

# PAULDING CO. OFFICES

## INTERIOR ALTERATIONS OF FORMER FRITZ HOUSE

451 MCDONALD PIKE  
PAULDING, OHIO 45879

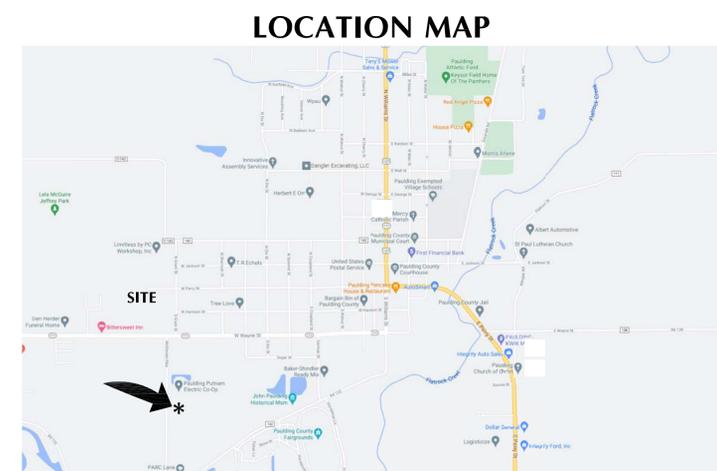


ROOM OCCUPANCY SCHEDULE				
ROOM	USE	NET SF PER AREA	OCC	DESIGN OCCUPANTS
101	LOBBY	B	255	
102	CORRIDOR	B	282	
103	CORRIDOR	B	408	
104	CORRIDOR	B	258	
105	CORRIDOR	B	681	
106	Not Used	B		
107	MEETING ROOM	B	530	15 35
108	STORAGE	B	82	300 0
109	OFFICE	B	248	100 2
110	STORAGE	B	61	300 0
111	OFFICE	B	247	100 2
111A	STORAGE	B	56	300 0
111B	STORAGE	B	82	300 0
112	OFFICE	B	378	100 4
113	I.T.	B	42	300 0
114	JANITOR	B	33	
115	TOILET	B	30	
116	RECEPTION	B	577	100 6
117	BREAK ROOM	B	123	15 8
118	OFFICE	B	131	100 1
119	MEETING ROOM	B	1035	15 69
120	KITCHEN	B	787	200 4
121	JANITOR	B	33	
122	DRY FOOD STORAGE	B	97	300 0
123	WALK-IN UNIT	B	82	300 0
124	MECHANICAL	B	79	
125	ELECTRICAL	B	89	
126	OFFICE	B	238	100 2
127	OFFICE	B	297	100 3
128	OFFICE	B	133	100 1
129	OFFICE	B	597	100 6
130	MECHANICAL	B	230	
131	OFFICE	B	133	100 1
132	OFFICE	B	116	100 1
133	OFFICE	B	134	100 1
134	WAITING	B	70	
135	TOILET	B	49	
136	TOILET	B	49	
137	OFFICE	B	318	100 3
138	MEETING ROOM	B	606	15 40
139	Not Used	B		
140	TOILET	B	32	
141	CASE MANAGER	B	289	100 3
142	CASE MANAGER	B	298	100 3
143	FILES / ADMIN. ASSIST.	B	290	100 3
144	TOILET	B	32	
145	FILES / ADMIN. ASSIST.	B	302	100 3
146	SUPT. OFFICE	B	313	100 3
147	CASE MANAGER	B	277	100 3
148	TOILET	B	32	
149	HELP ME GROW	B	590	100 6
150	Not Used	B		
151	OFFICE	B	313	100 3
<b>Occupancy Total</b>				<b>221</b>

LIST OF DRAWINGS	
A-1	LIFE SAFETY PLAN, BUILDING CODE INFORMATION, AND LOCATION MAP
A-2	DEMOLITION PLAN
A-3	FLOOR PLAN, ROOM FINISH & DOOR SCHEDULES, AND DOOR DETAILS
M-1	HVAC PLAN, SCHEDULES, AND DETAILS
E-1	POWER PLAN, LIGHTING PLAN, SCHEDULES AND DETAILS
SP-1	SPECIFICATIONS - DIVISIONS 02-22
SP-2	SPECIFICATIONS - DIVISION 23
SP-3	SPECIFICATIONS - DIVISIONS 23-28

BUILDING CODE INFORMATION	
Building Code	2017 OBC w/2018 updates
Plumbing Code	2017 OPC w/2018 updates
Mechanical Code	2017 OMC w/2018 updates
Electrical Code	2017 NEC
Fire Code	2017 OFC w/2019 Errata
Accessibility Code	2009 ICC/ANSI A117.1/Chap. 11; 2017 OBC
Energy Code	ASHRAE 90.1-2010
Fuel Gas Code	2015 IFGC
Automatic Sprinkler Code	2016 NFPA 13
Fire Alarm & Signaling Code	2016 NFPA 72
Use and Occupancy	B
Construction Type	Type VB
Fire-Resistance Rating for Exterior Walls Based on Fire Separation Distance	10 < X < 30 0 Hour
Height and Area Limitations	
Allowable Building Height Above Grade Plane	40 Feet
Allowable Number of Stories Above Grade	1 Story
Allowable Building Area per Story	9,000 SF
Frontage Increase	4,500 SF
Automatic Sprinkler System Increase	0 SF
<b>Total Allowable Building Area</b>	<b>13,500 SF</b>
Building Height and Area Information	
Building Height Above Grade	18 Ft. avg. single
Existing Building Unaltered	7,108 SF
Altered Area	6,285 SF
<b>Total Building Area</b>	<b>13,393 SF</b>
Occupant Load	<b>Total 221 occupants</b>

- PROJECT NARRATIVE**
- THE OCCUPANCY OF EXISTING STRUCTURE HAS BEEN AN I-2 (REST HOME) USE FOR AT LEAST THE PAST TWO YEARS WITHOUT ORDERS OF THE BUILDING OFFICIAL PENDING, NO EVIDENCE OF FRAUD. SCOPE OF WORK SHALL INCLUDE A CHANGE OF OCCUPANCY FROM I-2 TO B (OFFICES)
  - EXISTING BUILDING IS A SINGLE STORY STRUCTURE.
  - SCOPE OF IMPROVEMENT INCLUDES:
    - RENOVATION OF APPROX. 6,300 S.F. OF EXISTING INTERIOR AREA FOR USE AS OFFICE SPACE
    - INTERIOR ALTERATIONS OF EXISTING PLUMBING FIXTURES/TOILET ROOMS AND ELECTRICAL & LIGHTING DEVICES.
    - HVAC IMPROVEMENTS TO A PORTION OF NEW OFFICE AREA FOR ENHANCED CONTROL AND DISTRIBUTION.
  - THE EXISTING BUILDING FIRE SUPPRESSION SYSTEM SHALL BE ABANDONED IN PLACE AND SHALL BE DONE IN A MANNER ACCEPTABLE TO THE LOCAL FIRE OFFICIAL.
  - THE EXISTING FIRE ALARM SYSTEM SHALL BE ABANDONED IN PLACE AND SHALL BE DONE IN A MANNER ACCEPTABLE TO THE LOCAL FIRE OFFICIAL.



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201-1/2 WEST FIRST STREET

**B|A**  
BEILHARZ  
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PLOT SCALE  
3/32"=1'-0"

0 5'-4" 10'-8" 16'-0"

FOR SHEET SIZE 24"x36"

ISSUE DATE  
1 10.08.21 PERMITS/BIDS

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**PAULDING COUNTY OFFICES**  
INTERIOR ALTERATIONS OF FORMER FRITZ HOUSE  
451 MCDONALD PIKE  
PAULDING, OHIO 45879

COVER SHEET

PROJECT: C1-4750

DRAWN BY: LC, SB

CHECKED BY: KAB

SHEET  
**A-1**

1 OF 8

1 LIFE SAFETY PLAN  
A-1 SCALE: 3/32"=1'-0"





KRAIG A. BELHARZ, LICENSE #9482  
EXPIRATION DATE: 12/31/2021



PLOT SCALE  
1/8"=1'-0"  
FOR SHEET SIZE 24"x36"

ISSUE DATE  
1 10.08.21 PERMITS/BIDS

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**PAULDING COUNTY OFFICES**  
INTERIOR ALTERATIONS OF FORMER FRITZ HOUSE  
451 McDONALD PIKE  
PAULDING, OHIO 45879

