Addition and Remodeling for

MASSILLON FIRE STATION #3

955 Wales Rd N.E.
Massillon, Ohio, 44646

JURISDICTION	CITY OF MASSILLON BUILDING DEPARTMENT
TYPE OF WORK	ADDITION & REMODELING
USE GROUPS	
PROPOSED USE GROUP	S-2, R-2 (B ACCESSORY USE)
PREVIOUS USE GROUP	S-2, R-2 (B ACCESSORY USE)
MIXED USE OPTION	SEPARATED USES (2-HOUR)
CONSTRUCTION TYPE	5A
BUILDING HGT - ALLOWABLE	4 STORIES (50')
- PROPOSED	1 STORY (22')
BUILDING AREA (TOTAL)	3,623 S.F.
EXISTING	2,725 S.F.
ADDITION	898 S.F.
REMODELED	2,725 S.F.
FIRE AREA 'A' (APP BAYS)	1,414 S.F.
FIRE AREA 'C' (SLEEPING ROOMS)	442 S.F.
FIRE AREA 'B' (PERIMETER)	2,209 S.F.
FIRE SUPPRESSION	NON- SUPPRESSED

FIRE RESISTANCE RATINGS	RATING
EXTERIOR WALLS	1 HR
STRUCTURAL ELEMENTS	1 HR
ROOF ASSEMBLY	1 HR
INTERIOR WALLS	0 HR
EXITS	0 HR (<30 OCC.)
FIRE BARRIERS	2 HR

LIMITATIONS: (R-2 USE MOST RESTRICTIVE)	AREA	HEIGHT
TABLE 506.2	12,000 S.F.	4 STORIES/50'

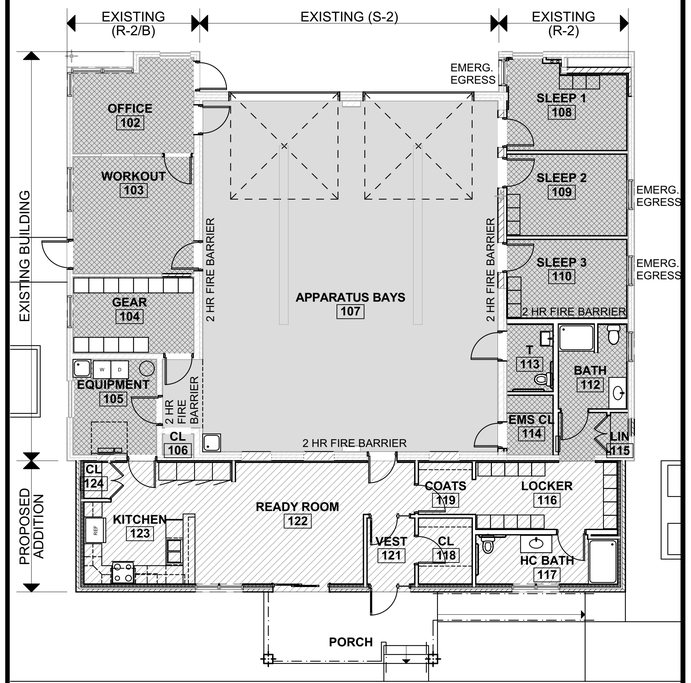
OCCUPANT LOAD	
'R-2' USE (1/200 SF GROSS)	12
'S-2' USE (1/300 SF GROSS)	5
TOTAL	17

EXITS	REQUIRED	PROVIDED
NUMBER REQUIRED	2	3
TRAVEL DISTANCE (200' MAX.)	200'	65'
DOORS WIDTH (.2" EA / 32" PER ADA)	64" (32" MIN. PER ADA)	144"

PLUMBING	REQUIRED	PROVIDED
WATER CLOSETS	2	3
LAVATORIES	2	3
SERVICE SINKS	1	2
DRINKING FOUNTAINS	1	0*
SHOWERS	2	2

* NO DRINKING FOUNTAIN PROVIDED - FULLY ACCESSIBLE KITCHEN AVAILABLE

BUILDING CODE INFORMATION



BUILDING KEY PLAN

OWNER

City of Massillon Fire Department
2720 Erie St. South
Massillon, Ohio 44646
P: 330.833.1053
Contact: Chief Tom Burgasser

ARCHITECT

SōL Harris/Day Architecture
6677 Frank Avenue NW
North Canton, OH 44720
P: 330.493.3722
Contact: Bill Griffith
Email: bgriffith@solharrisday.com

STRUCTURAL ENGINEER

Fenton Engineering Inc.
1549 Boettler Rd, Ste F
Green OH 44685
P: 330.899.9402
Contact: Eric Fenton
Email: john.fenton@att.net

MECHANICAL ENGINEER

HEI Engineering Group
443 W. Liberty St.
P.O. Box 996
Wooster OH 44691
P: 330.262.0042
Contact: Dan Evans
Email: evans@hei-ohio.com

ELECTRICAL ENGINEER

Stadelman Associates, Inc.
8614 Hartman Road
Wadsworth, OH 44281
P: 330.926.2600
F: 330.926.4531
Contact:Steve Parsons
Email: sparsons@stadelman.net

PROJECT TEAM

ZONING DATA

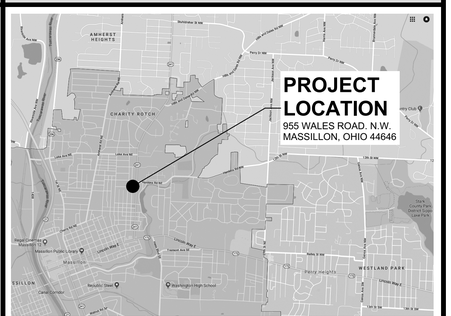
JURIDICTION:	MASSILLON ZONING DEPARTMENT
DISTRICT:	R-1 (SINGLE FAMILY RESIDENTIAL)
PARCEL:	680301
USE:	FIRE/EMS STATION (CONDITIONAL APPROVAL)
TOTAL AREA:	3,624 S.F.
EXISTING AREA	2,724 S.F.
ADDITION	1,347 S.F..
BUILDING HEIGHT:	1-STORY / 22'
SETBACKS:	
NORTH	EXISTING TO REMAIN
EAST	EXISTING TO REMAIN
SOUTH	EXISTING TO REMAIN
WEST	65'+/-
PARKING :	8
CURB CUTS:	EXISTING TO REMAIN

BUILDING IS NON- SUPPRESSED

ZONING REGULATION INFORMATION

@	AT	DTL	DETAIL	LAV	LAVATORY	S.C.	SOLID CORE
AB	ANCHOR BOLT	DWG	DRAWING	MAS	MASONRY	SCHED	SCHEDULE
A.F.F.	ABOVE FINISH FLOOR			MTR'L	MATERIAL	SHT	SHEET
ALT	ALTERNATE	EA	EACH	MAX	MAXIMUM	SIM.	SIMILAR
AL	ALUMINUM	E.J.	EXPANSION JOINT	MECH	MECHANICAL	SPEC	SPECIFICATION
		ELEC	ELECTRICAL	MFG	MANUFACTURER	S.S.	STAINLESS STEEL
BD	BOARD	EL	ELEVATION	M.H.	MAN HOLE	STL	STEEL
BLDG.	BUILDING	EQUIP	EQUIPMENT	MIN	MINIMUM	STOR	STORAGE
BM	BENCH MARK	EXIST	EXISTING	MISC	MISCELLANEOUS	STR	STRUCTURE
BOT	BOTTOM	EXP	EXPANSION	MTL	METAL		
BRG.	BEARING	EXTR	EXTERIOR			T	TREAD
				N.I.C.	NOT IN CONTRACT	T&G	TONGUE & GROOVE
C.B.	CATCH BASIN	F.D.	FLOOR DRAIN	NO	NUMBER	THK	THICK (NESS)
C/C	CENTER TO CENTER	FLR	FLOOR	NOM	NOMINAL	T.O.F.	TOP OF FOUNDATION
C.J.	CONTROL JOINT	FTG	FOOTING	N.T.S.	NOT TO SCALE	T.O.M.	TOP OF MASONRY
CLG	CEILING					T.O.S.	TOP OF STEEL
CLR	CLEAR	GA	GAUGE	O.C.	ON CENTER	TYP	TYPICAL
CMU	CONC. MASONRY UNIT	GALV	GALVANIZED	OPG	OPENING		
C.O.	CLEAN OUT	GC	GENERAL CONTRACTOR			VCT	VINYL COMP. TILE
COL	COLUMN	GYP	GYPSUM	PL	PLATE	VERT	VERTICAL
CONC	CONCRETE			PLAM	PLASTIC LAMINATE		
CONT	CONTINUOUS	H.M.	HOLLOW METAL	PLB'G	PLUMBING	W/	WITH
CORR	CORRIDOR	HT	HEIGHT	PROP	PROPERTY	WC	WATER CLOSET
C.T.	CERAMIC TILE	HTG	HEATING			W/O	WITHOUT
C.W.	COLD WATER	H.W.	HOT WATER	R	RISER	WWM	WIRE WELDED MESH
				RAD	RADIUS		
D.F.	DRINKING FOUNTAIN	INSUL	INSULATION	REINF	REINFORCED (MENT)	SYMBOLS:	
DIA	DIAMETER	INTR	INTERIOR	REQ'D	REQUIRED	Ł	ANGLE
DIM	DIMENSION			R.O.	ROUGH OPENING	CL	CENTERLINE
DN	DOWN	JNT	JOINT			Ø	DIAMETER
D.S.	DOWNSPOUT	JST	JST	SAN	SANITARY		

ABBREVIATIONS



North

LOCATION MAP

0.1	PROJECT COVER SHEET
0.2	ADA COMPLIANCE DETAILS
2.1	DEMOLITION PLAN AND NOTES
3.1	FOUNDATION PLAN AND NOTES
3.2	ROOF FRAMING PLAN AND NOTES
4.1	FLOOR PLAN AND NOTES
4.2	ATTIC PLAN
5.1	EXTERIOR ELEVATIONS & ROOF PLAN
7.1	WALL / ROOF SECTIONS
7.2	PORCH SECTIONS
8.1	DOOR & FINISH PLANS & SCHEDULES
9.1	INTERIOR ELEVATIONS
10.1	REFLECTED CEILING PLAN
11.1	EQUIPMENT PLAN
32.1	SITE PLANS
P.1	PLUMBING PLAN - DEMOLITION
P.2	PLUMBING PLAN - PIPING
P.3	PLUMBING PLAN - SANITARY
P.4	PLUMBING DETAILS & ISOMETRIC
P.5	PLUMBING SCHEDULES
P.6	PLUMBING SPECIFICATION
H.1	HVAC PLAN - DEMOLITION
H.2	HVAC PLAN
H.3	HVAC DETAILS AND SEQUENCES
H.4	HVAC SCHEDULES & NOTES
H.5	HVAC SPECIFICATIONS
DE.1	ELECTRICAL DEMOLITION PLAN & NOTES
E.1	ELECTRICAL SYMBOLS, LEGENDS & DETAILS
E.2	LIGHTING PLAN
E.3	POWER & COMM. PLAN, NOTES, & DETAILS
E.4	PANEL SCHEDULE / ONE LINE DIAGRAM
E.5	ELECTRICAL SPECIFICATIONS
SE.1	ELECTRICAL SITE PLAN
1 of 1	EXISTING SURVEY (FOR REFERENCE ONLY)

DRAWING LIST

SōL HARRIS/DAY architecture
6677 Frank Ave NW
North Canton, OH 44720
ph: 330.493.3722
www.solharrisday.com

[DESIGNED FOR PEOPLE, DESIGNED FOR LIFE.]

STATE OF OHIO
DOMENIC FERRANTE
12906
REGISTERED ARCHITECT
DOMENIC FERRANTE LICENSE #12906
STATE LICENSE EXPIRES 2017

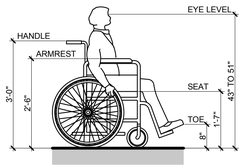
Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

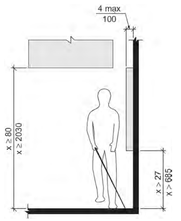
PROJECT NO: 16.115
DATE: 2018 APRIL 12

PROJECT COVER SHEET

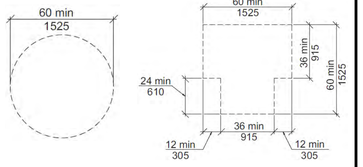
0.1



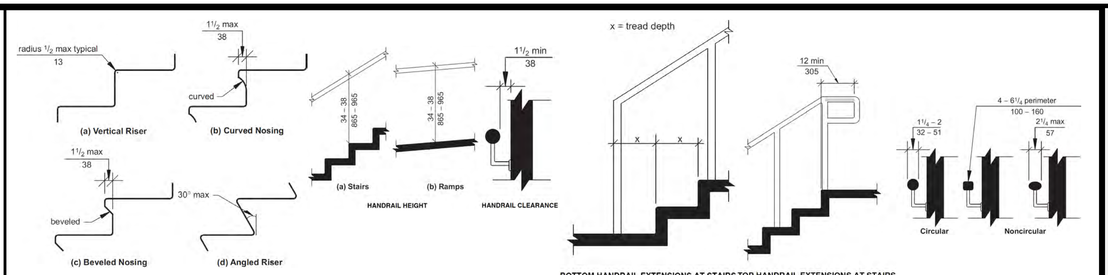
DIMENSIONS



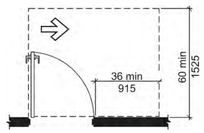
CLEARANCE



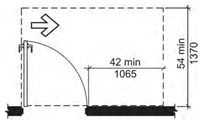
WHEELCHAIR TURNING



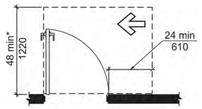
STAIRS



LATCH SIDE APPROACH
PULL SIDE

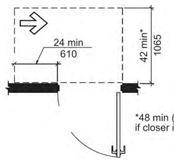


LATCH SIDE APPROACH
PULL SIDE



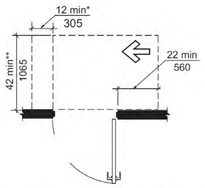
*54 min (1370) if closer is provided

HINGE SIDE APPROACH
PULL SIDE



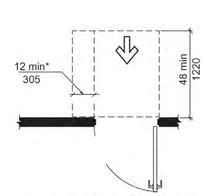
*48 min (1220)
if closer is provided

LATCH SIDE APPROACH
PUSH SIDE



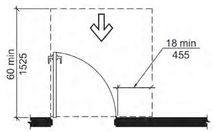
* If both closer and latch are provided
** 48 min (1220) if both closer and latch provided

HINGE SIDE APPROACH
PUSH SIDE



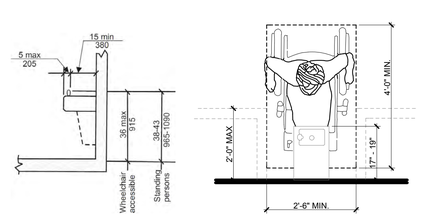
*If both closer and latch are provided

FRONT APPROACH
PUSH SIDE

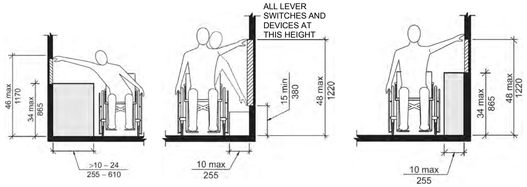


FRONT APPROACH
PULL SIDE

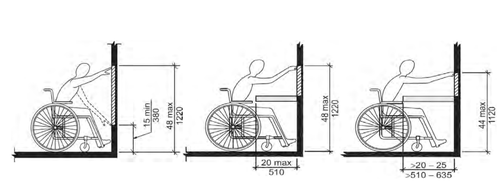
DOOR CLEARANCE



DRINKING FOUNDATIONS

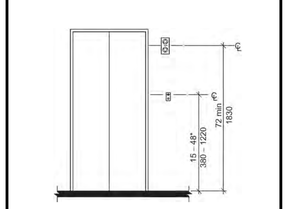


SIDE APPROACH

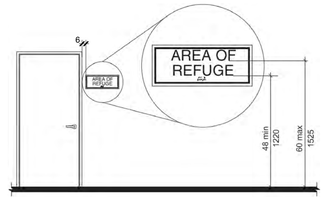


FRONT APPROACH

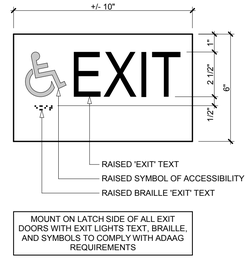
REACH DIMENSIONS



ELEVATOR

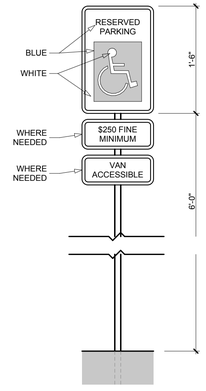


SIGNAGE



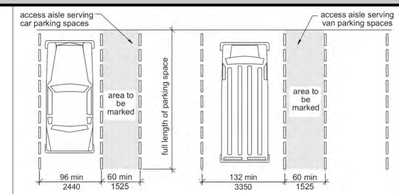
MOUNT ON LATCH SIDE OF ALL EXIT DOORS WITH EXIT LIGHTS TEXT, BRAILLE, AND SYMBOLS TO COMPLY WITH ADAAG REQUIREMENTS

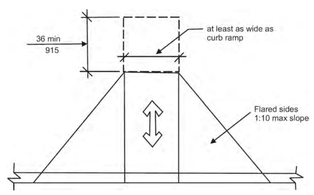
TACTILE EXIT SIGN DETAIL



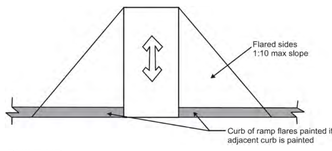
LETTERING TO BE BLUE LETTERS ON WHITE BACKGROUND. LETTERING SHALL HAVE A WIDTH-TO-HEIGHT RATIO BETWEEN 3:5 AND 1:1 AND A STROKE-WIDTH-TO-HEIGHT RATIO BETWEEN 1:5 AND 1:10

SIGN MOUNTED ON GALVANIZED METAL POLE OR WALL CENTERED AT HEAD OF PARKING SPACE. (POLE DRIVEN 2'-0" MIN. BELOW GRADE)



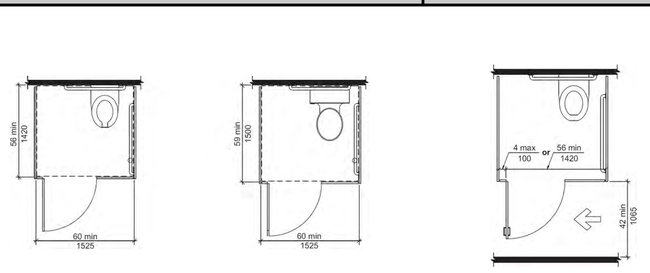


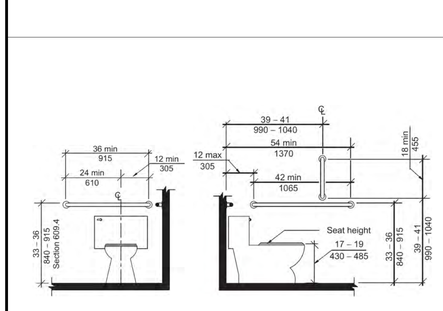
IN-SET



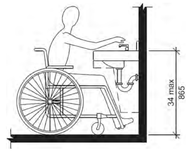
BUILT-UP

SITE INFORMATION

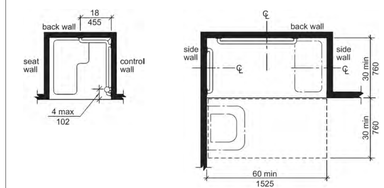




WATER CLOSET & ACCESSORY HEIGHTS



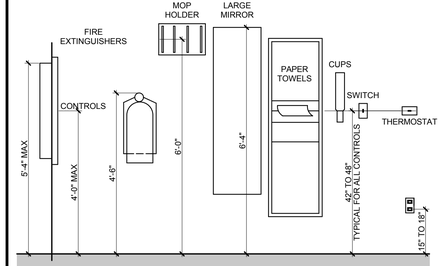
LAV CLEARANCE



SHOWER CLEARANCES

RESTROOMS

NOTE:
THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS SHOWN ARE AN OUTLINE OF THE TYPICAL CONDITIONS WHICH CONFORM TO THE INTENT OF THE ADA AND FAIR HOUSING ACCESSIBILITY ACT. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE THESE REQUIREMENTS WITH PLANS AND DETAILS SHOWN ON THE DOCUMENTS TO INSURE CONFORMANCE WITH THESE STANDARDS. DISCREPANCIES OCCUR, HE SHALL NOTIFY THE ARCHITECT OF SAME.



HEIGHTS

SōL
HARRIS/DAY
architecture
6677 Frank Ave NW
North Canton, OH 44720
ph: 330.498.3722
www.solharrisday.com

[DESIGNED FOR PEOPLE, DESIGNED FOR LIFE.]

STATE OF OHIO
DOMENIC FERRANTE
12906
REGISTERED ARCHITECT
DOMENIC FERRANTE LICENSE #12906
DATE: 2018 APRIL 12

Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 2018 APRIL 12

ADA COMPLIANCE DETAILS

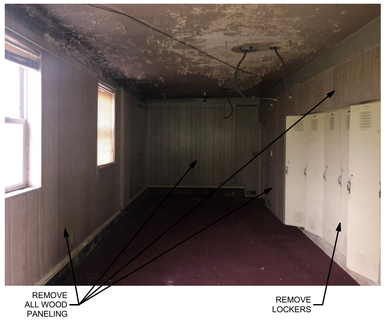
0.2

1

2

3

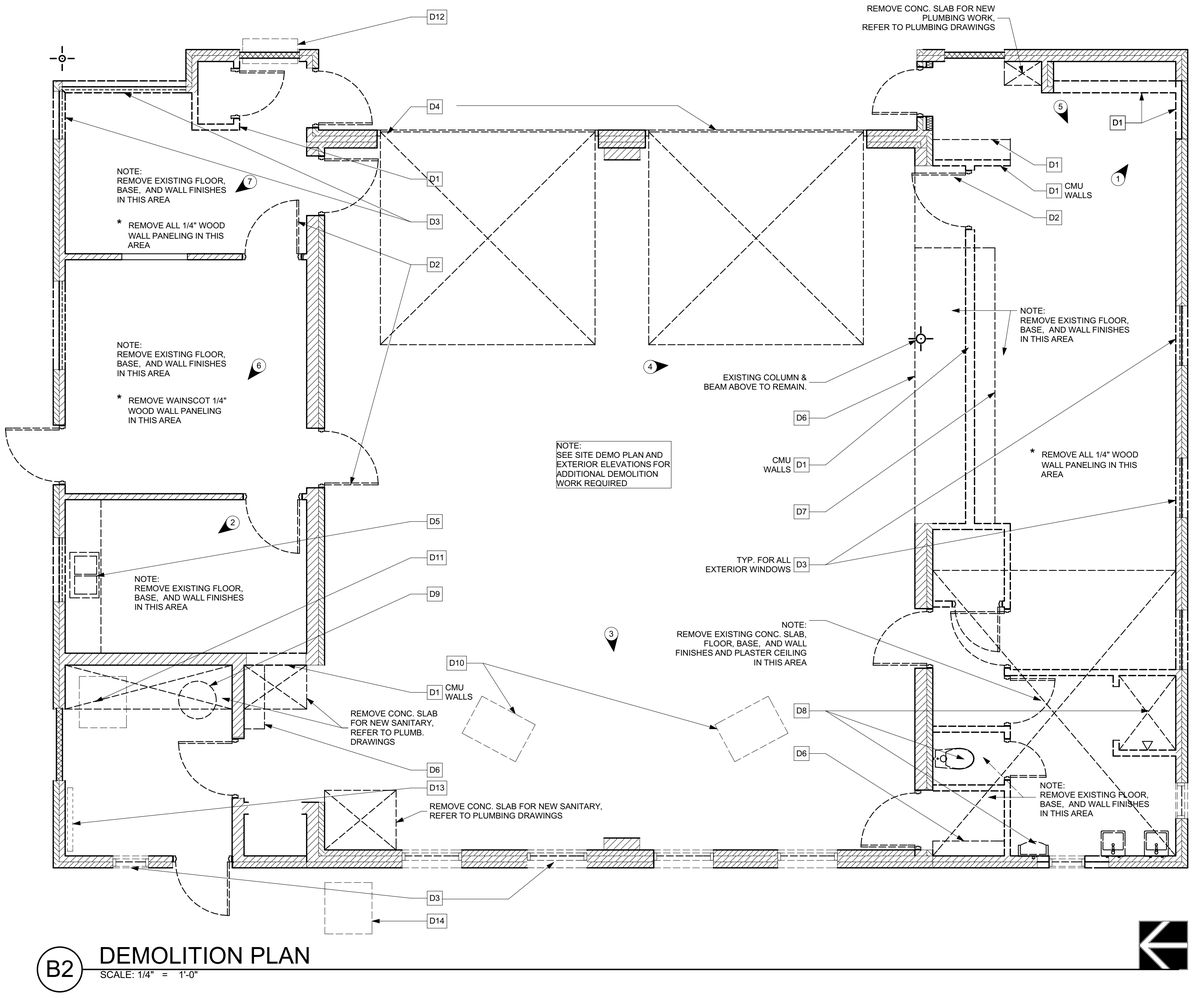
4



5

6

7



B2 DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

DEMOLITION NOTES:

1. G.C. IS TO SAW-CUT AND REMOVE EXISTING CONCRETE SLAB FOR NEW UNDERGROUND SANITARY PIPING. PROVIDE NEW 4" CONCRETE SLAB ON VAPOR BARRIER OVER COMPACTED WASHED GRAVEL FILL. PROTECT EXISTING FLOOR COVERING TO REMAIN. PATCH AND REPAIR FLOOR COVERING TO MATCH EXISTING.
2. REMOVE EXISTING WALLS WHERE INDICATED AND IN AREAS WHERE NEW OPENINGS ARE SHOWN. REMOVE ALL EXISTING ABANDONED PLUMBING, ELECTRICAL DEVICES, RELATED CONDUIT AND WIRING (INCLUDING LOW VOLTAGE) IN WALLS TO BE REMOVED. PROTECT AND PATCH EXISTING ADJACENT WALLS TO REMAIN
3. NO EXPLOSIVES OR HAZARDOUS MEANS OR MATERIALS SHALL BE USED DURING DEMOLITION.
4. CLEAN AND REMOVE ALL DEMOLISHED DEBRIS AND PROPERLY DISPOSE OF IT OFF-SITE. NO BURNING OR BURYING OF DEMOLISHED MATERIALS WILL BE ALLOWED.
5. ALL MATERIAL TO BE REMOVED THAT IS NOT DESIGNATED FOR REUSED MAY BE SALVAGED BY THE CONTRACTOR, IT MAY NOT BE STORED OR SOLD ON THE PROJECT PREMISES.
6. ALL CONSTRUCTION DESIGNATED TO BE REUSED, RELOCATED OR SALVAGED SHALL BE CAREFULLY REMOVED, CLEANED, PROTECTED, AND STORED IN AN APPROPRIATE, SECURE LOCATION.
7. IF HAZARDOUS MATERIAL IS FOUND TO BE PRESENT ON THE SITE, IMMEDIATELY NOTIFY THE OWNER AND ARCHITECT PRIOR TO DISTURBING IT TO DETERMINE THE APPROPRIATE COURSE OF ACTION.
8. AFTER DEMOLITION HAS OCCURED, SECURE AND PROTECT THE EXISTING CONSTRUCTION TO REMAIN UNTIL THE PERMANANT NEW CONSTRUCTION IS IN PLACE.

GENERAL NOTES:

1. THE SCOPE OF THE WORK IS BASED ON THE CONSTRUCTION DOCUMENTS AND SHALL INCLUDE THE FURNISHING OF THE FOLLOWING MATERIALS, LABOR: TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THE PROJECT.
2. THE FOLLOWING SUPPLEMENTS, MODIFIES, CHANGES, AND DELETES FROM OR ADDS TO THE "GENERAL CONDITIONS FOR THE CONTRACT FOR CONSTRUCTION" , LATEST AIA DOCUMENT A201, WHICH SHALL BE MADE PART OF THESE CONTRACT DOCUMENTS AS IF WRITTEN HEREIN. A COPY SHALL BE MADE AVAILABLE UPON REQUEST.
3. COORDINATE WORK WITH WORK OF OTHER TRADES
4. ALL WORK SHALL COMPLY W/ NATIONAL, STATE, & LOCAL CODES & REQUIREMENTS. STRUCTURE SHALL COMFORM TO THE 2015 OHIO BUILDING CODE.
5. THE CONTRACTORS & SUB-CONTRACTORS SHALL MAINTAIN WORKMAN'S COMPENSATION, COMPREHENSIVE LIABILITY INSURANCE & COMPREHENSIVE AUTOMOBILE LIABILITY INSURANCE
6. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY & PROTECTION OF THEIR RESPECTIVE WORK
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING & PAYING ALL FEES FOR ALL PERMITS, CHARGES, LICENSES, INSPECTIONS FOR THEIR RESPECTIVE SCOPE OF WORK
8. UNLESS OTHERWISE SPECIFIED, THE CONTRACTORS SHALL GUARANTEE THEIR RESPECTIVE WORK ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE PROJECT.
9. COORDINATE TEMPORARY FACILITIES WITH OWNER.
10. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL UTILITY COSTS DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY CLEAN-UP OF THEIR RESPECTIVE WORK DURING CONSTRUCTION. THE CONTRACTOR SHALL PERFORM FINAL CLEAN-UP . . . BROOM CLEAN EXTERIOR. . . REMOVE ALL GREASE, DUST, DIRT, STAINS, LABELS, FINGERPRINTS AND FOREIGN MATERIAL FROM ALL INTERIOR & EXTERIOR SURFACES.
12. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND IN A QUALITY CRAFTSMEN-LIKE MANNER.

DEMOLITION KEYNOTES:

D1 REMOVE EXISTING WALL
D2 REMOVE EXISTING DOOR AND FRAME
D3 REMOVE EXISTING WINDOW UNITS
D4 REMOVE EXISTING OVERHEAD SECTIONAL DOOR AND FRAME COMPLETE WITH OPERATOR
D5 REMOVE EXISTING KITCHEN COUNTER,WALL AND BASE CABINETS COMPLETE - CAP PLUMBING
D6 REMOVE EXISTING SHELVING / STORAGE UNITS
D7 REMOVE EXISTING LOCKERS AND SOFFIT ABOVE
D8 REMOVE ALL EXISTING PLUMBING FIXTURES AND CAP IN WALL OR BELOW FLOOR
D9 REMOVE AND CAP EXISTING HOT WATER HEATER
D10 REMOVE EXISTING UNIT HEATERS COMPLETE WITH GAS PIPING
D11 REMOVE EXISTING BOILER UNIT COMPLETE WITH GAS AND HOT WATER PIPING
D12 REMOVE EXISTING THRU-WALL AIR CONDITIONING UNIT - INFILL WITH SALVAGED GLASS BLOCK
D13 REMOVE EXISTING ELECTRICAL SERVICE ENTRANCE AND PANEL BOARDS
D14 REMOVE EXISTING EMERGENCY GENERATOR, ASSOCIATED CONDUIT AND WIRING

GENERAL DEMOLITION NOTES:

1. WHERE DEMOLITION WORK OCCURS, PATCH AND REPAIR EXISTING CONSTRUCTION TO REMAIN
2. REMOVE ALL EXISTING FLOOR COVERINGS AND BASE MATERIAL
3. REMOVE ALL EXISTING WOOD COMPOSITE WALL PANELING COMPLETE WITH FURRING
4. REMOVE ALL EXISTING LAY-IN CEILINGS
5. REMOVE ALL EXISTING HEATING RADIATION UNIT AND CAP BELOW THE FLOOR
6. REMOVE ALL EXISTING LIGHT FIXTURES, EXPOSED CONDUIT AND CONDUCTORS
7. REMOVE ALL EXISTING ELECTRICAL DEVICES, EXPOSED CONDUIT AND CONDUCTORS
8. REMOVE ALL EXISTING GAS PIPING AND CAP IN WALL OR BELOW FLOOR
9. SEE SITE PLAN AND EXTERIOR ELEVATIONS FOR ADDITIONAL DEMOLITION NOTES
10. IN GENERAL, ITEMS REPRESENTED WITH – – – – – (DASH LINES), THESE ITEMS ARE TO BE REMOVED.

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STATE OF OHIO
DOMENIC FERRANTE
REGISTERED ARCHITECT
12906

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EMAIL: DOM@SOLHARRISDAY.COM

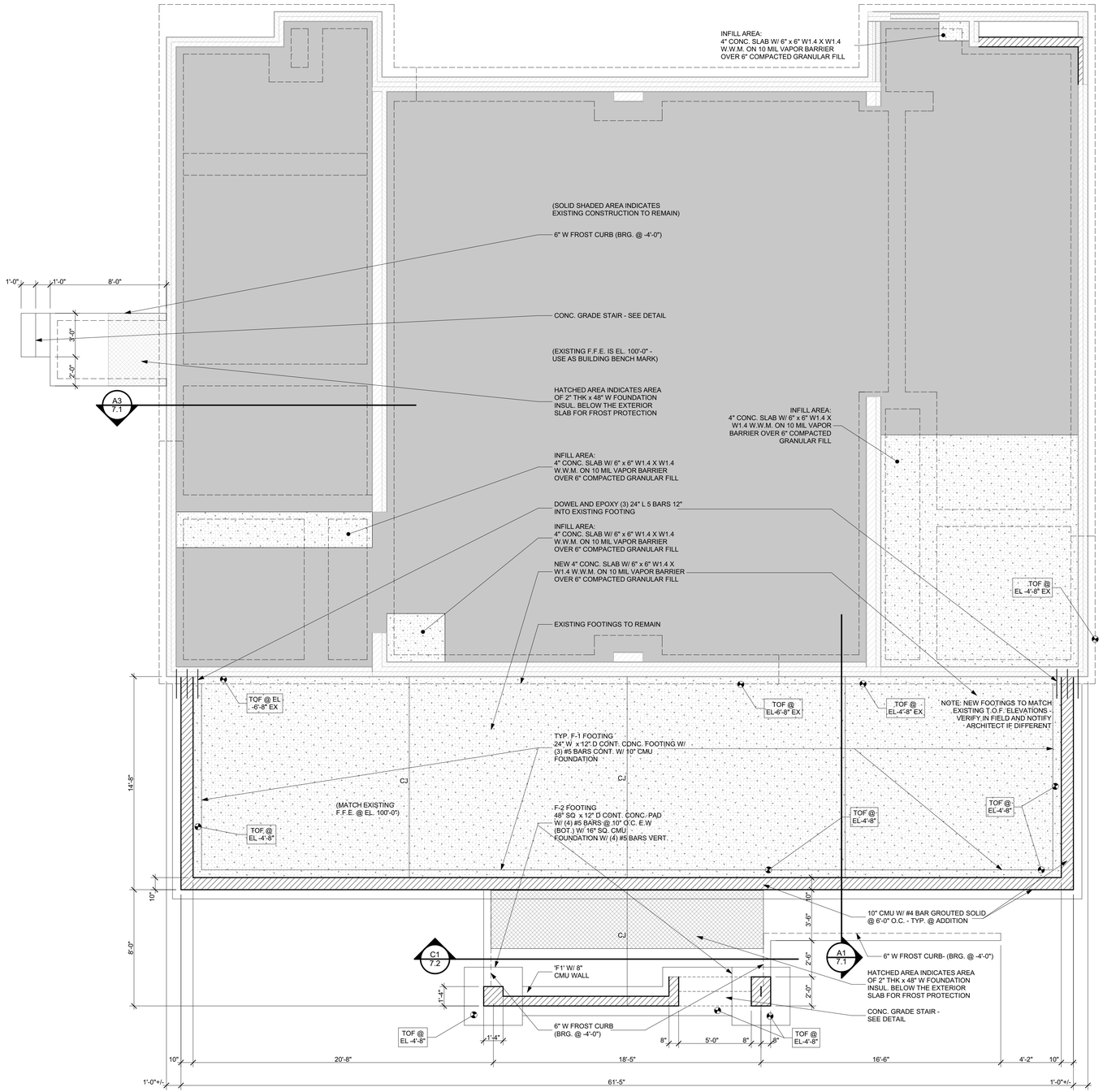
Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 2018 APRIL 12

DEMOLITION PLAN AND NOTES

2.1



A2 FOUNDATION PLAN

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

STRUCTURAL DESIGN LOADS:

1. FLOOR LIVE LOADS
   A. MECHANICAL ATTIC - 25 PSF (UNOCCUPIED)
   b. FLOOR LIVE LOAD - 100 PSF

2. ROOF LIVE LOAD - 20 PSF (EXCLUDING DRIFT LOADS)
   A. Pg - 20 PSF
   B. Pf - 17 PSF
   C. Ce - 1.0
   D. Is - 1.2
   E. Ct - 1.0
   F. DRIFT : N/A

3. ULTIMATE DESIGN WIND SPEED - 120 MPH
   A. RISK cATOGORY - IV
   B. WIND EXPOSURE - B
   C. WIND OCCUPANCY CATAGORY - II
   D. INTERNAL PRESSURE COEFFICIENT - +/- 0.18
   E. DESIGN WIND PRESSURE
      WALLS (NET): +21 PSF TYP. / +30 PSF END WALLS
      ROOF (UPLIFT): - 16 PSF TYP. / -20 PSF END ZONE
   F. COMPONENTS AND CLADDING:
      WALLS: +24 PSF / -31 PSF
      ROOF: +16 PSF / -37 PSF

4. SEISMIC EARTHQUAKE DATA
   A. SEISMIC IMPORTANCE FACTOR, Is = 1.5
   B. RISK CATAGORY: IV
   C. SPECTRAL RESPONSE ACCELERATIONS -
      Ss = 0.108
      St = 0.049
   D. SITE CLASS - D (ASSUMED)
   E. SPECTRAL RESPONSE COEFFICIENTS
      Sds = 0.115
      Sdi = 0.78
   F. SEISMIC DESIGN CATEGORY - B
   G. BASIC SEISMIC FORCE RESISTING SYSTEM
      **MASONRY AND WOOD SHEAR WALLS
   H. DESIGN BASE SHEAR = 15 K (SERVICE LEVEL, ENTIRE BUILDING)
   I. SEISMIC RESPONSE COEFFICIENT, Cs = 0.09
   J. RESPONSE MODIFICATION FACTOR, R = 2
   K. ANALYSIS PROCEDURE - EQUIVALENT LATERAL FORCE

CONCRETE NOTES

1. SPECIFICATIONS COMPLY WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS." ACI-318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."

2. MATERIALS
   A. CONCRETE STRENGTH AT 28 DAYS
      1. FOOTINGS, INTERIOR SLABS, CORE FILL: - 3000 PSI
      2. EXTERIOR SLABS ON GRADE: - 4000 PSI
   B. ALL DEFORMED REINFORCING BARS -
      FY = 60,000 PSI UNLESS NOTED OTHERWISE, (ASTM A615)
   C. ALL WELDED WIRE FABRICS -
      FY = 60,000 PSI UNLESS NOTED OTHERWISE, (ASTM A185)

3. FOOTINGS, PEDESTALS & WALLS:
   A. USE SHEETS OF MESH OR SLABS ON GRADE, PLACED WHERE SHOWN ON DRAWINGS
   B. IF ANY OPENING NOT SHOWN ON THE PLANS IS REQUIRED, SECURE APPROVAL OF STRUCTURAL ENGINEER BEFORE PROCEEDING
   C. REINFORCING STEEL - REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED PER ACI MANUAL 315.74.

4. ALL EXTERIOR CONCRETE TO BE AIR ENTRAINED.

CONCRETE / FOUNDATION NOTES

1. ALL NEW BUILDING FOUNDATIONS SHALL BEAR ON FIRM UNDISTURBED SOIL WITH AN ALLOWABLE SOIL BEARING PRESSURE EQUAL TO OR GREATER THAN 2,500 PSF AND SOIL 'CLASSIFICATION IS 'D'. ALL FILL SHALL BE PLACED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SOILS ENGINEER. THE SOILS ENGINEER SHALL SUBMIT A SEALED COPY OF ALL FOUNDATION SOIL BEARING TESTS TO THE OWNER AND ARCHITECT. SOIL BEARING TESTS SHALL ALSO BE FORWARDED TO THE LOCAL BUILDING DEPARTMENT OFFICAL BY THE CONTRACTOR OR TESTING AGENCY ASSIGNED TO THIS PROJECT.

2. THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE PLACED A MINIMUM OF 3'-6" BELOW FINISHED GRADE.

3. IF REQUIRED, FOOTINGS SHALL BE STEPPED AT A MAXIMUM OF 2 HORIZONTAL TO 1 VERTICAL WITH A MAXIMUM VERTICAL STEP OF 2'-0".

4. FILL BEHIND AND BELOW THE FOUNDATION WALLS AND BELOW SLABS SHALL BE ENGINEERED FILL. USE WELL GRADED GRANULAR FILL..

5. FOOTINGS, PEDESTALS, & WALLS
   A. DOWEL IN FOOTINGS TO MATCH VERTICAL PIER COLUMN OR WALL REINFORCING UNLESS NOTED OTHERWISE.
   B. PROVIDE CORNER BARS AT WALL, GRADE BEAM AND FOOTING CORNERS TO MATCH HORIZONTAL AND LONGITUDINAL REINFORCING MINIMUM LENGTH OF EACH LEG TO BE 45 X BAR DIAMETER (UNLESS NOTED OTHERWISE).
   C. ALL SPLICES IN REINFORCING STEEL SHALL BE GOVERNED BY CHAPTER 12 ACI-318.

6. FULLY GROUT MASONRY CORES SOLID AROUND ALL ANCHOR BOLTS, EMBEDDED STEEL AND REINFORCING.

7. ALL MASONRY FOUNDATION WALL THICKNESSES ARE NOTED ON THE FOUNDATION PLAN.

8. PROTECT ADJACENT CONSTRUCTION MATERIALS TO REMAIN DURING FOUNDATION WORK - TYP.

9. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
   A. ALL CAST-IN-PLACE WALL FOOTINGS - 3 INCHES
   B. ALL CAST-IN-PLACE PIERS - 2 INCHES

SPECIAL TESTING:

1. THE OWNER SHALL RETAIN AN INDEPENDENT TESTING COMPANY THAT IS CERTIFIED/LICENSED IN THE JURISDICTION HAVING AUTHORITY IN THEIR RESPECTIVE FIELD TO TEST DESIGNATED ITEMS. THE CONTRACTOR SHALL COORDINATE AND ASSIST THE INSPECTORS, NOTIFYING THEM WHEN WORK IS TO BE PERFORMED. FAILURE TO COORDINATE INSPECTIONS IN A TIMELY MANNER WILL RESULT IN THE CONTRACTOR HAVING TO PAY SPECIAL POST INSTALLATION TESTS OR THE REMOVAL AND REPLACEMENT OF UNTESTED CONSTRUCTION.

2. THE TESTING COMPANY SHALL SUBMIT THEIR CERTIFICATION IN THEIR RESPECTIVE FIELDS TO THE BUILDING DEPARTMENT. THE TESTING COMPANY SHALL SUBMIT ALL REPORTS TO THE ARCHITECT AND TO THE BUILDING DEPARTMENT. REPORT THE TYPE OF TEST, TESTING/INSPECTION PERIOD, DATE OF TEST/SAMPLE, DESIGN CRITERIA, SPECIAL CONDITIONS, TESTING/INSPECTION RESULTS, INSPECTION COMPANY AND NAME OF THE INSPECTOR. REPORT ALL NON-COMPLIANT RESULTS TO THE ARCHITECT.

3. THE TESTING COMPANY SHALL USE THE STATE OF OHIO DEPARTMENT OF COMMERCE INDUSTRIAL COMPLIANCE 'SPECIAL INSPECTIONS STATEMENT' AND 'SPECIAL INSPECTIONS FINAL REPORT" DOCUMENTS TO SUBMIT THEIR INFORMATION AND FINDINGS TO THE BUILDING DEPARTMENT.

3. SCHEDULE OF TESTS:
   A. SOILS TESTING: PERIODIC TESTING
      (1) (2 TOTAL) AT OUTSIDE CORNERS OF ADDITION AT FOOTING BEARING ELEVATION
      BEARING CAPACITY, GRADATION/TYPE, WATER TABLE, MOISTURE CONTENT.
      (1) 10' DEEP TEST HOLE 10' FROM BUILDING LINE
      GRADATION/TYPE, WATER TABLE, MOISTURE CONTENT.
   B. CONCRETE TESTING: PERIODIC TESTING
      FOR FOOTINGS AND SLABS AT END OF EACH TRUCK LOAD
      SLUMP, COMPRESSIVE BREAKS AT 7, 14, AND 27 DAYS, REVIEW
      DELIVERY DOCUMENTATION FOR COMPLIANCE PRIOR TO PLACEMENT
      REINFORCING PLACEMENT, INSULATION AND VAPOR BARRIER PLACEMENT,
      POST CURING, LEVELNESS, MOISTURE CONTENT.

