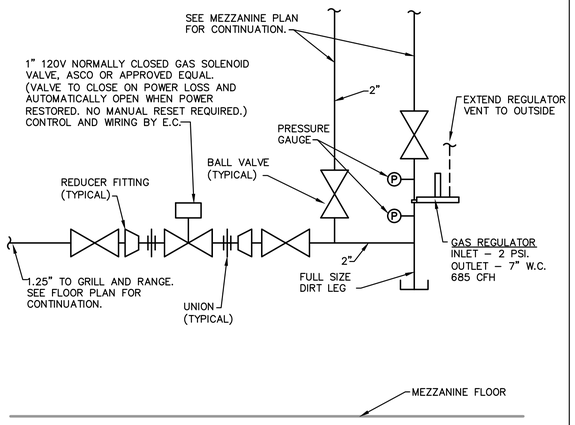
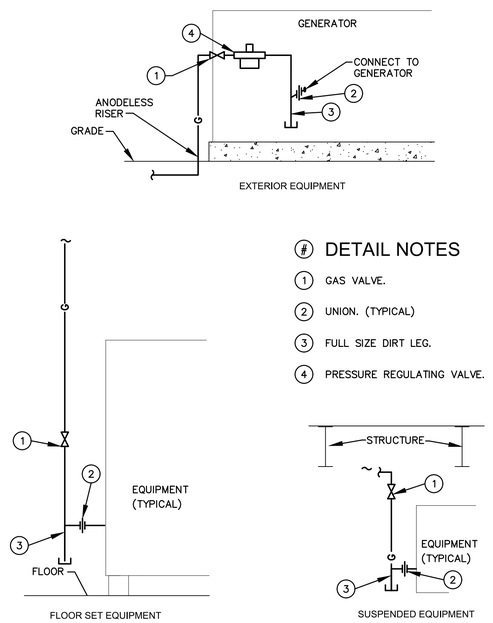
P4.2



C1 GAS REGULATOR AND SOLENOID VALVE DETAIL

N.T.S.



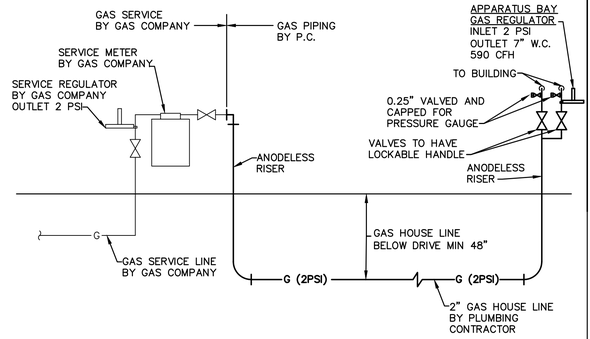
DETAIL NOTES

1. GAS VALVE.
2. UNION. (TYPICAL)
3. FULL SIZE DIRT LEG.
4. PRESSURE REGULATING VALVE.

C3 NATURAL GAS CONNECTIONS DETAIL

N.T.S.

GAS PIPING SIZING NOTE
- PIPING SIZED USING THE LONGEST LENGTH METHOD.
- LOW PRESSURE (7"W.C.) GAS PIPING SIZED USING TABLE 402.4(2) OF THE 2015 IFC.
- HIGH PRESSURE (2 PSI) GAS PIPING SIZED USING TABLES 402.4(5) AND 402.4(22)OF THE 2015 IFC.

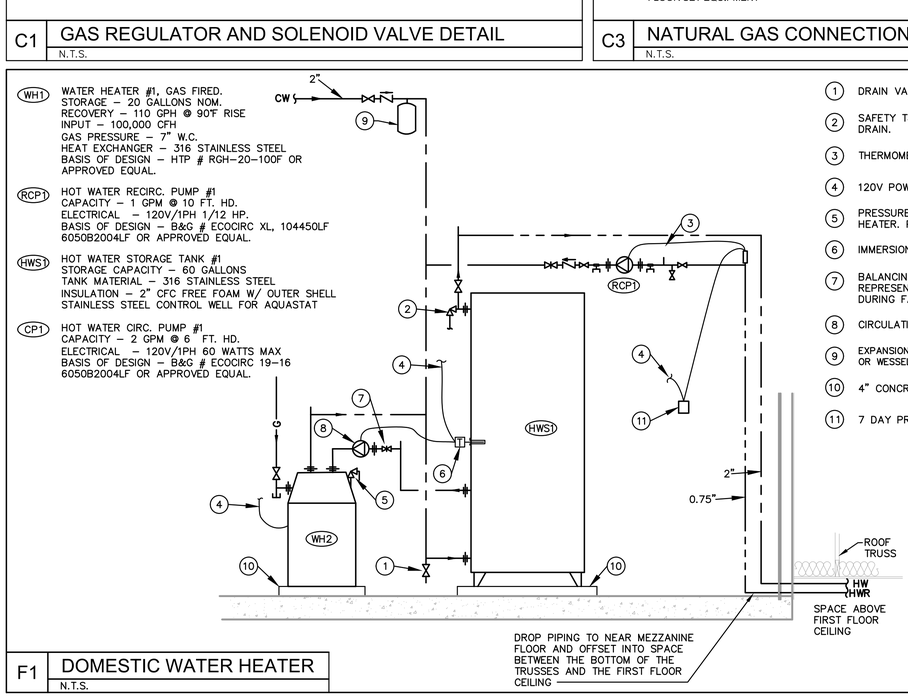


C5 GAS SERVICE SCHEMATIC

N.T.S.

GAS LOADS

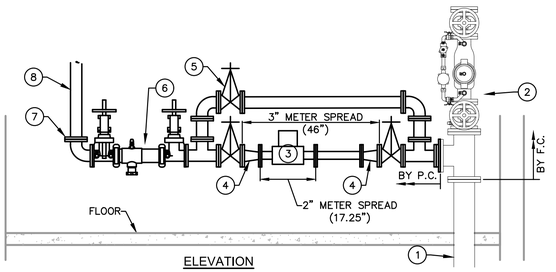
ITEM	LOAD	
APPARATUS BAY EQUIPMENT		
RADIANT HEATER RH–1	80	CFH
RADIANT HEATER RH–2	80	CFH
RADIANT HEATER RH–3	150	CFH
RADIANT HEATER RH–4	80	CFH
UNIT HEATER UH–1	200	CFH
	590	CFH
MEZZANINE EQUIPMENT		
FURNACE F–1	80	CFH
FURNACE F–2	60	CFH
FURNACE F–3	80	CFH
FURNACE F–4	100	CFH
FURNACE F–5	100	CFH
WATER HEATER	100	CFH
GAS DRYER	0	CFH
T.O.G. GAS DRYER	30	CFH
KITCHEN RANGE	60	CFH
OUTDOOR GRILL	75	CFH
	685	**CFH**
FUTURE GAS DRYER	135	CFH
EM GENERATOR. @ 11" W.C.	1,965	CFH
SERVICE TOTAL	3,375	CFH



F1 DOMESTIC WATER HEATER

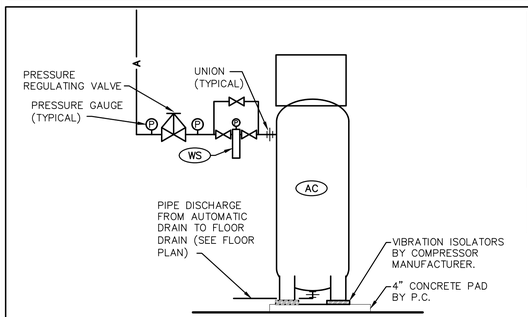
N.T.S.

1. 6" WATER SERVICE ENTRANCE BY SITE UTILITY CONTRACTOR
2. FIRE SERVICE 4" DOUBLE DETECTOR CHECK BACKFLOW ASSEMBLY BY F.P.C. SEE DETAIL ON FIRE SUPPRESSION DRAWINGS.
3. 2" DOMESTIC WATER METER IN 3" METER SPREAD SPACE.
4. 2"X 3" REDUCER
5. 3" BY–PASS VALVE.
6. 3" REDUCED PRESSURE BACKFLOW PREVENTER. WATTS # 957 OR APPROVED EQUAL PIPE DISCHARGE TO FLOOR DRAIN
7. DI–ELECTRIC FLANGE
8. 3" COPPER DOMESTIC WATER. SEE FLOOR PLAN FOR CONTINUATION.



D5 DOMESTIC WATER SERVICE

N.T.S.



EQUIPMENT SCHEDULE

AC SIMPLEX AIR COMPRESSOR MOUNTED ON TANK
PRESSURE LUBRICATED RECIPROCATING COMPRESSOR
CAPACITY – 17 SCFM @ 175 PSI
OUTLET PRESSURE 175 PSI
RECEIVER – 80 GALLONS
AUTOMATIC DRAIN
PUMP – 5HP EA, 240 V 1 PH 40 AMPS
BASIS OF DESIGN – GARDNER DENVER # VPL5–8 WITH PREMIUM EFFICIENCY MOTOR UPGRADE, OPTIONAL AFTER COOLER AND MOISTURE SEPARATOR, LOW OIL PRESSURE SWITCH, (NEMA 1), VIBRATION ISOLATORS, AND ELECTRIC TANK DRAIN OR APPROVED EQUAL.

WS WATER SEPERATOR
FURNISHED WITH AIR COMPRESSOR
PIPE DISCHARGE TO FLOOR DRAIN.

F5 COMPRESSED AIR SYSTEM SCHEMATIC

N.T.S.

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P4.3

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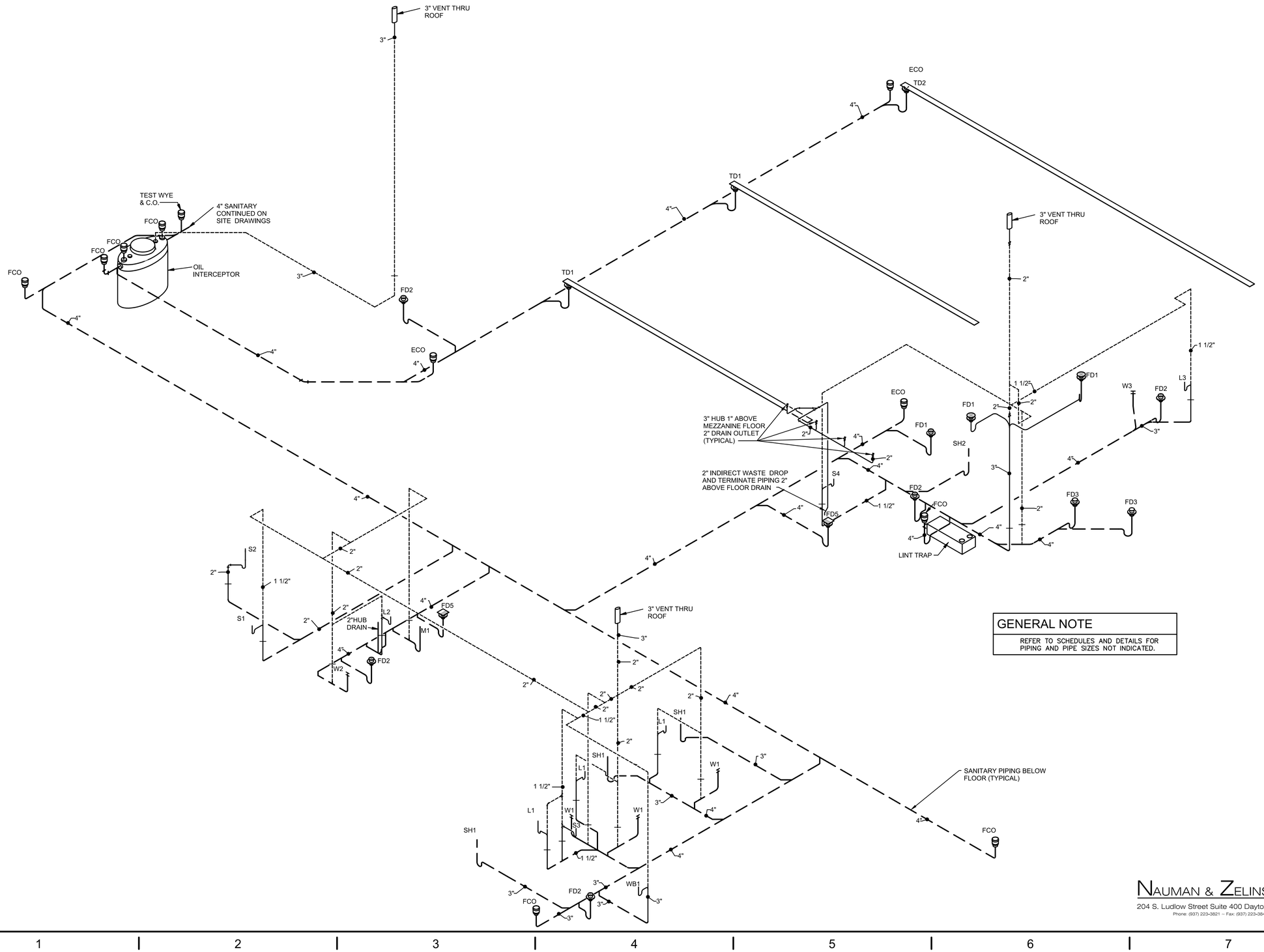

GENERAL NOTE

REFER TO SCHEDULES AND DETAILS FOR PIPING AND PIPE SIZES NOT INDICATED.

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SOIL, WASTE, & VENT DIAGRAM

SHEET NO.
P5.1

SEISMIC CONTROL SPECIFICATIONS

PART 1 – GENERAL

1.1 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING:

1. SEISMIC CONTROL REQUIREMENTS.

1.2 PERFORMANCE REQUIREMENTS

A. SEISMIC CERTIFICATION AND ANALYSIS

1. THE CONTRACTOR SHALL RETAIN A SPECIALTY CONSULTANT OR EQUIPMENT MANUFACTURER TO DEVELOP A SEISMIC RESTRAINT SYSTEM AND PERFORM SEISMIC CALCULATIONS IN ACCORDANCE WITH THE OBC AND ASCE 7, AND ADDITIONAL REQUIREMENTS SPECIFIED IN THIS SECTION. A PROFESSIONAL ENGINEER EXPERIENCED IN SEISMIC RESTRAINT DESIGN AND INSTALLATION AND LICENSED IN THE STATE OF OHIO SHALL BE RESPONSIBLE FOR CALCULATIONS, RESTRAINT SELECTIONS AND INSTALLATION DETAILS.

2. THE SEISMIC RESTRAINT DESIGN SHALL CLEARLY INDICATE THE ATTACHMENT POINTS TO THE BUILDING STRUCTURE AND DESIGN FORCES IN ALL HORIZONTAL AND VERTICAL AXES AT THE ATTACHMENT POINTS. THE SEISMIC RESTRAINT ENGINEER SHALL COORDINATE ALL ATTACHMENTS WITH THE BUILDING'S STRUCTURAL ENGINEER OF RECORD, WHO SHALL VERIFY THE ATTACHMENT METHODS AND THE ABILITY OF THE BUILDING STRUCTURE TO ACCEPT THE LOADS IMPOSED.

3. THE SEISMIC RESTRAINT DESIGN SHALL BE BASED ON ACTUAL EQUIPMENT DATA (DIMENSIONS, WEIGHT, CENTER OF GRAVITY, ETC.) OBTAINED FROM SUBMITTALS OR THE MANUFACTURERS. THE EQUIPMENT MANUFACTURER SHALL VERIFY THAT THE ATTACHMENT POINTS ON THE EQUIPMENT CAN ACCEPT THE COMBINATION OF SEISMIC, WEIGHT, AND OTHER LOADS IMPOSED. FOR LIFE SAFETY SYSTEMS AND OTHER SYSTEMS THAT MUST REMAIN OPERATIONAL DURING AND AFTER AN EARTHQUAKE, THE MANUFACTURER SHALL PROVIDE CERTIFICATION THAT THE EQUIPMENT CAN ACCEPT THE LOADS IMPOSED AND REMAIN OPERATIONAL.

4. ANALYSIS SHALL INCLUDE CALCULATED DEAD LOADS, STATIC SEISMIC LOADS, AND CAPACITY OF MATERIALS UTILIZED FOR THE CONNECTION OF THE EQUIPMENT OR SYSTEM TO THE STRUCTURE. ANALYSIS SHALL DETAIL ANCHORING METHODS, BOLT DIAMETER, EMBEDMENT AND/OR WELDED LENGTH. ALL SEISMIC RESTRAINT DEVICES SHALL BE DESIGNED TO ACCEPT, WITHOUT FAILURE, THE FORCES DETAILED IN THE CODE ACTING THROUGH THE EQUIPMENT OR SYSTEM'S CENTER OF GRAVITY.

1.3 SUBMITTALS

A. DELEGATED–DESIGN SUBMITTAL: THE SEISMIC RESTRAINT DESIGN, CONSISTING OF CALCULATIONS, RESTRAINT SELECTION, INSTALLATION DETAILS, AND OTHER DOCUMENTATION, SHALL BE SUBMITTED. THIS SUBMITTAL SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, AS STATED ABOVE. THIS SUBMITTAL WILL BECOME PART OF THE PROJECT DESIGN CALCULATIONS, INCLUDED IN THE PROJECT RECORDS, AND WHEN REQUIRED, WILL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION.

B. SEISMIC RESTRAINT DEVICES: PRODUCT DATA, VERIFICATION OF SEISMIC CAPABILITIES AND INSTALLATION DETAILS.

C. WELDING CERTIFICATES.

D. FIELD QUALITY–CONTROL TEST REPORTS.

1.4 QUALITY ASSURANCE

A. COMPLY WITH SEISMIC–RESTRAINT REQUIREMENTS IN THE OBC UNLESS REQUIREMENTS IN THIS SECTION ARE MORE STRINGENT.

B. WELDING: QUALIFY PROCEDURES AND PERSONNEL ACCORDING TO AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE – STEEL."

C. ALL SEISMIC RESTRAINTS AND COMBINATION ISOLATOR / RESTRAINTS SHALL HAVE VERIFICATION OF THEIR SEISMIC CAPABILITIES. MANUFACTURERS MAY VERIFY THEIR CAPABILITIES BY TESTING THAT IS WITNESSED BY AN INDEPENDENT PROFESSIONAL ENGINEER OR AN ASSOCIATION THAT HAS DEVELOPED A UNIFORM SET OF TEST STANDARDS. INDEPENDENT APPROVAL CAN ALSO BE OBTAINED BY AGENCIES SUCH AS OSHPD (OFFICE OF STATEWIDE HEALTH, PLANNING AND DEVELOPMENT) FROM THE STATE OF CALIFORNIA, NES, ICBO ES, FACTORY MUTUAL, UNDERWRITERS LAB, RECOGNIZED INDUSTRY STANDARDS ORGANIZATIONS SUCH AS VISCMA, ETC.

PART 2 – PRODUCTS

2.1 SEISMIC–RESTRAINT DEVICES

A. SEISMIC RESTRAINT DEVICES MAY INCLUDE ANY MANUFACTURER'S SYSTEM(S) SUITABLE FOR THE BUILDING CONSTRUCTION APPLICATION.

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

1. THE VMC GROUP (VIBRATION MOUNTING AND CONTROLS)

2. MASON INDUSTRIES

3. KINETICS NOISE CONTROL.

SEISMIC GENERAL REQUIREMENTS

1. THE PROJECT HAS SEISMIC LOAD SUPPORT REQUIREMENTS BASED ON THE SEISMIC USE GROUP (OCCUPANCY) DESIGNATION OF THE FACILITY OF "IV" AND SEISMIC DESIGN CATEGORY "C". REFER TO DRAWING S0.01 FOR ADDITIONAL INFORMATION.

2. SEISMIC DESIGN REQUIREMENTS FOR MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE PROVIDED AS REQUIRED BY 2017 OHIO BUILDING CODE CHAPTER 16, SECTION 1613 EARTHQUAKE LOADS AND BY REFERENCE, THE AMERICAN SOCIETY OF STRUCTURAL ENGINEERS (ASCE) STANDARD 7–10 "MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES" (2010).

3. CHAPTER 13 OF ASCE 7–10 DEFINES THE REQUIREMENTS FOR THE MECHANICAL AND ELECTRICAL COMPONENTS.

4. THE COMPONENT IMPORTANCE FACTOR, Ip SHALL BE 1.5 FOR ALL COMPONENTS PER ASCE 7–10, 13.1.3 SINCE THE COMPONENTS ARE REQUIRED TO FUNCTION FOR LIFE SAFETY PURPOSES AFTER AN EARTHQUAKE AS WELL AS THE COMPONENTS ARE ALL LOCATED WITHIN AN OCCUPANCY CATEGORY "IV" STRUCTURE.

5. ASCE 7–10, TABLE 13.6–1 DEFINES THE SEISMIC AMPLIFICATION FACTOR Ap AND RESPONSE FACTOR Rp FOR EACH COMPONENT THAT SHALL BE USED IN DETERMINING THE ATTACHMENT REQUIREMENTS.

6. CERTAIN COMPONENTS TO BE SEISMICALLY BRACED AND SUPPORTED ARE TO ALSO INCLUDE VIBRATION ISOLATION WHERE INDICATED.

7. COMPONENTS OR SYSTEMS CAN BE INSTALLED IN A MANNER TO REDUCE SEISMIC BRACING OR SUPPORT REQUIREMENTS. ALL MECHANICAL AND ELECTRICAL SYSTEMS MUST FUNCTION AFTER AN EARTHQUAKE. EQUIPMENT, COMPONENTS, PIPING, DUCTWORK, CONDUIT, COMMUNICATION CABLING, ETC. SHALL BE SEISMICALLY BRACED. GENERAL GUIDELINES OR APPROACH FOR PROJECT SYSTEMS:

A. DUCTWORK IS DESIGNED TO BE LESS THAN 6 SQ. FT., NO SEISMIC BRACING.

B. PIPING SHOULD BE HUNG TIGHT TO STRUCTURE WITH THREADED ROD LESS THAN 12", NO SEISMIC BRACING IF INSTALLED IN THIS MANNER.

C. HVAC SYSTEMS IN–LINE WITH DUCT SYSTEM (FANS, HUMIDIFIERS) ARE LESS THAN 75 LBS., NO SEISMIC BRACING.

D. FLOOR OR GRADE SET EQUIPMENT, TO BE ANCHORED TO EQUIPMENT PAD AND IN TURN SECURED TO THE FLOOR.

E. FIRE SUPPRESSION PIPING SHALL SEISMIC BRACED PER THE REQUIREMENTS OF NFPA 13.

F. FLOOR/WALL MOUNTED ELECTRICAL EQUIPMENT, PANELBOARDS, AUTOMATIC TRANSFER SWITCHES, ETC. SHALL BE SEISMICALLY BRACED/SUPPORTED.

G. LIGHTING FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF SUSPENDED CEILING SYSTEMS.

H. CEILING FANS SHALL BE SEISMICALLY BRACED/SUPPORTED.

I. CONDUITS 2.5" AND LARGER SHALL BE SEISMICALLY BRACED/SUPPORTED.

INDEX OF DRAWINGS

GENERAL NOTES

1. PROVIDE COMPLETE AND FUNCTIONAL HVAC SYSTEMS PER HVAC PLANS INCLUDING FURNISHING, INSTALLING, TESTING AND WARRANTY OF ALL WORK.

2. WORK SHALL BE IN ACCORDANCE WITH THE 2017 OHIO BUILDING AND MECHANICAL CODES INCLUDING REFERENCED CODES AND STANDARDS, ALL FEDERAL, STATE, AND LOCAL CODES AND ALL APPLICABLE LAWS, ORDINANCES AND REGULATIONS.

3. WORK SHALL BE PERFORMED USING BEST QUALITY INSTALLATION PRACTICE BY A QUALIFIED TRADE CONTRACTOR AND THEIR QUALIFIED SUBCONTRACTORS. ALL CONTRACTORS SHALL BE LICENSED AND BE BONDED FOR THE WORK.

4. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA AND OWNER SAFETY STANDARDS AND PRACTICES. ALL ON SITE PERSONNEL SHALL BE SAFETY TRAINED AND OWNER CERTIFIED.

5. OBTAIN REQUIRED PERMITS RELATED TO THE WORK AND PAY ALL PERMIT AND INSPECTION FEES.

6. THE AUTHORITY HAVING JURISDICTION SHALL INSPECT AND APPROVE ALL WORK. PROVIDE A FINAL CERTIFICATE OF APPROVAL FROM THE AUTHORITY HAVING JURISDICTION AND PRESENT TO THE OWNER BEFORE REQUESTING FINAL PAYMENT AND RELEASE OF RETAINAGE.

7. ALL EQUIPMENT AND MATERIAL REQUIRED FOR COMPLETE AND FUNCTIONAL HVAC SYSTEMS ARE INCLUDED IN THE CONTRACT.

GENERAL REQUIREMENTS

1. PROTECT ALL FURNISHED MATERIAL AND EQUIPMENT FROM THEFT AND DETERIORATION OR CONTAMINATION DUE TO WEATHER OR CONSTRUCTION ACTIVITIES.

2. PROTECT OWNERS PROPERTY AND PROPERTY OF OTHER CONTRACTORS.

3. REMOVE ALL CONSTRUCTION DEBRIS FROM SITE. RECYCLE DEBRIS WHERE POSSIBLE. DISPOSE OF ALL HAZARDOUS MATERIAL IN ACCORDANCE WITH ENVIRONMENTAL LAWS.

4. PROVIDE ALL CUTTING AND PATCHING REQUIRED TO INSTALL MATERIAL AND EQUIPMENT.

5. EXISTING ROOF PATCHING SHALL BE SUBCONTRACTED TO A BONDED ROOFING CONTRACTOR FAMILIAR WITH THE ROOFING SYSTEM. MAINTAIN ANY REMAINING ROOF WARRANTY.

6. PROVIDE APPROPRIATE FIRESTOPPING SYSTEM FOR ANNULAR SPACE OPENINGS AROUND DUCT AND PIPE PENETRATIONS THROUGH FIRE RESISTANCE RATED CONSTRUCTION. ANNULAR SPACE OPENINGS AT DUCT OR PIPE PENETRATIONS IN NON RATED CONSTRUCTION TO BE CLOSED AIR AND WATER TIGHT.

7. MATERIALS AND EQUIPMENT SHALL BE ONE OF THE BRAND OR MANUFACTURERS LISTED OR AN APPROVED EQUAL.

8. ELECTRONIC SHOP DRAWINGS SHALL BE PROVIDED IN .PDF FORMAT FOR THE ENGINEER'S APPROVAL FOR ALL MATERIALS AND EQUIPMENT. SHOP DRAWINGS SHALL BE SPECIFICALLY EDITED TO ELIMINATE SUPERFLUOUS INFORMATION AND SHALL CLEARLY SHOW SPECIFICS FOR THE MATERIAL AND EQUIPMENT PROVIDED.

9. COORDINATE INSTALLATION OF ACTUAL EQUIPMENT AND SYSTEMS PROVIDED WITH OTHER TRADES AND NEW OR EXISTING CONDITIONS.

10. PROJECT CONDITIONS REQUIRE COORDINATION TO MAKE SYSTEMS FIT IN THE AVAILABLE SPACE. HVAC CONTRACTOR SHALL PROVIDE AN INITIAL ¼"=1'0" SET OF DRAWINGS AND DISTRIBUTED TO OTHER TRADE CONTRACTORS FOR COORDINATION. ALL CONTRACTORS SHALL COOPERATE TO MODIFY THEIR RESPECTIVE MATERIAL AND EQUIPMENT INSTALLATION AND DEPICT ON A DETAILED, FINISHED COORDINATION SET OF DRAWINGS BEFORE INSTALLATION. ALLOW FOR EXPECTED MINOR OFFSETS OR RELOCATION SYSTEM OR EQUIPMENT WITHOUT REQUEST FOR COMPENSATION ADJUSTMENT.

11. PROVIDE FINAL COORDINATION/INSTALLATION DRAWINGS TO THE OWNER IN BOUND PAPER AS WELL AS ELECTRONIC FORMAT FOR RECORD.

12. INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.

13. INSTALL ALL MATERIAL AND EQUIPMENT TO PROVIDE REQUIRED CLEARANCES TO MEET CODE REQUIREMENTS, MANUFACTURER'S RECOMMENDATIONS AND MAINTENANCE SERVICE.

14. ALL WORK AREAS SHALL BE CLEANED TO MATCH ORIGINAL CONDITION.

15. PROVIDE TESTING, ADJUSTING AND BALANCING (TAB) REPORTS FOR AIR AND WATER SYSTEMS. A CERTIFIED AABC OR NEBB FIRM SHALL PROVIDE THE BALANCE.

16. MAINTAIN RECORD DRAWINGS AND PROVIDE TO THE OWNER OR HIS AGENT.

17. PROVIDE TWO (2) BOUND, PAPER COPIES OF ALL OPERATING AND MAINTENANCE MANUALS. PROVIDE AN ELECTRONIC COPY OF THE OPERATING AND MAINTENANCE MANUAL.

18. PROVIDE WARRANTY FOR ALL WORKMANSHIP, EQUIPMENT AND MATERIAL. WARRANTY SHALL BE 1 YEAR FOR PART AND LABOR, PROVIDE EXTENDED WARRANTY PERIOD FOR PARTS AND/OR LABOR AS IDENTIFIED OR AS STANDARD FOR CERTAIN ITEMS OF EQUIPMENT.

19. PROVIDE TRAINING AND MAINTENANCE INSTRUCTION FOR SYSTEMS AND EQUIPMENT TO THE OWNER. TRAINING SHALL BE 16 HOURS OF TIME WITH MAXIMUM TRAINING PERIOD OF 4 HOURS.