FLOOR PLAN  
ROOM FINISH SCHEDULE  
DOOR SCHEDULE  
DOOR DETAILS

PROJECT: C1-4750

DRAWN BY: LC, SB

CHECKED BY: KAB

SHEET

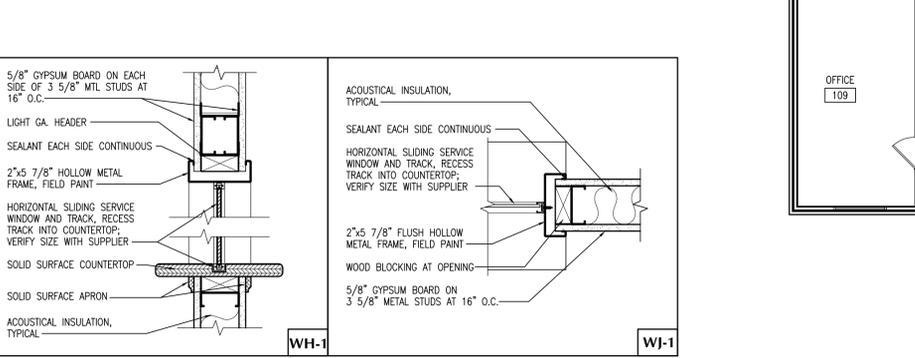
**A-3**

3 OF 8

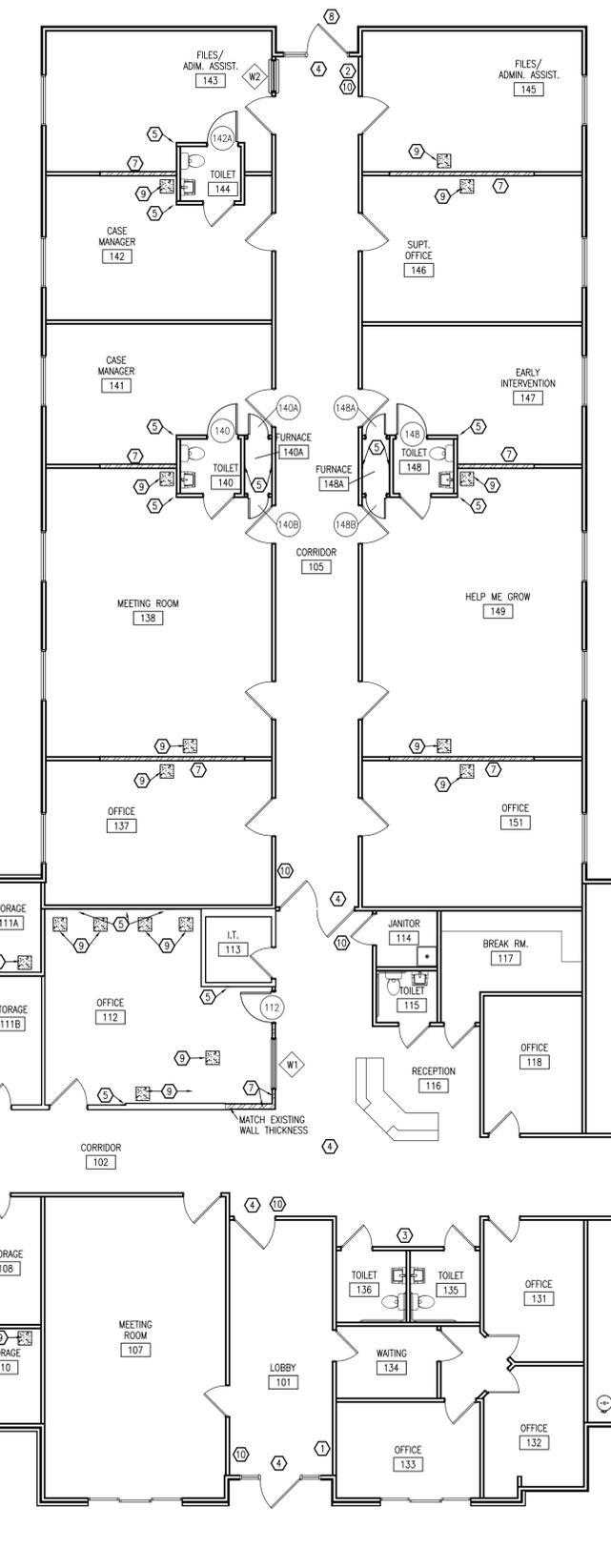
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FINISH SCHEDULE															
ROOM	FLOOR MATL	BASE MATL	WALLS						CEILING		HEIGHT	NOTES			
			N	FIN	S	FIN	E	FIN	W	FIN			MATL	FIN.	
101	LOBBY	X	X	X	P3	X	P3	X	P3	X	P3	XT	P4	8'-0"	
102	CORRIDOR	X	X	XG	P3	X	P3	X	P3	X	P3	X4	P4	7'-8"	
103	CORRIDOR	X	X	X	P3	X	P3	X	P3	X	P3	X4	P4	7'-8"	
104	CORRIDOR	X	X	X	P3	X	P3	X	P3	X	P3	X4	P4	7'-8"	
105	CORRIDOR	X	RC	X	P3	X	P3	X	P3	X	P3	X4	P4	7'-8"	1
106	Not used														
107	MEETING ROOM	CPT	RC	X	P3	X	P3	X	P3	X	P3	XT	P4	8'-0"	
108	STORAGE	X	X	X	P3	X	P3	X	P3	X	P3	XT	P4	8'-0"	
109	OFFICE	CPT	RC	X	P3	X	P3	X	P3	X	P3	XG	P4	8'-0"	
110	STORAGE	CPT	RC	X	P3	X	P3	X	P3	X	P3	XG	P4	8'-0"	
111	OFFICE	CPT	RC	X	P3	X	P3	X	P3	X	P3	XT	P4	8'-0"	
111A	STORAGE	CPT	RC	X	P3	X	P3	X	P3	X	P3	XG	P4	8'-0"	
111B	STORAGE	X	X	X	X	X	X	X	X	X	X	X	XT	8'-0"	
112	OFFICE	CPT	RC	X	P3	XG	P3	XG	P3	X	P3	XG	P4	8'-0"	
113	I.T.	X	X	X	X	X	X	X	X	X	X	XG	8'-0"		
114	JANITOR	X	X	X	X	X	X	X	X	X	X	XG	8'-0"		
115	TOILET	X	X	X	X	X	X	X	X	X	X	XG	8'-0"		
116	RECEPTION	X	X	X	P3	X	P3	X	P3	XG	P3	X2	-	8'-0"	
117	BREAK ROOM	X	X	X	X	X	X	X	X	X	X	XG	8'-0"		
118	OFFICE	X	X	X	X	X	X	X	X	X	X	XT	8'-0"		
119	MEETING ROOM	X	X	X	X	X	X	X	X	X	X	XT	8'-0"		
120	KITCHEN	X	X	X	X	X	X	X	X	X	X	XG	9'-0"		
121	JANITOR	X	X	X	X	X	X	X	X	X	X	XG	9'-0"		
122	DRY FOOD STORAGE	X	X	X	X	X	X	X	X	X	X	XG	9'-0"		
123	WALK-IN UNIT	X	X	X	X	X	X	X	X	X	X	-	8'-0"		
124	MECHANICAL	X	X	X	X	X	X	X	X	X	X	XG	9'-0"		
125	ELECTRICAL	X	X	X	X	X	X	X	X	X	X	XG	9'-0"		
126	OFFICE	CPT	RC	X	P3	X	P3	XG	P3	XG	P3	XG	P4	9'-0"	
127	OFFICE	CPT	RC	XG	P3	X	P3	XG	P3	XG	P3	XG	P4	9'-0"	
128	OFFICE	CPT	RC	X	P3	X	P3	X	P3	X	P3	XG	P4	9'-0"	
129	OFFICE	CPT	RC	X	P3	X	P3	X	P3	X	P3	XT	P4	8'-0"	
130	MECHANICAL	X	X	X	X	X	X	X	X	X	X	XG	8'-0"		
131	OFFICE	X	X	X	X	X	X	X	X	X	X	XT	8'-0"		
132	OFFICE	X	X	X	X	X	X	X	X	X	X	XT	8'-0"		
133	OFFICE	X	X	X	X	X	X	X	X	X	X	XT	8'-0"		
134	WAITING	X	X	X	X	X	X	X	X	X	X	X4	-	8'-0"	
135	TOILET	X	X	X	X	X	X	X	X	X	X	X4	-	8'-0"	
136	TOILET	X	X	X	X	X	X	X	X	X	X	X4	-	8'-0"	
137	OFFICE	CPT	RC	XG	P3	X	P3	X	P3	X	P3	XT	T/P4	8'-0"	
138	MEETING ROOM	CPT	RC	X	P3	X	P3	X	P3	X	P3	XT	T/P4	8'-0"	
139	Not used														
140	TOILET	X	X	X	P3	X	P3	X	P3	X	P3	XG	P4	8'-0"	
140A	FURNACE	X	X	G	P3	G	P3	X	P3	X	P3	XG	P4	8'-0"	
141	CASE MANAGER	CPT	RC	X	P3	XG	P3	X	P3	X	P3	XT	T/P4	8'-0"	
142	CASE MANAGER	CPT	RC	XG	P3	X	P3	X	P3	X	P3	XT	T/P4	8'-0"	
143	FILES/ADMIN. ASSISTANT	CPT	RC	X	P3	XG	P3	X	P3	X	P3	XT	T/P4	8'-0"	
144	TOILET	X	X	X	P3	X	P3	X	P3	X	P3	XG	P4	8'-0"	
145	FILES/ADMIN. ASSISTANT	CPT	RC	X	P3	XG	P3	X	P3	X	P3	XT	T/P4	8'-0"	
146	SUPT. OFFICE	CPT	RC	XG	P3	X	P3	X	P3	X	P3	XT	T/P4	8'-0"	
147	CASE MANAGER	CPT	RC	X	P3	XG	P3	X	P3	X	P3	XT	T/P4	8'-0"	
148	TOILET	X	X	X	P3	X	P3	X	P3	X	P3	XG	P4	8'-0"	
148A	FURNACE	X	X	G	P3	G	P3	X	P3	X	P3	XG	P4	8'-0"	
149	HELP ME GROW	CPT	RC	XG	P3	X	P3	X	P3	X	P3	XT	T/P4	8'-0"	
150	Not used														
151	OFFICE	CPT	RC	X	P3	X	P3	X	P3	X	P3	XT	T/P4	8'-0"	

MATERIAL AND FINISH LEGEND		NOTE:	
<b>FLOOR MATERIAL</b>	X Existing to remain	CPT Carpet, 12"x48" modular plank	
<b>BASE MATERIAL</b>	X Existing to remain	RC Rubber cove base	
<b>WALL MATERIAL</b>	X Existing to remain	G Gypsum board	
<b>CEILING MATERIAL</b>	XG Existing Gypsum Board	X2 Existing 2x2 Susp. Tile	1 No paint on rail.
<b>FINISH LEGEND</b>	P1 Paint, gloss	P2 Paint, semi-gloss	P3 Paint, eggshell
	P4 Paint, flat	T Apply texture to existing restroom ceiling, and blend with adjacent ceiling surface.	



LEGEND	
	WINDOW, SEE SHEET A-3 FOR ELEVATIONS
	DOOR AND INTERIOR WINDOW, SEE SHEET A-3
	ROOM, SEE SHEET A-3 FOR ROOM FINISH SCHEDULE
	METAL STUD WALL, SEE KEYNOTE 7
	EXISTING WALLS TO REMAIN

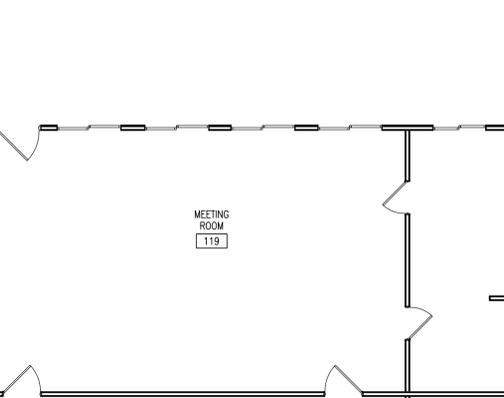


GENERAL NOTES	
1.	PROVIDE BLOCKING AT STUD PARTITION WALLS AS REQUIRED FOR SUPPORT OF ALL WALL MOUNTED EQUIPMENT AND ACCESSORIES.
2.	VERIFY LOCATION OF ALL UTILITY LINES PRIOR TO BEGINNING WORK.
3.	COORDINATE WORK TO AVOID CONFLICTS BETWEEN TRADES.
4.	PROVIDE FIREBLOCKING IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES, AT THE CEILING AND FLOOR LEVELS AND AT 10-FOOT INTERVALS BOTH VERTICAL AND HORIZONTAL. FIREBLOCKING SHALL CONSIST OF BATTS OR BLANKETS OF ACOUSTIC INSULATION.
5.	WHERE GYPSUM BOARD WALL ABUTS HOLLOW METAL OR ALUMINUM, TERMINATE WITH TEARAWAY "L" BEAD AND CONTINUOUS SEALANT.
6.	WHERE GYPSUM BOARD, FRAMING, AND FURRING WORK IS CALLED FOR ADJACENT TO DOORS, WINDOWS, OR OPENINGS, WORK SHALL INCLUDE ABOVE AND/OR BELOW SUCH OPENINGS

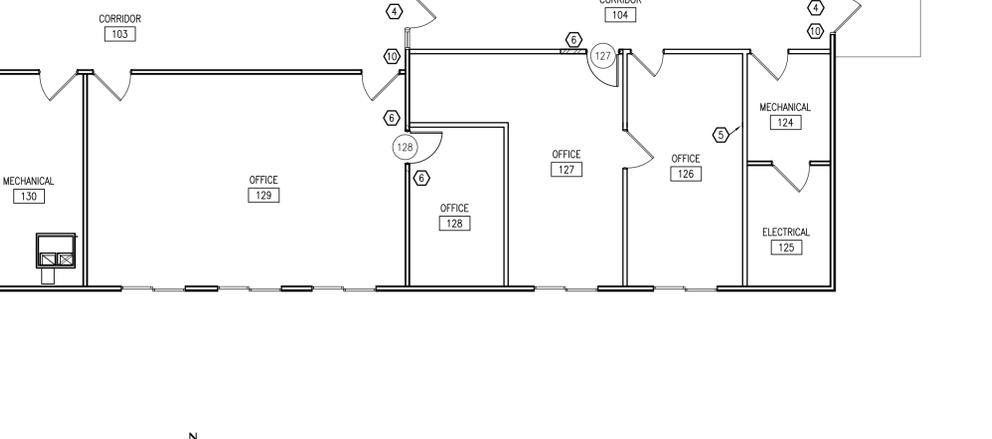
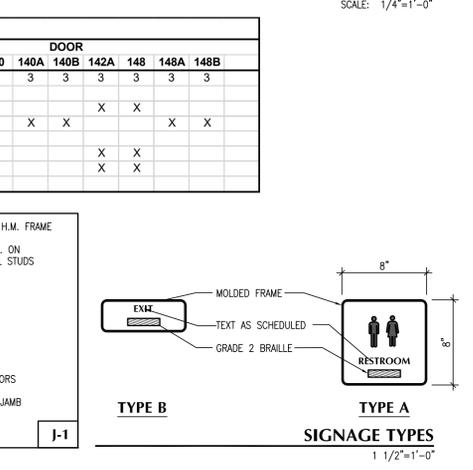
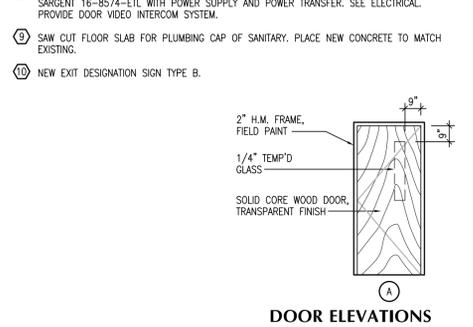
DOOR SCHEDULE											
MARK	SIZE		DOOR MATL	ELEV	GLAZING	FRAME		DETAIL	NOTES		
	W	H				W	H			HEAD	JAMB
112	3'-0"	6'-8"	1-3/4"	WD	A	8	33	HM	H-1	J-1	
127	3'-0"	6'-8"	1-3/4"	WD	A	8	33	HM	H-1	J-1	
128	3'-0"	6'-8"	1-3/4"	WD	A	8	33	HM	H-1	J-1	
140	3'-0"	6'-8"	1-3/4"	WD	A	-	-	HM	H-1	J-1	1
140A	2'-0"	6'-8"	1-3/4"	WD	A	-	-	HM	H-1	J-1	
140B	2'-0"	6'-8"	1-3/4"	WD	A	-	-	HM	H-1	J-1	
142A	3'-0"	6'-8"	1-3/4"	WD	A	-	-	HM	H-1	J-1	1
148	3'-0"	6'-8"	1-3/4"	WD	A	-	-	HM	H-1	J-1	1
148A	2'-0"	6'-8"	1-3/4"	WD	A	-	-	HM	H-1	J-1	
148B	2'-0"	6'-8"	1-3/4"	WD	A	-	-	HM	H-1	J-1	

MATERIAL LEGEND		NOTES LEGEND	
HM	Hollow metal	1	Sign type A
WD	Solid Core Wood		

HARDWARE SCHEDULE		DOOR									
Item	Description	BHMA FINISH	DOOR								
		112	127	128	140	140A	140B	142A	148	148A	148B
Butt Hinges, Interior	McKinney TA2714		3	3	3	3	3	3	3	3	3
Lockset, Office	Sargent 10G05	LL lever	X	X	X						
Lockset, Privacy	Sargent 10G37	LL lever				X	X		X	X	
Lockset, Passage	Sargent 10G15-3	LL lever						X			X
Wall Stop	Ives WS406CCV		X	X	X				X	X	
Closer	Sargent 351-O		X	X	X				X	X	
Sweep	National Guard 200N				X						



KEYNOTE LEGEND	
1	EXISTING FIRE EXTINGUISHER TO REMAIN.
2	RELOCATE FIRE EXTINGUISHER CABINET AND THE EXTINGUISHER SIGN. PATCH GYP. BOARD TO MATCH EXISTING.
3	WATER COOLER FOR PUBLIC DRINKING WATER
4	EXIT DESIGNATION WITH EXTERIOR LIGHT AT ALL EGRESS DOORS.
5	PATCH DRYWALL
6	INFILL OPENING AS NECESSARY; MATCH EXISTING MATERIALS AND FINISHES, PATCH WALL FINISHES AS NECESSARY
7	5/8" GYP. BOARD OVER 16 GA. 3 5/8" METAL FRAMING. SECURE USING DEFLECTION CLIPS AT BOTTOM OF TRUSS. INSTALL ACOUSTICAL INSULATION IN NEW WALLS.
8	ALTERNATE BID: REPLACE DOOR HARDWARE/EGRESS DEVICE WITH ELECTRIFIED EXIT DEVICE; SARGENT 16-8574-ETL WITH POWER SUPPLY AND POWER TRANSFER. SEE ELECTRICAL. PROVIDE DOOR VIDEO INTERCOM SYSTEM.
9	SAW CUT FLOOR SLAB FOR PLUMBING CAP OF SANITARY. PLACE NEW CONCRETE TO MATCH EXISTING.
10	NEW EXIT DESIGNATION SIGN TYPE B.