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STATE OF OHIO DOMENIC FERRANTE 12906 REGISTERED ARCHITECT

Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

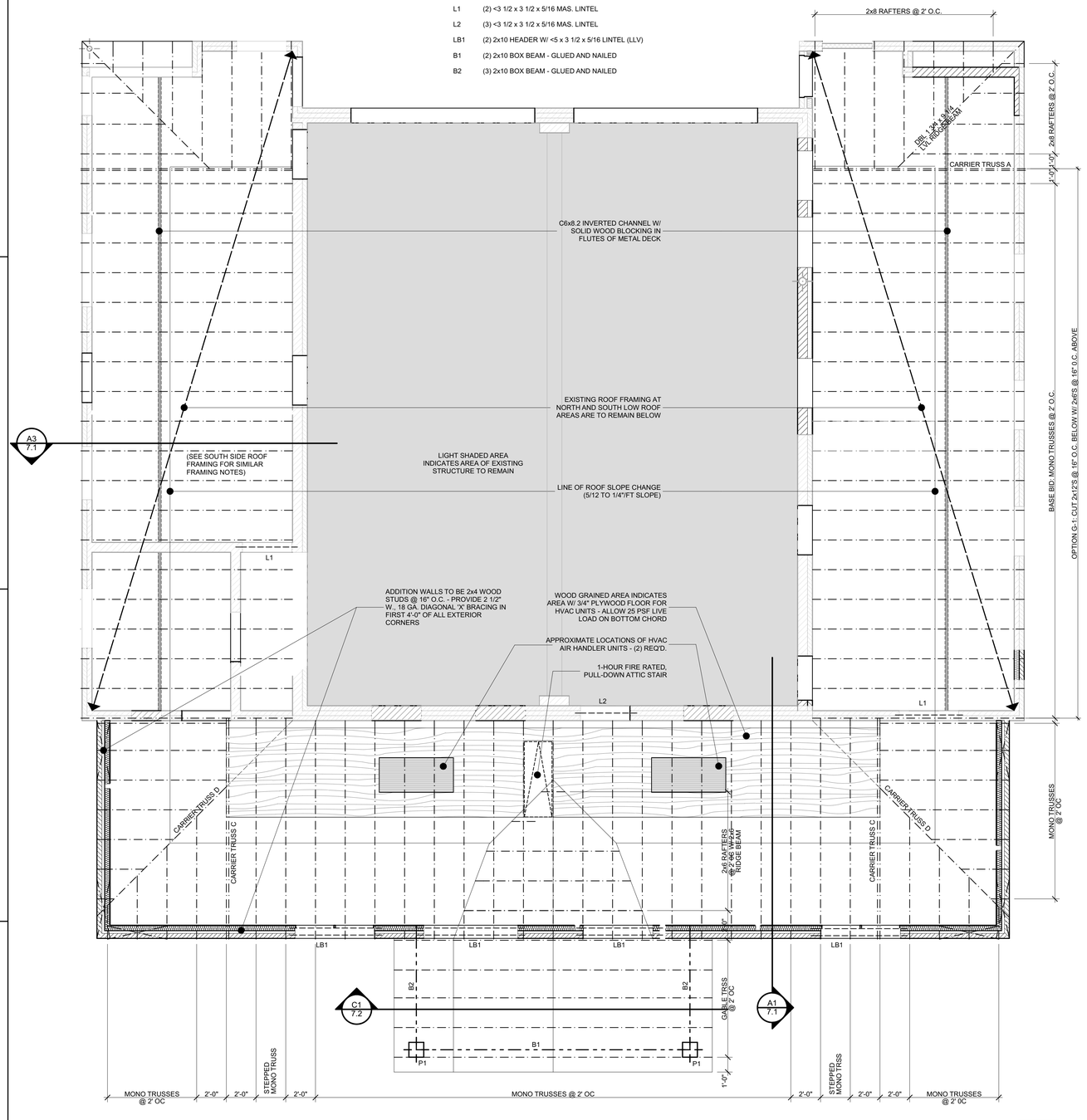
PROJECT NO: 16.115
DATE: 2018 APRIL 12

FOUNDATION PLAN AND NOTES

3.1

FRAMING LEGEND

P1	8x8 BUILT-UP WOOD POST - GLUED AND NAILED W/ SIMPSON 'PPBZ' GALV. PORCH POST ANCHOR
L1	(2) <3 1/2 x 3 1/2 x 5/16 MAS. LINTEL
L2	(3) <3 1/2 x 3 1/2 x 5/16 MAS. LINTEL
LB1	(2) 2x10 HEADER W/ <5 x 3 1/2 x 5/16 LINTEL (LLV)
B1	(2) 2x10 BOX BEAM - GLUED AND NAILED
B2	(3) 2x10 BOX BEAM - GLUED AND NAILED



A2 ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

STRUCTURAL STEEL NOTES:

1. COORDINATE WORK WITH OTHER TRADES.
2. ALL WORK SHALL COMPLY WITH ALL NATIONAL, STATE, AND LOCAL CODES AND REQUIREMENTS
3. IT IS SOLELY THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION
4. USE THE STRUCTURAL DRAWINGS IN CONNECTION WITH THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
5. ALL STEEL FRAMING WORK IS TO BE COMPLETED IN ACCORDANCE WITH INDUSTRY STANDARDS AND IN A QUALITY CRAFTSMEN-LIKE MANNER.
6. ALL STRUCTURAL STEEL SHAPES, PLATES AND BARS (EXCLUDING W SHAPES) SHALL COMPLY WITH ASTM A36, USE GRADE 50 STEEL FOR W SHAPES, AS PER ASTM A992.
7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND DETAILING PRACTICES OUTLINED IN THE LATEST EDITION OF THE AISC "MANUAL OF STEEL CONSTRUCTION".
8. ALL CONNECTIONS SHALL BE ADQUATE TO SUPPORT THE MAXIMUM UNIFORM LOAD CAPACITY OF THE BEAM FOR THE SHAPE, SPAN AND SIZE SPECIFIED. USE ASTM A325 OR A490 BOLTS.
9. STEEL JOISTS SHALL COMPLY WITH THE LATEST STEEL JOIST INSTITUTE (SJI) "SPECIFICATIONS".

PREFABRICATED WOOD TRUSSES:

1. MANUFACTURED PER DESIGNS PREPARED BY REGISTERED ENGINEERS FOR SPANS INDICATED. TRUSSES SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE FOLLOWING TRUSS PLATE INSTITUTE (TPI) PUBLICATION "DESIGN SPECIFICATION FOR METAL PLATE-CONNECTED WOOD TRUSS", "DESIGN SPECIFICATIONS FOR METAL PLATE CONNECTED PARALLEL CHORD 4 x 2 WOOD TRUSSES", AND ACCEPTED ENGINEERING PRACTICE. ERECTION SHALL BE IN ACCORDANCE WITH "QUALITY CONTROL MANUAL FOR LIGHT METAL PLATE CONNECTED WOOD TRUSSES". CONNECTOR PLATES, TO BE GRADE A, HOT DIPPED GALVANIZED STEEL PER ASTM SPECIFICATION A446 GRADE A, COATING G60.
2. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS SHOWING SPECIES, SIZES AND STRESS GRADES OF LUMBER TO BE USED; PITCH, SPAN, CAMBER, CONFIGURATION AND SPACING FOR EACH TYPE OF TRUSS REQUIRED; TYPE, SIZE MATERIAL, FINISH DESIGN VALUE, AND LOCATION OR METAL CONNECTOR PLATES; AND BEARING AND ANCHORAGE DETAILS.
3. TO THE EXTENT ENGINEERING DESIGN CONSIDERATIONS ARE INDICATED AS FABRICATOR'S RESPONSIBILITY, SUBMIT DESIGN ANALYSIS AND TEST REPORTS INDICATING LOADING, SECTION MODULUS, ASSUMED ALLOWABLE STRESS, STRESS DIAGRAMS AND CALCULATIONS, AND SIMILAR INFORMATION NEEDED FOR ANALYSIS AND TO ENSURE THAT TRUSSES COMPLY WITH REQUIREMENTS.
4. PROVIDE SHOP DRAWINGS WHICH HAVE BEEN SIGNED AND STAMPED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE WHERE THE PROJECT IS LOCATED.
5. ROOF SHEATHING:
   1/2" NOMINAL OSB OR 1/2" CDX PLYWOOD. PROVIDE CLIPS.
6. WOOD FRAMING SHALL BE DESIGNED AS PER AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE OHIO BUILDING CODE. ALL FRAMING LUMBER SHALL BE CONSTRUCTION GRADE OR BETTER.
7. PROVIDE CONTINUOUS ROWS OF CROSS BRIDGING AT BOTTOM AND TOP CHORD OF RAFTERS AT 8'-0" O.C. MAX. PROVIDE TRUSS BRIDGING PER TRUSS MANUFACTURER DESIGN REQUIREMENTS.
8. WOOD TRUSS DESIGN INFORMATION:
   TOP CORD: 10 PSF (DEAD LOAD)
   20 PSF (LIVE LOAD)
   BOTTOM CORD: 10 PSF (DEAD LOAD)
   25 PSF (LIVE LOAD AT ADDITION)

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STATE OF OHIO DOMENIC FERRANTE 12906 REGISTERED ARCHITECT
DOMENIC FERRANTE LICENSE #12906
EXPIRES 12/31/2017

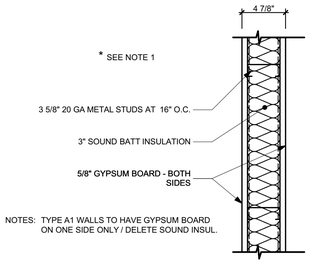
Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 2018 APRIL 12

ROOF FRAMING PLAN AND NOTES

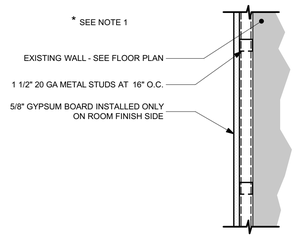
3.2



NOTES: TYPE A1 WALLS TO HAVE GYPSUM BOARD ON ONE SIDE ONLY / DELETE SOUND INSUL.

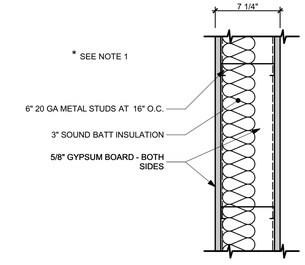
NOTES: -ALL NEW WALLS TO EXTEND TO BOTTOM OF EXISTING ROOF DECK IN EXISTING AREA
-ALL NEW WALLS TO EXTEND TO BOTTOM OF NEW GYPSUM BOARD CEILING IN ADDITION
- USE TILE BACKER BOARD IN LIEU OF GYPSUM BOARD FULL-HEIGHT ON ALL RESTROOM FACES OF STUD WALLS.

WALL TYPE WA



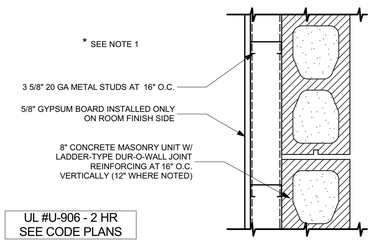
NOTES: -ALL NEW WALLS TO EXTEND TO BOTTOM OF EXISTING ROOF DECK IN EXISTING AREA
-ALL NEW WALLS TO EXTEND TO BOTTOM OF NEW GYPSUM BOARD CEILING IN ADDITION
- USE TILE BACKER BOARD IN LIEU OF GYPSUM BOARD FULL-HEIGHT ON ALL RESTROOM FACES OF STUD WALLS.

WALL TYPE WE



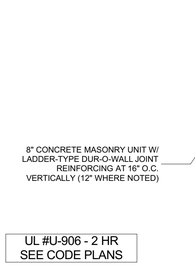
NOTES: -ALL NEW WALLS TO EXTEND TO BOTTOM OF EXISTING ROOF DECK IN EXISTING AREA
-ALL NEW WALLS TO EXTEND TO BOTTOM OF NEW GYPSUM BOARD CEILING IN ADDITION
- USE TILE BACKER BOARD IN LIEU OF GYPSUM BOARD FULL-HEIGHT ON ALL RESTROOM FACES OF STUD WALLS.

WALL TYPE WB



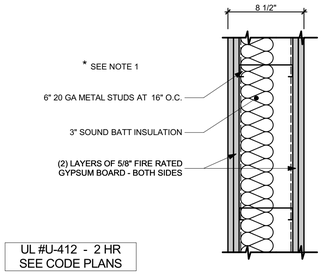
NOTES: -ALL NEW WALLS TO EXTEND TO BOTTOM OF FIRE RATED CONSTRUCTION ABOVE

WALL TYPE WF



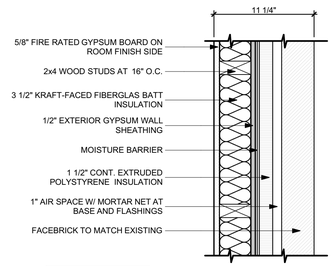
NOTES: -ALL NEW WALLS TO EXTEND TO BOTTOM OF EXISTING ROOF DECK OR MASONRY OPENING IN EXISTING AREA

WALL TYPE WC



NOTES: -ALL NEW WALLS TO EXTEND TO BOTTOM OF EXISTING ROOF DECK IN EXISTING AREA
- USE FIRE RATED TILE BACKER BOARD IN LIEU OF GYPSUM BOARD ON RESTROOM FACES OF STUD WALLS WHERE CERAMIC TILE IS INSTALLED.

WALL TYPE WG



WALL TYPE WD

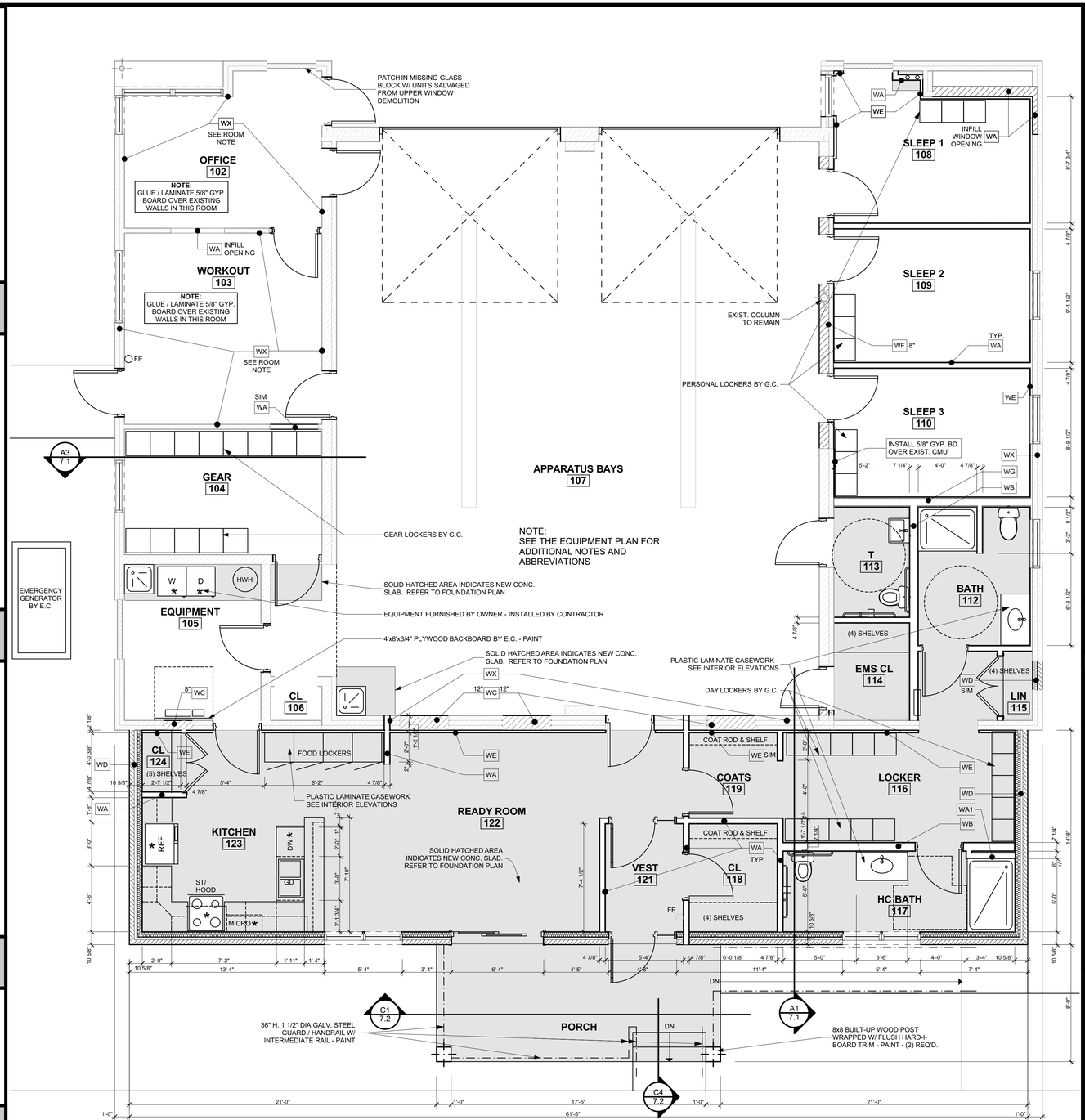
'WX' INDICATES EXISTING WALL TO REMAIN

WALL TYPE WX

NOTE1: IT IS THE CONTRACTOR'S OPTION TO USE METAL STUDS OR COMPARABLE WOOD STUDS FOR INTERIOR WALL FRAMING AND FURRING

NOTE 2: PATCHAND REPAIR EXISTING PLASTER TO REMAIN SO THAT IT CAN BE PAINTED - PROVIDE ALLOWANCE FOR 200 S.F. OF PLASTER PATCHING IN THE BASE BID

WALL NOTES



A1 FLOOR PLAN
SCALE: 1/4" = 1'-0"

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STATE OF OHIO
DOMENIC FERRANTE
12906
REGISTERED ARCHITECT

DOMENIC FERRANTE LICENSE # 12906
DATE LICENSED: 2/28/2006

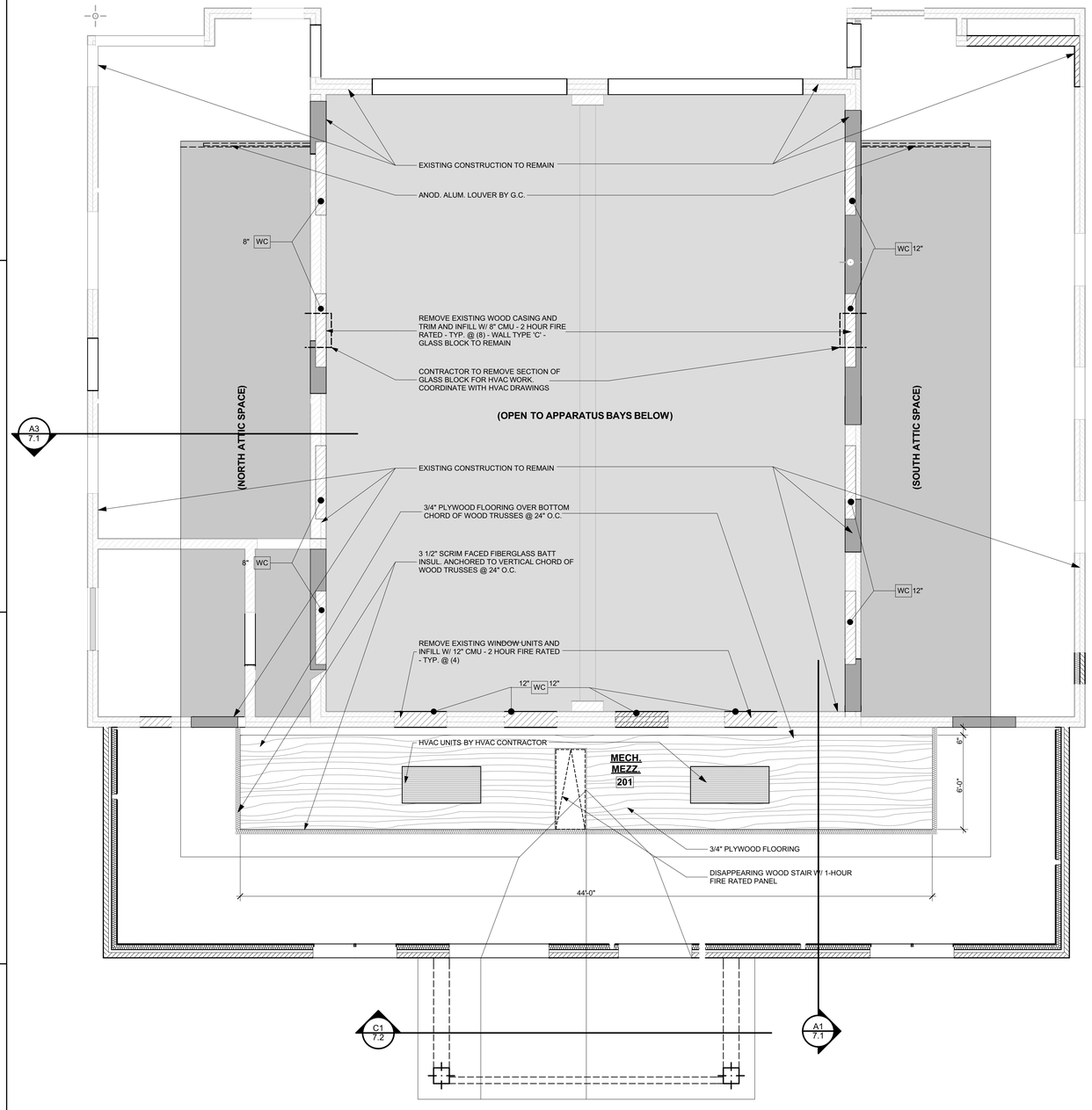
Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 2018 APRIL 12

FLOOR PLAN AND NOTES

4.1



A2 ATTIC PLAN

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

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STATE OF OHIO
DOMENIC FERRANTE
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REGISTERED ARCHITECT
DOMENIC FERRANTE LICENSE #12906
EXPIRATION DATE 12/31/2017

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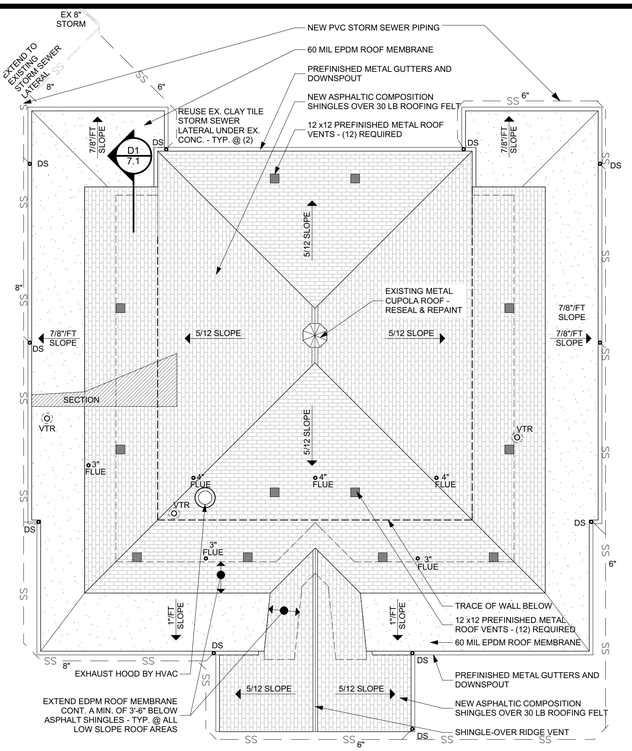
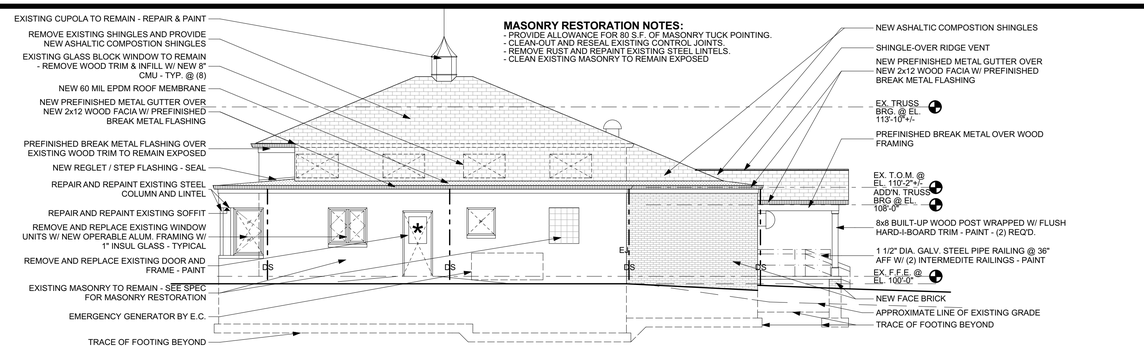
ATTIC PLAN

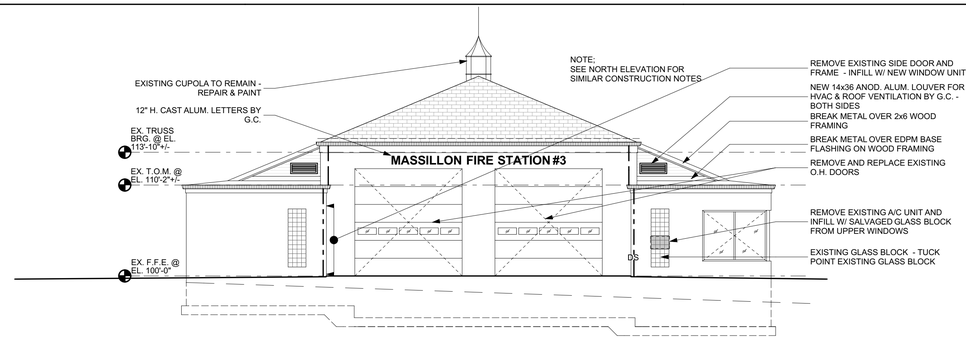
4.2



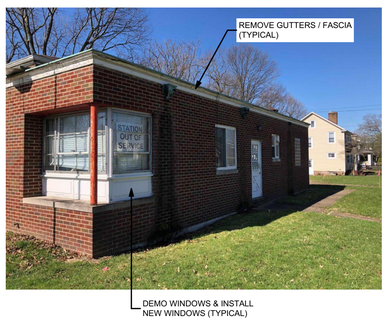
C4 ROOF PLAN
SCALE: 1/8" = 1'-0"

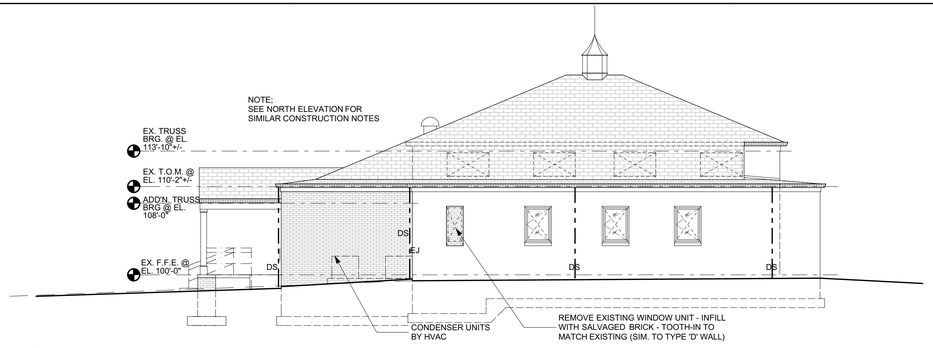


D1 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

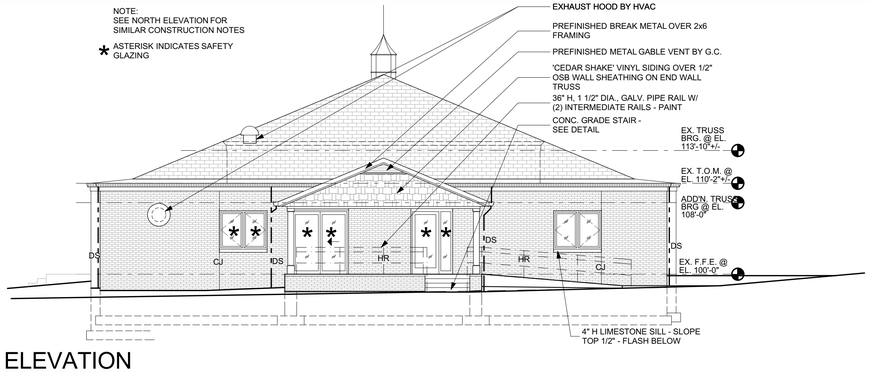


C1 EAST ELEVATION
SCALE: 1/8" = 1'-0"





B1 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



A1 WEST ELEVATION
SCALE: 1/8" = 1'-0"

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DOMENIC FERRANTE
12906
REGISTERED ARCHITECT
DOMENIC FERRANTE LICENSE #12906
DATE: 2018 APRIL 12

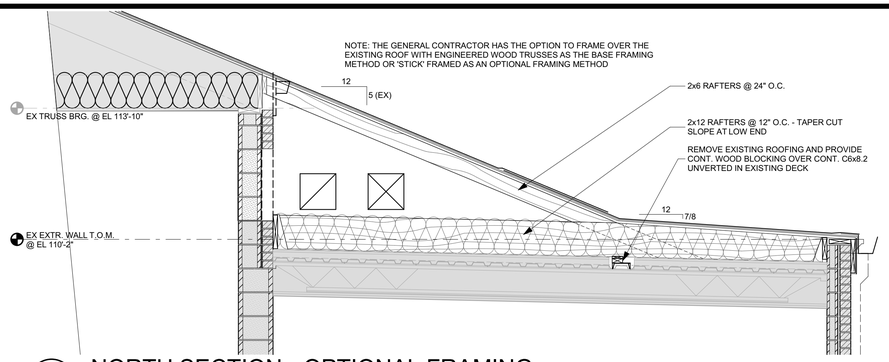
Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 2018 APRIL 12

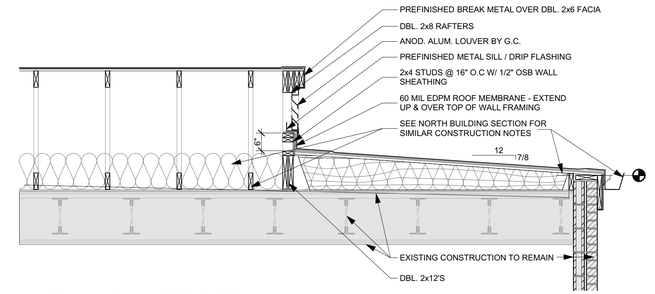
EXTERIOR ELEVATIONS & ROOF PLAN

5.1



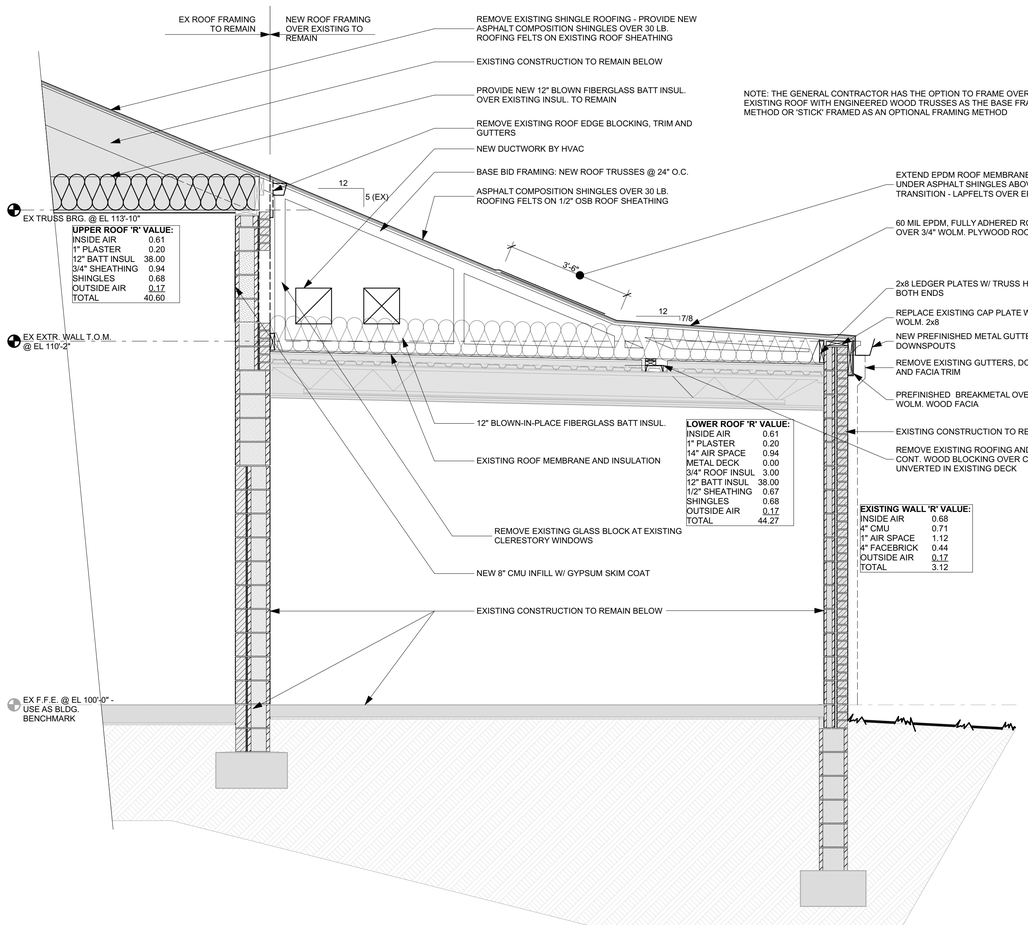
D3 NORTH SECTION - OPTIONAL FRAMING

SCALE: 1/2" = 1'-0"



D1 LOUVER DETAIL

SCALE: 1/2" = 1'-0"



UPPER ROOF 'R' VALUE:

INSIDE AIR	0.61
1" PLASTER	0.20
12" BATT INSUL	38.00
3/4" SHEATHING	0.94
SHINGLES	0.68
OUTSIDE AIR	0.17
TOTAL	40.60

LOWER ROOF 'R' VALUE:

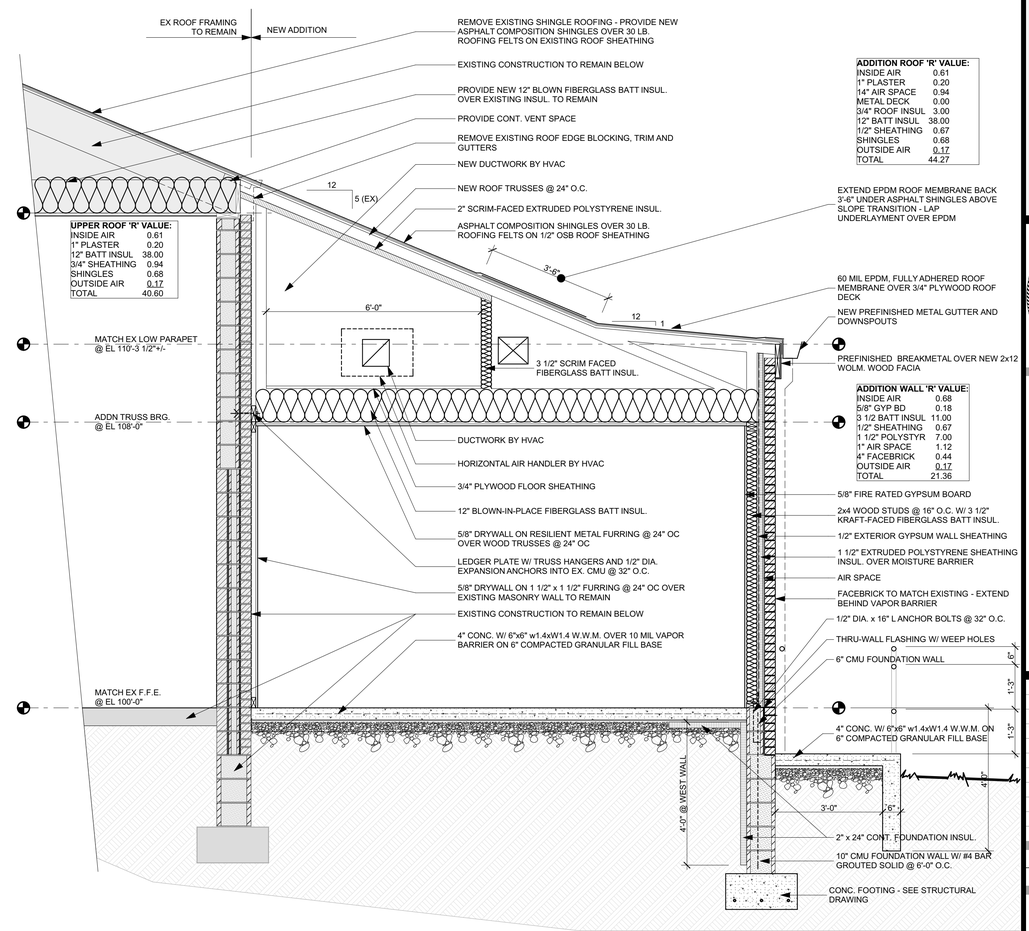
INSIDE AIR	0.61
1" PLASTER	0.20
14" AIR SPACE	0.94
METAL DECK	0.00
3/4" ROOF INSUL	3.00
12" BATT INSUL	38.00
1/2" SHEATHING	0.67
SHINGLES	0.68
OUTSIDE AIR	0.17
TOTAL	44.27

EXISTING WALL 'R' VALUE:

INSIDE AIR	0.68
4" CMU	0.71
1" AIR SPACE	1.12
4" FACEBRICK	0.44
OUTSIDE AIR	0.17
TOTAL	3.12

A3 NORTH SECTION - BASE FRAMING

SCALE: 1/2" = 1'-0"



ADDITION ROOF 'R' VALUE:

INSIDE AIR	0.61
1" PLASTER	0.20
14" AIR SPACE	0.94
METAL DECK	0.00
3/4" ROOF INSUL	3.00
12" BATT INSUL	38.00
1/2" SHEATHING	0.67
SHINGLES	0.68
OUTSIDE AIR	0.17
TOTAL	44.27

ADDITION WALL 'R' VALUE:

INSIDE AIR	0.68
5/8" GYP BD	0.18
3 1/2 BATT INSUL	11.00
1/2" SHEATHING	0.67
1 1/2" POLYSTYR	7.00
1" AIR SPACE	1.12
4" FACEBRICK	0.44
OUTSIDE AIR	0.17
TOTAL	21.36

A1 ADDITION SECTION

SCALE: 1/2" = 1'-0"

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LICENSE EXPIRES 12/31/2019

Addition and Remodeling for

MASSILLON FIRE STATION #3

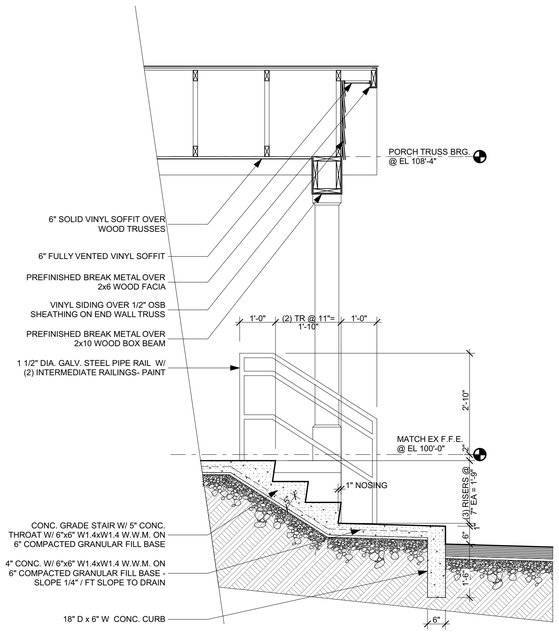
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

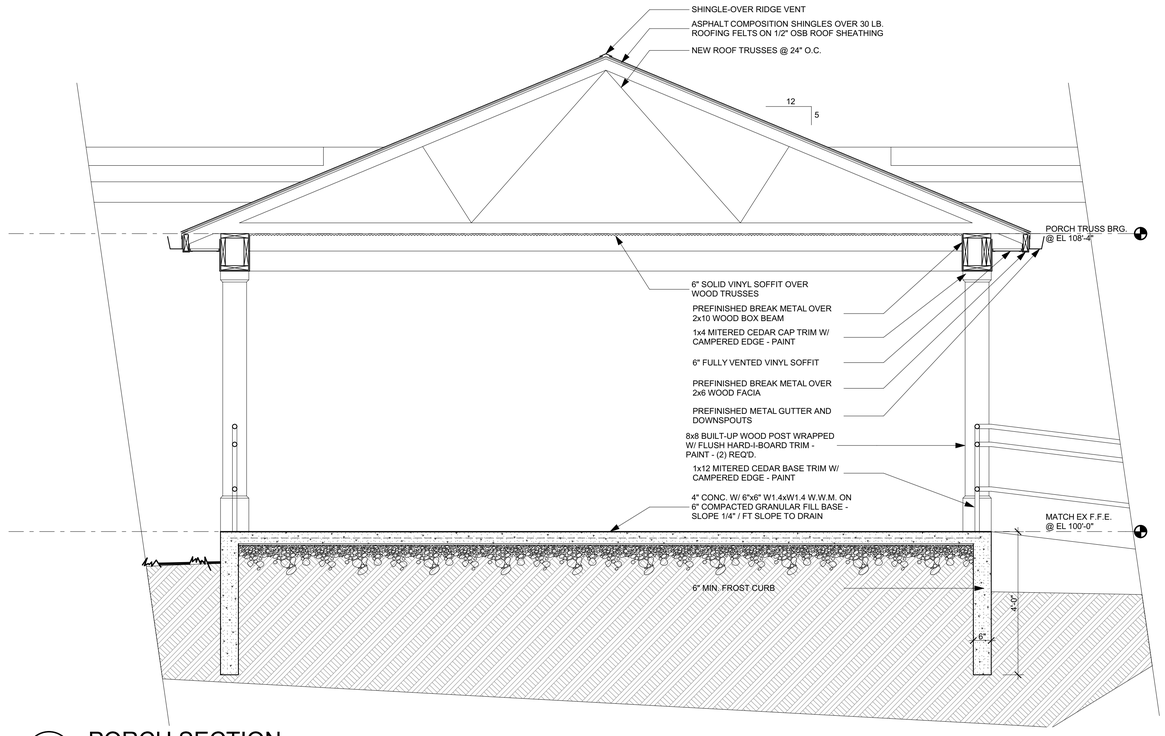
PROJECT NO: 16.115
DATE: 2018 APRIL 12

WALL / ROOF SECTIONS

7.1



C4 PORCH STAIR DETAIL
SCALE: 1/2" = 1'-0"



C1 PORCH SECTION
SCALE: 1/2" = 1'-0"

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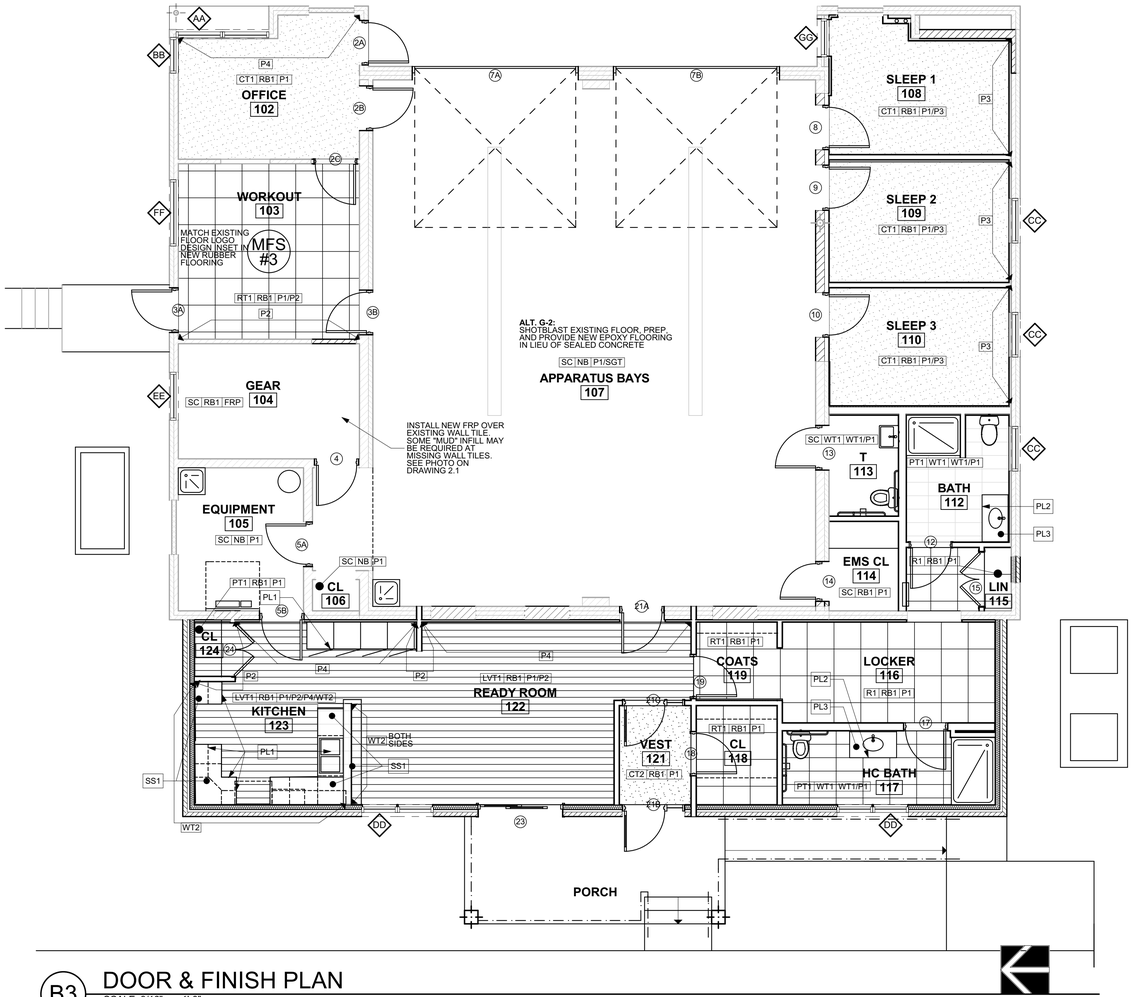
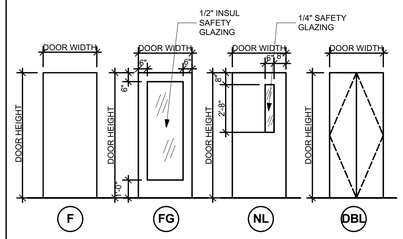
PORCH SECTIONS

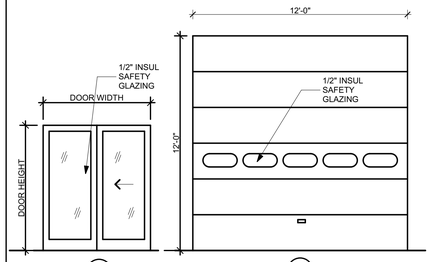
7.2



B3 DOOR & FINISH PLAN

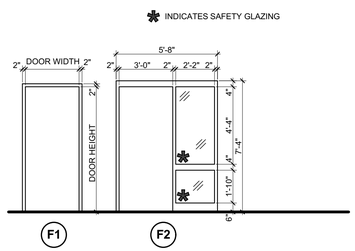
SCALE: 3/16" = 1'-0"





C2 DOOR TYPES

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



B2 FRAME TYPES

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

FINISH LEGEND

FLOOR FINISH / BASE MATERIAL / WALL FINISH — CT1 | RB1 | P1

** → INDICATES SPECIFIC FINISH TYPE

FLOOR

CODE	MANUFACTURER/STYLE	COLOR
CT1	MANNINGTON /24"X24" CIRCUIT	DIGITAL SIGNAL/13402
CT2	MANNINGTON / 24" X 24" RUFFIAN II	EBONY EARTH/ 1506
SC1	CONCRETE	COLOR NAME/NUMBER
RT1	JOHNSONITE / HAMMERED TEXTURED TILE	PEWTER/38
RT2	JOHNSONITE / HAMMERED TEXTURED TILE	PAPRIKA/148
PT1	DAL-TILE / FABRIC ART MODERN TEXTURE	BEIGE / MT51

BASE

CODE	MANUFACTURER/STYLE	COLOR
RB1	JOHNSONITE/ 4" BASEWORKS	38 PEWTER
TS1	TRANSITION STRIP (MATERIAL-MATERIAL)	COLOR NAME/NUMBER

WALL

CODE	MANUFACTURER/STYLE	COLOR
P1	SHERWIN-WILLIAMS (INTERIOR)	PURE WHITE/ SW7005
P2	SHERWIN-WILLIAMS (INTERIOR)	STOP/ SW 6869
P3	SHERWIN-WILLIAMS (INTERIOR)	SECURE BLUE/ SW6508
P4	SHERWIN-WILLIAMS (INTERIOR)	CADET/ SW9143
P5	ZOLATONE LLUMINATIONS (INTERIOR)	ZFX-5001
P6	SHERWIN-WILLIAMS (INTERIOR)	MISTY / SW6232
WT1	DAL-TILE / FABRIC ART MODERN TEXTURE	BEIGE/ MT51
WT2	CERAMIC TILE INTERNATIONAL: GLOSS	DAYLIGHT/ CTI EXDA
FRP	FIBERGLASS REINFORCED PANEL	TBD

SOLID SURFACE/PLASTIC LAMINATE

CODE	MANUFACTURER/STYLE	COLOR
PL1	WILSONART -TRACELESS FINISH	CHARCOAL VELVET/ 15504-31
PL2	WILSONART	LANDMARK WOOD/ 7981K-12
PL3	WILSONART	TBD
SS1	DUPONT CORIAN SOLID SURFACE	ANTARCTICA

GROUT

CODE	MANUFACTURER/STYLE	COLOR
G1	LATICRETE	39 MUSHROOM
G2	LATICRETE	18 SAUTERNE

GENERAL FINISH NOTES:

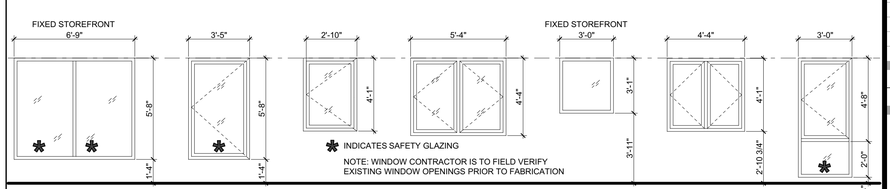
1. HOLLOW METAL DOORS SHALL BE PAINTED **P6** UNLESS NOTED OTHERWISE
2. HOLLOW METAL DOORS FRAMES SHALL BE PAINTED **P4**
3. CONTRACTOR IS RESPONSIBLE FOR FLOOR PREP/MOISTURE LEVELS PER MFG. REQUIREMENTS.
4. ALL MILLWORK & WALL LAMINATE PANELS BY MILLWORK CONTRACTOR
5. ALL SWITCH/FACE PLATES TO MATCH WALL PAINT WHERE INSTALLED; VERIFY WITH ARCHITECT BEFORE PURCHASE & INSTALLATION.
6. SEE REFLECTED CEILING PLAN FOR CEILING PAINT COLORS.
7. ALL EXPOSED STRUCTURAL STEEL, BEAMS, JOISTS, GIRTS, COLUMNS, BRACING, CONNECTIONS, ETC. TO BE PAINTED **P1**
6. ALL WINDOW SILLS SHALL BE SOLID SURFACE **SS1**
7. ALL PT1 AND WT1 TILE SHALL BE GROUTED WITH G1 GROUT COLOR.
8. ALL WT2 SHALL BE GROUTED WITH G2 COLOR.
7. **FOR EXCESS MATERIALS**: UPON COMPLETION, EACH RESPECTIVE CONTRACTOR SHALL LEAVE ALL WHOLE EXCESS MATERIAL AND REMNANTS AS INDICATED BELOW (IF APPLICABLE):
   - PAINT: ONE GALLON OF EACH COLOR AND TYPE
   - CARPET TILE: ALL LEFTOVER CARPET TILE
   - WALL TILE: ONE FULL CARTON
   - VINYL TILE FLOORING: ONE FULL CARTON AND ANY LEFTOVER TILE
   - CEILING TILE: ONE FULL CARTON OF EACH TYPE
   - HVAC UNIT FILTER: ONE FOR EACH UNIT
   - REPLACEMENT LAMPS: SEE ELECTRICAL DRAWINGS

   OTHER MATERIALS APPLICABLE TO PROJECT...