GENERAL LEGEND

EC	ELECTRICAL CONTRACTOR.
FC	FIRE PROTECTION CONTRACTOR.
GC	GENERAL CONTRACTOR.
HC	HVAC CONTRACTOR.
PC	PLUMBING CONTRACTOR.
(3)	NOTE SYMBOL – APPLIES ONLY TO SHEET ON WHICH IS SHOWN.
(2)	DETAIL NOTE SYMBOL – APPLIES ONLY TO DETAIL ON WHICH IS SHOWN.
H–1	EQUIPMENT REFERENCE SYMBOL. ELECTRICAL CONNECTION REQUIRED.
H–1	EQUIPMENT REFERENCE SYMBOL. NO ELECTRICAL CONNECTION REQUIRED.
2 / H4.3	DETAIL SYMBOL DETAIL "2" SHOWN ON SHEET H4.3.
1 / H3.1	SECTION SYMBOL SECTION "1" DESIGNATION, SHOWN ON SHEET H3.1.
	1 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.
	2 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.
	3 HOUR FIRE PROTECTION SEE SPECIFICATION FOR PENETRATION DETAILS.

DUCTWORK LEGEND

20/12 SA	RECTANGULAR DUCT FIRST FIGURE IS SIDE SHOWN SA – INDICATES SUPPLY AIR
10"ø RA	ROUND DUCT DIAMETER INDICATED RA – INDICATES RETURN AIR
	INSULATED FLEXIBLE DUCT
R	CHANGE OF ELEVATION R = RISE, D = DROP
	ELBOW WITH TURNING VANES
20/12	ROUND RUNOUT DUCT TAP TO RECTANGULAR DUCT WITH SPIN–IN FITTING, SEE DETAIL
10"ø	ROUND RUNOUT DUCT FITTING IN ROUND DUCT MAIN
	VOLUME DAMPER
FD	FIRE DAMPER
	SUPPLY DUCT SECTION – RISE, DROP
	RETURN DUCT SECTION – RISE, DROP
S1–8" / 300	SUPPLY AIR DEVICE S1 SEE SCHEDULE AND DETAIL 8" = NECK SIZE 300 = REQUIRED AIR FLOW (CFM)
R1	TRANSFER/RETURN AIR DEVICE WITH PLENUM BOX ABOVE 24"X24" WITH PLENUM R1 DEVICE TAG, SEE SCHEDULE AND DETAIL
R2	TRANSFER/RETURN AIR DEVICE WITH PLENUM BOX ABOVE 24"X12" WITH PLENUM R1 DEVICE TAG, SEE SCHEDULE AND DETAIL
R1–10" / 250	RETURN/EXHAUST/TRANSFER GRILLE R1 WITH PLENUM BOX ABOVE R1 = DEVICE TAG, SEE SCHEDULE AND DETAIL 10" = RUNOUT SIZE 250 = REQUIRED AIR FLOW (CFM) DEVICE SIZE AS DEPICTED ON DRAWINGS OR AS INDICATED IN AIR DEVICE SCHEDULE
S2–24/12 / 300–8'6"	SIDEWALL AIR DEVICE SEE AIR DEVICE SCHEDULE 24/12 = DEVICE SIZE 300 = AIR FLOW (CFM) 8'6" = MOUNTING HEIGHT (AFF)
T	ROOM TEMPERATURE SENSOR

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STATE OF OHIO
JEFFREY D. ZELINSKI
63822
REGISTERED PROFESSIONAL ENGINEER

Beavercreek Township

Fire Station No. 65

1777 Trebein Road, Beavercreek Township, Ohio 45385

ISSUE:

NO.	DATE	DESCRIPTION
	04/03/20	FOR CONSTRUCTION

DATE	04/03/20
JOB NO.	3541.00
DRAWN	RAD
CHECKED	RAS
CAD	18102H0.1

TITLE
LEGEND & SCHEDULES

SHEET NO.
H0.1

AIR DEVICE SCHEDULE

GENERAL NOTES:

AIR DEVICES BASED ON PRICE, LOUVERS BASED ON GREENHECK. REFER TO SPECIFICATIONS FOR OTHER MANUFACTURERS.

MAXIMUM SOUND LEVEL OF NC–25 AT INDICATED AIR FLOW.

BALANCING DAMPER GENERALLY PROVIDED IN DUCT, NOT AT DEVICE.

STANDARD WHITE BAKED ACRYLIC FINISH UNLESS NOTED OTHERWISE.

DIFFUSERS SHALL BE 4–WAY THROW UNLESS OTHERWISE NOTED OR INDICATED ON DRAWINGS.

VERIFY CEILING TYPE AND PROVIDE APPROPRIATE MOUNTING FRAME WHERE REQUIRED FOR OTHER THAN LAY–IN APPLICATION OR IN LINE "T" BAR.

TAG	DESCRIPTION	MODEL NO.	MATERIAL	ACCESSORIES	NOTES
S1	2'X2' SQUARE PLAQUE DIFFUSER LAY–IN FRAME ROUND DUCT CONNECTION	SPD (ASPD)	STEEL	INSULATED BACKPAN (STYLE 31)	2
S2	LOUVERED SUPPLY GRILLE DOUBLE DEFLECTION W/ LONG FRONT BLADES, 3/4" BLADE SPACING	520	STEEL		2
S3	1'X1' SQUARE PLAQUE DIFFUSER SURFACE MOUNT FRAME ROUND DUCT CONNECTION	SPD (ASPD)	STEEL		1,2
S4	FLOOR SUPPLY GRILLE DBL. DEFLECTION W/ SHORT FRONT BLADES, 1/2" BLADE SPACING HEAVY DUTY		STEEL	FRAME BORDER	
R1	RETURN/TRANSFER GRILLE DEVICE SIZE – 24" X 24" 1/2" X 1/2" X 1/2" DEEP EGGCRATE	80	ALUMIN.	LAY–IN FRAME	
R2	RETURN/TRANSFER GRILLE DEVICE SIZE – 24" X 12" 1/2" X 1/2" X 1/2" DEEP EGGCRATE	80	ALUMIN.	LAY–IN FRAME	
R3	RETURN/TRANSFER GRILLE DEVICE SIZE – 12" X 12" 1/2" X 1/2" X 1/2" DEEP EGGCRATE	80	ALUMIN.	SURFACE MTD.	1
R4	LOUVERED FACE HEAVY DUTY GYM RETURN GRILLE DEVICE SIZE – INDICATED ON PLAN 45° HORIZONTAL BLADES 3/4" SPACING	96	STEEL	SURFACE MOUNT FRAME	3,4
E1	EXHAUST GRILLE DEVICE SIZE – 24" X 24" 1/2" X 1/2" X 1/2" DEEP EGGCRATE	80	ALUMIN.	LAY–IN FRAME	
E2	EXHAUST GRILLE DEVICE SIZE – 12" X 12" 1/2" X 1/2" X 1/2" DEEP EGGCRATE	80	ALUMIN.	SURFACE MTD.	1
E3	LOUVERED FACE HEAVY DUTY GYM RETURN GRILLE DEVICE SIZE – INDICATED ON PLAN 45° HORIZONTAL BLADES 3/4" SPACING	96	STEEL	SURFACE MOUNT FRAME	3,4
L1	FIXED BLADE LOUVER DEVICE SIZE – 24"x16" LOUVER FRAME SIZE – 6" FRAME MIN. 40% FREE AREA	ESD–635	ALUMIN.	BLACK BIRDSCREEN	3

NOTES

1. DEVICE TO BE SURFACE MOUNTED IN CENTER OF ACOUSTIC CEILING PAD FOR LAY–IN APPLICATION.
2. "A" DENOTES ALUMINUM CONSTRUCTION.
3. COLOR SELECTION BY ARCHITECT.
4. PROVIDE BALANCE DAMPER WITH GRILLE.

DEDICATED OUTDOOR AIR UNIT SCHEDULE

UNIT NUMBER	ERV1
AREA SERVED	FRN 1–5 EXHAUST AIR/OUTSIDE AIR
UNIT LOCATION	MEZZ
DESCRIPTION	DEDICATED OUTDOOR AIR ENERGY RECOVERY
MANUF./SIZE LENGTH/WIDTH/HEIGHT	RENEWAIRE HE3XINV 64"/70"/42"
SUPPLY FAN–TYPE	DIRECT DRIVE
VFD	YES
TOTAL AIR FLOW (CFM)	2515
EXTERNAL S.P. (INCHES W.G.)	0.5
MOTOR H.P	3
EXHAUST FAN – TYPE	DIRECT DRIVE
VFD	YES
TOTAL AIR FLOW (CFM)	2175
EXTERNAL S.P. (INCHES W.G.)	0.75
MOTOR H.P	3
EXHAUST AIR FILTER	2" MERV 13
FRESH AIR FILTER	2" MERV 13
ENERGY TRANSFER PLATE	
WINTER O.A. EAT (DB/WB)	0/0
WINTER E.A. EAT (DB/WB)	70/54
WINTER LAT (DB/WB)	45/36
SUMMER O.A. EAT (DB/WB)	95/75
SUMMER E.A. EAT (DB/WB)	75/62
SUMMER LAT (DB/WB)	82/69
ELECTRICAL	
VOLTS/PHASE	208V/1ϕ
MCA	40.2
MOCP	45

COOLING/HEATING SPLIT SYSTEMS

GENERAL NOTES:

GAS DELIVERY PRESSURE – 7" W.C.

REFRIGERANT PIPING – SIZES LISTED ARE APPROXIMATE AND ARE BASED ON SINGLE CIRCUITING, SIZING, NUMBER OF PIPES AND CIRCUITS. ARRANGEMENT, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ELECTRIC SERVICES FOR OUTDOOR UNIT AND INDOOR UNIT – SINGLE POWER SERVICE TO EACH UNIT BY ELECTRICAL CONTRACTOR. ADEQUACY OF LISTED CIRCUIT SIZES MUST BE VERIFIED BY HVAC CONTRACTOR AND UNIT SUPPLIER. COST FOR INCREASE OR CHANGE OF ELECTRICAL SERVICE FOR EQUIPMENT SELECTED SHALL BE BORNE BY HVAC CONTRACTOR.

		SYSTEM NUMBER	FRN–1 & CU–1	FRN–2 & CU–2	FRN–3 & CU–3	FRN–4 & CU–4	FRN–5 & CU–5
		AREA SERVED	BREAK ROOM & KITCHEN	WORKOUT ROOM	CONFERENCE ROOM & CORRIDORS	DORM ROOMS	TOG & EMS DECON
		DESCRIPTION					
		UNIT CONFIGURATION	VERTICAL DOWNFLOW	VERTICAL DOWNFLOW	VERTICAL DOWNFLOW	VERTICAL DOWNFLOW	VERTICAL DOWNFLOW
INDOOR UNIT	FAN	CFM	1200	800	1270	1330	1425
		EXTERNAL S.P.	0.75"	0.75"	0.75	0.75	0.75
		MOTOR HP					
		VOLTAGE & PHASE	120V/1ϕ	120V/1ϕ	120V/1ϕ	120V/1ϕ	120V/1ϕ
	COOLING	TOTAL MBH	46.8	34.3	34.3	54.8	46.8
		SENSIBLE MBH	32.2	23.6	23.6	38.4	32.2
		DB ENTERING AIR	80°F	80°F	80°F	80°F	80°F
		WB ENTERING AIR	67°F	67°F	67°F	67°F	67°F
		COIL LEAVING AIR DB/WB	55°F/54°F	55°F/54°F	55°F/54°F	55°F/54°F	55°F/54°F
	HEATING	HEATING MBH (OUTPUT)	78	58	78	96	96
		GAS – CFH	80	60	80	100	100
		ENTERING AIR TEMP.	55	55	55	55	55
		AFUE	96	96	96	96	96
	HUMIDIFIER	#/DAY				17	
		CARRIER MODEL #				HUMCCLBP	
	OUTSIDE AIR		300	200	250	350	1425
	MCA/MOCP		11A / 15A	11A / 15A	11A / 15A	15A / 20A	15A / 20A
OUTDOOR UNIT	REFRIGERANT, CHARGE						
	NOMINAL TONS		4	3	3	5	4
	MCA/MOCP		28/40	20/35	20/35	37/60	28/40
	VOLTAGE & PHASE		208V/1ϕ	208V/1ϕ	208V/1ϕ	208V/1ϕ	208V/1ϕ
	MOUNTING						
	SEER		17	17	17	17	17
REFRIGERANT LIQUID & SUCTION (APPROXIMATE SIZES) 0.5" ARMAFLEX INSULATION WITH ALUMINUM JACKETING			3/8"L & 7/8"S	3/8"L & 7/8"S	3/8"L & 7/8"S	3/8"L & 7/8"S	3/8"L & 7/8"S
HOT GAS BY–PASS							
BASIS OF DESIGN (MFR)			CARRIER	CARRIER	CARRIER	CARRIER	CARRIER

NOTES:

1. FAN SHALL OPERATE AT INDICATED AIR FLOW IN ALL MODES OF OPERATION (i.e. COOLING, HEATING ON).
2. PROVIDE MERV 8 FILTERS (PROVIDE EXTRA SET OF FILTERS)
3. SET CONDENSING UNIT 4" CONCRETE PAD
4. REFRIGERANT PURON

CONDENSING UNIT SCHEDULE

UNIT NO.	FAN COIL(S) SERVED	UNIT TYPE	COOLING CAPACITY	ELECTRIC SERVICE			REFRIGERANT PIPING		UNIT DIMENSIONS			DAIKIN MODEL NO.	NOTES
			MBH @ 95°F	MCA	MOCP	VOLT	LOW PRES.	HIGH PRES.	W	D	H		
ACU–1	FC–1	AIR COOLED CONDENSING UNIT	18	16.5	20	208/1	5/8"	3/8"	36"	14"	31"	RZR18PVJU	1

NOTES:

1. PROVIDE WIND BAFFLE KIT, UNIT TO PROVIDE COOLING AT 0°F

FAN COIL UNIT SCHEDULE

UNIT NO.	DESCRIPTION	MOUNTING	CFM	S.P.	COOLING CAPACITY			REFRIGERANT PIPING		CABINET DIMENSIONS			DAIKIN MODEL NO.	NOTES
					SENS. MBH	TOTAL MBH	ENT. AIR	LOW PRES.	HIGH PRES.	W	D	H		
FC–1	FAN COIL UNIT	HORIZONTAL	450	0.25	18	12	80/68	5/8"	3/8"	42"	9"	12"	FAQ18PVJU	1,2,3

NOTES:

1. COOLING CAPACITIES BASED ON 95°F OUTDOOR AIR TEMP.
2. UNIT POWERED BY CONDENSING UNIT.
3. UNIT INCLUDES INTEGRAL THERMOSTAT.

FAN SCHEDULE

BASIS OF DESIGN – GREENHECK,
REFER TO SPECIFICATIONS FOR OTHER MANUFACTURERS

REFER TO INSTALLATION DETAILS
EF–1 – DETAIL 6/SHEET H4.3
EF–2 – DETAIL 4/SHEET H4.3

ALL FANS TO BE SEISMICALLY CERTIFIED

SP – STATIC PRESSURE IN INCHES OF WATER COLUMN.

DAMPER TO BE WIRED FROM FAN BY E.C.

TAG	SERVICE	DESCRIPTION	MODEL NUMBER & SIZE GREENHECK	CAPACITY		MOTOR			DISCONNECT WITH FAN	DISCONNECT BY E.C.	SLOPING ROOF CURB	MOTORIZED DAMPERS	GRAVITY DAMPERS	VIBRATION ISOLATION	THERMAL CONTROL	EPOXY INTERIOR	HINGED CURB	COLOR SELECTION BY ARCHITECT	INSULATION HOUSING	POWDER COAT FINISH	VFD	ECM WITH DIAL ON MOTOR
				CFM	SP	HP	RPM	VOLT/PHASE														
EF–1	KITCHEN	INLINE CENTRIFUGAL	TCB–1–09	500	0.75"	1/2	1,612	120V/1ϕ	•			•		•						•	•	
EF–2	APPARATUS BAY	INLINE CENTRIFUGAL	SQ–160–VG	4500	0.75"	2	1,725	208V/1ϕ		•		•		•						•		•

NOTES

HEATING UNIT SCHEDULE - GAS

REMOTE THERMOSTAT

BASIS OF DESIGN: REZNOR
UH–1 REZNOR UDAS 200

UNIT NO.	SERVICE	MOUNTING	MBH INPUT/OUTPUT	CFM	W	AMPS	VOLT/PH	APPROX. DIMENSIONS			WEIGHT	NOTES
								W	L	H		
UH–1	APPARATUS BAY	HUNG FROM STRUCTURE	200/166	2500	400	5	120V/1ϕ	39"	42"	21"	235 LBS	1,2

NOTES:

1. PROVIDE STAINLESS STEEL HEAT EXCHANGER AND STAINLESS STEEL BURNERS.
2. PROVIDE SEISMIC SUPPORT.

ELECTRIC UNIT HEATER SCHEDULE

HEATING CAPACITY BASED ON 70°F ΔT AIR TEMPERATURE DIFFERENCE.

UNIT NO.	DESCRIPTION	LOCATION	MANUFACTURER/MODEL	MOUNTING	INPUT (KW)	AIR FLOW (CFM)	APPROX. DIMENSIONS			VOLTAGE/ PHASE	FLA	NOTES
							H (IN.)	W (IN.)	D (IN.)			
EUH–1	ELECTRIC WALL MOUNTED UNIT HEATER	VESTIBULE	QMARK AWH3150F	VERTICAL, WALL–MTD. – RECESSED	1.5	100	20	16	4	120V/1ϕ	12.5	
EUH–2	ELECTRIC WALL MOUNTED UNIT HEATER	CORRIDOR (DORMS)	QMARK AWH3150F	VERTICAL, WALL–MTD. – RECESSED	1.5	100	20	16	4	120V/1ϕ	12.5	
EUH–3	ELECTRIC WALL MOUNTED UNIT HEATER	ELEC. ROOM	QMARK AWH3150F	VERTICAL, WALL–MTD. – RECESSED	1.5	100	20	16	4	120V/1ϕ	12.5	
EUH–4	ELECTRIC PROPELLER UNIT HEATER	WATER ROOM	QMARK MUH0381	PROPELLER – HORIZONTAL	3.0	350	16	14	8	208V/1ϕ	14.5	

RADIANT HEATER SCHEDULE - GAS

BASIS OF DESIGN: RE–VERBER–RAY
RH–1 – MP–30–80
RH–2 – MP–30–80
RH–3 – MP–50–150
RH–4 – MP–50–115

REMOTE THERMOSTAT

PROVIDE SEISMIC SUPPORT

UNIT NO.	SERVICE	MOUNTING	MBH INPUT/OUTPUT	AMPS	VOLT/PH	APPROX. DIMENSIONS	WEIGHT	NOTES
						L		
RH–1	APPARATUS BAY	HUNG FROM STRUCTURE	80/72	5	120V/1ϕ	31'–5"	160 LBS	1, 4
RH–2	APPARATUS BAY	HUNG FROM STRUCTURE	80/72	5	120V/1ϕ	31'–5"	160 LBS	1, 4
RH–3	APPARATUS BAY	HUNG FROM STRUCTURE	150/135	5	120V/1ϕ	50'–9"	235 LBS	2, 3, 4
RH–4	APPARATUS BAY	HUNG FROM STRUCTURE	80/72	5	120V/1ϕ	31'–5"	160 LBS	2, 3, 4

NOTES:

1. RH–1 & RH–2 CONTROLLED BY SAME TEMPERATURE SENSOR. SEE FLOOR PLAN FOR LOCATION. PROVIDE MOMENTARY WALL SWITCH TO RUN RH–1 AND RH–2 AT 100% (ADJ) HEAT FOR 15 MIN (ADJ).
2. RH–3 & RH–4 CONTROLLED BY SAME TEMPERATURE SENSOR. SEE FLOOR PLAN FOR LOCATION. PROVIDE MOMENTARY WALL SWITCH TO RUN RH–3 AND RH–4 AT 100% (ADJ.) HEAT FOR 15 MIN (ADJ.)
3. PROVIDE ONE SIDE SHIELD ON RADIANT TUBE TO PROJECT HEAT AWAY FROM THE WALL.
4. PROVIDE SIDE SHIELD 5' MIN. LENGTH TO PROJECT AWAY FROM HOSE REEL OR CORD REEL. COORDINATE LOCATION WITH E.C. OR P.C.

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TITLE

SCHEDULES

SHEET NO.

H0.2

STORM SHELTER NOTE

PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE LARGER THAN 3-1/2 IN² IN AREA FOR RECTANGULAR OPENINGS OR 2-1/16" IN DIAMETER SHALL BE CONSIDERED OPENING AND SHALL BE PROVIDED WITH AN OPENING PROTECTIVE DEVICE. REFERENCE STRUCTURAL DRAWINGS.

STORM SHELTER VENTILATION NOTE:

STORM SHELTER OCCUPANCY IS 13 PEOPLE. VENTILATION OPENING REQUIREMENTS ARE 5 IN² PER OCCUPANT, SO TOTAL OF 65 IN² TOTAL. GREATER THAN 2/3RD S (>43 IN²) OF THE AREA IS TO BE HIGH AND GREATER THAN 1/4TH (>17 IN²) OF THE AREA IS TO BE LOW. 80 IN² PROVIDED HIGH (10"x8" OPENING WITH TYPE "A" FIRE DAMPER). 22.5 IN² PROVIDED LOW (THROUGH 5/8" UNDERCUT OF 36" WIDE DOOR).

NOTE:

FIRE DAMPERS FOR DORM ROOMS ARE NOT REQUIRED PER 2017 OBC SECTION 717.5.4 FIRE PARTITIONS EXCEPTION 4. BUILDING IS FULLY SPRINKLERED. HVAC SYSTEM IS FULLY DUCTED. DUCTWORK IS NO. 26 GAGE OR THICKER.

CONSTRUCTION NOTES

1. HOOD BY H.C. CONNECT TO TOP OF HOOD - TRANSITION TO SIZE INDICATED ON PLAN. SLOPE DUCT BACK TOWARDS HOOD MINIMUM 1/8 INCH PER FOOT.
2. SUPPLY AIR DUCT UNDERNEATH RETURN DUCT.
3. SUPPLY AIR DUCT DOWN FROM MEZZANINE, SEE SHEET H2.2 FOR DUCT CONTINUATION.
4. RETURN AIR DUCT UP TO MEZZANINE. SEE SHEET H2.2 FOR DUCT CONTINUATION.
5. EXHAUST AIR DUCT UP TO MEZZANINE, SEE SHEET H2.2 FOR DUCT CONTINUATION.
6. CARBON MONOXIDE AND NITRIC OXIDE MONITORING PANEL. PANEL TO HAVE EIGHT (8) DISPLAY READOUTS AND AUDIO VISUAL ALARM. PROVIDE SEPARATE HORN/STROBE ALARM AND WIRE CONTROL PANEL TO ALARM WHEN ANY CO LEVEL > 50 PPM (ADJ.) AND ANY NO_2 LEVEL > 30 PPM (ADJ.).
7. CARBON MONOXIDE AND NITRIC OXIDE SENSOR. MOUNT SENSOR AT 4' AFF AND 12' AFF. WIRE TO CONTROL PANEL. PANEL TO DISPLAY NITRIC OXIDE AND CARBON MONOXIDE VALUE FOR EACH SENSOR.
8. EF-2, RH-1,2,3,4 DISENGAGE OVERRIDE PUSH BUTTON.
9. EF-2 OVERRIDE ENGAGE PUSH BUTTON 30 MIN (ADJ.)
10. G.C. TO WELD 1/4" GALVANIZED STEEL IN I-BEAM TO CREATE CAVITY FOR EXHAUST AIR PATH. I-BEAM TO BE OPEN 18" AFF. G.C. TO CREATE 10" DIA. BELLMOUTH DUCT OPENING NEAR TOP OF I-BEAM. H.C. TO CONNEDCT TO 10" DIA. STUB OUT.
11. 10/10 S.S. EXHAUST DUCT OVER TO EF-1. PROVIDE HINGED ACCESS DOOR ON BOTH SIDES OF FAN (NEAR BOTTOM) FOR DUCT CLEANING.
12. PROVIDE SWITCH TO CONTROL FAN (WIRED BY E.C.). PROVIDE TEMPERATURE SENSOR IN HOOD WHICH WILL AUTOMATICALLY START EF-1 (REMOTE KITCHEN EF) WHEN TEMPERATURE EXCEEDS 125 DEG. F (ADJ.).
13. SEE SHEET H2.2 FOR APPARATUS BAY HVAC EQUIPMENT.
14. 8"WIDE x 6"HIGH OPENING FOR DUCT PENETRATION WITH TYPE "A", 3 HR FIRE DAMPER IN WALL.
15. 10"WIDE x 8"HIGH OPENING. 88" TO BOTTOM OF OPENING WITH TYPE "A", 3 HR FIRE DAMPER IN WALL.
16. G.C. TO PROVIDE SHROUD AROUND WALL OPENING.
17. DRYER VENT EXHAUST. TERMINATE ON EXTERIOR WALL AT 45° WITH BIRD SCREEN.
18. HUMIDISTAT.
19. WELDED S.S. DUCT W/FIRE WRAP. SLOPE MINIMUM 1/8" PER FOOT BACK TOWARDS HOOD.
20. ROUTE 0.75" CONDENSATE PIPING TO FLOOR DRAIN.
21. REFRIGERANT LINE SET. INSULATE PER MANUFACTURER'S RECOMMENDATIONS.
22. RUN REFRIGERANT PIPING MINIMUM 8 FT. A.F.F.
23. DEHUMIDIFIER - DESERT AIRE MODEL 120 OR EQUAL. 6.8 LBS/HR CAPACITY, 400 CFM, 13.8 FLA/115V./1 PH. CORD AND PLUG. PROVIDE WITH WALL MOUNTING BRACKETS. 150 LBS. EXTEND CONDENSATE TUBE TO LOCAL FLOOR DRAIN.

LEVEL 1 FLOOR PLAN
1/4" = 1'-0"

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

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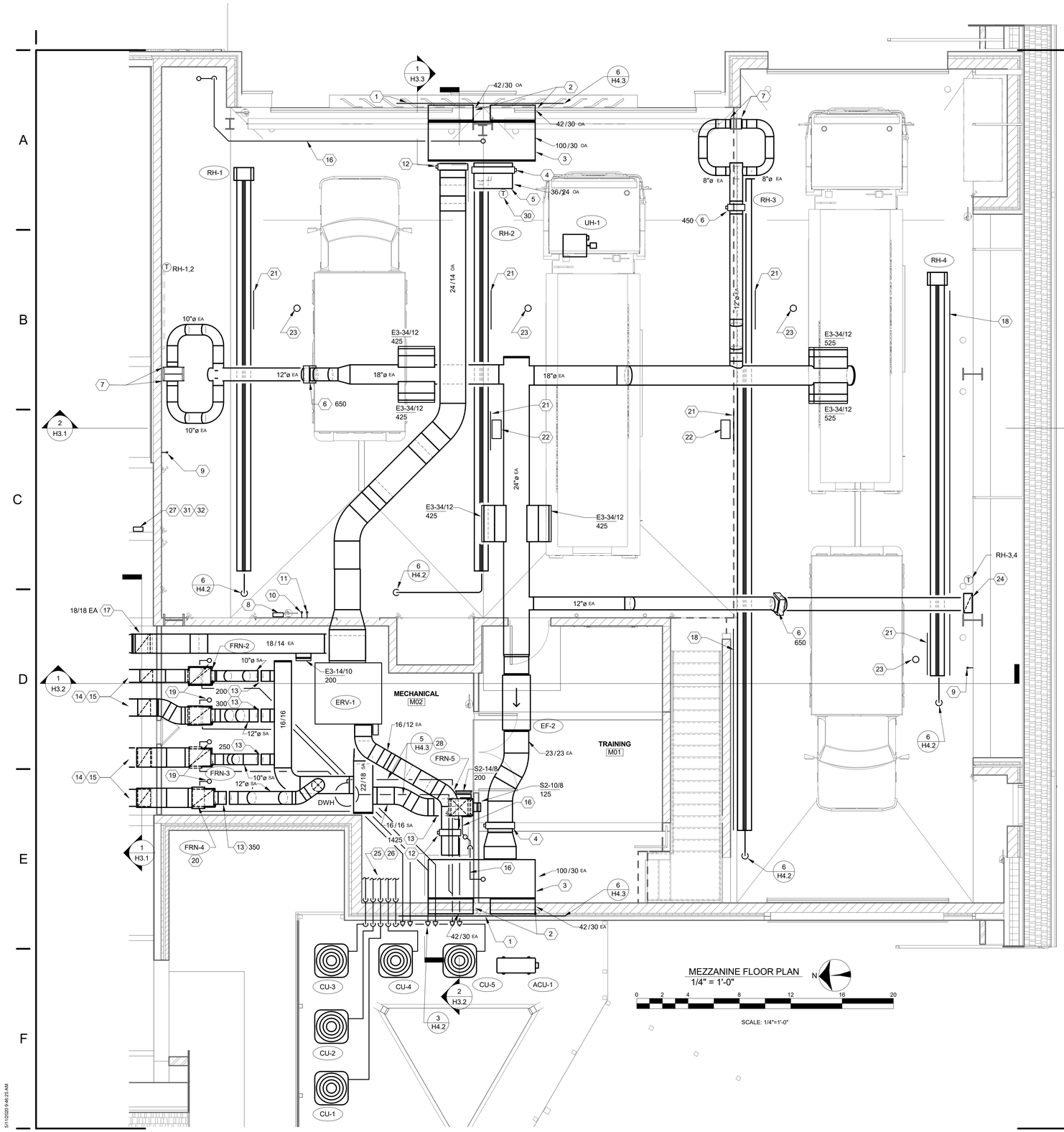
TITLE
LEVEL 1 FLOOR PLAN