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

VENTILATION SCHEDULE										
ROOM	AREA			OCCUPANTS			OUTDOOR AIR CFM		EXHAUST AIR	
	SQ FT	PER KSF	TOTAL	PER OCC	PER SF	TOTAL	PER SF/FTX	TOTAL		
<b>F-1</b>										
141 Case Manager	281	5	1.4	5	0.06	24	-	-		
142 Case Manager	298	5	1.5	5	0.06	25	-	-		
143 Files/Admin. Assist.	290	5	1.5	5	0.06	25	-	-		
						74			105	
									179	
									<b>180</b>	
<b>F-2</b>										
145 Files/Admin. Assist.	302	5	1.5	5	0.06	26	-	-		
146 Supt. Office	314	5	1.6	5	0.06	27	-	-		
147 Case Manager	269	5	1.3	5	0.06	23	-	-		
						75			35	
									110	
									<b>120</b>	
<b>F-3</b>										
137 Office	317	5	1.6	5	0.06	27	-	-		
138 Meeting Room	308	50	15.4	5	0.06	95	-	-		
						122			35	
									157	
									<b>160</b>	
<b>F-4</b>										
149 Help Me Grow	286	5	1.4	5	0.06	24	-	-		
151 Office	312	5	1.6	5	0.06	27	-	-		
						51			35	
									86	
									<b>100</b>	

GAS FURNACE SCHEDULE															
MARK	MFR	MODEL	HEATING		COOLING		BLOWER		ELECTRICAL		NOTES				
			TYPE	MBH	AFUE	CFM	SP	HP	V	PH		AMPS	FUSE		
				IN	OUT										
F-1	Bryant	926TB36060V17	Nat. Gas	60	58	96.5	CU-1	1200	0.50	1/2	120	1	9.7	15	1,2,3,4,6
F-2	Bryant	926TB36060V17	Nat. Gas	60	58	96.5	CU-2	1200	0.50	1/2	120	1	9.7	15	1,2,3,4,6
F-3	Bryant	926TB36060V14	Nat. Gas	60	58	96.5	CU-3	1200	0.50	1/2	120	1	9.7	15	1,2,3,5,6
F-4	Bryant	926TB36060V14	Nat. Gas	60	58	96.5	CU-4	1200	0.50	1/2	120	1	9.7	15	1,2,3,5,6

AIR CONDITIONING UNIT SCHEDULE														
MARK	SYSTEM	MFR	MODEL	COOLING		COMPRESSOR	FANS	ELECTRICAL		NOTES				
				TONS	EER			NO	STAGES		NO	HP	V	PH
CU-1	F-1	Bryant	113ANA036N	3	13	1	1	1	1/5	230	1	21.9	35	1,2
CU-2	F-2	Bryant	113ANA036N	3	13	1	1	1	1/5	230	1	21.9	35	1,2
CU-3	F-3	Bryant	113AN030N	2.5	13	1	1	1	1/5	230	1	18.7	30	1,2
CU-4	F-4	Bryant	113AN030N	2.5	13	1	1	1	1/5	230	1	18.7	30	1,2

**NOTES LEGEND**

- 1 Disconnect by Electrical Contractor
- 2 Condensate waste by HVAC Contractor to nearest restroom vent piping. Provide trap at unit. Provide condensate pump if adequate fall is not achievable.
- 3 Gas piping by HVAC Contractor from nearest existing location. Verify available pressure and capacity.
- 4 Bryant coil: CNPVP3617ALA
- 5 Bryant coil: CNPVP3014ALA
- 6 PVC exhaust and intake up through roof.

**FLEXIBLE AIR DUCTS AND CONNECTORS**

1. FLEXIBLE AIR DUCTS: FLEXIBLE AIR DUCTS, BOTH METALLIC AND NONMETALLIC, SHALL BE TESTED IN ACCORDANCE WITH UL 181. DUCTS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 FLEXIBLE DUCTS.
2. FLEXIBLE AIR CONNECTORS: FLEXIBLE AIR CONNECTORS, BOTH METALLIC AND NONMETALLIC, SHALL BE TESTED IN ACCORDANCE WITH UL 181. CONNECTORS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 FLEXIBLE CONNECTORS. FLEXIBLE AIR CONNECTORS SHALL BE LIMITED IN LENGTH TO 5 FEET. FLEXIBLE AIR CONNECTORS SHALL NOT PASS THROUGH ANY WALL, FLOOR OR CEILING ASSEMBLY.

**GENERAL HVAC NOTES**

1. CONCEALED DUCTWORK TO BE GALVANIZED STEEL CONSTRUCTION EXTERNALLY WRAPPED WITH MINIMUM 2" THICK FIBERGLASS INSULATION WITH FOIL-BACKED JACKET. FLEXIBLE CONNECTORS AT DIFFUSERS SHALL NOT EXCEED 5' IN LENGTH.
2. SEAL DUCT JOINTS AND SEAMS (LONGITUDINAL AND TRANSVERSE) AIRTIGHT WITH SILICONE DUCT SEALANT.
3. SQUARE ELBOW DUCT TURNS SHALL BE EQUIPPED WITH DUAL-BLADE TYPE TURNING VANES.
4. PIPES PASSING THROUGH WALLS AND FLOORS SHALL HAVE PIPE SLEEVES.
5. CUTTING AND PATCHING OF WALLS, FLOORS, CEILING, ROOF, ETC. ASSOCIATED WITH THE HVAC WORK SHALL BE COMPLETED BY THE H.C.; UNLESS NOTED OTHERWISE.
6. CONTROLS INSTALLER SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
7. ROUND SUPPLY AIR BRANCH TAKE-OFFS SHALL HAVE SPIN-IN FITTINGS WITH AIR SCOOP AND BALANCING DAMPER. SEE DETAIL 4/M-1
8. ROUND RETURN AIR AND EXHAUST AIR BRANCH TAKE-OFFS SHALL HAVE SPIN-IN FITTINGS WITH BALANCING DAMPER. SEE DETAIL 4/M-1
9. BRANCH DUCT SIZES TO DIFFUSERS SHALL BE EQUAL TO DIFFUSER NECK SIZE; U.N.O.
10. GRILLES AND DIFFUSERS SHALL BE INSTALLED AS SHOWN.

**GENERAL HVAC DEMOLITION NOTES**

1. EXISTING BUILDING INFORMATION IS COMPILED FROM EXISTING DRAWINGS AND LIMITED FIELD OBSERVATION. THE ARCHITECT MAKES NO WARRANTY TO THE ACCURACY THEREOF. FIELD VERIFY CONDITIONS PRIOR TO BIDDING.
2. OWNER SHALL RETAIN RIGHTS OF OWNERSHIP FOR ALL SALVAGEABLE MATERIALS AND/OR EQUIPMENT REMOVED DURING DEMOLITION. THIS SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF REMOVING MATERIALS AND/OR EQUIPMENT AS REQUIRED FOR NEW CONSTRUCTION.

**DEMOLITION KEYNOTE LEGEND**

- (A) REMOVE EXISTING AIR HANDLER FROM ATTIC, WITH ASSOCIATED PIPING AND DUCTWORK.
- (B) REMOVE ALL DUCTWORK AND DIFFUSERS, UNLESS NOTED OTHERWISE.
- (C) REMOVE TOILET ROOM EXHAUST FAN, DUCTWORK, AND WALL MTD. DISCHARGE. REPAIR EXTERIOR WALL TO MATCH EXISTING MATERIALS AND FINISH.
- (D) EXISTING TOILET ROOM EXHAUST FAN SYSTEM TO REMAIN.
- (E) REMOVING EXISTING CONDENSING UNIT AND ASSOCIATED PIPING.

**HVAC LEGEND**

- ☒ SUPPLY AIR DIFFUSER CFM
- ☒ RETURN AIR/EXHAUST GRILLE
- Ⓜ PROGRAMMABLE THERMOSTAT
- Ⓞ A. OUTSIDE AIR



PLOT SCALE  
1/8"=1'-0"  
0 4 8 12  
FOR SHEET SIZE 24"x36"

ISSUE DATE  
1 10.08.21 PERMITS/BIDS

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**PAULDING COUNTY OFFICES**  
INTERIOR ALTERATIONS OF FORMER FRITZ HOUSE  
451 McDONALD PIKE  
PAULDING, OHIO 45879

HVAC DEMOLITION PLAN  
HVAC PLAN  
SCHEDULES AND DETAILS

PROJECT: C1-4750

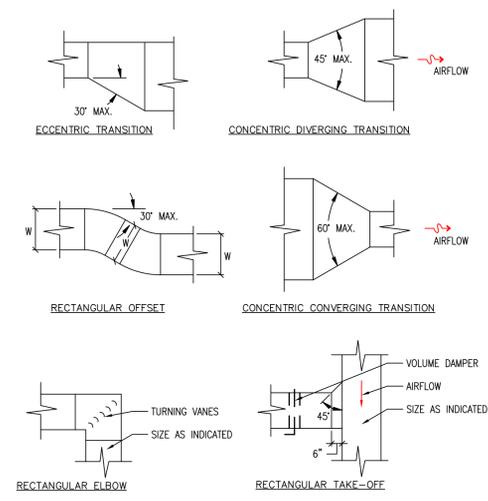
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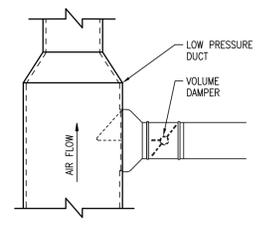
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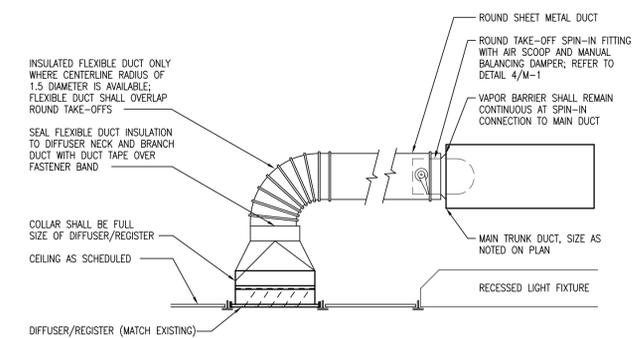
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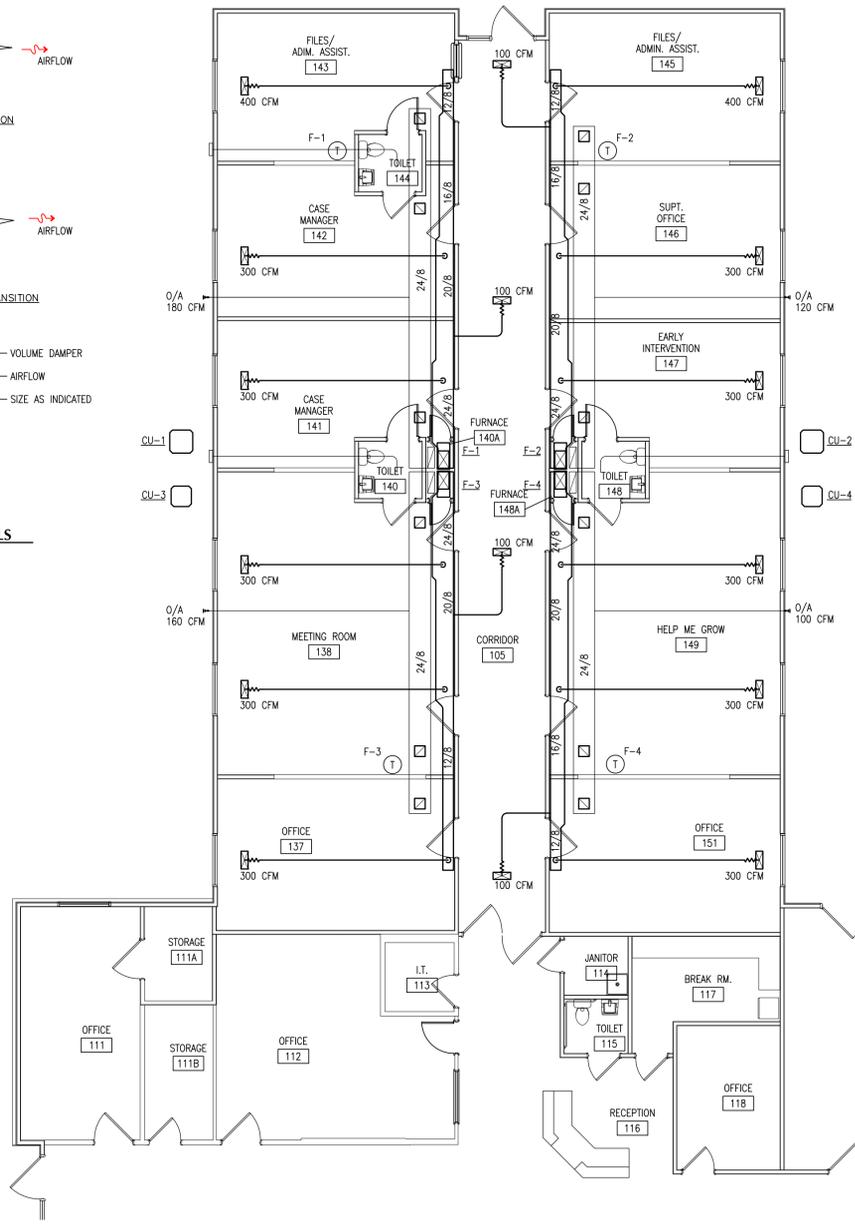
6 TYPICAL DUCTWORK TRANSITION DETAILS  
SCALE: NONE