DOOR SCHEDULE

NO.	DOOR INFORMATION							HDWR	RATING	WALL THK.			FRAME			REMARKS
	H	W	T	TYPE	MAT.	FINISH	CORE			Header	Jamb	Sill	TYPE	MATL.	FINISH	
2A	6'-8"	3'-0"	0'-1 3/4"	NL	ALUM	ANOD	INSUL			9 3/4"	9 3/4"	*	F1	ALUM	ANOD	
2B	6'-8"	3'-0"	0'-1 3/4"	NL	HM	PAINT	HOLLOW		1 1/2 HR	12 3/4"	12 3/4"		F1	HM	PAINT	
2C	6'-8"	3'-0"	0'-1 3/4"	F	WOOD	PAINT	HOLLOW			5 3/4"	5 3/4"		F1	HM	PAINT	
3A	6'-8"	3'-0"	0'-1 3/4"	NL	ALUM	ANOD	INSUL			9 3/4"	9 3/4"	*	F1	ALUM	ANOD	
3B	6'-8"	3'-0"	0'-1 3/4"	F	HM	PAINT	HOLLOW		1 1/2 HR	12 3/4"	12 3/4"		F1	HM	PAINT	
4	7'-0"	3'-0"	0'-1 3/4"	NL	HM	PAINT	HOLLOW		1 1/2 HR	5 3/4"	5 3/4"		F1	HM	PAINT	
5A	6'-8"	3'-0"	0'-1 3/4"	F	HM	PAINT	HOLLOW		1 1/2 HR	9 3/4"	9 3/4"		F1	HM	PAINT	
5B	6'-8"	3'-0"	0'-1 3/4"	F	WOOD	PAINT	SOLID		1 1/2 HR	12 3/4"	12 3/4"		F1	HM	PAINT	
7A	12'-0"	12'-0"	0'-1 3/4"	OH	STEEL	PREFIN	INSUL			12"	12"		EX	STEEL	PAINT	REPLACE EXISTING
7B	12'-0"	12'-0"	0'-1 3/4"	OH	STEEL	PREFIN	INSUL			12"	12"		EX	STEEL	PAINT	REPLACE EXISTING
8	6'-7"	3'-0"	0'-1 3/4"	F	HM	PAINT	INSUL		1 1/2 HR	12 3/4"	12 3/4"		F1	HM	PAINT	
9	6'-7"	3'-0 ...	0'-1 3/4"	F	HM	PAINT	INSUL		1 1/2 HR	12 3/4"	12 3/4"		F1	HM	PAINT	
10	6'-7"	3'-0"	0'-1 3/4"	F	HM	PAINT	INSUL		1 1/2 HR	12 3/4"	12 3/4"		F1	HM	PAINT	
12	7'-0"	3'-0"	0'-1 3/4"	F	WOOD	STAIN	SOLID			12 3/4"	12 3/4"		F1	HM	PAINT	
13	6'-8"	3'-0"	0'-1 3/4"	F	HM	PAINT	INSUL		1 1/2 HR	12 3/4"	12 3/4"		F1	HM	PAINT	
14	6'-8"	2'-7 ...	0'-1 3/4"	F	HM	PAINT	HOLLOW		1 1/2 HR	12 3/4"	12 3/4"		F1	HM	PAINT	
15	7'-0"	4'-0"	0'-1 3/4"	DBL	WOOD	PAINT	HOLLOW			4 7/8"	4 7/8"		F1	WOOD	PAINT	PAIR OF DOORS
17	7'-0"	3'-0"	0'-1 3/4"	F	WOOD	PAINT	SOLID			7 5/8"	7 5/8"		F1	HM	PAINT	
18	7'-0"	3'-0"	0'-1 3/4"	F	WOOD	PAINT	SOLID			5 3/4"	5 3/4"		F1	HM	PAINT	
19	7'-0"	3'-0"	0'-1 3/4"	NL	WOOD	PAINT	SOLID			5 3/4"	5 3/4"		F1	HM	PAINT	
21A	7'-0"	3'-0"	0'-1 3/4"	NL	HM	PAINT	HOLLOW		1 1/2 HR	5 3/4"	5 3/4"		F1	HM	PAINT	
21B	7'-0"	3'-0"	0'-1 3/4"	FG	ALUM	ANOD	1/4" GLS			4 1/2"	4 1/2"		F2	ALUM	ANOD	
21C	7'-0"	3'-0"	0'-1 3/4"	FG	ALUM	ANOD	INSUL GLS			4 1/2"	4 1/2"	*	F2	ALUM	ANOD	
23	7'-0"	6'-0"	0'-1 3/4"	SL	ALUM	ANOD	INSUL			9 3/4"	9 3/4"		F1	WODD	PAINT	SLIDER
24	7'-0"	4'-0"	0'-1 3/4"	DBL	WOOD	PAINT	HOLLOW			4 7/8"	4 7/8"		F1	WOOD	PAINT	PAIR OF DOORS

NOTE:
CONTRACTOR TO FIELD VERIFY EXISTING DOOR OPENINGS PRIOR TO ORDERING NEW DOORS / FRAMES TO ENSURE THEY WILL FIT IN EXISTING OPENINGS



A1 WINDOW TYPES

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

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STATE OF OHIO — DOMENIC FERRANTE — 12906 — REGISTERED ARCHITECT

DOMENIC FERRANTE LICENSE #12906
DATE: 2018 APRIL 12

Addition and Remodeling for

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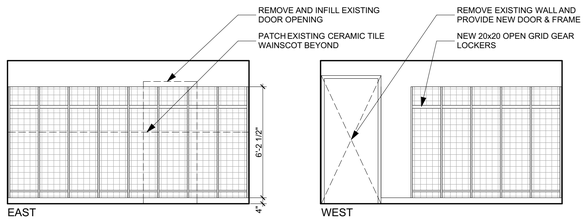
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

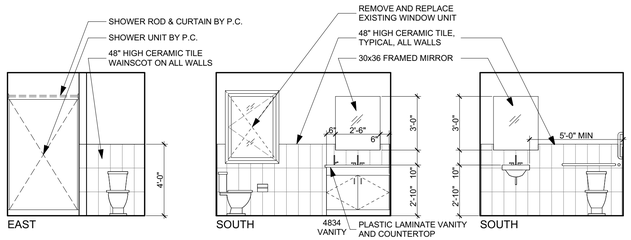
PROJECT NO: 16.115
DATE: 2018 APRIL 12

DOOR & FINISH PLANS & SCHEDULES

8.1

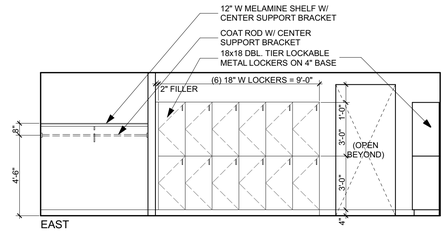


104 - GEAR ROOM

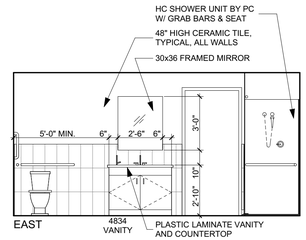


112 - BATH

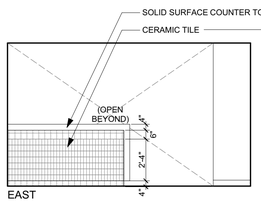
113 - TOILET



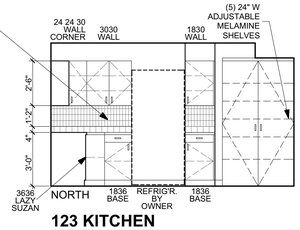
116 - LOCKER ROOM



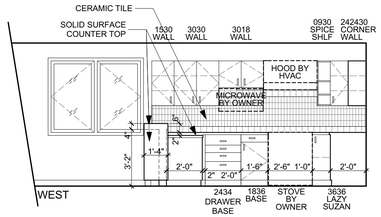
117 HC BATH

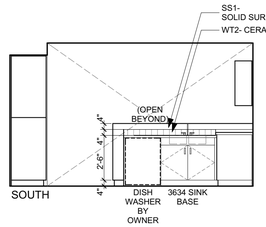


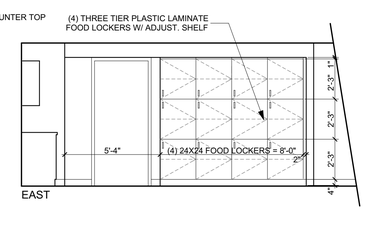
122 READY ROOM



123 KITCHEN







C1 INTERIOR ELEVATIONS

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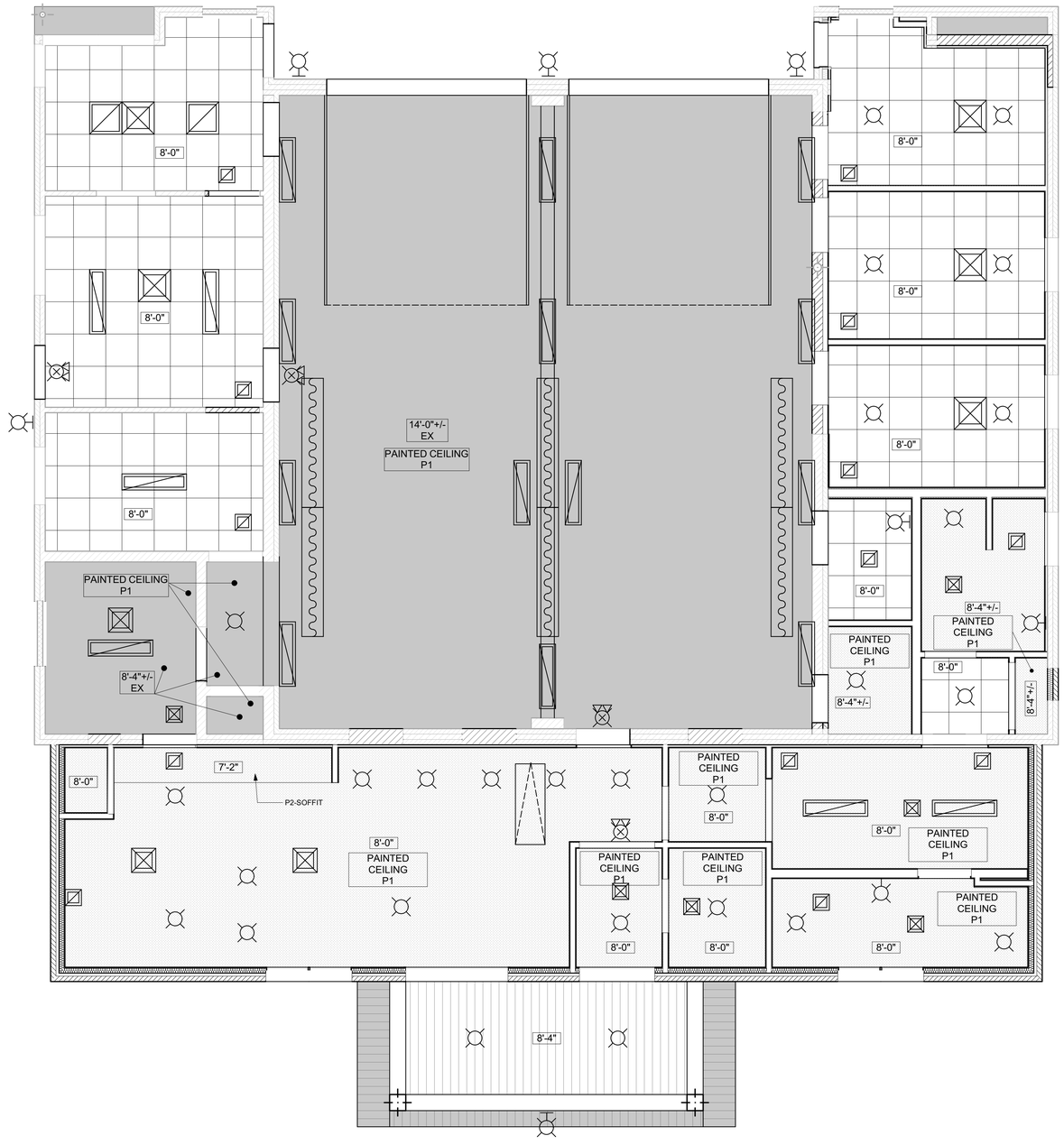
MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 2018 APRIL 12

INTERIOR ELEVATIONS

9.1



A2 REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

RCP LEGEND

- 2x2 LAY-IN ACOUSTICAL
- PAINTED DRYWALL(P1) - 1 HOUR RATED
- EXISTING PLASTER TO REMAIN (PATCH AND REPAIR)
- SOLID VINYL/ALUM. SOFFIT
- VENTED VINYL/ALUM. SOFFIT
- LIGHT FIXTURES BY E.C.
- RADIANT TUBE HEATERS BY HVAC
- RETURN AIR GRILL BY HVAC
- SUPPLY AIR DIFFUSER BY HVAC
- 1 HR FIRE RATED DISSAPPEARING STAIRS

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DOMENIC FERRANTE
REGISTERED ARCHITECT
12906
DOMENIC FERRANTE LICENSE #12906
EXPIRATION DATE 12/31/2017

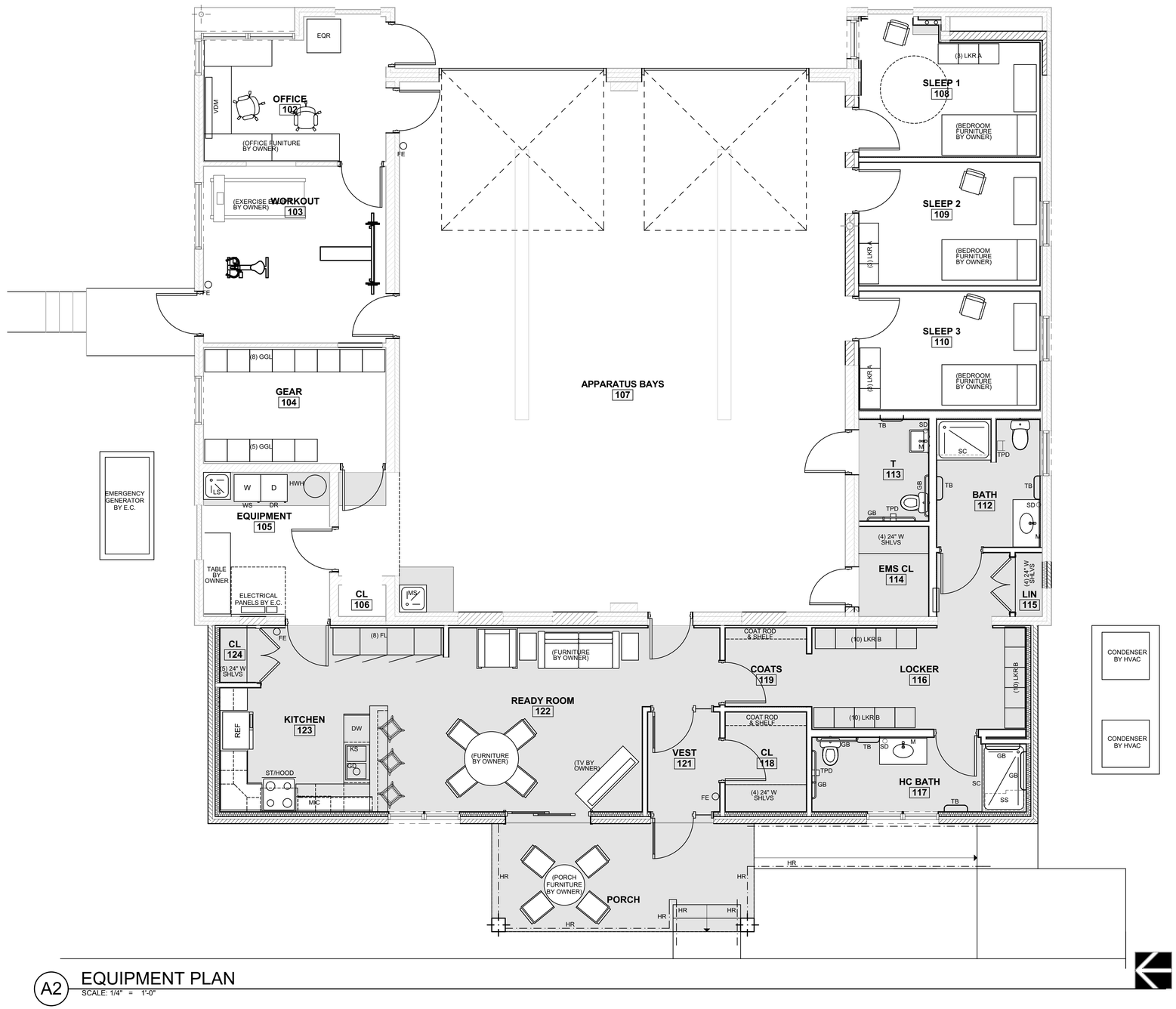
Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 2018 APRIL 12

REFLECTED CEILING PLAN

10.1



A2 EQUIPMENT PLAN
SCALE: 1/4" = 1'-0"

ABBREVIATIONS

DR	GAS CLOTHES DRYER - FURNISHED BY OWNER.
DW	DISH WASHER - FURNISHED BY OWNER.
EQR	SECURITY / DATA / COMM. EQUIPMENT RACK BY OTHERS
FE	10 LB ABC , WALL HUNG FIRE EXTINGUISHER
FL	24"x24", DOUBLE TIER, PLASTIC LAMINATE, LOCKABLE FOOD LOCKERS
GB	ADA COMPLAINT, S.S. GRAB BARS
GD	GARBAGE DISPOSAL BY P.C.
GGL	20"x20" SINGLE TIER MESH GEAR LOCKERS
HR	1 1/2" DIA. STEEL PIPE HANDRAIL / GAURDRAIL, 36" H, W/ INTERMEDIATE RAIL - PAINT
HWH	HOT WATER HEATER BY P.C.
KS	DOUBLE BOWL, S.S. KITCHEN SINK BY P.C.
LKR A	18"x18"x60" SINGLE TIER, LOCKABLE, METAL LOCKER ON 4" BASE
LKR B	18"x18"x60" DOUBLE TIER, LOCKABLE, METAL LOCKER ON 4" BASE
LS	LAUNDRY SINK BY P.C.
M	30" W x 36" H MIRROR W/ S.S. FRAME
MS	FLOOR MOUNTED MOP SINK BY P.C.
REF	REFRIGERATOR WITH ICE MAKER - FURNISHED BY OWNER.
SC	SHOWER CURTAIN AND ROD BY P.C.
SHLVS	3/4" FIXED, MELAMINE SHELVES
SS	ADA COMPLIANT PLASTIC SHOWER SEAT BY P.C.
ST	GAS STOVE BY OWNER W/ NFPA TYPE 2 EXHAUST HOOD W/ ANSUL FIRE SUPP. SYSTEM BY HVAC CONTACTOR
MIC	UNDER CABINET MOUNTED MICROWAVE - FURNISHED BY OWNER.
TB	24" W S.S. TOWEL BAR
TPD	TOILET PAPER DISPENSER
WS	CLOTHES WASHER - FURNISHED BY OWNER.
VDM	SECURITY, VIDEO DISPLAY MONITOR - FURNISHED AND INSTALLED BY OTHERS

NOTE: ALL WOOD SHELVING & COAT ROD / SHELF FURNISHED AND INSTALLED BY CONTRACTOR

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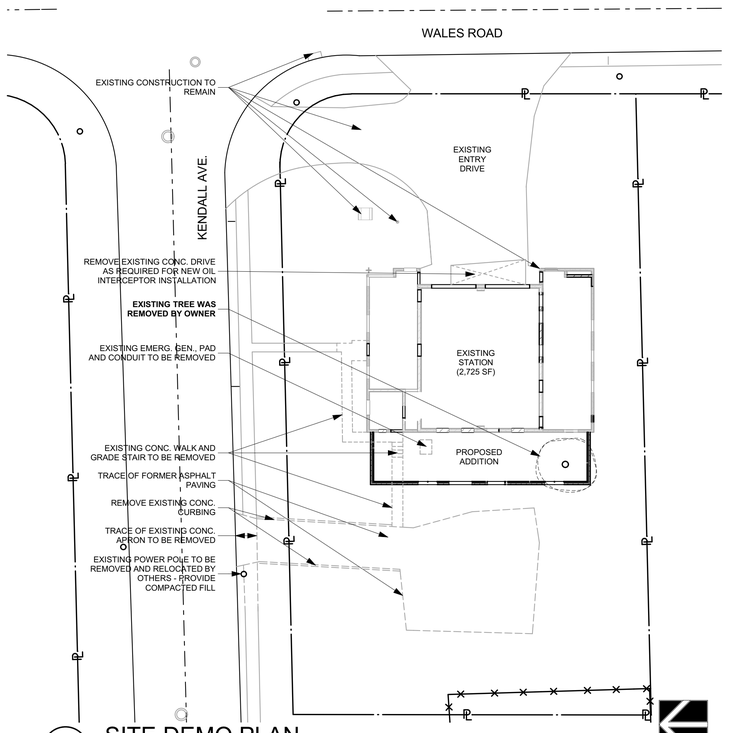
Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

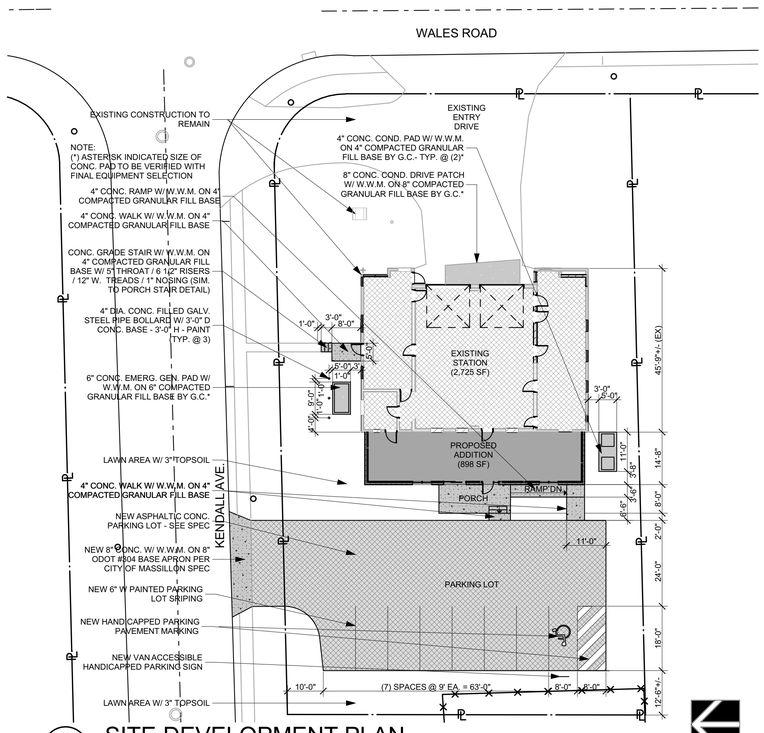
PROJECT NO: 16.115
DATE: 2018 APRIL 12

EQUIPMENT PLAN

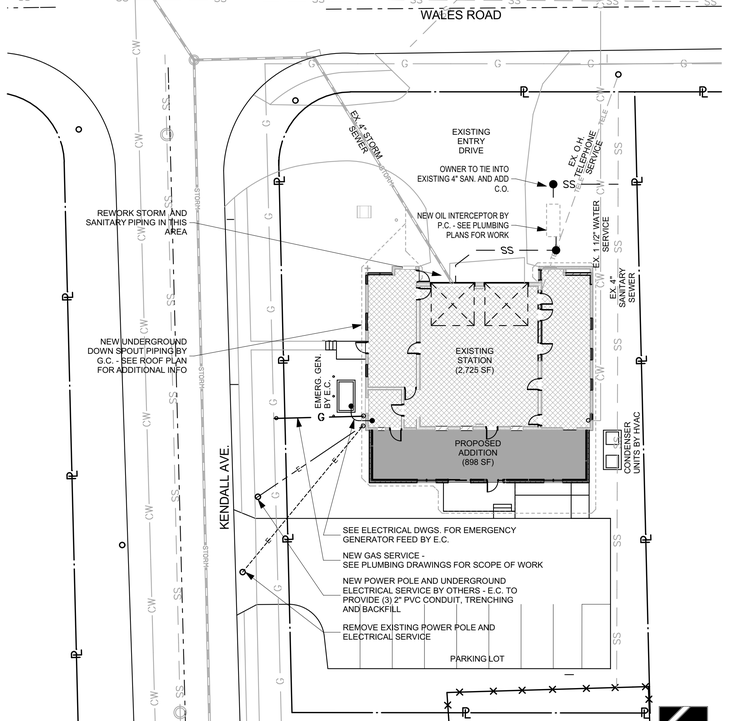
11.1



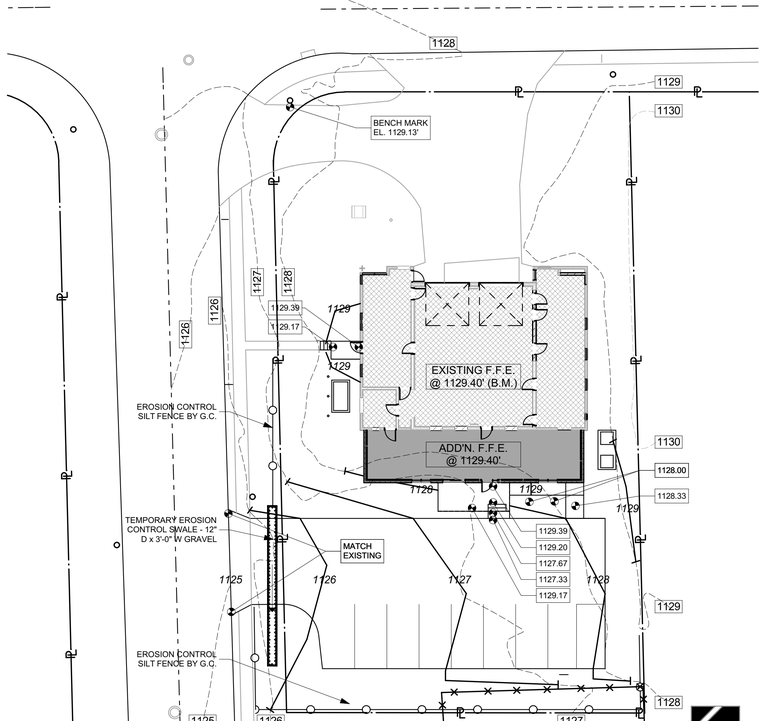
C4 SITE DEMO PLAN
SCALE: 1" = 20'



C2 SITE DEVELOPMENT PLAN
SCALE: 1" = 20'



A4 SITE UTILITY PLAN
SCALE: 1" = 20'



A2 SITE GRADING PLAN
SCALE: 1" = 20'

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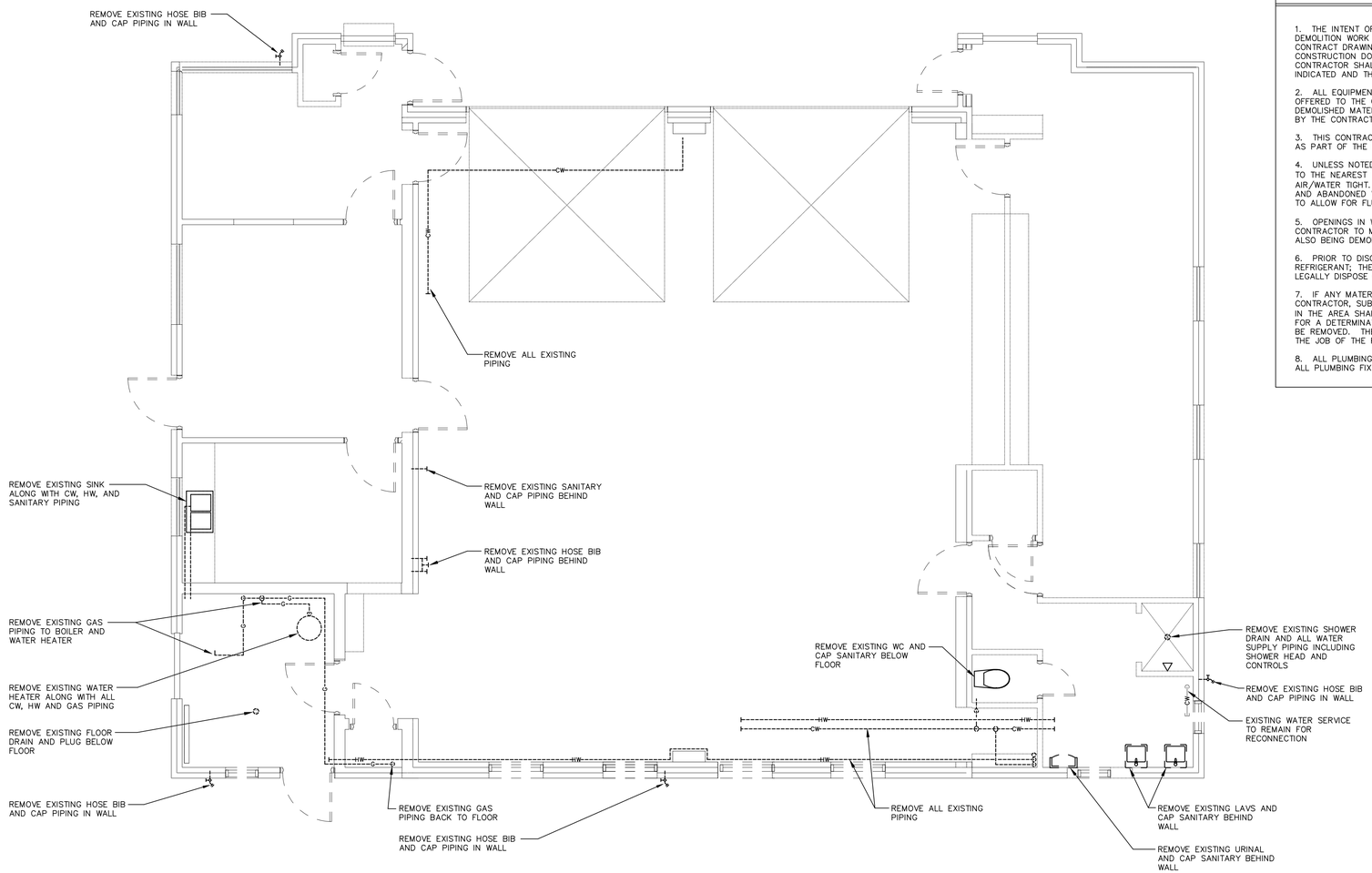
SITE PLANS

32.1



DEMOLITION - PLUMBING FLOOR PLAN

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

PLUMBING DEMOLITION NOTES

1. THE INTENT OF THE DEMOLITION NOTES AND DRAWINGS IS TO INDICATE THE SCOPE OF DEMOLITION WORK REQUIRED TO PERMIT THE INSTALLATION OF NEW WORK INDICATED ON THE CONTRACT DRAWINGS. THE DEMOLITION DRAWINGS ARE BASED ON THE ORIGINAL CONSTRUCTION DOCUMENTS AND MAY NOT REFLECT THE ACTUAL EXISTING CONDITIONS. THE CONTRACTOR SHALL COORDINATE DEMOLITION WORK REQUIRED WITH BOTH THE NEW WORK INDICATED AND THE ACTUAL FIELD CONDITIONS ENCOUNTERED.

2. ALL EQUIPMENT AND MATERIALS WHICH ARE INDICATED TO BE DEMOLISHED SHALL FIRST BE OFFERED TO THE OWNER FOR HIS RETENTION. IF THE OWNER DOES NOT WANT THE DEMOLISHED MATERIALS; THEY SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF BY THE CONTRACTOR.

3. THIS CONTRACTOR SHALL COORDINATE SHUTDOWN OF ANY MECHANICAL SYSTEMS REQUIRED AS PART OF THE DEMOLITION WORK WITH THE OWNER PRIOR TO INTERRUPTION OF SERVICES.

4. UNLESS NOTED OTHERWISE, PIPING INDICATED FOR DEMOLITION SHALL BE REMOVED BACK TO THE NEAREST MAIN. MAIN (OR OTHER NOTED TERMINATION POINT) SHALL BE CAPPED AIR/WATER TIGHT. PIPING WITHIN WALLS WHICH ARE TO REMAIN MAY BE CAPPED IN THE WALL AND ABANDONED WITHIN THE WALL. SERVICES MUST BE CAPPED FAR ENOUGH IN THE WALL TO ALLOW FOR FLUSH PATCHING AND FINISHING OF THE WALL.

5. OPENINGS IN WALLS FROM REMOVAL OF ANY PIPING SHALL BE REPAIRED/PATCHED BY THE CONTRACTOR TO MAINTAIN THE FIRE RESISTANT RATING OF THE WALL UNLESS THE WALL IS ALSO BEING DEMOLISHED.

6. PRIOR TO DISCONNECTING OR REMOVING ANY PLUMBING EQUIPMENT CONTAINING A REFRIGERANT, THE CONTRACTOR SHALL RECOVER ALL REFRIGERANT WITHOUT VENTING AND LEGALLY DISPOSE OF SAME IN COMPLETE COMPLIANCE WITH ALL EPA REGULATIONS.

7. IF ANY MATERIAL IS ENCOUNTERED IN THE COURSE OF DEMOLITION WORK WHICH THE CONTRACTOR, SUBCONTRACTOR, OR TRADESMAN SUSPECTS TO BE ASBESTOS, THEN THE WORK IN THE AREA SHALL CEASE UNTIL THE OWNER OR OWNER'S REPRESENTATIVE IS CONTACTED FOR A DETERMINATION OF WHETHER THE MATERIAL IS SAFE, SHOULD BE TESTED, OR SHOULD BE REMOVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL TRADESMAN ON THE JOB OF THE POTENTIAL PRESENCE AND HAZARD OF ASBESTOS MATERIALS.

8. ALL PLUMBING FIXTURES, EQUIPMENT, PIPING, ETC. SHOWN DARK, DASHED TO BE REMOVED. ALL PLUMBING FIXTURES, EQUIPMENT, PIPING, ETC. SHOWN LIGHT TO REMAIN.

PLUMBING DRAWING INDEX

P-1 – DEMOLITION – PLUMBING FLOOR PLAN
P-2 – PLUMBING FLOOR PLAN – PIPING
P-3 – PLUMBING FLOOR PLAN – SANITARTY AND VENT
P-4 – PLUMBING DETAILS AND ISOMETRIC
P-5 – PLUMBING SCHEDULES AND NOTES
P-6 – PLUMBING SPECIFICATIONS

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DEMOLITION PLUMBING FLOOR PLAN

P-1

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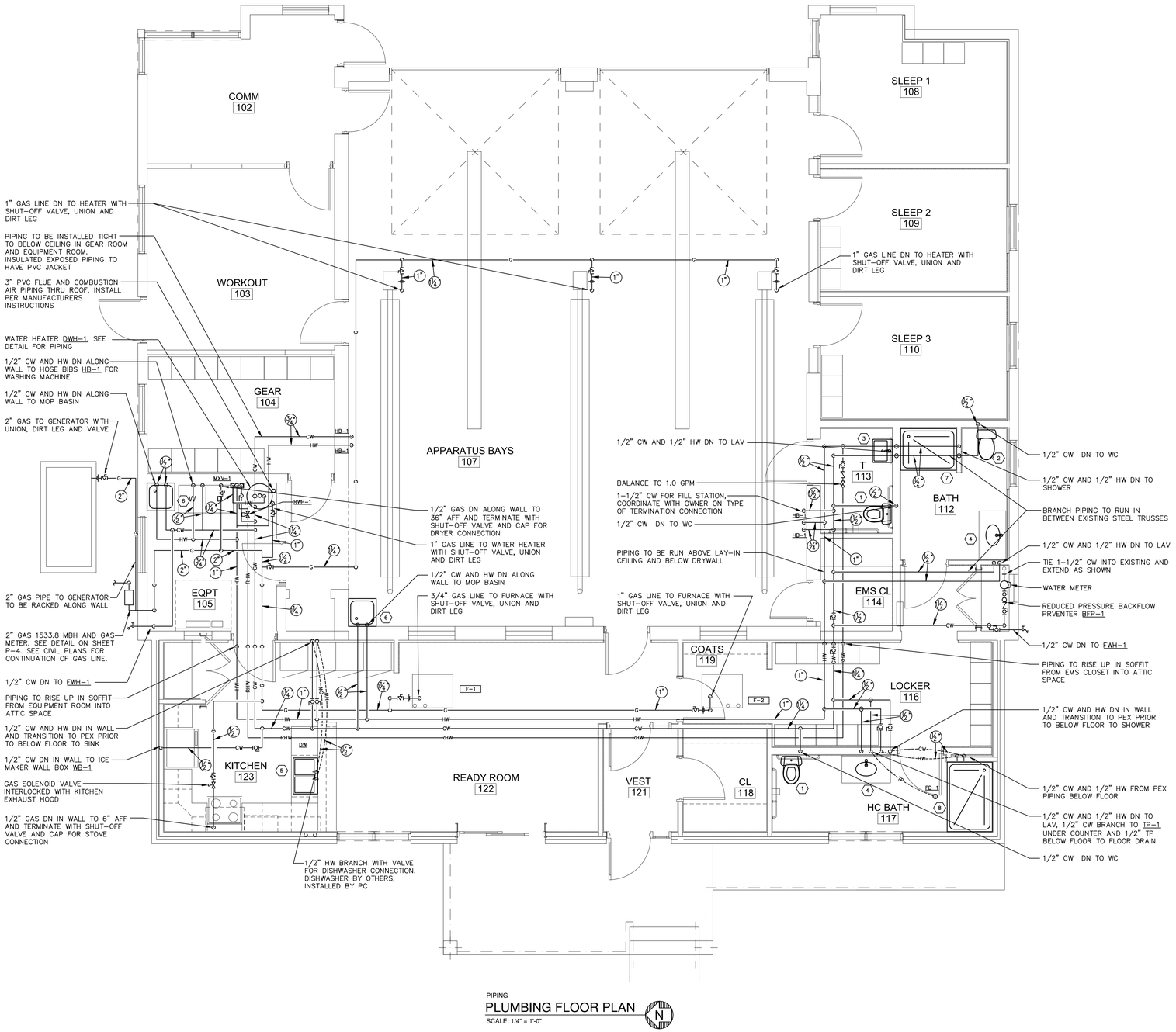

PIPING

PLUMBING FLOOR PLAN

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

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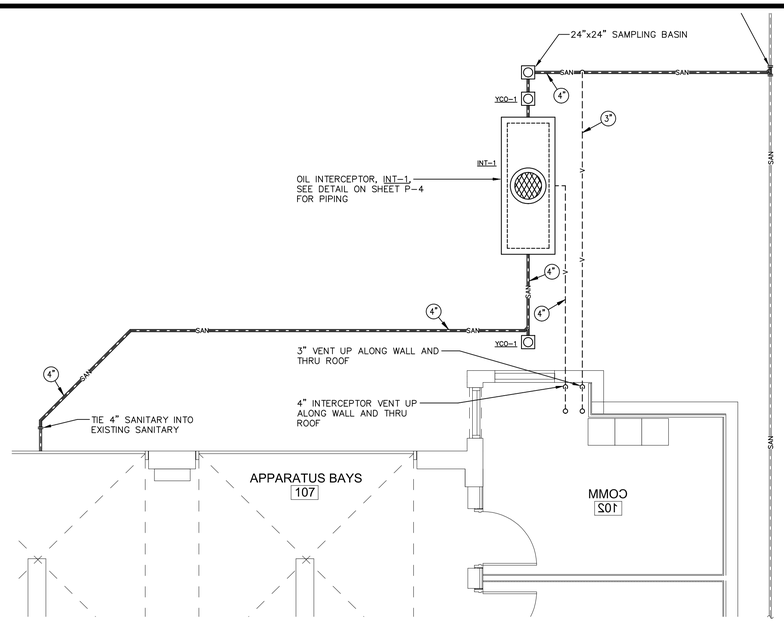
PLUMBING FLOOR PLAN PIPING

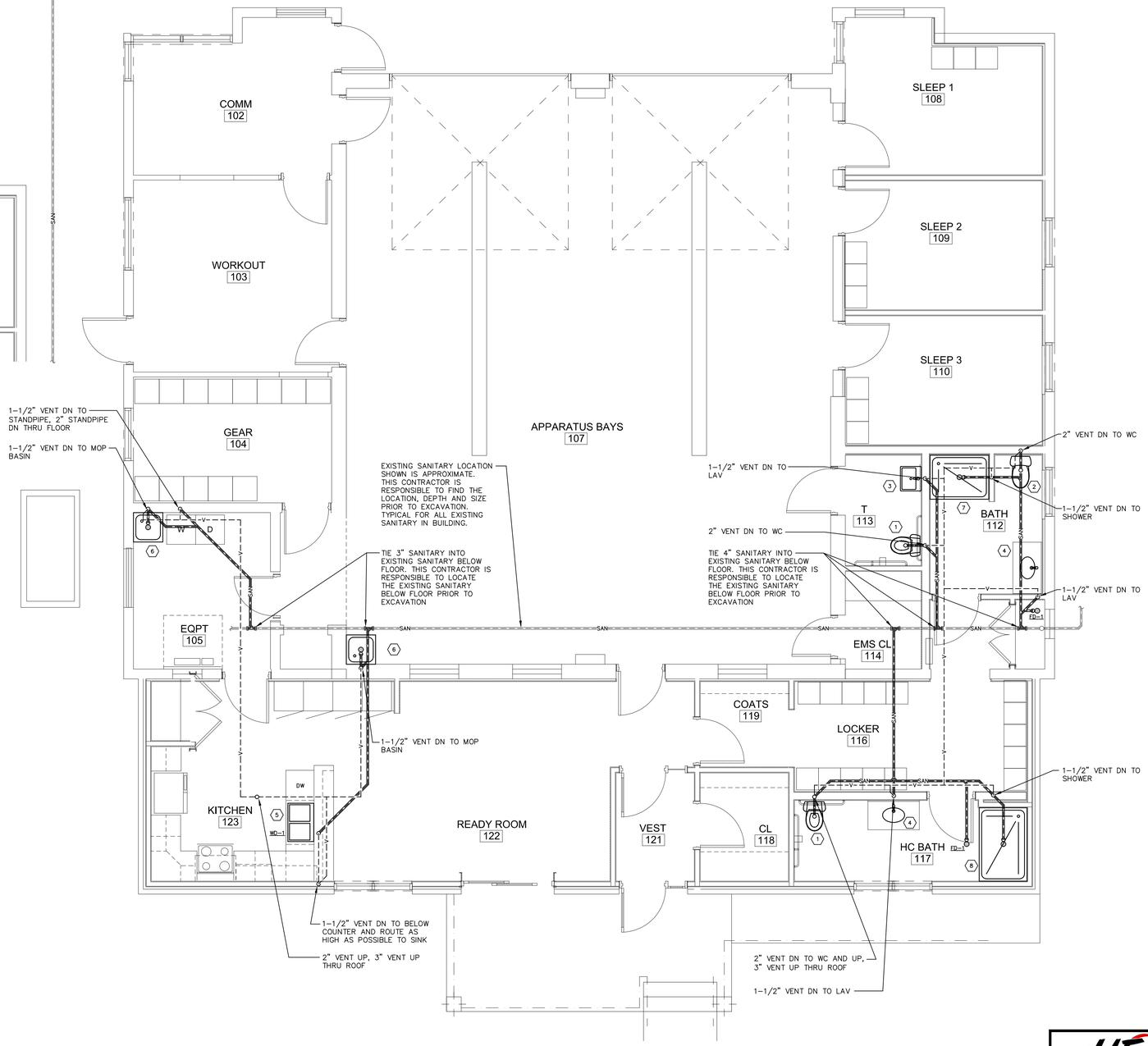
P-2



SANITARY AND VENT

PARTIAL PLUMBING FLOOR PLAN

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



SANITARY AND VENT

PLUMBING FLOOR PLAN

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

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PLUMBING FLOOR PLAN SANITARY AND VENT

P-3

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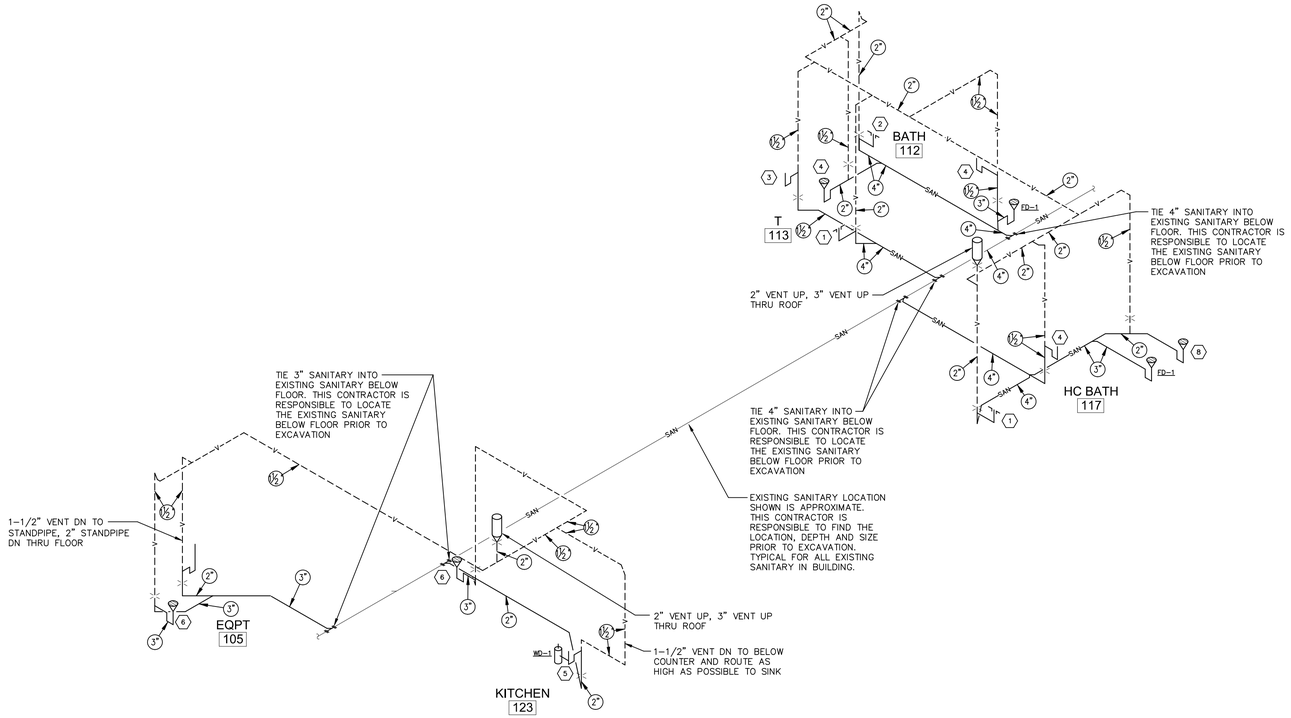
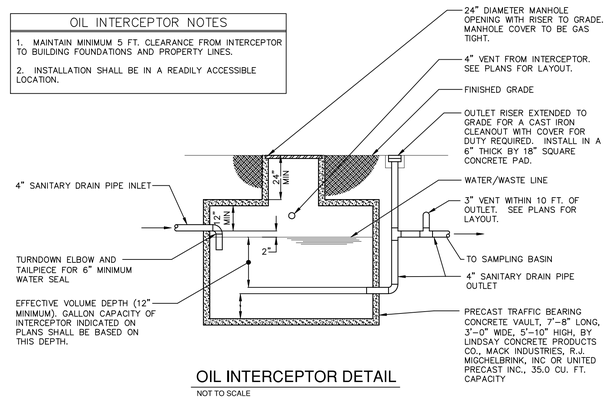


SANITARY ISOMETRIC

NOT TO SCALE

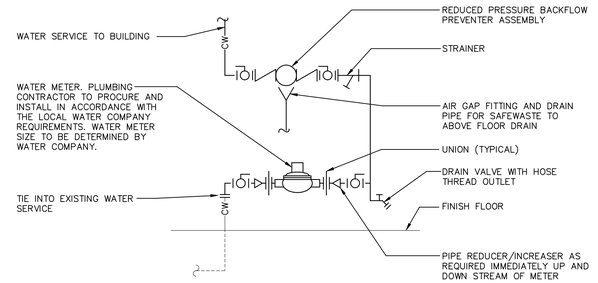
OIL INTERCEPTOR NOTES

1. MAINTAIN MINIMUM 5 FT. CLEARANCE FROM INTERCEPTOR TO BUILDING FOUNDATIONS AND PROPERTY LINES.
2. INSTALLATION SHALL BE IN A READILY ACCESSIBLE LOCATION.