SHEET NO.
H2.1

4/3/2020 9:08:38 AM



CONSTRUCTION NOTES

1. LOUVER BY G.C.
2. (2) 42"W x 30"H DUCTS W/2" INSULATION. CONNECT TO LOUVER. PROVIDE 18 GA. GALVANIZED SHEET METAL WITH 2" INSULATION BLANK OFF PANELS OVER UNUSED LOUVER AREA.
3. 100"WIDE x 30"HIGH x 36"DEEP, 2" INSULATED PLENUM. PROVIDE 0.75" DRAIN LINE W/1" INSULATION TO FLOOR DRAIN.
4. AUTO CONTROL DAMPER - INTERLOCK WITH EXHAUST FAN EF-2 VFD. PROVIDE RELAY WIRING FROM CONTACT TO VFD TO CONTROL DAMPER.
5. DUCT OPEN TO ROOM
6. BALANCE DAMPER. BALANCE TO CFM INDICATED ON PLAN.
7. EXHAUST AIR CAVITY IN I-BEAM WITH 1/4" GALVANIZED STEEL PLATE. SEE DETAIL 2, SHEET H3.1 FOR DESCRIPTION.
8. CARBON MONOXIDE AND NITRIC OXIDE MONITORING PANEL. PANEL TO HAVE EIGHT (8) DISPLAY READOUTS AND AUDIO VISUAL ALARM. PROVIDE SEPARATE HORN/STROBE ALARM AND WIRE CONTROL PANEL TO ALARM WHEN ANY CO LEVEL > 50 PPM (ADJ.) AND ANY NO_2 LEVEL > 30 PPM (ADJ.).
9. CARBON MONOXIDE AND NITRIC OXIDE SENSOR. MOUNT SENSOR AT 4' AFF AND 12' AFF. WIRE TO CONTROL PANEL. PANEL TO DISPLAY NITRIC OXIDE AND CARBON MONOXIDE VALUE FOR EACH SENSOR.
10. EF-2, RH-1,2,3,4 DISENGAGE OVERRIDE PUSH BUTTON.
11. EF-2 OVERRIDE ENGAGE PUSH BUTTON 30 MIN (ADJ.)
12. AUTO CONTROL DAMPER - INTERLOCK WITH ENERGY RECOVERY UNIT ERV-1. PROVIDE RELAY WIRING FROM ERV-1 TO CONTROL DAMPER.
13. OUTSIDE AIR BALANCE DAMPER. BALANCE TO CFM INDICATED ON PLAN.
14. SUPPLY DUCT UNDERNEATH RETURN DUCT.
15. SEE FIRST FLOOR PLAN, SHEET H2.1 FOR DUCT CONTINUATION.
16. 0.75" CONDENSATE DRAIN. PIPE TO FLOOR DRAIN AND TERMINATE.
17. EXHAUST DUCT DOWN TO FIRST FLOOR. SEE SHEET H2.1 FOR CONTINUATION.
18. PROVIDE SIDE SHIELD DEFLECTOR PLATE TO PROJECT HEAT AWAY FROM WALL.
19. 0.75" CONDENSATE DRAIN. PIPE TO HUB DRAIN AND TERMINATE.
20. PROVIDE HUMIDIFIER PER DETAIL.
21. PROVIDE SIDE SHIELD DEFLECTOR PLATE TO PROJECT HEAT AWAY FROM AIR HOSE REEL/ELECTRIC CORD REEL. COORDINATE PLATE LOCATION WITH HOSE & CORD REEL LOCATIONS.
22. AIR HOSE REEL. COORDINATE LOCATION WITH P.C. AND OWNER.
23. ELECTRIC CORD REEL. COORDINATE LOCATION WITH E.C AND OWNER.
24. 18"x8", 16 GA. GALVANIZED WELDED DUCT DROP DOWN TO 18" A.F.F. AND TERMINATE.
25. REFRIGERANT LINE SET. INSULATE PER MANUFACTURER'S RECOMMENDATIONS.
26. RUN REFRIGERANT PIPING MINIMUM 8' A.F.F.
27. PROVIDE MOMENTARY WALL SWITCH, TURN OVER TO E.C. TO BE WIRED & LOCATED IN MASTER CONTROL PANEL, TO RUN RH-1 AND RH-2 AT 100% (ADJ) HEAT FOR 15 MIN. (ADJ).
28. DOMESTIC WATER HEATER COMBUSTION AIR INTAKE AND VENT.
29. CONCENTRIC VENTS TO BE SPACED IN GROUPS OF TWO 4" MAX. APART, 24" APART FROM NEXT GROUP OF TWO. SEE IPEX SYSTEM 636 MULTIPLE SIDEWALL TERMINATION REQUIREMENTS FOR SPACING GUIDELINES.
30. PROVIDE TEMPERATURE SENSOR FOR UH-1 ON UNISTRUT FRAMING IN FRONT OF OUTSIDE AIR DUCT TO SENSE OUTSIDE AIR TEMPERATURE WHEN DAMPER IS OPEN. UH-1 TO RUN WHEN TEMPERATURE SENSOR IS 40 DEG. F. OR BELOW.
31. PROVIDE MOMENTARY WALL SWITCH, TURN OVER TO E.C. TO BE WIRED & LOCATED IN MASTER CONTROL PANEL, TO RUN RH-3 AND RH-4 AT 100% (ADJ) HEAT FOR 15 MIN. (ADJ).
32. PROVIDE MOMENTARY WALL SWITCH, TURN OVER TO E.C. TO BE WIRED & LOCATED IN MASTER CONTROL PANEL, TO RUN UH-1 FOR 30 MIN. (ADJ).

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204 S. Ludlow Street, Suite 400, Dayton, Ohio 45402
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BEAVERCREEK TOWNSHIP
FIRE STATION
No. 65

1777 TREBEIN ROAD
BEAVERCREEK TOWNSHIP, OHIO 45385

ISSUE:

NO.	DATE	DESCRIPTION
20	04/03/20	FOR CONSTRUCTION

DATE	04/03/2020
JOB NO.	3541.00
DRAWN	RAS
CHECKED	JDZ
CAD	-

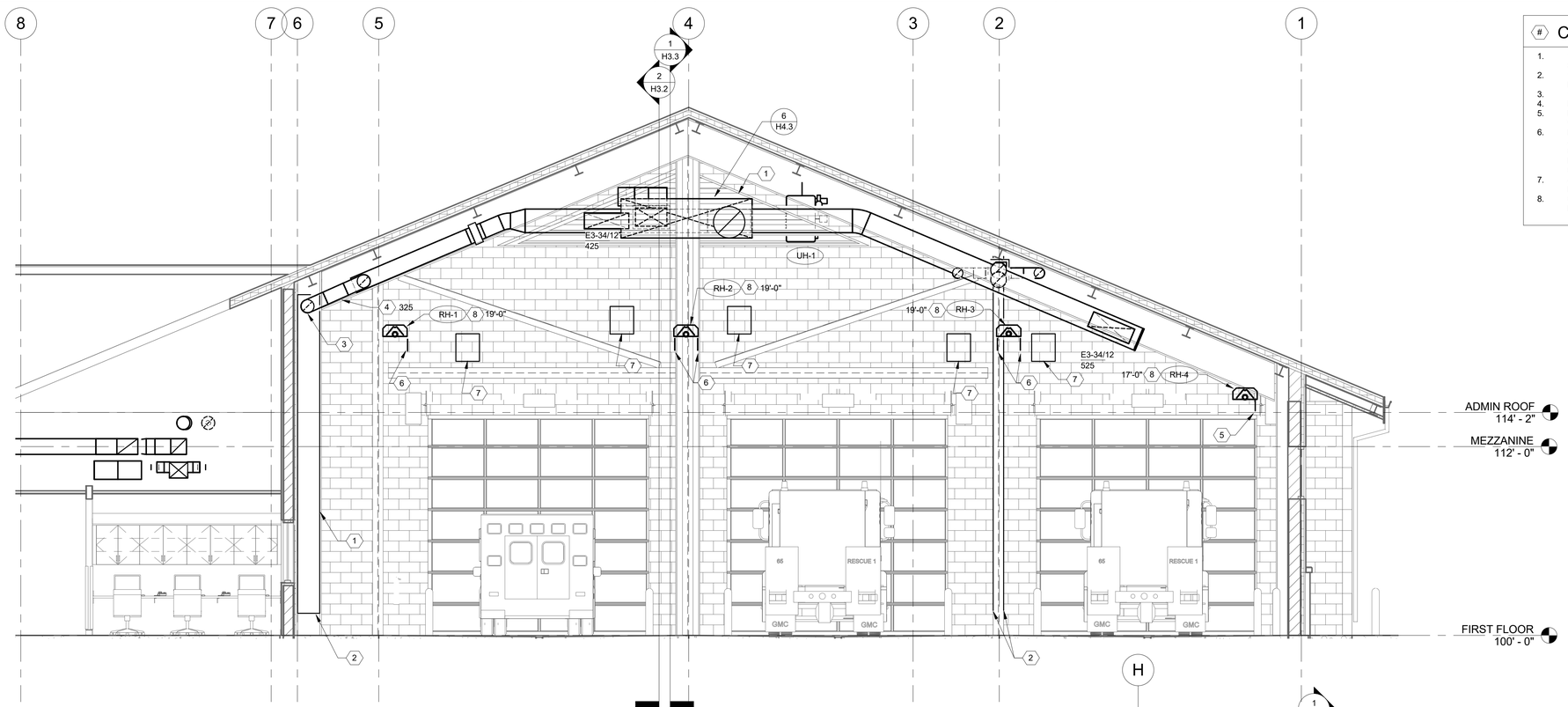
TITLE
MEZZANINE FLOOR PLAN

SHEET NO.
H2.2

5/11/2020 9:46:29 AM

CONSTRUCTION NOTES

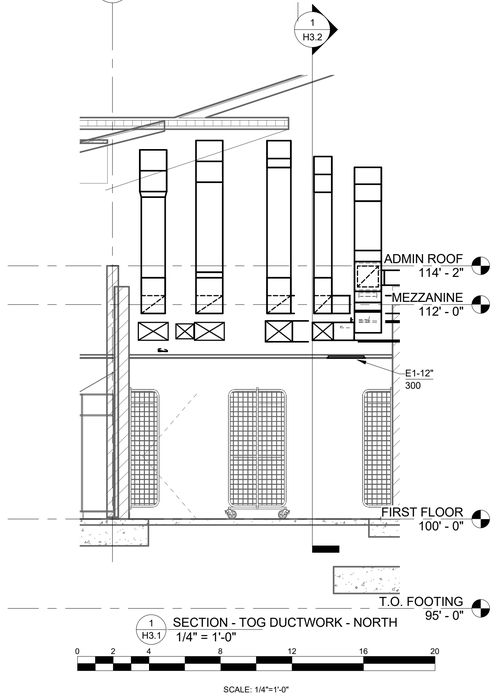
1. 1/4" STEEL PLATE CAP WELDED TO WEBBING IN I-BEAM BY G.C.
2. 1/4" STEEL PLATE OPEN 18" A.F.F. TO PROVIDE EXHAUST AIR PATH.
3. 10" DIA. OPENING WITH BELLMOUTH FITTING BY G.C.
4. BALANCE DAMPER. BALANCE TO CFM INDICATED ON PLAN.
5. PROVIDE SIDE SHIELD TO PROJECT HEAT AWAY FROM THE WALL.
6. PROVIDE SIDE SHIELD TO PROJECT HEAT AWAY FROM THE AIR HOSE REELS AND ELECTRIC CORD REELS. COORDINATE LOCATION OF SHIELDING WITH LOCATION OF REELS. PROVIDE 5 FEET (MIN.) OF SHIELDING FOR EACH CONFLICT.
7. AIR HOSE REEL OR ELECTRIC CORD REEL. COORDINATE HEIGHT AND LOCATION WITH OTHER TRADES.
8. COORDINATE HEIGHT AND LOCATION SHOWN ON FLOOR PLAN OF RADIANT HEATER WITH OTHER TRADES.



2 H3.1 SECTION - APPARATUS BAY - EAST
1/4" = 1'-0"

0 2 4 8 12 16 20

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



1 H3.1 SECTION - TOG DUCTWORK - NORTH
1/4" = 1'-0"

0 2 4 8 12 16 20

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

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STATE OF OHIO
JEFFREY D. ZELINSKI
63822
REGISTERED PROFESSIONAL ENGINEER

BEAVERCREEK TOWNSHIP

FIRE STATION No. 65

1777 TREBEIN ROAD
BEAVERCREEK TOWNSHIP, OHIO 45385

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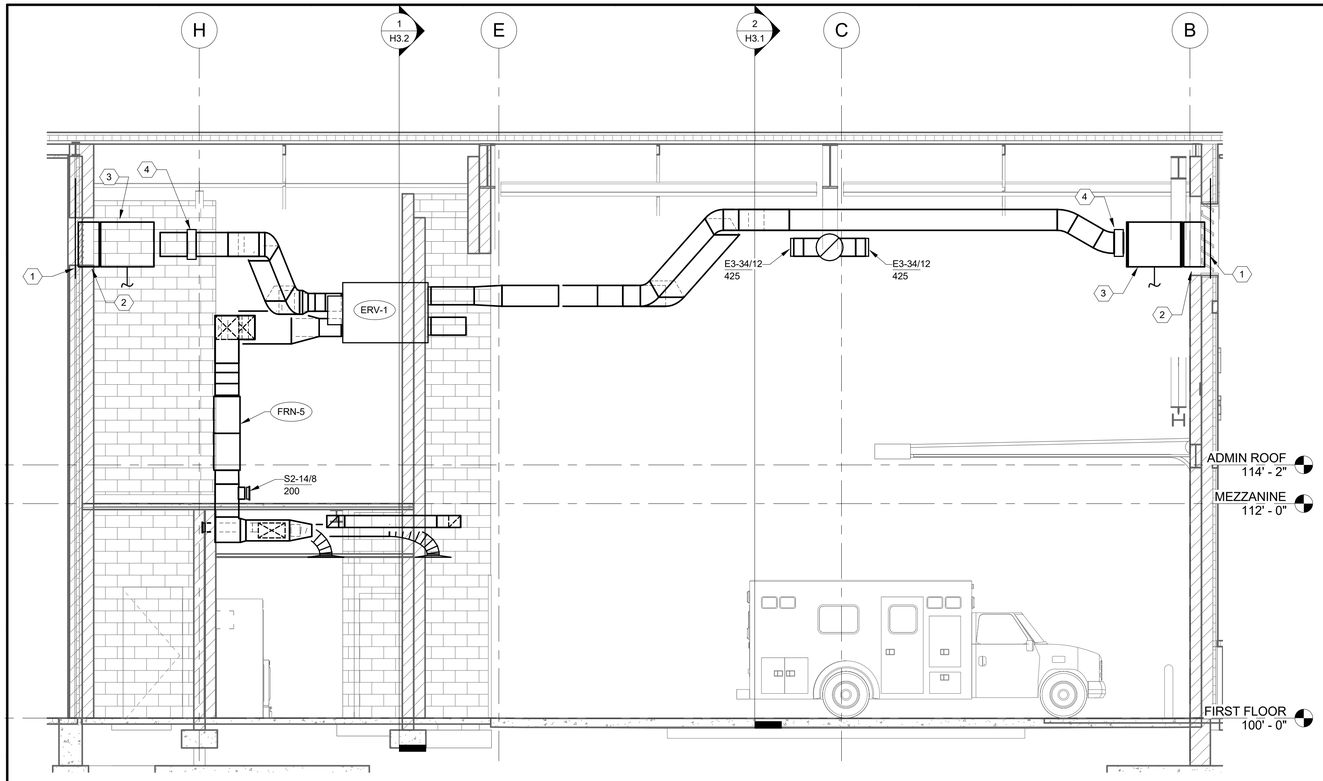
TITLE
HVAC SECTIONS

SHEET NO.
H3.1

4/3/2020 9:10:22 AM

CONSTRUCTION NOTES

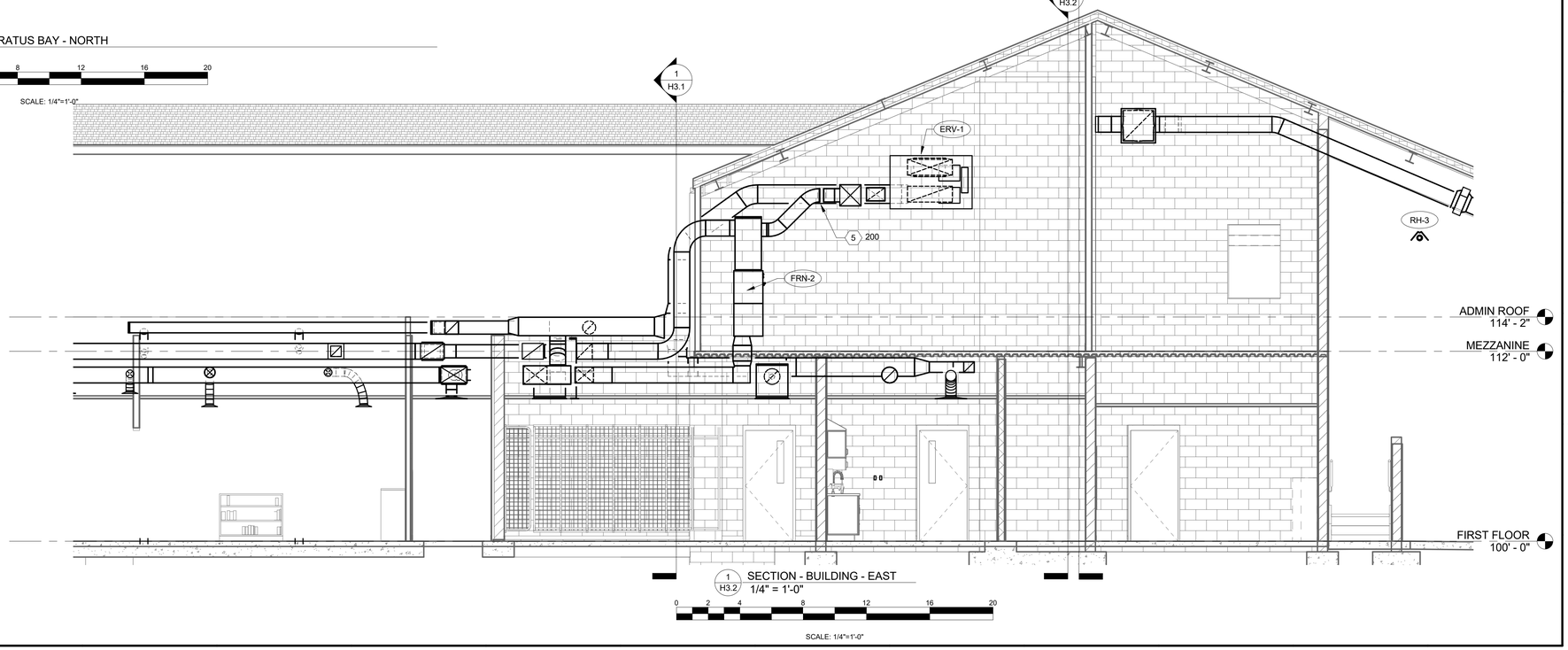
1. LOUVER BY G.C.
2. (2) 42"W x 30"H DUCTS W/2" INSULATION. CONNECT TO LOUVER. PROVIDE 18 GA. GALVANIZED SHEET METAL WITH 2" INSULATION BLANK OFF PANELS OVER UNUSED LOUVER AREA.
3. 100"WIDE x 30"HIGH x 36"DEEP, 2" INSULATED PLENUM. PROVIDE 0.75" DRAIN LINE W/1" INSULATION TO FLOOR DRAIN.
4. AUTO CONTROL DAMPER - INTERLOCK WITH ENERGY RECOVERY UNIT ERV-1. PROVIDE RELAY WIRING FROM ERV-1 TO CONTROL DAMPER.
5. OUTSIDE AIR BALANCE DAMPER. BALANCE TO AIRFLOW INDICATED ON PLAN.



2 H3.2 SECTION - APPARATUS BAY - NORTH
1/4" = 1'-0"

0 2 4 8 12 16 20

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



1 H3.2 SECTION - BUILDING - EAST
1/4" = 1'-0"

0 2 4 8 12 16 20

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

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CAD	-

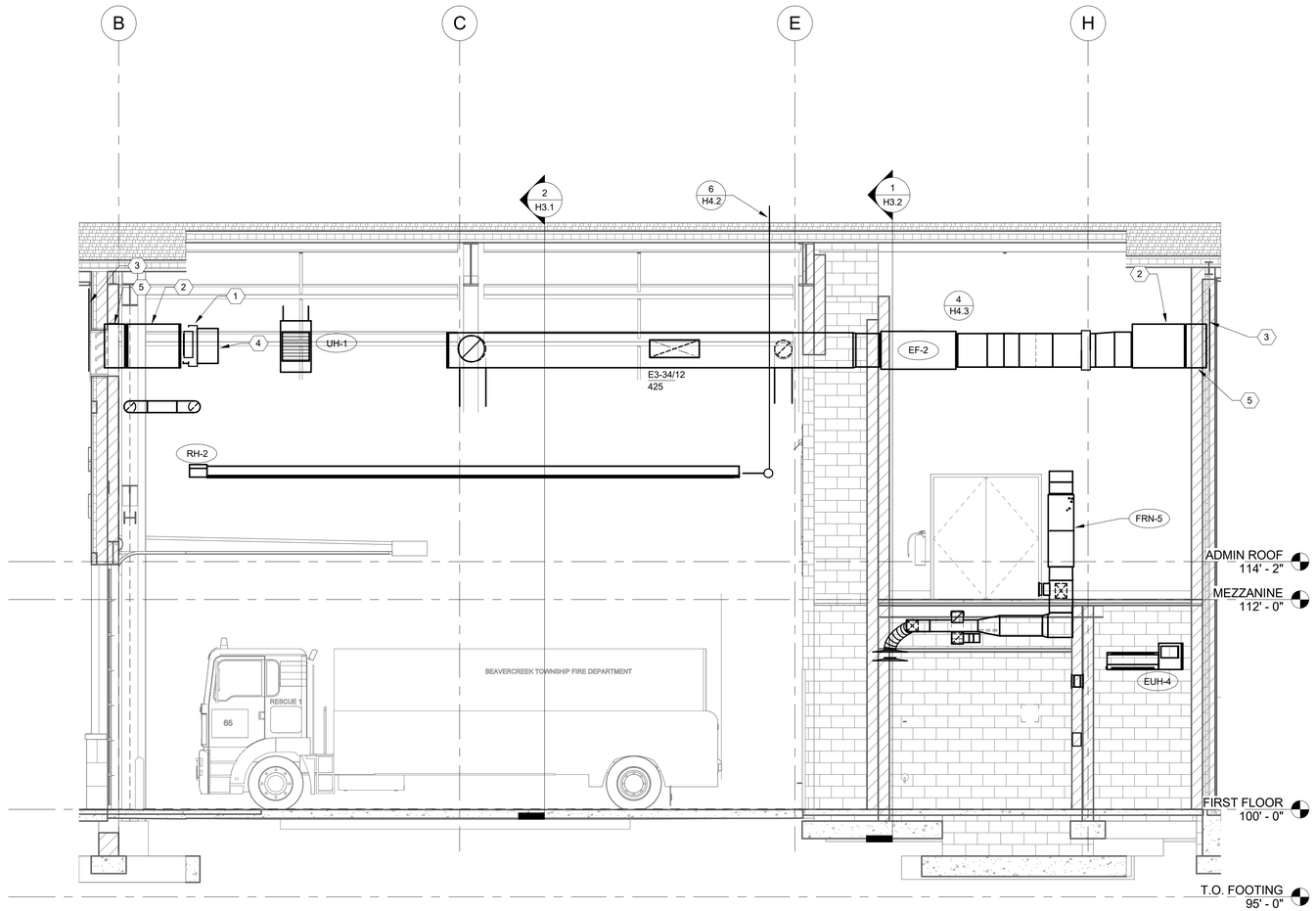
TITLE
HVAC SECTIONS

SHEET NO.
H3.2

4/3/2020 9:10:47 AM

CONSTRUCTION NOTES

1. AUTO. CONTROL DAMPER INTERLOCK WITH EXHAUST FAN EF-2 VFD. PROVIDE RELAY WIRING FROM CONTACT ON VFD TO CONTROL DAMPER.
2. 100"W x 30"H x 36"D, 2" INSULATED PLENUM. PROVIDE 0.75" DRAIN LINE W/1" INSULATION TO FLOOR DRAIN.
3. LOUVER BY G.C.
4. DUCT OPEN TO ROOM.
5. PROVIDE (2) 42"W x 30"H DUCTS TO CONNECT FROM LOUVER TO PLENUM AND SPLIT COLUMN.



1 H3.3 SECTION - APPARATUS BAY - SOUTH
1/4" = 1'-0"

0 2 4 8 12 16 20

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

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BEAVERCREEK TOWNSHIP

FIRE STATION No. 65

1777 TREBEIN ROAD
BEAVERCREEK TOWNSHIP, OHIO 45385

ISSUE:

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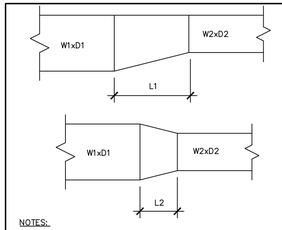
CHECKED	JDZ
CAD	-

TITLE
HVAC SECTIONS

SHEET NO.
H3.3

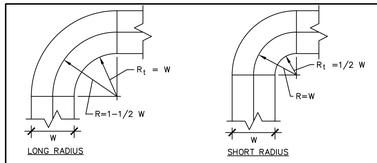
4/3/2020 9:11:03 AM



NOTES:

1. DIMENSIONS W1, W2, D1, AND D2 AS INDICATED ON THE DRAWINGS.
2. FOR LOW VELOCITY DUCTWORK (1800 FPM OR LESS)
   L1 = 4 x (W1−W2) OR 4 x (D1−D2) WHICHEVER IS GREATER.
   L2 = 2 x (W1−W2) OR 2 x (D1−D2) WHICHEVER IS GREATER.
3. FOR MEDIUM AND HIGH VELOCITY DUCTWORK (OVER 1800 FPM)
   L1 = 7 x (W1−W2) OR 7 x (D1−D2) WHICHEVER IS GREATER.
   L2 = 3.5 x (W1−W2) OR 3.5 x (D1−D2) WHICHEVER IS GREATER.

1 RECTANGULAR TRANSITION
N.T.S.

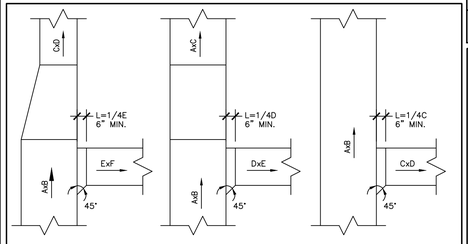


NOTES:

1. USE ONLY LONG RADIUS ELBOWS ON KITCHEN HOOD AND DISHWASHER HOOD EXHAUST DUCTWORK.
2. USE LONG RADIUS ELBOWS ON ALL DUCTWORK SYSTEMS WHERE POSSIBLE OR UNLESS OTHERWISE INDICATED.
3. ONLY WHEN IT IS IMPOSSIBLE TO USE LONG RADIUS ELBOWS, USE LARGEST POSSIBLE RADIUS WITH A MINIMUM RADIUS EQUAL TO THAT OF A SHORT RADIUS ELBOW.

NOTE:
ELBOWS WITH 90 DEGREE SQUARE ON INSIDE RADIUS ARE NOT ACCEPTABLE.

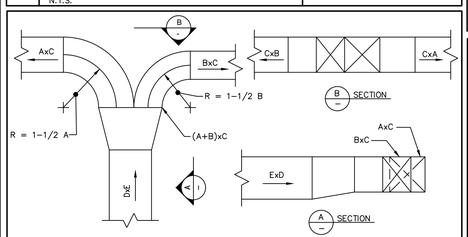
2 RECTANGULAR 90° RADIUS ELBOW
N.T.S.



NOTES:

1. DIMENSIONS A, B, C, D, E, AND F AS INDICATED ON DRAWINGS.
2. TRANSITIONS MAY BE FLAT ON TOP, FLAT ON BOTTOM, OR CONCENTRIC.
3. SAME FOR RETURN AND EXHAUST DUCTS EXCEPT AIRFLOW IS REVERSED.
4. TAP HEIGHT DIMENSION SHOULD BE 2" SMALLER THAN MAIN DUCT HEIGHT.

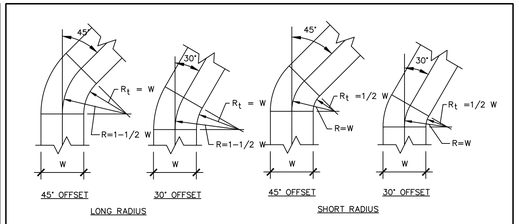
3 RECTANGULAR 90° SIDE TAP
N.T.S.



NOTES:

1. DIMENSIONS A, B, C, D, AND E AS INDICATED ON DRAWINGS.
2. TRANSITIONS SHOWN CONCENTRIC IN PLAN, MAY BE FLAT ON EITHER SIDE. TRANSITION SHOWN FLAT ON TOP IN SECTION, MAY BE FLAT ON BOTTOM OR CONCENTRIC. TRANSITION DUCT AS FIELD CONDITIONS DICTATE.
3. SAME FOR RETURN AND EXHAUST DUCTS EXCEPT AIRFLOW IS REVERSED.

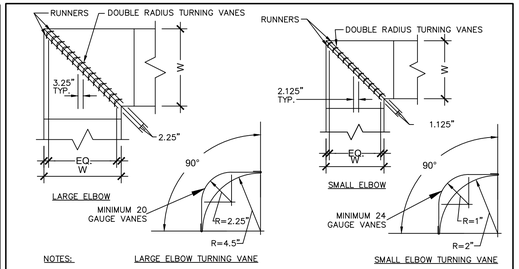
4 RECTANGULAR TEE LONG RADIUS ELBOW
N.T.S.



NOTES:

1. USE ONLY LONG RADIUS ELBOWS ON KITCHEN HOOD AND DISHWASHER HOOD EXHAUST DUCTWORK.
2. USE LONG RADIUS ELBOWS ON ALL DUCTWORK SYSTEMS WHERE POSSIBLE OR UNLESS OTHERWISE INDICATED.
3. ONLY WHEN IT IS IMPOSSIBLE TO USE LONG RADIUS ELBOWS, USE LARGEST POSSIBLE RADIUS WITH A MINIMUM RADIUS EQUAL TO THAT OF A SHORT RADIUS ELBOW.