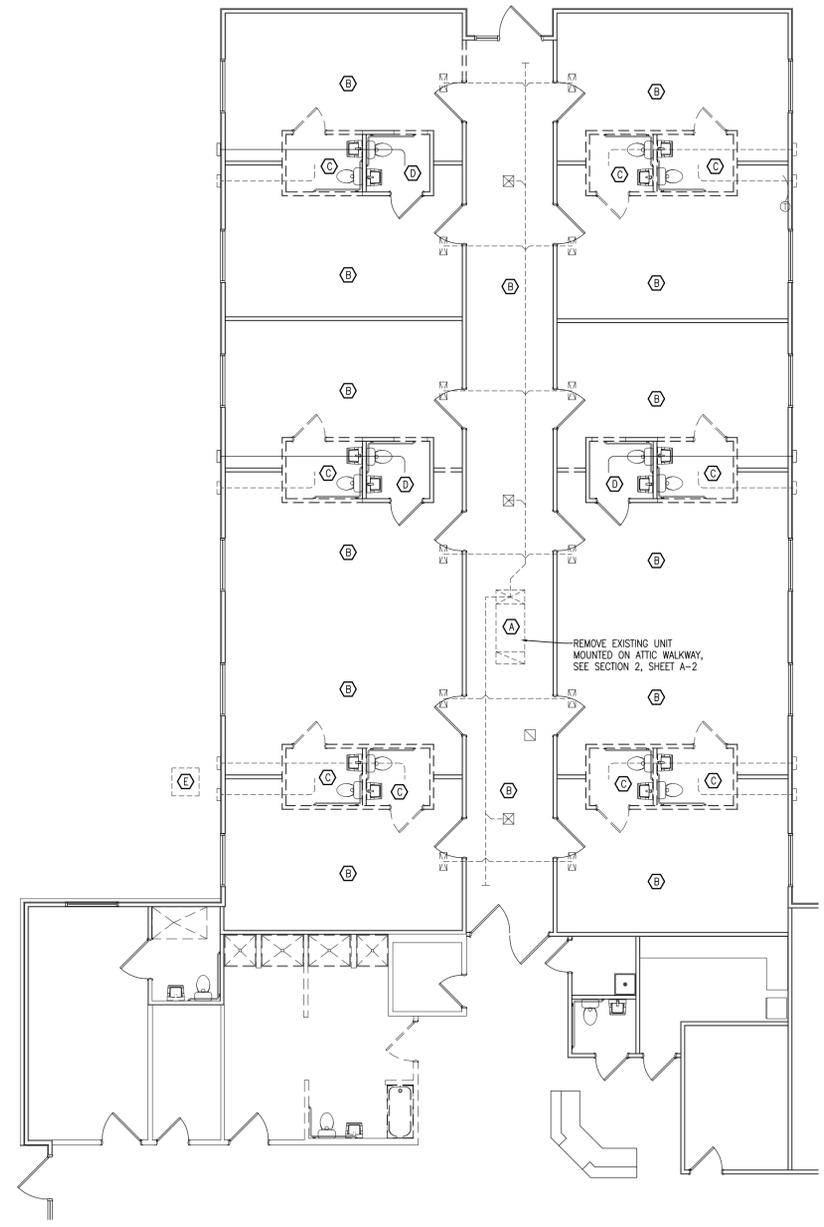
4 SPIN-IN FITTING DETAIL  
SCALE: NONE



3 DUCT TO DIFFUSER CONNECTION DETAIL  
SCALE: NONE



2 HVAC PLAN  
SCALE: 1/8"=1'-0"



1 HVAC DEMOLITION PLAN  
SCALE: 1/8"=1'-0"

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SPECIFICATIONS

DIVISION 02: EXISTING CONDITIONS

- 024119 SELECTIVE DEMOLITION: A. Each trade and subcontractor shall be responsible for demolition of their own work. Repair and restoration of surfaces to remain shall be the responsibility of each trade, and shall be coordinated by the General Contractor.

DIVISION 03: CONCRETE

- 032000 CONCRETE REINFORCING: ASTM A184, CRSI Manual of Practice, and ACI SP-96. A. Reinforcing Steel: ASTM A615, 60 ksi yield grade; deformed billet steel bars, unfinished. Splice reinforcing bars minimum 12 inches and 36 bar diameters.

- 033000 CAST-IN-PLACE CONCRETE: A. Concrete Materials and Accessories: 1. Portland Cement: ASTM C150, Type I - Normal.

- 033000 CAST-IN-PLACE CONCRETE: B. Concrete Mixes: Proportion in accordance with ACI 301 Method 1 to achieve 3500 psi at 28 days. Mix in accordance with ACI 304. Deliver in accordance with ASTM C94. Slump shall be 3 inches ± 1 inch.

- 033900 CONCRETE CURING: ACI 308. A. Protect concrete from premature drying, excessively hot or cold temperatures, excessive temperature changes, and mechanical injury. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

DIVISION 06: WOOD, PLASTICS, AND COMPOSITES

- 061053 MISCELLANEOUS ROUGH CARPENTRY: Provide solid blocking at built-in components to allow for secure attachment. A. Miscellaneous Framing and Blocking: Southern Pine or Spruce-Pine-Fir, Utility or better grade, 2 to 4 inches thick, 100 percent maximum moisture content.

DIVISION 07: THERMAL AND MOISTURE PROTECTION

- 079200 JOINT SEALANTS: ASTM C920 and ASTM C834; colors as selected. 081213 HOLLOW METAL FRAMES: ANSI A250.8; NFPA 80 and UL 10C where fire rating is required; 16 gauge cold rolled steel; factory primed; with silencers. Provide product data submittal.

DIVISION 08: OPENINGS

- 081400 WOOD DOORS: WDMA IS-1A, Custom grade, heavy duty; flush type; WDMA PC-5 or FD-5; NFPA 80 and UL 10C where fire rating is required; composite wood core; veneer species and finish to match existing. Provide product data submittal. 083100 ACCESS DOORS: Formed steel; 16 gauge frame and 14 gauge door; prime painted. At fire-resistance rated construction, provide fire rated units with closer and latch. Coordinate size and location with components requiring access.

SPECIFICATIONS

- 087100 DOOR HARDWARE: As scheduled. Provide product data submittal. A. Hinges: 4-1/2 x 4-1/2 inch 5-knuckle full mortise butts. B. Locksets: ANSI A156.2, Series 4000, Grade 1; lever trim. C. Exit Devices: UL 305; ANSI A156.3, Grade 1.

- 088000 GLAZING: A. Annealed Glass: ASTM C1036, Type 1, Class 1, Quality Q3; clear. B. Tempered Safety Glass: Install in locations indicated and as required by building codes. Tempered glass shall display manufacturer's permanent certification mark.

DIVISION 09: FINISHES

- 090100 MAINTENANCE OF FINISHES: A. Where surface defects in gypsum board and plaster surfaces are scheduled to be repaired, use repair methods as recommended in USG Gypsum Construction Handbook, "Problems, Remedies & Preventative Measures."

- 092216 NON-STRUCTURAL METAL FRAMING: ASTM C845; fabricated from ASTM A653 sheet steel with minimum G40 galvanized coating. Thickness as determined by size, height, load, and deflection; minimum 16 gauge, or embossed patten with equivalent structural properties documented by third party testing acceptable to authorities having jurisdiction. Provide fasteners and bracing in accordance with manufacturer's instructions.

- 092900 GYPSUM BOARD: ASTM C1396; 5/8 inch thick, lapped edges, 48 inch width, lengths as long as practical to minimize joints. Finish to GA 214 Level 4 at locations exposed to view and scheduled to be painted. Finish to Level 1 above suspended ceilings. A. Joint Compound: ASTM C475.

- 096513 RESILIENT BASE AND ACCESSORIES: A. Rubber Cove Base: ASTM F1861, Type TS; style, size, and color as selected. B. Transition Strips at Dissimilar Flooring: Rubber, color as selected.

- 096613 TILE CARPETING: Size as scheduled; color and installation pattern as selected. Install per CR 104 Section 14. (Show/Contract Set Up series with EcoWax backing) 098100 ACOUSTIC INSULATION: ASTM C764 glass fiber or ASTM C1149 cellulose fiber, sprayed installation. A. Acoustical Sealant: ASTM C834; apply continuous to perimeter of acoustical assemblies per ASTM C919.

- 099100 PAINTING: Paint primed surfaces and exposed materials not prefinished, factory finished, or indicated to be unfinished. A. Colors: As selected. B. Provide base coat and intermediate coat products compatible with finish coat as recommended by manufacturer of finish coat. Provide ready-mixed paints. Do not job mix or tint materials.

DIVISION 10: SPECIALTIES

- 099413 TEXTURED FINISHING: Material and finish to match existing; spray applied. 101402 INTERIOR SIGNAGE: Injection molded plastic with mounting frame; size and copy as indicated; font style and colors as selected; raised graphics and copy; grade 2 Braille. Provide product data submittal. A. Toilet Rooms: 8 x 8 inch, unisex, with international symbol of accessibility. B. Exits: 8 x 3 inch; "Exit"; at each exit discharge door, and as indicated. C. Locate in accordance with ADA, 9 inches from each edge of door to center of sign; 60 inches above finish floor to top of sign.

DIVISION 22: PLUMBING

- 220500 COMMON WORK RESULTS FOR PLUMBING: A. Ensure products and installation are in conformance with applicable recommendations and requirements of Factory Mutual Engineering, Owner's equipment underwriter, NFPA, OSHA, UL, and local utility companies. Identification: ANSI A13.1.

SPECIFICATIONS

- 220700 PLUMBING INSULATION: ASTM E84; maximum flame spread 25, maximum smoke developed 50. A. Fiberglass Pipe Insulation: ASTM C547, Class I; rigid one piece construction with vapor retarder; minimum 36 inch sections; rated for applications to 850 degrees F; maximum K value 0.23 at 75 degrees F.

- 221400 DRAINAGE PIPING: A. Condensate Drain Piping: 1. Galvanized Steel Pipe (Sizes to 2 Inch): ASTM A53, Schedule 40; seamless or welded; threaded and coupled ends.

- 221100 PLUMBING PIPING: A. Solder Materials: ASTM B32, Alloy Sn65 and Sn64. B. Solvents for PVC Piping: ASTM D2564, with ASTM F656 primer. C. Unions For Steel Pipe: 1. Sizes to 2 Inch: Class 150 malleable iron unions with ground joint brass to iron seat, galvanized or black.

- 222123 NATURAL GAS PIPING: AGA, ANSI B31.2, NFPA 54, and local utility company. A. Design natural gas piping system to all gas fired equipment indicated, in accordance with applicable codes and utility company requirements.

- 222123 NATURAL GAS PIPING: B. Manual Gas Valves: 1. Sizes to 2 Inch: ANSI Z21.15; full port type; all brass construction with check, lever operator. 2. Sizes 2 1/2 Inch and Larger: MSS SP78; 125 psi, cast iron body and bonnet, cast iron lubricated plug; square head wrench operated.

- 222123 NATURAL GAS PIPING: C. Gas Pressure Regulators: Cast iron body; cast aluminum alloy diaphragm with nylon fabric insert, external vent connection, interchangeable brass orifices; adjustment range 4 inches to 12 inches w.c., or as required by equipment. Installation: Weld joints in accordance with ANSI B31.2. 1. Connect piping system to existing gas piping system. 2. Install plugged dip pockets at low points of piping. 3. Make branch connections with premanufactured fittings only. Do not torch out holes for branch connections.

- 222123 NATURAL GAS PIPING: D. Testing and Inspection: NFPA 54. 1. Before connecting fixtures and equipment, test gas piping with compressed air at a pressure of 60 psig for two hours without pressure loss. 2. Purge gas lines in accordance with NFPA 54. 3. After connecting equipment, operate all equipment and valves and verify proper performance of system without leaks. Use leak detector to check for leaks at all fittings and connections, and at meter.

SPECIFICATIONS

- 2. Copper Pipe and Fittings: a. Thoroughly clean the tube end and fitting portions of the joint prior to assembly. b. When applying flux, prevent excess paste from entering joint. c. Remove excess flux from outside of assembly before applying heat.

- 221400 DRAINAGE PIPING: B. Installation: Discharge condensate waste into sanitary drainage system using approved indirect waste connection. 1. Slope piping 1/4 inch per foot minimum, 1/2 inch per foot maximum; support to prevent sags and traps. 2. Provide cleanouts at locations required by applicable codes; where indicated on Drawings; at flow direction changes greater than 45 degrees; at base of each riser or stack; in all P-traps installed above grade; and at maximum 50 foot intervals in horizontal lines.