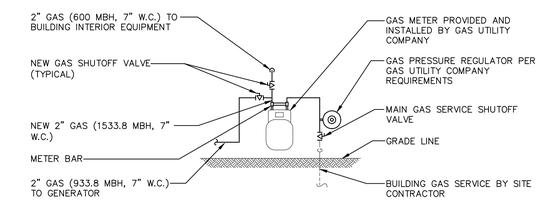
OIL INTERCEPTOR DETAIL

NOT TO SCALE



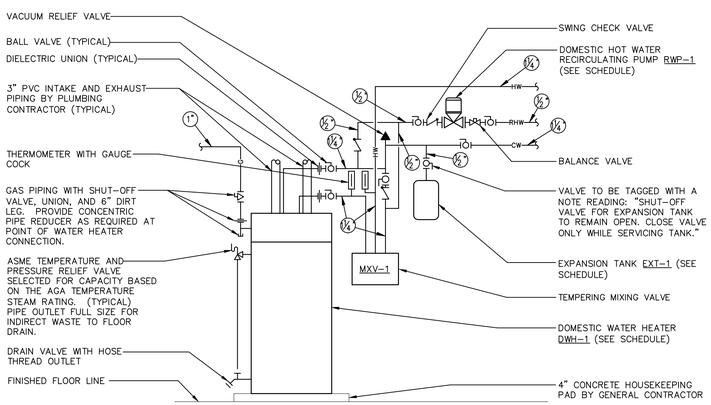
DOMESTIC WATER SERVICE ENTRANCE DETAIL

NOT TO SCALE



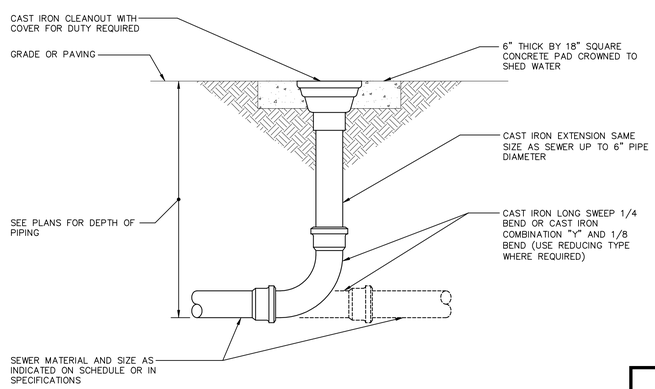
GAS SERVICE PIPING DETAIL

NOT TO SCALE



GAS DOMESTIC WATER HEATER DETAIL

NOT TO SCALE



EXTERIOR CLEANOUT DETAIL

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PLUMBING DETAILS AND ISOMETRIC

P-4

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PLUMBING PIPE AND INSULATION SCHEDULE

TYPE	SIZE	PIPE	FITTINGS	JOINTS	INSULATION THICKNESS	NOTES
CW	UP TO 2"	TYPE "L" COPPER	WROUGHT COPPER	SOLDER	1/2"	
CW	2-1/2" TO 4"	TYPE "L" COPPER	WROUGHT COPPER	SOLDER	1"	
CW	6" & LARGER	SCH 40 GALV. STL.	GALV. IRON	SCREWED OR MECH.	1"	
HW	UP TO 2"	TYPE "L" COPPER	WROUGHT COPPER	SOLDER	1"	
HW	2-1/2" TO 4"	TYPE "L" COPPER	WROUGHT COPPER	SOLDER	1"	
HW	6" & LARGER	SCH 40 GALV. STL.	GALV. IRON	SCREWED OR MECH.	1"	
GAS	UP TO 2"	SCH 40 BLACK STL	125# MAL. IRON	SCREWED	N/A	
GAS	2-1/2" TO 10"	SCH 40 BLACK STL	BLACK STEEL	WELDED	N/A	
GAS	BELOW GRADE	POLYETHYLENE	POLYETHYLENE	FUSION WELDED	N/A	SEE NOTE 6
DWV	UP TO 1-1/2"	SCH 40 GALV. STL.	CAST IRON	SCREWED	N/A	
DWV	UP TO 1-1/2"	PVC	PVC	SOLVENT CEMENT	N/A	SEE NOTE 5
DWV	2" & LARGER	CAST IRON	CAST IRON	NO-HUB	N/A	SEE NOTE 4
DWV	2" & LARGER	PVC	PVC	SOLVENT CEMENT	N/A	SEE NOTE 5

MATERIAL STANDARDS
1. COPPER PIPE SHALL BE IN ACCORDANCE WITH ASTM B88.
2. STEEL PIPE 1-1/2" AND SMALLER SHALL BE ASTM A120 BUTT WELDED CARBON STEEL.
3. STEEL PIPE 2" AND LARGER SHALL BE ASTM A53 GRADE B SEAMLESS CARBON STEEL OR ELECTRIC RESISTANCE WELDED.
4. CAST IRON PIPE SHALL BE IN ACCORDANCE WITH ASTM A74.
5. PVC PIPE AND FITTINGS SHALL BE SOLID WALL SCHEDULE 40 IN ACCORDANCE WITH ASTM D2665.
6. PIPE INSULATION SHALL BE EITHER FIBERGLASS OR FLEXIBLE UNICELLULAR TYPE WITH A MAXIMUM THERMAL CONDUCTIVITY "k" FACTOR OF 0.24 AT 75°F MEAN TEMPERATURE. FIBERGLASS PIPE INSULATION SHALL HAVE AN ALL SERVICE JACKET.

NOTE 1. SEE PLUMBING SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
NOTE 2. WHERE MORE THAN ONE TYPE OF PIPE OR INSULATION IS INDICATED THE INSTALLING CONTRACTOR MAY SELECT FROM THE OPTIONS ACCORDING TO HIS PREFERENCE.
NOTE 3. HORIZONTAL RAIN WATER CONDUCTORS SHALL BE INSULATED WITH 1" THICK FIBERGLASS PIPE INSULATION.
NOTE 4. BURIED CAST IRON SOIL PIPE SHALL BE HUB AND SPIGOT TYPE WITH COMPRESSION GASKET JOINTS.
NOTE 5. PVC DWV PIPE SHALL NOT BE INSTALLED IN ANY CEILING SPACES WHICH ARE USED FOR AN AIR PLENUM.
NOTE 6. INSTALL POLYETHYLENE GAS PIPING MINIMUM 18" BELOW GRADE.

PLUMBING FIXTURE SCHEDULE

SYM	TYPE	MAKE, MODEL AND SIZE	DESCRIPTION	CONNECTIONS CW	HW	TRAP	DRAIN	VENT	MTG. HT.
1	WATER CLOSET ADA	AMERICAN STANDARD CADET PRO RIGHT HEIGHT #215AA.104 (#215AA.105)	VITREOUS CHINA ELONGATED BOWL FLOOR MOUNT (12" ROUGH-IN) TANK TYPE WATER CLOSET FOR LOW WATER CONSUMPTION (1.28 GPF). INSTALLATION SHALL BE COMPLETE WITH A 1/2" ANGLE STOP VALVE WITH A WHEEL HANDLE, 12" LONG 3/8" O.D. FLEXIBLE RISER AND WALL FLANGE AND CHURCH #293SS WHITE OPEN FRONT ELONGATED SEAT WITH COVER. INSTALLATION SHALL BE IN COMPLIANCE WITH ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES ICC A117.1-2009 AND FLUSH LEVER SHALL BE ON THE WIDE SIDE OF THE WATER CLOSET.	1/2"	NONE	INT.	4"	2"	FLOOR
2	WATER CLOSET	AMERICAN STANDARD CADET PRO #215CA.104	VITREOUS CHINA ELONGATED BOWL FLOOR MOUNT (12" ROUGH IN) TANK TYPE WATER CLOSET FOR LOW WATER CONSUMPTION (1.28 GPF). INSTALLATION SHALL BE COMPLETE WITH A 1/2" ANGLE STOP VALVE WITH A WHEEL HANDLE, 12" LONG 3/8" O.D. FLEXIBLE RISER AND WALL FLANGE AND CHURCH #293SS WHITE OPEN FRONT SEAT WITH COVER.	1/2"	NONE	INT.	4"	2"	FLOOR
3	LAVATORY ADA	AMERICAN STANDARD LUCERNE #0355.012 20.50" X 18.25" OVERALL 15" X 10" X 6.5" BASIN	VITREOUS CHINA WALL HUNG LAVATORY WITH FAUCET HOLES 4" ON CENTER. INSTALLATION SHALL BE COMPLETE WITH J.R. SMITH #0700 CONCEALED ARM CARRIER WITH FLOOR MOUNTED SUPPORT, DELTA #511LF-HGMHDF CHROME FINISH FAUCET WITH SINGLE LEVER TYPE HANDLE AND AERATOR FOR 0.5 GPM MAX FLOW REGARDLESS OF PRESSURE. ADDITIONAL TRIM SHALL INCLUDE A PERFORATED GRID STRAINER WITH 1-1/4" TAIL PIECE, 1-1/4" CHROME PLATED P-TRAP WITH INTEGRAL CLEANOUT, ANGLE STOP AND 12" LONG 3/8" OD FLEXIBLE RISERS AND WALL FLANGE. INSTALLATION SHALL BE IN COMPLIANCE WITH ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES ICC A117.1-2009 AND HAVE ALL EXPOSED PIPING BENEATH THE LAVATORY SHALL BE INSULATED WITH ADA APPROVED TRAP, VALVES AND PIPING PROTECTION PRODUCTS.	1/2"	1/2"	1-1/4"	1-1/2"	1-1/2"	34" RIM TO FLOOR
4	LAVATORY ADA	AMERICAN STANDARD CADET OVAL #0419.444EC 21.00" X 17.50" OVERALL 16" X 11" X 5.50" BASIN	VITREOUS CHINA COUNTERTOP LAVATORY WITH FAUCET HOLES 4" ON CENTER. INSTALLATION SHALL BE COMPLETE WITH DELTA #511LF-HGMHDF CHROME FINISH FAUCET WITH SINGLE LEVER TYPE HANDLE AND AERATOR FOR 0.5 GPM MAX FLOW REGARDLESS OF PRESSURE. ADDITIONAL TRIM SHALL INCLUDE A PERFORATED GRID STRAINER WITH 1-1/4" TAIL PIECE, 1-1/4" CHROME PLATED P-TRAP WITH INTEGRAL CLEANOUT, ANGLE STOP AND 12" LONG 3/8" OD FLEXIBLE RISERS AND WALL FLANGE. INSTALLATION SHALL BE IN COMPLIANCE WITH ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES ICC A117.1-2009 AND HAVE ALL EXPOSED PIPING BENEATH THE LAVATORY INSULATED WITH ADA APPROVED TRAP, VALVES AND PIPING PROTECTION PRODUCTS.	1/2"	1/2"	1-1/4"	1-1/2"	1-1/2"	C'TOP
5	COUNTER SINK	JUST STYLIST #DL-1933-A-GR 33" X 19" OVERALL (2) 14" X 14" X 7.5" BASINS	DOUBLE COMPARTMENT 18 GAUGE TYPE 304 STAINLESS STEEL SELF-RIMMING, UNDERCOATED COUNTERTOP SINK COMPLETE WITH (2) J-35 STAINLESS STEEL CUP STRAINERS WITH REMOVABLE BASKETS AND 1-1/2" CHROME PLATED BRASS TAILPIECE WITH DISHWASHER FITTING AND DELTA #100LF-HDF DECK MOUNTED SINGLE LEVER WASHERLESS MIXING FAUCET WITH 8" SPOUT AND AERATOR. ADDITIONAL TRIM SHALL INCLUDE A 1-1/2" CHROME PLATED CAST BRASS P-TRAP WITH INTEGRAL CLEANOUT, 1-1/2" CONTINUOUS WASTE, ANGLE STOPS AND 12" LONG 3/8" O.D. FLEXIBLE RISERS AND WALL FLANGES. CONTRACTOR TO VERIFY SINK FIT WITH COUNTERTOP PRIOR TO PROCUREMENT AND INSTALLATION.	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	C'TOP
6	MOP BASIN	FIAT #MSB-2424 24" X 24" X 10"	MOP SERVICE BASIN MOLDED OF A COMPOSITE MATERIAL OF FUSED CRUSHED STONE AND POLYESTER RESIN. BASIN SHALL INCLUDE AN INTEGRAL 3" DRAIN WITH SEAL AND A REMOVABLE STAINLESS STEEL STRAINER. INSTALLATION SHALL INCLUDE STAINLESS STEEL WALL GUARD #MSG 2424, HOSE AND HOLDER #B32-AA AND DELTA #28T9 ROUGH CHROME SERVICE SINK FAUCET WITH INTEGRAL VACUUM BREAKER, STOPS, 3/4" HOSE END SPOUT AND PAIL HOOK.	1/2"	1/2"	3"	3"	1-1/2"	FLOOR
7	SHOWER	AQUATIC #1483EN-R/L 48"x38.75"x77.25" OVERALL 45.25"x36.25"x76" INTERIOR	ONE PIECE GELCOAT SHOWER WITH SLIP-RESISTANT TEXTURED FLOOR, SMOOTH WALL AND 3-3/4" SKIRT WITH 2-3/8" INTERIOR THRESHOLD. UNIT SHALL INCLUDE CURTAIN ROD. INSTALLATION SHALL BE COMPLETE WITH A SHOWER CURTAIN AND A POWERS #e710G10000 THERMOSTATIC THREE PORT T/P MIXING VALVE WITH SWEAT END CONCEALED CHECKSTOPS, HIGH LIMIT TEMP STOP, METAL LEVER HANDLE, LOW FLOW (1.5 GPM) SHOWER HEAD, AND STANDARD ARM AND FLANGE.	1/2"	1/2"	2"	2"	1-1/2"	FLOOR
8	SHOWER ADA	AQUATIC ACCESSIBLE #1603781FSD-R/L 62"x39.375"x77" OVERALL 60"x36.625"x77" INTERIOR	ONE PIECE GELCOAT BARRIER-FREE ROLL-IN SHOWER WITH SLIP-RESISTANT TEXTURED FLOOR, SMOOTH WALL AND 3/4" SKIRT WITH 1/2" INTERIOR THRESHOLD. UNIT SHALL INCLUDE FOLD-UP WHITE PHENOLIC SLAT SEAT, GRAB BAR, AND CURTAIN ROD. INSTALLATION SHALL BE COMPLETE WITH A SHOWER CURTAIN AND A POWERS #e710000600 THERMOSTATIC THREE PORT T/P MIXING VALVE WITH SWEAT END CONCEALED CHECKSTOPS, HIGH LIMIT TEMP STOP, METAL LEVER HANDLE, AND DELUXE 60" LONG CHROME PLATED HOSE WITH HAND SHOWER AND GLIDE BAR.	1/2"	1/2"	2"	2"	1-1/2"	FLOOR

NOTE: FIXTURES SCHEDULED ARE BASIS OF DESIGN. OTHER MANUFACTURERS MAY BE SUBSTITUTED IN ACCORDANCE WITH THE FOLLOWING LIST:
BATHTUBS AND SHOWERS – AMERICAN STANDARD, AQUA BATH, CRANE, ELJER, KOHLER, LASCO, SWAN
FAUCETS – AMERICAN STANDARD, CHICAGO FAUCET, DELTA, ELJER, KOHLER, MOEN, SPEAKMAN, T&S BRASS
FIXTURES – AMERICAN STANDARD, CRANE, ELJER, KOHLER
MOP BASINS AND UTILITY SINKS – E.L. MUSTEE, FIAT, STERN-WILLIAMS, SWAN
SHOWER MIXING VALVES – LEONARD, POWERS, SYMMONS
STAINLESS STEEL SINKS – ADVANCE TABCO, AMERICAN STANDARD, AMTEKCO, ELJER, ELKAY, JUST, KOHLER

PLUMBING EQUIPMENT AND DRAIN SCHEDULE

SYM	TYPE	MAKE, MODEL	DESCRIPTION
BFP-1	REDUCED PRESSURE BACKFLOW PREVENTER	WATTS REGULATOR #909	TWO INDEPENDENT CHECK VALVES WITH AN INTERMEDIATE RELIEF VALVE AND ISOLATING SHUT-OFF VALVES. ASSEMBLY TO BE FURNISHED COMPLETE WITH AN INTEGRAL STRAINER AND AN AIR GAP DRAINAGE FITTING. ASSEMBLY TO BE TESTED AND CERTIFIED IN ACCORDANCE WITH ASSE STD. 1013 AND AWWA STD. C511-92.
DWH-1	DOMESTIC WATER HEATER	A.O. SMITH VERTEX #GDHE-50	GAS FIRED TANK TYPE WATER HEATER WITH 100 MBH GAS INPUT RATING FOR 129 GPH RECOVERY RATE AT 90 DEG F. TEMPERATURE RISE AND A FIRST HOUR DELIVERY OF 164 GALLONS. WATER HEATER SHALL HAVE A STORAGE CAPACITY OF 50 GALLONS. WATER HEATER SHALL BE EQUIPPED WITH SOLID STATE IGNITION SYSTEM, GAS VALVE AND REGULATOR, DIRECT VENT BLOWER, AND 3" PVC COMBUSTION AND VENT AIR PIPING. WATER HEATER SHALL BE AGA CERTIFIED AND BE FACTORY SUPPLIED WITH AN AGA RATED TEMPERATURE AND PRESSURE RELIEF VALVE. WATER HEATERS SHALL BE IN COMPLIANCE WITH CURRENT EDITION OF ASHRAE STD. 90.1. 120/1/60 POWER, 5.2 FLA.
EXT-1	EXPANSION TANK	AMTROL THERM-X-TROL #ST-5	NON-ASME STEEL TANK WITH A RIGID POLYPROPYLENE LINER AND A HEAVY-DUTY BUTYL DIAPHRAGM TO SEPARATE THE WATER FROM THE PRE-CHARGED (40 PSIG) AIR CHAMBER. TOTAL TANK VOLUME EQUALS 2.0 GALLONS, MAXIMUM ACCEPTANCE FACTOR OF 0.45 AND MAXIMUM ACCEPTANCE VOLUME EQUALS 0.9 GALLONS. SYSTEM CONNECTION OF 3/4".
RWP-1	RECIRCULATING HOT WATER PUMP	TACO CARTRIDGE #0010-BF3	IN-LINE CIRCULATOR OF ALL BRONZE CONSTRUCTION WITH 3/4" FLANGE CONNECTIONS, 5 GPM AT 10 FOOT PUMP HEAD CAPACITY, 1/8 HP MOTOR AT 3250 RPM, 1.17 AMPS AND AN 115-1-60 ELECTRIC POWER REQUIREMENT.
FD-1	FLOOR DRAIN	J.R. SMITH #2005-A-P	NO HUB OUTLET CAST IRON FLOOR DRAIN WITH FLANGE, INTEGRAL REVERSIBLE CLAMPING COLLAR, SEEPAGE OPENINGS, ROUND NICKEL BRONZE STRAINER TOP WITH VANDAL PROOF SCREWS AND 1/2" TRAP PRIMER CONNECTION. GRADE APPLICATIONS TO UTILIZE A SPEEDI-SET GASKET. ALL FLOOR DRAINS TO HAVE A 4" DEEP SEAL TRAP.
FWH-1	FROSTPROOF WALL HYDRANT	WOODFORD #65	EXPOSED NON-FREEZE CHROME PLATED WALL HYDRANT WITH ANTI-SIPHON VACUUM BREAKER, LOOSE KEY TEE HANDLE, 3/4" INLET AND A 3/4" HOSE THREAD OUTLET. HYDRANT SHALL BE SUPPLIED WITH AN ADJUSTABLE WALL CLAMP.
MXV-1	TEMPERING MIXING VALVE	POWERS HYDROGUARD XP #MM431ADUS200	MASTER TEMPERING MIXING VALVE ASSEMBLY WITH A THERMOSTATIC MIXING VALVE IN ROUGH BRONZE WITH TOP/TOP INLETS/OUTLET, INTEGRAL CHECK STOPS, UNIONS, BALL VALVE, DIAL THERMOMETER AND PAINTED WALL CABINET. FLOW RANGE 0.5 TO 17 GPM AT MAXIMUM 8 PSI PRESSURE DIFFERENTIAL. MIXING VALVE TO MEET CURRENT REQUIREMENTS OF ASSE 1017.
WD-1	WASTE DISPOSER	IN-SINK-ERATOR BADGER #5XP	CONTINUOUS FEED WASTE DISPOSER WITH STAINLESS STEEL FLANGE, GALVANIZED GRINDING ELEMENTS, TWO STAINLESS STEEL 360° SWIVEL LUGS, 3/4 HP MOTOR, 1725 RPM, 120V, 9.5 AMPS, AND POWER CORD KIT WITH 3 FOOT UL LISTED CORD, STRAIN RELIEF CLAMP, WIRE CONNECTORS AND 3 PRONGED PLUG.
WB-1	ICE MAKER WALL BOX	GUY GRAY #BIM875	ALL WELDED WATERTIGHT STEEL RECESSED WALL BOX. UNIT COMPLETE WITH 1/2" FIP INLET X 1/4" OD OUTLET COMPRESSION ANGLE VALVE.
HB-1	HOSE BIBB	WOODFORD #Y24	ANTI-SIPHON HOSE BIBB OF BRASS CONSTRUCTION WITH A POLYCARBONATE HANDLE AND A 3/4" HOSE THREAD OUTLET. HOSE BIBB SHALL BE COMPLETE WITH A NIDEL #34HF VACUUM BREAKER.
TP-1	TRAP PRIMER	PRECISION PLUMBING PRODUCTS PRIME-RITE #PR-500	AUTOMATIC TRAP PRIMER VALVE WITH CORROSION RESISTANT BRASS BODY AND 1/2" PIPE THREAD CONNECTIONS. PROVIDE DISTRIBUTION UNITS SERIES DU WHEN TRAP PRIMER VALVE IS SERVING MORE THAN ONE FLOOR DRAIN.

NOTE: ITEMS SCHEDULED ARE BASIS OF DESIGN. OTHER MANUFACTURERS MAY BE SUBSTITUTED IN ACCORDANCE WITH THE FOLLOWING LIST:
BACKFLOW PREVENTORS – AMES, CONBRACO, FEBCO, HERSEY, WATTS, WILKENS
DRAINS, CLEANOUTS AND CARRIERS – JAY R. SMITH, JOSAM, MIFAB, WADE, WATTS, ZURN
EXPANSION TANKS – AMTROL, TACO, WATTS, WILKENS
HOSE BIBBS AND WALL HYDRANTS – JOSAM, MIFAB, WATTS, WOODFORD, ZURN
WALL BOXES – ACORN, GUY GRAY, OATEY, WHITEHALL, WILLOUGHBY
MIXING VALVES – ARMSTRONG, LAWLER, LEONARD, POWERS, SYMMONS, TACO, WATTS, ZURN
RECIRCULATING HOT WATER PUMPS – ARMSTRONG, BELL & GOSSETT, GRUNDFOS, TACO
TRAP PRIMER VALVES – JAY R. SMITH, JOSAM, MIFAB, PPP, SIOUX CHIEF, WATTS
WASTE DISPOSERS – GENERAL ELECTRIC, IN-SINK-ERATOR, KITCHENAID, WASTE KING
WATER HEATERS AND STORAGE TANKS – A.O. SMITH, BRADFORD WHITE, LOCHINVAR, RHEEM, STATE

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Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 04/12/2018

PLUMBING SCHEDULES

P-5

HEI ENGINEERING GROUP, INC.
443 WEST LIBERTY STREET
PO BOX 996
WOOSTER, OHIO 44691
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PLUMBING SPECIFICATIONS

BASIC PLUMBING REQUIREMENTS

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE PLUMBING SYSTEM INSTALLATION AS INDICATED ON THE DRAWINGS AND WITHIN THESE SPECIFICATIONS. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF THE PLUMBING SYSTEM DESIGN IMPLEMENTATION.

B. DRAWINGS ARE BASICALLY DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND COMPONENTS. INSTALLING CONTRACTOR SHALL COORDINATE THE DESIGN INTENT OF THE DRAWINGS WITH THE ACTUAL FIELD CONDITIONS MAKING MINOR DEVIATIONS AND ADJUSTMENTS AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM. EXACT LOCATIONS OF PLUMBING SYSTEM COMPONENTS SHALL BE DETERMINED BY THE CONTRACTOR. SUCH DETERMINATION SHALL GIVE CONSIDERATION TO THE BUILDING STRUCTURAL AND SPATIAL LIMITATIONS, TO COORDINATION WITH WORK OF OTHER TRADES AND DISCIPLINES, AND TO THE NECESSARY CLEARANCE REQUIREMENTS (BOTH OF THE ITEM BEING INSTALLED AND OF ALL ADJACENT ITEMS) TO ACCOMMODATE MANUFACTURER'S INSTALLATION REQUIREMENTS, TO SATISFY CODE CLEARANCE REQUIREMENTS AND TO FACILITATE SYSTEM OPERATION AND MAINTENANCE. UNLESS NOTED OTHERWISE, PLUMBING SYSTEMS SHALL BE INSTALLED TO PROVIDE MAXIMUM CLEARANCE ABOVE THE FINISHED FLOOR.

C. THE PLUMBING SYSTEM INSTALLATION SHALL BE IN FULL COMPLIANCE WITH THE FOLLOWING CODES AND STANDARDS:

1. THE OHIO BUILDING CODE
2. THE OHIO PLUMBING CODE
3. THE OHIO MECHANICAL CODE
4. NFPA (APPLICABLE SECTIONS)
5. NATIONAL ELECTRIC CODE
6. MUNICIPAL AND COUNTY CODES AND ORDINANCES
7. STATE, MUNICIPAL AND COUNTY HEALTH AGENCIES
8. OTHERS AS INDICATED WITHIN THESE SPECIFICATIONS

D. EVERY EFFORT IS MADE ON THE PART OF THE ENGINEER TO COMPLY WITH THE LISTED CODES AND STANDARDS. WHERE THE DESIGN EXCEEDS THE REQUIREMENTS OF THE APPLICABLE CODES AND STANDARDS, THE INSTALLATION SHALL BE PER THE DESIGN REQUIREMENTS. NO WORK SHALL BE INSTALLED CONTRARY TO OR BELOW MINIMUM REQUIREMENTS OF THE CODES AND STANDARDS.

E. THE SCHEDULED MANUFACTURER FOR EACH ITEM SHALL BE CONSIDERED AS BASIS OF DESIGN. PERFORMANCE CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, AND DIMENSIONAL AND SPATIAL REQUIREMENTS FOR THIS ITEM HAVE ALREADY BEEN CONSIDERED IN THE DESIGN. OTHER ACCEPTABLE MANUFACTURERS HAVE NOT BEEN CHECKED FOR SUCH DETAIL AND MUST MEET ALL THE SCHEDULED PERFORMANCE REQUIREMENTS AND POSSESS FEATURES SIMILAR TO THOSE WHICH ARE STANDARD ON THE ITEMS WHICH ARE BASIS OF DESIGN.

F. UNLESS NOTED OTHERWISE, EACH PLUMBING SYSTEM COMPONENT SHALL BE INDEPENDENTLY SUPPORTED FROM THE BUILDING STRUCTURE.

G. UNLESS NOTED OTHERWISE, CONTRACTOR(S) SHALL COORDINATE PLUMBING AND HVAC INSTALLATION SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ALL OUTDOOR AIR INTAKES AND BUILDING OPENINGS TO ANY PLUMBING VENTS (EXISTING AND NEW) EXHAUST AIR OUTLETS OR OTHER NOXIOUS CONDITIONS.

H. THIS CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES, BOTH TEMPORARY AND PERMANENT, REQUIRED BY LAW AS PART OF THE INSTALLATION WORK INDICATED ON THE DRAWINGS AND WITHIN THE SPECIFICATION.

I. THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ARCHITECT–ENGINEER; 6 COPIES OF MANUFACTURER'S DRAWINGS, CUT SHEETS, AND APPLICATION SPECIFIC PERFORMANCE DATA FOR ALL PLUMBING FIXTURES AND EQUIPMENT.

J. SHOP DRAWING SUBMITTALS SHALL INCLUDE THE PROJECT NAME, THE ARCHITECT–ENGINEER'S PROJECT NUMBER, THE APPLICABLE SPECIFICATION SECTION AND OR DRAWING NUMBER AS WELL AS THE CONTRACTOR'S APPROVAL STAMP. SHOP DRAWINGS SHALL BE SUBMITTED TO ARCHITECT–ENGINEER WITHIN THIRTY WORKING DAYS OF AWARD OF CONTRACT. CONTRACTOR SHALL NOT INSTALL ANY APPLICABLE MATERIALS AND/OR EQUIPMENT WITHOUT PRIOR REVIEW AS INDICATED ON THE ARCHITECT–ENGINEER'S REVIEW STAMP. REVIEW BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

K. THE CONTRACTOR SHALL GUARANTEE THE COMPLETE PLUMBING SYSTEM INSTALLATION AS INSTALLED BY HIM OR HIS SUB–CONTRACTORS TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE (UNLESS A LONGER PERIOD IS SPECIFIED FOR SPECIFIC ITEMS ELSEWHERE). DEVIATIONS FROM THIS MAY OCCUR ON LARGER ITEMS OF EQUIPMENT USED DURING BENEFICIAL OCCUPANCY BEFORE THE TOTAL SYSTEM IS ACCEPTED. SUCH A MATTER MUST HAVE PRIOR APPROVAL AND BE MADE A MATTER OF WRITTEN RECORD BY THE ARCHITECT–ENGINEER'S REPRESENTATIVE.

L. THE CONTRACTOR SHALL REPAIR OR REPLACE AT HIS OWN EXPENSE ANY MATERIALS OR EQUIPMENT FOUND TO BE DEFECTIVE WITHIN THE WARRANTEE PERIOD AND SHALL BE HELD FINANCIALLY RESPONSIBLE FOR ANY PROPERTY DAMAGES ARISING FROM SUCH DEFECTS OR THE CORRECTION OF SUCH DEFECTS.

M. THE CONTRACTOR SHALL GUARANTEE THAT ALL PLUMBING EQUIPMENT SUPPLIED BY HIM OR HIS SUB–CONTRACTORS SHALL DEVELOP CAPACITIES AND HAVE CHARACTERISTICS AS SCHEDULED OR SPECIFIED.

N. THE CONTRACTOR SHALL SUBMIT WRITTEN WARRANTEE CERTIFICATES FOR HIS INSTALLATION WORK AND FROM EACH MANUFACTURER OF EQUIPMENT SUPPLIED ON THE PROJECT TO THE ENGINEER.

O. THE CONTRACTOR MAY USE PERMANENT PLUMBING EQUIPMENT FOR TEMPORARY SERVICES WHEN APPROVED BY THE ARCHITECT–ENGINEER. SUCH APPROVAL IS CONDITIONED BY THE FOLLOWING REQUIREMENTS:

1. THE CONTRACTOR SHALL MAINTAIN THE EQUIPMENT FOR RELEASE TO OWNER AT TIME OF FINAL ACCEPTANCE IN "NEW" CONDITION.

2 WARRANTY PERIOD FOR THE OWNER SHALL NOT BEGIN UNTIL THE DATE OF FINAL SYSTEM ACCEPTANCE.

P. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES INCURRED DURING THE INSTALLATION OF HIS WORK TO THE EXISTING GROUNDS, WALKS, ROADS, BUILDING, PLUMBING SYSTEMS, HVAC SYSTEMS, AND ELECTRIC SYSTEMS AS WELL AS ALL NEW CONSTRUCTION WORK BY OTHER TRADES. HE SHALL REPAIR AT HIS EXPENSE ALL SUCH DAMAGES FOR RESTORATION TO THE ORIGINAL CONDITIONS TO THE SATISFACTION OF THE ARCHITECT–ENGINEER AND OWNER.

Q. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE MATERIALS, EQUIPMENT AND INSTALLATION OF HIS WORK FROM DAMAGE DUE TO WEATHER AND CONSTRUCTION JOB SITE CONDITIONS.

R. THE CONTRACTOR SHALL MAINTAIN A SET OF PRINTS AT THE CONSTRUCTION SITE TO RECORD IN RED ANY DEVIATIONS IN THE ACTUAL MECHANICAL SYSTEM INSTALLATION FROM THE DESIGN DRAWINGS. IN ADDITION, ACTUAL INSTALLED INVERTS SHALL BE RECORDED FOR EACH UNDERGROUND SANITARY, STORM, WATER, AND GAS SERVICE. THESE RECORD DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT–ENGINEER UPON COMPLETION OF THE PROJECT.

S. THE CONTRACTOR SHALL PROVIDE PERSONAL INSTRUCTION TO THE OWNER'S OPERATING STAFF ON THE PROPER OPERATION AND MAINTENANCE OF THE PLUMBING SYSTEMS.

T. THE CONTRACTOR SHALL PROVIDE THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS FOR THE OWNER'S USE UPON COMPLETION OF THE PROJECT. OPERATION AND MAINTENANCE MANUALS SHALL BE SUBMITTED TO THE ARCHITECT–ENGINEER FOR APPROVAL. OPERATION AND MAINTENANCE MANUALS SHALL INCLUDE THE FOLLOWING:

1. NAME AND SERVICE TELEPHONE NUMBER OF THE INSTALLING COMPANY.
2. GENERAL DESCRIPTION OF HOW THE SYSTEM SHOULD OPERATE.
3. MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS
4. COPY OF APPROVED SHOP DRAWINGS
5. LUBRICATION SCHEDULE
6. VALVE CHART
7. SPARE PARTS LIST
8. WARRANTY CERTIFICATES

PLUMBING MATERIALS AND METHODS

A. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NEW MATERIALS, EQUIPMENT, COMPONENTS, AND FIXTURES AS INDICATED. OTHER MANUFACTURERS OF PLUMBING EQUIPMENT MAY BE SUBSTITUTED FOR THOSE INDICATED AS LONG AS THE QUALITY OF CONSTRUCTION AND OPERATING CHARACTERISTICS ARE EQUIVALENT.

B. PIPE SLEEVES SHALL BE PROVIDED AND INSTALLED WHERE PIPES PASS THROUGH WALLS, FLOORS, AND CEILINGS. SLEEVES SHALL BE SUFFICIENTLY LARGE ENOUGH TO ALLOW FOR FIRE AND SOUND STOPPING BETWEEN THE INSIDE SLEEVE WALL AND THE PIPE OR INSULATION SURFACE AS WELL AS ALLOW FOR THERMAL EXPANSION AND CONTRACTION OF PIPING. (SLEEVES SHALL BE LARGE ENOUGH TO ALLOW PIPE INSULATION TO BE CONTINUOUS THROUGH THE WALL.) LENGTH OF SLEEVES SHALL BE EQUAL TO THE THICKNESS OF THE BUILDING CONSTRUCTION ELEMENT PENETRATED FOR A FLUSH FINISH ON BOTH SIDES EXCEPT FOR FLOOR SLEEVES WHICH SHALL EXTEND 2" ABOVE THE FINISH FLOOR. INSTALL IRON PIPE SLEEVES IN EXTERIOR WALL PENETRATIONS AND STEEL PIPE SLEEVES ELSEWHERE UNLESS NOTED OTHERWISE.

C. THE CONTRACTOR SHALL PROVIDE AND INSTALL SEALING MATERIALS FOR PLUMBING SYSTEM PENETRATIONS THROUGH BUILDING WALLS, FLOORS, CEILINGS, AND ROOFS. EXTERIOR PENETRATIONS SHALL BE WEATHER PROOF AND VERMIN PROOF; INTERIOR PENETRATIONS SHALL HAVE SOUND STOPPING. PENETRATIONS THROUGH FIRE AND SMOKE BARRIERS SHALL HAVE FIRESTOPPING.

1. THE CONTRACTOR SHALL SEAL ALL FIRE/SMOKE RATED WALL AND FLOOR PENETRATIONS FOR MECHANICAL SYSTEM COMPONENTS WITH FIRE AND SMOKE STOPPING COMPOUND SO AS TO MAINTAIN THE FIRE RESISTANCE RATING OF THE WALL OR FLOOR PENETRATED. FIRESTOPPING COMPOUND, PIPE SLEEVES, AND PIPING AND INSULATION SHALL BE INSTALLED SO AS THE COMPLETE PENETRATION ASSEMBLY IS CLASSIFIED BY UL AS LISTED IN THE UL BUILDING MATERIALS DIRECTORY.

D. ESCUTCHEON PLATES SHALL BE INSTALLED ON ALL PIPE PENETRATIONS THROUGH WALLS, FLOORS, AND CEILINGS WHERE EXPOSED TO VIEW AND ON THE BUILDING EXTERIOR. ESCUTCHEON PLATE SHALL BE SECURED TO PIPE OR INSULATION AND COMPLETELY COVER THE HOLE PENETRATION.

E. ACCESS DOORS SHALL BE PROVIDED AND INSTALLED BY THIS CONTRACTOR IN NON–ACCESSIBLE WALLS AND CEILINGS WHICH CONCEAL PLUMBING ITEMS WHICH REQUIRE SERVICE OR INSPECTION SUCH AS VALVES. THE DOORS SHALL BE OF ADEQUATE SIZE TO SERVICE THE CONCEALED ITEM. DOOR SHALL BE OF PAINTED STEEL CONSTRUCTION WITH CONCEALED HINGE AND KEYED LOCK. ALL DOORS SHALL BE KEYED ALIKE WITH A MINIMUM OF TWO KEYS PROVIDED TO OWNER. ACCESS DOORS IN CEILINGS SHALL HAVE A RECESSED FACE FOR FIELD INSTALLATION OF FINISHED CEILING MATERIAL. DOORS INSTALLED IN FIRE RATED WALLS AND CEILINGS SHALL BE UL LISTED AND LABELED WITH APPLICABLE FIRE RESISTANCE RATING.

F. EXISTING BUILDING SURFACES AND AUXILIARY EQUIPMENT AND FINISHES MARRED DURING INSTALLATION OF PLUMBING WORK SHALL BE REPAINTED BY THIS CONTRACTOR.

G. THE CONTRACTOR SHALL PAINT ALL IRON PIPE FITTINGS AND VALVE BODIES, ALL SUPPORT STEEL INSTALLED AS PART OF THIS SCOPE OF WORK AND ALL EXPOSED PIPING AND DUCTWORK ON THE EXTERIOR OF THE BUILDING. ALL PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINT MANUFACTURER'S INSTRUCTIONS INCLUDING SURFACE PREPARATION AND CONDITIONS OF AMBIENT TEMPERATURE AND HUMIDITY. ENVIRONMENTAL CONDITIONS IN THE AREA OF PAINTING WORK SHALL COMPLY WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND ALL GOVERNING REGULATIONS.

PLUMBING PIPING AND ACCESSORIES

A. REFER TO THE "PIPE AND INSULATION SCHEDULE" FOR SPECIFIC PIPING APPLICATION AND MATERIAL REQUIREMENTS.

B. PIPING INSTALLATION SHALL NOT REQUIRE SPRINGING OR FORCING. PIPING OFFSETS, LOOPS AND/OR EXPANSION JOINTS SHALL BE PROVIDED (WHETHER SHOWN OR NOT) TO LIMIT STRESS DUE TO THERMAL EXPANSION.

C. PIPING MATERIALS SHALL BE CLEAN PRIOR TO AND DURING INSTALLATION. UPON COMPLETION OF PIPING INSTALLATION; BUT PRIOR TO FINAL CONNECTIONS, THE ENTIRE SYSTEM SHALL BE FLUSHED WITH A CLEANING SOLUTION WHICH WILL NOT HARM EITHER THE PIPING, EQUIPMENT OR USERS.

D. DRAIN VALVES SHALL BE PROVIDED AT ALL LOW POINTS AND MANUAL AIR VENTS AT ALL HIGH POINTS.

E. EQUIPMENT CONNECTIONS SHALL INCLUDE UNIONS PROVIDED BETWEEN A PIPING SERVICE SHUT–OFF VALVE AND EACH EQUIPMENT CONNECTION. PIPING OFFSETS SHALL BE PROVIDED TO PERMIT REMOVAL OF ALL EQUIPMENT.

F. COPPER PIPING CONNECTIONS TO STEEL OR IRON PIPE SHALL BE MADE WITH DIELECTRIC UNIONS.

G. STANDARD INCREASER AND REDUCER PIPE FITTINGS SHALL BE USED TO JOIN PIPES OF DIFFERENT SIZES.

H. DOMESTIC WATER PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

1. SOLDER JOINTS SHALL BE LEAD–FREE USING 95–5 TIN–ANTIMONY SOLDER AND APPROPRIATE FLUX.

2. PIPE NIPPLES BETWEEN COPPER PIPING AND FIXTURE FITTINGS SHALL BE BRASS.

3. UPON COMPLETION OF THE DOMESTIC WATER PIPING INSTALLATION, THE ENTIRE SYSTEM SHALL BE FLUSHED, DISINFECTED, AND FLUSHED AGAIN IN ACCORDANCE WITH THE LATEST AWWA STANDARDS. UPON COMPLETION OF THE DISINFECTION PROCESS; BACTERIOLOGICAL TESTS SHALL BE PERFORMED IN ACCORDANCE WITH AWWA STANDARDS AND THE LOCAL HEALTH DEPARTMENT TO VERIFY SATISFACTORY WATER QUALITY.

PLUMBING VALVES

A. ALL VALVES OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER WITH VALVE BODIES CLEARLY MARKED WITH THE MANUFACTURERS NAME OR TRADEMARK AND THE PRESSURE RATING. VALVES SHALL COMPLY WITH ANSI B16.10 "FACE–TO–FACE AND END TO END DIMENSIONS OF FERROUS VALVES.

B. VALVES SHALL BE SUPPLIED AS MANUFACTURED BY ONE OF THE FOLLOWING: APOLLO, CRANE, JAMESBURY, JENKINS, NIBCO, AND WATTS.

C. ISOLATION, SHUT–OFF, OR SERVICE VALVES SHALL BE BALL VALVES FOR PIPE SIZES 2" AND SMALLER AND BE GATE OR BUTTERFLY VALVES FOR PIPE SIZES 2–1/2" AND LARGER UNLESS NOTED OTHERWISE.

D. BALANCE VALVES SHALL BE OF THE FLOW MEASURING AND BALANCE TYPE FOR PIPE SIZES 2" AND SMALLER AND SHALL BE OF THE PLUG TYPE FOR PIPE SIZES 2–1/2" AND LARGER. WHERE MORE THAN ONE TYPE OF VALVE IS INDICATED THE INSTALLING CONTRACTOR SHALL SELECT FROM THE INDICATED OPTIONS ACCORDING TO HIS PREFERENCE. (UNLESS NOTED OTHERWISE ON THE CONTRACT DRAWINGS.)

E. MANUAL AIR VENTS AND DRAIN VALVES FOR WATER PIPING MAINS AND ELSEWHERE AS INDICATED ON THE CONTRACT DRAWINGS SHALL BE 3/4" BALL VALVES WITH MALE HOSE THREAD ADAPTER AND CAP UNLESS NOTED OTHERWISE.

F. VALVE SIZE SHALL BE SAME SIZE AS THE PIPE IN WHICH IT IS INSTALLED UNLESS NOTED OTHERWISE.

G. STANDARD VALVES 2" AND SMALLER:

1. GATE VALVE: 125 WSP; BRONZE BODY WITH RISING STEM, UNION BONNET, SINGLE WEDGE DISC FOR SOLDER JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION WW–V–54D, CLASS A, TYPE II. (NIBCO #S–134)

2. GLOBE VALVE: 125 WSP; BRONZE BODY WITH RISING STEM, UNION BONNET, AND ANSI 420–S STAINLESS STEEL TAPERED PLUG AND SEAT FOR SOLDER JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION B–62 AND FEDERAL SPECIFICATION WW–V–51, CLASS A, TYPE I AND II. (NIBCO S–211–Y)

3. CHECK VALVE: 125 WSP; BRONZE, SWING CHECK FOR SOLDER JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION B–62 AND FEDERAL SPECIFICATION WW–V–51D, TYPE IV, CLASS C. (NIBCO #S–413–Y)

4. BALL VALVE: 150 PSI SWP AND 600 PSI NON SHOCK WOG; TWO PIECE BRONZE BODY WITH CHROME PLATED BALL, TFE SEATS, FULL PORT, STEM PACKING, ANTI–BLOW–OUT STEMS FOR SOLDER JOINT PIPE CONNECTIONS. (NIBCO #S–585–70)

H. STEEL WATER PIPING 2–1/2" AND GREATER:

1. GATE VALVE: 125 WSP; CAST IRON BODY WITH BRONZE TRIM, OUTSIDE SCREW AND YOKE, RISING STEM, BOLTED BONNET FOR FLANGED JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION A–126 CLASS B. (NIBCO #F–617–O)

2. GLOBE VALVE: 125 WSP; CAST IRON BODY WITH BRONZE TRIM, OUTSIDE SCREW AND YOKE, RISING STEM, BOLTED BONNET FOR FLANGED JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION A–126 CLASS B. (NIBCO #F–718–B)

3. CHECK VALVE: 125 WSP; CAST IRON BODY WITH BRONZE TRIM FOR FLANGED JOINT PIPE CONNECTIONS. VALVES SHALL CONFORM TO ASTM SPECIFICATION A–126. (NIBCO #F–918–B)

4. BUTTERFLY VALVE: 200 PSI NON SHOCK COLD WATER WORKING PRESSURE; LUG TYPE DUCTILE OR CAST IRON BODY WITH EXTENDED NECK FOR INSULATING, ALUMINUM BRONZE ALLOY DISC, EPDM RUBBER SEATS AND SEALS, A 400 SERIES STAINLESS STEEL STEM AND A TEN POSITION LEVER LOCK HANDLE. (NIBCO #LD–2000 SERIES)

PLUMBING HANGERS AND SUPPORTS

A. ALL PIPING SHALL BE INSTALLED WITH FACTORY FABRICATED PIPING CLAMPS, HANGERS AND SUPPORTS ATTACHED TO THE BUILDING SUBSTRATE WITH SUITABLE EXPANSION SHELLS, INSERTS, OR BEAM CLAMPS. HANGERS SHALL BE SELECTED TO EXACTLY FIT PIPE SIZE FOR BARE PIPING AND TO EXACTLY FIT AROUND PIPING INSULATION WITH SADDLE OR SHIELD FOR INSULATED PIPING. COPPER PLATED HANGERS AND SUPPORTS SHALL BE UTILIZED FOR ALL COPPER PIPING SYSTEMS. PERFORATED STRAP HANGERS AND "C" CLAMP ATTACHMENTS ARE PROHIBITED.