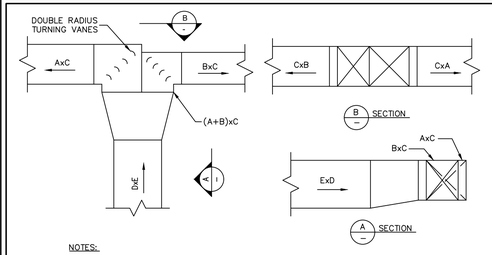
5 RECTANGULAR 45° & 30° RADIUS ELBOW
N.T.S.



NOTES:

1. FOR DUCT SIZES WHERE WIDTH IS 24" AND SMALLER, USE SMALL ELBOW DETAIL.
2. FOR DUCT SIZES WHERE WIDTH IS LARGER THAN 24", USE LARGE ELBOW DETAIL.
3. ALL VANES SHALL BE SECURE AND STABLE IN OPERATING POSITION.
4. VANES SHALL BE SECURELY FASTENED TO RUNNERS.
5. INSTALL VANES IN SECTIONS OR USE TIE RODS TO LIMIT THE UNBRACED LENGTH TO 60".

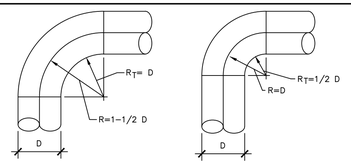
6 RECTANGULAR 90° MITERED ELBOW
N.T.S.



NOTES:

1. DIMENSIONS A, B, C, D, AND E AS INDICATED ON DRAWINGS.
2. TRANSITIONS SHOWN CONCENTRIC IN PLAN, MAY BE FLAT ON EITHER SIDE. TRANSITION SHOWN FLAT ON TOP IN SECTION, MAY BE FLAT ON BOTTOM OR CONCENTRIC. TRANSITION DUCT AS FIELD CONDITIONS DICTATE.
3. SAME FOR RETURN AND EXHAUST DUCTS EXCEPT AIRFLOW IS REVERSED.

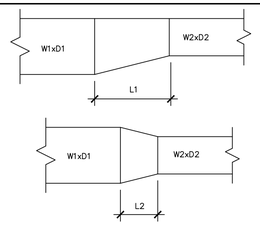
7 RECTANGULAR TEE SQUARE ELBOW
N.T.S.



NOTES:

1. DIMENSION D AS SHOWN ON THE DRAWINGS.
2. USE LONG RADIUS ELBOW ON ALL DUCTWORK SYSTEMS WHERE EVER POSSIBLE OR UNLESS OTHERWISE INDICATED.
3. ONLY WHEN IT IS IMPOSSIBLE TO USE LONG RADIUS ELBOWS, USE LARGEST POSSIBLE RADIUS WITH A MINIMUM RADIUS EQUAL TO THAT OF A SHORT RADIUS ELBOW.

8 ROUND 90° RADIUS ELBOW
N.T.S.



NOTES:

1. DIMENSIONS W1, W2, D1, AND D2 AS INDICATED ON THE DRAWINGS.
2. FOR LOW VELOCITY DUCTWORK (1800 FPM OR LESS)
   L1 = 4 x (W1−W2) OR 4 x (D1−D2) WHICHEVER IS GREATER.
   L2 = 2 x (W1−W2) OR 2 x (D1−D2) WHICHEVER IS GREATER.
3. FOR MEDIUM AND HIGH VELOCITY DUCTWORK (OVER 1800 FPM)
   L1 = 7 x (W1−W2) OR 7 x (D1−D2) WHICHEVER IS GREATER.
   L2 = 3.5 x (W1−W2) OR 3.5 x (D1−D2) WHICHEVER IS GREATER.

9 RECTANGULAR TRANSITION
N.T.S.

DUCT INSULATION SCHEDULE

QUALITY ASSURANCE
INSULATION SHALL MEET NFPA 255, 25 FLAME SPREAD & 50 SMOKE DEVELOPMENT, UL 181, NFPA 90A/90B, ASTM 1136, AND ASTM E84.

MINIMUM INSULATION THICKNESS SHALL COMPLY WITH ASHRAE 90.1−2010.

PRODUCTS
ALUMINUM PROTECTIVE JACKET COVERS.

EXECUTION
INSULATION SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

DUCTWORK SHALL BE SEALED PRIOR TO INSTALLATION OF INSULATION.

ALL EXTERIOR DUCT INSULATION SHALL BE SEALED WATERTIGHT.

REINSULATE DUCTWORK WHERE EXISTING INSULATION IS DAMAGED IN CONNECTION OF NEW DUCTWORK.

ALL INSULATION VAPOR BARRIERS SHALL BE MAINTAINED.

ADHESIVE SHALL BE APPLIED TO AID INSTALLATION.

REQUIRED INTERNAL DUCT LINING IS INDICATED ON DRAWINGS. LINED DUCTWORK NEED NOT BE FURTHER INSULATED.

DUCT COILS, REHEAT BOX COILS, CONTROL DAMPER, FIRE DAMPERS & SMOKE DAMPERS SHALL BE INSULATED IF SYSTEM INSULATION IS INDICATED.

ALL INSULATION SHALL BE MARKED WITH MANUFACTURER, "R" VALUE, FLAME SPREAD & SMOKE DEVELOPMENT.

SYSTEM	INSULATION THICKNESS	TYPE	LOCATION	NOTES
SUPPLY AIR DUCT	1.5"	1	CONCEALED	
SUPPLY AIR DUCT	2"	2	EXPOSED	
SUPPLY AIR DUCT	2"	1	IN ATTIC	
OUTDOOR AIR DUCT & PLENUMS	1.5"	1	CONCEALED	
OUTDOOR AIR DUCT & PLENUMS	2"	2	EXPOSED	
RETURN AIR DUCT	–	–	CONCEALED	
RETURN AIR DUCT	–	–	EXPOSED	
RETURN AIR DUCT	–	–	IN ATTIC	
EXHAUST AIR DUCT & PLENUMS	–	–	CONCEALED	
EXHAUST AIR DUCT & PLENUMS	–	–	EXPOSED	
EXHAUST AIR DUCT & PLENUMS	–	–	IN ATTIC	
LINED SUPPLY AIR DUCT	1"	3	CONCEALED & EXPOSED	
LINED RETURN/TRANSFER AIR DUCT	1"	3	CONCEALED & EXPOSED	

TYPE	BASIS OF DESIGN	APPROVED EQUALS	DESCRIPTION
1	OWENS−CORNING SOFTR TYPE 75	KNAUF JM CERTAIN TEED	MATERIAL FIBERGLASS DUCT WRAP ON DUCT K = 0.30 @ 75 DEG. F. DENSITY − 0.75 PCF JACKET − FOIL REINFORCED JOINTS − OVERLAPPING STAPLE ALL JOINTS AT 6" CENTERS. FASTENERS − MECHANICAL ON 24" & WIDER DUCT. ADHESIVE − NONE TAPE − 3" WIDE
2	OWENS−CORNING TYPE 703	KNAUF JM CERTAIN TEED	MATERIAL FIBERGLASS BOARD ON DUCT K = 0.23 @ 75 DEG. F. DENSITY − 3.0 PCF JACKET − ASJ JOINTS − BUTT FASTENERS − METAL PINS & CLIPS ON 12" CENTERS ADHESIVE − NONE TAPE − 3" WIDE VAPOR PATCHED
3	OWENS−CORNING QUIET R TYPE 300	KNAUF JM CERTAIN TEED	MATERIAL FIBERGLASS BOARD LINER K = 0.23 @ 75 DEG. F. DENSITY − 3.0 PCF JACKET − NONE JOINTS − BUTT FASTENERS − METAL PINS & CLIPS ON 12" CENTERS ADHESIVE − NONE TAPE − NONE

NOTES:
1. PROVIDE TWO LAYERS OF FIRE BARRIER WRAP ON ALL INTERIOR TYPE I KITCHEN HOOD GREASE DUCT.

DUCT CONSTRUCTION AND SEALING

- FOLLOW SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE − THIRD EDITION.
- DUCT TO BE HOT DIPPED, GALVANIZED BOTH SIDES, G90 PER ASTM A653 EXCEPT WHERE NOTED OTHERWISE.
- EXPOSED DUCTWORK IN FINISHED AREAS TO BE PAINTED SHALL BE HOT DIPPED, HEAT TREATED GALVANEALED BOTH SIDES, UNIFORM GRAY MATTE APPEARANCE, A40 PER ASTM A653.
- ROUND OR FLAT OVAL DUCTWORK (2" S.P. AND HIGHER)
  - CONTINUOUS HELICAL (SPIRAL) LOCK SEAM CONSTRUCTION WITH SLIP CONNECTIONS. GASKETED FLANGES ARE NOT ACCEPTABLE.
  - USE 45 DEG. LATERAL TEE WHEREVER POSSIBLE.
  - 90 DEG. TEES SHALL BE CONICAL.
  - DIE STAMPED ELBOWS, r/D = 1.5 (MIN.)
  - RADIUSED, ANGLED (15 DEG. MAX.) OR MITERED (15 DEG. MAX.) OFFSETS
  - CONCENTRIC TRANSITIONS, 0 = 45 DEG. MAX.
  - ECCENTRIC TRANSITIONS, 0 = 30 DEG. MAX.
- ROUND DUCTWORK (1" S.P. OR LESS) SAME AS ABOVE EXCEPT:
  - LONGITUDINAL SEALED SEAM ACCEPTABLE AT FINAL AIR DEVICE ONLY.
  - STANDARD TEES ALLOWED.
  - SEGMENTED ELBOWS ALLOWED.
- RECTANGULAR DUCTWORK (2" S.P. AND HIGHER)
  - FLAT SLIP, STANDING DRIVE OR GASKETED DUCT SYSTEM JOINTS.
  - RADIUS OR SQUARE THROAT WITH DOUBLE WALL TURNING VANES ELBOW.
  - 45 DEG. ENTRY OR CONICAL SPIN IN BRANCH CONNECTIONS.
  - RADIUSED, ANGLED (15 DEG. MAX.) OR MITERED (15 DEG. MAX.) OFFSETS.
  - CONCENTRIC TRANSITIONS, 0 = 45 DEG. MAX.
  - ECCENTRIC TRANSITIONS, 0 = 30 DEG. MAX.
  - BRANCH DUCTS SHALL BE CONICAL TEE FITTINGS.
  - SQUARE THROAT, RADIUS HEEL 90 DEG. ELBOWS ARE NOT PERMITTED WITHOUT THE USE OF TURNING VANES.
- RECTANGULAR DUCTWORK (1" S.P. OR LESS) SAME AS ABOVE EXCEPT:
  - TURNING VANES IN ELBOWS NOT REQUIRED FOR AIR VELOCITIES LESS THAN 800 FPM.
  - STRAIGHT TAP AND STANDARD SPIN IN BRANCH CONNECTIONS PERMITTED.
- DUCT HANGER SUPPORTS SHALL DIRECTLY ATTACH TO DUCTWORK. EXTERIOR DUCT INSULATION WRAP SHALL BE APPLIED OVER DUCT AND HANGER SUPPORTS. ANGLE OR UNISTRUT SUPPORTS SHALL BE INSULATED A MINIMUM OF 4" BEYOND DUCT BEARING POINT TO PREVENT CONDENSATION.
- FLEXIBLE DUCTWORK (SUPPLY/RETURN/TRANSFER/EXHAUST)
  - CHLORINATED POLYETHYLENE INNER FABRIC − BLACK COLOR
  - R = 4.2 (MIN.) FIBERGLASS INSULATION.
  - REINFORCED METALIZED VAPOR BARRIER, 0.05 PERM.
  - UL 181, CLASS 1 DUCT, MEET NFPA 90A & 90B.
  - PROVIDE MANUFACTURERED DUCT SUPPORTS AT 90 DEGREE ELBOWS TO CEILING AIR DEVICES.
  - FLAME SPREAD LESS THAN 25, SMOKE DEVELOPMENT LESS THAN 50.

DUCT SYSTEM	SMACNA CLASS.		NOTES
	S.P. CONSTR.	SEAL CLASS	
RETURN AIR	−2"	A	
EXHAUST AIR	−2"	A	
AIR TRANSFER	−1"	NOT REQ'D	
SUPPLY AIR CONSTANT VOLUME	+3"	A	
FLEXIBLE DUCT − SUPPLY	+10" −5"	N.A.	
UNDERFLOOR RETURN AIR. SEE 4/H0.4			

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STATE OF OHIO
JEFFREY D. ZELINSKI
63822
REGISTERED PROFESSIONAL ENGINEER

Beavercreek Township
Fire Station No. 65
1777 Trebein Road, Beavercreek Township, Ohio 45385

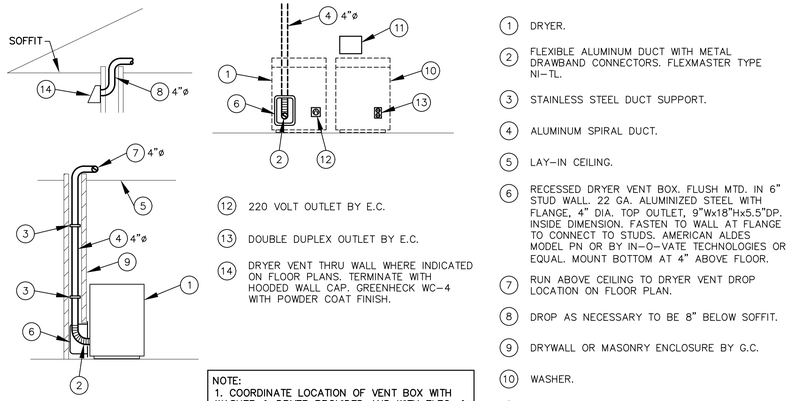
ISSUE:

NO.	DATE	DESCRIPTION
	04/03/20	FOR CONSTRUCTION

DATE	04/03/20
JOB NO.	3541.00
DRAWN	RAD
CHECKED	RAS
CAD	18102H4.1

TITLE
DETAILS

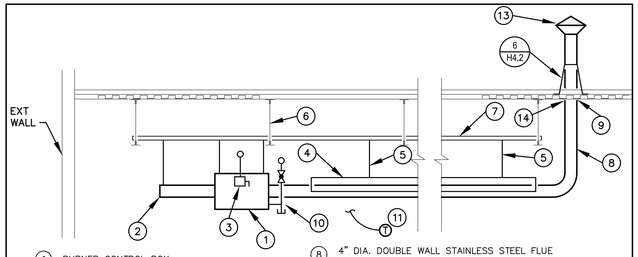
SHEET NO.
H4.1



1. DRYER.
2. FLEXIBLE ALUMINUM DUCT WITH METAL DRAWBAND CONNECTORS. FLEXMASTER TYPE NI–TL.
3. STAINLESS STEEL DUCT SUPPORT.
4. ALUMINUM SPIRAL DUCT.
5. LAY–IN CEILING.
6. RECESSED DRYER VENT BOX. FLUSH MTD. IN 6" STUD WALL. 22 GA. ALUMINIZED STEEL WITH FLANGE, 4" DIA. TOP OUTLET, 9"Wx18"Hx5.5"DP. INSIDE DIMENSION. FASTEN TO WALL AT FLANGE TO CONNECT TO STUDS. AMERICAN ALDES MODEL PN OR BY IN–O–VATE TECHNOLOGIES OR EQUAL. MOUNT BOTTOM AT 4" ABOVE FLOOR.
7. RUN ABOVE CEILING TO DRYER VENT DROP LOCATION ON FLOOR PLAN.
8. DROP AS NECESSARY TO BE 8" BELOW SOFFIT.
9. DRYWALL OR MASONRY ENCLOSURE BY G.C.
10. WASHER.
11. WASHER UTILITY BOX BY P.C.
12. 220 VOLT OUTLET BY E.C.
13. DOUBLE DUPLEX OUTLET BY E.C.
14. DRYER VENT THRU WALL WHERE INDICATED ON FLOOR PLANS. TERMINATE WITH HOODED WALL CAP. GREENHECK WC–4 WITH POWDER COAT FINISH.

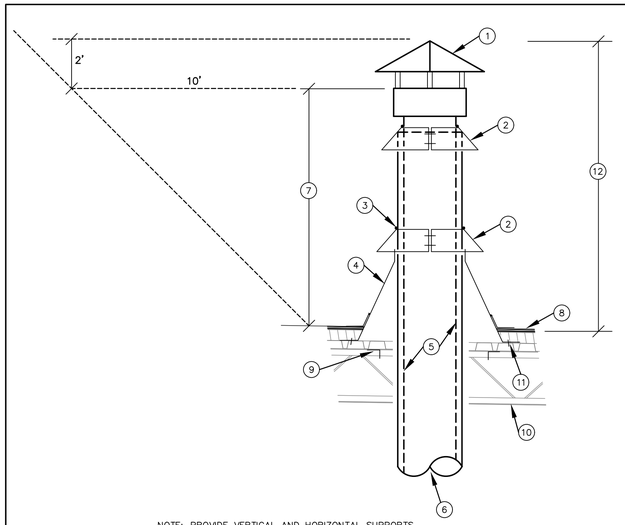
4" SIZE EXCEPT LARGER IF RECOMMENDED BY DRYER MANUFACTURER.

1 DRYER VENT
N.T.S.



1. BURNER CONTROL BOX.
2. COMBUSTION AIR DUCT – OPEN TO HIGH BAY SPACE.
3. DISCONNECT SWITCH BY E.C.
4. BURNER REFLECTOR.
5. CHAIN HANGER.
6. EXISTING ROOF JOIST.
7. UNISTRUT CHANNELS SPANNING JOIST.
8. 4" DIA. DOUBLE WALL STAINLESS STEEL FLUE VENT.
9. CUT OPENING IN ROOF TO PASS FLUE OR INTAKE.
10. GAS PIPE, VALVE & DIRT LEG BY P.C.
11. WALL MOUNTED THERMOSTAT BY H.C.
12. NOT USED.
13. FLUE VENT CAP. ALL EXTERIOR MECHANICAL MATERIAL TO BE POWDER COAT FINISH AND PAINTED – COLOR SELECTION BY ARCHITECT.
14. SEAL PENETRATION.

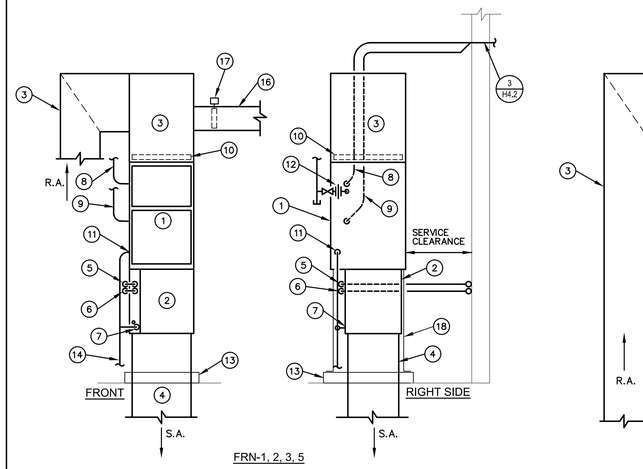
5 RADIANT HEATER
N.T.S.



NOTE: PROVIDE VERTICAL AND HORIZONTAL SUPPORTS.

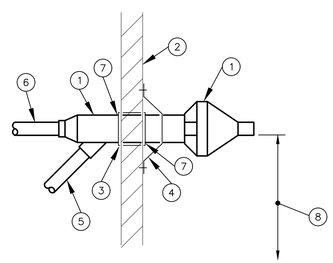
1. RAIN CAP.
2. STORM COLLAR.
3. APPLY APPROVED RTV SEALANT.
4. PITCHED TALL CONE FLASHING ASSEMBLY.
5. STAINLESS STEEL DOUBLE WALL FLUE VENT. SEE SPECIFICATIONS. (SCHEDULE 40 CPVC FOR DOMESTIC HW FLUE).
6. FROM DOMESTIC WATER HEATER OR GAS HEATER.
7. TOP OF FLUE OUTLET IS 4'–6" ABOVE ROOF OR 2'–0" HIGHER THAN HIGHEST ROOF PORTION WITHIN 10'–0".
8. ROOF. SEE ARCH. DRAWINGS.
9. FRAMED OPENING IN DECK BY G.C.
10. STEEL JOIST.
11. FASTEN CONE DIRECTLY TO ROOF DECK.
12. ALL ITEMS ABOVE ROOFLINE SHALL HAVE POWDER COAT FINISH. COLOR SELECTION BY ARCHITECT.

6 DOUBLE WALL FLUE
N.T.S.



1. DIRECT–VENT CONDENSING GAS FURNACE.
2. COOLING COIL SECTION.
3. RETURN AIR DUCTWORK.
4. SUPPLY AIR DUCTWORK.
5. LIQUID LINE.
6. SUCTION LINE.
7. 0.75" COOLING COIL DRAIN LINE.
8. 3" COMBUSTION AIR PIPE. SCHEDULE 40 CPVC.
9. 3" VENT AIR PIPE. SCHEDULE 40 CPVC.
10. FILTER FRAME. MERV 8 FILTERS. PROVIDE EXTRA SET OF FILTERS.
11. 0.75" COMBUSTION CONDENSATE DRAIN LINE.
12. 0.50" GAS CONNECTION.
13. 4" HIGH METAL FRAME STAND. LEVEL TOP.
14. PROVIDE 2" DEEP TRAP ON CONDENSATE LINE. COMBINE WITH OTHER NEARBY FURNACE DRAIN LINES AND EXTEND TO FLOOR DRAIN.
15. BYPASS DUCT HUMIDIFIER (FRN–4). EQUAL TO CARRIER PERFORMANCE BYPASS HUMIDIFIER HUMCCLBP. 24V. POWER FROM FURNACE.
16. OUTSIDE AIR DUCT.
17. OUTSIDE AIR DAMPER. BALANCE TO CFM INDICATED ON PLAN.
18. MOUNT FURNACE ON UNISTRUT FRAME.
19. 0.25" DOMESTIC COLD WATER LINE BY H.C. PIPE FROM SHUT–OFF VALVE BY P.C. TO HUMIDIFIER.
20. 0.75" DRAIN LINE TO HUB DRAIN.
21. HUMIDISTAT. SEE FLOOR PLAN FOR LOCATION.

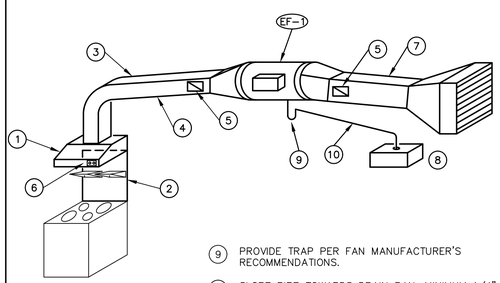
2 GAS -FIRED FURNACE & DX COIL
N.T.S.



FRN-1, 2, 3, 4, 5 & DWH

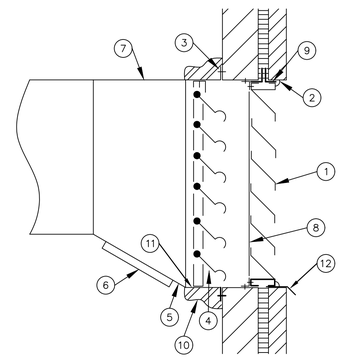
1. CONCENTRIC VENT PROVIDED WITH EQUIPMENT.
2. WALL.
3. PIPE SLEEVE.
4. FLASHING COLLAR.
5. COMBUSTION AIR PIPE – 3" SCHEDULE 40 CPVC.
6. VENT/EXHAUST PIPE – 3" SCHEDULE 40 CPVC.
7. SEALANT.
8. 18" ABOVE GRADE.

3 CONCENTRIC WALL VENT TERMINATION
N.T.S.



1. RANGE HOOD EQUAL TO BROAN ELITE.
MODEL # E64E30SS
ELEC: 120V./1 PH. –1A
DIMENSIONS: 30"W x 22"D x 10"H
OPTIONS:
– EXHAUST COLLAR
– MESH FILTER
– HOOD TO INCLUDE TEMPERATURE SENSOR WHICH WILL AUTOMATICALLY START EF–1 (REMOTE KITCHEN EXH FAN) WHEN TEMPERATURE EXCEEDS 125 DEG. F. (ADJ).
– WIRE TO FAN STARTER BY E.C.
2. PROVIDE RMP SERIES S.S., 22 GAUGE, TYPE 430 BACKSPLASH WITH (2) CONDIMENT STORAGE SHELVES.
3. 10"x10" WELDED S.S. DUCT W/FIRE WRAP.
4. SLOPE DUCT BACK TOWARDS HOOD, MIN. 1/8" PER FOOT.
5. HINGED CLEANOUT ACCESS PANEL.
6. (2) S.S. SWITCHES. MOUNT ON FRONT RIGHT SIDE OF HOOD. LIGHT SWITCH AND FAN SWITCH. PROVIDED BY H.C., WIRED BY E.C.
7. SLOPE DUCT FROM FAN TOWARDS LOUVER, MINIMUM 1/8" PER FOOT.
8. PROVIDE 17.125"L x 5.1"W x 3.75"H SS DRAIN PAN WITH LID & 1.5" DIA. DOWNSPOUT AND MOUNTING BRACKET. LOCATE NEAR OUTSIDE WALL.
9. PROVIDE TRAP PER FAN MANUFACTURER'S RECOMMENDATIONS.
10. SLOPE PIPE TOWARDS DRAIN PAN. MINIMUM 1/4" PER FOOT.

4 RANGE HOOD DETAIL
N.T.S.



1. EXHAUST LOUVER. SEE AIR DEVICE SCHEDULE.
2. PLIABLE CAULK ALL FOUR SIDES.
3. FLANGE CONNECTION TO WALL.
4. MOTORIZED DAMPER. WIRE FROM FAN BY E.C. SEE PLANS.
5. 30 DEG. MAX. DUCT TRANSITION.
6. ACCESS DOOR.
7. STAINLESS STEEL SHEETMETAL EXHAUST AIR DUCT.
8. BIRDSCREEN.
9. STEEL LINTEL BY G.C.
10. INSULATION.
11. SLOPE DUCT/LOUVER BOTTOM MINIMUM 1/8" PER FOOT TOWARDS EXTERIOR FOR DRAINAGE.
12. PROVIDE ALUMINUM DRIP EDGE ALONG BOTTOM OF EXTERIOR OPENING. COLOR TO MATCH LOUVER COLOR SELECTION.

7 WALL LOUVER
N.T.S.

NAUMAN & ZELINSKI LLC.
204 S. Ludlow Street Suite 400 Dayton, Ohio 45402
Phone: (937) 223-3821 – Fax: (937) 223-3849

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STATE OF OHIO
JEFFREY D. ZELINSKI
63822
REGISTERED PROFESSIONAL ENGINEER

Beavercreek Township

Fire Station No. 65

1777 Trebein Road, Beavercreek Township, Ohio 45385

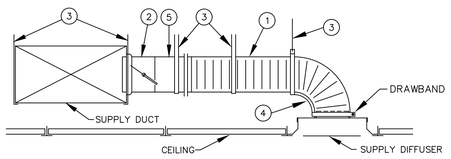
ISSUE:

NO.	DATE	DESCRIPTION
	04/03/20	FOR CONSTRUCTION

DATE	04/03/20
JOB NO.	3541.00
DRAWN	RAD
CHECKED	RAS
CAD	18102H4.2

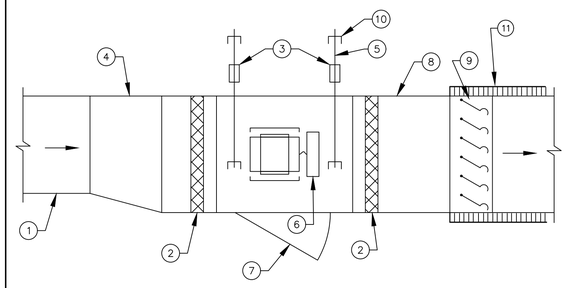
TITLE
DETAILS

SHEET NO.
H4.2



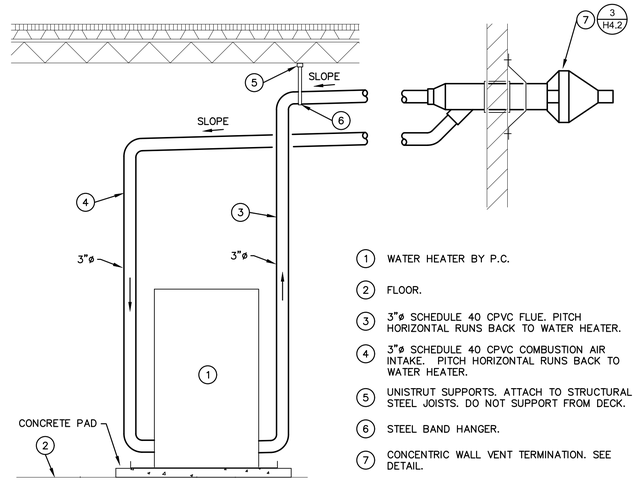
1. FLEXIBLE DUCT SAME DIAMETER AS DIFFUSER INLET (ABOVE ACCESSIBLE CEILING ONLY USE SHEETMETAL ONLY ABOVE INACCESSIBLE CEILING). 7 FT. MAXIMUM LENGTH. STRETCH TO MINIMUM 90% OF FULLY EXTENDED LENGTH. ADDITIONAL HANGER REQUIRED IF DUCT LENGTH EXCEEDS 4 FT.
2. SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE, WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION.
3. DUCT STRAP HANGER. ATTACH TO STRUCTURE. PER SMACNA.
4. 90 DEGREE FLEXIBLE ELBOW SUPPORT BY FLEXRIGHT, FLEXFLOW OR SMARTFLOW. PROVIDE WITH DRAWBANDS, UL-2043 RATING.
5. SHEETMETAL DUCT, SAME DIAMETER AS DIFFUSER INLET. LONGITUDINAL OR SPIRAL LOCK SEAM, 0.50" S.P. CONSTRUCTION. PROVIDE EXTERIOR INSULATION, 1.5" THICKNESS, 0.75" DENSITY FIBERGLASS WITH FOIL/KRAFT PAPER JACKET.