- 222123 NATURAL GAS PIPING: C. Manual Gas Valves: 1. Sizes to 2 Inch: ANSI Z21.15; full port type; all brass construction with check, lever operator. 2. Sizes 2 1/2 Inch and Larger: MSS SP78; 125 psi, cast iron body and bonnet, cast iron lubricated plug; square head wrench operated.

- 222123 NATURAL GAS PIPING: D. Testing and Inspection: NFPA 54. 1. Before connecting fixtures and equipment, test gas piping with compressed air at a pressure of 60 psig for two hours without pressure loss. 2. Purge gas lines in accordance with NFPA 54. 3. After connecting equipment, operate all equipment and valves and verify proper performance of system without leaks. Use leak detector to check for leaks at all fittings and connections, and at meter.

- 222123 NATURAL GAS PIPING: E. Testing and Inspection: NFPA 54. 1. Before connecting fixtures and equipment, test gas piping with compressed air at a pressure of 60 psig for two hours without pressure loss. 2. Purge gas lines in accordance with NFPA 54. 3. After connecting equipment, operate all equipment and valves and verify proper performance of system without leaks. Use leak detector to check for leaks at all fittings and connections, and at meter.

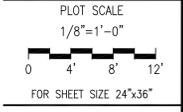


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PAULDING COUNTY OFFICES INTERIOR ALTERATIONS OF FORMER FRITZ HOUSE 451 McDONALD PIKE PAULDING, OHIO 45879

SPECIFICATIONS DIVISIONS 02-22

PROJECT: C1-4750

DRAWN BY: LJR

CHECKED BY: KAB

SHEET

SP-1

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DIVISION 23: HEATING, VENTILATING, AND AIR CONDITIONING

23 0500 COMMON WORK RESULTS FOR HVAC:

- A. Regulatory Requirements: Factory Mutual Engineering, Owner's insurance underwriter, NFPA, OSHA, UL, and local utility companies.
1. All work involving refrigerants, including servicing of and modifications to existing systems, shall comply with the Clean Air Act and current Amendments, and applicable EPA regulations.
2. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc., or other testing firm acceptable to the authority having jurisdiction, as suitable for the purpose specified and indicated.

B. General Requirements for Equipment: All similar equipment shall be the product of one manufacturer.

- 1. Motors: Baldor, Emerson Electric, General Electric, Magnetek; Westinghouse. Motors shall comply with applicable UL, NEMA, ANSI, and IEEE standards.
a. Motor Sizes 1 HP and Over: High efficiency type; minimum power factor 82 percent.
b. Vertical position: Ball bearing with end thrust bearing.
c. Horizontal position: Sleeve bearings.
d. Motors shall operate at full speed and full load without heating any portion of the windings more than 40 degrees C above ambient temperature.
e. Equip motors and fans with adjustable drives, sheaves, and accessories as recommended by the manufacturer for 150 percent of the motor horsepower ratings. Select adjustable drive for its midrange based on rpm of fan scheduled.
2. Provide starters and disconnects as indicated and as required. Provide filters as indicated.
3. Lubrication: Lubricate all rotating and reciprocating equipment with the correct grade, type and quality of lubricant before being placed in service. Each shaft containing a packing gland shall be checked for condition by backing the packing gland off and examining for proper grade, amount and type of packing. Maintain all lubrication gaskets and packing during construction and assure that all are in proper operating condition. Extend lubrication fittings as required for service access.
4. Guards: Provide OSHA approved guards for exposed belt drives and other exposed drives such as pump couplings. Provide opening in guard to allow use of revolution counter on both motor and fan shafts. Provide opening in guard for service access to grease fittings.

C. Equipment Installation:

- 1. Locate and install equipment to facilitate service, maintenance, repair, and replacement of components. Maintain manufacturer's recommended clearances.
2. Maintain factory packaging, lubrication and gaskets during construction; remove immediately prior to Substantial Completion, except when temporary construction use is approved.
3. Require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation. Submit a written report that equipment or system has been properly installed and is functioning correctly.
4. Demonstrate operation and maintenance of equipment to Owner's personnel.
5. Appoint, employ, and pay for services of an independent firm acceptable to Architect and Owner to perform testing, adjusting, and balancing as specified in Section 23 0593. The independent firm shall promptly submit reports to Architect, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
6. Install new disposable type filters at Substantial Completion. Thoroughly clean permanent type filters.
7. Alteration Projects: Provide start-up and inspection services on existing equipment. Check proper air flow, air filters, heat and cooling operation, economizer operation and sequence of operation. Submit a written start-up report to the Architect. In the event of damaged or defective parts, notify the Architect and obtain proper authorization before making repairs. Costs incurred as a result of defective existing parts are the responsibility of the Owner.

D. Identification: ANSI A13.1.

- 1. Piping: Identify each pipe in exposed or accessible space (except architecturally finished spaces) at each major change of direction, at 20 foot intervals in straight runs, each branch connection, each riser, equipment connections, and both sides of walls.
2. Valve Tags: Securely fasten tags to all valves and cocks, chained to hand wheel, on main lines and branches, and at switches, equipment, and controls. Indicate piping system and purpose of valve; indicate whether valve is normally closed (N.C.) or normally open (N.O.) in service; supply (S) or return (R); indicate direction of flow. Tags may be omitted for local stop or shutoff valves to an item of equipment.
3. Equipment: Install identification labels on equipment.
4. Controls: Identify controls, relays, thermostats (except individual space thermostats), damper motors, thermometers and associated items with engraved plastic nameplates securely fastened with screws. Where space is limited, valve tags may be used where approved.

E. Testing: Pay for all required tests and inspections. Furnish labor, materials, and instruments; bear other costs in connection with all tests.

- 1. Notice of Tests: Give written notice in ample time to all concerned of date when tests will be conducted.
2. Prior Tests: Concealed or insulated work shall remain uncovered until required tests have been completed, but if construction schedule requires it, arrange for prior tests on parts of system as approved by the Architect.
3. All equipment, fans, and motors shall run at their required speed without showing undue vibration, objectionable noise or sparking.
4. All piping systems shall be tested before piping is concealed, covered, or insulated. Before testing pipe systems, remove or otherwise protect from damage the components which are not designed to withstand the pressures used in testing piping.
5. Make adjustments, repairs, and alterations as required to meet specified test results. Correct defects disclosed by tests or inspection, and replace defective parts when directed. In replacing defective parts, use only new materials; in the case of pipe, replace with same length as defective piece. Repeat tests after defects have been corrected and parts replaced, as directed and until pronounced satisfactory.
6. Responsibility for Damage: Bear the cost of repairs and restoration of the work of other Contractors damaged by the tests or cutting required in connection with the tests.

23 0529 HVAC HANGERS AND SUPPORTS: Rigidly support systems and equipment. Include provisions for vertical and lateral adjustment, and accommodate expansion. Comply with ANSI B31.1, ASTM F708 and MSS SP58. Install in accordance with ANSI B31.9 and ASTM F708.

A. Support Attachments to Structural Steel: Attach hangers to structural members with clamps; at steel joints, support at panel points only. Do not suspend hangers from roof deck.

- 1. Pipe Sizes to 2 inch: Malleable iron C-clamps with lock nuts and cup formed seat screws.
B. Hanger Attachments to Piping: Provide solid steel hanger rods for each pipe hanger. Equip each hanger rod with 3 semi-finished hex nuts not including the insert nut. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work. Place hangers within 12 inches of each horizontal elbow. Use hangers with 1 1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
1. Uninsulated Copper Tubing: Copper plated plastic-coated adjustable tubing rings.
2. Insulated Piping to 4 inch: Adjustable clevis type with insulation shield of 18 gauge galvanized steel in 180 degree segments, minimum 12 inches long.
C. Multiple Pipe Supports: Trapeze hangers, preformed channel, enamel finish, with clamps to secure individual piping.

- D. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
E. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
F. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
G. Provide packing between hanger or support and piping. Insulate dissimilar metals against direct contact.
H. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
I. Provide hangers adjacent to motor driven equipment with vibration isolation.

23 0593 TESTING, ADJUSTING, AND BALANCING:

A. Submittals:

- 1. Project Record Documents: Record test data on a copy of the latest revised set of drawings. Submit four copies.
2. Balance Report: Include line diagrams of all systems; individual unit diagrams for each supply system with diagrammatic arrangement of zone dampers, trimming dampers, and mixing box dampers, with pressure drops at each location. Record initial filter pressure drops and calibration of instruments. Include confirmation of the volume circulated during full cooling cycles on minimum outside air as well as 100 percent outside air. Record design data and observed data to facilitate comparisons.
a. The report shall be certified by a Professional Engineer or member of ABCB specializing in the field of air and water testing and who is not affiliated with any firm involved in the construction of the project.
3. Air Balance Data:
a. Mechanical Equipment: Manufacturer and model; size; arrangement, discharge, and class; total cfm, static pressure (external and total), and percent outside air; motor HP, voltage, phase, RPM, and full load amps (all phases); location and mark number; inlet and outlet dry bulb and wet bulb temperatures; starter heater element data; drive and belt data; outside temperature and wind velocity.
b. Duct Systems: Duct size and location of traverse; number of readings; velocity measurements; average velocity, temperature and static pressure; actual cfm.
c. Individual Air Terminals: Manufacturer and model; location and mark number; applicable calculation factors for velocity and capacity; cfm and thermal capacities; electrical data.

B. Quality Assurance: Perform balancing in accordance with AABC standards.

- 1. Balancing Contractor: Member of Associated Air Balance Council, or an independent firm specializing in balancing of systems whose principals are Professional Engineers. All personnel shall be regular employees experienced and technically trained specifically in the total balancing of mechanical systems.
2. Provide all labor, engineering and test equipment required to adjust and balance all heating, ventilating, air conditioning and exhaust systems.
3. Test all electrical interlocking for proper operation. Require attendance of Contractors responsible for piping, equipment, ductwork, and controls, as applicable.
4. Permanently mark final settings of valves, splitters, dampers, and other adjustment devices so that adjustment can be restored if disturbed at any time.
C. Equipment: Furnish required test equipment. Verify calibration of all instruments prior to beginning work. Equipment specifically furnished for this project such as flow meters shall be turned over to the Owner in good operating condition at completion.
D. General Procedures:
1. Adjust and balance the complete mechanical system under conditions approximating actual operation. Work must be completed prior to the final inspection of the building mechanical system.
2. Check each piece of equipment or system for proper lubrication, drive rotation, belt tension, control sequence, and other conditions which may cause damage.
3. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
4. Verify wiring and support components for equipment are complete and tested.
5. Install at each piece of mechanical equipment a "Data Register" enclosed in a clear plastic holder securely attached to the equipment or wall in immediate area, showing all significant operating temperatures, pressures, amperes, voltage, brake horsepower, etc.
6. Install the Owner's personnel along with HVAC Contractor and equipment suppliers in the proper operation and maintenance of each piece of equipment.
7. Any changes required for final balancing results as determined by Balancing Contractor will be provided for the respective installing contractors who shall supply and install such equipment under their contractual obligations. Such changes may include, but are not limited to, the changing of pulleys, belts, dampers, or adding dampers or access holes.

E. Forced Air Systems Balance Procedure:

- 1. Measure air volumes in duct system by the pilot tube duct traverse method across the entire cross-sectional area (usually a minimum of 16 readings). Indicate locations of readings on record drawings and cross reference to report. Record static pressure and air temperature at the traverse point.
2. Pressure test supply, return and exhaust duct systems; verify that leakage rate is within permissible values.
3. Seal test holes with permanent type snap-in plugs when test is complete. Do not use duct tape to seal test holes. Do not make test holes in flexible duct or flexible equipment connectors.
4. Regulate air volumes by adjusting splitter dampers and branch duct dampers to obtain required quantities of supply, return and exhaust air. Initialize dampers at grilles, registers, and diffusers for "fine" adjustments only. Adjustment shall not create objectionable air patterns, drafts, or sound levels. Do not use devices other than dampers to adjust air volume.
5. Adjust air volume at terminals within 10 percent of the individual requirements specified. Measure air volume at each register, grille, diffuser, etc., by methods approved or recommended by the manufacturer of the terminal device.
6. Regulate total air delivery of fan systems by adjusting fan speed, motor speed, or fan blade pitch. Do not load drive motors above the corrected full load ampere rating.
7. Plug instrument test holes with permanent closure on completion of work.

23 0713 DUCT INSULATION: External duct insulation, 2 inch typical thickness; ASTM E84; maximum flame spread 25, maximum smoke developed 50.

- A. Concealed Locations Above Ceilings: ASTM C533, Type II, Class F-1; flexible fiberglass blanket, formaldehyde-free; maximum K value 0.25 at 75 degrees F.
B. Other Locations: ASTM C812, Type 2; rigid and semi-rigid fiberglass board, 3.0 pcf density; maximum K value 0.23 at 75 degrees F.
C. Facing: ASTM C1136; foil-scim-kraft vapor retardant type; aluminum foil reinforced with fiberglass yarn and laminated with fire resistant adhesive to kraft paper.
D. Seam Tape: To match facing finish.
E. Installation: Maintain visibility and accessibility of testing laboratory labels, equipment nameplates, and access panels.