1. UNLESS NOTED OTHERWISE, ALL HORIZONTAL PIPE 3" AND SMALLER SHALL BE SUPPORTED BY INDIVIDUAL ADJUSTABLE STEEL CLEVIS HANGERS.

2. UNLESS NOTED OTHERWISE, ALL HORIZONTAL PIPE 4" AND LARGER (AND ALL HORIZONTAL PIPE 2" AND LARGER WHICH CONVEYS A FLUID ABOVE 150° F) SHALL BE SUPPORTED BY ADJUSTABLE ROLLER TYPE HANGERS.

B. PARALLEL HORIZONTAL PIPING MAY ALSO BE SUPPORTED TOGETHER ON A TRAPEZE TYPE HANGER AS LONG AS ALL PIPING IS ADEQUATELY SUPPORTED AND INDIVIDUAL THERMAL PIPE MOVEMENT IS ACCOUNTED FOR.

C. HORIZONTAL PIPE SUPPORT SPACING AND HANGER ROD SIZING SHALL BE AS FOLLOWS EXCEPT FOR CAST IRON PIPE WHICH SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 5'–0" ON CENTER AND PVC PIPING WHICH SHALL BE SUPPORTED AT A MAXIMUM INTERVAL OF 4'–0" ON CENTER:

PIPE SIZE	ROD DIA	MAX SPACING ON CENTER
1/2" TO 1–1/4"	3/8	6'–0"
1–1/2" TO 2"	3/8	9'–0"
2–1/2" TO 3"	1/2"	11'–0"
4" TO 6"	3/4"	12'–0"

D. HANGERS FOR PLUMBING EQUIPMENT SHALL CONSIST OF STRUCTURAL STEEL SHAPES OR STEEL RODS ATTACHED TO THE BUILDING SUBSTRATE WITH SUITABLE EXPANSION SHELLS, INSERTS, OR BEAM CLAMPS. HANGERS SHALL BE SELECTED TO ADEQUATELY SUPPORT THE STATIC AND DYNAMIC LOADS OF THE EQUIPMENT AS INDICATED BY THE EQUIPMENT MANUFACTURER. ISOLATION TYPE HANGERS SHALL BE USED TO SUPPORT ALL OVERHEAD PLUMBING EQUIPMENT WITH ROTATING PARTS. ISOLATORS SHALL BE INSTALLED AS CLOSE TO THE OVERHEAD STRUCTURE AS POSSIBLE.

E. PREFABRICATED ROOF PIPE SUPPORTS SHALL BE UTILIZED TO SUPPORT ALL ROOFTOP PIPING 12" ABOVE ROOF AND BE AS MANUFACTURED BY ONE OF THE FOLLOWING: COOPER B–LINE, ERICO INTERNATIONAL, MIRO INDUSTRIES, PATE COMPANY, AND ROOF PRODUCTS AND SYSTEMS.

PLUMBING IDENTIFICATION

A. THE CONTRACTOR SHALL PROVIDE AND INSTALL PERMANENT IDENTIFICATION MARKERS FOR THE PLUMBING SYSTEM COMPONENTS; EQUIPMENT, PIPING, AND VALVES.

B. IDENTIFICATION MARKERS SHALL COMPLY WITH ANSI A13.1 REQUIREMENTS FOR LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS AND VIEWING ANGLES.

C. INSTALL PIPE MARKERS WHEREVER PIPING IS EXPOSED TO VIEW IN ACCESSIBLE SPACES. LOCATE MARKERS APPROXIMATELY 25 FEET ON CENTER AND NEAR EACH WALL, FLOOR, AND CEILING PENETRATION. IN ADDITION, LOCATE MARKERS NEAR POINTS OF PIPING ORIGIN, POINTS OF PIPING TERMINATION AND POINTS OF PIPING CONNECTION TO MAJOR EQUIPMENT.

D. UNDERGROUND PIPING SHALL BE IDENTIFIED WITH BRIGHT COLORED CONTINUOUSLY PRINTED PLASTIC RIBBON TAPE MANUFACTURED FOR DIRECT BURIAL SERVICE AND LOCATED 6" TO 8" BELOW GRADE, DIRECTLY ABOVE BURIED PIPE.

E. A TYPE WRITTEN VALVE CHART SHALL BE INSTALLED IN AN EQUIPMENT ROOM IN A WOOD OR ALUMINUM FRAME WITH A PLEXIGLASS COVER.

PLUMBING INSULATION

A. THE MATERIALS AND METHODS FOR THE COMPLETE INSULATION SYSTEM INSTALLATION SHALL BE TESTED, RATED, AND INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:

OBC
NFPA 90A
ASTM E–84 (NFPA 255)

B. THE COMPOSITE INSULATION SYSTEM INSTALLATION INCLUDING ALL INSULATION MATERIALS, ADHESIVES, SEALERS, COVERINGS, ETC. SHALL HAVE FLAME–SPREAD AND SMOKE–DEVELOPED INDEXES AS INDICATED BELOW:

1. INDOOR INSTALLATIONS SHALL HAVE FLAME–SPREAD INDEX OF 25 OR LESS, AND A SMOKE–DEVELOPED INDEX OF 50 OR LESS.

2. OUTDOOR INSTALLATIONS SHALL HAVE FLAME–SPREAD INDEX OF 75 OR LESS, AND A SMOKE–DEVELOPED INDEX OF 150 OR LESS.

C. INSULATION WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING TYPES OF SYSTEMS: PIPING AND EQUIPMENT.

D. PIPING SHALL BE INSULATED PER THE "PIPE AND INSULATION SCHEDULE" ON THE DRAWING AND IN ACCORDANCE WITH THE FOLLOWING MATERIAL STANDARDS:

1. FIBER GLASS PIPE INSULATION WITH AN ALL SERVICE JACKET. INSULATION SHALL BE OF THICKNESS INDICATED WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.24 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS UP TO 350 DEGREES F. INSULATION SHALL BE OWENS–CORNING TYPE ASJ/SSL–II OR EQUIVALENT.

2. FLEXIBLE UNICELLULAR ELASTOMERIC PIPE AND EQUIPMENT INSULATION. INSULATION SHALL BE OF THICKNESS AS INDICATED WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.28 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS BETWEEN –40 DEGREE F AND 200 DEGREE F. INSULATION SHALL BE ARMSTRONG ARMAFLEX SS/SA OR EQUIVALENT.

3. SEMI–RIGID FIBERGLASS BATTS OR ROLLS WITH A FIELD APPLIED GLASS CLOTH LAGGING. INSULATION SHALL BE THICKNESS AS INDICATED ON THE DRAWINGS, WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.27 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS UP TO 1000 DEGREES F. INSULATION SHALL BE OWENS–CORNING TYPE TIW (THERMAL INSULATING WOOL) OR EQUIVALENT.

E. ALL INSULATION SYSTEMS SHALL BE CONTINUOUS THROUGH WALL OPENINGS, CEILING OPENINGS, FLOOR OPENINGS, AND PIPE HANGERS.

F. INSULATION MATERIALS SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

G. INSTALLATION PERSONNEL SHALL TAKE ALL SAFETY PRECAUTIONS TO PROPERLY PROTECT THEMSELVES DURING INSTALLATION OF INSULATION SYSTEMS.

DOMESTIC WATER HEATING

A. TYPE, QUANTITY, PERFORMANCE AND OPERATING CHARACTERISTICS OF WATER HEATERS AND ASSOCIATED EQUIPMENT SHALL BE AS INDICATED ON THE CONTRACT DRAWINGS.

B. ALL SIMILAR TYPES OF WATER HEATERS SHALL BE SUPPLIED BY THE SAME MANUFACTURER.

C. WATER HEATERS SHALL BE IN COMPLIANCE WITH THE FOLLOWING APPLICABLE CODES AND STANDARDS:

1. ELECTRIC WATER HEATERS SHALL BE UL LISTED AND LABELED

2. WATER HEATERS WITH A HEAT INPUT IN EXCESS 200 MBH OR A STORAGE CAPACITY GREATER THAN 120 GALLONS SHALL BE IN COMPLIANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE

3. WATER HEATERS SHALL MEET OR EXCEED THE MINIMUM EFFICIENCY REQUIREMENTS OF ASHRAE 90.1 B–1992

4. TEMPERATURE AND PRESSURE RELIEF VALVES SHALL BE IN COMPLIANCE WITH THE ASME BOILER AND PRESSURE VESSEL CODE AND SELECTED FOR CAPACITY BASED ON THE AGA TEMPERATURE STEAM RATING

D. DOMESTIC HOT WATER EXPANSION TANKS

1. DOMESTIC HOT WATER EXPANSION TANKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASME AND BE RATED FOR A WORKING PRESSURE OF 125 PSI. THE TANK SHALL BE OF STEEL CONSTRUCTION WITH A PRE–CHARGED AIR CHAMBER. THE EXTERIOR OF THE TANK SHALL HAVE A BAKED ENAMEL FINISH.

2. THE TANK SHALL BE CONSTRUCTED TO ACCEPT AND STORE EXPANDED WATER SEPARATE FROM AIR WITH EITHER A HEAVY DUTY BUTYL DIAPHRAGM AND A RIGID POLYPROPYLENE TANK LINER OR WITH A HEAVY DUTY BUTYL WATER HOLDING BLADDER.

3. THE EXPANSION TANK SHALL BE SIZED TO ACCOMMODATE FOR THERMAL EXPANSION OF THE STORED WATER AND THUS MAINTAIN HEATED WATER PRESSURE BELOW THE RELIEF VALVE SETTING.

E. DOMESTIC HOT WATER CIRCULATING PUMPS SHALL BE OF THE IN–LINE TYPE WITH FLANGED PIPING CONNECTIONS OF ALL BRONZE CONSTRUCTION.

F. CONTRACTOR SHALL INSTALL THE DOMESTIC WATER HEATERS AND ACCESSORY COMPONENTS PLUMB AND LEVEL IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. MANUFACTURER'S RECOMMENDED OPERATING AND SERVICE CLEARANCES SHALL BE MAINTAINED.

G. CONTRACTOR SHALL INSTALL WATER PIPING FOR THE DOMESTIC WATER HEATER CONNECTIONS TO INCLUDE THE FOLLOWING DEVICES AS WELL AS ANY ADDITIONAL REQUIREMENTS AS INDICATED ON THE CONTRACT DRAWINGS.

1. INLET AND OUTLET ISOLATION VALVES
2. DIELECTRIC PIPE UNIONS AT POINT OF HEATER CONNECTION
3. THERMOMETERS IN THE INLET AND OUTLET PIPING CONNECTIONS

H. DOMESTIC HOT WATER CIRCULATING PUMPS SHALL BE INSTALLED WITH ISOLATION VALVES UP AND DOWNSTREAM AND WITH A SWING CHECK VALVE AT THE PUMP DISCHARGE.

PLUMBING FIXTURES, DRAINS AND CLEANOUTS

A. CONTRACTOR SHALL PROVIDE AND INSTALL ALL PLUMBING FIXTURES AND EQUIPMENT AS SHOWN ON THE CONTRACT DRAWINGS AND LISTED IN THE FIXTURE SCHEDULE.

B. CONTRACTOR SHALL PROVIDE AND INSTALL FLOOR DRAINS, SHOWER DRAINS, FIXTURE CARRIERS AND CLEANOUTS AS INDICATED ON THE CONTRACT DRAWINGS AND IN THESE SPECIFICATIONS.

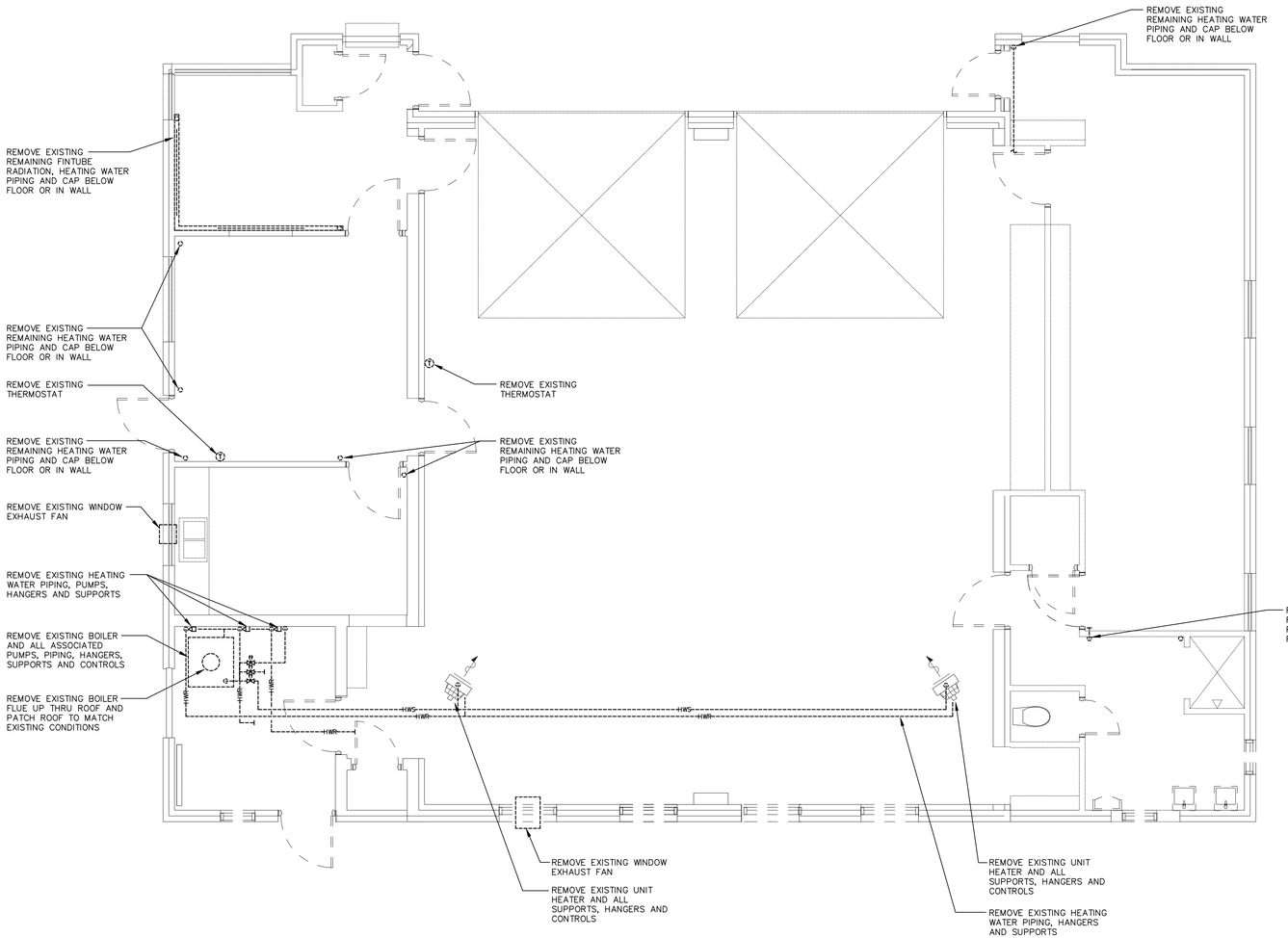
C. ALL SIMILAR TYPES OF PLUMBING FIXTURES AND DRAINS SHALL BE SUPPLIED BY THE SAME MANUFACTURER.

D. FLOOR CLEANOUTS SHALL BE INSTALLED FLUSH WITH THE FINISH FLOOR.

E. CLEANOUTS ON VERTICAL DOWNSPOUTS AND SANITARY STACKS CONCEALED WITHIN WALLS SHALL BE MADE ACCESSIBLE WITH A WALL CLEANOUT COVER PLATE.

F. EXTERIOR CLEANOUTS TO BE ROUND HEAVY DUTY CAST IRON FLANGED HOUSING WITH HEAVY DUTY SECURED SCORIATED CAST IRON.

G. ALL EXPOSED PIPING AND STOP VALVES FOR P



DEMOLITION - HVAC FLOOR PLAN

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

DEMOLITION NOTES

1. THE INTENT OF THE DEMOLITION NOTES AND DRAWINGS IS TO INDICATE THE SCOPE OF DEMOLITION WORK REQUIRED TO PERMIT THE INSTALLATION OF NEW WORK INDICATED ON THE CONTRACT DRAWINGS. THE DEMOLITION DRAWINGS ARE BASED ON THE ORIGINAL CONSTRUCTION DOCUMENTS AND MAY NOT REFLECT THE ACTUAL EXISTING CONDITIONS. THE CONTRACTOR SHALL COORDINATE DEMOLITION WORK REQUIRED WITH BOTH THE NEW WORK INDICATED AND THE ACTUAL FIELD CONDITIONS ENCOUNTERED.

2. UNLESS NOTED OTHERWISE, EXISTING MECHANICAL SYSTEM ITEMS WHICH ARE TO BE DEMOLISHED ARE SHOWN WITH DARK DASHED LINE TYPE.

3. UNLESS NOTED OTHERWISE, EXISTING MECHANICAL SYSTEM ITEMS WHICH ARE TO REMAIN ARE SHOWN WITH LIGHT SOLID LINE TYPE.

4. ALL EQUIPMENT AND MATERIALS WHICH ARE INDICATED TO BE DEMOLISHED SHALL FIRST BE OFFERED TO THE OWNER FOR HIS RETENTION. IF THE OWNER DOES NOT WANT THE DEMOLISHED MATERIALS, THEY SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF BY THE CONTRACTOR.

5. THIS CONTRACTOR SHALL COORDINATE SHUTDOWN OF ANY MECHANICAL SYSTEMS REQUIRED AS PART OF THE DEMOLITION WORK WITH THE OWNER PRIOR TO INTERRUPTION OF SERVICES.

6. UNLESS NOTED OTHERWISE, DUCTWORK AND PIPING INDICATED FOR DEMOLITION SHALL BE REMOVED BACK TO THE NEAREST MAIN. MAIN (OR OTHER NOTED TERMINATION POINT) SHALL BE CAPPED AIR/WATER TIGHT. DUCTWORK AND PIPING WITHIN WALLS WHICH ARE TO REMAIN MAY BE CAPPED IN THE WALL AND ABANDONED WITHIN THE WALL. SERVICES MUST BE CAPPED FAR ENOUGH IN THE WALL TO ALLOW FOR FLUSH PATCHING AND FINISHING OF THE WALL

7. PRIOR TO DISCONNECTING OR REMOVING ANY PLUMBING OR HVAC EQUIPMENT CONTAINING A REFRIGERANT; THE CONTRACTOR SHALL RECOVER ALL REFRIGERANT WITHOUT VENTING AND LEGALLY DISPOSE OF SAME IN COMPLETE COMPLIANCE WITH ALL EPA REGULATIONS.

8. IF ANY MATERIAL IS ENCOUNTERED IN THE COURSE OF DEMOLITION WORK WHICH THE CONTRACTOR, SUBCONTRACTOR, OR TRADESMAN SUSPECTS TO BE ASBESTOS, THEN THE WORK IN THE AREA SHALL CEASE UNTIL THE OWNER OR OWNER'S REPRESENTATIVE IS CONTACTED FOR A DETERMINATION OF WHETHER THE MATERIAL IS SAFE, SHOULD BE TESTED, OR SHOULD BE REMOVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL TRADESMAN ON THE JOB OF THE POTENTIAL PRESENCE AND HAZARD OF ASBESTOS MATERIALS.

HVAC DRAWING INDEX

H-1 – DEMOLITION – HVAC FLOOR PLAN
H-2 – HVAC FLOOR PLAN
H-3 – HVAC DETAILS AND SEQUENCES
H-4 – HVAC SCHEDULES AND NOTES
H-5 – HVAC SPECIFICATIONS

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[DESIGNED FOR PEOPLE, DESIGNED FOR LIFE.]

HARRY HINKEL, JR. E-56018 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

Addition and Remodeling for

MASSILLON FIRE STATION #3

955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

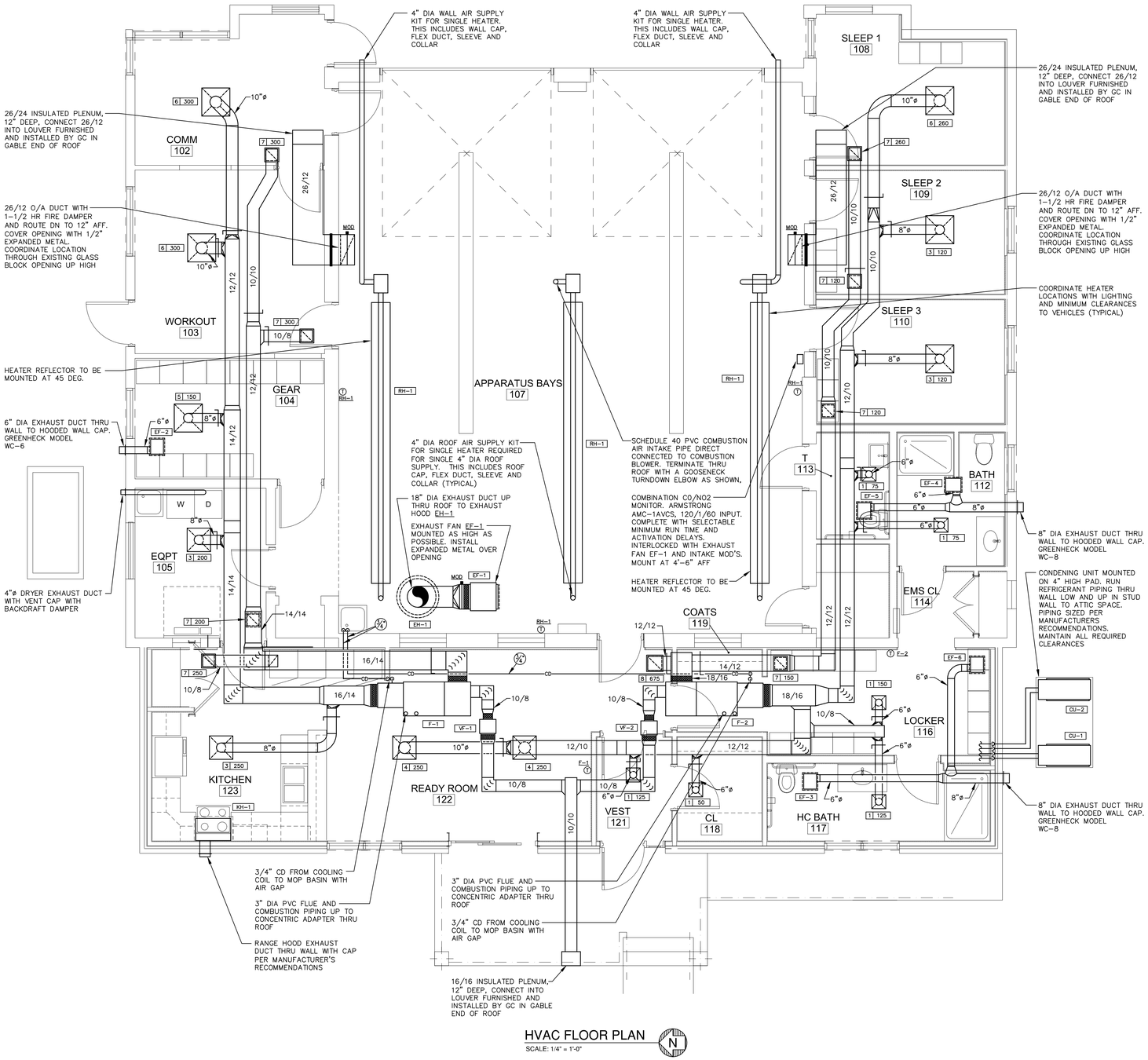
PROJECT NO: 16.115

DATE: 04/12/2018

DEMOLITION HVAC FLOOR PLAN

H-1

HEI ENGINEERING GROUP, INC.
443 WEST LIBERTY STREET
PO BOX 996
WOOSTER, OHIO 44691
TEL 330-262-0042
www.hei-ohio.com



HVAC FLOOR PLAN

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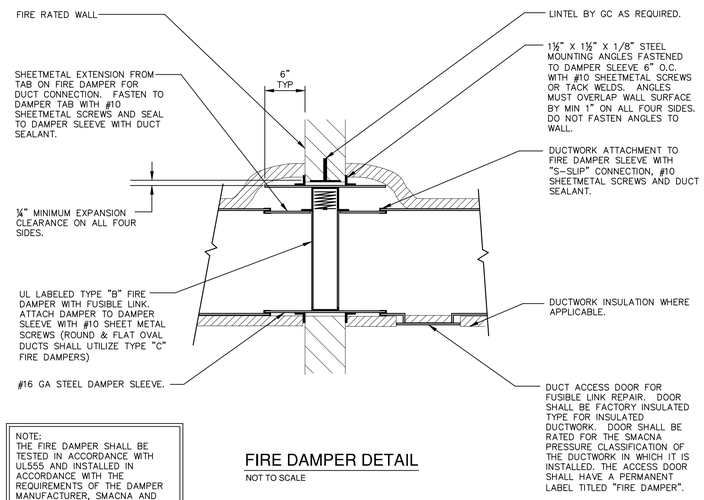
HVAC FLOOR PLAN

H-2



NOTE:
THE FIRE DAMPER SHALL BE TESTED IN ACCORDANCE WITH UL555 AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE DAMPER MANUFACTURER, SMACNA AND NFPA 90A.

FIRE DAMPER DETAIL

NOT TO SCALE

SEQUENCES OF OPERATION

FURNACES & AIR COOLED CONDENSING UNIT - (F-1,2 AND CU-1,2)

A SEVEN DAY PROGRAMMABLE THERMOSTAT PROVIDED BY HVAC EQUIPMENT MANUFACTURER FOR FIELD INSTALLATION SHALL START AND STOP THE HVAC UNIT SUPPLY FAN BASED ON AN OCCUPANCY SCHEDULE AND AUTOMATICALLY DETERMINE HEATING OR COOLING MODE OF OPERATION. A THERMOSTAT DEADBAND SHALL BE PROVIDED BETWEEN HEATING AND COOLING SEQUENCES. THE FAN SHALL OPERATE CONTINUOUSLY IN THE OCCUPIED SCHEDULE.

IN THE OCCUPIED MODE WITH THE FAN ALREADY RUNNING, WHENEVER SPACE TEMPERATURE RISES ABOVE THE THERMOSTAT COOLING SET POINT, THE SPACE THERMOSTAT SHALL THROUGH RELAYS START THE OUTDOOR CONDENSING UNIT AND OPEN THE REFRIGERATION LIQUID LINE SOLENOID VALVE. WHEN THE THERMOSTAT SET POINT IS SATISFIED, THE REFRIGERATION LIQUID LINE SOLENOID VALVE SHALL BE CLOSED AND THE CONDENSING UNIT SHALL CONTINUE TO OPERATE UNTIL SHUTTING OFF ON LOW SUCTION PRESSURE. UPON A CALL FOR COOLING IN THE UNOCCUPIED MODE, THE SAME SEQUENCE SHALL BE REPEATED FOR THE REFRIGERATION SYSTEM AND THE SUPPLY FAN SHALL BE SIMULTANEOUSLY CYCLED ON AND OFF BY THE SPACE THERMOSTAT THROUGH A BLOWER RELAY.

IN THE OCCUPIED MODE WITH THE FAN ALREADY RUNNING, WHENEVER SPACE TEMPERATURE FALLS BELOW THE THERMOSTAT HEATING SET POINT, THE SPACE THERMOSTAT SHALL FIRST ENERGIZE THE GAS PILOT IGNITION, SUBSEQUENTLY FIRING THE BURNER UPON PROOF OF FLAME. WHEN THE THERMOSTAT SET POINT IS SATISFIED, THE GAS VALVE SHALL BE DE-ENERGIZED SUBSEQUENTLY SHUTTING DOWN THE BURNER. UPON A CALL FOR HEATING IN THE UNOCCUPIED MODE, THE SAME SEQUENCE SHALL BE REPEATED FOR THE BURNER AND THE FAN SHALL BE CYCLED ON AND OFF THROUGH AN INTEGRAL FAN LIMIT SWITCH. THIS LIMIT SWITCH SHALL START THE FAN AS HEAT EXCHANGER TEMPERATURE RISES TO A PRESET SET POINT. THE FAN SHALL THEN CONTINUE TO RUN UNTIL THIS FAN LIMIT SWITCH SENSES A REDUCTION IN HEAT EXCHANGER TEMPERATURE TO A PRESET SET POINT.

THE FURNACE SHALL BE PROVIDED WITH INTEGRAL BURNER SAFETY CONTROLS, FAN LIMIT CONTROLS, A SINGLE STAGE COMBINATION GAS VALVE, AND A 24 VOLT CONTROL TRANSFORMER.

AN OUTDOOR AIR FAN (VF-1,2) ALL BE OPERATED CONTINUOUSLY IN THE OCCUPIED MODE AND SHALL BE OFF IN THE UNOCCUPIED MODE AS DETERMINED BY THE PROGRAMMABLE THERMOSTAT. THE FANS SHALL BE STARTED AND STOPPED THROUGH A RELAY.

MISCELLANEOUS SEQUENCE OF OPERATIONS

APPARATUS BAY EXHAUST FAN EF1

A COMBINATION CO/NO2 MONITOR TO CONTROL EXHAUST FAN EF-1 AND INTAKE MOTOR OPERATED DAMPERS.

TURNOUT GEAR EXHAUST FAN EF-2

A MANUAL WALL SWITCH PROVIDED BY THE E.C SHALL START AND STOP THE EXHAUST FAN.

TOILET EXHAUST FANS EF-3,4,5

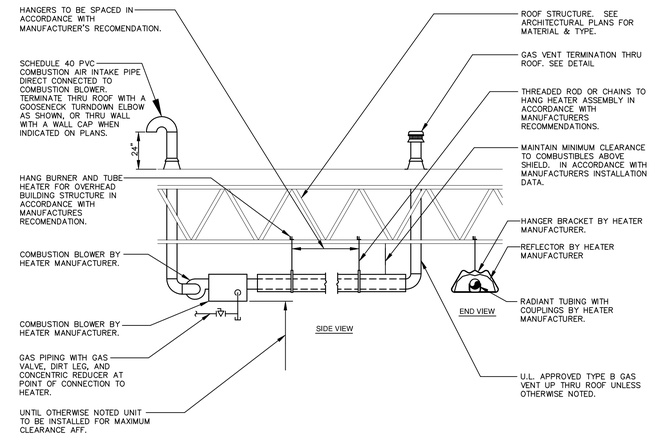
THE TOILET ROOM EXHAUST FANS SHALL BE STARTED AND STOPPED BY AN ELECTRICAL INTERLOCK WITH THE LIGHT SWITCH BY THE ELECTRICAL CONTRACTOR.

LOCKER ROOM EXHAUST FAN EF-6

A MANUAL WALL SWITCH PROVIDED BY THE E.C SHALL START AND STOP THE EXHAUST FAN.

INFRARED GAS TUBE HEATERS

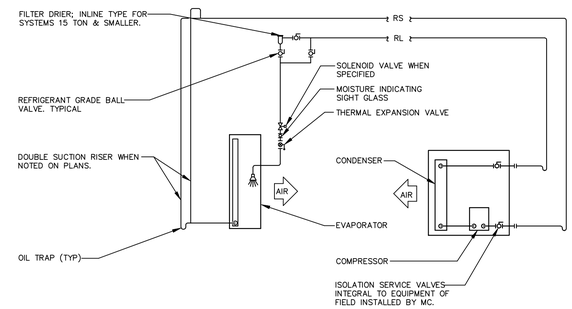
THE SPACE THERMOSTAT PROVIDED BY THE HEATER MANUFACTURER SHALL ENERGIZE THE GAS VALVE, SUBSEQUENTLY FIRING THE BURNER WHENEVER SPACE TEMPERATURE FALLS BELOW THE THERMOSTAT SET POINT. WHEN THE THERMOSTAT SET POINT IS SATISFIED, THE GAS VALVE SHALL BE DE-ENERGIZED SUBSEQUENTLY SHUTTING DOWN THE BURNER.



INFRARED RADIANT TUBE HEATER DETAIL

NOT TO SCALE

NOTE: REFRIGERANT PIPING LAYOUT AND ARRANGEMENT SHALL BE PER THE HVAC EQUIPMENT MANUFACTURER'S RECOMMENDATIONS TO ASSURE PROPER OIL AND REFRIGERANT FLOW THROUGH THE SYSTEM. INSTALLER SHALL COORDINATE REQUIREMENTS FOR PIPE SIZES, PIPE SLOPES, LOCATIONS OF TRAPS, INVERTED TRAPS, DOUBLE SUCTION RISERS ETC... WITH THE EQUIPMENT MANUFACTURER. THE REFRIGERANT PIPING SYSTEM AND ASSOCIATED SPECIALTIES SHALL BE SIZED AND SELECTED TO PREVENT EXCESSIVE PRESSURE DROPS SO AS THE COMPRESSOR AND EVAPORATOR PERFORM WITH BALANCE POINTS AT OR ABOVE THE SPECIFIED CAPACITY.



NOTE: REFRIGERNAT PIPING FOR SYSTEMS F-2/CU-2A AND CU-2B, SHALL BE DUAL CIRCUITED. PIPING SHOWN IS FOR EACH CIRCUIT.

TYP REFRIGERANT PIPING SCHEMATIC

NOT TO SCALE

FURNACE NOTES

1. FURNACE INSTALLATION SHALL INCLUDE COMBUSTION AIR AND VENT PIPING, REFRIGERANT PIPING AND CONDENSATE DRAIN PIPING. SOME OF THIS PIPING MAY HAVE BEEN OMITTED FROM THE PLANS FOR CLARITY; BUT REMAINS THE RESPONSIBILITY OF THE MC.

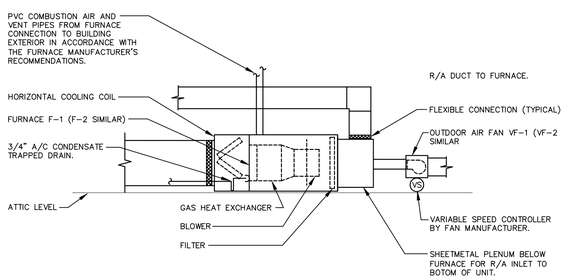
2. MC TO INSTALL PVC COMBUSTION AIR AND VENT PIPES FROM EACH FURNACE CONNECTION UP THRU ROOF (OR OUT THRU A SIDE WALL WHEN INDICATED ON PLANS) FOR TERMINATION IN ACCORDANCE WITH THE FURNACE MANUFACTURER'S RECOMMENDATIONS. OFFSET PIPING AS REQUIRED TO MAINTAIN 10 FT SEPARATION FROM VENTILATION AIR INTAKES.

3. MC TO INSTALL A TRAPPED 3/4" A/C CONDENSATE DRAIN FOR EACH EVAPORATOR DRAIN PAN. UNLESS NOTED OTHERWISE, DRAINS SHALL BE ROUTED FOR SAFE WASTE ABOVE NEAREST FLOOR DRAIN. DRAINS SHALL BE OF COPPER PIPE WITH SOLDER TYPE JOINTS OR OF PVC PIPE WITH SOLVENT CEMENT TYPE JOINTS. DRAINS CONCEALED WITHIN WALL OR CEILING CONSTRUCTION OR EXPOSED WITHIN A FINISHED SPACE SHALL BE INSULATED WITH 1/2" THICK FUE PIPE INSULATION WITH MAX FLAME/SMOKE RATING OF 25/50 IN ACCORDANCE WITH ASTM E-84.

4. MC TO INSTALL REFRIGERANT PIPING IN ACCORDANCE WITH STANDARD DETAIL. REFRIGERANT PIPING SHALL BE ASTM B280 TYPE ACR HARD-DRAWN COPPER PIPE WITH BRAZED JOINTS. PIPING SHALL BE INSULATED WITH 1/2" THICK FUE PIPE INSULATION WITH MAX FLAME/SMOKE RATING OF 25/50 IN ACCORDANCE WITH ASTM E-84.

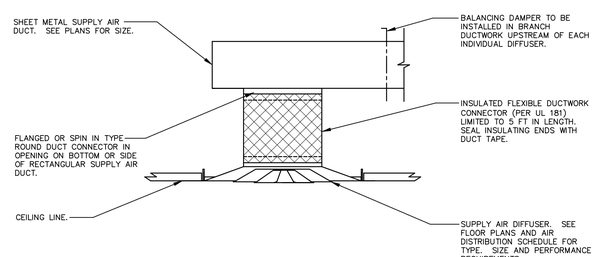
5. MC TO ROUTE PIPING AS INDICATED AND TO BEST ACCOMODATE EQUIPMENT MAINTENANCE AND ACCESS.

6. REFER TO PLUMBING PLANS FOR GAS PIPING.



FURNACE SCHEMATIC

NOT TO SCALE



SUPPLY AIR DIFFUSER

NOT TO SCALE

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Addition and Remodeling for

MASSILLON FIRE STATION #3

955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 04/12/2018

MECHANICAL DETAILS AND SEQUENCES

H-3

HEI ENGINEERING GROUP, INC.
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PO BOX 996
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DUCTWORK NOTES

1. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA's "HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE." UNLESS NOTED OTHERWISE, DUCTWORK SHALL BE OF GALVANIZED STEEL FOR 2" SMACNA PRESSURE CLASSIFICATION.

2. FLEXIBLE DUCTWORK SHALL BE LISTED AND TESTED IN ACCORDANCE WITH UL 181 AND RATED FOR THE SMACNA PRESSURE CLASSIFICATION IN WHICH IT IS APPLIED. FLEXIBLE DUCTWORK SHALL NOT EXCEED FIVE FEET IN LENGTH.

3. ALL DUCTWORK SHALL HAVE TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SEALED WITH A UL LISTED DUCT SEALANT. UNLESS NOTED OTHERWISE, DUCTWORK SHALL BE INSULATED IN ACCORDANCE WITH THE FOLLOWING NOTATION WITH 1-1/2" THICK FLEXIBLE FIBER GLASS DUCT WRAP INSULATION WITH A FOIL FACED KRAFT PAPER VAPOR SEAL AND HAVE A "k" FACTOR OF 0.30 AT 75°F MEAN TEMPERATURE.

SUPPLY AIR: .....INSULATED
RETURN AIR: .....NOT INSULATED
OUTDOOR AIR: .....INSULATED
RELIEF AIR: .....NOT INSULATED
EXHAUST AIR: .....NOT INSULATED

4. HVAC DUCTWORK MAINS EXPOSED WITHIN THE MECHANICAL ROOM SHALL BE INSULATED WITH 1" THICK RIGID FIBER GLASS DUCTBOARD WITH AN ALL-SERVICE JACKET FACING.

5. WHEN NOTED, HVAC DUCTWORK SHALL BE INTERNALLY INSULATED FOR PROTECTIVE OR ACOUSTICAL CONSIDERATIONS WITH FIBER GLASS DUCT LINER INSULATION FACED WITH A BLACK FIRE-RESISTANT COATING AGAINST THE AIRSTREAM. HVAC DUCTWORK THAT IS INTERNALLY INSULATED DOES NOT NEED TO BE EXTERNALLY INSULATED. DUCTWORK SIZES NOTED INDICATE FREE AREA DIMENSIONS. ACTUAL DUCT SIZE MUST BE INCREASED TO ACCOUNT FOR THE INSULATION LINER.

6. THE RETURN AIR DUCT MAIN FOR EACH RTU OR AHU SHALL BE INTERNALLY INSULATED FROM THE POINT OF UNIT CONNECTION UPSTREAM FOR TWENTY FEET FOR ACOUSTICAL CONSIDERATIONS WITH 1/2" THICK DUCT LINER INSULATION.

7. ALL EXHAUST AIR AND RELIEF AIR DUCTWORK WITHIN THE BUILDING FROM THE POINT OF TERMINATION AT THE BUILDING ENVELOPE TO A POINT TEN FEET UPSTREAM SHALL BE INSULATED WITH 1-1/2" THICK FLEXIBLE FIBER GLASS DUCT WRAP INSULATION.

8. SUPPLY AND RETURN AIR DUCTWORK IN VENTILATED ATTIC / TRUSS SPACE SHALL BE INSULATED WITH EITHER 1-1/2" THICK FLEXIBLE FIBERGLASS DUCT WRAP INSULATION OR 1" THICK INTERNAL DUCTLINER INSULATION.

9. DUCTWORK PENETRATIONS THROUGH FIRE RESISTANT RATED ASSEMBLIES SHALL BE MADE WITH UL LABELED FIRE DAMPERS. DAMPER RATING SHALL BE 1-1/2 HOURS FOR 1 OR 2 HOUR RATED ASSEMBLIES AND 3 HOURS FOR 3 HOUR RATED ASSEMBLIES. A DUCT ACCESS DOOR SHALL BE INSTALLED FOR FUSIBLE LINK REPAIR FOR EACH FIRE DAMPER.

10. THE AIR DISTRIBUTION DESIGN IS BASED ON LIMITED INFORMATION REGARDING SHAPES AND DEPTHS OF STRUCTURAL ELEMENTS AND CEILING HEIGHTS AND LAYOUTS. INSTALLING CONTRACTOR TO FIELD COORDINATE FOR ADEQUATE CLEARANCE WITH MINOR DEVIATIONS IN LAYOUT AND DUCT SIZES AS REQUIRED. REVISED DUCT SIZES SHALL PROVIDE EQUIVALENT DUCT FREE AREA AS INDICATED. MAXIMUM AIR FLOW FOR ROUND DUCTWORK SHALL BE AS FOLLOWS:

4" DIA. 40 CFM
6" DIA. 100 CFM
8" DIA. 230 CFM
10" DIA. 400 CFM
12" DIA. 700 CFM
14" DIA. 1000 CFM
16" DIA. 1500 CFM

11. AIR DISTRIBUTION SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH AABC OR NEBB STANDARDS. REFER TO SPECIFICATION SECTION 23 05 93 FOR ADDITIONAL BALANCING REQUIREMENTS.

GENERAL HVAC NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF THE MECHANICAL SYSTEMS. ACTUAL FIELD CONDITIONS AND WORK OF OTHER TRADES MAY REQUIRE MINOR DEVIATIONS.

2. ALL MECHANICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE OHIO PLUMBING AND MECHANICAL CODES.

3. ALL MECHANICAL EQUIPMENT AND APPLIANCES SHALL BEAR THE LABEL OF AN APPROVED AGENCY IN ACCORDANCE WITH THE OHIO MECHANICAL CODE. ALL MECHANICAL EQUIPMENT AND APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

4. UNLESS NOTED OTHERWISE, EACH MECHANICAL SYSTEM COMPONENT SHALL BE INDEPENDENTLY SUPPORTED FROM THE BUILDING STRUCTURE.

5. PLUMBING AND HVAC INSTALLATION SHALL BE COORDINATED SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ALL OUTDOOR AIR INTAKES AND BUILDING OPENINGS; TO ANY PLUMBING VENTS (EXISTING OR NEW), EXHAUST AIR OUTLETS OR OTHER NOXIOUS CONDITIONS.

6. UNLESS NOTED OTHERWISE, ALL ROOFTOP EQUIPMENT SHALL BE LOCATED SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ANY ROOF EDGE WITH A DROP OF 24" OR MORE.

7. ALL MECHANICAL SYSTEM PENETRATIONS THROUGH FIRE / SMOKE RATED ASSEMBLIES SHALL BE SEALED WITH FIRE AND SMOKE STOPPING COMPOUND SO AS TO MAINTAIN THE FIRE RESISTANCE RATING OF THE WALL PENETRATED. FIRESTOPPING COMPOUND, PIPE SLEEVES, AND PIPING INSTALLATION SHALL BE INSTALLED SO AS THE COMPLETE PENETRATION ASSEMBLY IS CLASSIFIED BY UL AS LISTED IN THE UL BUILDING MATERIALS DIRECTORY.

8. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF EXISTING WALLS, FLOORS, CEILINGS AND ROOFS AS REQUIRED FOR THE INSTALLATION OF HVAC SYSTEMS. ANY EXISTING ROOF WARRANTIES SHALL BE MAINTAINED. NO STRUCTURAL OR REINFORCING MEMBERS SHALL BE CUT.

9. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, STORAGE AND INSTALLATION OF LAY-IN CEILINGS AS REQUIRED TO ACCOMPLISH HIS SCOPE OF WORK. UPON COMPLETION OF WORK, CEILING SHALL BE RESTORED TO ITS ORIGINAL CONDITION.

10. THE ENGINEERING ANALYSIS AND DESIGN OF THE ROOF STRUCTURE FOR ROOFTOP HVAC EQUIPMENT IS OUTSIDE THE SCOPE OF HVAC DESIGN AND SHALL BE THE RESPONSIBILITY OF OTHERS. STRUCTURAL SUPPORT SHALL BE ADEQUATE FOR THE EQUIPMENT AND ADDITIONAL STRUCTURAL MEMBERS SHALL BE ADDED AS REQUIRED TO PROPERLY DISTRIBUTE THE EQUIPMENT WEIGHT AND TO MAINTAIN EQUIPMENT LEVEL AND WITHOUT SAG. EQUIPMENT SHALL NOT BE INSTALLED UNTIL ADEQUATE SUPPORT IS VERIFIED.

11. OTHER MANUFACTURER'S OF MECHANICAL EQUIPMENT MAY BE SUBSTITUTED FOR THOSE INDICATED AS LONG AS THE QUALITY OF CONSTRUCTION AND OPERATING CHARACTERISTICS ARE EQUIVALENT.