1 CEILING DIFFUSER
N.T.S.



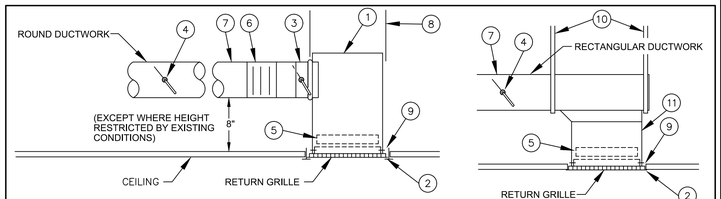
1. EXHAUST DUCT.
2. FLEXIBLE DUCT CONNECTION VIBRATION ISOLATOR.
3. VIBRATION ISOLATORS.
4. TRANSITION TO EXHAUST FAN INLET SIZE.
5. THREADED ROD.
6. BELT GUARD.
7. ACCESS DOOR.
8. DISCHARGE DUCT IS SAME SIZE AS FAN OUTLET.
9. MOTORIZED OR GRAVITY BACK DAMPER PROVIDED WITH EXHAUST FAN.
10. STEEL CHANNEL, ATTACH TO STRUCTURE.
11. INSULATE EXTERIOR OF DUCT TO PREVENT COLD DUCT SURFACES INSIDE OF BLDG.

4 INLINE EXHAUST FAN
N.T.S.



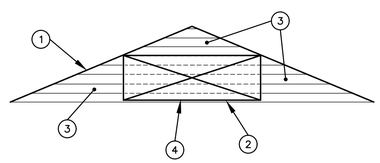
1. WATER HEATER BY P.C.
2. FLOOR.
3. 3"ø SCHEDULE 40 CPVC FLUE. PITCH HORIZONTAL RUNS BACK TO WATER HEATER.
4. 3"ø SCHEDULE 40 CPVC COMBUSTION AIR INTAKE. PITCH HORIZONTAL RUNS BACK TO WATER HEATER.
5. UNISTRUT SUPPORTS. ATTACH TO STRUCTURAL STEEL JOISTS. DO NOT SUPPORT FROM DECK.
6. STEEL BAND HANGER.
7. CONCENTRIC WALL VENT TERMINATION. SEE DETAIL.

5 WATER HEATER FLUE & COMBUSTION AIR
N.T.S.



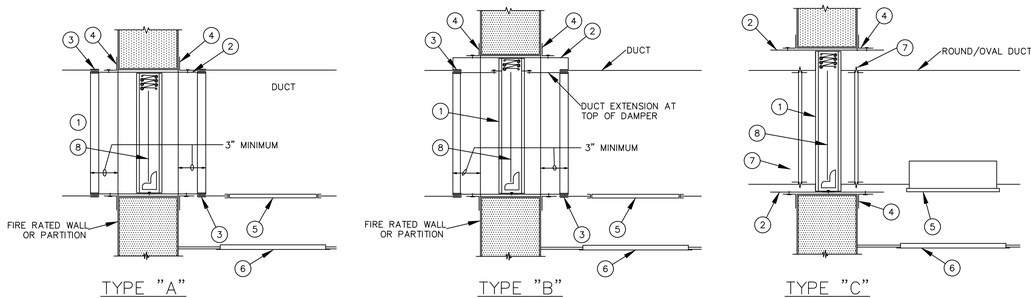
1. PLENUM – SIZE TO MATCH GRILLE. PAINT INTERIOR OF PLENUM FLAT BLACK.
2. EXHAUST/RETURN GRILLE FRAME TO MATCH CEILING CONDITION.
3. SPIN-IN FITTING WITH BALANCING DAMPER, USE FOR ALL ACCESSIBLE CEILINGS.
4. PROVIDE REMOTE BALANCING DAMPER IN BRANCH DUCT ABOVE ACCESSIBLE CEILING FOR EACH GRILLE WHERE GRILLE IS INSTALLED ABOVE INACCESSIBLE CEILING (PREFERRED).
5. PROVIDE BALANCING DAMPER AT DEVICE ONLY WHERE DUCT MOUNTED DAMPER CANNOT BE PROVIDED DUE TO INACCESSIBLE CEILING.
6. FLEXIBLE DUCT ACCEPTABLE ABOVE ACCESSIBLE CEILING ONLY. MAX. 2 FT., REFER TO CEILING DIFFUSER DETAIL FOR INSTALLATION REQUIREMENTS.
7. SHEETMETAL DUCT.
8. SUPPORT PLENUM FROM STRUCTURE WITH DUCT STRAP HANGERS.
9. FASTEN SHEETMETAL PLENUM OR DUCT TO AIR DEVICE, EACH SIDE.
10. DUCT STRAP HANGER.
11. VIEWABLE PORTION OF DUCT INTERIOR TO BE PAINTED FLAT BLACK.

2 EXHAUST/RETURN GRILLE - DUCTED
N.T.S.



1. TRIANGULAR LOUVER BY G.C.
2. EFFECTIVE LOUVER AREA. PROVIDE DUCT AND PLENUM BEHIND EFFECTIVE LOUVER AS SHOWN ON DRAWINGS.
3. PROVIDE 18 GA. SHEETMETAL 2" INSULATED BLANK OFF PANEL OVER INEFFECTIVE LOUVER AREA. SHEETMETAL TO BE GALVANIZED AND PAINTED BLACK ON EXTERIOR SIDE.
4. PROVIDE BLACK BIRDSCREEN BEHIND EFFECTIVE LOUVER AREA.

6 LOUVER DETAIL
N.T.S.



NOTE:
AT 2 HR. FIRE WALL WITH DOUBLE WALL CONSTRUCTION, ONLY A SINGLE DAMPER IS REQUIRED PER 2006 NFPA 221 (NOT A HIGH CHALLENGE FIRE WALL) PROVIDE SINGLE SLEEVE CONTINUOUS THRU BOTH WALLS WITH FIRE DAMPER CENTERED IN SLEEVE FOR GYMNASIUM RETURN AIR, INSTALL SLEEVE DURING CONSTRUCTION OF WALL; TERMINATE SLEEVE IN MORTAR JOINTS AROUND OPEN AIR BLOCK (GYM SIDE). SLEEVE TO EXTEND THRU CORRIDOR SIDE WALL AND UTILIZE SINGLE SIDE MOUNTING ANGLE (RUSKIN FAST OR EQUAL). PROVIDE MULTIPLE SECTION DAMPER WITH FRAME AS REQUIRED FOR OPENING. CENTER TYPE "A" DAMPER(S) IN CORRIDOR SIDE WALL.

GENERAL NOTES

- –FIRE DAMPERS SHALL BE UL CLASSIFIED.
- –FIRE DAMPERS SHALL BE 1.5 HOUR RATED FOR 2 HOUR RATED WALLS OR LESS; 3 HOUR FIRE RATED FOR 3 HOUR WALLS.
- –FIRE DAMPERS SHALL BE DYNAMIC RATED, CURTAIN TYPE, SPRING OPERATED
- –DIFFERENTIAL PRESSURE RATING OF 4" MINIMUM, HIGHER WHERE REQUIRED TO MATCH DUCT CONSTRUCTION.
- –2000 FPM MAX. AIRFLOW RATING, EXCEPT 4000 FPM WHERE DESIGN DUCT VELOCITY IS OVER 2000 FPM.
- –FIRE CLOSURE FUSIBLE LINK OF 165 DEG. F. EXCEPT WHERE REQUIRED TO BE HIGHER BY APPLICATION.
- –GALVANIZED STEEL CONSTRUCTION IN GALVANIZED DUCT, STAINLESS STEEL IN OTHER APPLICATIONS.
- –NOMINAL 4" STANDARD FRAME WIDTH.
- –INSTALLATION OF FIRE DAMPERS AND ACCESSORIES INCLUDING INSULATION SHALL CONFORM TO NFPA 90A, SMACNA AND MANUFACTURER'S INSTRUCTIONS.
- –DETAILS SHOW INSTALLATION OF FIRE DAMPER IN WALL. DAMPER INSTALLATION IN FLOOR SIMILAR. REFER TO PLANS FOR ACCESS LOCATION.

1. FIRE DAMPER TYPES –
   TYPE "A" – BLADES STORED IN AIR STREAM.
   TYPE "B" – BLADES STORED OUT OF AIR STREAM.
   TYPE "C" – ROUND/OVAL DUCT, BLADES STORED OUT OF AIR STREAM.
   ATTACH TO SLEEVE PER SMACNA, MINIMUM 4 CONNECTIONS (2 ON EACH SIDE OF BLADE CHANNEL) PER SIDE, MAX. 6" APART – TACK WELD, #10 SCREWS, 0.25" BOLTS/NUTS OR 3/16" STEEL POP RIVETS.
2. SHEETMETAL WALL SLEEVE, SAME MATERIAL AS DUCT. SHEETMETAL GAUGE PER SMACNA. MAINTAIN REQUIRED CLEARANCE TO WALL.
3. DUCT/SLEEVE CONNECTION, BREAKAWAY TYPE.
4. RETAINING ANGLE ALL FOUR SIDES, 1.5"x1.5" LEGS (MIN.), GAUGE PER SMACNA. 1" MINIMUM OVERLAP OF WALL BEYOND OPENING. EXTENDED LEG MAY BE REQUIRED. BOLT, SCREW, OR TACK WELD TO WALL SLEEVE. SPACING OF FASTENERS PER SMACNA.
5. DUCT ACCESS PANEL OR DOOR – 18"x16" EXCEPT SMALLER WHERE LIMITED BY DUCT SIZE.
6. CEILING ACCESS PANEL IF CEILING IS NOT ACCESSIBLE.
7. ROUND DUCT COUPLING.
8. STAINLESS STEEL CLOSURE SPRING.

3 FIRE DAMPER DETAILS
N.T.S.

NAUMAN & ZELINSKI LLC.
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STATE OF OHIO
JEFFREY D. ZELINSKI
63822
REGISTERED PROFESSIONAL ENGINEER

Beavercreek Township

Fire Station No. 65

1777 Trebein Road, Beavercreek Township, Ohio 45385

ISSUE:		
NO.	DATE	DESCRIPTION
	04/03/20	FOR CONSTRUCTION

DATE	04/03/20
JOB NO.	3541.00
DRAWN	RAD
CHECKED	RAS
CAD	18102H4.3

TITLE
DETAILS

SHEET NO.
H4.3

Building:	Beavercreek Fire Station
System Tag/Name:	FRN-1
Operating Condition Description:	
Units (select from pull-down list)	IP

Inputs for System	Name	Units	w/o diversity System		Diversity	w/ diversity System
Floor area served by system	As	sf	831			
Population of area served by system	*Ps*	P	17	*D*	100%	17
Design primary supply fan airflow rate	Vpsd	cfm	1,200		100%	1,200
OA req'd per unit area for system (Weighted average)	Ras	cfm/sf	0.08			
OA req'd per person for system area (Weighted average)	Rps	cfm/p	5.0			
Percent increase in Vbz over minimum required			0%			

Inputs for Potentially Critical zones			Poten
Zone Name	*Zone title turns purple italic for critical zone(s)*		*Dayro*
Zone Tag			07
Occupancy Category	Select from pull-down list:		Dayro
Floor Area of zone	*Az*	sf	54
Design population of zone	*Pz*	P (default value listed; may be overridden)	17
Design total supply to zone (primary plus local recirculated)	Vdzd	cfm	80
Induction Terminal Unit, Dual Fan Dual Duct or Transfer Fan?		Select from pull-down list or leave blank if N/A:	
Frac. of local recirc. air that is representative of system RA	*Er*		

Inputs for Operating Condition Analyzed				
Percent of total design airflow rate at conditioned analyzed	Ds	%	100%	
Air distribution type at conditioned analyzed		Select from pull-down list:		C
Zone air distribution effectiveness at conditioned analyzed	*Ez*			
Primary air fraction of supply air at conditioned analyzed	*Ep*			

Results			
System Ventilation Efficiency	*Ev*		**0.94**
Outdoor air intake required for system	*Vot*	cfm	**161**
Outdoor air per unit floor area	*Vot*/As	cfm/sf	**0.19**
Outdoor air per person served by system (including diversity)	*Vot*/Ps	cfm/p	**9.5**
Outdoor air as a % of design primary supply air	Ypd	%	**13%**

FURNACE - FRN-1
161 CFM OA REQUIRED
300 CFM OA PROVIDED

Building:	Beavercreek Fire Station
System Tag/Name:	FRN-3
Operating Condition Description:	
Units (select from pull-down list)	IP

Inputs for System	Name	Units	w/o diversity System		Diversity	w/ diversity System
Floor area served by system	As	sf	1,119			
Population of area served by system	*Ps*	P	11	*D*	100%	11
Design primary supply fan airflow rate	Vpsd	cfm	1,270		100%	1,270
OA req'd per unit area for system (Weighted average)	Ras	cfm/sf	0.05			
OA req'd per person for system area (Weighted average)	Rps	cfm/p	5.5			
Percent increase in Vbz over minimum required			0%			

Inputs for Potentially Critical zones			Potentially Critical Zones						
Zone Name	*Zone title turns purple italic for critical zone(s)*		Conference Room	*Vestibule*	Public Corridor	Public Toilet	Janitor	Corridor	Officers Office
Zone Tag			02	01	C1	03	04	C2	19
Occupancy Category	Select from pull-down list:		Conference/meeting	Lobbies/prefunction	Conference/meeting	Restroom	Janitor	Corridors	Office space
Floor Area of zone	*Az*	sf	256	68	99	53	63	424	156
Design population of zone	*Pz*	P (default value listed; may be overridden)	8	2	0	0	0	0	1
Design total supply to zone (primary plus local recirculated)	Vdzd	cfm	525	85	60	35	35	400	130
Induction Terminal Unit, Dual Fan Dual Duct or Transfer Fan?		Select from pull-down list or leave blank if N/A:							
Frac. of local recirc. air that is representative of system RA	*Er*		0.50	0.50	0.50	0.50	0.50	0.50	0.50

Inputs for Operating Condition Analyzed										
Percent of total design airflow rate at conditioned analyzed	Ds	%	100%	100%	100%	100%	100%	100%	100%	100%
Air distribution type at conditioned analyzed		Select from pull-down list:		CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH
Zone air distribution effectiveness at conditioned analyzed	*Ez*			0.80	0.80	0.80	0.80	0.80	0.80	0.80
Primary air fraction of supply air at conditioned analyzed	*Ep*									

Results			
System Ventilation Efficiency	*Ev*		**0.81**
Outdoor air intake required for system	*Vot*	cfm	**148**
Outdoor air per unit floor area	*Vot*/As	cfm/sf	**0.13**
Outdoor air per person served by system (including diversity)	*Vot*/Ps	cfm/p	**13.4**
Outdoor air as a % of design primary supply air	Ypd	%	**12%**

FURNACE - FRN-3
148 CFM OA REQUIRED
250 CFM OA PROVIDED

Building:	Beavercreek Fire Station
System Tag/Name:	FRN-2
Operating Condition Description:	
Units (select from pull-down list)	IP

Inputs for System	Name	Units	w/o diversity System		Diversity	w/ diversity System
Floor area served by system	As	sf	397			
Population of area served by system	*Ps*	P	4	*D*	100%	4
Design primary supply fan airflow rate	Vpsd	cfm	800		100%	800
OA req'd per unit area for system (Weighted average)	Ras	cfm/sf	0.06			
OA req'd per person for system area (Weighted average)	Rps	cfm/p	20.0			
Percent increase in Vbz over minimum required			0%			

Inputs for Potentially Critical zones			Potentially Critical Z
Zone Name	*Zone title turns purple italic for critical zone(s)*		*Workout Room*
Zone Tag			08
Occupancy Category	Select from pull-down list:		Health club/weight rooms
Floor Area of zone	*Az*	sf	397
Design population of zone	*Pz*	P (default value listed; may be overridden)	4
Design total supply to zone (primary plus local recirculated)	Vdzd	cfm	800
Induction Terminal Unit, Dual Fan Dual Duct or Transfer Fan?		Select from pull-down list or leave blank if N/A:	
Frac. of local recirc. air that is representative of system RA	*Er*		0.50

Inputs for Operating Condition Analyzed				
Percent of total design airflow rate at conditioned analyzed	Ds	%	100%	100%
Air distribution type at conditioned analyzed		Select from pull-down list:		CSCRH
Zone air distribution effectiveness at conditioned analyzed	*Ez*			0.80
Primary air fraction of supply air at conditioned analyzed	*Ep*			

Results			
System Ventilation Efficiency	*Ev*		**0.97**
Outdoor air intake required for system	*Vot*	cfm	**107**
Outdoor air per unit floor area	*Vot*/As	cfm/sf	**0.27**
Outdoor air per person served by system (including diversity)	*Vot*/Ps	cfm/p	**26.8**
Outdoor air as a % of design primary supply air	Ypd	%	**13%**

FURNACE - FRN-2
107 CFM OA REQUIRED
200 CFM OA PROVIDED

Building:	Beavercreek Fire Station
System Tag/Name:	FRN-5
Operating Condition Description:	
Units (select from pull-down list)	IP

Inputs for System	Name	Units	w/o diversity System		Diversity	w/ diversity System
Floor area served by system	As	sf	1,463			
Population of area served by system	*Ps*	P	2	*D*	100%	2
Design primary supply fan airflow rate	Vpsd	cfm	1,425		100%	1,425
OA req'd per unit area for system (Weighted average)	Ras	cfm/sf	0.04			
OA req'd per person for system area (Weighted average)	Rps	cfm/p	5.0			
Percent increase in Vbz over minimum required			0%			

Inputs for Potentially Critical zones			Potentially Critical Zones						
Zone Name	*Zone title turns purple italic for critical zone(s)*		TOG Room	Tornado Shelter	EMS Decon	EMS Storage	Water Room	Mechanical	*Training*
Zone Tag			23	25	24	27	29	M02	M01
Occupancy Category	Select from pull-down list:		Janitor	Restroom	Janitor	Storage rooms	Electrical equipment rooms	Electrical equipment rooms	Office space
Floor Area of zone	*Az*	sf	273	102	215	95	85	393	300
Design population of zone	*Pz*	P (default value listed; may be overridden)	0	0	0	0	0	0	2
Design total supply to zone (primary plus local recirculated)	Vdzd	cfm	400	0	400	200	100	200	125
Induction Terminal Unit, Dual Fan Dual Duct or Transfer Fan?		Select from pull-down list or leave blank if N/A:							
Frac. of local recirc. air that is representative of system RA	*Er*		0.50	0.50	0.50	0.50	0.50	0.50	0.50

Inputs for Operating Condition Analyzed										
Percent of total design airflow rate at conditioned analyzed	Ds	%	100%	100%	100%	100%	100%	100%	100%	100%
Air distribution type at conditioned analyzed		Select from pull-down list:		CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH
Zone air distribution effectiveness at conditioned analyzed	*Ez*			0.80	0.80	0.80	0.80	0.80	0.80	0.80
Primary air fraction of supply air at conditioned analyzed	*Ep*									

Results			
System Ventilation Efficiency	*Ev*		**0.77**
Outdoor air intake required for system	*Vot*	cfm	**89**
Outdoor air per unit floor area	*Vot*/As	cfm/sf	**0.06**
Outdoor air per person served by system (including diversity)	*Vot*/Ps	cfm/p	**44.3**
Outdoor air as a % of design primary supply air	Ypd	%	**6%**

FURNACE - FRN-5
89 CFM OA REQUIRED
1425 CFM OA PROVIDED

Building:	Beavercreek Fire Station
System Tag/Name:	FRN-4
Operating Condition Description:	
Units (select from pull-down list)	IP

Inputs for System	Name	Units	w/o diversity System		Diversity	w/ diversity System
Floor area served by system	As	sf	1,276			
Population of area served by system	*Ps*	P	12	*D*	100%	12
Design primary supply fan airflow rate	Vpsd	cfm	1,330		100%	1,330
OA req'd per unit area for system (Weighted average)	Ras	cfm/sf	0.05			
OA req'd per person for system area (Weighted average)	Rps	cfm/p	5.0			
Percent increase in Vbz over minimum required			0%			

Inputs for Potentially Critical zones			Potentially Critical Zones										
Zone Name	*Zone title turns purple italic for critical zone(s)*		Officers Dorm	Officers Toilet	ADA Toilet	ADA Toilet	Crew Utility	Elec Room	*Dorm 1*	*Dorm 2*	Dorm 3	*Dorm 4*	*Dorm 5*	Corridor
Zone Tag			20	21	17	18	16	30	11	12	13	14	15	C3
Occupancy Category	Select from pull-down list:		Bedroom/living room	Restroom	Restroom	Restroom	Janitor	Electrical equipment rooms	Bedroom/living room	Bedroom/living room	Bedroom/living room	Bedroom/living room	Bedroom/living room	Corridors
Floor Area of zone	*Az*	sf	130	70	79	69	100	94	105	105	105	105	135	209
Design population of zone	*Pz*	P (default value listed; may be overridden)	2	0	0	0	0	0	2	2	2	2	2	0
Design total supply to zone (primary plus local recirculated)	Vdzd	cfm	200	35	35	35	90	100	135	135	175	135	135	120
Induction Terminal Unit, Dual Fan Dual Duct or Transfer Fan?		Select from pull-down list or leave blank if N/A:												
Frac. of local recirc. air that is representative of system RA	*Er*		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50

Inputs for Operating Condition Analyzed														
Percent of total design airflow rate at conditioned analyzed	Ds	%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Air distribution type at conditioned analyzed		Select from pull-down list:		CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH	CSCRH
Zone air distribution effectiveness at conditioned analyzed	*Ez*			0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Primary air fraction of supply air at conditioned analyzed	*Ep*													

Results			
System Ventilation Efficiency	*Ev*		**0.94**
Outdoor air intake required for system	*Vot*	cfm	**125**
Outdoor air per unit floor area	*Vot*/As	cfm/sf	**0.10**
Outdoor air per person served by system (including diversity)	*Vot*/Ps	cfm/p	**10.4**
Outdoor air as a % of design primary supply air	Ypd	%	**9%**

FURNACE - FRN-4
125 CFM OA REQUIRED
350 CFM OA PROVIDED

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REGISTERED PROFESSIONAL ENGINEER

Beavercreek Township

Fire Station No. 65

1777 Trebein Road, Beavercreek Township, Ohio 45385

ISSUE:		
NO.	DATE	DESCRIPTION
	04/03/20	FOR CONSTRUCTION

DATE	04/03/20
JOB NO.	3541.00
DRAWN	RAD
CHECKED	RAS
CAD	18102H0.1

TITLE
VENTILATION CALCULATIONS

SHEET NO.
H5.1

ELECTRICAL LEGEND CONT'D

S S/R	DUCT MOUNTED SMOKE DETECTOR (S/SUPPLY, R/RETURN).
W	WATER FLOW SWITCH.
V	VALVE SUPERVISORY SWITCH.
RT	DUCT MOUNTED DETECTOR REMOTE TEST STATION AND ALARM INDICATOR LIGHT.
SD	SMOKE DAMPER.
SC	FLUSH MOUNTED CEILING SPEAKER.
®	FLUSH CEILING MOUNTED FIRE ALARM CALL SYSTEM SPEAKER EXTERIOR DEVICES REQUIRE SINGLE-GANG BOX WITH 3/4" BUSHED CONDUIT STUBBED TO ABOVE ACCESSIBLE INTERIOR CEILING.
V	SPEAKER VOLUME CONTROL ROUGH-IN BOX. FLUSH SINGLE-GANG BOX WITH 3/4" BUSHED CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING IN ROOM SERVED. (46" M.H.).

ELECTRICAL LEGEND CONT'D

OS	CEILING MOUNTED LIGHTING CONTROL OCCUPANCY SENSOR. WHERE SUBSCRIPT IS SHOWN, IE: "H-301", INDICATES MULTIPLE SENSORS WIRED TOGETHER TO CONTROL HALLWAY/CORRIDOR LIGHTING.
EM	EMERGENCY LIGHTING CONTROL RELAY/POWERPACK FOR CONTROL OF LIGHTING ON EMERGENCY CIRCUIT VIA ROOM CEILING MOUNTED OCCUPANCY SENSOR(S) IN CONJUNCTION WITH NORMAL LIGHTS. EQUAL TO "LVS" MODEL EPC-1-D SERIES.
	SINGLE POLE WALL SWITCH (46" M.H.).
2	TWO POLE WALL SWITCH (46" M.H.).
3	THREE-WAY WALL SWITCH (46" M.H.).
4	FOUR-WAY WALL SWITCH (46" M.H.).
OS	LIGHTING CONTROL WALLBOX TYPE OCCUPANCY SENSOR/SWITCH. ONE-GANG ASSEMBLY (46" M.H.).
VS	LIGHTING CONTROL WALLBOX TYPE VACANCY SENSOR/SWITCH. ONE-GANG ASSEMBLY (46" M.H.). ("/D" INDICATES COMBINATION VACANCY SENSOR/DIMMER, EITHER LINE VOLTAGE OR 0-10V AS APPLIES TO FIXTURES CONTROLLED.)
L	LIGHTING CONTROL LOW VOLTAGE DIMMER SWITCH WITH PRESET SLIDE CONTROL AND ON/OFF BUTTON (46" M.H.) LOW VOLTAGE CONTROL COMPATIBLE WITH ROOM OCCUPANCY SENSING CONTROLS AND LED LIGHTING PROVIDED.
M	FLUSH FRACTIONAL HORSEPOWER MOTOR STARTER WITH NEON PILOT LIGHT. ONE-GANG ASSEMBLY (46" M.H.).
H	HP RATED WALL SWITCH (46" M.H.).
	DISCONNECT SWITCH.
	MOTOR STARTER.
	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH.
	ELECTRIC MOTOR.
UH	UNIT HEATER.
FC	FAN COIL UNIT.
	CIRCUIT BREAKER PANEL, FLUSH MOUNTED.
	CIRCUIT BREAKER PANEL, SURFACE MOUNTED.
	POWER PANEL OR SWITCHBOARD, SURFACE MOUNTED.
T	LINE VOLTAGE THERMOSTAT.
	WIRELESS ACCESS POINT (CEILING MOUNTED) NO ROUGH-IN BY E.C. REQUIRED.
W	TELEPHONE/DATA OUTLET (18" M.H. EXCEPT WHEN SUBSCRIPT LETTER IS SHOWN, "W" INDICATES 46" M.H.). SINGLE GANG OUTLET BOX WITH BLANK COVERPLATE. STUB AN EMPTY 1" BUSHED CONDUIT OUT ABOVE ACCESSIBLE CEILING.
F	FIRE ALARM HORN & SIGNAL LIGHT (80" A.F.F.), # WHEN SHOWN INDICATES CANDELA RATING OF STROBE. WHEN A # IS NOT SHOWN, THE STROBE SHALL BE RATED 110 CANDELA.
L 15	FIRE ALARM SIGNALING LIGHT (80" A.F.F.), # WHEN SHOWN INDICATES CANDELA RATING OF STROBE. WHEN A # IS NOT SHOWN, THE STROBE SHALL BE RATED 110 CANDELA.
F	FIRE ALARM SENDING STATION (46" M.H.).
S	120 VOLT, COMBINATION SMOKE DETECTOR/CO DETECTOR WITH BATTERY BACKUP, WIRED TO DORM ROOM LIGHTING CIRCUIT. CONNECT ALL SMOKE DETECTORS TOGETHER SUCH THAT ANY DETECTOR IN ALARM CONDITION WILL ACTIVATE ALL DETECTOR ALARMS. (3 WIRE INTERCONNECTION). WIRE TO BUILDING FIRE ALARM SYSTEM (VIA AUXILLIARY CONTACTS TO SIGNAL BUILDING FIRE ALARM SYSTEM UPON ALARM CONDITION. EQUAL TO GENTEX MODEL # GN-503FF.
S S	FIRE ALARM SYSTEM CEILING MOUNTED SMOKE DETECTOR.
F	120 VOLT, RED FLASHING STROBE SIGNALING LIGHT, WIRED TO RELAY IN I.T. ROOM TO BE CONTROLLED FROM "MACH ALERT" FIRE SIGNALING SYSTEM OUTPUT CONTACT. EQUAL TO TORK #TA131DRN5 (DOUBLE FLASH SUPER STROBE WITH RED LEXAN LENS, 0.2 AMPS). 7.5" DIA. X 5"H. MOUNT INVERTED TO SOFFIT WHERE SHOWN ON BUILDING EXTERIOR. MOUNT INVERTED TO BOTTOM OF CEILING TRUSS IN APPARATUS BAY.