- 1. Flexible Insulation: Apply insulation to clean, dry, tightly sealed ducts with edges tightly butted. Overlap facing minimum 2 inches at seams. Secure seams with outward clinching staples at 6 inches o.c.; seal seam with pressure-sensitive tape. At underside of ducts greater than 24 inches wide, secure insulation with mechanical fasteners and speed clips spaces 18 inches o.c.; cut fasteners flush with surface and seal with seam tape.
2. Rigid and Semi-Rigid Insulation: Apply insulation to clean, dry, tightly sealed ducts with edges tightly butted and impaled over slick clips or pins welded to the duct and secured with speed clips. Space pins as required to hold insulation firmly in place, maximum 18 inches o.c. both ways. Seal joints and penetrations of the vapor barrier with 3 inch wide strips of heat-sensitive tape.
3. Where reinforcing angles are greater than the insulation thickness specified, increase insulation thickness equal to the angle depth.

23 0700 HVAC PIPING INSULATION: ASTM E84; maximum flame spread 25, maximum smoke developed 50.

- A. Fiberglass Pipe Insulation: ASTM C547, Class I; rigid one piece construction with vapor barrier; minimum 3/8 inch sections; rated for applications to 850 degrees F; maximum K value 0.23 at 75 degrees F.
1. Exposed Piping in Finished Areas: PVC jacket from floor to eight feet above floor; PVC fitting covers with pre-cut fiberglass insulation insert; minimum two layers of insulation inserts where pipe operating temperature is below 45 degrees F or above 250 degrees F.
a. PVC Jacket: ASTM D1784; preformed to shape of pipe or fitting; gloss white finish.
2. Outdoor Piping: Metal jacket with preformed aluminum fitting covers.
a. Metal Jacket: Aluminum sheet, minimum 0.016 inch thick, with laminated moisture retarder.
3. Piping Not Otherwise Scheduled: All purpose jacket; PVC fitting covers with pre-cut fiberglass insulation insert; minimum two layers of insulation inserts where pipe operating temperature is below 45 degrees F or above 250 degrees F.
a. All Purpose Jacket: ASTM C1136, Type I; reinforced foil-kraft laminate, with pressure sensitive tape sealing system at butt joints and longitudinal seams; white finish.

B. Closed Cell Pipe Insulation: ASTM C534, Type I; flexible elastomeric tubing, black color; maximum K value 0.28 at 75 degrees F.

- 1. Adhesive: Air drying contact type, for joining seams and butt joints.
2. Finish Paint: Water based latex enamel, semi-gloss, white color.
C. Heavy Duty Pipe Insulation: ASTM C533, Type I; rigid block molded from hydrous calcium silicate; specially formulated for high temperature, high strength, abuse resistant and fire protection applications; maximum K value 0.40 at 300 degrees F. (Johns Manville Thermo-12 Gold)
D. Mastic: Vapor retardant type, compatible with adjoining materials.
E. Apply insulation over clean, dry pipe with all joints butted firmly together. Secure longitudinal jacket laps and butt strips according to manufacturer's recommendations.
1. Extend insulation continuous through wall and ceiling openings and sleeves. Where piping penetrates fire rated assemblies, provide heavy duty pipe insulation to completely fill space between pipe and sleeve.
2. Assure continuous, unbroken vapor seal at seams, butt joints, and fittings where vapor barrier jackets are used, and on cold service piping below 60 degrees F. Provide adequate insulation and vapor seal to prevent condensation at hangers and support anchors secured directly to cold surfaces.
3. Extend surface finishes to protect all surfaces, ends and raw edges of insulation.
4. Install galvanized metal shields between hangers or supports and pipe insulation. Form shields to fit insulation and extend up to the center line of the pipe, with minimum 12 inch length for pipe sizes to 6 inch.
5. Install heavy duty pipe insulation between pipe and hangers, thickness equal to adjoining insulation, with vapor barrier where required. Insulation inserts shall have the same length as specified for shields.
6. Closed Cell Insulation: Push unsplit sections over open ends of pipe where practical; otherwise slit tubular sections and wrap around pipe. Adhere and seal seams and butt joints with adhesive.
a. Cold Piping: Adhere insulation to pipe at high end of run with one inch strip of adhesive on both insulation and pipe. Coat exposed end cuts with adhesive.
b. Outdoor Exposed Piping: Locate seams on lower half of pipe. Apply two coats of finish paint.
7. Metal Jacket: Install with minimum 2 inch bands, conformed to shed water; secure system with 1/2 inch aluminum inlays at 12 inches o.c.

F. Refrigerant Suction Piping (up to 2 inch):

- 1. Exposed Piping: 1/2 inch fiberglass or 1 inch closed cell.
2. Concealed Piping: Refrigerant Suction (up to 2 inch): 1 inch closed cell.
3. For pipe sizes larger than scheduled, provide insulation thickness 1/2 inch greater than scheduled thickness.
4. Where piping is exposed to outdoor ambient temperatures, provide insulation thickness 1/2 inch greater than scheduled thickness.

23 0900 INSTRUMENTATION AND CONTROL: Wire, conduit and related materials as specified in Division 26.

A. Control Wiring Diagrams: Indicate equipment and components; terminal to terminal schematics of all wiring; sequence of operation.

B. Quality Assurance:

- 1. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.
2. Obtain shop drawings, product data, wiring diagrams, installation instructions and all other relevant data from HVAC equipment suppliers and Electrical Contractor. Coordinate layout of control systems with this information.
3. Install all wiring in accordance with National Electrical Code.
4. Provide assistance and coordination to HVAC manufacturer's start-up representatives.
C. Controls for Heating and Cooling Systems: Low voltage electronic programmable thermostat with sub-base; single stage heating, single stage cooling, or as required for scheduled drawings; and control reference to report. On/Off fan switch; auxiliary relay outputs for control of outdoor air damper; LCD display; keyboard lockout switch; battery backup; capable of remote communications using open network protocol. (Honeywell T7300 series)

1. Sequence of Operation: 7 day programming with 2 occupied and 2 unoccupied periods per day, proportional plus integral temperature control; override control for temporary setpoint changes; recovery feature to optimize start time depending on building load; minimum on and off times to prevent equipment short cycling.

- a. Occupied Mode: Maintain temperature between occupied heat and occupied cool setpoints; operate fan continuously; adjust outdoor air damper to scheduled position.
b. Unoccupied Mode: Maintain temperature between unoccupied heat and unoccupied cool setpoints; operate fan only on call for heating or cooling; close outdoor air damper.
D. Wire equipment and control devices according to approved wiring diagrams.
1. Conceal low voltage wiring (less than 50 volts AC) within wall cavities, in joint spaces, in ceiling plenums, or in conduit to avoid physical damage. Run line voltage wiring (above 50 volts AC) in conduit. Install all wiring in accordance with Division 26.
2. Locate in-space thermostats or as shown.
a. Mounting Height: 48 inches above finish floor.

23 2000 HVAC PIPING:

- A. Piping Specialties:
1. Solder Materials: ASTM B32, Alloy Sn65 and Sn64.
2. Unions For Copper Pipe (Sizes to 3 inch): Class 150 bronze unions with soldered joints.
3. Dielectric Unions (Sizes to 2 inch): Steel body and nut with insulating gasket (250 lb at 210 degrees F) and copper connector. (EPCO Models FX, EA, and FB)
4. Floor, Wall, and Ceiling Plates (Escutcheons): a. Finished Areas: Chrome plated brass. b. Unfinished and Concealed Areas: Stamped brass, split hinged type.
B. Piping Installation:
1. Verify piping and tubing is round and straight prior to installation. Prevent deformation during cutting and threading. Do not permit tool marks on exposed piping in finished areas.
2. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
3. Remove scale and foreign material from inside and outside before assembly.
4. Prepare piping connections to equipment with flanges or unions, arranged for quick disconnect for maintenance. Use the same material and finish as the piping system.
a. Pipe Size 2 Inch and Smaller: Install unions adjacent to each valve on the downstream side, and at connection to each piece of equipment.

23 2300 REFRIGERANT PIPING:

A. System Description:

- 1. Provide pre-charged and pre-insulated refrigerant piping when available.
2. Provide field charged and field insulated refrigerant piping and required accessories for complete air operation; include HVAC systems.
3. Obtain and follow equipment manufacturer's recommendations for pipe sizes, schematic system layout, and required accessories and specialties.
B. Warranty: Provide written guarantee of a leak-proof refrigerant system for 90 days after start-up.
C. Pipe and Fittings:
1. Piping: ASTM B88, Type L; ACR hard copper tubing.
2. Fittings: ANSI B16.22; wrought copper solder joint type.
D. Valves and Accessories: Alco; Sporn; Henry; Mueller.
1. Line Valve Sizes to 3/8 inch: Bronze body solder end, diaphragm, packless, backsealing.
2. Line Valve Sizes 7/8 inch and Over: Bronze body solder end globe valves, backsealing.
3. Solenoid Valves: Brass body, packless, with manual opening stem; coils and pressure controls as required.
4. Back Pressure Regulators: Bronze body, welded stainless steel diaphragm, sensitive waterproof pressure adjustment; light, oil-resistant composition seat.
5. Thermostatic Expansion Valves: Furnish with remote bulb, external equalizer, and external superheat adjustment.
6. Strainers: Angle or Y-type with removable strainer screens of 60 to 80 mesh Monel wire cloth, reinforced with 10 mesh brass screen, or stainless steel with brass ring to suit intended size and service.

E. Cleaning and Flushing: Clean and flush system prior to testing. Blow out all piping with compressed air through dirt pockets and open ends of piping until air shows no evidence of contamination. Remove and clean control valves. Clean debris from strainers and dirt pockets.

F. Testing and Inspection: Comply with ANSI B31.5.

- 1. Pressure Test: Charge system to 400 psi (high side) and 150 psi (low side). Maintain pressure for 24 hours without pressure loss. Check for leaks using electronic or halide leak detector. Repeat entire test procedure until all leaks have been repaired.
2. Vacuum Test: Provide auxiliary heat as required to maintain ambient temperature of minimum 60 degrees F during evacuation. Evacuate system to 2.5 mm Hg absolute. This evacuation is to be broken with dry nitrogen. Open compressor service valve for final evacuation. Maintain minimum vacuum of 2.0 mm Hg for 12 hours. Check vacuum with electronic gauge.
G. Charging: After testing is complete, charge system with scheduled refrigerant in the amount recommended by equipment manufacturer, or the amount required to clear the sight glass under all operating conditions plus 20 percent, whichever is greater. Do not overcharge system.

23 2300 HVAC DUCTS: Construct to SMACNA, NFPA 90A, and NFPA 90B standards.

- A. No variation of duct configuration or sizes permitted except by written permission. Size round ducts installed in place of rectangular ducts, or vice versa, in accordance with ASHRAE table of equivalent rectangular and round ducts.
B. Use non-conducting dielectric connections wherever joining dissimilar metals.
C. Do not use unions or flanged unions in straight runs of pipe or in concealed locations except for flanged valve applications.
5. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.
6. Install piping to conserve building space, to not interfere with use of space and other work, and to maintain required headroom and clearances for equipment, door and window openings, and related conditions.
7. Place piping in concealed spaces above finished ceilings. In areas without finish ceilings, route piping through spaces in open wall joists, busses, or girders.
8. Conceal vertical piping in stud wall cavities, furred wall spaces, pipe chases, and masonry cores where possible. Exposed in unfinished spaces, obtain approval prior to installing exposed piping.
9. Group piping whenever practical at common elevations. When installing piping in parallel, leave sufficient space between pipe lines to facilitate future work on any line.
10. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Utilize offsets, changes in direction and expansion loops, constructed to allow maximum anticipated variation in piping length.
11. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
12. Install valves at service connections to equipment and at branch connections to main lines.
13. Slope piping and arrange systems to drain to low points. Use eccentric reducers to maintain top of pipe level.
14. Prime coat and prepare for finish painting exposed pipe, fittings, supports, and accessories scheduled for field painting. Components located in crawl spaces, pipe shafts, and suspended ceiling spaces are not concealed exposed. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to weld.
15. Do not penetrate building structural members unless indicated.
16. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.
17. Install bell and spigot pipe with bell end upstream.
18. Do not thread joints with full cut standard taper pipe threads with non-toxic joint compound applied to male threads only.
19. Install valves with stems upright or horizontal, not inverted. Remove protective coatings after installation.
20. Provide valves far shut-off and to isolate service equipment, parts of systems, or vertical risers.
21. Install valves for throttling, bypass, or manual flow control services.
22. Install unions downstream of valves and at equipment or apparatus connections.
23. Install brass male adapters each side of valves in copper piped system. Solder adapters to fittings.
C. Joining Copper Pipe and Fittings: 95-5 tin-antimony solder and soldering flux paste.
1. Thoroughly clean the tube end and fitting portions of the joint prior to assembly.
2. When applying flux, prevent excess paste from entering joint.
3. Remove excess flux from outside of assembly before applying heat.
D. Pipe Sleeves: Provide sleeves and escutcheons when penetrating foundations, floors, walls and partitions. Cut escutcheons as necessary to fit in close quarters.
1. Size sleeves to provide minimum 1/4 inch clearance around all sides of piping and insulation.
2. Maintain sleeves plumb, level, and in proper position throughout construction. Inspect sleeves in cast-in-place concrete during and after concrete pour and correct any deviation from proper position.
3. Seal pipe and sleeve penetrations to achieve fire resistance equivalent to fire separation required. Where fire separation is not required, apply waterproof sealant.
4. Existing Construction: 22 gauge galvanized steel.
5. Roofs, Interior Stud Walls, and Floors (Concealed): 22 gauge galvanized steel.
6. Exterior Walls, Interior Masonry Walls, and Floors (Exposed): Galvanized steel pipe, ASTM A53, Type E, Grade A, Schedule 40. Install sleeves equipped with welded flanged ends flush with wall, 4 inches above floor in room walls and wet areas, and 1/2 inch above floor in other locations.
7. Mechanical Sleeve Seals: Interlocking rubber link type, shaped to continuously fill annular space between pipe and sleeve; with connecting bolts and pressure plates.