12. CONTRACTOR SHALL VERIFY/COORDINATE EQUIPMENT ELECTRICAL REQUIREMENTS PRIOR TO UNIT PROCUREMENT.

HVAC SYMBOL LEGEND

AHU-1	EQUIPMENT SYMBOL
01	ROOM NUMBER
MK CFM	AIR DISTRIBUTION DEVICE
RS	REFRIGERANT SUCTION PIPING
RL	REFRIGERANT LIQUID PIPING
CD	A/C CONDENSATE LINE
T	THERMOSTAT
	MANUAL BALANCING DAMPER
MOD	MOTOR OPERATED DAMPER
	DUCTWORK FLEXIBLE CONNECTION
	POSITIVE PRESSURE DUCT RISER SECTION
	NEGATIVE PRESSURE DUCT RISER SECTION
	POSITIVE PRESSURE DUCT DROP
	NEGATIVE PRESSURE DUCT DROP
	PIPE RISER SECTION
G	PIPE DROP
	AIRFLOW INDICATOR
S/A	SUPPLY AIR
R/A	RETURN AIR
O/A	OUTDOOR AIR
E/A	EXHAUST AIR
GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR (HVAC)
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
AFF	ABOVE FINISH FLOOR

FAN SCHEDULE

NO	MAKE	MODEL	DESCRIPTION	DRIVE	CFM	SP	BHP	RPM	MHP	SONES	ELECTRIC	WEIGHT (LBS)	CONTROL	OPTIONS / NOTES
EF-1	GREENHECK	BSQ-140-7	INLINE	BELT	2,000	1.00	0.70	1,484	3/4	14.2	208/1/60	110	FUME CONTROLS	B,C,O
EF-2	GREENHECK	SP-B200	CEILING	DIRECT	150	0.75	--	1,063	172W	5.0	115/1/60	11	WALL SWITCH	B,D
EF-3	GREENHECK	SP-B150	CEILING	DIRECT	100	0.75	--	953	128W	3.5	115/1/60	11	INTERLOCK W/ LIGHTS	B,D
EF-4	GREENHECK	SP-B150	CEILING	DIRECT	100	0.75	--	953	128W	3.5	115/1/60	11	INTERLOCK W/ LIGHTS	B,D
EF-5	GREENHECK	SP-B150	CEILING	DIRECT	100	0.75	--	953	128W	3.5	115/1/60	11	INTERLOCK W/ LIGHTS	B,D
EF-6	GREENHECK	SP-B110	CEILING	DIRECT	50	0.75	--	854	80W	3.0	115/1/60	11	WALL SWITCH	B,D
VF-1	GREENHECK	CSP-A250	INLINE	DIRECT	180	0.50	--	989	56W	3.0	115/1/60	24	INTERLOCK W/ F-1	B,D
VF-2	GREENHECK	CSP-A390	INLINE	DIRECT	240	0.50	--	1089	63W	2.5	115/1/60	24	INTERLOCK W/ F-2	B,D

GENERAL NOTES FOR ALL FANS
1. WHEN MOTOR OPERATED DAMPERS ARE SPECIFIED THEY SHALL BE SAME VOLTAGE AS FAN.
2. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

OPTIONS (SEE SCHEDULE ABOVE FOR APPLICABLE OPTIONS FROM LIST BELOW)
A. BIRD SCREEN
B. DISCONNECT SWITCH
C. MOTOR OPERATED DAMPER
D. GRAVITY BACKDRAFT DAMPER
E. 12" HIGH GALVANIZED STEEL ROOF CURB
F. WALL CAP
G. ROOF JACK
H. BRICK VENT
I. CEILING RADIATION DAMPER
J. NEMA 3R DISCONNECT SWITCH
K. HINGED BASE WITH DRAIN PIPE AND GREASE TERMINATOR
L. VARIABLE SPEED CONTROLLER
M. TWO SPEED MOTOR
N. INLET VANES
O. OSHA APPROVED BELT GUARD
P. EXPLOSION PROOF MOTOR
Q. SPARK RESISTANT CONSTRUCTION; AMCA "__"
R. OPTIONAL WIRE GUARD
S. OUTLET SAFETY SCREEN
T. ROOF CURB WITH CAP
U. VFD RATED MOTOR WITH CLASS "F" INSULATION
V. VARIGREEN MOTOR WITH SPEED ADJUSTMENT DIAL ON MOTOR

AIR DISTRIBUTION SCHEDULE

NO	MAKE	MODEL	DESCRIPTION FACE	NECK	MAX CFM	MAX. APD	NOTES
1	PRICE	SPD	12x12	6"ø	150	0.10	W/ OPPOSED BLADE DAMPER
2	PRICE	SPD	20x20	6"ø	150	0.10	W/ OPPOSED BLADE DAMPER
3	PRICE	SPD	20x20	8"ø	250	0.10	W/ OPPOSED BLADE DAMPER
4	PRICE	SPD	20x20	10"ø	300	0.10	W/ OPPOSED BLADE DAMPER
5	PRICE	SPD	24x24	8"ø	150	0.10	W/ OPPOSED BLADE DAMPER
6	PRICE	SPD	24x24	10"ø	300	0.10	W/ OPPOSED BLADE DAMPER
7	PRICE	80	12x12	10x10	300	0.10	W/ OPPOSED BLADE DAMPER
8	PRICE	80	14x14	12x12	300	0.10	W/ OPPOSED BLADE DAMPER

GENERAL NOTES FOR ALL APPLICABLE AIR DISTRIBUTION DEVICES
1. NOT ALL DEVICES IN THE SCHEDULE ARE UTILIZED FOR THIS SPECIFIC PROJECT. DEVICES REQUIRED AND QUANTITIES OF SAME ARE AS INDICATED ON THE DRAWINGS.
2. THE SYMBOLS ON THE DRAWING INDICATE TYPE OF DEVICE AND AIR VOLUME IN CFM. UNLESS NOTED OTHERWISE:
   - DEVICE SHALL BE RATED FOR A MAXIMUM NC LEVEL OF 30.
   - DEVICE SHALL BE PROVIDED WITH A STANDARD WHITE FINISH.
3. UNLESS NOTED OTHERWISE, ALL AIR DISTRIBUTION DEVICES TO BE BY SAME MANUFACTURER.
4. FRAME TYPES PROVIDED SHALL BE IN ACCORDANCE WITH THE CEILING TYPE APPLICABLE.
5. ALL RA & EA GRILLES USED IN A BOOT/PLENUM APPLICATION SHALL INCLUDE AN OBD.
6. RUNOUT DUCT SIZE TO S/A DIFFUSER SHALL BE SAME SIZE AS DIFFUSER NECK UNLESS NOTED OTHERWISE.

GRAVITY VENTILATOR SCHEDULE

NO	MAKE	MODEL	DESCRIPTION	HT. IN.	THROAT SIZE DIAMETER	THROAT SIZE MIN. AREA (FT2)	MAX CFM	MAX APD IN. WC	WEIGHT LBS	FINISH	SERVICE REFERENCE	OPTIONS NOTES
EH-1	GREENHECK	GRSR	EXHAUST HOOD	11.5	35.5	1.83	2,000	0.14	19	ALUMINUM	EF-1	A

GENERAL NOTES FOR ALL VENTILATORS
1. ALL VENTILATORS SHALL BE SUPPLIED BY THE SAME MANUFACTURER
2. ALL VENTILATORS SHALL BE SUPPLIED WITH BIRD SCREENS OF SAME MATERIAL AS THE VENTILATOR ITSELF
3. VENTILATOR FINISH COLOR SHALL BE SELECTED BY ARCHITECT UNLESS NOTED OTHERWISE
4. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

OPTIONS (SEE SCHEDULE ABOVE FOR APPLICABLE OPTIONS FROM LIST BELOW)
A. MOTOR OPERATED DAMPER- 120 VOLT
B. GRAVITY BACKDRAFT DAMPER
C. 12" HIGH GALVANIZED STEEL ROOF CURB

GAS RADIANT TUBE HEATER SCHEDULE

NO	MAKE	DESCRIPTION	MODEL	OPTIONS NOTES	ELECTRIC	HEATER DATA MBH	HEATER DATA TUBE LENGTH
RH-1	SOLARONICS	RADIANT TUBE HEATER	STG-85	A,B,C, & D	120-1-60	85.0	25'-0"

GENERAL NOTES FOR ALL VENTILATORS
1. ALL RADIANT HEATERS SHALL BE SUPPLIED WITH A BURNER HOUSING ASSEMBLY.
2. ALL RADIANT HEATERS SHALL BE SUPPLIED WITH AN ALUMINIZED COMBUSTION TUBE WITH GASKET.
3. ALL RADIANT HEATERS SHALL BE SUPPLIED WITH A COMBUSTION AIR INLET COLLAR.
4. ALL RADIANT HEATERS SHALL BE SUPPLIED WITH TURBULATORS WHEN REQUIRED.

OPTIONS (SEE SCHEDULE ABOVE FOR APPLICABLE OPTIONS FROM LIST BELOW)
A. LOW VOLTAGE REMOTE WALL MOUNT THERMOSTAT
B. (3) PRONG PLUG WITH 3'-0" POWER CORD.
C. INLET AIR SUPPLY KIT
D. EXHAUST VENTING KIT

HVAC PIPE AND INSULATION SCHEDULE

TYPE	SIZE	PIPE	FITTINGS	JOINTS	INSULATION TYPE	INSULATION THICK	NOTES
REFRIG SUCTION	ALL SIZES	ACR COPPER	WROUGHT COPPER	BRAZED	FUE	1/2"	MAT. STD. #2
	ALL SIZES	ACR COPPER	WROUGHT COPPER	BRAZED	FIBER GLASS	1"	MAT. STD. #2
A/C COND	UP TO 2"	COPPER OR PVC	WROUGHT CU / PVC	SOLDER/PRESS FIT/CEMENT	FUE	1/2"	
	UP TO 2"	COPPER OR PVC	WROUGHT CU / PVC	SOLDER/PRESS FIT/CEMENT	FIBER GLASS	1"	

WHERE MORE THAN ONE TYPE OF PIPE OR INSULATION IS INDICATED THE INSTALLING CONTRACTOR MAY SELECT FROM THE OPTIONS ACCORDING TO HIS PREFERENCE.

MATERIAL STANDARDS AND GENERAL REQUIREMENTS
1. COPPER WATER PIPE SHALL BE IN ACCORDANCE WITH ASTM B-88
2. COPPER REFRIGERANT PIPE IS ASTM B280 TYPE ACR HARD-DRAWN
3. PVC PIPE & FITTINGS SHALL BE SOLID WALL SCH 40 IN ACCORDANCE WITH ASTM D 1785
4. MECHANICAL JOINT FITTINGS SHALL INCLUDE PRESS CONNECTION JOINTS FOR COPPER WATER PIPING.
5. FIBER GLASS PIPE INSULATION SHALL HAVE A MAXIMUM CONDUCTIVITY "k" FACTOR OF 0.24 AT 75 DEG F MEAN TEMPERATURE AND AN ALL SERVICE JACKET.
6. FLEXIBLE UNICELLULAR ELASTOMERIC (FUE) PIPE INSULATION SHALL HAVE A MAXIMUM FLAME-SPREAD RATING OF 25 AND SMOKE DEVELOPMENT RATING OF 50 WHEN TESTED IN ACCORDANCE WITH ASTM E-84.

NOTES
1. REFRIGERANT LIQUID OR HOT GAS PIPING ON THE EXTERIOR OF THE BUILDING SHALL BE INSULATED THE SAME AS THE SUCTION PIPING. PIPING LOCATED ON THE EXTERIOR OF THE BUILDING SHALL BE COATED WITH A WEATHER RESISTANT, PROTECTIVE FINISH COMPATIBLE WITH THE INSULATION.

KITCHEN HOOD SCHEDULE

NO	MAKE	MODEL	* DIMENSIONS LENGTH X WIDTH X HEIGHT	EXHAUST AIR CFM	EXHAUST AIR SP	EXHAUST AIR CONNECTION SIZE	WEIGHT LBS
KH-1	DENLAR	D1030-R (NFPA101)	30"x19.5"x10.5"	500	--	--	--

1. UNIT SHALL BE WALL MOUNTED SO THAT THE BOTTOM OF THE MOUNTING BRACKET SITS 24"-30" ABOVE THE STOVETOP.
2. UNIT SHALL BE OF STAINLESS STEEL CONSTRUCTION (18 & 20 GA. #4 POLISHED 304) WITH NO SHARP EDGES AND A BRUSHED FINISH.
3. UNIT SHALL HAVE FIRE SUPPRESSION SYSTEM PREINSTALLED INTO THE HOOD.
4. AUTOMATIC SUPPRESSION ACTIVATION SHALL BE BY 212 DEG F RATED FUSIBLE LINKS.
5. EXTINGUISHING AGENT: WET CHEMICAL POTASSIUM CITRATE / POTASSIUM ACETATE SOLUTION IN A PRESSURIZED CYLINDER.
6. UNIT SHALL HAVE CENTRIFUGAL FAN WITH AIR DELIVERY OF 450 CFM. FAN SPEED WILL BE CONTROLLED BY AN INFINITELY VARIABLE SWITCH.
7. UNIT SHALL BE ETL LISTED TO UL300A AND UL507 TEST STANDARDS. FAN MOTOR TO BE PERMANENTLY LUBRICATED AND MEET UL507 STANDARDS.
8. UNIT SHALL AUTOMATICALLY DISCONNECT RANGE ENERGY ONCE A CERTAIN, PRESET TEMPERATURE IS REACHED OR UPON SYSTEM DISCHARGE.
9. UNIT SHALL INCLUDE A FUEL SHUTOFF DEVICE (ELECTRIC OR GAS), ACTIVATED UPON SUPPRESSION SYSTEM DISCHARGE.
10. UNIT SHALL HAVE TWO ALARM CONNECTION TERMINALS PREINSTALLED (LOCAL AND REMOTE ALARMS), PLUS AN INTERNAL AUDIBLE BUZZER (90 DBA).
11. LIGHTING SHALL BE PROVIDED BY 60W INCANDESCENT SHATTER-PROOF BULB.

CONDENSING UNIT SCHEDULE

NO	MAKE	MODEL	EQUIP. SERVED	NOM. TONS	AMB. OAT DEG. F	MIN. OAT DEG. F	ELECTRIC	MIN. CIRCUIT AMPS	MAX FUSE SIZE	MIN. ALLOW SEER	ACTUAL SEER	WEIGHT LBS	OPTIONS & NOTES
CU-1	CARRIER	24AHA436A	F-1	3	95	55	208-1-60	18.8	30	13	13	184	A, B, C, D, E, F, G
CU-2	CARRIER	24AHA448A	F-2	4	95	55	208-1-60	24.3	40	13	13	213	A, B, C, D, E, F, G

GENERAL NOTES FOR ALL CONDENSING UNITS
1. CONDENSING UNIT SHALL BE BY THE SAME MANUFACTURER AS THE HVAC EQUIPMENT IT SERVES
2. CONDENSING UNITS SHALL BE FACTORY WIRED FOR A SINGLE POINT POWER CONNECTION WITH ALL TRANSFORMERS AND CONTACTORS AS REQUIRED FOR COMPLETE OPERATION OF ALL UNIT COMPONENTS
3. ACTUAL EFFICIENCY (SEER) IS IN COMBINATION WITH SCHEDULED EVAPORATOR COIL (SEE FURNACE SCHEDULE).
4. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

OPTIONS (SEE SCHEDULE ABOVE FOR APPLICABLE OPTIONS FROM LIST BELOW)
A. START ASSIST
B. CRANKCASE HEATER
C. TIME DELAY RELAY
D. EVAPORATIVE FREEZE THERMOSTAT FOR OUTDOOR UNIT
E. LOW AMBIENT INCLUDING ALL ACCESSORIES NECESSARY FOR OPERATION DOWN TO 0°F.
F. LONG LINE APPLICATION: PROVIDE ALL ACCESSORIES REQUIRED BY MANUFACTURER FOR INSTALLATION
G. COMFORT PROGRAMMABLE AIR CONDITIONER CONTROL FOR OUTDOOR UNIT

FURNACE SCHEDULE - MULTIPOISE

NO	MAKE	MODEL	ARRANGEMENT	TYPE	BLOWER DATA S.A. CFM	BLOWER DATA ESP IN. WC	BLOWER DATA O.A. CFM	BLOWER DATA FAN HP	HEATING DATA MBH INPUT HIGH/ LOW	HEATING DATA MBH OUTPUT HIGH/ LOW	HEATING DATA SCHEDULED AFUE	HEATING DATA ENERGY CODE MIN. AFUE	ADD ON A/C COIL MODEL	ADD ON A/C COIL MBHT	ADD ON A/C COIL MBHS	ADD ON A/C COIL APD IN. WC	ELECTRICAL UNIT MCA	ELECTRICAL MAX. FUSE	ELECTRICAL VOLTAGE	OPTIONS
F-1	CARRIER	59TP6A060E17	HORIZONTAL	GAS	1200	0.90	180	3/4	60 / 39	58 / 38	96%	78%	CNPH3617	33.8	26.5	0.22"	10.9	15	120-1-60	A, B, C, D, E
F-2	CARRIER	59TP6A120E24	HORIZONTAL	GAS	1600	0.85	240	1	120 / 78	117 / 76	96%	78%	CNPHP6024	45.6	35.6	0.21"	14.7	20	120-1-60	A, B, C, D, E

GENERAL NOTES FOR ALL FURNACES
1. COORDINATE WITH SEQUENCE OF OPERATIONS FOR ADDITIONAL REQUIREMENTS
2. ALL FURNACES SHALL BE BY THE SAME MANUFACTURER
3. OTHER ACCEPTABLE MANUFACTURERS: TRANE, YORK, MCQUAY AND LENNOX
4. COOLING COIL A.P.D. IS FOR WET COIL. SUBTRACT COOLING COIL A.P.D. FROM BLOWER E.S.P. TO OBTAIN AVAILABLE DUCT STATIC PRESSURE.

OPTIONS (SEE SCHEDULE ABOVE FOR APPLICABLE OPTIONS FROM LIST BELOW)
A. 7-DAY PROGRAMMABLE AUTO-CHANGEOVER WALL MOUNT THERMOSTAT
B. BLOWER RELAY SWITCH FOR AIR CONDITIONING
C. MEDIA FILTER CABINET AND MERV 8 (4")FILTER
D. CONCENTRIC VENT KIT (ROOF APPLICATION)
E. HORIZONTAL TRAP GROMMET – DIRECT VENT FOR FURNACE

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[designed for people, designed for life.]

HARRY HINKEL, JR. E-56018 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

Addition and Remodeling for
MASSILLON FIRE STATION #3
955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 04/12/2018

MECHANICAL SCHEDULES AND NOTES

H-4

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MECHANICAL SPECIFICATIONS

BASIC HVAC REQUIREMENTS

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE HVAC SYSTEM INSTALLATION AS INDICATED ON THE DRAWINGS AND WITHIN THESE SPECIFICATIONS. THE ENGINEERS RESPONSIBILITY IS LIMITED TO DESIGN SERVICES ONLY (NO CONSTRUCTION PHASE ADMINISTRATION SERVICES OR INSTALLATION SUPERVISION). THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF THE MECHANICAL SYSTEM DESIGN IMPLEMENTATION.

B. DRAWINGS ARE BASICALLY DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND COMPONENTS. INSTALLING CONTRACTOR SHALL COORDINATE THE DESIGN INTENT OF THE DRAWINGS WITH THE ACTUAL FIELD CONDITIONS MAKING MINOR DEVIATIONS AND ADJUSTMENTS AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM. EXACT LOCATIONS OF MECHANICAL SYSTEM COMPONENTS SHALL BE DETERMINED BY THE CONTRACTOR. SUCH DETERMINATION SHALL GIVE CONSIDERATION TO THE BUILDING STRUCTURAL AND SPATIAL LIMITATIONS, TO COORDINATION WITH WORK OF OTHER TRADES AND DISCIPLINES, AND TO THE NECESSARY CLEARANCE REQUIREMENTS (BOTH OF THE ITEM BEING INSTALLED AND OF ALL ADJACENT ITEMS) TO ACCOMMODATE MANUFACTURER'S INSTALLATION REQUIREMENTS, TO SATISFY CODE CLEARANCE REQUIREMENTS AND TO FACILITATE SYSTEM OPERATION AND MAINTENANCE. UNLESS NOTED OTHERWISE, MECHANICAL SYSTEMS SHALL BE INSTALLED TO PROVIDE MAXIMUM CLEARANCE ABOVE THE FINISHED FLOOR.

C. THE MECHANICAL SYSTEM INSTALLATION SHALL BE IN FULL COMPLIANCE WITH THE FOLLOWING CODES AND STANDARDS:

THE OHIO BUILDING CODE
THE OHIO PLUMBING CODE
THE OHIO MECHANICAL CODE
NFPA (APPLICABLE SECTIONS)
NATIONAL ELECTRIC CODE
MUNICIPAL AND COUNTY CODES AND ORDINANCES
STATE, MUNICIPAL AND COUNTY HEALTH AGENCIES
OTHERS AS INDICATED WITHIN THESE SPECIFICATIONS

D. DRAWINGS AND SPECIFICATIONS SHALL BE CONSIDERED COOPERATIVE. ANYTHING APPEARING IN THIS SPECIFICATION BUT NOT ON THE DRAWINGS, OR VICE VERSA, SHALL BE CONSIDERED PART OF THE CONTRACT.

E. EVERY EFFORT IS MADE ON THE PART OF THE ENGINEER TO COMPLY WITH THE LISTED CODES AND STANDARDS. WHERE THE DESIGN EXCEEDS THE REQUIREMENTS OF THE APPLICABLE CODES AND STANDARDS; THE INSTALLATION SHALL BE PER THE DESIGN REQUIREMENTS. NO WORK SHALL BE INSTALLED CONTRARY TO OR BELOW MINIMUM REQUIREMENTS OF THE CODES AND STANDARDS.

F. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES, BOTH TEMPORARY AND PERMANENT, REQUIRED BY LAW AS PART OF THE INSTALLATION WORK INDICATED ON THE DRAWINGS AND WITHIN THIS SPECIFICATION.

G. THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ARCHITECT–ENGINEER, 6 COPIES OF MANUFACTURER'S DRAWINGS, CUT SHEETS, AND APPLICATION SPECIFIC PERFORMANCE DATA.

HVAC SYSTEM EQUIPMENT AND SYSTEM COMPONENTS
HVAC CONTROLS AND SEQUENCES OF OPERATIONS
HVAC TEST AND BALANCE REPORTS

H. SHOP DRAWING SUBMITTALS SHALL INCLUDE THE PROJECT NAME, THE ARCHITECT–ENGINEER'S PROJECT NUMBER, THE APPLICABLE SPECIFICATION SECTION AND OR DRAWING NUMBER AS WELL THE CONTRACTOR'S APPROVAL STAMP. SHOP DRAWINGS SHALL BE SUBMITTED TO ARCHITECT–ENGINEER WITHIN THIRTY WORKING DAYS OF AWARD OF CONTRACT. CONTRACTOR SHALL NOT INSTALL ANY APPLICABLE MATERIALS AND/OR EQUIPMENT WITHOUT PRIOR REVIEW AS INDICATED ON THE ARCHITECT–ENGINEER'S REVIEW STAMP. REVIEW BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

I. THE CONTRACTOR SHALL GUARANTEE THE COMPLETE MECHANICAL SYSTEM INSTALLATION AS INSTALLED BY HIM OR HIS SUB–CONTRACTORS TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE (UNLESS A LONGER PERIOD IS SPECIFIED FOR SPECIFIC ITEMS ELSEWHERE). DEVIATIONS FROM THIS MAY OCCUR ON LARGER ITEMS OF EQUIPMENT USED DURING BENEFICIAL OCCUPANCY BEFORE THE TOTAL SYSTEM IS ACCEPTED. SUCH A MATTER MUST HAVE PRIOR APPROVAL AND BE MADE A MATTER OF WRITTEN RECORD BY THE ARCHITECT–ENGINEER'S REPRESENTATIVE.

J. THE CONTRACTOR SHALL REPAIR OR REPLACE AT HIS OWN EXPENSE ANY MATERIALS OR EQUIPMENT FOUND TO BE DEFECTIVE WITHIN THE WARRANTEE PERIOD AND SHALL BE HELD FINANCIALLY RESPONSIBLE FOR ANY PROPERTY DAMAGES ARISING FROM SUCH DEFECTS OR THE CORRECTION OF SUCH DEFECTS.

K. THE CONTRACTOR SHALL GUARANTEE THAT ALL MECHANICAL EQUIPMENT SUPPLIED BY HIM OR HIS SUB–CONTRACTORS SHALL DEVELOP CAPACITIES AND HAVE CHARACTERISTICS AS SCHEDULED OR SPECIFIED.

L. THE CONTRACTOR SHALL SUBMIT WRITTEN WARRANTEE CERTIFICATES FOR HIS INSTALLATION WORK AND FROM EACH MANUFACTURER OF EQUIPMENT SUPPLIED ON THE PROJECT TO THE ENGINEER.

M. CONTRACTOR MAY USE PERMANENT MECHANICAL EQUIPMENT FOR TEMPORARY SERVICES WHEN APPROVED BY THE ARCHITECT–ENGINEER. SUCH APPROVAL IS CONDITIONED BY THE FOLLOWING REQUIREMENTS:

1. THE CONTRACTOR SHALL MAINTAIN THE EQUIPMENT FOR RELEASE TO OWNER AT TIME OF FINAL ACCEPTANCE IN "NEW" CONDITION.

N. WARRANTY PERIOD FOR THE OWNER SHALL NOT BEGIN UNTIL THE DATE OF FINAL SYSTEM ACCEPTANCE.

O. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES INCURRED DURING THE INSTALLATION OF HIS WORK TO THE EXISTING GROUNDS, WALKS, ROADS, BUILDING, PLUMBING SYSTEMS, HVAC SYSTEMS, AND ELECTRIC SYSTEMS AS WELL AS ALL NEW CONSTRUCTION WORK BY OTHER TRADES. HE SHALL REPAIR AT HIS EXPENSE ALL SUCH DAMAGES FOR RESTORATION TO THE ORIGINAL CONDITIONS TO THE SATISFACTION OF THE ARCHITECT–ENGINEER AND OWNER.

P. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE MATERIALS, EQUIPMENT AND INSTALLATION OF HIS WORK FROM DAMAGE DUE TO WEATHER AND CONSTRUCTION JOB SITE CONDITIONS.

Q. THE CONTRACTOR SHALL MAINTAIN A SET OF PRINTS AT THE CONSTRUCTION SITE TO RECORD IN RED ANY DEVIATIONS IN THE ACTUAL MECHANICAL SYSTEM INSTALLATION FROM THE DESIGN DRAWINGS. THESE RECORD DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT–ENGINEER UPON COMPLETION OF THE PROJECT.

R. THE CONTRACTOR SHALL PROVIDE THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS FOR THE OWNER'S USE UPON COMPLETION OF THE PROJECT. OPERATION AND MAINTENANCE MANUALS SHALL BE SUBMITTED TO THE ARCHITECT–ENGINEER FOR APPROVAL. OPERATION AND MAINTENANCE MANUALS SHALL INCLUDE THE FOLLOWING:

1. NAME AND SERVICE TELEPHONE NUMBER OF THE INSTALLING COMPANY
2. GENERAL DESCRIPTION OF HOW THE SYSTEM SHOULD OPERATE
3. MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS
4. COPY OF APPROVED SHOP DRAWINGS
5. COPY OF FINAL BALANCE REPORT
6. LUBRICATION SCHEDULE
7. VALVE CHART
8. SPARE PARTS LIST
9. WARRANTY CERTIFICATES

S. THE CONTRACTOR SHALL INSTRUCT THE OWNER'S MAINTENANCE PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF THE ENTIRE MECHANICAL SYSTEM INSTALLATION INCLUDING ALL ASSOCIATED EQUIPMENT ITEMS.

T. THE SCHEDULED MANUFACTURER FOR EACH ITEM SHALL BE CONSIDERED AS BASIS OF DESIGN. PERFORMANCE CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, AND DIMENSIONAL AND SPATIAL REQUIREMENTS FOR THIS ITEM HAVE ALREADY BEEN CONSIDERED IN THE DESIGN. OTHER ACCEPTABLE MANUFACTURERS HAVE NOT BEEN CHECKED FOR SUCH DETAIL AND MUST MEET ALL THE SCHEDULED PERFORMANCE REQUIREMENTS AND POSSESS FEATURES SIMILAR TO THOSE WHICH ARE STANDARD ON THE ITEMS WHICH ARE BASIS OF DESIGN.

U. UNLESS NOTED OTHERWISE, EACH MECHANICAL SYSTEM COMPONENT SHALL BE INDEPENDENTLY SUPPORTED FROM THE BUILDING STRUCTURE.

V. UNLESS NOTED OTHERWISE, CONTRACTOR(S) SHALL COORDINATE PLUMBING AND HVAC INSTALLATION SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ALL OUTDOOR AIR INTAKES AND BUILDING OPENINGS TO ANY PLUMBING VENTS (EXISTING AND NEW) EXHAUST AIR OUTLETS OR OTHER NOXIOUS CONDITIONS.

W. UNLESS NOTED OTHERWISE, ALL ROOFTOP EQUIPMENT SHALL BE LOCATED SO AS TO MAINTAIN AT LEAST TEN FEET OF CLEARANCE FROM ANY ROOF EDGE WITH A DROP OF 24" OR MORE.

BASIC HVAC MATERIALS AND METHODS

A. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NEW MATERIALS, EQUIPMENT, COMPONENTS, AND FIXTURES AS INDICATED.

B. PIPE SLEEVES SHALL BE PROVIDED AND INSTALLED WHERE PIPES PASS THROUGH WALLS, FLOORS, AND CEILINGS. SLEEVES SHALL BE SUFFICIENTLY LARGE ENOUGH TO ALLOW FOR FIRE AND SOUND STOPPING BETWEEN THE INSIDE SLEEVE WALL AND THE PIPE OR INSULATION SURFACE AS WELL AS ALLOW FOR THERMAL EXPANSION AND CONTRACTION OF PIPING. (SLEEVES SHALL BE LARGE ENOUGH TO ALLOW PIPE INSULATION TO BE CONTINUOUS THROUGH THE WALL.) LENGTH OF SLEEVES SHALL BE EQUAL TO THE THICKNESS OF THE BUILDING CONSTRUCTION ELEMENT PENETRATED FOR A FLUSH FINISH ON BOTH SIDES EXCEPT FOR FLOOR SLEEVES WHICH SHALL EXTEND 2" ABOVE THE FINISH FLOOR. INSTALL IRON–PIPE SLEEVES IN EXTERIOR WALL PENETRATIONS AND STEEL–PIPE SLEEVES ELSEWHERE UNLESS NOTED OTHERWISE.

C. THE CONTRACTOR SHALL PROVIDE AND INSTALL SEALING MATERIALS FOR MECHANICAL SYSTEM PENETRATIONS THROUGH BUILDING WALLS, FLOORS, CEILINGS, AND ROOFS. EXTERIOR PENETRATIONS SHALL BE WEATHER PROOF AND VERMIN PROOF; INTERIOR PENETRATIONS SHALL HAVE SOUND STOPPING. PENETRATIONS THROUGH FIRE AND SMOKE BARRIERS SHALL HAVE FIRESTOPPING.

1. THE CONTRACTOR SHALL SEAL ALL FIRE/SMOKE RATED WALL AND FLOOR PENETRATIONS FOR MECHANICAL SYSTEM COMPONENTS WITH FIRE AND SMOKE STOPPING COMPOUND SO AS TO MAINTAIN THE FIRE RESISTANCE RATING OF THE WALL OR FLOOR PENETRATED. FIRESTOPPING COMPOUND, PIPE SLEEVES, AND PIPING AND INSULATION SHALL BE INSTALLED SO AS THE COMPLETE PENETRATION ASSEMBLY IS CLASSIFIED BY UL AS LISTED IN THE UL BUILDING MATERIALS DIRECTORY.

D. ESCUTCHEON PLATES SHALL BE INSTALLED ON ALL PIPE PENETRATIONS THROUGH WALLS, FLOORS, AND CEILINGS WHERE EXPOSED TO VIEW AND ON THE BUILDING EXTERIOR. ESCUTCHEON PLATE SHALL BE SECURED TO PIPE OR INSULATION AND COMPLETELY COVER THE HOLE PENETRATION.

E. ACCESS DOORS SHALL BE PROVIDED AND INSTALLED BY THE M.C. IN NON–ACCESSIBLE WALLS, AND CEILINGS WHICH CONCEAL HVAC ITEMS WHICH REQUIRE SERVICE OR INSPECTION SUCH AS VALVES AND DAMPERS. THE DOORS SHALL BE OF ADEQUATE SIZE TO SERVICE THE CONCEALED ITEM. DOOR SHALL BE OF PAINTED STEEL CONSTRUCTION WITH CONCEALED HINGE AND KEYED LOCK. ALL DOORS SHALL BE KEYED ALIKE WITH A MINIMUM OF TWO KEYS PROVIDED TO OWNER. ACCESS DOORS IN CEILINGS SHALL HAVE A RECESSED FACE FOR FIELD INSTALLATION OF FINISHED CEILING MATERIAL. DOORS INSTALLED IN FIRE RATED WALLS AND CEILINGS SHALL BE UL LISTED AND LABELED WITH APPLICABLE FIRE RESISTANCE RATING.

F. EXISTING BUILDING SURFACES AND AUXILIARY EQUIPMENT AND FINISHES MARRED DURING INSTALLATION OF HVAC WORK SHALL BE REPAINTED BY THE M.C. FACTORY APPLIED PAINT FINISHES ON HVAC EQUIPMENT MARRED DURING INSTALLATION SHALL ALSO BE REPAINTED BY THE M.C.

G. THE CONTRACTOR SHALL PAINT ALL IRON PIPE FITTINGS AND VALVE BODIES, ALL SUPPORT STEEL INSTALLED AS PART OF HIS SCOPE OF WORK AND ALL EXPOSED PIPING AND DUCTWORK ON THE EXTERIOR OF THE BUILDING. ALL PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINT MANUFACTURER'S INSTRUCTIONS INCLUDING SURFACE PREPARATION AND CONDITIONS OF AMBIENT TEMPERATURE AND HUMIDITY. ENVIRONMENTAL CONDITIONS IN THE AREA OF PAINTING WORK SHALL COMPLY WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND ALL GOVERNING REGULATIONS.

HVAC HANGERS AND SUPPORTS

A. HANGERS FOR MECHANICAL EQUIPMENT SHALL CONSIST OF STRUCTURAL STEEL SHAPES OR STEEL RODS ATTACHED TO THE BUILDING SUBSTRATE WITH SUITABLE EXPANSION SHIELLS, INSERTS, OR BEAM CLAMPS. HANGERS SHALL BE SELECTED TO ADEQUATELY SUPPORT THE STATIC AND DYNAMIC LOADS OF THE EQUIPMENT AS INDICATED BY THE EQUIPMENT MANUFACTURER. ISOLATION TYPE HANGERS SHALL BE USED TO SUPPORT ALL OVERHEAD MECHANICAL EQUIPMENT WITH ROTATING PARTS. ISOLATORS SHALL BE INSTALLED AS CLOSE TO THE OVERHEAD STRUCTURE AS POSSIBLE.

B. ROOFTOP EQUIPMENT SUPPORTS AND CURBS SHALL BE AS AVAILABLE FROM THE HVAC EQUIPMENT MANUFACTURER OR AS MANAUFACTURED BY ONE OF THE FOLLOWING MANUF.: PATE, ROOF PRODUCTS AND SYSTEMS OR THYCURB DIVISION OF THYBAR CORPORATION.

C. SUPPORT FROM STEEL JOIST PANEL POINT IS REQUIRED.

D. SUPPORTS FROM ROOF DECKING SYSTEMS ARE NOT PERMITTED.

HVAC IDENTIFICATION

A. THE CONTRACTOR SHALL PROVIDE AND INSTALL PERMANENT IDENTIFICATION MARKERS FOR THE MECHANICAL SYSTEM COMPONENTS AS INDICATED BELOW:

1. EACH SCHEDULED ITEM OF EQUIPMENT, MECHANICAL (PLUMBING AND HVAC), PIPING, AND VALVES IDENTIFICATION MARKERS SHALL BE AS MANUFACTURED BY SETON, BRADY, ALLEN OR MARKING SYSTEMS INC.

B. IDENTIFICATION MARKERS SHALL COMPLY WITH ANSI A13.1 REQUIREMENTS FOR LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS AND VIEWING ANGLES.

C. INSTALL PIPE MARKERS WHEREVER PIPING IS EXPOSED TO VIEW IN ACCESSIBLE SPACES. LOCATE MARKERS APPROXIMATELY 25 FEET ON CENTER AND NEAR EACH WALL, FLOOR AND CEILING PENETRATION. IN ADDITION, LOCATE MARKERS NEAR CONNECTION TO MAJOR EQUIPMENT.

TESTING, ADJUSTING, AND BALANCING

A. TESTING ADJUSTING AND BALANCING SHALL BE THE RESPONSIBILITY OF A TEST AND BALANCE CONTRACTOR WHICH IS AABC OR NEBB CERTIFIED.

B. TESTING ADJUSTING AND BALANCING WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISION OF THE FOLLOWING STANDARDS:

1. "AABC NATIONAL STANDARDS" OR "NEBB PROCEDURAL STANDARDS"

2. ASHRAE SYSTEMS VOLUME RECOMMENDATIONS FOR TESTING, ADJUSTING AND BALANCING

3. SMACNA TESTING, ADJUSTING, AND BALANCING MANUAL

C. A COMPLETE TEST AND BALANCE REPORT ON STANDARD AABC OR NEBB FORMS SHALL BE SUBMITTED TO THE ENGINEER. WHEN THE REPORT INDICATES INADEQUATE SYSTEM PERFORMANCE IN COMPARISON TO THE DESIGN REQUIREMENTS AN EXPLANATION SHALL ACCOMPANY THE REPORT INDICATING THE PROBABLE CAUSE.

D. THE TEST AND BALANCE CONTRACTOR SHALL CHECK THE MECHANICAL INSTALLATION WORK IN COMPARISON WITH THE DESIGN TO VERIFY CORRECT INSTALLATION AND OPERATING CONDITIONS.

E. THE TEST AND BALANCE CONTRACTOR SHALL EXAMINE THE AUTOMATIC TEMPERATURE CONTROL SYSTEM TO VERIFY THAT THE CONTROLLED DEVICES AND THEIR RESPECTIVE CONTROLLERS ARE FUNCTIONING PROPERLY IN ACCORDANCE WITH THE SEQUENCE OF OPERATIONS AS INDICATED.

1. VERIFY THAT CONTROL VALVES AND DAMPERS MODULATE/OPERATE FREELY BETWEEN THE SET MINIMUM AND MAXIMUM POSITIONS.

2. VERIFY THAT ACTUAL POSITION OF CONTROL VALVE AND DAMPER IS AS INDICATED BY THE CONTROLLER.

3. VERIFY THAT THREE WAY CONTROL VALVES FOR MIXING OR DIVERTING FLUIDS ARE INSTALLED PROPERLY.

4. VERIFY THAT HVAC EQUIPMENT / SYSTEM INTERLOCKS ARE FUNCTIONING PROPERLY (BOTH HARDWARE AND SOFTWARE INTERLOCKS). VERIFY PROPER HEATING AND COOLING CHANGEOVER OPERATION OF SYSTEM.

F. THE TEST AND BALANCE CONTRACTOR SHALL PERFORM TESTS AND MAKE ALL ADJUSTMENTS AS REQUIRED TO BALANCE THE HVAC SYSTEMS TO THE FOLLOWING CRITERIA:

1. ALL FANS SHALL PERFORM "EQUAL TO" OR "10% IN EXCESS OF" THE DESIGN VOLUME.

2. MINIMUM OUTDOOR AIR REQUIREMENTS SHALL BE WITHIN 5% ABOVE OR BELOW THE DESIGN VOLUME.

3. SUPPLY DIFFUSERS AND REGISTERS SHALL BE WITHIN 10% ABOVE OR 5% BELOW THE DESIGN VOLUME.

4. RETURN AND EXHAUST GRILLES SHALL BE WITHIN 5% ABOVE OR 10% BELOW THE DESIGN VOLUME.

G. THE BALANCE CONTRACTOR SHALL NOTIFY THE MECHANICAL CONTRACTOR OF ANY INCOMPLETE WORK, ANY ADDITIONAL WORK, OR ANY REWORK WHICH NEEDS TO BE COMPLETED IN ORDER TO BALANCE THE SYSTEMS TO WITHIN THE ACCEPTABLE CRITERIA. THIS WORK SHALL BE COMPLETED AND ACCOMPANYING TESTS AND ADJUSTMENTS MADE PRIOR TO THE REPORT SUBMISSION.

H. WHEN EXISTING HVAC SYSTEMS ARE BEING MODIFIED, THE TEST AND BALANCE CONTRACTOR SHALL MEASURE AND RECORD EXISTING FLOWS TO THE REMAINDER OF THE SYSTEM PRIOR TO ANY SYSTEM MODIFICATIONS. UPON COMPLETION OF NEW INSTALLATION MODIFICATIONS, THE TEST AND BALANCE CONTRACTOR SHALL RESTORE THE ORIGINAL BALANCE OF THE UNALTERED SYSTEM PORTIONS AS WELL AS BALANCE THE NEW WORK TO THE INDICATED DESIGN REQUIREMENTS.

I. THE TEST AND BALANCE CONTRACTOR SHALL PATCH ALL HOLES IN DUCTWORK AND INSULATION WHICH WERE MADE FOR THE AFOREMENTIONED TESTING AND BALANCING PROCEDURES.

J. THE BALANCE CONTRACTOR SHALL PERMANENTLY MARK ALL FINAL BALANCE SETTINGS ON EQUIPMENT AND COMPONENTS FOR FUTURE REFERENCE.

HVAC INSULATION

A. THE MATERIALS AND METHODS FOR THE COMPLETE INSULATION SYSTEM INSTALLATION SHALL BE TESTED, RATED, AND INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS.

NFPA 90A
ASTM E–84 (NFPA 255)
ASHRAE 90.1

B. THE COMPOSITE INSULATION SYSTEM INSTALLATION INCLUDING ALL INSULATION MATERIALS, ADHESIVES, SEALERS, COVERINGS, ETC... SHALL HAVE FLAME–SPREAD AND SMOKE–DEVELOPED INDICES AS INDICATED BELOW:

1. INDOOR INSTALLATIONS SHALL HAVE FLAME–SPREAD INDEX OF 25 OR LESS, AND A SMOKE–DEVELOPED INDEX OF 50 OR LESS.

2. OUTDOOR INSTALLATIONS SHALL HAVE FLAME–SPREAD INDEX OF 75 OR LESS, AND A SMOKE–DEVELOPED INDEX OF 150 OR LESS. (EXCEPT FOR INSULATION PRODUCTS IN CONTACT WITH THE AIRSTREAM WHICH MUST HAVE THE SAME RATINGS AS THE INDOOR INSTALLATIONS.)

C. INSULATION WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING TYPES OF SYSTEMS.

DUCTWORK

D. HVAC DUCTWORK SHALL BE INSULATED IN ACCORDANCE WITH THE NOTES ON THE DRAWING.

1. FLEXIBLE FIBER GLASS DUCT WRAP INSULATION WITH FOIL FACED KRAFT PAPER VAPOR SEAL FACING. INSULATION SHALL BE OF THICKNESS AS INDICATED IN THIS SPECIFICATION OR ON THE DRAWINGS, 0.75 PCF DENSITY, WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.30 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS UP TO 250 DEGREES F. INSULATION SHALL BE OWENS–CORNING TYPE 75 OR EQUIVALENT.

2. RIGID FIBER GLASS DUCT BOARD WITH ALL–SERVICE JACKET FACING INSULATION SHALL BE OF THICKNESS AS INDICATED IN THIS SPECIFICATION OR ON THE DRAWINGS, 6.0 PCF DENSITY, WITH A THERMAL CONDUCTIVITY "K" FACTOR OF 0.24 AT 75 DEGREE F MEAN TEMPERATURE SUITABLE FOR APPLICATIONS UP TO 450 DEGREES

E. INSULATION SHALL BE OWENS CORNING TYPE 705 OR EQUIVALENT.

1. FIBERGLASS DUCT LINER INSULATION FACED WITH BLACK FIRE–RESISTANT COATING AGAINST THE AIRSTREAM. THE COATING SHALL BE MICROBIAL GROWTH RESISTANT IN COMPLIANCE WITH ASTM C1071 AND THE LINER MATERIAL SHALL BE IN ACCORDANCE WITH ASTM C518. INSULATION SHALL HAVE A THERMAL CONDUCTIVITY "K" FACTOR OF 0.25 AT 75° MEAN TEMPERATURE SUITABLE FOR APPLICATION UP TO 250°. INSULATION SHALL BE OWENS–CORNING AEROFLEX OR EQUIVALENT AS LISTED BY OTHER LISTED MANUFACTURERS.

F. ALL INSULATION SYSTEMS SHALL BE CONTINUOUS THROUGH WALL OPENINGS, CEILING OPENINGS, FLOOR OPENINGS, AND PIPE HANGERS.

G. INSULATION MATERIALS SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

H. INSTALLATION PERSONNEL SHALL TAKE ALL SAFETY PRECAUTIONS TO PROPERLY PROTECT THEMSELVES DURING INSTALLATION OF INSULATION SYSTEMS.

I. INSULATION CAN BE OMITTED ON FACTORY INSULATED PLENUMS, TERMINAL BOXES, FILTER BOXES, ACCESS PANELS, TESTING LAB LABELS AND STAMPS, FACTORY INSULATED EQUIPMENT, FACTORY INSULATED EQUIPMENT, METAL DUCTS W/ DUCT LINER AND FACTORY INSULATED FLEXIBLE DUCTS.

DUCTWORK

A. REGULATORY AGENCIES: THE WORK DESCRIBED IN THIS SECTION SHALL BE IN COMPLIANCE WITH ALL CODES AND STANDARDS LISTED BELOW:

NFPA 90A & 90B
NFPA 211 (GAS VENTS AND CHIMNEYS)
SMACNA
ASHRAE

B. ALL DUCT SIZES ON DRAWINGS INDICATE FREE INTERNAL DIMENSIONS. ACTUAL SHEETMETAL SIZES SHALL INCLUDE AN ALLOWANCE FOR INTERNAL DUCTLINER.

C. UNLESS NOTED OTHERWISE, DUCTWORK SHALL BE FABRICATED OF PRIME GRADE MATERIALS FREE FROM ANY IMPERFECTIONS. GALVANIZED SHEET STEEL SHALL BE G 90 ZINC COATED AND MILL PHOSPHATIZED FOR PAINTED APPLICATIONS ON EXPOSED DUCTWORK IN CONDITIONED SPACES.

D. ALL DUCTWORK AND FITTINGS SHALL BE FABRICATED, ASSEMBLED AND INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF SMACNA HVAC DUCT CONSTRUCTIONS STANDARDS FOR THE DESIGNATED PRESSURE CLASSIFICATION. ELBOWS OR TURNS IN THE DUCTWORK SHALL BE FABRICATED WITH A CENTER LINE RADIUS OF NOT LESS THAN 1.5 TIMES THE DUCT WIDTH OR WITH ELBOWS WITH INTEGRAL TURNING VANES. TRANSITIONS AND OFFSETS SHALL BE FABRICATED WITH A MAX. ANGULAR TAPER OF 30 DEGREES UNLESS SPACE CONDITIONS PROHIBIT.

E. GENERAL SUPPLY AIR, RETURN AIR, EXHAUST AIR, RELIEF AIR AND OUTSIDE AIR DUCTWORK WITHIN THE BUILDING SHALL BE 2" SMACNA PRESSURE CLASSIFICATION GALVANIZED STEEL UNLESS NOTED OTHERWISE ON THE DRAWINGS.

F. SHEETMETAL ACCESSORIES SHALL INCLUDE DEFLECTORS, TURNING VANES, ELBOWS, Y–BRANCH FITTINGS, TEE FITTINGS, TAP IN FITTINGS, TRANSITIONS AND PLENUMS ETC...AS INDICATED ON THE DRAWINGS AND OF THE SAME MATERIAL AS THE DUCTWORK SYSTEM IN WHICH THEY ARE INSTALLED. ALL ACCESSORIES SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS".

G. DUCT SYSTEMS SHALL BE INSTALLED WITH A MINIMUM NUMBER OF JOINTS AND BE AIR–TIGHT (2% MAXIMUM ALLOWABLE AIR LEAKAGE) DUCTS SHALL BE RIGIDLY SUPPORTED TO PREVENT BUCKLING WITH BRACES, TIES, AND HANGERS OF THE SAME MATERIAL AS THE DUCTWORK ITSELF.

H. ALL SUPPLY, RETURN, OUTSIDE, EXHAUST AND RELIEF AIR DUCTWORK SHALL HAVE ITS TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SEALED WITH UL LISTED DUCT SEALANT.

I. DUCTWORK SHALL BE ROUTED IN THE MOST DIRECT PATH PROVIDING THE GREATEST HEADROOM POSSIBLE WHICH DOES NOT INTERFERE WITH CLEARANCE REQUIREMENTS AND BE VERTICALLY, HORIZONTALLY AND PARALLEL TO THE BUILDING CONFINES WHENEVER POSSIBLE UNLESS NOTED OTHERWISE.

J. DUCTWORK BRANCHES OFF OF MAINS SHALL GENERALLY BE ARRANGED AS FOLLOWS:

K. RECTANGULAR BRANCHES OFF OF RECTANGULAR MAINS SHALL BE WITH 45 DEGREE SHOE ENTRY TYPE TAP IN FITTINGS.

L. ROUND BRANCHES OFF OF RECTANGULAR MAINS SHALL BE MADE WITH CONICAL TYPE TAP IN FITTINGS IF THE MAIN IS 4" OR GREATER IN DEPTH THAN THE BRANCH DIAMETER. OTHERWISE, A 45 DEGREE SHOE ENTRY TYPE TAP IN FITTING WITH RECTANGULAR DIMENSIONS OF EQUIVALENT CROSS SECTIONAL AREA TO THE ROUND BRANCH DIAMETER SHALL BE USED IMMEDIATELY FOLLOWED BY A RECTANGULAR TO ROUND TRANSITION.