ELECTRICAL LEGEND

	ELECTRICAL CONNECTION REQUIRED.
	EXIT LIGHTING FIXTURE. ARROWS AS INDICATED.
H1 B1 a b	LIGHTING FIXTURE: CAPITAL LETTER DENOTES FIXTURE TYPE. LOWER CASE LETTER DENOTES SWITCHING ARRANGEMENT.
H1 B1	LIGHTING FIXTURE ON NIGHT LIGHT OR EMERGENCY CIRCUIT.
W	WIRE RUN IN SURFACE WIREWAY.
NL	WIRE & CONDUIT FOR NIGHT LIGHT CIRCUITRY.
EM	WIRE & CONDUIT FOR EMERGENCY CIRCUITRY.
E	EXISTING WIRE & CONDUIT.
A-1&2	EACH ARROWHEAD REPRESENTS ONE COMPLETE CIRCUIT; CAPITAL LETTER DENOTES PANEL; NUMBER DENOTES CIRCUIT.
	WIRE & CONDUIT IN WALL OR ABOVE CEILING.
	WIRE & CONDUIT IN OR BELOW SLAB OR BELOW GRADE.
J	JUNCTION BOX.
	DASHED SYMBOL INDICATES THAT PARTICULAR OUTLET OR DEVICE TO BE REMOVED AND CIRCUITRY MADE CONTINUOUS WHERE REQUIRED.
E	EXISTING OUTLET OR DEVICE TO REMAIN, MAINTAIN EXISTING CIRCUITRY.
	20A-125V SINGLE RECEPTACLE, NEMA 5-20R (18" M.H.).
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R (18" M.H.).
	SPECIAL PURPOSE RECEPTACLE. REFER TO NOTE ON PLAN.
	20A-125V DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, (18" M.H.) TWO-GANG ASSEMBLY.
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R, (46" M.H.). SUBSCRIPT "GF" INDICATES GFCI TYPE RECEPTACLE. SUBSCRIPT "U" INDICATES INTEGRAL USB CHARGING PORTS. SUBSCRIPT "GF/NL" INDICATES GFCI RECEPTACLE WITH INTEGRAL LED NIGHT LIGHT.
U	20A-125V DUPLEX RECEPTACLE WITH TWO INTEGRAL USB CHARGING PORTS (18" M.H.).
GF	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R, WITH GROUND FAULT CIRCUIT INTERRUPTER (18" M.H.).
WP/GF	20A-125V WEATHERPROOF DUPLEX RECEPTACLE, NEMA 5-20R, WITH GROUND FAULT CIRCUIT INTERRUPTER (18" M.H.), WITH HUBBELL #WP26M CAST ALUMINUM "WHILE-IN-USE" COVER.
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R, IN HUBBELL BA-2436 FLUSH FLOOR BOX WITH SA-3825 COVERPLATE. PROVIDE CARPET FLANGE WHERE REQUIRED.
20	20A-125V/250V-1PH-4W SINGLE RECEPTACLE, NEMA 14-20R (18" M.H.).
30	30A-125V/250V-1PH-4W SINGLE RECEPTACLE, NEMA 14-30R (18" M.H.).
50	50A-125V/250V-1PH-3W SINGLE RECEPTACLE, NEMA 14-50R (6" M.H.).
TV	WALL MONITOR OUTLET ASSEMBLY CONSISTING OF DUPLEX RECEPTACLE AND DATA/HDMI/AV CONNECTION IN RECESSED BOX WITH 1"C. TO ABOVE CEILING. MOUNTING HEIGHT AS NOTED, REFER TO ARCHITECTURAL ELEVATIONS. PROVIDE RG6 COAX WIRING FROM EACH T.V. OUTLET TO I.T. ROOM FOR FUTURE TERMINATION BY CATV SYSTEM PROVIDER. PROVIDE "F" TYPE CONNECTORS ON EACH END WITH 25' COIL IN I.T. ROOM.
TC	INTERCOM/DOORBELL SYSTEM ROUGH-IN BOX. FLUSH SINGLE-GANG BOX WITH 3/4" BUSHED CONDUIT STUBBED TO ABOVE INTERIOR ACCESSIBLE CORRIDOR CEILING. (46" M.H.)
WAP	WIRELESS ACCESS PORT (ROUTER) ROUGH-IN BOX, FLUSH CEILING MOUNTED IN APPARATUS BAY, FLUSH WALL MOUNTED WHERE SHOWN ON BUILDING EXTERIOR (84" M.H.). SINGLE-GANG WITH 3/4" BUSHED CONDUIT HOMERUN TO SERVER ROOM (FOR APPARATUS BAY), STUBBED TO ABOVE ACCESSIBLE INTERIOR CEILING FOR EXTERIOR DEVICES.
C	ACCESS CONTROL/CARD READER SYSTEM ROUGH-INS REFER TO DETAIL SHEET E0.7
	SECURITY CAMERA SYSTEM ROUGH-IN BOX, CONDUIT AND DATA WIRING BACK TO I.T. ROOM (SYMBOL WITH "C" DESIGNATION). REFER TO DETAILS ON SHEET E0.7.

GENERAL NOTES

A. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2017 OHIO BUILDING CODE AND 2017 NEC, INCLUDING REFERENCED CODES AND STANDARDS, ALL LOCAL AND STATE CODES AND MEET APPROVAL OF AUTHORITIES HAVING JURISDICTION.

B. BIDDERS SHALL INSPECT PROJECT SITE EXISTING CONDITIONS DURING BIDDING.

C. INCLUDE PAYMENT OF ALL PERMIT AND INSPECTION FEES AND OBTAIN AN ELECTRICAL PERMIT AND SECURE INSPECTION AND APPROVAL OF THE CODE OFFICIAL.

D. SUBMIT AN ELECTRONIC COPY OF SUBMITTAL DATA AND DESCRIPTIVE LITERATURE IN .PDF FORMAT FOR ALL FIXTURES AND EQUIPMENT.

E. WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY AND REPRESENT THE BEST PRACTICES OF THE INDUSTRY.

F. COORDINATE INSTALLATION WITH OTHER TRADES; PROVIDE OFFSETS AS REQUIRED.

G. INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS.

H. COORDINATE EACH ROUGH-IN INSTALLATION REQUIREMENTS AND LOCATIONS WITH OTHER TRADES, ACTUAL EQUIPMENT OR CABINETRY PROVIDED AND FIELD CONDITIONS BEFORE PERFORMING WORK.

I. REFER TO ARCHITECTURAL DRAWING ELEVATIONS FOR MOUNTING LOCATION INFORMATION, ARRANGEMENT AND HEIGHT FOR ALL DEVICES AT FURNISHINGS, CASEWORK, ETC.

J. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL LIGHTING FIXTURES. WHERE DISCREPANCIES MAY OCCUR BETWEEN THE ELECTRICAL PLANS AND THE ARCHITECTURAL CEILING PLANS ON QUANTITY OF FIXTURES, THE ELECTRICAL PLANS SHALL TAKE PRECEDENCE. COORDINATE FIXTURE LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS WITH PIPING AND DUCTWORK.

K. ALL EQUIPMENT AND MATERIAL REQUIRED FOR COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEMS SHALL BE INCLUDED IN THE CONTRACT.

GENERAL NOTES - FIRESTOPPING

1. THIS CONTRACTOR SHALL FIRESTOP ALL PENETRATIONS OF NEW AND EXISTING RATED WALLS AND PARTITIONS UTILIZING APPROPRIATE APPROVED UL LISTED S.T.I. FIRESTOPPING SYSTEM. REFER TO SPECIFICATIONS.
2. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL FIRE AND SMOKE RATED WALLS AND PARTITIONS.
3. THIS CONTRACTOR SHALL FIRESTOP ALL RACEWAY AND WIREWAY PENETRATIONS OF ALL FLOORS UTILIZING APPROPRIATE APPROVED UL LISTED S.T.I. FIRESTOPPING SYSTEM. REFER TO SPECIFICATIONS.

GENERAL LEGEND

EC	ELECTRICAL CONTRACT.
FC	FIRE PROTECTION CONTRACTOR.
GC	GENERAL CONTRACTOR.
HC	HVAC CONTRACTOR.
PC	PLUMBING CONTRACTOR.
TC	TEMPERATURE CONTROLS CONTRACTOR.
NIC	NOT IN CONTRACT.
AFF	ABOVE FINISHED FLOOR – TO BOTTOM OF ITEM UNLESS INDICATED OTHERWISE IN DRAWING.
(E)	EXISTING.
ES	EQUIPMENT SUPPLIER.
EM	EMERGENCY.
MH	MOUNTING HEIGHT.
S	SURFACE MOUNTED.
WP	WEATHER PROOF.
3	NOTE SYMBOL – APPLIES ONLY TO SHEET ON WHICH IS SHOWN.
2	DETAIL NOTE SYMBOL – APPLIES ONLY TO DETAIL ON WHICH IS SHOWN.
H-1	EQUIPMENT REFERENCE SYMBOL. ELECTRICAL CONNECTION REQUIRED.
123	ROOM NUMBER.
B H2	DETAIL SYMBOL DETAIL "B" SHOWN ON SHEET H2.
A H1	SECTION SYMBOL SECTION "A" DESIGNATION, SHOWN ON SHEET H1.
	ITEM TO BE REMOVED.
	EXISTING ITEM TO REMAIN.
	NEW ITEM.

INDEX OF DRAWINGS

SEISMIC REQUIREMENTS

THIS PROJECT HAS SEISMIC REQUIREMENTS.

REFER TO DRAWING H0.1.

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ISSUE:

NO.	DATE	DESCRIPTION
	04/03/20	FOR CONSTRUCTION

DATE	04/03/20
JOB NO.	3541.00
DRAWN	DAC
CHECKED	TCR
CAD	16544E0.1

TITLE
LEGEND

SHEET NO.
E0.1

LIGHTING FIXTURE SCHEDULE

FIXTURE SYMBOL	LAMPS QUANTITY: FLUORESCENT	LED	H.I.D.	LOW VOLTAGE	WATTS / FIXTURE	LUMEN OUTPUT/ COLOR TEMP	FIXTURE VOLTAGE	MANUFACTURER & CATALOG NO.	OTHER ACCEPTABLE MANUFACTURERS	DIFFUSING MEDIA	TRIM COLOR: WHITE	BLACK	ALUMINUM	BRONZE	STANDARD	SEE NOTE	MOUNTING (S - SURFACE, R- RECESSED, SM- STEM MTD., WM- WALL MTD., C- CHAIN MTD., UC- UNDER CAB, CS- CLG. SURF.)	SIZE: DIAMETER OR WIDTH	LENGTH	DEPTH	DIAMETER	SEE NOTE
B1		●			30	3300 / 3500K	120	COLUMBIA #LCAT22-35VWG-EDU	LITHONIA, DAYBRITE, METALUX	DIRECT/INDIRECT LENS	●						R (GRID)	24	24	4		5
B2		●			26	3200 / 3500K	120	COLUMBIA #CFP22-3335-HE	LAUREN ILLUMINATION, PHILIPS	MATTE ACRYLIC PANEL	●						R (GRID)	24	24	1.5		5
B3		●			30	3300 / 3500K	120	COLUMBIA #LCAT24-35VWG-EDU	LITHONIA, DAYBRITE, METALUX	DIRECT/INDIRECT LENS	●						R (GRID)	24	48	4		5
C1		●			48	5000 / 3500K	120	COLUMBIA #LCL4-35ML-EU	LITHONIA, DAYBRITE, COLUMBIA #MPS4	LENSED STRIP LIGHT	●						C (PER PLAN)	4	48	4		
C2		●			111	12,000/ 3500K	120	COLUMBIA #LCL8-35HL-EU	LITHONIA, DAYBRITE, COLUMBIA #MPS8	LENSED STRIP LIGHT	●						C (PER PLAN)	4	96	4		
D1		●			26	1000 / 3500K	120	WILLIAMS #SLF-2-L13/835-HIA-DIM-BD-UNV	LITHONIA, DAYBRITE	WHITE ACRYLIC	●						WM (PER PLAN)	4	24	4		
D2		●			37	2500 / 3500K	120	FINELITE #S17-LED-ACF-PF-4-HO-3500K-SC-120	APPROVED EQUAL	WHITE PERF FASCIA	●						WM (PER PLAN)	4	48	3.5		
D3		●			46	4800 / 3500K	120	COLUMBIA #MPS4-35-ML-F-W-ED-U	LITHONIA, DAYBRITE, LAMAR	WHITE ACRYLIC							WM (12'-0")	4	48	4		
F1		●			14	1000 / 3500K	120	PRESCOLITE #DBXQL-LB6LEDA10L-35K-WH	LITHONIA, PHILIPS	REGRESSED POLY LENS WHITE REFLECTOR	●						R	6	DIA	9		
F2		●			8	800 / 3500K	120	PRESCOLITE #DBXQL-LB6LEDA8L-35K-WH	LITHONIA, PHILIPS	REGRESSED POLY LENS WHITE REFLECTOR	●						R	6	DIA	9		2
F3					8	RED LED PAR	120	PRESCOLITE #LF6INC-MW60A19-6V-WT	LITHONIA, PHILIPS	CLEAR REFLECTOR	●						R	6	DIA	9		1,4
F4		●			10	700 / 4000K	120	PRESCOLITE #LBC6-P-BA-LB6A7L-40K-9-WH	LITHONIA, PHILIPS	WHITE REFLECTOR				●			PENDANT 16" STEM	8	DIA	8		
J1		●			12	800 / 3500K	120	PRESCOLITE #LBSLEDA10L-35K-9-WH	LITHONIA, PHILIPS	POLYCARBONATE LENS	●						WM OR C	6	DIA	1		3
K1		●			24	2000 / 3000K	120	WILLIAMS #VWMV-L20/730-T3-BLK-CGL-DIM-UNV	LITHONIA, PHILIPS	CLEAR LENS (DOWN)				●			WM (PER PLAN)	7	13	4		
FL1		●			19	1000 / 3000K	120	KIM #LTV82FF/SP/18L3KUV/SR/RCA82	LITHONIA, GARDCO	CLEAR LENS SPOT				●			FLUSH IN GRADE	12	DIA			
FL2		●			21	3000K	120	HUBBELL #FSL-10L-25-3K-N-U-K-DB	LITHONIA, PHILIPS	CLEAR LENS SPOT				●			SIGN LIGHT					
PL1		●			54	6000 / 3000K	120	BEACON #VPS-24L-55-3-K7-3	LITHONIA, PHILIPS	CLEAR LENS TYPE III					●		20' (4" SQUARE ALUMINUM POLE					7,9
BL1		●			31	3000K	120	KIM #GEMC-36L-3K-UV-PS-NG-C	APPROVED EQUAL	GLASS REFRACTOR TYPE IV				●			42" HIGH CONCRETE BOLARD	8	DIA	42		
UC1		●			8	3000/3500K	120	WAC #BA-ACLED18-930-WT	ACOLYTE, HALO, LAMAR	DIFFUSE LENS		●					WM (UNDER SHELF)	5	16	1.5		
X1		●			3		120	DUAL LITE #EVEURW	SURE-LITES, LITHONIA, EMERGI-LITE	SINGLE-FACE RED LETTERS ON WHITE	●						CS	9	13	2		
X2		●			3		120	DUAL LITE #EVEURW	SURE-LITES, LITHONIA, EMERGI-LITE	DOUBLE-FACE RED LETTERS ON WHITE	●						CS	9	13	2		
EM1		●					120	DUAL LITE #EV2	SURE-LITES, LITHONIA, EMERGI-LITE	BATTERY EMERGENCY LIGHT	●						WM (PER PLAN)	5	9	3		8

LIGHTING FIXTURE NOTES:

1. PROVIDE 6" DIAMETER RECESSED INCANDESCENT CAN LIGHT HOUSING FOR FIXTURE.
2. FIXTURE SHALL BE WET LOCATION LISTED.
3. PROVIDE JUNCTION BOX FOR MOUNTING OF FIXTURE.
4. DOWNLIGHT WITH "RED" LED PAR STYLE LAMP. LIGHTS CIRCUITED TO RELAY IN IT ROOM FOR CONTROL FROM "MACH ALERT" SYSTEM.
5. FIXTURE SHALL HAVE DIMMING DRIVER FOR DIMMING CONTROL DOWN TO 10% VIA 0-10V DIMMER/VACANCY SENSOR.
6. FIXTURE SHALL BE DIMMABLE DOWN TO 10% VIA LINE VOLTAGE DIMMING CONTROL/VACANCY SENSOR.
7. PROVIDE HOUSE-SIDE SHIELDING ON FIXTURE.
8. FIXTURE SHALL HAVE BATTERY SIZED TO ILLUMINATE LED LAMP HEADS AT FULL OUTPUT FOR A MINIMUM OF 120 MINUTES (2 HOURS).
9. PROVIDE ADJUSTABLE TIME/STEP-DIMMED CONTROL IN BASE OF FIXTURE, EQUAL TO BEACON "ENERGENI".

LIGHTING CONTROL RELAY PANEL LOAD AND CONTROL REQUIREMENTS SCHEDULE ("RP1")

PANEL DESIGNATION: RP1 (24 POSITION PANEL) — MOUNTING: SURFACE (MECH. ROOM)

RELAY NO.	ROOM/ AREA	DESCRIPTION	FIXTURE TYPE	NO. OF DEVICES	LOAD (KVA)	CIRCUIT NO. (VOLTAGE)	CONTROL OUTPUT: RELAY	CONTROL OUTPUT: DIM 0-10V	CONTROL INPUT: DISCRETE	SWITCH	OCC SENSOR	PHOTO SENSOR	PHOTO CELL	TIME CLOCK	SEE NOTE
1	KITCHEN COUNTER RECEPT					(120V)	●		●						
2	KITCHEN COUNTER RECEPT					(120V)	●		●						
3	KITCHEN COUNTER RECEPT					(120V)	●		●						
4	KITCHEN RANGE					(240V)	●		●						
	KITCHEN RANGE					(240V)	●		●						
5	RANGE GAS SOLENOID					(120V)	●		●						
6	PARKING LOT LTG		PL1			(120V)	●						●	●	
7	PARKING LOT LTG		PL1			(120V)	●						●	●	
8	EXTERIOR BUILDING LTG		K1			(120V)	●						●	●	
9	SIGNAGE EAVE LTG		F4			(120V)	●						●	●	
10	FLAG POLE LTG		FL1 & FL2			(120V)	●						●	●	
11	SIGNAGE EAVE LTG		F4			(120V)	●						●	●	
12	BOLLARD LTG		BL1			(120V)	●						●	●	
13	SPARE					(120V)	●								
14	SPARE					(120V)	●								
15	SPARE					(120V)	●								
16	SPARE					(120V)	●								
17	SPARE					(120V)	●								

NOTES:

1. PROVIDE TIME CLOCK CONTROL IN ADDITION TO MANUAL CONTROL FROM SWITCH.
2. PROVIDE TIMECLOCK ON/OFF CONTROL.

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STATE OF OHIO — JEFFREY D. ZELINSKI 63822 — REGISTERED PROFESSIONAL ENGINEER

Beavercreek Township

Fire Station No. 65

1777 Trebein Road, Beavercreek Township, Ohio 45385

ISSUE:

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TITLE
SCHEDULES

SHEET NO.
E0.2

Note: The Electrical Equipment Supplier/Manufacturer shall perform a selective coordination study for the Emergency/Life-Safety Distribution System to confirm that all supply side overcurrent devices are coordinated as required by NEC 700.32.
The E.C. shall be responsible to modify the Life-Safety Distribution and associated conductor sizing to meet the requirements of the Selective Coordination Study.

STANDBY DISTRIBUTION PANEL "SDP" (22k AIC RATING)

SPEC. REFERENCE NO.: | CONNECTED LOAD: 101 KVA
MAIN BUSSING: 400 AMPS | DEMAND LOAD: 76 KVA (317 AMPS)
FEEDER SIZE: SEE "MDP" SCHEDULE | VOLTAGE: 120/240V-1PH-3W

SWITCH OR UNIT NO.	NAMEPLATE	APPROX. CONNECTED KVA LOAD	OVERCURRENT PROTECTION				FEEDER			
			FRAME SIZE	POLES	TRIP RATING	SEE NOTE	NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
	PANEL "SP1"	28 KVA	200	2	200		3	250 (AL)	6 (CU)	2.5
	PANEL "SP2"	20 KVA	200	2	200		3	250 (AL)	6 (CU)	2.5
	PANEL "SP3"	53 KVA	200	2	200		3	250 (AL)	6 (CU)	2.5
	SPARE		100	2	100					
	SPD		60	2	60					

NOTES:
1.

MAIN DISTRIBUTION PANEL "MDP" (22k AIC RATING)

SPEC. REFERENCE NO.: | CONNECTED LOAD: 152 KVA
MAIN BUSSING: 600 AMPS | DEMAND LOAD: 121 KVA (504 AMPS)
FEEDER SIZE: 3 SETS OF 4-#250 KCMIL (AL.) | VOLTAGE: 120/240V-1PH-3W

SWITCH OR UNIT NO.	NAMEPLATE	APPROX. CONNECTED KVA LOAD	OVERCURRENT PROTECTION				FEEDER			
			FRAME SIZE	POLES	TRIP RATING	SEE NOTE	NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
	ATS "SB"	101 KVA	400	2	400		2 SETS OF 3	250 (AL)	3 (CU)	2.5
	ATS "LS"	16 KVA	100	2	100		3	2 (CU)	8 (CU)	1.25
	PANEL "AC"	36 KVA	200	2	200		3	250 (AL)	3 (CU)	2.5
	SPD		60	2	60					

NOTES:
1.

PANEL "SP1" (10k AIC Rating)

MOUNTING: SURFACE (ELEC ROOM)
CONN. LOAD: 28 KVA | DEMAND LOAD: 20 KVA (83 AMPS)
MAINS: 200A M.L.O. | VOLTAGE: 120/240V-1PH-3W

REMARKS	DEMAND KVA	CONNECTED KVA	BKR.	CKT. NO.		BKR.	CONNECTED KVA	DEMAND KVA	REMARKS
REFRIG		1.0-R	20/1	1	2	50/2	7.0-H		RANGE #
REFRIG		1.0-R	20/1	3	4	-			
REFRIG		1.0-R	20/1	5	6	20/1	0.4-R		COUNTER REC
ISLAND REC		0.4-R	20/1	7	8	20/1	0.8-R		PENINSULA
COUNTER REC		0.6-R	20/1	9	10	20/1	0.5-M		EF1
COUNTER REC		0.6-R	20/1	11	12	20/1	1.0-R		CONFERENCE
COFFEE MAKER		0.5-R	20/1	13	14	20/1	1.0-R		CONFERENCE
DISPOSER		1.0-M	20/1	15	16	20/1	1.0-R		CORRIDOR
MICROWAVE		1.2-R	20/1	17	18	20/1	0.5-C		ACCESS CONTROL
DISHWASHER		1.0-R	20/1	19	20	20/1	0.5-R		R/O SYSTEM
WORKOUT		1.0-R	20/1	21	22	20/1	0.4-R		TOOL STOR
WORKOUT		1.0-R	20/1	23	24	20/1	1.0-R		BATT STAT.
WORKOUT		1.0-R	20/1	25	26	20/1	0.5-R		REPORT
WORKOUT		1.0-R	20/1	27	28	20/1	0.5-R		REPORT
SPARE			20/1	29	30	20/1	0.5-R		REPORT
SPARE			20/1	31	32	20/1			SPARE
SPARE			20/1	33	34	20/1			SPARE
SPARE			20/1	35	36	20/1			SPARE
SPARE			20/1	37	38	20/1			SPARE
SPARE			20/1	39	40	20/1			SPARE
SPARE			20/1	41	42	20/1			SPARE

PROVIDE GFCI TYPE CIRCUIT BREAKER FOR RANGE CIRCUIT

PANEL "SP2" (10k AIC Rating)

MOUNTING: SURFACE (ELEC ROOM)
CONN. LOAD: 20 KVA | DEMAND LOAD: 16 KVA (67 AMPS)
MAINS: 200A M.L.O. | VOLTAGE: 120/240V-1PH-3W

REMARKS	DEMAND KVA	CONNECTED KVA	BKR.	CKT. NO.		BKR.	CONNECTED KVA	DEMAND KVA	REMARKS
EUH-1		1.5-H	20/1	1	2	20/1	0.8-R		DORM *
EUH-3		1.5-H	20/1	3	4	20/1	0.8-R		DORM *
EUH-2		1.5-H	20/1	5	6	20/1	0.8-R		DORM *
ELEC. RM.		0.4-R	20/1	7	8	20/1	0.8-R		DORM *
GEN BATT CHRGR		1.0-C	20/1	9	10	20/1	0.8-R		DORM *
GEN BLOCK HTR		1.5-H	20/1	11	12	20/1	0.8-R		DORM *
EMS		0.8-R	20/1	13	14	20/1	1.0-R		TR's
EMS		0.5-R	20/1	15	16	20/1	1.4-R		OFFICE
EMS		5.0-H/M	50/2	17	18	20/1	0.4-R		UTILITY
DRYER			-	19	20	20/1	1.0-M		WASHER
EMS WASH		1.2-M	20/1	21	22	20/1	0.8-R		TOG DEHUM
TOG DRYER			60/2	23	24	20/1	0.8-R		TOG
			-	25	26	20/1	0.8-R		TOG
SPARE			20/1	27	28	30/2	5.0-M/H		DRYER #
SPARE			20/1	29	30	-			
SPARE			20/1	31	32	20/1			SPARE
SPARE			20/1	33	34	20/1			SPARE
SPARE			20/1	35	36	20/1			SPARE
SPARE			20/1	37	38	20/1			SPARE
SPARE			20/1	39	40	20/1			SPARE
SPARE			20/1	41	42	20/1			SPARE

* PROVIDE AFCI TYPE CIRCUIT BREAKER FOR DORM ROOM CIRCUIT
# PROVIDE GFCI TYPE CIRCUIT BREAKER FOR DRYER CIRCUIT

PANEL "SP3" (10k AIC Rating)

MOUNTING: FLUSH (TRAINING RM)
CONN. LOAD: 53 KVA | DEMAND LOAD: 40 KVA (167 AMPS)
MAINS: 200A M.L.O. | VOLTAGE: 120/240V-1PH-3W

REMARKS	DEMAND KVA	CONNECTED KVA	BKR.	CKT. NO.		BKR.	CONNECTED KVA	DEMAND KVA	REMARKS
APP LTS		0.5-L	20/1	1	2	20/1	1.0-M		OHD1
CF1		1.0-M	20/1	3	4	20/1	1.0-M		OHD2
CF1		1.0-M	20/1	5	6	20/1	1.0-M		OHD3a
WTR RM		1.6-R	20/1	7	8	20/1	1.0-M		OHD3b
SPARE			20/1	9	10	20/1	0.6-M		RH1
SPARE			20/1	11	12	20/1	0.6-M		RH2
SPARE			20/1	13	14	20/1	0.6-M		RH3
SPARE			40/2	15	16	20/1	0.6-M		RH4
			-	17	18	20/1	0.7-M		UH-1
EXT. REC		1.0-R	20/1	19	20	20/2	2.0-M		EF-2
EXT. LTG.		0.2-L	20/1	21	22	-			
CORD REEL		1.0-R	20/1	23	24	15/1	1.3-M		F-1
CORD REEL		1.0-R	20/1	25	26	15/1	1.3-M		F-2
CORD REEL		1.0-R	20/1	27	28	15/1	1.3-M		F-3
CORD REEL		1.0-R	20/1	29	30	20/1	1.8-M		F-4
AIR COMP.		6.0-M	50/2	31	32	15/1	1.3-M		F-5
		-	33	34	20/1	0.5-M			WTR HTR
EUH-4		3.0-H	20/2	35	36	20/2	4.0-M		ACU-1
		-	37	38	-				
SANITARY PUMP		9.0-M	60/2	39	40	60/2	9.0-M		CU4
		-	41	42	-				
SPARE			20/1	43	44	20/1			SPARE
SPARE			20/1	45	46	20/1			SPARE
SPARE			20/1	47	48	20/1			SPARE
SPARE			20/1	49	50	20/1			SPARE

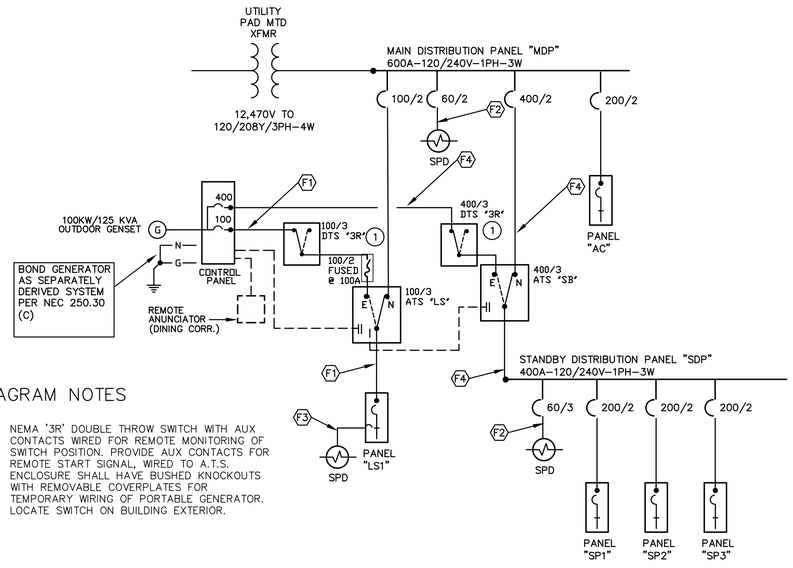

DIAGRAM NOTES

(1) NEMA '3R' DOUBLE THROW SWITCH WITH AUX. CONTACTS WIRED FOR REMOTE MONITORING OF SWITCH POSITION. PROVIDE AUX CONTACTS FOR REMOTE START SIGNAL, WIRED TO A.T.S. ENCLOSURE SHALL HAVE BUSHED KNOCKOUTS WITH REMOVABLE COVERPLATES FOR TEMPORARY WIRING OF PORTABLE GENERATOR. LOCATE SWITCH ON BUILDING EXTERIOR.

PANEL "LS1" (10k AIC Rating)

MOUNTING: SURFACE
CONN. LOAD: 16 KVA | DEMAND LOAD: 16 KVA (67 AMPS)
MAINS: 100A M.B. | VOLTAGE: 120/240V-1PH-3W

REMARKS	DEMAND KVA	CONNECTED KVA	BKR.	CKT. NO.		BKR.	CONNECTED KVA	DEMAND KVA	REMARKS
INTERIOR LTG		1.0-L	20/1	1	2	20/1	1.0-L		APP BAY LTG.
EXTERIOR LTG		0.5-L	20/1	3	4	30/2	2.5-R		SERVER RM
EXTERIOR LTG		0.5-L	20/1	5	6	-			
F.A. PANEL		0.5-C	20/1	7	8	30/2	2.5-R		SERVER RM.
FM 200 (I.T.)		0.5-C	20/1	9	10	-			
ACCESS CNTRL.		1.0-R	20/1	11	12	30/2	2.5-R		SERVER RM.
SPARE			20/1	13	14	-			
SPARE			20/1	15	16	20/1	1.0-R		SERVER RM.
SPARE			20/1	17	18	20/1	1.0-R		SERVER RM.
SPARE			20/1	19	20	20/1	1.0-R		SERVER RM.
SPARE			20/1	21	22	20/1	1.0-R		SERVER RM.
SPARE			20/1	23	24	20/1	1.0-R		ACCESS CNTRL
SPARE			20/1	25	26	30/3			SPD
SPARE			20/1	27	28	-			
SPARE			20/1	29	30	-			

ABBREVIATIONS:
L- LIGHTS, R- RECEPTACLES, M-MOTORS, H- RESISTANCE HEAT, C- CONTROL,
M.L.O.-MAIN LUGS ONLY, D.S.L.- DOUBLE SET OF LUGS, M.B.- MAIN BREAKER,
L.C.- LOCKING CLIP ON BREAKER

PANEL "AC" (10k AIC Rating)

MOUNTING: SURFACE (MECH. MEZZ.)
CONN. LOAD: 36 KVA | DEMAND LOAD: 29 KVA (121 AMPS)
MAINS: 200A M.L.O. | VOLTAGE: 120/240V-1PH-3W

REMARKS	DEMAND KVA	CONNECTED KVA	BKR.	CKT. NO.		BKR.	CONNECTED KVA	DEMAND KVA	REMARKS
CU1		7.0-M	40/2	1	2	35/2	5.0-M		CU3
			-	3	4	-			
CU2		5.0-M	35/2	5	6	40/2	7.0-M		CU5
			-	7	8	-			
ERV-1		5.0-M	45/2	9	10	60/2	7.0-M		HOSE HOIST
			-	11	12	-			
SPARE			35/2	13	14	20/2			SPARE
			-	15	16	-			
SPARE			45/2	17	18	40/2			SPARE
			-	19	20	-			
SPARE			20/1	21	22	20/1			SPARE
SPARE			20/1	23	24	20/1			SPARE
			20/1	25	26	20/1			
			20/1	27	28	20/1			
			20/1	29	30	20/1			

FEEDER SCHEDULE

F1	3-#2, #8 GRD. (CU.), 1.25"C.
F2	3-#6, #10 GRD. (CU.), 1.25"C.
F3	3-#10, #10 GRD. (CU.), 0.75"C.
F4	2 SETS OF 3-250 KCMIL (AL.), #1/0 (CU) GRD., 4"C.