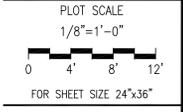


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PAULDING COUNTY OFFICES
INTERIOR ALTERATIONS OF FORMER FRITZ HOUSE
451 McDONALD PIKE
PAULDING, OHIO 45879

SPECIFICATIONS DIVISION 23

PROJECT: C1-4750

DRAWN BY: LJR

CHECKED BY: KAB

SHEET

SP-2

701-1-2 WEST FIRST STREET • DEFIANCE • OHIO • 43512 • PHONE • 419-782-6211 • www.bellharzarchitects.com

- B. Metal Ducts: ASTM A653 galvanized sheet steel, lock forming quality, G60 zinc coating in accordance with ASTM A90.
1. Fasteners: Rivets, bolts, or sheet metal screws.
2. Sealant: Water resistant, fire resistive, compatible with mating materials; UL listed; maximum flame spread rating 10, smoke developed rating 0.
C. Fabrication: In accordance with SMACNA Standards.
1. Minimum Sheet Metal Thickness: In accordance with SMACNA Standards and applicable mechanical code.
2. Provide duct material, gauges, reinforcing, and sealing for minimum 2.0 inch pressure class unless otherwise indicated.
3. Construct T's, bends, and elbows with radius of not less than 1 1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide air fall turning vanes.
4. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
5. Fabricate continuously welded round and oval duct fittings two gauges heavier than duct gauges indicated in SMACNA Standards. Joints shall be minimum 4 inch centered slip joint, brazed or electric welded. Prime coat welded joints.
6. Provide standard 45 degree lateral vye takeoffs unless otherwise indicated where 90 degree conical tee connections may be used.
7. Fabricate vertical ducts and risers to be self-supporting.
8. Single thickness partitions between adjacent ducts are not permitted.
D. Manufactured Ductwork and Fittings: In accordance with SMACNA Standards. Provide duct material, gauges, reinforcing, and sealing for operating pressures indicated.
1. Insulated Flexible Ducts: UL 181, Class 1, aluminum laminate and polyester film with latex adhesive supported by helically wound spring steel wires; fiberglass insulation; polyethylene vapor barrier film.
a. Pressure Rating: 10 inches WG positive and 1.0 inches WG negative.
b. Maximum Velocity: 4000 fpm.
c. Temperature Range: -20 degrees F to 210 degrees F.
E. Accessories: Greenheck; Vent Products Co.; American Warming & Ventilating; Ruskin Manufacturing.
1. Air Turning Devices/Extractors: Multi-blade device with blades aligned in short dimension; steel or aluminum construction; with individually adjustable blades, mounting straps.
2. Volume Control Dampers: Fabricate in accordance with SMACNA Standards.
a. Single Blade Dampers: Fabricate for round duct sizes up to 16 inch diameter.
b. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware. Where size permit in accordance with ANSI Z223.1. Install and ground electrical equipment in accordance with NFPA 70.
1. Install suspended equipment with suitable bracing and suspension rods with vibration isolators.
2. Where indicated or required, provide remote control push button stations, interlocks, relays and other equipment for proper completion of equipment installation.
3. Adjust outdoor air intakes to provide minimum outdoor air intake volumes indicated.
4. Provide start-up, inspection and training services.
231826 AIR CONDITIONING UNITS: UL listed, AHRI certified, factory tested.
A. HVAC systems are designed to maintain indicated temperatures and humidities in all areas during heating and cooling seasons at the ambient design conditions scheduled. Maintain design temperatures at thermostat locations with outdoor air volumes indicated.
B. Warranty: 5 years on complete unit; 10 years on compressor.
C. Unit Enclosure: Galvanized steel, minimum 18 gauge, with baked enamel finish; corrosion resistant fan grille and coil guard; removable access panels; weather protected electrical control compartment.
D. Mechanical Components: Isolator mounted compressor; immersion type crankcase heater; high and low pressure switches; hard start components; anti-short cycle limiter; expansion valve where required; copper tube coil mechanically expanded into aluminum fins; liquid line filter-drier; full factory charge of refrigerant; service access valves; vertical discharge of outdoor air.
Perform installation in accordance with manufacturer's instructions. Install and ground electrical equipment in accordance with NFPA 70.
1. Where indicated or required, provide remote control push button stations, interlocks, relays and other equipment for proper completion of equipment installation.
2. Provide start-up, inspection and training services.
DIVISION 26: ELECTRICAL
260500 COMMON WORK RESULTS FOR ELECTRICAL:
A. Project Record Documents: Record locations of components and circuits; indicate routing of conduits and raceways, locations and elevations of outlets, circuit numbers of lighting and power circuits, panel schedules, grounding system components and electrodes, and other pertinent information.
B. Identification:
1. Equipment and Controls: Identify electrical equipment, panelboards, safety switches, starters, pull boxes, junction boxes, and associated items with nameplates securely fastened with screws.
a. Nameplates: Laminated phenolic with white engraved letters on black background; 1 x 3 x 1/16 inch thick minimum size; minimum 1/4 inch high letters, 4 letters per inch; increase letter size to 3/4 inch high on largest plates.
2. Panelboards: Provide typewritten directory indicating location, service, and purpose of each breaker. Install directory in durable framed enclosure and mount in location directed by Owner.
3. Arc Flash Hazard Labels: Install permanent labels at each electrical distribution point, including switchboards, panelboards, individual control panels, meter sockets, enclosures, disconnects, motor control centers, and other locations identified in NFPA 70.
260519 CONDUCTORS:
A. Conductors: Copper, 600 Volt rated; minimum size 12 AWG for power and lighting circuits, and 14 AWG for control circuits.
1. Sizes 10 AWG to 14 AWG: Type THHN/THWN, solid or stranded, with color impregnated insulation.
2. Sizes 8 AWG and Larger: Type 30-HW, stranded, solid color electrical impregnated insulation, or tape conductor ends with solid color electrical tape for minimum 3 inches at terminations and boxes.
B. Install wire and cable in accordance with NECA Standard of Installation.
1. Install branch circuits with a dedicated neutral wire from the circuit source to the load connection. The identified neutral shall be insulated throughout and grounded only at the service entrance equipment (not individual panels).
2. Branch Circuits Longer Than 75 Feet: Adjust conductor size in accordance with NFPA 70 requirements for voltage drop calculations.
C. Install all wiring in conduit or raceway unless specifically permitted by NFPA 70 for low voltage HVAC controls, communications systems, or safety and security systems.
1. Where open wiring systems are approved, install wiring in conduit, raceway, or cable tray in locations subject to abuse, where exposed below room ceiling in wall openings 3/4 to 1/2 inch larger than overall size of damper and sleeve assembly.
b. Demonstrate re-setting of fire dampers to Owner's representative.
260526 GROUNDING AND BONDING: Provide cables, wires, connectors, terminals (coldleadless lugs), grounding rods/electrodes and plate electrodes, bonding jumper bond, surge arresters, and additional accessories needed for a complete installation. Size components in accordance with NFPA 70.
A. Solidly ground all conduit systems, switch boxes, cabinets, motor frames, fixtures, and all other permanently installed equipment to form a continuous, permanent and effective grounding system. Expansion joints and metal raceway sections shall be bonded. Provide insulated copper grounding conductors.

- 18. Verify operation of all dampers from fully closed to fully open; adjust to eliminate binding and interference. Clean and lubricate moving parts.
G. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.
232700 AIR OUTLETS AND INLETS: Tested and rated in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.
A. Ceiling Supply Registers/Grilles: Steel with factory off-white enamel finish; fixed blades to discharge air along face of grille, two way deflection.
1. Frame: Minimum one inch margin with countersunk screw mounting.
2. Damper: Integral, gang operated, opposed blade type.
B. Ceiling Return Grilles: Steel with factory off-white enamel finish; fixed blades with one way deflection.
1. Frame: Surface type with minimum one inch margin and countersunk screw mounting.
C. Wall Caps: Galvanized steel with baked enamel finish; compatible with adjacent construction; with bird screen and backdraft damper.
D. Install in accordance with manufacturer's instructions. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangements. Install diffusers to ductwork with air tight connection.
1. Provide edge gaskets for surface mounted components; install flitch to finish mounting surfaces to prevent leakage.
2. Paint ductwork visible behind air outlets and inlets matte black.
235417 GAS FIRED FURNACES: UL listed, AGA certified, factory tested.
A. Warranty: 2 years on complete unit; 10 years on heat exchanger.
B. Unit Enclosure: Sheet steel, minimum 20 gauge, insulated, with baked enamel finish; removable access panels; blower door interlock switch; suitable for upflow installation.
C. Blower: Centrifugal type, direct drive, multi-speed, with permanent split capacitor type motor; overload protection; flexible motor mounts.
D. Heat Exchanger: Aluminumized steel, tubular design.
E. Burner and Controls: Electronic hot surface ignition system; computerized control module with diagnostics; control transformer with cooling relay; auxiliary control terminals; induced combustion system; main gas valve with 100 percent shut-off.
F. Cooling Coil: Slant or Y-type; sized for scheduled cooling capacity to coordinate with air conditioning unit; copper tubes mechanically expanded into aluminum fins; refrigerant line fillings; full factory charge of refrigerant.
G. Filters: Permanent cleanable type pleated media; minimum 65 percent efficiency.
H. Perform installation in accordance with manufacturer's instructions. Install gas fired equipment in accordance with ANSI Z223.1. Install and ground electrical equipment in accordance with NFPA 70.
1. Install suspended equipment with suitable bracing and suspension rods with vibration isolators.
2. Where indicated or required, provide remote control push button stations, interlocks, relays and other equipment for proper completion of equipment installation.
3. Adjust outdoor air intakes to provide minimum outdoor air intake volumes indicated.
4. Provide start-up, inspection and training services.
238126 AIR CONDITIONING UNITS: UL listed, AHRI certified, factory tested.
A. HVAC systems are designed to maintain indicated temperatures and humidities in all areas during heating and cooling seasons at the ambient design conditions scheduled. Maintain design temperatures at thermostat locations with outdoor air volumes indicated.
B. Warranty: 5 years on complete unit; 10 years on compressor.
C. Unit Enclosure: Galvanized steel, minimum 18 gauge, with baked enamel finish; corrosion resistant fan grille and coil guard; removable access panels; weather protected electrical control compartment.
D. Mechanical Components: Isolator mounted compressor; immersion type crankcase heater; high and low pressure switches; hard start components; anti-short cycle limiter; expansion valve where required; copper tube coil mechanically expanded into aluminum fins; liquid line filter-drier; full factory charge of refrigerant; service access valves; vertical discharge of outdoor air.
Perform installation in accordance with manufacturer's instructions. Install and ground electrical equipment in accordance with NFPA 70.
1. Where indicated or required, provide remote control push button stations, interlocks, relays and other equipment for proper completion of equipment installation.
2. Provide start-up, inspection and training services.
DIVISION 26: ELECTRICAL
260500 COMMON WORK RESULTS FOR ELECTRICAL:
A. Project Record Documents: Record locations of components and circuits; indicate routing of conduits and raceways, locations and elevations of outlets, circuit numbers of lighting and power circuits, panel schedules, grounding system components and electrodes, and other pertinent information.
B. Identification:
1. Equipment and Controls: Identify electrical equipment, panelboards, safety switches, starters, pull boxes, junction boxes, and associated items with nameplates securely fastened with screws.
a. Nameplates: Laminated phenolic with white engraved letters on black background; 1 x 3 x 1/16 inch thick minimum size; minimum 1/4 inch high letters, 4 letters per inch; increase letter size to 3/4 inch high on largest plates.
2. Panelboards: Provide typewritten directory indicating location, service, and purpose of each breaker. Install directory in durable framed enclosure and mount in location directed by Owner.
3. Arc Flash Hazard Labels: Install permanent labels at each electrical distribution point, including switchboards, panelboards, individual control panels, meter sockets, enclosures, disconnects, motor control centers, and other locations identified in NFPA 70.
260519 CONDUCTORS:
A. Conductors: Copper, 600 Volt rated; minimum size 12 AWG for power and lighting circuits, and 14 AWG for control circuits.
1. Sizes 10 AWG to 14 AWG: Type THHN/THWN, solid or stranded, with color impregnated insulation.
2. Sizes 8 AWG and Larger: Type 30-HW, stranded, solid color electrical impregnated insulation, or tape conductor ends with solid color electrical tape for minimum 3 inches at terminations and boxes.
B. Install wire and cable in accordance with NECA Standard of Installation.
1. Install branch circuits with a dedicated neutral wire from the circuit source to the load connection. The identified neutral shall be insulated throughout and grounded only at the service entrance equipment (not individual panels).
2. Branch Circuits Longer Than 75 Feet: Adjust conductor size in accordance with NFPA 70 requirements for voltage drop calculations.
C. Install all wiring in conduit or raceway unless specifically permitted by NFPA 70 for low voltage HVAC controls, communications systems, or safety and security systems.
1. Where open wiring systems are approved, install wiring in conduit, raceway, or cable tray in locations subject to abuse, where exposed below room ceiling in wall openings 3/4 to 1/2 inch larger than overall size of damper and sleeve assembly.
b. Demonstrate re-setting of fire dampers to Owner's representative.
260526 GROUNDING AND BONDING: Provide cables, wires, connectors, terminals (coldleadless lugs), grounding rods/electrodes and plate electrodes, bonding jumper bond, surge arresters, and additional accessories needed for a complete installation. Size components in accordance with NFPA 70.
A. Solidly ground all conduit systems, switch boxes, cabinets, motor frames, fixtures, and all other permanently installed equipment to form a continuous, permanent and effective grounding system. Expansion joints and metal raceway sections shall be bonded. Provide insulated copper grounding conductors.