M. ROUND BRANCHES OFF OF ROUND MAINS SHALL BE MADE WITH Y–BRANCH, CONICAL TAP, 45 DEGREE SHOE ENTRY TAP, OR TEE FITTINGS AS INDICATED ON THE DRAWINGS.

N. FLEXIBLE DUCTWORK SHALL BE MAXIMUM 5'–0" LENGTH. THE INSULATING ENDS OF ALL DUCTWORK SHALL BE SEALED WITH DUCT TAPE. ISTALLATION SHALL BE PER SECTION III OF SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE.

NOTE: NOT ALL SPECIFICATION SECTIONS INCLUDED ARE APPLICABLE TO THIS PROJECT.

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[designed for people, designed for life.]

OHIO HARRY HINKEL, JR. E–56018 REGISTERED PROFESSIONAL ENGINEER

Addition and Remodeling for

MASSILLON FIRE STATION #3

955 Wales Rd N.E.
Massillon, Ohio, 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 04/12/2018

MECHANICAL SPECIFICATIONS

H-5

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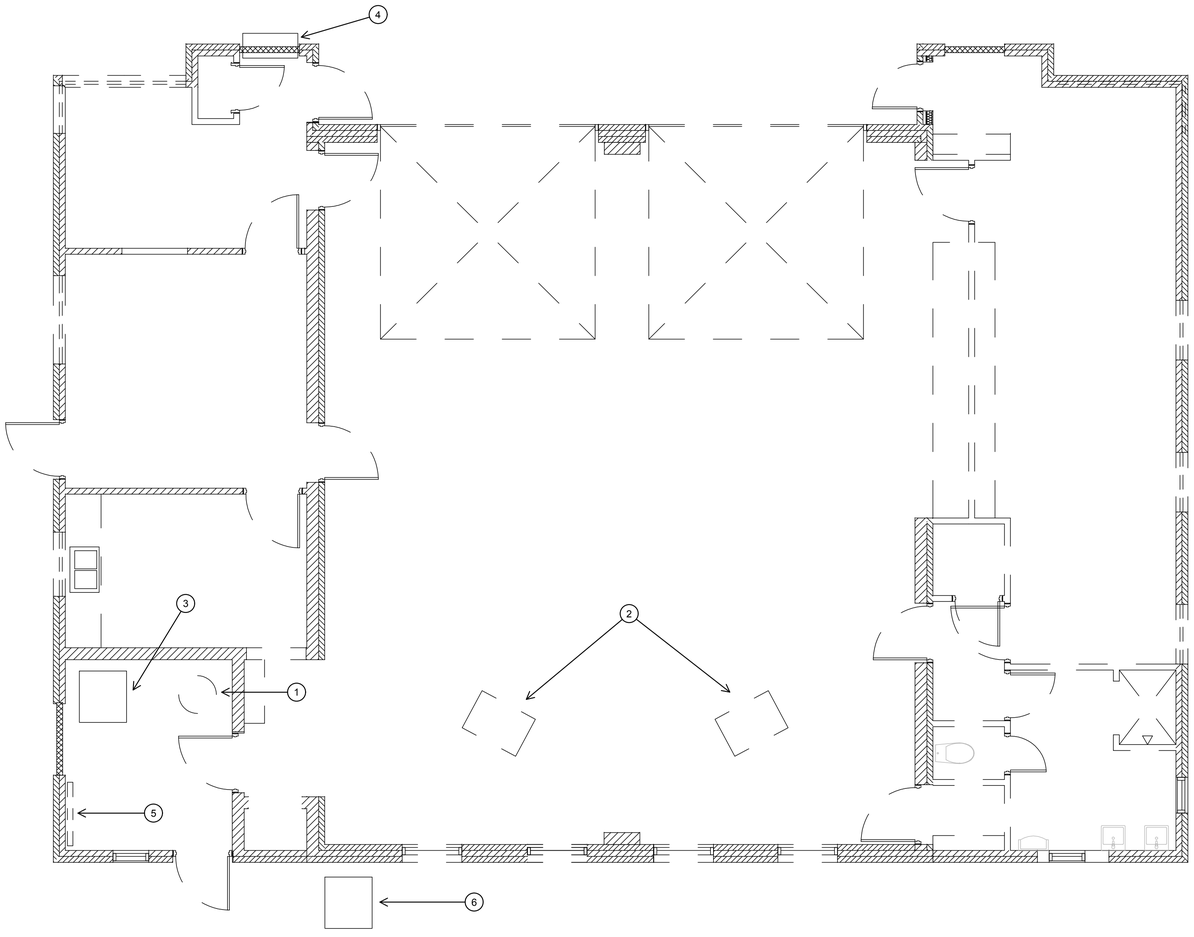

DEMOLITION PLAN

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

NORTH

GENERAL ELECTRICAL DEMOLITION NOTES:

1. THE EC SHALL PROVIDE DEMOLITION OF ALL ELECTRICAL ITEMS WITHIN THE NEW WORK AREA TO ALLOW FOR THE NEW WORK SHOWN. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THE EXTENT OF DEMOLITION PRIOR TO SUBMITTING BID.
2. UNLESS OTHERWISE NOTED, ALL EXISTING ELECTRICAL DEVICES, LIGHT FIXTURES, SWITCHES, WIRING, JUNCTION BOXES, ETC SHALL BE REMOVED. ALL WIRING SHALL BE REMOVED BACK TO THE SOURCE. ALL CONDUIT PENETRATIONS THROUGH THE CONCRETE SLAB SHALL BE CUT FLUSH WITH FLOOR.

DEMOLITION PLAN NOTES:

1. EC SHALL REMOVE EXISTING ELECTRICAL POWER AND CONTROLS, ECT FOR HOT WATER HEATER.
2. EC SHALL REMOVE EXISTING ELECTRICAL POWER AND CONTROLS,ECT FOR GAS UNIT HEATERS.
3. EC SHALL REMOVE EXISTING ELECTRICAL POWER AND CONTROLS, ECT FOR BOILER UNIT.
4. EC SHALL REMOVE EXISTING ELECTRICAL POWER AND CONTROLS,ECT FOR THRU-WALL AIR CONDITIONING UNIT.
5. EC SHALL REMOVE EXISTING ELECTRICAL SERVICE ENTRANCE EQUIPMENT, PANELS, DISCONNECTS, AND ALL WIRING.
6. EC SHALL REMOVE EXISTING ELECTRICAL POWER AND CONTROLS, CONDUIT, WIRING,ECT FOR EMERGENCY GENERATOR.

GENERAL ELECTRICAL DEMOLITION NOTES:

1. ALL DEMOLITION AND MATERIAL REMOVAL OPERATIONS SHALL BE CAREFULLY & SAFELY CARRIED OUT. ELECTRICAL CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR HIS SAFE PRACTICES AND OPERATIONS.
2. PROTECTIVE MEASURES SHALL BE TAKEN DURING DEMOLITION TO KEEP THE INTERIOR OF THE REMAINING BUILDING WEATHERTIGHT. ANY OPENINGS IN THE BUILDING SHELL RESULTING FROM THE DEMOLITION PROCESS SHALL BE PROMPTLY SEALED.
3. ALL ELECTRICAL EQUIPMENT, OUTLETS, SWITCHES, ETC., AND OTHER SALVAGEABLE MATERIAL SHALL BE OFFERED TO THE OWNER FOR SALVAGE. SALVAGEABLE MATERIALS NOT ACCEPTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE ELECTRICAL CONTRACTOR AND PROMPTLY REMOVED FROM THE WORK SITE.
4. MATERIAL OF NO SALVAGEABLE VALUE SHALL BE REMOVED BY THE ELECTRICAL CONTRACTOR PROMPTLY FROM THE JOB SITE AND PROPERLY DISPOSED OF IN A LEGAL MANNER.
5. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO CONDUCT ALL DEMOLITION IN ACCORDANCE WITH OSHA, EPA, AND ALL OTHER APPLICABLE CODES & REGULATIONS FOR TYPE OF WORK. ALL DISPOSAL SHALL COMPLY WITH CURRENT EPA REGULATIONS.
6. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL EXISTING UTILITIES IN WORK AREA PRIOR TO INITIATION OF DEMOLITION ACTIVITIES, AND TO PROTECT EXISTING UTILITIES TO REMAIN PASSING THROUGH THE DEMOLITION AREA.
7. UNLESS OTHERWISE NOTED, DISCONNECT ALL WIRING AT THE POINT OF ORIGIN. ALL CONDUIT, WIRE, FITTINGS, BOXES, ETC. FOR ITEMS TO BE REMOVED SHALL BE COMPLETELY REMOVED.
8. ANY ITEM INTENDED TO BE REMOVED BUT NOT SHOWN SHALL BE VERIFIED AND REMOVED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST.
9. ALL EXISTING CONDUITS PENETRATING FLOORS OR FIRE WALLS NOT REQUIRED TO BE REMOVED AND ALL NEW CONDUITS SHALL BE SEALED WITH FIRE STOPPING SEALANT. REFER TO FIRE STOPPING DETAIL.
10. SHIFT AND REROUTE (IF REQUIRED) ANY EXISTING CONDUIT WHICH MAY INTERFERE WITH NEW CONSTRUCTION. ALL DEVICES REMAINING MUST BE LEFT IN A CLEAN AND OPERATING CONDITION.
11. ALL BELOW SLAB CONDUIT BEING ABANDONED SHALL BE CUT FLUSH WITH FLOOR AFTER CONDUCTOR REMOVAL & GROUTED FLUSH WITH FINISHED FLOOR.
12. COORDINATE ELECTRICAL DEMOLITION WORK WITH OTHER TRADES AS REQUIRED.
13. ELECTRICAL ITEMS SHOWN TO BE RELOCATED AND REUSED SHALL BE THOROUGHLY CLEANED AS RECOMMENDED BY THE MANUFACTURER AND PROPER OPERATION VERIFIED. IF ITEM IS FOUND TO BE NON-OPERATIONAL EC SHALL REPLACE WITH NEW DEVICE PER SPECIFICATIONS.

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STATE OF OHIO · CHARLES S. PARSONS E-72689 · REGISTERED PROFESSIONAL ENGINEER · 4/11/18

Addition and Remodeling for

MASSILLON FIRE STATION #3

956 Wales Rd N.E
Massillon, Ohio 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 4/12/2018

DEMOLITION PLAN AND NOTES

DE.1

ABBREVIATIONS LEGEND

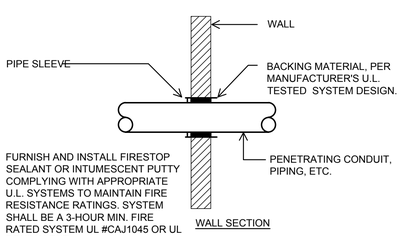
SYMBOL	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
C	ABOVE COUNTER (8" UON)
EC	ELECTRICAL CONTRACTOR
ETR	EXISTING TO REMAIN
GFI	GROUND FAULT INTERRUPTER
M.O.D.	120V MOTOR OPERATED DAMPER
NEC	NATIONAL ELECTRIC CODE
RR	REMOVE AND RELOCATE
REX	REMOVE EXISTING
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
1 (TIE) HA	HOMERUN TO PANEL INDICATING CIRCUIT NUMBERS - ALL WIRING SHALL BE #12 WITH GROUND WIRE UON (INCREASE TO #10 FOR CIRCUITS BETWEEN 100 AND 200 LF) CONSULT ENGINEER FOR RUNS OVER 200 LIN FEET IF WIRE SIZE IS NOT INDICATED - ALL HOMERUNS SHALL BE TO A 20 AMPERE, 1 POLE CIRCUIT BREAKER UON. WIRE FILL AS REQUIRED FOR APPLICATION INDICATED. (TIE) INDICATES CIRCUIT HOMERUN INDICATED IN MULTIPLE PLACES ON FLOOR PLAN.
	CONDUIT STUB
$	STANDARD SWITCHES - 20 AMPERE, 120/277 VOLT, SINGLE POLE - MTD AT 48" AFF UON ("K" = KEY OPERATED, "P" = PILOT LIGHT, "IL" = ILLUMINATED TOGGLE, "3" = THREE-WAY, "4" = FOUR-WAY, "E" = EMERGENCY CIRCUIT, SWITCH AND FACEPLATE SHALL BE RED)
$M	MANUAL MOTOR STARTER - 120/240 VOLT - SURFACE MOUNTED AT 48" AFF UON ("FM" = FLUSH MOUNTED)
$M1	DIMMER SWITCH WITH INTEGRAL PASSIVE INFRARED VACANCY SENSOR. LUTRON MS-Z101-V OR EQUAL BY LEVITON OR SENSORSWITCH. "3" INDICATES WIRED FOR 3-WAY OPERATION WITH 3-WAY TOGGLE SWITCH.
$M1	VACANCY SENSOR, SINGLE POLE, 2A RATED. LUTRON MAESTRO #MS-VPS2 OR EQUAL BY LEVITON OR SENSORSWITCH.
	DUPLEX RECEPTACLE - 20 AMPERE, 125 VOLT - MOUNTED AT 15" AFF UON.
CLG	DUPLEX RECEPTACLE - 20 AMPERE, 125 VOLT - FLUSH MOUNTED ON CEILING.
REEL	DUPLEX RECEPTACLE - 20 AMPERE, 125 VOLT - MOUNTED ON STRUCTURE IN CEILING FOR OWNER SUPPLIED HOSE REEL.
TV	DUPLEX RECEPTACLE - 20 AMPERE, 125 VOLT - FOR WALL MOUNTED TV. VERIFY EXACT MOUNTING HEIGHT PRIOR TO ROUGH IN.
GFCI	DUPLEX RECEPTACLE - 20 AMPERE, 125 VOLT - GROUND FAULT CIRCUIT INTERRUPTER TYPE - MOUNTED AT 15" AFF UON
TV	FLUSH MOUNTED TV OUTLET - FOR WALL MOUNTED TV. VERIFY EXACT REQUIREMENTS AND MOUNTING HEIGHT PRIOR TO ROUGH IN.
	DUPLEX RECEPTACLE - 20 AMPERE, 125 VOLT - MOUNTED IN FLUSH FLOOR BOX.
	SPECIAL PURPOSE SINGLE RECEPTACLE - NEMA CONFIGURATION AND MOUNTING HEIGHT AS NOTED ON DRAWINGS ("TL" = TWISTLOCK)
	PANELBOARD (208Y/120V - 3 ph - 4W)
J	JUNCTION BOX - MOUNTING HEIGHT AND SIZE AS REQUIRED BY CODE OR AS NOTED ON DRAWINGS
	SAFETY SWITCH - HEAVY DUTY, UNFUSED
60/40	SAFETY SWITCH - HEAVY DUTY, 60 AMP SWITCH / 40 AMP FUSES, POLES AS REQUIRED.
	COMBINATION MAGNETIC STARTER, SIZE 1 (UON)
	PAGING SPEAKER LOCATION. EC TO PROVIDE BACKBOX AND CONDUIT. SPEAKER AND WIRING SHALL BE FURNISHED AND INSTALLED BY OTHERS.
	911 LIGHT/ALARM. EC TO PROVIDE BACKBOX AND CONDUIT TO AN ACCESSIBLE CEILING. LIGHT/ALARM DEVICE AND WIRING SHALL BE FURNISHED AND INSTALLED BY OTHERS.
	SECURITY SYSTEM CARD READER - MOUNTED AT 48" AFF UON
	SECURITY SYSTEM DOOR STRIKE - MOUNTED AS NOTED ON DRAWINGS
REX	INDICATES EXISTING ELECTRICAL DEVICE - TO BE REMOVED WITH RELATED CONDUIT AND WIRE, UON
RR	INDICATES EXISTING ELECTRICAL DEVICE - TO BE REMOVED AND RELOCATED AS SHOWN OR AS NOTED ON DRAWINGS
ETR	INDICATES EXISTING ELECTRICAL DEVICE - TO REMAIN

LIGHTING FIXTURE SCHEDULE

TYPE AND SYMBOL	NO. OF LAMPS AND TYPE	LAMP WATTS	FIXTURE WATTS	VOLTS	MANUFACTURER CATALOG NO.	DIFFUSING LENS	MOUNTING	DESCRIPTION	EQUIVALENT MANUFACTURER
A	LED 10,101 LUMENS, 3,500K 80 CRI	85.9	85.9	120	METALUX 8T SNLED LD5 110HL LW UNV L835 CD 1	N/A	SURFACE MOUNTED ON HARD LID CEILING	LED HIGH BAY WITH WIDE ANGLE DISTRIBUTION 3,500K CCT. AND 0-10V DIMMING DRIVER.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
AE	LED 10,101LUMENS, 3,500K 80 CRI	85.9	85.9	120	METALUX 8T SNLED LD5 110HL LW UNV L835 CD 1 EL7W	N/A	SURFACE MOUNTED ON HARD LID CEILING	LED HIGH BAY WITH WIDE ANGLE DISTRIBUTION , 3,500K CCT , 0-10V DIMMING DRIVER AND INTEGRAL EMERGENCY BATTERY PACK.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
B4	LED 4,010 LUMENS, 3,500K 80CRI	35.1	35.1	120	METALUX 4WSL LD2 40 SRS UPL8 UNV L835 CD1	ACRYLIC, HIGH PERFORMANCE	SURFACE MOUNTED ON HARD LID CEILING	LED 4 FT. LINEAR DIRECT/INDIRECT LUMINAIRE, 0-10V DIMMING DRIVER.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
B8	LED 8,072 LUMENS, 3,500K 80CRI	73.1	73.1	120	METALUX 8WSL LD2 80 SRS UPL8 UNV L835 CD1	ACRYLIC, HIGH PERFORMANCE	SURFACE MOUNTED ON HARD LID CEILING	LED 8 FT. LINEAR DIRECT/INDIRECT LUMINAIRE, 0-10V DIMMING DRIVER.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
BP WALL BP CEILING	(2) 1.5 WATT LED	1.5	3	120/ 277VAC 12VDC	SURE LIGHTS APEL	N/A	SURFACE WALL MTG. AT 7'-6" AFF OR CEILING MTD IF INDICATED	LOW PROFILE EMERGENCY LIGHTING UNIT, 120/277V, WITH (2) LIGHTING HEADS BEHIND ACRYLIC PRISMATIC LENS, LEAD CALCIUM BATTERY, CHARGER, TEST SWITCH AND INDICATOR LIGHT, WHITE PLASTIC HOUSING.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
C	LED 1,396 LUMENS, 4,000K 70CRI	12	12	120	LUMARK XTOR1B W PC1	TEMPERED GLASS	WALL MOUNTED ON RECESSED JUNCTION BOX	EXTERIOR WALL MOUNTED WALLPACK, CARBON BRONZE FINISH, INTEGRAL PHOTOCELL.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
C2	LED 2710 LUMENS, 4,000K 70CRI	26	26	120	LUMARK XTOR3B W PC1	TEMPERED GLASS	WALL MOUNTED ON RECESSED JUNCTION BOX	EXTERIOR WALL MOUNTED WALLPACK, CARBON BRONZE FINISH, INTEGRAL PHOTOCELL.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
D	LED 1,500 LUMENS, 4,000K 80CRI	17.1	17.1	120	HALO PD6 15 ED010 PDM6A 840 61V C	SPECULAR CLEAR REFLECTOR AND FLANGED TRIM	RECESSED IN CEILING	LED DOWNLIGHT, WET LOCATION LABEL. SPECULAR CLEAR REFLECTOR WITH POLISHED FLANGE TRIM	LITHONIA HUBBELL AS APPROVED BY ENGINEER
E	LED 1,600 LUMENS 3,500K 80CRI	18.9	18.9	120	METALUX 2SWLED LD4 16SL LW UNV L835 CD1 SVPD2 U	N/A	WALL MOUNTED ON RECESSED JUNCTION BOX	LED WALL SCONCE MOUNTED OVER BATHROOM SINK	LITHONIA HUBBELL AS APPROVED BY ENGINEER
F	LED 1,500 LUMENS 3500K 80CRI	17.1	17.1	120	HALO PD6 15 ED010 PDM6A 835 61V C	SPECULAR CLEAR REFLECTOR AND FLANGED TRIM	RECESSED IN CEILING	LED DOWNLIGHT, WET LOCATION LABEL. SPECULAR CLEAR REFLECTOR WITH POLISHED FLANGE TRIM	LITHONIA HUBBELL AS APPROVED BY ENGINEER
G	LED 3,417 LUMENS 3500K 80CRI	29.4	29.4	120	METALUX 22FP3235C	WHITE FROSTED LENS	RECESSED	LED 2 X 2 TROFFER, 0-10V DIMMING DRIVER.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
H1	LED 413 LUMENS SELECTABLE CCT	7.3	7.3	120	HALO HU30 BSC - LENGTH AS REQUIRED - P	ACRYLIC DIFFUSER	SURFACE MOUNTED UNDER CABINET.	LED LOW PROFILE TASK LIGHT, USB PORT, WHITE FINISH, LENGTH AS NOTED ON PLANS.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
H2	LED 740 LUMENS SELECTABLE CCT	12.5	12.5	120	HALO HU30 BSC - XX LENGTH AS REQUIRED - P	ACRYLIC DIFFUSER	SURFACE MOUNTED UNDER CABINET.	LED LOW PROFILE TASK LIGHT, USB PORT, WHITE FINISH, LENGTH AS NOTED ON PLANS.	LITHONIA HUBBELL AS APPROVED BY ENGINEER
K	LED 828 LUMENS 5000K	10.9	10.9	120	LITHONIA OLBS 8 50K DDB	N/A	STANCHION MOUNTED ON 1/2-14 NPS THREADED PIPE	GROUND MOUNTED SPOT LIGHT FOR FLAG POLE LIGHTING.	COOPER HUBBELL AS APPROVED BY ENGINEER
XBP	(1) LED AND (2) INTERIOR LAMPS	1.5	3	120	LITHONIA LHQM LED R	LED	WALL MOUNTED	COMBINATION LED EXIT SIGN EMERGENCY LIGHTING UNIT WITH 6" HIGH RED LETTERS, WHITE STENCIL FACE, PLASTIC HOUSING, INTEGRAL EMERGENCY BATTERY BACK UP WITH TEST SWITCH AND INDICATOR LIGHT. (2) HEADS ON UNIT	SURE LIGHTS HUBBELL AS APPROVED BY ENGINEER
XBP E1	(1) LED AND (2) INTERIOR LAMPS AND (2) EXTERIOR REMOTE HEADS	1.5	6	120	LITHONIA LHQM LED R HO ELA T QWP L0309	LED	WALL MOUNTED	COMBINATION LED EXIT SIGN EMERGENCY LIGHTING UNIT WITH 6" HIGH RED LETTERS, WHITE STENCIL FACE, PLASTIC HOUSING, INTEGRAL EMERGENCY BATTERY BACK UP WITH TEST SWITCH AND INDICATOR LIGHT. (2) HEADS ON UNIT AND (2) EXTERIOR REMOTE HEADS.	SURE LIGHTS HUBBELL AS APPROVED BY ENGINEER



WALL SECTION

TYPICAL FIRESTOPPING INSTALLATION DETAIL

SCALE: NONE

NOTES:

1. WHERE CONDUIT, PIPING, CABLES AND OTHER COMPONENTS PASS THROUGH FIRE OR SMOKE RATED WALLS OR FLOORS, PROVIDE U.L. CLASSIFIED FIRE-SEAL ASSEMBLIES WITH RATINGS EQUAL TO OR GREATER THAN THE TIME RATING OF THE CONSTRUCTION BEING PENETRATED, WITH APPROPRIATE MATERIALS AND SYSTEMS THAT COMPLY WITH APPLICABLE CODES AND THAT HAVE BEEN TESTED IN ACCORDANCE WITH U.L. 1479 AND ASTM E814.
2. GROUT, MORTAR OR GYPSUM BASED PRODUCTS SHALL NOT BE INSTALLED IN LIEU OF FIRESTOPPING MATERIALS MEETING U.L. FIRESTOP REQUIREMENTS.
3. FOR SLEEVED PENETRATIONS, FIRESTOP ANNULAR SPACE, IF ANY, BETWEEN SLEEVE AND ADJACENT CONSTRUCTION TO MEET U.L. SYSTEM REQUIREMENTS. SEE NOTE 2 ABOVE.
4. THIS CONTRACTOR SHALL FIRESTOP ALL MISCELLANEOUS OPENINGS IN FIRE-RATED CONSTRUCTION RESULTING FROM HIS WORK.
5. THE CONTRACTOR SHALL PROVIDE SUBMITTAL DRAWINGS TO ENGINEER, INCLUDING U.L. RATED SYSTEM NUMBER AND DETAIL FOR EACH TYPE OF PENETRATION AND CONFIGURATION. ALL FIRESTOPPING MATERIALS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S SHOP DRAWINGS IN ORDER TO ACHIEVE PROPER U.L. RATING.
6. SLEEVES USED FOR CABLE RISERS THROUGH FLOORS OR WALLS SHALL BE INSTALLED PER THE ABOVE FLOOR OR WALL SECTIONS. IN ADDITION, FIRESTOP MATERIAL SHALL BE PROVIDED INSIDE SLEEVE AFTER CABLES ARE COMPLETELY INSTALLED.
7. OTHER TYPES OF FIRE-SEAL ASSEMBLIES SUCH AS FIRESTOP DEVICES AND INTUMESCENT SLEEVES MEETING U.L. FIRE RATINGS SHALL BE ACCEPTABLE CONTINGENT UPON SHOP DRAWING APPROVAL BY THE ENGINEER.
8. ELECTRICAL CONDUIT: NOMINAL 4" DIAMETER OR SMALLER EMT OR NOMINAL 6" DIAMETER OR SMALLER RGS. THE ANNULAR SPACE SHALL BE MIN. 5/8" TO MAX. 3-1/4".
9. STEEL PIPE: NOMINAL 10" DIAMETER (OR SMALLER) SCHEDULE 5 (OR HEAVIER) STEEL PIPE. THE ANNULAR SPACE SHALL BE MIN. 5/8" TO MAX. 2-3/4".
10. IRON PIPE: NOMINAL 2" DIAMETER (OR SMALLER) CAST OR DUCTILE IRON PIPE. THE ANNULAR SPACE SHALL BE MIN. 5/8" TO MAX. 2-3/4".

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Addition and Remodeling for

MASSILLON FIRE STATION #3

956 Wales Rd N.E
Massillon, Ohio 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
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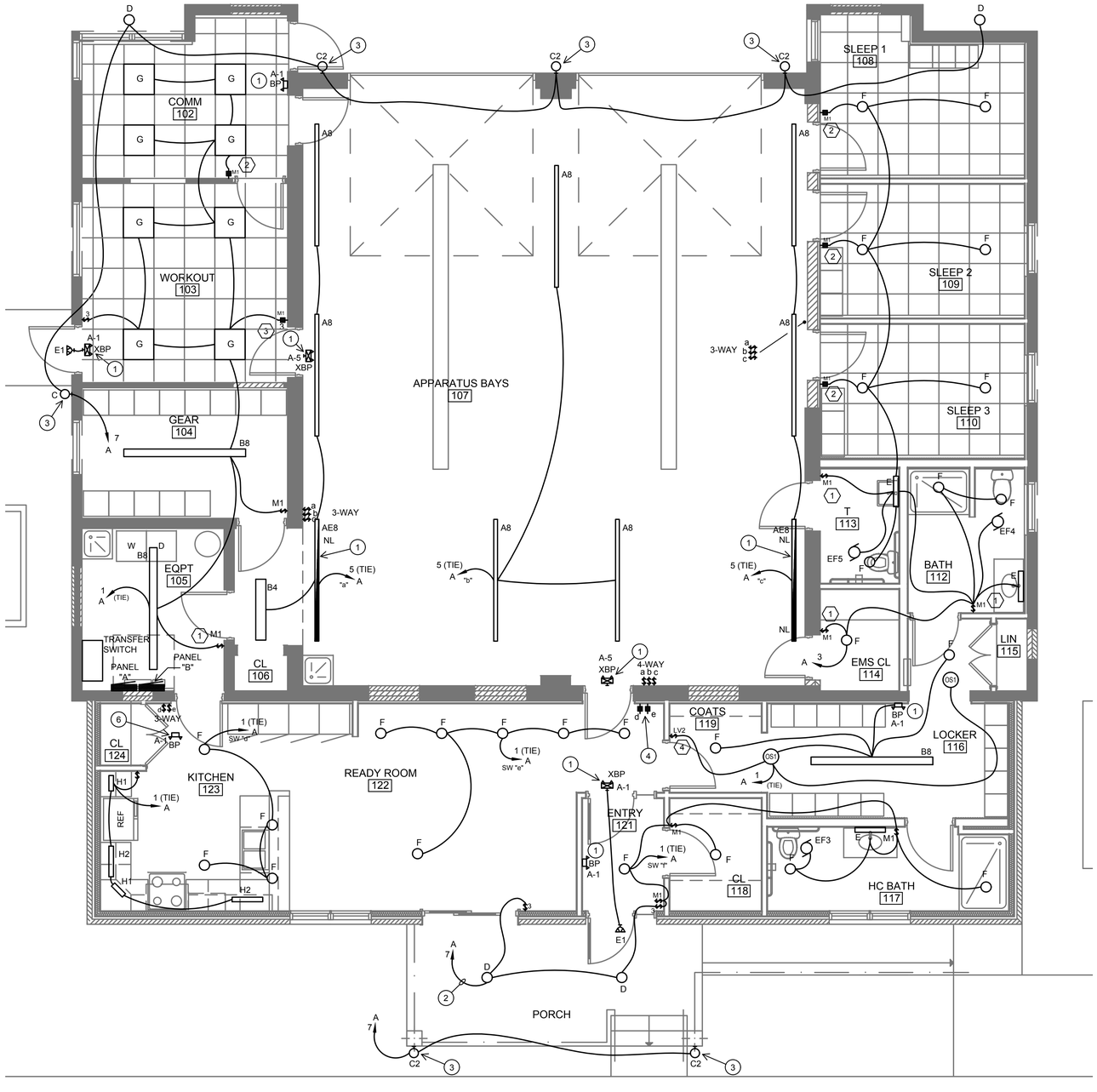
ELECTRICAL SYMBOLS, LEGENDS AND DETAILS

E.1



LIGHTING PLAN

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

NORTH

LIGHTING PLAN NOTES:

1. EMERGENCY BATTERY BACKUP LIGHTING, NIGHT LIGHTS AND EXIT SIGNS SHALL BE WIRED TO LOCAL LIGHTING CIRCUIT (CIRCUIT INDICATED) AHEAD OF ALL LOCAL SWITCHING. PROVIDE ADDITIONAL UNSWITCHED HOT WIRE IN HOMERUN FROM PANEL TO FACILITATE WIRING.
2. WIRE CIRCUIT THROUGH PHOTO CELL, TORK #3010, 120V, 1200 VA RATING. FLUSH MOUNT IN RECESSED RAIN TIGHT JUNCTION BOX. COORDINATE EXACT LOCATION WITH OVERHANG AND ARCHITECTURAL ELEVATIONS. PHOTOCELL SHALL NOT BE IN THE SHADOW OF ANY ARCHITECTURAL FEATURES, VERFIY WITH GC ON SITE PRIOR TO ROUGH IN.
3. FIXTURE HAS INTEGRAL PHOTOCELL FOR DUSK TIL DAWN OPERATION.
4. EC SHALL VERIFY LOCATION OF DIMMERS WITH OWNER PRIOR TO ROUGH-IN. 3-WAY DIMMER, SEE WIRING DIAGRAM THIS SHEET.
5. ZONE WIRED FOR MULTIPLE CONTROL LOCATIONS. SEE WIRING DIAGRAM THIS SHEET FOR INFORMATION.
6. EMERGENCY LIGHT ON WALL ABOVE LIGHT SWITCHES.

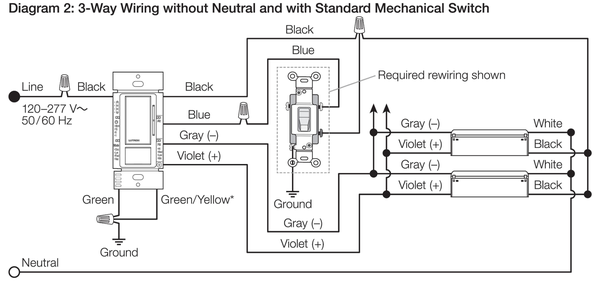
GENERAL LIGHTING NOTES:

1. COORDINATE LOCATIONS OF ALL LIGHTING FIXTURES AND CEILING MOUNTED DEVICES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.
2. ALL EMERGENCY LIGHTING FIXTURES AND EXIT SIGNS SHALL BE CONNECTED TO LOCAL LIGHTING CIRCUIT "HOT" CONDUCTORS AHEAD OF ALL LOCAL SWITCHING AND LIGHTING CONTROLS.
3. EC SHALL COORDINATE ALL LOCATIONS OF OCCUPANCY SENSORS WITH SENSOR MANUFACTURER FOR PROPER OPERATION AND PROPER COVERAGE. EC SHALL ALSO COORDINATE WITH OTHER TRADES SO THAT SENSORS ARE NOT OBSTRUCTED. IT IS THE EC'S RESPONSIBILITY TO PROVIDE COMPLETE COMMISSIONING AND ADJUSTMENT OF ALL OCCUPANCY SENSORS TO THE OWNER'S SATISFACTION.

LIGHTING CONTROL SCHEDULE - OCCUPANCY SENSORS

TAG ID	CONTROL DEVICE	CONTROL DESCRIPTION	COMPONENTS
1	^{M1}	ROOM CONTROLLED WITH WALL SWITCH OCCUPANCY SENSOR. PASSIVE INFRARED SENSOR REQUIRES LINE OF SIGHT TO TURN 'ON' AND NO MOTION FOR 20 MINUTES TO TURN 'OFF'. MANUAL ON, AUTO OFF.	PASSIVE INFRARED WALL SWITCH SENSOR
2	^{M1}	ROOM CONTROLLED WITH WALL SWITCH OCCUPANCY SENSOR WITH 0-10V DIMMING. PASSIVE INFRARED SENSOR REQUIRES LINE OF SIGHT TO TURN 'ON' AND NO MOTION FOR 20 MINUTES TO TURN 'OFF'. MANUAL ON, AUTO OFF.	PASSIVE INFRARED WALL SWITCH SENSOR WITH 0-10V DIMMING.
3	$^{3\ M1}$ ^{3}	ROOM CONTROLLED WITH WALL SWITCH OCCUPANCY SENSOR WITH 0-10V DIMMING. PASSIVE INFRARED SENSOR REQUIRES LINE OF SIGHT TO TURN 'ON' AND NO MOTION FOR 20 MINUTES TO TURN 'OFF'. MANUAL ON, AUTO OFF. ADDITIONAL 3-WAY SWITCH LOCATION PROVIDES ON/OFF CONTROL. SEE WIRING DIAGRAM THIS SHEET.	PASSIVE INFRARED WALL SWITCH SENSOR WITH 0-10V DIMMING. 3-WAY TOGGLE SWITCH.
4	^{LV} (OS1) (OS1)	AREA CONTROLLED WITH (2) CEILING-MOUNTED OCCUPANCY SENSORS WITH POWER PACK AND LOW VOLTAGE SWITCH. PASSIVE INFRARED SENSORS REQUIRE LINE OF SIGHT TO TURN 'ON' AND NO MOTION FOR 20 MINUTES TO TURN 'OFF'. MOTION FOR EITHER SENSOR WILL KEEP ALL ROOM LIGHTS ON. MANUAL ON, AUTO OFF.	(2) PASSIVE INFRARED OCCUPANCY SENSORS, CEILING MOUNTED. LOW-VOLTAGE WALL SWITCH (QTY AS INDICATED ON PLANS) POWER PACK WITH RELAY
5	(OS1) ^{LV}	ROOM CONTROLLED WITH (1) CEILING-MOUNTED OCCUPANCY SENSORS WITH POWER PACK AND LOW VOLTAGE SWITCHES (QTY AS INDICATED ON FLOOR PLANS). PASSIVE INFRARED SENSORS REQUIRE LINE OF SIGHT TO TURN 'ON' AND NO MOTION FOR 20 MINUTES TO TURN 'OFF'. AUTO ON, AUTO OFF.	PASSIVE INFRARED OCCUPANCY SENSOR, CEILING MOUNTED. LOW-VOLTAGE WALL SWITCH (QTY AS INDICATED ON PLANS) POWER PACK WITH RELAY

Diagram 2: 3-Way Wiring without Neutral and with Standard Mechanical Switch



Note: Before installing wallplate, program all desired settings.

3-WAY DIMMER WIRING DIAGRAM

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

NORTH

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MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
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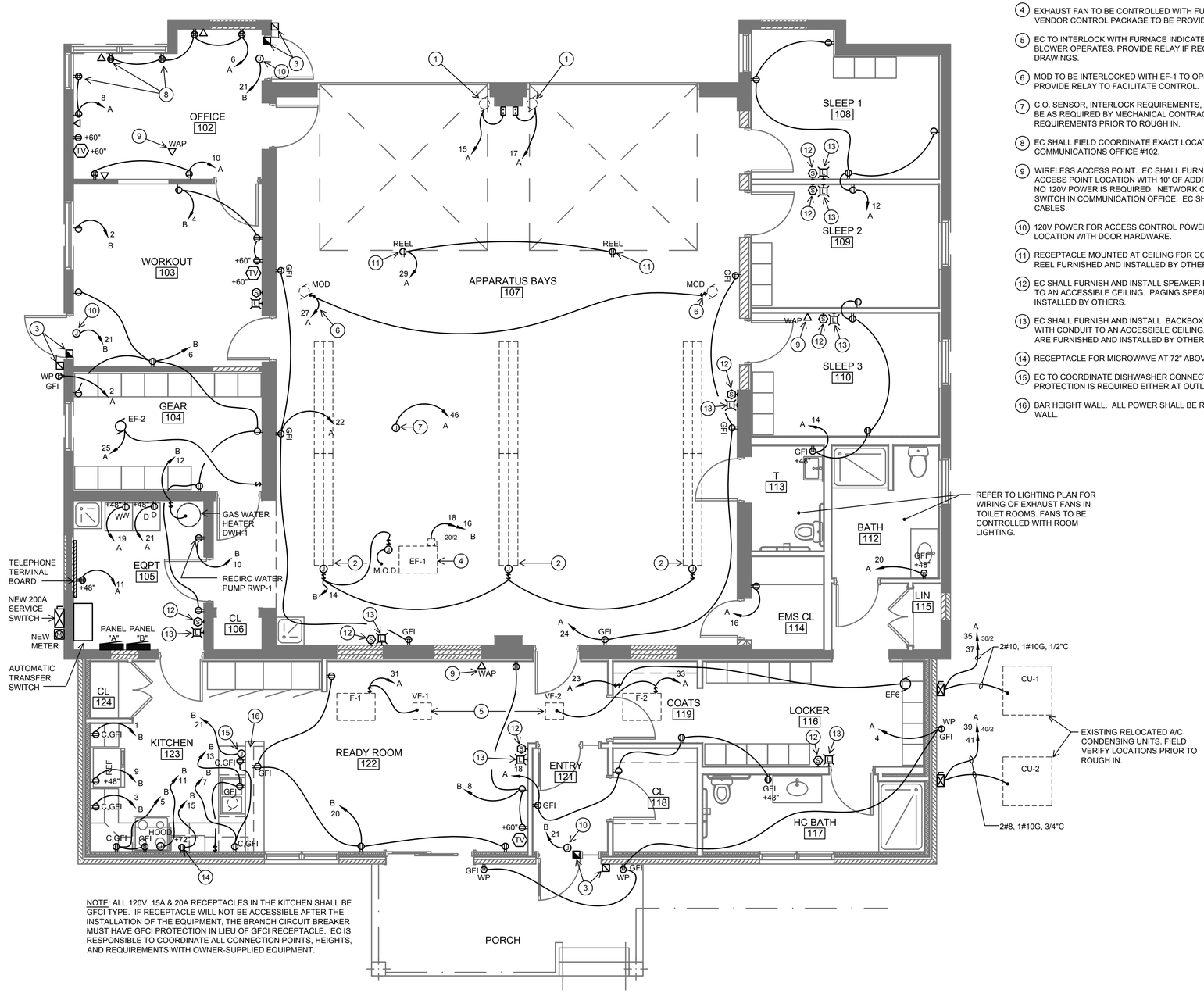
LIGHTING PLAN

E.2



NOTE: ALL 120V, 15A & 20A RECEPTACLES IN THE KITCHEN SHALL BE GFCI TYPE. IF RECEPTACLE WILL NOT BE ACCESSIBLE AFTER THE INSTALLATION OF THE EQUIPMENT, THE BRANCH CIRCUIT BREAKER MUST HAVE GFCI PROTECTION IN LIEU OF GFCI RECEPTACLE. EC IS RESPONSIBLE TO COORDINATE ALL CONNECTION POINTS, HEIGHTS, AND REQUIREMENTS WITH OWNER-SUPPLIED EQUIPMENT.

POWER & COMM. PLAN
LOWER LEVEL
SCALE: 1/4" = 1'-0"

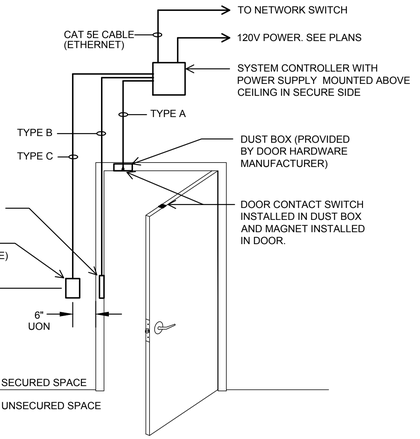
NORTH

POWER PLAN NOTES:

1. GARAGE DOOR OPENER. VERIFY EXACT LOCATION FOR CONNECTIONS WITH MFGR WIRING INSTRUCTIONS PRIOR TO ROUGH IN.
2. PROVIDE 120 VOLT CONNECTION TO INFRARED HEATER FOR ELECTRIC STRIKE AND CONTROLS AS REQUIRED.
3. ELECTRIC STRIKE AND CARD READER. PROVIDE BACKBOXES AND HIDDEN WIRING WITHIN DOOR FRAME AS REQUIRED BY VENDOR SYSTEM DRAWINGS.
4. EXHAUST FAN TO BE CONTROLLED WITH FUME EXHAUST CONTROLS. WIRE PER VENDOR CONTROL PACKAGE TO BE PROVIDED BY MC.
5. EC TO INTERLOCK WITH FURNACE INDICATED TO OPERATE WHEN FURNACE BLOWER OPERATES. PROVIDE RELAY IF REQUIRED BY MFGR INSTALLATION DRAWINGS.
6. MOD TO BE INTERLOCKED WITH EF-1 TO OPERATE WHEN FAN OPERATES. PROVIDE RELAY TO FACILITATE CONTROL.
7. C.O. SENSOR, INTERLOCK REQUIREMENTS, 120 VOLT POWER REQUIRED, SHALL BE AS REQUIRED BY MECHANICAL CONTRACTOR AND HIS VENDOR. VERIFY EXACT REQUIREMENTS PRIOR TO ROUGH IN.
8. EC SHALL FIELD COORDINATE EXACT LOCATION AND HEIGHT OF RECEPTACLES IN COMMUNICATIONS OFFICE #102.
9. WIRELESS ACCESS POINT. EC SHALL FURNISH AND INSTALL CAT6 CABLE TO ACCESS POINT LOCATION WITH 10' OF ADDITIONAL CABLE. ACCESS POINT IS POE, NO 120V POWER IS REQUIRED. NETWORK CABLE SHALL BE RUN TO NETWORK SWITCH IN COMMUNICATION OFFICE. EC SHALL TERMINATE AND TEST ALL DATA CABLES.
10. 120V POWER FOR ACCESS CONTROL POWER SUPPLY. COORDINATE EXACT LOCATION WITH DOOR HARDWARE.
11. RECEPTACLE MOUNTED AT CEILING FOR CONNECTION TO A CORD REEL. CORD REEL FURNISHED AND INSTALLED BY OTHERS.
12. EC SHALL FURNISH AND INSTALL SPEAKER BACKBOX AT 84" AFF WITH CONDUIT TO AN ACCESSIBLE CEILING. PAGING SPEAKER AND WIRING ARE FURNISHED AND INSTALLED BY OTHERS.
13. EC SHALL FURNISH AND INSTALL BACKBOX FOR 911 LIGHT/ALARM AT 84" AFF WITH CONDUIT TO AN ACCESSIBLE CEILING. LIGHT/ALARM DEVICE AND WIRING ARE FURNISHED AND INSTALLED BY OTHERS.
14. RECEPTACLE FOR MICROWAVE AT 72" ABOVE FLOOR.
15. EC TO COORDINATE DISHWASHER CONNECTION TYPE WITH OWNER. GFCI PROTECTION IS REQUIRED EITHER AT OUTLET OR AT THE CIRCUIT BREAKER.
16. BAR HEIGHT WALL. ALL POWER SHALL BE ROUTED HORIZONTALLY THROUGH WALL.

GENERAL POWER PLAN NOTES:

1. COORDINATE LOCATIONS OF RECEPTACLES AND OTHER WALL MOUNTED DEVICES WITH THE ARCHITECTURAL WALL ELEVATIONS AND FINISHES.
2. COORDINATE LOCATIONS OF MECHANICAL EQUIPMENT WITH MC. ALL DISCONNECTS AND ELECTRICAL EQUIPMENT SHALL BE MOUNTED IN AN ACCESSIBLE LOCATION WITH PROPER WORKING SPACE CLEARANCES PER THE NEC.
3. ALL FEEDER RUNS SHOWN ARE DIAGRAMMATIC. EC SHALL FIELD DETERMINE ACTUAL FEEDER RUNS AND PROVIDE PULL AND SPLICE BOXES PER NEC REQUIREMENTS AS REQUIRED TO COMPLETE THE RUN.
4. SPLICE/EXTEND ALL EXISTING FIRE ALARM WIRING TO NEW DEVICE LOCATIONS. EC SHALL COORDINATE ALL FIRE ALARM SYSTEM REVISIONS WITH SYSTEM VENDOR AND INCLUDE ALL REQUIREMENTS WITHIN BID SUBMITTAL.
5. EXTERIOR WALLS ARE FURRED OUT 1-5/8". PROVIDE SHALLOW BOXES WHERE REQUIRED FOR FLUSH INSTALLATION OF OUTLETS AND RECEPTACLES. NO CONDUIT, RECEPTACLES, OUTLETS, ETC. SHALL BE SURFACE MOUNTED UNLESS APPROVED BY THE ARCHITECT AND OWNER.



NOTES:

1. FOR ACCURATE HANDING AND DOOR SWINGS, COORDINATE WITH ARCHITECTURAL DRAWINGS.
2. FOR ACCURATE DOOR HARDWARE, SEE APPROVED DOOR HARDWARE SCHEDULE.
3. PATHWAYS, CONDUIT AND / OR STUB UPS, PER ELECTRICAL DRAWINGS
4. DIMENSIONS (UON), REFER TO ARCHITECTURAL DRAWINGS.

ACCESS CONTROL DETAIL

SCALE: NONE

ACCESS CONTROL CABLE LEGEND

TYPE	CABLE	AWG	# OF WIRES	COLOR CODE
A	BELDEN 8761 (SHIELDED)	22	2	CLEAR/BLACK
B	BELDEN 9460 (SHIELDED)	18	2	CLEAR/BLACK
C	WEST PENN 3280 (SHIELDED)	18	5	RED/BLACK/WHITE/GREEN/BROWN
D	BELDEN 1307A	16	2	RED/BLACK (POWER SUPPLY TO CONTROLLER)

ALL WIRING SHALL BE INSTALLED IN 1/2" CONDUIT

STADELMAN ASSOCIATES INC.

8614 HARTMAN ROAD
WADSWORTH, OH 44281
PH: 330-926-2600 FAX: 330-926-4531

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[DESIGNED FOR PEOPLE, DESIGNED FOR LIFE.]