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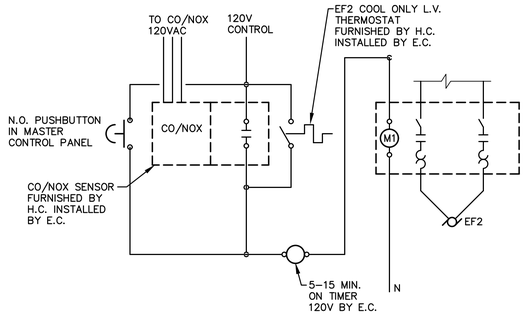
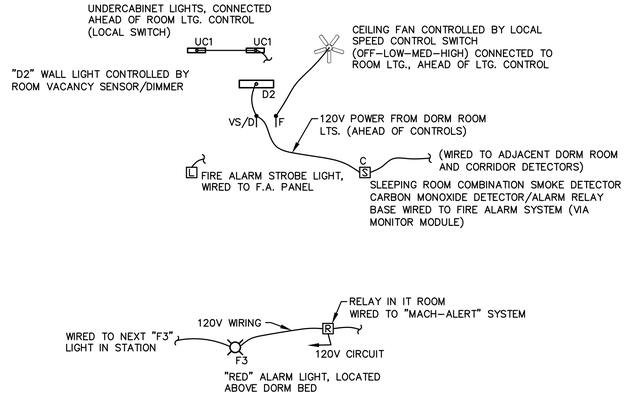
TITLE
SINGLE LINE & SCHEDULES

SHEET NO.
E0.3



APPARATUS BAY

SCALE: N.T.S.

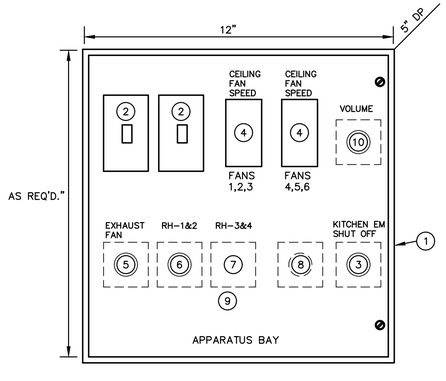


TYPICAL DORM ROOM DIAGRAM

SCALE: N.T.S.

APPARATUS BAY
FAN CONTROL DETAIL

SCALE: N.T.S.

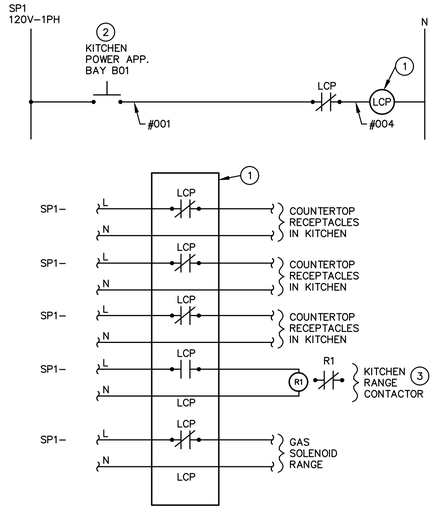


DETAIL NOTES

1. FLUSH MOUNTED ENCLOSURE WITH STAINLESS STEEL HINGED COVER FOR MOUNTING OF APPARATUS BAY LIGHT SWITCHES (2), CIRCULATION FAN CONTROLS (2), APPARATUS BAY EXHAUST SYSTEM CONTROLS (WITH OVERRIDE BUTTON), CO ALARM INDICATION LIGHT, KITCHEN EM SHUTOFF BUTTON, OVERRIDE CONTROL BUTTONS FOR APPARATUS BAY RADIENT HEAT SYSTEM.
2. TOGGLE TYPE LIGHTING CONTROL SWITCH FOR APPARATUS BAY.
3. MAINTAINED CONTACT N.C., JUMBO MUSHROOM HEAD PUSH BUTTON ALLEN BRADLEY 800H OR APPROVED EQUAL.
4. APPARATUS BAY CIRCULATION FAN CONTROLLER (ON/OFF/REVERSE/SPEED). EQUAL TO GLOBAL INDUSTRIAL, CANARM #WR3653108 VARIABLE SPEED FAN CONTROL. PERMITS CONTROL OF UP TO 4 CANARM #WR3653104 FANS SPECIFIED. IF DIFFERENT FAN IS PROVIDED, E.C. SHALL PROVIDE COMPATIBLE FAN SPEED CONTROLLER MATCHED TO FANS PROVIDED.
5. EXHAUST FAN OVERRIDE SWITCH. REFER TO APPARATUS BAY EXHAUST FAN CONTROL DETAIL, THIS SHEET FOR ADDITIONAL REQUIREMENTS. LOCATE COMPONENTS WITHIN ENCLOSURE. COORDINATE CONTROL REQUIREMENTS WITH H.C.
6. RADIENT HEATER OVERRIDE SWITCH. (RH-1 & RH-2)
7. RADIENT HEATER OVERRIDE SWITCH. (RH-3 & RH-4)
8. UNIT HEATER OVERRIDE SWITCH. WIRE IN PARALLEL WITH THERMOSTAT TO BYPASS THERMOSTAT.
9. OVERRIDE SWITCHES FURNISHED BY H.C., INSTALLED AND WIRED BY E.C. COORDINATE WIRING REQUIREMENTS WITH H.C. AND EQUIPMENT VENDOR.
10. APPARATUS BAY CALL SPEAKERS VOLUME CONTROL.

APPARATUS BAY CONTROL PANEL DETAIL

SCALE: N.T.S.



CONTROL DIAGRAM KITCHEN POWER

SCALE: N.T.S.

DETAIL NOTES

1. LIGHTING CONTROL RELAY PANEL 'RP1'. REFER TO SHEET E3.1 FOR LOCATION (ON MECHANICAL MEZZANINE), REFER TO "RELAY LOAD AND CONTROL REQUIREMENTS SCHEDULE" THIS SHEET, FOR ADDITIONAL REQUIREMENTS.
2. MOMENTARY CONTACT N.O., JUMBO MUSHROOM HEAD PUSH BUTTON ALLEN BRADLEY 800H-DR6JA OR APPROVED EQUAL. TO BE MOUNTED IN APPARATUS BAY CONTROL PANEL. SEE SHEET E3.1 FOR LOCATION, THIS SHEET FOR APPARATUS BAY PANEL DETAIL.
3. PROVIDE 60A/3P ELECTRICALLY HELD LIGHTING CONTACTOR (LOCATED ON WALL NEXT TO RELAY PANEL) FOR RANGE RECEPTACLE CIRCUIT. CONTACTOR SHALL HAVE 120V CONTROL RELAY. WIRE SUCH THAT RELAY IS NORMALLY DE-ENERGIZED AND CONTACTS ARE CLOSED (POWER AVAILABLE TO RANGE WHEN RELAY IN RELAY PANEL IS OFF). WHEN AN EMERGENCY STOP BUTTON IS DEPRESSED, RELAY IN RELAY PANEL SHALL ENERGIZE LIGHTING CONTRACTOR RELAY AND OPEN CONTACTS.

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CAD	16544E0.4

TITLE
DETAILS

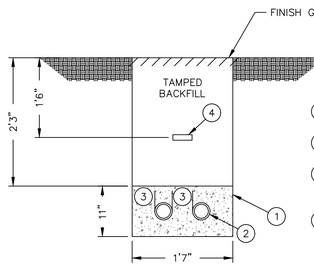
SHEET NO.
E0.4

SUSPENDED OVERHEAD CIRCULATION FANS (FURNISHED/INSTALLED BY E.C. REFER TO SPEC SECTION 26 ____)

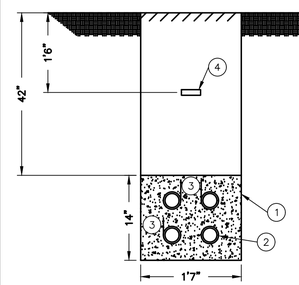
MOTOR										STARTER												DISCONNECT MEANS										CONTROL					FEEDER				
			CHARACTERISTICS							TYPE					LOCATION							TYPE					LOCATION														
MOTOR NUMBER	CIRCUIT NUMBER	NAMEPLATE	HP (KVA OR FLA)	120V-1PH	208V-3PH	208V-1PH	480V-1PH	480V-3PH	LOCATION	NEMA SIZE	MANUAL	MAGNETIC	BUILT-IN MOTOR O/L	VFD	VFD w/BYPASS	NEAR MOTOR	MOTOR CONT. CNTR.	EQUIP. CONT. PANEL	ROOM NUMBER	SEE NOTE	FURNISHED BY	DISC. SWITCH	MANUAL STARTER	RECEPTACLE	BREAKER	FUSIBLE	NEAR MOTOR	MOTOR CONT. CNTR.	EQUIP. CONT. PANEL	PANELBOARD	SEE NOTE	FURNISHED BY	INTERLOCK W/ MOTOR NO. BY E.C.	MANUAL AT STARTER	INTEGRAL W/ EQUIP.	BY H.C.	SEE NOTE	NO. OF CONDUCTORS	WIRE SIZE	GRD. SIZE	CONDUIT SIZE	SEE NOTE
CF1		CIRCULATION FAN #1	4 FLA	•					APPARATUS BAY 1				•								ES	•					•					EC			•		3	2	12	12	.5	1
CF2		CIRCULATION FAN #2	1 FLA	•					VARIOUS LOCATIONS				•								ES	•					•					EC			•			2	12	12	.5	2

NOTES:

1. 56" BLADE DIAMETER (PENDANT SUSPENDED) CIRCULATION FAN WITH REMOTE WALL CONTROLLER. WALL CONTROLLER LOCATED IN APPARATUS BAY CONTROL PANEL.
2. 36" DIAMETER (CEILING–HUGGER) STYLE CIRCULATION FAN, WHITE FINISH.



UNDERGROUND DUCTS
N.T.S.



UNDERGROUND DUCTS
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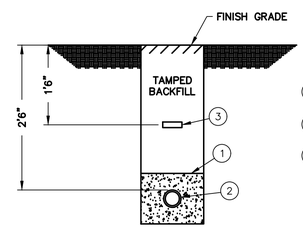

UNDERGROUND DUCT
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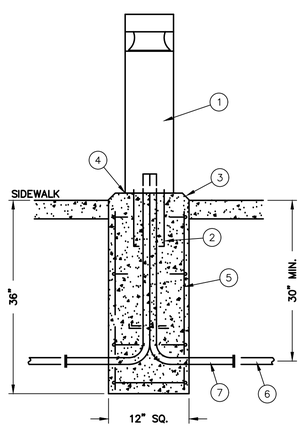
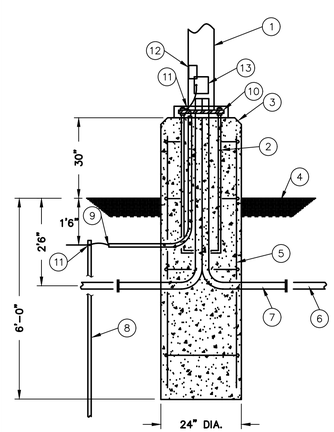


BL1 BOLLARD BASE DETAIL
N.T.S.



PL1 TYPICAL POLE BASE DETAIL
N.T.S.

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1777 Trebein Road, Beavercreek Township, Ohio 45385

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TITLE
SCHEDULES & DETAILS

SHEET NO.
E0.5

MOTORS, STARTERS, DISCONNECTS & CONTROLS

MOTOR										STARTER															DISCONNECT MEANS												CONTROL					FEEDER				
			CHARACTERISTICS							TYPE					LOCATION										TYPE					LOCATION																
MOTOR NUMBER	CIRCUIT NUMBER	NAMEPLATE	HP, KVA OR FLA (MCA=MIN. CIRCUIT AMPS MOCP - MAX OVERCURRENT PROT)	120V-1PH	208V-3PH	240V-1PH	480V-1PH	480V-3PH	LOCATION	NEMA SIZE	MANUAL	MAGNETIC	BUILT-IN MOTOR O/L	VFD	VFD w/BYPASS	NEAR MOTOR	MOTOR CONT. CNTR.	EQUIP. CONT. PANEL	ROOM NUMBER	SEE NOTE	FURNISHED BY	DISC. SWITCH	MANUAL STARTER	RECEPTACLE	BREAKER	FUSIBLE	NEAR MOTOR	MOTOR CONT. CNTR.	EQUIP. CONT. PANEL	PANELBOARD	SEE NOTE	FURNISHED BY	INTERLOCK W/ DAMPER, BY E.C.	MANUAL AT STARTER	INTEGRAL W/ EQUIP.	BY H.C.	SEE NOTE	NO. OF CONDUCTORS	WIRE SIZE	GRD. SIZE	CONDUIT SIZE	SEE NOTE
F-1	SP3-24	FURNACE 1	11 MCA 15 MOCP	•					MEZZANINE				•			•					HC	•					•					EC				•		2	12	12	.5	
F-2	SP3-26	FURNACE 2	11 MCA 15 MOCP	•					MEZZANINE				•			•					HC	•					•					EC				•		2	12	12	.5	
F-3	SP3-28	FURNACE 3	11 MCA 15 MOCP	•					MEZZANINE				•			•					HC	•					•					EC				•		2	12	12	.5	
F-4	SP3-30	FURNACE 4	15 MCA 20 MOCP	•					MEZZANINE				•			•					HC	•					•					EC				•		2	12	12	.5	
F-5	SP3-32	FURNACE 5	11 MCA 15 MOCP	•					MEZZANINE				•			•					HC	•					•					EC				•		2	12	12	.5	
FC-1		FAN COIL 1		•					IT ROOM																												•	2					
CU1	AC-1/3	CONDENSING UNIT 1	28 MCA 40 MOCP			•			ON GRADE				•			•					HC	•					•					EC				•		2	10	10	.75	
CU2	AC-5/7	CONDENSING UNIT 2	20 MCA 35 MOCP			•			ON GRADE				•			•					HC	•					•					EC				•		2	10	10	.75	
CU3	AC-2/4	CONDENSING UNIT 3	20 MCA 35 MOCP			•			ON GRADE				•			•					HC	•					•					EC				•		2	10	10	.75	
CU4	SP3-40 /42	CONDENSING UNIT 4	37 MCA 60 MOCP			•			ON GRADE				•			•					HC	•					•					EC				•		2	8	10	.75	
CU5	AC-6/8	CONDENSING UNIT 5	28 MCA 40 MOCP			•			ON GRADE				•			•					HC	•					•					EC				•		2	8	10	.75	
ACU-1	SP3-36	AIR CONDITIONING UNIT 1	17 MCA 20 MOCP			•			ON GRADE				•			•					HC	•					•					EC	•			•		2	12	12	.5	
ERV-1	AC-9/11	ENERGY RECOVERY UNIT 1	2 @ 3HP			•			MEZZANINE					•		•					HC	•					•					EC				•		2	8	10	.75	
EF1	SP1-10	EXHAUST FAN 1	1/2 HP	•					DAYROOM (HOOD)			•									EC	•					•					EC	•			•	1	2	12	12	.5	
EF2	SP3-20	EXHAUST FAN 2	2 HP			•			APPARATUS BAY					•							HC	•					•					EC	•			•		3	12	12	.5	
UH1	SP3-18	UNIT HEATER 1	5 AMPS	•					APPARATUS BAY													•					•					EC				•		2	12	12	.5	
EUH-1	SP2-1	ELEC UNIT HTR 1	1.5 KW	•					VESTIBULE													•						•				HC			•			2	12	12	.5	
EUH-2	SP2-3	ELEC UNIT HTR 2	1.5 KW	•					DORM CORRIDOR													•						•				HC			•			2	12	12	.5	
EUH-3	SP2-5	ELEC UNIT HTR 3	1.5 KW	•					ELECTRIC SVC ROOM													•						•				HC			•			2	12	12	.5	
EUH-4	SP3-35 /37	ELEC UNIT HTR 4	3.0 KW			•			WATER SVC ROOM													•						•				HC			•			2	12	12	.5	
RCP1		HW RECIRC PUMP	0.2 FLA	•					MEZZANINE													•					•					EC						2	12	12	.5	3
CP1		HW CIRC PUMP	0.2 FLA	•					MEZZANINE													•					•					EC						2	12	12	.5	3
RH1		RADIENT HEATER 1	5 AMPS	•					APPARATUS BAY													•					•					EC				•		2	12	12	.5	
RH2		RADIENT HEATER 2	5 AMPS	•					APPARATUS BAY													•					•					EC				•		2	12	12	.5	
RH3		RADIENT HEATER 3	5 AMPS	•					APPARATUS BAY													•					•					EC				•		2	12	12	.5	
RH4		RADIENT HEATER 4	5 AMPS	•					APPARATUS BAY													•					•					EC				•		2	12	12	.5	

NOTES:

1. E.C. TO PROVIDE MANUAL SWITCH IN KITCHEN ADJACENT TO RANGE, WIRE IN PARALLEL WITH HOOD AUTOMATIC HEAT SENSOR CONTROLS (FURNISHED WITH HOOD).
2. FC-1 (INDOOR UNIT) POWERED FROM ACU-1 (OUTDOOR UNIT). COORDINATE WIRING REQUIREMENTS WITH H.C. PER MANUFACTURER'S REQUIREMENTS (PROVIDE LOCAL SERVICE DISCONNECT).
3. COORDINATE CONNECTION REQUIREMENTS FOR HOT WATER CIRCULATION & RECIRC PUMPS WITH P.C., INLINE PUMP MOUNTED ADJACENT TO WATER HEATER & STORAGE TANK. PROVIDE TOGGLE TYPE SERVICE DISCONNECT ON WALL ADJACENT TO EACH PUMP (IF NOT CORD/PLUG CONNECTED. CONNECT PUMPS TO SAME RECEPTACLE CIRCUIT SERVING WATER HEATER.

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TITLE
MSDC& SCHEDULE

SHEET NO.
E0.6

NAUMAN & ZELINSKI LLC.
204 S. Ludlow Street Suite 400 Dayton, Ohio 45402
Phone: (937) 223-3821 – Fax: (937) 223-3849

GENERAL NOTES:

A QUANTITY OF NETWORK NODES IS DEPENDANT UPON THE BIDDERS CONFIGURATION OF SYSTEM LAYOUT.

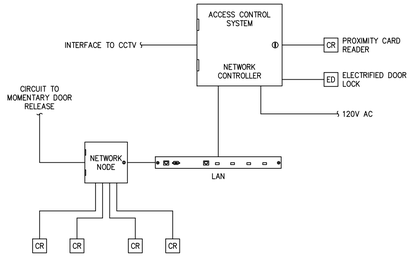
B THE EXISTING NETWORK CONTROLLER IS LOCATED ON THE TELECOMMUNICATIONS BACKBOARD IN THE I.T. ROOM.

C NETWORK NODES SHALL BE MOUNTED IN SECURE CLOSETS OR AS INDICATED ON FLOOR PLAN

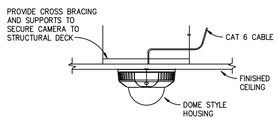
D ALL DOOR HARDWARE SHALL BE PROVIDED AND INSTALLED BY THE DIVISION 08 SUPPLIER.

E ALL TERMINATIONS TO THE DOOR HARDWARE PROVIDED BY DIVISION 08 SHALL BE THE RESPONSIBILITY OF THE SECURITY CONTRACTOR.

F THIS CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL CABLES, CABLE PATHWAYS, DEVICE LOCATIONS, AND ALL OTHER TERMINATIONS WITH THE ELECTRICAL CONTRACTOR, DIVISION 08 SUPPLIER, CM, AND ARCHITECT AS REQUIRED PRIOR TO INSTALLATION.

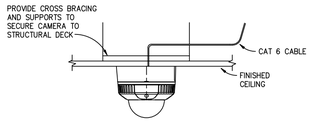


A ACCESS CONTROL SYSTEM DIAGRAM
N.T.S

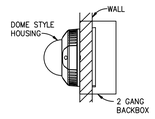


1 SEMI-FLUSH CEILING MOUNTED

3 PENDANT MOUNTED

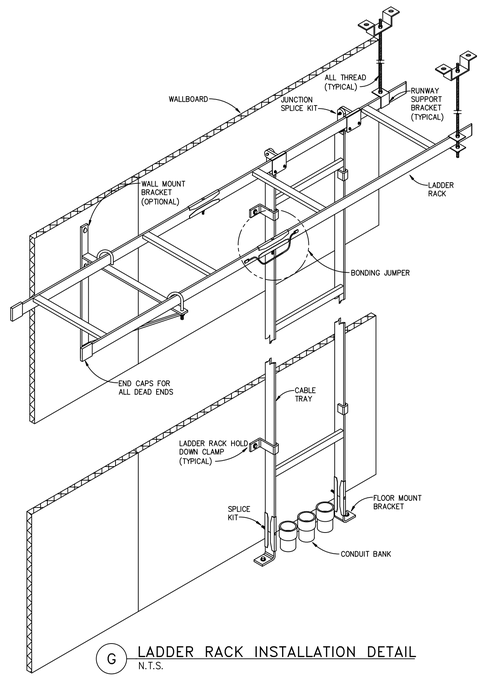


2 SURFACE CEILING MOUNTED

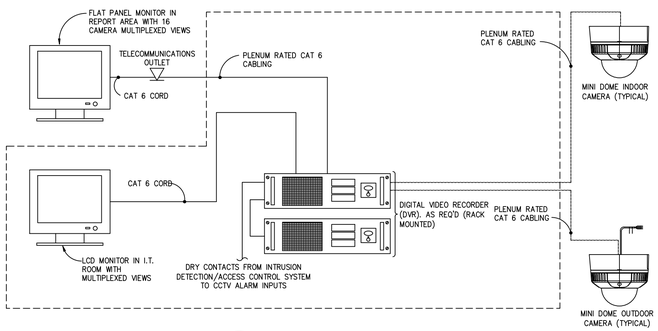


4 SEMI-FLUSH WALL MOUNTED

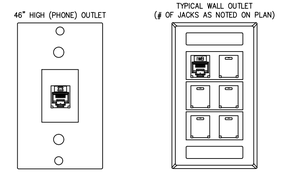
E CAMERA MOUNTING SCHEMATICS
N.T.S



G LADDER RACK INSTALLATION DETAIL
N.T.S.



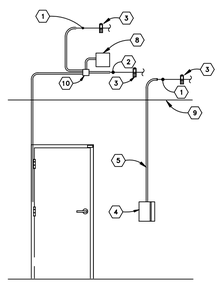
C CCTV SYSTEM SCHEMATIC
N.T.S.



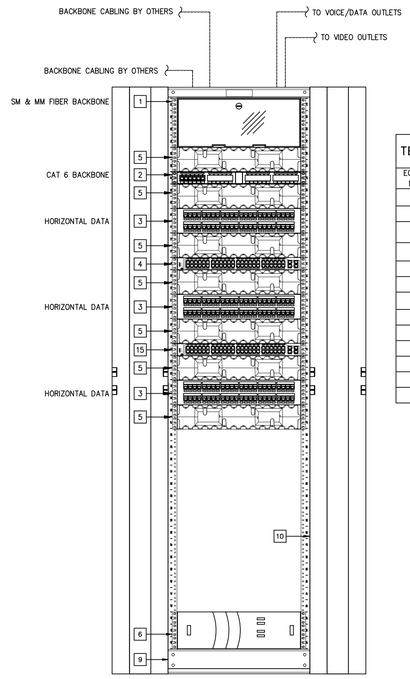
H COMMUNICATIONS OUTLET FACEPLATE DETAILS
N.T.S.

CODED NOTES:

1 CABLING TO ACCESS CONTROL SYSTEM CONTROLLER (BY DIVISION 26).
2 CABLING TO INTRUSION DETECTION SYSTEM PANEL (BY DIVISION 26).
3 J-HOOK SPACED A MAXIMUM OF 48" (TYPICAL) (BY DIVISION 26).
4 ACCESS CONTROL SYSTEM CARD READER (BY DIVISION 26).
5 3/4" CONDUIT (BY DIVISION 26) FOR ACCESS TO CARD READER.
6 3/4" CONDUIT FOR ACCESS TO DOOR STRIKE (BY DIVISION 26).
7 OMITTED
8 ELECTRIC LOCK POWER SUPPLY PROVIDED BY OTHERS (QUANTITY OF 4), 120V POWER BY DIVISION 26. COORDINATE TERMINATION OF LOCK RELEASE CABLING WITH THE DOOR HARDWARE INSTALLER.
9 FINISHED CEILING.
10 4-SQUARE JUNCTION BOX BY E.C.



D SECURITY ACCESS CONTROL DETAILS
N.T.S



F TYPICAL RACK ELEVATION
N.T.S.