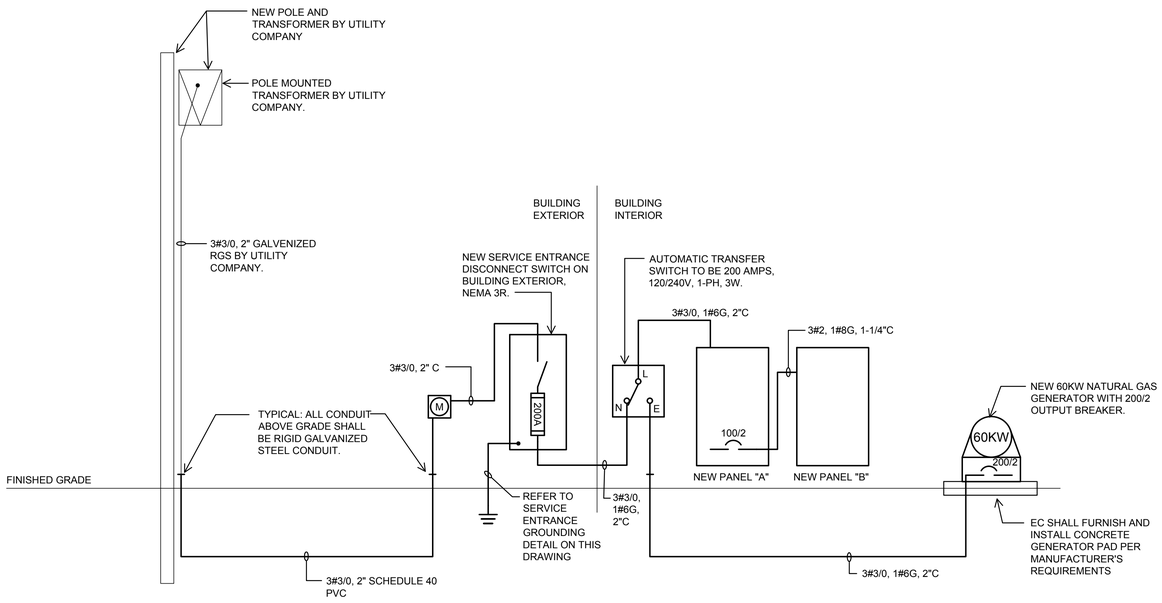
Addition and Remodeling for
MASSILLON FIRE STATION #3
956 Wales Rd N.E
Massillon, Ohio 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 4/12/2018

POWER & COMM. PLAN , NOTES AND DETAILS

E.3



POWER RISER DIAGRAM

SCALE: NONE

PANEL SCHEDULE FOR PANELBOARD "A"

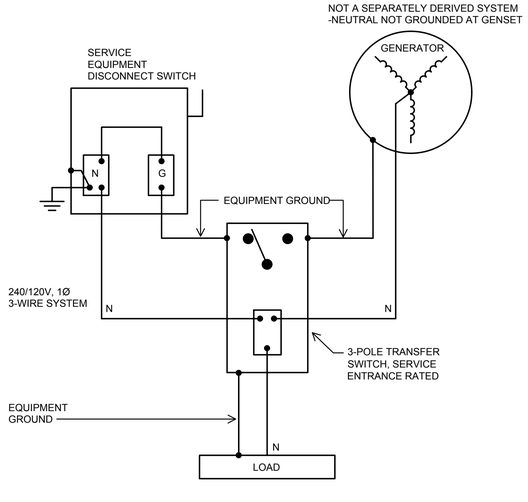
MOUNTING: SURFACE | LOCATION: EQUIPENT ROOM 105
BUS RATING: 200A | KWC: 34.53 | AMPS CONN.: 143.88 | PHASE A KWC: 18.80
MCB OR MLO: 200A MAIN LUG ONLY | KWD: 34.89 | AMPS DEM.: 145.37 | PHASE B KWC: 15.73
VOLTAGE: 240/120V-1ph-3W | A.I.C.: 10,000
REMARKS: LO = PROVIDE LOCK ON DEVICE

NOTES	CKT.	DESCRIPTION	KW CONNECTED LTG.	REC.	AC	HTG	MISC.	C/B	PH.	C/B	KW CONNECTED MISC.	HTG	AC	REC.	LTG.	DESCRIPTION	CKT	NOTES
	1	COMM. WORKOUT	0.72					20/1	A	20/1				0.18		EXTERIOR REC AT GENERATOR	2	
	3	SLEEP ROOMS AND TOILETS	0.34					20/1	B	20/1				0.18		EXT RECS AT A/C AND PORCH	4	
	5	APPARATUS BAYS	1.12					20/1	A	20/1				0.72		OFFICE RECS	6	
	7	EXTERIOR WALL MOUNTED	0.16					20/1	B	20/1				0.72		OFFICE RECS	8	
	9	FLAG POLE	0.03					20/1	A	20/1				0.72		OFFICE RECS	10	
	11	TELEPHONE TERMINAL BOARD					0.10	20/1	B	20/1				0.90		SLEEPING ROOMS	12	
	13	SPARE						20/1	A	20/1				0.72		SLEEPING ROOMS	14	
	15	GARAGE DOOR					0.20	20/1	B	20/1				0.18		EMS CL	16	
	17	GARAGE DOOR					0.20	20/1	A	20/1				0.54		ENTRY, CL COATS RECS	18	
	19	WASHER					1.00	20/1	B	20/1				0.18		BATH 112	20	
	21	DRYER					1.00	20/1	A	20/1				0.54		HEAR AND APP BAY RECS	22	
	23	EF-6					0.08	20/1	B	20/1				0.54		APPARATUS BAY RECS	24	
	25	EF-2					0.17	20/1	A	30/2			2.30			CU-1	26	
	27	MOD IN APERATUS BAY					0.10	20/1	B				2.30				28	
	29	HOSE REELS		0.36				20/1	A	40/2			2.91			CU-2	30	
	31	F-1 AND VF1			1.24			15/1	B				2.91				32	
	33	F-2 AND VF2			1.65			20/1	A	20/1						SPARE	34	
	35	SPARE							B	20/1						SPARE	36	
	37	SPARE							A	100/2	2.20	0.10	0.83	1.80	0.00	PANEL 'B'	38	
	39	SPARE							B		1.80	0.00	0.83	1.98	0.00		40	
		TOTALS	2.36	0.36	2.88	0.00	2.85				4.00	0.10	12.08	9.90	0.00	TOTALS		

PANEL SCHEDULE FOR PANELBOARD "B"

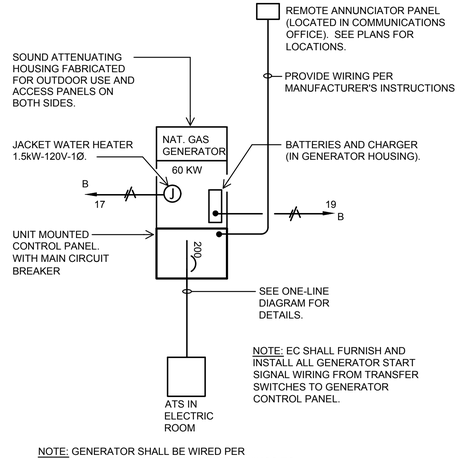
MOUNTING: SURFACE | LOCATION: EQUIPENT ROOM 105
BUS RATING: 100A | KWC: 9.54 | AMPS CONN.: 39.73 | PHASE A KWC: 4.93
MCB OR MLO: 100A MAIN LUG ONLY | KWD: 9.44 | AMPS DEM.: 39.32 | PHASE B KWC: 4.61
VOLTAGE: 240/120V-1ph-3W | A.I.C.: 10,000
REMARKS: LO = PROVIDE LOCK ON DEVICE

NOTES	CKT.	DESCRIPTION	KW CONNECTED LTG.	REC.	AC	HTG	MISC.	C/B	PH.	C/B	KW CONNECTED MISC.	HTG	AC	REC.	LTG.	DESCRIPTION	CKT	NOTES
	1	KITCHEN COUNTER - 1		0.18				20/1	A	20/1				0.36		WORKOUT 103	2	
	3	KITCHEN COUNTER - 2		0.18				20/1	B	20/1				0.36		WORKOUT 104	4	
	5	KITCHEN COUNTER - 3		0.18				20/1	A	20/1				0.90		WORKOUT 105	6	
	7	KITCHEN COUNTER - 4		0.18				20/1	B	20/1				0.54		READY ROOM RECEPTACLES	8	
	9	KITCHEN REFRIG					0.75	20/1	A	20/1	0.15					RECIRCULATING PUMP	10	
	11	RANGE AND HOOD					0.20	20/1	B	20/1	0.20					DWH-1	12	
	13	GARBAGE DISPOSAL		0.18				20/1	A	20/1		0.10				RADIANT TUBE HEATERS	14	
	15	MICROWAVE					1.20	20/1	B	20/2			0.83			EF-1	16	
	17	GENERATOR BLOCK HEATER					0.20	20/1	A				0.83				18	
	19	GENERATOR BATT CHARGER					0.20	20/1	B	20/1				0.72		READY ROOM	20	
GFCI	21	DISHWASHER					1.00	20/1	A	20/1	0.10					C.O. SENSOR	22	
	23	SPARE						20/1	B	20/1						SPARE	24	
	25	SPARE						20/1	A	20/1						SPARE	26	
	27	SPARE						20/1	B	20/1						SPARE	28	
	29	SPARE						20/1	A	20/1						SPARE	30	
	31	SPARE						20/1	B	20/1						SPARE	32	
	33	SPARE						20/1	A	20/1						SPARE	34	
	35	SPARE						20/1	B	20/1						SPARE	36	
	37	SPARE						20/1	A	20/1						SPARE	38	
	39	SPARE						20/1	B	20/1						SPARE	40	
		TOTALS	0.00	0.90	0.00	0.00	3.55				0.45	0.10	1.66	2.88	0.00	TOTALS		



GENERATOR GROUNDING DETAIL FOR 3-POLE TRANSFER SWITCH WITH A SOLID NEUTRAL

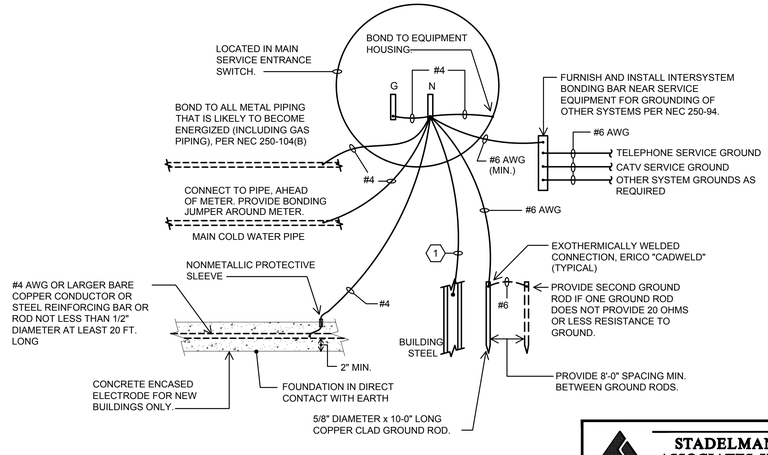
SCALE: NONE



NOTE: GENERATOR SHALL BE WIRED PER MANUFACTURER'S APPROVED SHOP DRAWINGS.EC SHALL FURNISH AND INSTALL CONCRETE PAD PER MANUFACTURERS SIZE AND CONSTRUCTION REQUIREMENTS.

EMERGENCY GENERATOR BLOCK DIAGRAM (PAD MOUNTED OUTDOORS)

SCALE: NONE



SERVICE GROUNDING DETAIL

SCALE: NONE

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Addition and Remodeling for

MASSILLON FIRE STATION #3

956 Wales Rd N.E
Massillon, Ohio 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 4/12/2018

PANEL SCHEDULES, ONE LINE DIAGRAM

E.4

SECTION 16010 - ELECTRICAL GENERAL PROVISIONS

1. The provisions of the Instructions to Bidders, General Conditions, Supplementary Conditions, Alternates, Addendas and Division 1 are a part of this specification. Electrical, Architectural, Mechanical and all other drawings as well as the specifications for all the divisions are a part of the contract documents. All revisions to the drawings and specifications up to the bid due date are a binding part of the contract.

2. Visit the site of the work and become familiar with the conditions affecting the installation. Submission of a proposal shall presuppose knowledge of such conditions and no additional compensation shall be allowed where extra labor or materials are required because of ignorance of these conditions.

3. Discrepancies between electrical, mechanical and architectural, contract drawings, or specifications shall be brought to the attention of the Owner prior to final bid submittal.

4. Definitions:

   A.) "Contractor" as used within the context of the electrical contract documents shall explicitly refer to the "electrical contractor".

   B.) The term "furnish" shall mean to supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations.

   C.) The term "install" shall mean work which includes the actual unloading, unpacking, assembly, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

   D.) The term "provide" shall mean to furnish and install, complete and ready for the intended use.

5. Include all labor, material, equipment, services and permits necessary for the proper completion of all electrical work shown. Items omitted, but necessary, to make the electrical system complete and workable shall be understood to form part of the work. Contractor's bid is assumed to include any premium time costs required to complete work.

6. It is the purpose of the electrical drawings to indicate the approximate location of all equipment, outlets, etc. Ascertain exact locations and arrange work accordingly. The right is reserved to effect reasonable changes in the location of outlets up to the time of roughing-in, without additional cost to the owner.

7. Temperature and interlock controls are provided and wired by a controls contractor. Line (120 volt) voltage control devices, such as thermostats and aquastats, which control fractional horsepower, 120 volt motors are furnished by mechanical contractor, and are mounted and wired by the electrical contractor.

8. Secure and pay for all permits and inspections required for the electrical work.

9. Work shall be installed in accordance with all applicable provisions of local and state (OBC - Ohio Building Code) codes, as well as the National Electrical Code (NEC), as interpreted by the local Authority Having Jurisdiction (AHJ). No extra compensation will be allowed for any changes necessary for code compliance. Contractor shall follow NECA standards of installation as a minimum.

10. Consult the drawings, product data and shop drawings covering the work for various other trades, the field layouts of the contractors for the trade and make adjustments accordingly in laying out the electrical work. Where electrical requirements for other trades varies from what is indicated on the drawings the contractor shall notify the Architect and Engineer immediately and suspend all work associated with the variation until a determination is made by the Architect and Engineer.

11. Contractor shall guarantee all workmanship and materials, and the successful operation of all equipment and apparatus installed by him for a period of one year after final acceptance of the entire work by the Owner, and shall guarantee to repair or replace at his own expense any part of the apparatus which may show to be defective during that time provided such defect is, in the opinion of the owner, due to imperfect material or workmanship and not to carelessness or improper use.

12. Authorized representatives of the Owner shall have access to and privilege of inspecting all work and materials as work progresses. These representatives shall have authority to approve or reject work or materials, using drawings, specifications, codes and good engineering practices as the basis for approval or rejection.

13. The existing electrical and telephone service, and all existing communication systems within the building shall be maintained throughout the construction period. Any service shutdowns that may be required shall be scheduled through the Owner and shall be done at a time as directed by the Owner. No additional compensation shall be allowed for these shutdown periods even though premium-time work may be required. Provide temporary service to equipment or systems that cannot be shutdown, as determined by Owner.

14. Provide a minimum of one week's notice to the Owner before any service shutdown is scheduled.

15. Bids shall be based upon the specified products or listed alternative equals. The drawings and specifications are based on the products specified by type, model and size and thus establish minimum qualities which substitutes must meet to qualify for review. Where only one make is named, it shall be provided. Verbal requests or approvals shall not be binding on the Architect, Engineer or Owner. Should the contractor propose to furnish materials and equipment other than those specified, he shall submit a written request for substitutions to the Architect at the bid opening. Indicate any additions or deductions to the contract price on the bid form.

16. Equipment and materials used on this project shall be new and UL. listed and labeled for the application.

17. Prepare six (6) sets of shop drawings and product data for lighting fixtures, wiring devices, circuit breakers, lighting controls, fire alarm system devices, and all other specified systems and components. The submittals will be reviewed only for general compliance and not for dimensions, quantities, etc. The submittals that are returned shall be used for procurement. The responsibility of correct procurement remains solely with the contractor.

18. The submittal review shall not relieve the contractor of responsibility for errors or omissions and deviations from the contract requirements. If the submittal shows variations from the requirements of the contract documents for any reason, the contractor shall make mention of such variation in his letter of transmittal. The contractor shall note in red on the submittal any change in design or dimension on the items submitted including changes made by the manufacturer which may differ from catalog information. Where contents of submittal literature include data not pertinent to the submittal, clearly indicate which portion of content is being submitted for review. Where additional installation drawings, wiring diagrams or other drawings are specified as a part of the submittal, they shall be submitted at the same time with shop drawings and product data. Partial submittals and submittals not stamped with contractor approval are not acceptable, and will be returned for reprocessing.

19. The contractor shall keep one complete set of the contract working drawings on the project site on which he shall record any deviations or changes from such contract drawings made during construction. After the project is completed, record sets of drawings shall be delivered to the Architect in good condition, as a permanent record of the installation as constructed.

20. Provide nameplates on panelboards, distribution equipment, safety switches, motor starters, junction boxes, and control devices. Unless otherwise indicated on the drawings, lettering shall include the name or designation of equipment, horsepower, voltage rating and service designation. Nameplates shall be laminated phenolic with a black surface and white core. Identification with a dymo type instrument is not permissible. The inside cover of all receptacle outlet plates shall be permanently marked to indicate the panel and circuit number of the outlet. The inside cover of all blank plates for junction boxes installed shall be permanently marked to indicate the system. Identification of branch circuits shall be typewritten on directory cards furnished with all panels and placed in the card holder on the door. Provide new typewritten directory cards with updated schedules for all existing panels with new or modified circuits.

21. After installation, test for grounds, short circuits and proper function of each system and related wiring. Faults in the installation shall be corrected.

22. Insulation resistance tests shall be made on the electrical system with an approved megohmmeter. Provide additional grounding components (rod, active electrode, etc.) As required to achieve 5 ohm resistance maximum for the main service disconnect grounding electrode system.

23. A ground continuity test shall be made on the grounding system shown to be installed on the drawings. Where an existing service or panels are being reused, contractor shall verify proper grounding of service, panels, and separately derived systems and correct any deficiencies in the grounding electrode system and equipment grounding in order to comply with the NEC and above requirements.

24. At all times keep premises and building in neat and orderly condition cleaned on a daily basis with all debris being removed from the site daily. Follow explicitly any instructions of the owner's representative. After all tests and adjustments have been completed, clean all equipment leaving everything in working order at the completion of this work. Clean lighting fixtures, outlet box plates, panel and cabinet interiors and exteriors, etc., of dirt, dust, debris and paint, after all other trades have completed their work.

25. Demonstrate to the Owner's satisfaction the proper operation of each of the systems comprising this contract before final payment.

26. At the end of the project the contractor shall measure the loading on each panel, distribution panel, transformer, switchboard, etc. And verify that the equipment is not loaded to more than 80% of the nameplate rating. If load measurements show otherwise the Contractor shall inform the Architect and Engineer immediately and shut off non critical loads until the system can be modified to within proper load ratings.

27. If required loads shall be adjusted on panels, distribution panels, switchboards, etc. So that loading on each phase is within 10% of each other.

28. Provide temporary telephone and electrical services adequate in size for the use of all trades and for the lighting of each room during construction (20 footcandles min.). Temporary wiring shall be to OSHA requirements. All 120 volt single phase 15 and 20 amp receptacles used by workmen shall be protected by a GFCI.

29. Do all cutting and patching in existing construction as necessary for installation of this work. Have cutting done by skilled mechanics as carefully as possible and with as little damage as possible.

30. Demolition of existing electrical equipment is a part of the electrical work. Refer to the drawings for exact requirements.

SECTION 16050 - BASIC MATERIAL AND METHODS

1. All boxes and conduit shall be rigidly supported from the building structure independent of the conduit system. All boxes shall be 4" square boxes minimum with raised covers suitable for the wall material.

2. Raceways:

   A.) Exposed conduits in high traffic areas where conduits are subject to physical abuse shall be heavy wall rigid galvanized steel to a level of 8 feet above the finished floor. All other interior conduits shall be electrical metallic tubing (EMT), unless otherwise noted on the drawings or within these specifications. Conduits shall be 1/2" trade size, minimum, unless otherwise noted on the drawings or within these specifications.

   B.) Flexible metal conduit shall be used from outlet boxes to recessed lighting fixtures, 6 ft. In length. Metal clad (type MC) cable or manufactured wiring systems may be utilized in lieu of branch circuit EMT conduit. Installation of MC cable shall comply with article 334 of the National Electrical Code. Installation of manufactured wiring systems shall comply with article 604 of the National Electrical Code. All branch circuit homerun conduits within the ceiling space complete to the panelboards shall be in EMT conduit.

   C.) Conduit connections to motors shall be flexible metal conduit "seal-tite" type "UA" as manufactured by the American Brass company or equivalent and shall be of the same size as the feeder conduit.

   D.) Conduit connections to undercabinet type lighting fixtures shall be 3/8" flexible metal conduit or MC type cable from the wall outlet box to the fixture housing.

   E.) Conduits passing from interior of the building to exterior of the building shall be filled with a UL approved material to prevent circulation of warm air to the exterior raceway per NEC section 300.7(a).

3. Wiring Devices:

   A.) Duplex receptacles shall be 20A, 125V, 2 pole, 3 wire grounding. General purpose "specification grade" duplex receptacles: Hubbell #CR5352.

   B.) Ground fault circuit interrupter duplex receptacles where indicated on the drawings or where required by code, shall have an integral ground fault protector for personnel protection (5ma) and shall be 20A, 125V, 2 pole, 3 wire grounding: Hubbell #GFR5352. Ground fault receptacles shall not be thru-wired. Provide individual duplex receptacles as shown on the drawings.

   C.) Wiring devices (switches, receptacles, etc.) Shall be ivory unless otherwise indicated. Verify color with the Architect. Provide stainless steel coverplates to match devices. Both the wiring devices and the coverplates shall be by the same manufacturer. In unfinished areas, use cadmium plated, round corner, steel coverplates and surface mounted outlet boxes.

   D.) The following are equivalent wiring devices:

1. Receptacles: #5362 series manufactured by Pass and Seymour or Leviton.

4. Wire and cable for branch circuits and for feeders shall be 600 volt, type THHN/THWN copper only, unless otherwise indicated on the drawings. Minimum size for power and lighting branch circuits shall be #12. Flexible cord shall be heavy duty type 'SO' with an equipment ground conductor.

5. Any core drilling or cutting of fire rated floors, shafts and walls shall be fire stopped prior to finish patching. All penetrations shall be sealed in accordance with UL fire resistance handbook, volume II and shall be rated to match the fire rating of the floors, shafts or walls penetrated.

6. Raceway installation:

   A.) Conduits shall be continuous and secured to all boxes in such a manner that each conduit system shall be electrically continuous from the point of service to all outlet boxes. Run conduits concealed unless otherwise indicated.

   B.) In remodeled areas where it is not possible to install concealed conduit, permission must be obtained from the Architect to run surface wiremold or conduit. The routing and elevation of such surface mounted raceways must be coordinated with the Architect before installation. Exposed raceways shall be painted to match adjacent finishes.

   C.) Individual branch circuits are shown on the drawings for clarity. Multiwire branch circuits may be utilized as defined by N.E.C. article 210.4. Neutral conductors in receptacle circuits serving data equipment loads shall not be shared.

7. Wire and cable installation:

   A.) Pull wire and cables into conduit using ideal industries "yellow 190", or equivalent.

   B.) Connect #10 and smaller wires

   C.) Color code wire and cable for circuits as called for in the national electrical code. Color coding of feeders shall be by means of colored tape at terminals and all points of access including junction boxes. Color code as follows:

	240/120V
a. Phase A	black
b. Phase B	red
c. Neutral	white
d. Ground	green

8. Wiring device installation:

   A.) Adjacent devices shall be mounted in ganged boxes with common cover plates.

   B.) Verify mounting heights and locations with the Architect before rough-in. Refer to details and interior wall elevations shown on the Architectural drawings.

   C.) Outlets shall not be installed back to back.

   D.) All receptacles shall be mounted with the ground opening above the phase and neutral openings.

   E.) All devices shall be secured with more than a single screw.

9. All hardware, supports, hangers, brackets, angle iron, channels, rods and clamps necessary to install electrical equipment shall be provided to suit the field conditions and the applications intended as shown on the drawings. The use of perforated straps is not permitted.

10. All equipment mounted on equipment room walls shall be attached to 3/4" plywood boards, painted with fire resistant paint.

11. Disconnect switches mounted on or adjacent to mechanical and building equipment shall be located to allow the proper working clearance as defined in Article 110 of the National Electrical Code. The Electrical Contractor shall provide disconnecting means and overload protection for all equipment unless such equipment is furnished with these items in the equipment package.

12. Through floor fittings shall be installed in accordance with the manufacturer's recommended installation procedures. All locations shall be field verified with the architect before core drilling.

13. Through floor fittings shall be furnished and installed as indicated on the drawings and specified herein. The work includes, but is not limited to, through floor fittings and junction boxes, flush floor service fittings, three inch diameter core drilled holes through concrete floors, duplex or single receptacles, telephone/data ports, and system furniture connection fittings. The through floor fittings shall be U.L. classified with a fire rating of one to four hours to accommodate power, telephone and data service in a single unit. The through floor fittings shall be prewired and contain a factory attached, vertical junction box that will fit through the three inch diameter core drilled hole and shall accommodate a floor thickness range of 2-1/4" to 7". The integral fire barrier shall prevent the passage of smoke when heat is not present. An integral clamping mechanism shall attach and detach to allow relocation without disassembling the fitting. The above floor service fitting shall be die cast aluminum with a satin aluminum finish and shall accommodate the devices indicated on the drawings. The power compartment shall be separated from the communications compartment. Acceptable manufacturers are Hubbell, Walker or raceway components.

14. Electrical installations in hollow spaces, vertical shafts, and ventilation or air-handling ducts shall be made so that the possible spread of fire or products of combustion will not be substantially increased. Openings around electrical penetrations through fire-resistant-rated walls, partitions, floors, or ceilings shall be firestopped using approved methods to maintain the fire resistance rating. Maintain a minimum of 24-in. Horizontal separation between boxes installed on opposite sides of walls or provide an approved firestopping intumescent putty pad and wrap electrical box to maintain fire rating per manufacturer's instructions.

SECTION 16400 - SERVICE AND DISTRIBUTION

1. Ground all electrical system conduits, motors, panels and other exposed non-current carrying metal parts of electrical equipment in accordance with all provisions of the national electrical code, state building code and local or regional codes.

2. Grounding of the electrical system shall be by means of an insulated grounding conductor installed with feeder and branch circuit conductors in all conduits. Grounding conductors shall be sized in accordance with NEC article 250. Where conductors are increased in size due to voltage drop the ground conductor size shall also be proportionally increased.

3. System neutral conductors shall be grounded at the source. Neutral conductors shall not be used for equipment grounding.

4. Furnish and install commercial branch circuit breakers where called for and shall be thermal-magnetic, molded case bolt-on type.

5. The branch circuit numbers used on the drawings shall be applied for the construction. However, at the completion of the work, circuit number adjustments shall be made as required to provide balanced phase loading on each panelboard.

SECTION 16500 - LIGHTING

1. Recessed fixtures shall be provided to be compatible with the ceiling types installed. Verify all ceiling types with the Division 1 contractor, or with the Architect before procurement of fixtures.

2. Where light fixtures are connected to multiwire branch circuits, the disconnecting means shall simultaneously break all the supply conductors to all circuits.

3. Recessed and surface mounted fixtures mounted in, or on ceilings other than accessible lay-in ceiling systems, shall be securely supported in a manner approved by the Architect. Mounting shall also be in accordance with National Electrical Code article 410, and as recommended by the fixture manufacturer.

4. Recessed fixtures in accessible lay-in ceiling systems shall be supported as follows:

   A.) The grid system tees shall be supported at each corner of each fixture with a suspended ceiling support wire up to a building structural member, or up to the structural deck.

   B.) Each fixture shall also be securely fastened to the grid system tees by mechanical means, such as bolts, screws, rivets or by clips identified for use with the type ceiling framing member installed.

5. All lighting fixtures (including "normally-off" emergency fixtures) that are capable of being aimed shall be aimed by the contractor for the optimum coverage of their task, to the satisfaction of, and under the direction of the Architect.

6. Furnish and install internal disconnecting means as required by N.E.C. 410-130 (g).

SECTION 16700 - COMMUNICATIONS

1. Combination telephone/data outlet boxes shall be 4 inches square with single gang plaster rings, unless otherwise noted.

2. Telephone-only, data-only, fax and pay telephone outlets shall be similar.

3. Blank coverplates shall be provided for all unused outlets.

4. All conduits required for combination telephone/data outlets as shown on the drawings shall be installed complete with pull wires.

5. Conduits shall be 1" minimum with a nylon pull wire installed.

6. Provide conduit from each outlet up to the nearest accessible corridor ceiling space and provide a plastic grommet at each stub.

7. Provide miscellaneous communication system devices as shown and specified on the drawings.

8. Include sufficient wiring, conduit terminations, electrical boxes, and all other necessary material as recommended by the system suppliers.

SECTION 16495 - AUTOMATIC TRANSFER SWITCH (ATS)

2 pole, solid neutral types: Qty. (1) rated at 200 amperes, 2 Pole, solid neutral, 3 wires 120/240 Volt-60Hz volts at 60 hertz mounted in a NEMA 3R enclosure, Kohler model KEP-DFNC-0200-MK . Transfer switch is not required to be service entrance rated. Provide all sensors, indicators and timers as required by local code and monitors for in phase transfer, phase rotation, single phase loss, low voltage, high voltage, low frequency and high frequency. The automatic transfer switch logic shall be microprocessor based with MPAC 1500 controls with inherent digital communications and LCD display capability.

A. Equal automatic transfer switches as manufactured by Cummins/Onan, Generac, or ASCO shall be acceptable subject to Engineer's shop drawing approval.

SECTION 16620 - GENERATOR SET

A. Natural Gas fueled standby generator set rated 120/240 Volts, single phase,60kW, 60 kVA, 250 amperes at max of 800 feet altitude, 95ºF, KOHLER model 60REZGB with a 4Q10X alternator frame capable of starting motor loads of 144 SkVA (inrush) with a maximum voltage dip of 35%. Provide all accessories noted below including a sound and weather resistant enclosure with internally mounted silencer, rated for 64dB(A) @23 ft., Battery Charger 10 Amp(120 volt), Battery and Cables,120 volt(1500 watt) Block Heater, Flexible Fuel Lines, Pre-alarm Sender, Rodent Guards, Run Relay, and remote annunciator. Provide remote emergency stop button-Pilla model GS series with clear protective cover # PILCLHOOV1, Nema 4X rated. Include (one) generator output breaker provided @ 225 amp for standby/ emergency loads, 80 % rated. A Decision-Maker 3000 controller with timers, sensors, indicators and meters shall be provided. The generator control logic shall be microprocessor based with inherent digital communications capabilit. Warranty shall include one year parts and labor.

B. Provide NFPA-110, level 1, remote annuciator with conduit and wiring connection to ATS. Generator annunciator shall provide transfer switch status to include but not limited to source position, fault indication and testing capabilities. Mount annunciator in dispatch officer.

C. Equal generator sets as manufactured by Cummins/Onan, or Caterpillar shall be acceptable subject to Engineer's shop drawing approval.

Provide full load test utilizing portable test bank for four hours minimum. Simulate power failure including operation of transfer switch, automatic starting cycle, and automatic shutdown, and return to normal. During test, record the following at 20 minute intervals: kilowatts, amperes, voltage, coolant temperature, room temperature, frequency, oil pressure, test alarm and shutdown circuits by simulating conditions. Submit test results to Engineer and Owner verifying proper standby operation under full load conditions.

STADELMAN ASSOCIATES INC.

8614 HARTMAN ROAD
WADSWORTH, OH 44281
PH: 330-926-2600 FAX: 330-926-4531

SōL HARRIS/DAY architecture
6677 Frank Ave NW
North Canton, OH 44720
ph: 330.493.3722
www.solharrisday.com

[DESIGNED FOR PEOPLE, DESIGNED FOR LIFE.]

STATE OF OHIO CHARLES S. PARSONS E-72649 REGISTERED PROFESSIONAL ENGINEER 4/11/18

Addition and Remodeling for

MASSILLON FIRE STATION #3

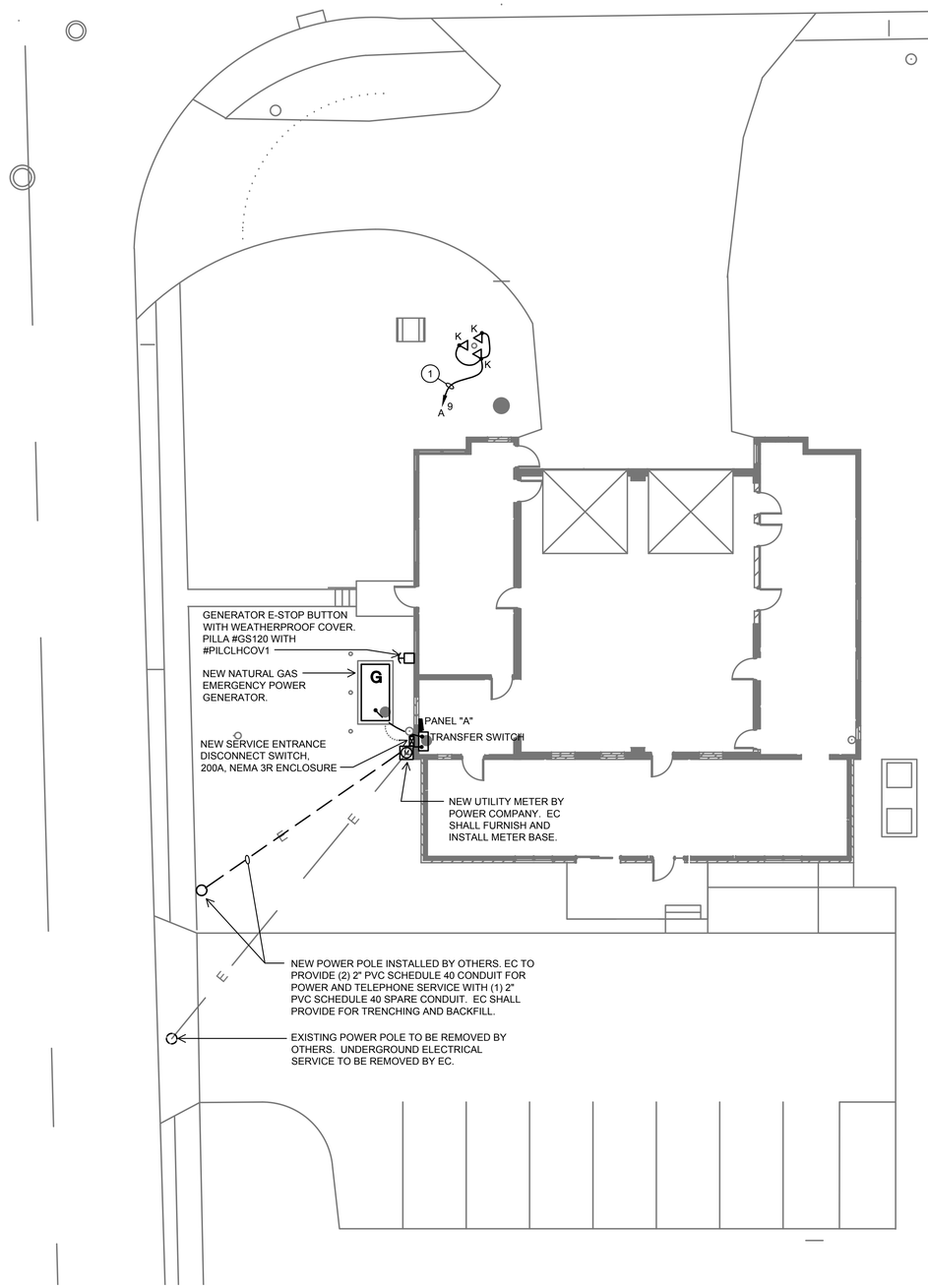
956 Wales Rd N.E
Massillon, Ohio 44646

MARK	DATE	DESCRIPTION

PROJECT NO: 16.115
DATE: 4/12/2018

ELECTRICAL SPECIFICATIONS

E.5



ELECTRICAL SITE PLAN

SCALE: 1" = 10'-0"

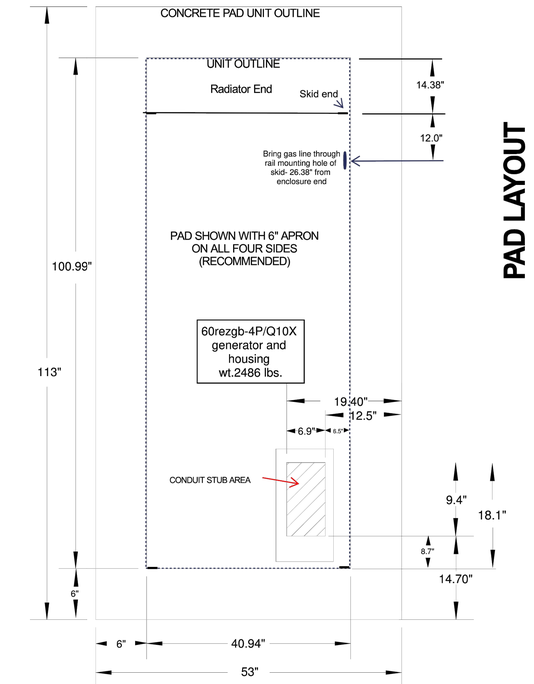
NORTH

GRAPHIC SCALE: 1" = 10'-0"

2' 0 2' 4' 6' 8' 10' 15' 20' 30' 40' 50'

LIGHTING PLAN NOTES:

1. WIRE CIRCUIT THROUGH PHOTO CELL, TORK #3010, 120V, 1200 VA RATING. FLUSH MOUNT IN RECESSED RAIN TIGHT JUNCTION BOX. MOUNT AS HIGH AS POSSIBLE ON NORTHERN EXPOSURE. COORDINATE WITH OVERHANG AND ARCHITECTURAL ELEVATIONS. PHOTOCELL SHALL NOT BE IN THE SHADOW OF ANY ARCHITECTURAL FEATURES, VERFIY WITH GC ON SITE PRIOR TO ROUGH IN.
2. EMERGENCY BATTERY BACKUP LIGHTING, NIGHT LIGHTS AND WIRE CIRCUIT THROUGH PHOTO CELL, TORK #3010, 120V, 1200 VA RATING. FLUSH MOUNT IN RECESSED RAIN TIGHT JUNCTION BOX. COORDINATE EXACT LOCATION WITH OVERHANG AND ARCHITECTURAL ELEVATIONS. PHOTOCELL SHALL NOT BE IN THE SHADOW OF ANY ARCHITECTURAL FEATURES, VERFIY WITH GC ON SITE PRIOR TO ROUGH IN.



PAD LAYOUT

NOTE: This pad layout is designed to assist in preferred conduit locations. Please refer to the ADV drawing for exact dimensions.

GENERATOR PAD LAYOUT

SCALE: NONE

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MARK	DATE	DESCRIPTION

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ELECTRICAL SITE PLAN

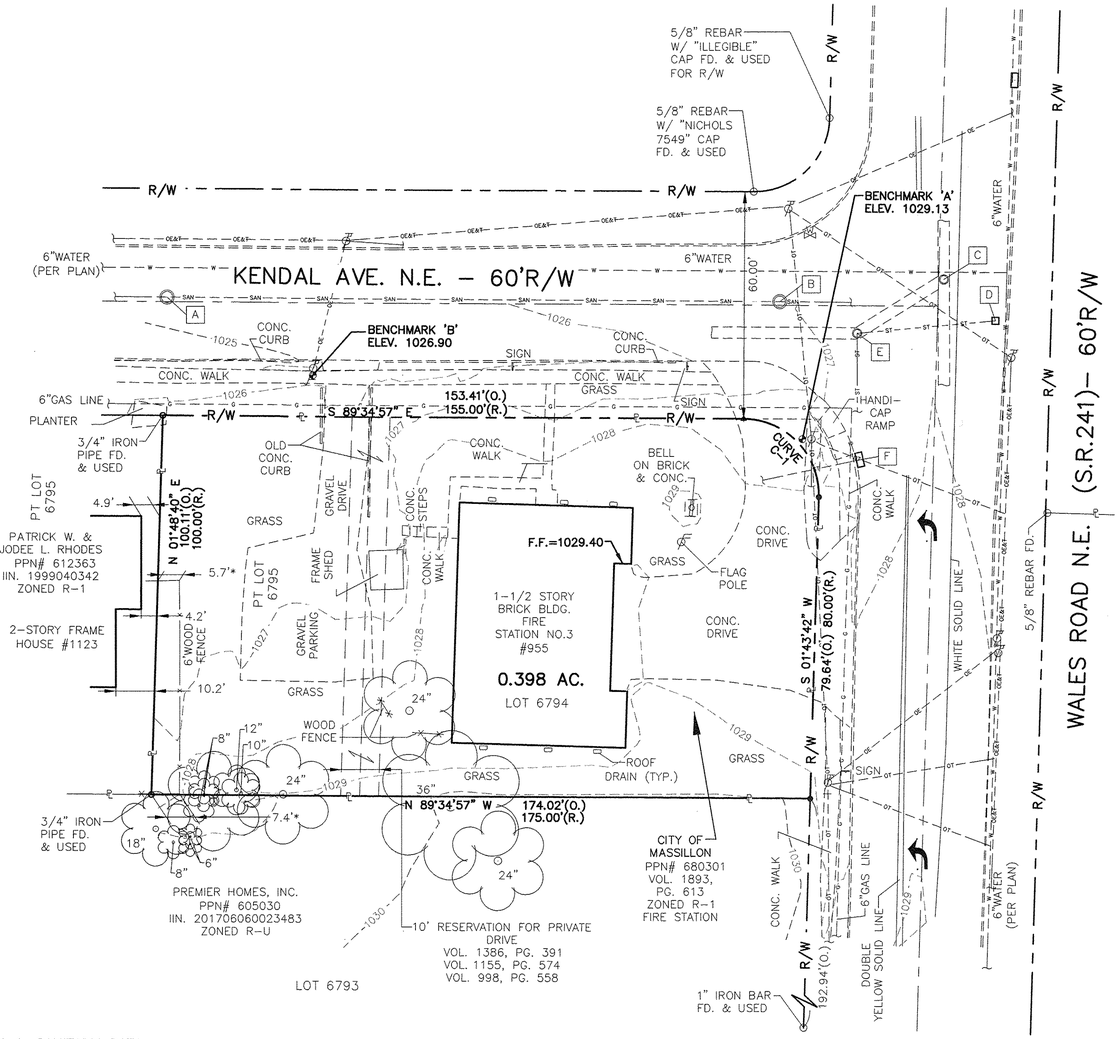
SE.1

S:\Shared\Active\Bgv003-Massillon Fire Station #3 - Renovation & Addition\Bgv003-SE1.dwg [36X24] April 24, 2018 - 1:34pm

MAP OF SURVEY
A 0.398 ACRE PARCEL

BEING ALL OF LOT 6794
AND PART OF LOT 6795
IN THE CITY OF MASSILLON,
STARK COUNTY, OHIO

FIRE STATION NO. 3



UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING PLANS. THE SURVEYOR MAKES NO GUARANTEE THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED UNDERGROUND UTILITIES.

BASIS OF BEARING

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE OHIO STATE PLANE COORDINATE SYSTEM, NORTH ZONE(3401), GEOID 12A, NAD83 (2011) (HORIZONTAL), AND NAVD88 (VERTICAL). ALL DISTANCES NOTED ON THIS DRAWING ARE AT GROUND DATUM.

DATA USED

DEEDS: AS NOTED
STARK CO. GIS
TAX MAPS: CANTON 63
STA-77-10.33 ODOT R/W PLAN
STA-77-9.46 ODOT R/W PLAN

STORM & SANITARY DATA

A SAN. M.H.
T/C=1025.22
INV. 8"VCP E=1013.10
INV. 8"VCP W=1013.04

B SAN. M.H.
T/C=1026.93
INV. 8"VCP W=1012.40
INV. 8"VCP E=1012.03

C STM. M.H.
T/C=1027.80

D CATCH BASIN
T/C=1027.29

E STM. M.H.
T/C=1027.26
INV. 12"VCP S=1025.11
INV. 12"PVC E=1025.01
INV. 36"RCP W=1006.54
INV. 36"RCP NE=1006.21

F CURB INLET
T/C=1027.18 INV.
8"VCP W=1025.23
BOT=FULL OF DEBRIS

* DENOTES APPARENT ENCROACHMENT

MONUMENT LEGEND

- ● 5/8" REBAR W/ "H&A LTD" CAP SET
- ▲ MAG NAIL SET
- ○ REBAR FOUND
- ⓞ MONUMENT BOX FOUND
- (R.) RECORD DISTANCE
- (O.) OBSERVED DISTANCE

CURVE DATA C-1

R=20.00'
D=91°18'39"
A=31.87'
T=20.46'
CH=28.61'
CHB=S 43°55'37" E

SCALE: 1"=20'

BENCHMARK 'A':
CUT NAIL 1' UP WEST SIDE POWER POLE (NO #) AT THE S.W. CORNER OF INTERSECTION OF WALES ROAD N.E. AND KENDAL AVE. N.E., 44' N.E. OF FLAG POLE AT FIRE STATION.
ELEV. = 1029.13

BENCHMARK 'B':
CUT NAIL 1' UP SOUTH SIDE POWER POLE #2622C3/75 ON SOUTH SIDE OF KENDAL AVE. N.E., 42' N.E. OF N.W. PROPERTY CORNER AT FIRE STATION.
ELEV. = 1026.90

I HEREBY CERTIFY THAT THE LAND WAS SURVEYED UNDER MY SUPERVISION AND IS SHOWN ON THIS PLAT, AND THAT THIS PLAT IS A CORRECT REPRESENTATION OF THE LAND SURVEYED THEREOF, AND THAT I HAVE FOUND OR SET THE MONUMENTATION SHOWN.

THE ESTABLISHMENT OF THE PROPERTY LINES SHOWN ON THIS PLAT WAS PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

ALL OF MY WORK CONTAINED HEREIN WAS CONDUCTED IN ACCORDANCE WITH THE OHIO ADMINISTRATIVE CODE 4733-37 COMMONLY KNOWN AS "MINIMUM STANDARDS FOR BOUNDARY SURVEYS IN THE STATE OF OHIO" UNLESS NOTED.

HAMMONTREE & ASSOCIATES, LIMITED

STATE OF OHIO · PAUL K. MILLER 7587 · REGISTERED PROFESSIONAL SURVEYOR

PAUL K. MILLER, P.S. #7587 — DATE: 3/29/18

HAMMONTREE & ASSOCIATES, LIMITED
ENGINEERS, PLANNERS, SURVEYORS
5233 STONEHAM RD. NORTH CANTON, OH 44720
PHN: (330) 499-8817 FAX: (330) 499-0148
TOLL FREE: 1-800-394-8817
www.hammontree-engineers.com

REV. BY: ____ DATE: ____ DESC.: ____
REV. BY: ____ DATE: ____ DESC.: ____
REV. BY: ____ DATE: ____ DESC.: ____
REV. BY: ____ DATE: ____ DESC.: ____
REV. BY: ____ DATE: ____ DESC.: ____

DESN BY: PKM
DRWN BY: JAC
RWD BY: 611
FLD BK: 59
BK PG:
DATE: 03/16/18

SCALES
HORIZ: 1"=20'
VERT: –
CONTOUR INT: 1'

MASSILLON FIRE STATION NO. 3 – A 0.398 AC. PARCEL
MAP OF SURVEY
FOR: SOL HARRIS DAY ARCHITECTS
BEING ALL OF LOT 6794 AND PART OF LOT 6795
IN THE CITY OF MASSILLON,
STARK COUNTY, OHIO

1 OF 1

ENGINEERS HA PLANNERS SURVEYORS HA

R:\Stark\City\Massillon\14\WALES FIRE STATION 2018 955\Wales Fire Station topo 2018.dwg; 3/29/18 – 7:56am; paulm