TELECOMMUNICATIONS RACK EQUIPMENT SCHEDULE

EQUIPMENT NUMBER	DESCRIPTION
1	FIBER OPTIC ENCLOSURE (BY OTHERS)
2	CAT 6 PATCH PANEL (BY OTHERS)
3	48 PORT CAT 6 PATCH PANEL (BY E.C. AS REQUIRED FOR DATA AND CCTV CABLING INSTALLED)
4	48 PORT SWITCH (BY OTHERS)
5	2U HORIZONTAL WIRE MANAGEMENT (BY OTHERS)
6	UNINTERRUPTABLE POWER SUPPLY (BY OTHERS)
8	VERTICAL WIRE MANAGEMENT FRONT AND BACK SIDE
9	EQUIPMENT RACK (BY OTHERS)
10	VERTICAL POWER STRIP (BY OTHERS)
13	DVR (BY CCTV SYSTEM VENDOR)
14	WIRELESS LAN CONTROLLER (BY OTHERS)
15	48 PORT SWITCH PoE (FOR CCTV, BY E.C.)
24	EQUIPMENT RACK/CABINET GROUNDING BUSBAR (MOUNTED IN REAR)

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TITLE
TECHNOLOGY DETAILS

SHEET NO.
E0.7

NAUMAN & ZELINSKI LLC.
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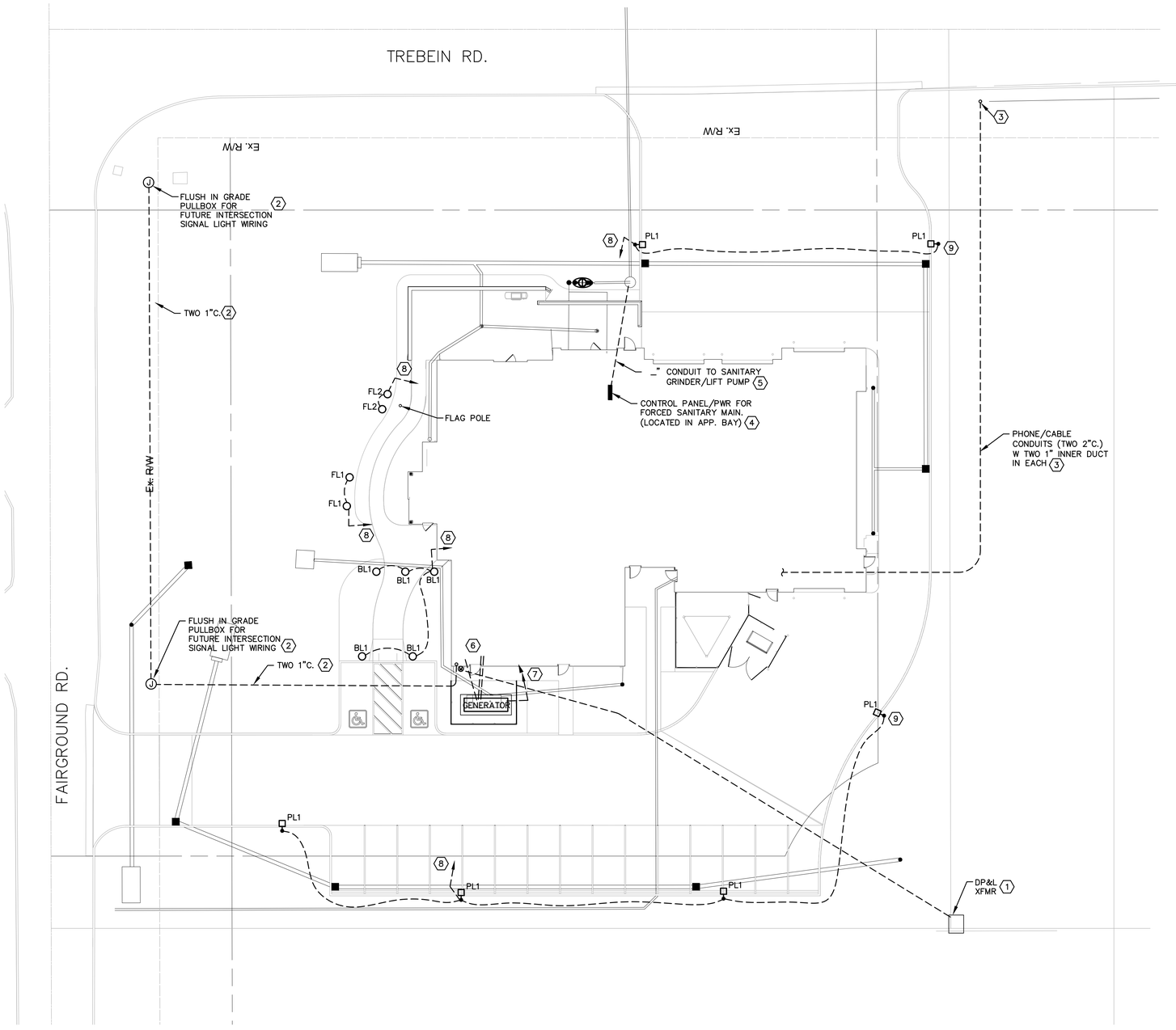

SITE PLAN
SCALE: 1/16" = 1'-0"

CONSTRUCTION NOTES

1. COORDINATE ELECTRIC SERVICE UTILITY WITH DP&L FOR ROUTING OF UNDERGROUND SERVICE ENTRANCE CONDUCTORS FROM EXISTING PADMOUNT TRANSFORMER LOCATION. PROVIDE C/T CABINET AND METER ON BUILDING EXTERIOR (OR SINGLE PHASE SERVICE ENTRANCE METERING ENCLOSURE RATED FOR SERVICE AMPACITY PER DP&L STANDARDS). DP&L CONSTRUCTION PACKET SUBMITTED (WORK ORDER #10127772), DAVID HELMIG, PH: 937-331-3547.
2. PROVIDE TWO 1" CONDUITS FROM MAIN ELECTRIC ROOM TO PULLBOX AT SOUTHWEST CORNER OF TREBEIN AND FAIRGROUND ROAD FOR FUTURE FIRE SIGNAL/TRAFFIC SIGNAL WIRING INTERFACE.
3. PROVIDE UNDERGROUND CONDUITS FROM I.T. ROOM TO SITE TERMINATION FOR PHONE/CTV SERVICE TO STATION. FINAL COORDINATE TERMINATION POINT WITH OWNER'S SERVICE PROVIDER(S).
4. SANITARY LIFT PUMP/GRINDER CONTROL PANEL FURNISHED/INSTALLED BY EQUIPMENT SUPPLIER, CONTROL PANEL LOCATED IN APPARATUS BAY. E.C SHALL PROVIDE POWER TO CONTROL PANEL AND UNDERGROUND CONDUIT FROM CONTROL PANEL TO EXTERIOR LIFT STATION. WIRING FROM LIFT STATION CONTROL PANEL TO PUMP BY EQUIPMENT SUPPLIER. COORDINATE LOCATIONS WITH EQUIPMENT SUPPLIER. FED FROM PANEL "SP3".
5. COORDINATE CONDUIT SIZE REQUIRED BY SANITARY LIFT PUMP SUPPLIER (PRE-TERMINATED WIRING BY EQUIPMENT SUPPLIER).
6. LIFE-SAFETY AND STANDBY POWER FEEDERS AS WELL AS START SIGNAL WIRING FROM GENERATOR TO A.T.S.'s BY E.C. PROVIDE REMOTE STOP WIRING FROM GENERATOR TO EM STOP BUTTON IN MAIN ELECTRIC ROOM (LOCATED NEXT TO A.T.S.'s. PROVIDE ANNUNCIATOR WIRING FROM GENERATOR TO REMOTE ANNUNCIATOR (IN CORRIDOR) COORDINATE WIRING REQUIREMENTS WITH GENERATOR SUPPLIER. PROVIDE MINIMUM OF 4 SPARE CONTROL WIRES TO EACH A.T.S.. PROVIDE WIRING FROM EACH A.T.S. TO REMOTE ANNUNCIATOR FOR A.T.S. POSITION INDICATION.
7. PROVIDE DEDICATED 20A-120V CIRCUITS TO GENERATOR HOUSING FOR ENGINE BLOCK HEATER AND BATTERY CHARGER.
8. CIRCUIT EXTERIOR LIGHTING THRU LIGHTING CONTROL RELAY PANEL (MEZZANINE).
9. POLE LIGHT LOCATION ADJUSTED TO THE NORTH IF ALTERNATE FOR BYPASS DRIVE IS ACCEPTED.

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TITLE
ELECTRICAL SITE PLAN

SHEET NO.
E1.1

NAUMAN & ZELINSKI LLC.
204 S. Ludlow Street Suite 400 Dayton, Ohio 45402
Phone: (937) 223-3821 – Fax: (937) 223-3849

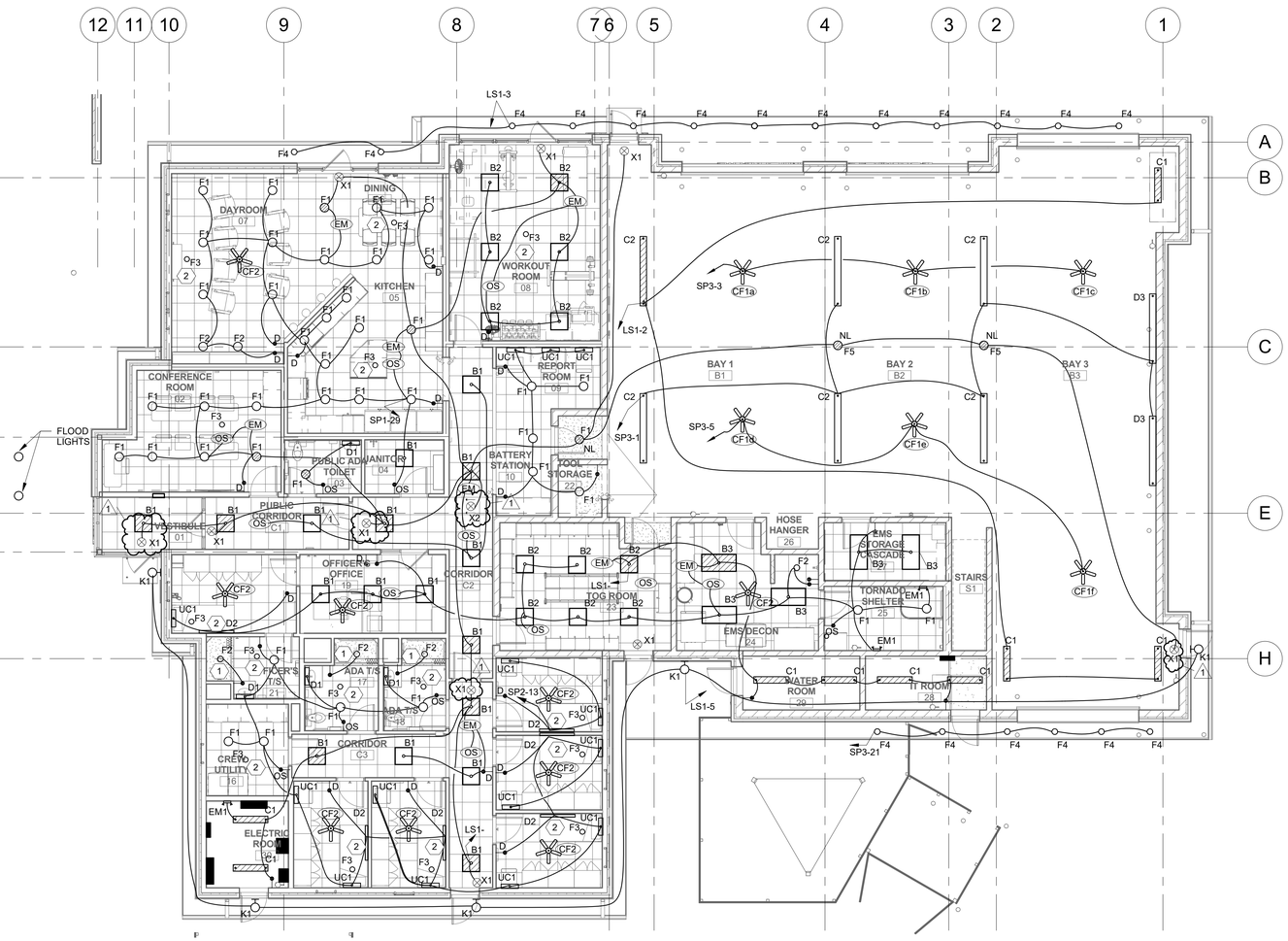
STORM SHELTER NOTES

A. PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE LARGER THAN 3-1/2 IN² IN AREA FOR RECTANGULAR OPENINGS OR 2-1/16" IN DIAMETER SHALL BE CONSIDERED OPENING AND SHALL BE PROVIDED WITH AN OPENING PROTECTIVE DEVICE. REFERENCE STRUCTURAL DRAWINGS.

B. LIGHTING FIXTURES IN STORM SHELTER SHALL HAVE INTEGRAL EMERGENCY BATTERY BALLAST(S) IN FIXTURE(S) CAPABLE TO TO ILLUMINATE FIXTURE AT 1000 LUMENS FOR A MINIMUM OF 180 MINUTES (2 HOURS) OR THE E.C SHALL PROVIDE SEPARATE EMERGENCY BATTERY LIGHTING UNIT WITH SIMILAR LUMEN OUTPUT AND BATTERY BACKUP.

CONSTRUCTION NOTES

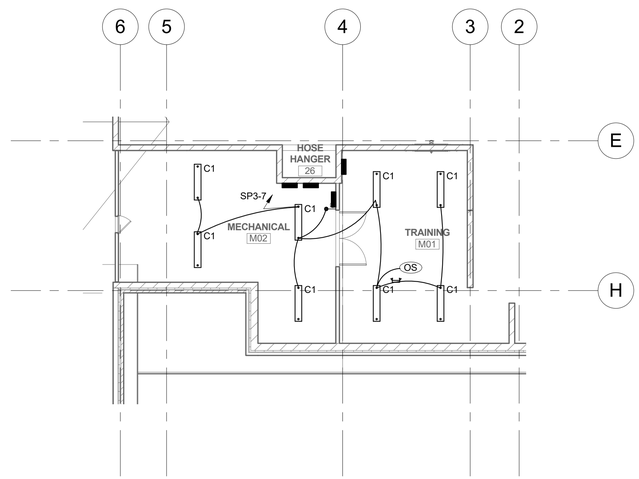
1. CONNECT SHOWER LIGHT TO GROUND-FAULT-FEED-THRU OF TOILET ROOM RECEPTACLE.
2. PROVIDE DEDICATED 20A-120V CIRCUIT FOR ALL "F3" RED CALL SIGNAL LIGHTS AND "S1" RED SIGNAL STROBES IN APPARATUS BAY AND ON EXTERIOR. PROVIDE ELECTRICALLY HELD LIGHTING CONTACTOR (CONNECTED TO CALL SYSTEM OUTPUT RELAY, LOCATED IN IT ROOM) AND CONNECT ALL SIGNALING LIGHTS TO CONTACTOR TO ILLUMINATE LIGHTS UPON SYSTEM ALARM CALL.
3. APPARATUS BAY CONTROL PANEL FLUSH MOUNTED IN WALL. REFER TO DETAIL ON SHEET E0.4. PANEL INCLUDES CONTROL FOR APPARATUS BAY LIGHTS, AIR CIRCULATION FANS, KITCHEN GAS/POWER SHUTOFF AND MANUAL OVERRIDES FOR APPARATUS BAY EXHAUST SYSTEM AND HEAT.
4. APPARATUS BAY LIGHTING WIRED CONTROLLED THRU LIGHTING CONTROL RELAY PANEL. REFER TO SCHEDULE ON SHEET E0.2.
5. EXTERIOR LIGHTING WIRED/CONTROLLED THRU LIGHTING CONTROL RELAY PANEL. REFER TO SCHEDULE ON SHEET E0.2



LEVEL 1 FLOOR PLAN
1/8" = 1'-0"

0 4 8 16 24 32 40

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



MEZZANINE FLOOR PLAN
1/8" = 1'-0"

0 4 8 16 24 32 40

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

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1777 TREBEIN ROAD
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ISSUE:		
NO.	DATE	DESCRIPTION
	04/03/2020	FOR CONSTRUCTION
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CAD	-

TITLE
LIGHTING PLANS

SHEET NO.
E2.1

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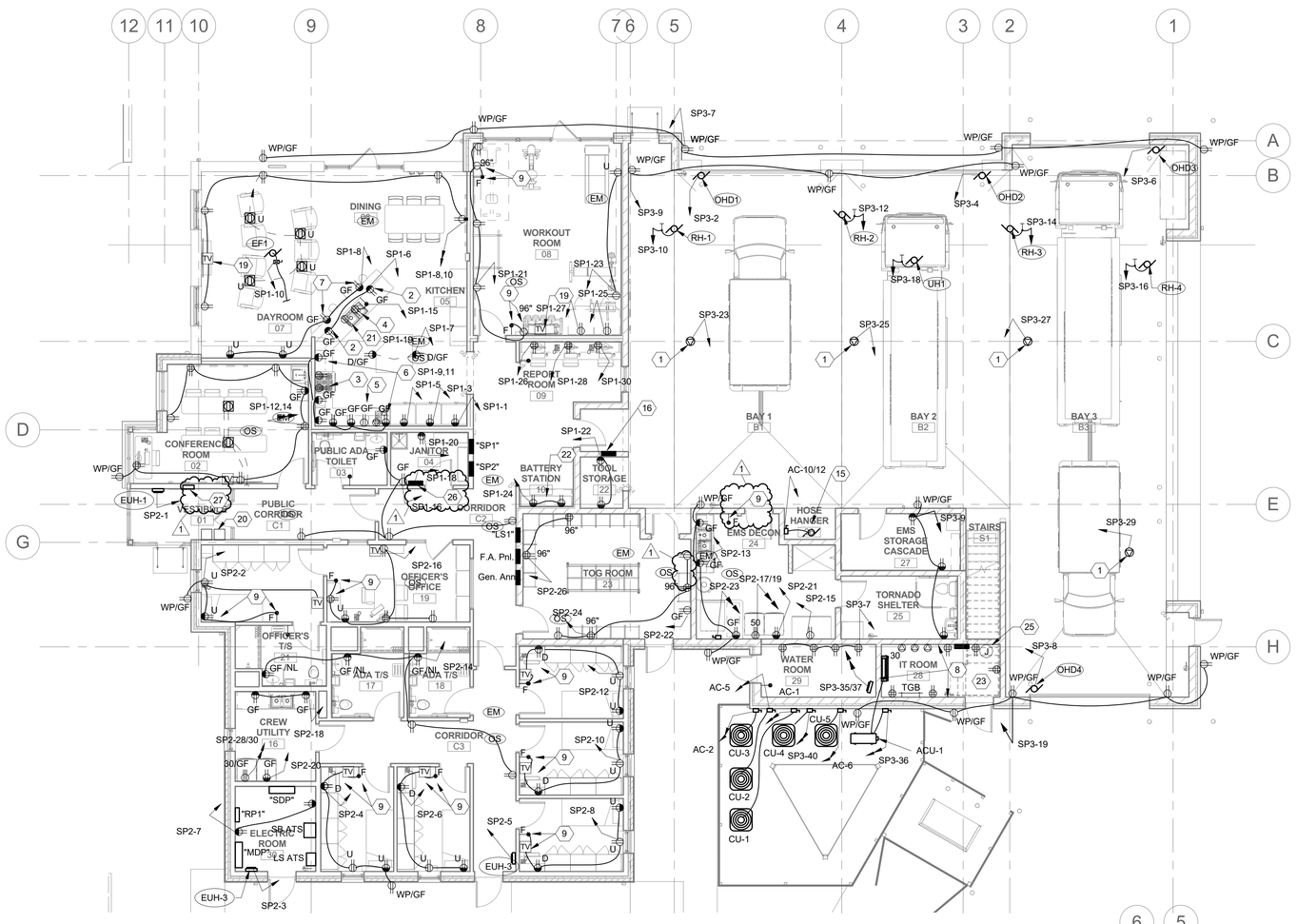
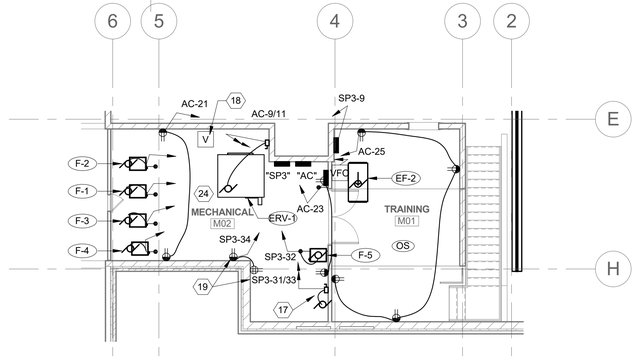


LEVEL 1 FLOOR PLAN
1/8" = 1'-0"

0 4 8 16 24 32 40

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



MEZZANINE FLOOR PLAN
1/8" = 1'-0"

0 4 8 16 24 32 40

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

CONSTRUCTION NOTES

1. PROVIDE NEMA 5-20R RECEPTACLE AT CEILING STRUCTURE FOR CONNECTION OF RETRACTABLE CORD REEL. LOCATE ADJACENT TO COMPRESSED AIR HOSE REEL.
2. RECEPTACLE LOCATED ABOVE COUNTERTOP/BACKSPLASH IN PARTIAL HEIGHT WALL, ORIENT DEVICE HORIZONTALLY. RECEPTACLE CIRCUIT WIRED THRU RELAY PANEL TO CONTROL KITCHEN EQUIPMENT CIRCUITS THRU "EM" STOP/RESET BUTTONS.
3. MOUNT KITCHEN RANGE RECEPTACLE NEAR BASE OF WALL. RECEPTACLE WIRED THRU RELAY PANEL TO CONTROL KITCHEN EQUIPMENT CIRCUITS THRU "EM" STOP/RESET BUTTONS. (SP1-2/4).
4. PROVIDE SWITCHED SINGLE RECEPTACLE IN SINK BASE CABINET FOR GARBAGE DISPOSER. LOCATE SWITCH ABOVE COUNTER ADJACENT TO SINK. PROVIDE MATCHING CORD AND PLUG ON DISPOSER. COORDINATE WITH P.C.
5. COORDINATE RECEPTACLE CONFIGURATION FOR COFFEE MAKER PRIOR TO SUBMITTAL/INSTALLATION.
6. KITCHEN COUNTER-TOP RECEPTACLES WIRED THRU RELAY PANEL TO DE-ENERGIZE UPON INITIATION OF "EM" STOP BUTTON (LOCATED ADJACENT TO APPARATUS BAY DOOR). "EM" STOP BUTTON TO BE RED MUSHRROM HEAD TYPE BUTTON, MAINTAINED CONTACT TYPE (PULL TO RESET). "EM" BUTTON/RELAY PANEL TO DE-ENERGIZE (OPEN) GAS SOLENOID VALVE SERVING KITCHEN RANGE AND GAS GRILLE. COORDINATE VALVE LOCATION AND WIRING REQUIREMENTS WITH P.C.
7. LOCATE RECEPTACLE(S) IN PARTIAL HEIGHT WALL 12" BELOW PENINSULA COUNTERTOP.
8. PROVIDE 3/4" FIRE RETARDANT PLYWOOD ON 3 WALLS OF IT ROOM, CONTINUOUS FROM 6" TO 8'-6" A.F.F. ALL RECEPTACLES IN IT ROOM SURFACE MOUNTED ON PLYWOOD, PROVIDE DEDICATED 30 AMP-120V CIRCUIT TO EACH DATA RACK FROM OVERHEAD CORD DROP (NEMA L5-30R CORD CONNECTOR), TOTAL OF 3 DATA RACKS. COORDINATE LOCATIONS OF DATA RACK/TECHNOLOGY CABINETS WITH TECHNOLOGY CONTRACTOR(S).
9. PROVIDE FLUSH WALL MOUNTED FAN SPEED CONTROLLER (HI-MED-LOW SPEED AND OFF) AND WIRE TO CONTROL ROOM CEILING FAN. REFER TO SPECIFICATIONS.
10. PROVIDE FIRE ALARM CONTROL RELAY TO STOP (DISCONNECT POWER) TO APPARATUS BAY CEILING FAN UPON ALARM CONDITION.
11. PROVIDE FIRE ALARM RELAYS IN I.T. ROOM FOR INTERCONNECTION TO CLEAN AGENT FIRE SUPPRESSION SYSTEM TO PROVIDE ALARM(S) UPON SUPPRESSION SYSTEM ACTIVATION AND TO SHUT DOWN ROOM A/C UNIT PRIOR TO ACTIVATION. COORDINATE SYSTEM TROUBLE/PRE-ALARM/ALARM CONDITIONS FOR MONITORING/ALARM REQUIREMENTS AND INTERLOCK WIRING REQUIREMENTS TO ROOM A/C UNIT WITH H.C..
12. PROVIDE DEDICATED CIRCUIT TO RECEPTACLE IN SINK BASE CABINET FOR DISHWASHER, SP1-___ (GFCI BREAKER).
13. PROVIDE NEMA 14-50R RECEPTACLE AND DEDICATED CIRCUIT FOR GAS RANGE, SP1-___ (GFCI BREAKER). CIRCUIT THRU RELAY PANEL FOR CONTROL THRU KITCHEN EM STOP BUTTON.
14. COORDINATE RECEPTACLE MOUNTING HEIGHT FOR ABOVE COUNTER MICROWAVE OVEN.
15. PROVIDE HOSE HOIST, MOUNTED TO CEILING/WALL STRUCTURE NEAR CEILING PEAK. REFER TO STRUCTURAL DRAWINGS FOR SUPPORT STRUCTURE TO MOUNT HOIST. HOIST SHALL HAVE 500 POUND LIFTING CAPACITY, WITH STAINLESS STEEL CABLE, SINGLE ATTACHMENT HOOK AND MINIMUM 30 FOOT TRAVEL LENGTH. EQUAL TO ELECTROLIFT MODEL #207-LG, 240V-1PH MOTOR WITH 120V CONTROL. PROVIDE HARDWIRED REMOTE CONTROL STATION, FLUSH MOUNTED UP/DOWN/STOP BUTTON. PROVIDE FUSED DISCONNECT SWITCH ON WALL IN BAY FOR MOTOR SERVICE DISCONNECT.
16. APPARATUS BAY CONTROL PANEL, FLUSH MOUNTED IN WALL, REFER TO DETAIL, SHEET E0.4
17. COORDINATE POWER REQUIREMENTS TO AIR COMPRESSOR WITH P.C.
18. COORDINATE POWER TO GAS SOLENOID VALVE WITH P.C., WIRED THRU RELAY PANEL FOR CONTROL FROM "EM STOP" SWITCH APPARATUS BAY CONTROL PANEL REFER TO DETAIL, SHEET E0.4.
19. PROVIDE TV ROUGH-IN BOX ON WALL, 84" M.H. WITH ADDITIONAL RECEPTACLE/DATA ROUGH-IN ON WALL BELOW FOR LOCAL VIDEO INPUT DEVICE. PROVIDE 1.25" CONDUIT FROM TV ROUGH-IN BOX TO DATA BOX BELOW FOR INTERCONNECTION CABLING (BY OWNER).
20. PROVIDE TWO FLUSH MOUNTED SINGLE-GANG BOXES (46" M.H.) WITH 3/4" CONDUIT TO ACCESS CONTROL SYSTEM FOR INSTALLATION OF PANIC BUTTON AND RESET BUTTON FOR ENTRY DOOR MAG-LOCK. COORDINATE INSTALLATION WITH HARDWARE SUPPLIER.
21. PROVIDE RECEPTACLE BELOW SINK IN BASE CABINET FOR DISHWASHER CONNECTION. REFER TO PANEL "SP1" SCHEDULE FOR CIRCUIT. PROVIDE CORD & PLUG CONNECTION ON DISHWASHER.
22. PROVIDE TWO TIERS OF PLUGMOLD ON WALL (LOCATED ABOVE SHELVES). 4" LONG PLUGSTRIP WITH NEMA 5-15R RECEPTACLES 6" O.C.
23. REFER TO PANEL SCHEDULE "LS1" FOR CIRCUITS IN I.T. ROOM.
24. REFER TO PANEL SCHEDULE "SP3" FOR FURNACE CIRCUITS.
25. PROVIDE 20A-120V CIRCUIT FROM PANEL 'LS1' TO FM. 200 SYSTEM PANEL.
26. ACCESS CONTROL PANEL.
27. FIRE ALARM ANNUNCIATOR.

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TITLE
POWER PLANS

SHEET NO.
E3.1

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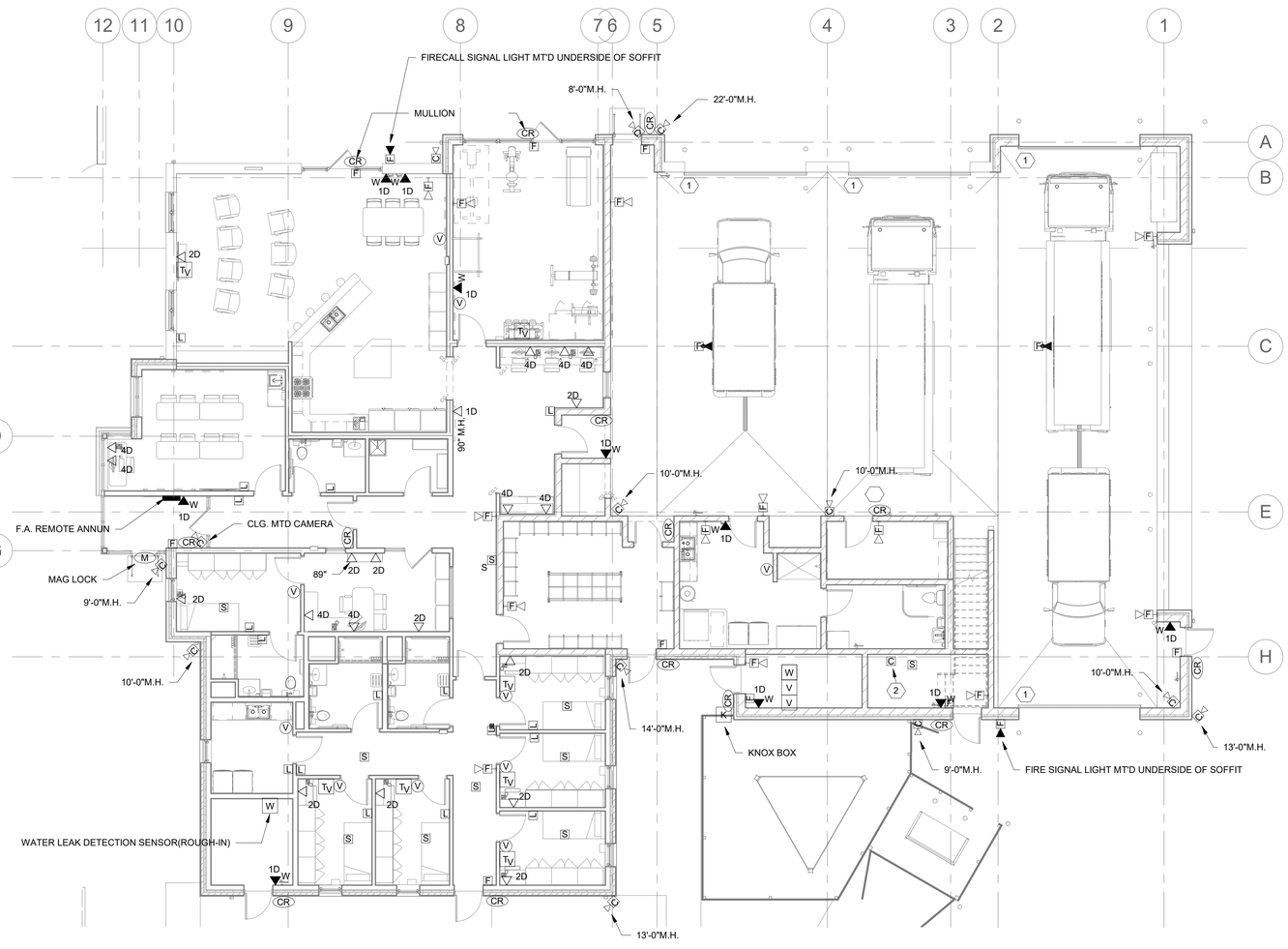
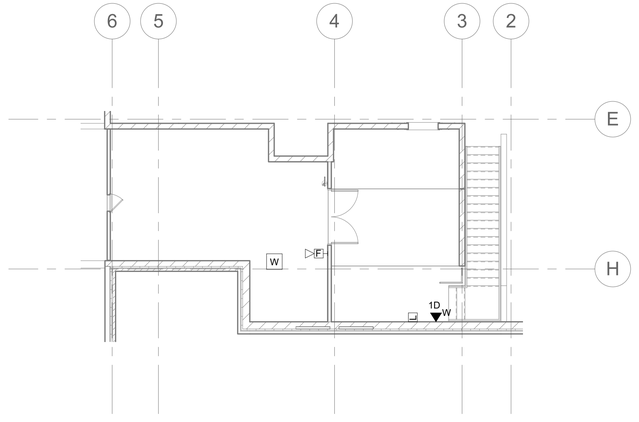


LEVEL 1 FLOOR PLAN
1/8" = 1'-0"

0 4 8 16 24 32 40

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



MEZZANINE FLOOR PLAN
1/8" = 1'-0"

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

CONSTRUCTION NOTES

1. COORDINATE CONDUIT PATHWAY FROM DOOR POSITION SWITCH ON OVERHEAD DOORS TO ACCESS CONTROL/SECURITY SYSTEM IN I.T. ROOM.
2. PROVIDE CONTROL/MONITOR MODULE FOR INTERFACE/WITH FM 200 SYSTEM PANEL. COORDINATE REQUIREMENTS WITH SYSTEM SUPPLIER.

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TITLE
SYSTEMS PLANS

SHEET NO.
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