- B. Install an insulated ground wire in all feeder, branch circuit and lighting circuit raceways.
C. Install separate ground wire, isolated from neutral, in all flexible conduits and connections to motors.
D. Install a green bonding jumper between the outlet box and the receptacle grounding terminal on each mounted receptacle.
E. Install grounding bonding jumpers across building expansion joints, conduit, busway and cable tray expansion fillings.
F. Testing:
1. Demonstrate by testing that the electrical service grounding system to earth resistance value is 10 Ohms or less, utilizing a clamp-on or 3 point fall of potential tester.
2. Demonstrate by testing that the electrical service grounding system resistance to earth from a non-grounded non-current-carrying conductor in the system to the electrical service entrance neutral/ground bonding conductor is less than 0.1 Ohms.
260533 CONDUIT FOR ELECTRICAL AND COMMUNICATIONS SYSTEMS:
A. Conduit and Fittings:
1. Rigid Steel Conduit: ANSI C80.5, UL 6; hot-dipped galvanized or electro-galvanized, inside and outside; bichromate finish; with zinc coated threads; threaded fittings.
2. Intermediate Metal Conduit (IMC): UL 1242; hot-dipped galvanized; split type, compression type, or set-screw type fittings; concrete-light fittings.
3. Electrical Metallic Tubing (EMT): ANSI C80.3, UL 797; electro-galvanized; smooth aluminum lacquer or enamel interior coating; compression type or set-screw type fittings; concrete-light.
4. Flexible Metallic Conduit: UL 1; hot-dip galvanized; steel or malleable iron fittings.
5. Liquidtight Flexible Metallic Conduit: UL 360; Type IIA with extruded PVC jacket; steel or malleable iron fittings; water tight.
B. Surface Mounted Metal Raceway: UL 5; galvanized steel with baked enamel finish, color as selected; minimum 5 foot lengths.
1. Fittings and Accessories: TIA 589; sized to maintain minimum wiring space and cable bend radius requirements. Provide end caps, brackets, connectors, and other components supplied by raceway manufacturer, as required for a complete installation.
2. Run raceway perpendicular or parallel to walls and floors, neatly out and trimmed, with mitered corners. No rough or exposed edges will be permitted.
C. Conduit Locations:
1. Distribution Feeders Above Grade: Rigid steel conduit or IMC. EMT conduit is permitted for concealed locations above finished ceilings.
2. Branch Circuits Above Grade: Rigid steel conduit or IMC may be used at locations scheduled for EMT.
a. Exterior Walls and Exposed Exterior Locations: Rigid steel conduit.
b. Locations Subject to Physical Damage: Rigid steel conduit or IMC. This category includes unfinished areas, mechanical and electrical equipment rooms, chases, and exposed locations within 6 feet above floor.
c. Stud Walls: EMT.
d. Above Ceilings: EMT.
e. Finished Areas in Existing Construction: Surface mounted metal raceway; obtain Architect's approval of raceway location and routing prior to installation.
3. Final Connections to Equipment, Motors, and Recessed Light Fixtures: Flexible metallic conduit.
a. At exterior locations and where motors and equipment are subject to vibration, use liquidtight flexible metallic conduit.
D. Installation:
1. Minimum Size: 1/2 inch for EMT and surface mounted raceway; 3/4 inch for other conduit types.
2. Route conduit parallel and parallel to building structure; maintain headroom and clearances for equipment operation and service access, door and window swings; do not run conduit in front of access doors or removable panels.
3. Place conduit in concealed spaces above finished ceilings. In areas without finish ceilings, route conduit through spaces in lusses, supported against the underside of the top chord. Do not penetrate duct structural members.
4. Conceal vertical conduit in stud wall cavities, furred wall spaces, and pipe chases where possible. Except in unfinished spaces, obtain approval prior to installing exposed conduit.
5. Do not group conduit with fire suppression, plumbing, HVAC, or other piping systems. Locate conduit above piping where possible. Maintain minimum 6 inch clearance from domestic hot water lines and other hot piping and surfaces.
6. Provide hangers and supports, inserts, and sleeves as required for installation.
260534 BOXES FOR ELECTRICAL AND COMMUNICATIONS SYSTEMS:
A. Concealed Boxes: Galvanized steel, with cover as required; with knockouts; minimum size 4 inch square, depth as required for number of conductors.
1. Wall outlets shall be plumb and accurately aligned in rows. Mount ceiling boxes symmetrical with walls, beams or tiles. Coordinate outlet box locations with exposed fixtures.
2. Locate switch boxes maximum 6 inches from door jamb.
3. Do not install boxes back-to-back, or closer than 24 inches if outlets are in a common wall but in different rooms.
B. Exposed Boxes: Type FS, with matching galvanized steel plates.
C. Boxes for Surface Mounted Metal Raceway:
1. Feed power outlets from minimum 1/2 inch conduit and recessed handy box.
2. Feed communications outlets from minimum 1/2 inch conduit and recessed telephone outlet box with 1/4 inch raised single gang plaster ring.
D. Pull Boxes: Galvanized steel, size to suit application; with cover secured by corrosion resistant screws; with knockouts. Do not locate pull boxes in finished spaces without approval.
1. Sizes 4 1/2 inches Square and Smaller: Blank covers to match switch plates.
2. Sizes 5 inches Square and Larger: Baked enamel finish to match electrical panel fronts.
E. Enclosures:
1. Outdoor Locations: NEMA 250, Type 3R.
2. Indoor Locations: NEMA 250, Type 1.
Mounting Heights: Vary locations with ADA requirements.
1. Switches and Disconnects: 48 inches to top of box.
2. Receptacles and Communications Outlets: 16 inches to bottom of box.
a. At Counters: 6 to 12 inches above counter to bottom of box, minimum 2 inches above back splash to bottom of box; at accessible locations, maximum 46 inches to top of box.
b. Mechanical Rooms and Unfinished Areas: 48 inches to top of box.
c. Exterior: 26 inches above grade to bottom of box.
262416 PANELBOARDS:
A. Panelboards: UL 67, NEMA PB1; galvanized sheet steel cabinet construction, full height bus bars, steel trim with baked enamel finish, distributing bussing, hinged steel doors, latches, and adjustable trim clamps. Provide panelboards with proper lugs and connections and space for cable sizes indicated. Provide panel boxes with separate wiring gutters where required by wiring scheme indicated.
1. Keying: Provide each panelboard with locking door; key all panels alike and provide 2 sets of spare keys.
2. Circuit Breakers: In accordance with Section 262600.
B. Installation: Mount panelboard cabinets to interior wall construction, independent of conduit and raceways entering boxes.
1. Mounting Height: Maximum 76 inches above finished floor.
2. Bonding and Grounding:
a. The main panel shall be the only panel where the panel neutral bar is bonded to the panel enclosure. All other neutral bars shall be isolated from the panel enclosures.

- b. Install grounding bars in all panels, securely bonded to the panel enclosure. Identify bar with green marking. Do not bond any green wire to any white wire at any point except at the main panel, in accordance with NFPA 70.
3. Identify each circuit with circuit number secured to breaker.
4. Install typed circuit directory on interior of each panel door.
5. At each flush mounted panel, provide 4 empty 3/4 inch conduits stubbed above finish ceiling or to an accessible location. Cap conduits with insulating type bushing and mark for "spare use." When fewer than four spares or spaces are available in the panel, provide one empty conduit for each spare or space.
6. When connecting single phase circuits and equipment to a 3 phase system, distribute the loads on the phases to achieve an approximately balanced loading.
C. Field Quality Control:
1. Prior to energization, check phase-to-phase and phase-to-ground insulation resistance levels with ground resistance tester to ensure requirements are fulfilled.
2. Prior to energization, check for electrical continuity of circuits, and for short circuits.
3. Subsequent to wire and cable hook-ups, energize equipment and demonstrate functioning in accordance with requirements.
262726 WIRING DEVICES: Color as selected.
A. Line Voltage Switches: NEMA WD 1, extra heavy duty industrial grade, AC only general-use snap switch; 20 amp, 120-277 volt, quiet toggle type.
B. Wall Receptacles: NEMA WD 1, extra heavy duty industrial grade; configured per NEMA WD 6; 20 amp, 120 volt, 3 wire self-grounding type, with wrap-around mounting strap.
1. Toilet Room and Outdoor Locations: All receptacles shall be GFCI type.
2. Locations Within 6 Feet of a Sink: All receptacles shall be GFCI type.
3. Quadplex Receptacles: Two duplex receptacles mounted in double gang box.
C. Cover Plates: Smooth molded nylon, high abuse grade; color to match device.
D. Weatherproof Covers: Polycarbonate with stainless steel hinge, gasket, and cord opening; provisions for padlock; UL wet location rated white in use.
E. Unless necessary and outlets are specifically indicated to be switch controlled, connect to branch circuits ahead of local switches.
F. Install blank cover plates on outlet boxes without devices. Use jumbo size plates where necessary to completely cover wall openings.
G. Alteration Projects: Where new wiring devices are installed in existing rooms, replace all existing devices and cover plates not matching color and style of new components, with new devices and cover plates.
H. Verify that each receptacle is energized; test for proper polarity. Test each GFCI receptacle for proper operation. Operate each wall switch with circuit energized and verify proper operation.
262800 CIRCUIT PROTECTIVE DEVICES:
A. Safety Switches: Provide disconnects for all utilization equipment.
1. Surface Mounted: Heavy-duty switch with quick-make, quick-break mechanism with positive interlock, or molded case switch; enclosure as scheduled for installed location.
2. Motor Loads: Provide HP rated switches.
B. Circuit Breakers: UL 489, NEMA IAH1, molded case, non-adjustable, thermal-magnetic type; quick-make, quick-break circuit breakers; 20 amp minimum; sized per NFPA 70 for connected load. Provide multi-pole breakers where required; handle ties are not acceptable.
1. Alteration Projects: Provide circuit breakers physically and electrically compatible with existing panelboards, by the panelboard manufacturer. Update circuit directory on interior of panel door. Where no directory exists, determine the loads served by each existing and new circuit, and provide new typed directory.
2. Short Circuit Current Rating: 10,000 amper RMS symmetrical at rated voltage.
262900 MOTOR CONTROLS:
A. Furnish and install all items of standard motor control which are not packaged as a part of, or factory installed on, equipment. Motors shall be provided by the equipment supplier or installer.
B. For equipment furnished with a disconnect, wiring on the load side of the disconnect shall be by the equipment supplier or installer.
C. Coordinate features, accessories, and functions of each controller with the ratings and characteristics of the supply circuit, the motor, the required control sequence, and the duty cycle of the motor and load.
D. Manual Starter Switches: NEMA ICS 2, general purpose, Class A, toggle type (On/Off) with thermal overload protection; flush mounted with stainless steel plate in finished areas; with red pilot light indicating when motor is on. (Square D Class 2510)
1. Circuits With Automatic Control Devices (e.g., thermostat): Provide Hand/Off/Auto switch in addition to toggle switch.
E. Locate controllers within sight and within 50 feet of motors controlled. Where out of sight locations or greater distances are indicated or required, provide manual starter switch or Type F fused disconnect adjacent to motor.
265000 LIGHTING:
A. Submittals: Provide product data for each fixture type; indicate accessories. For fixtures other than the scheduled Basis of Design, provide IES photometric data. LED Luminaires: IES LM-79, IES LM-80; minimum 70 percent initial lumens maintained at 50,000 hours; minimum 80 CRI; voltage, wattage, color temperature, and lumens as scheduled.
1. Surface Mounted Modular Fixtures: Steel housing with white finish, 4 1/2 inch maximum height; white painted reflector and door; clear prismatic acrylic lens, A12 pattern, 0.125 inch minimum thickness; size as scheduled. (Lithonia ZTLM series)
B. Exit and Egress Lighting: Provide components for complete and operable system in accordance with applicable building code; with built-in battery, charger, and automatic transfer relay to provide 90 minutes of emergency battery operation during total power failure.
1. Exit Lights: White thermoplastic housing; LED lamps; stencil face with diffuse red letters and knockout arrow; single face, with extra faceplate for field conversion to double face; universal mounting; nickel-cadmium battery. (Lithonia LUMSWR-ELN series)
2. Run wiring in conduits separate from all other wiring. Connect to normal lighting circuits ahead of all local switches. Test emergency lighting for illumination and normal power/battery power transfer.
DIVISION 28: ELECTRONIC SAFETY AND SECURITY
281523 INTERCOM ENTRY SYSTEMS: One master station, one door station, and components for system operation.
A. Master Station: 7 inch color touchscreen; handset; microphone and speaker with volume control; door station camera control; door release control; wall mount. (Aliphone JP-4NE3)
B. Door Station: Fan-lite room camera; illuminated call button; speaker; proximity card reader; weather resistant stainless steel housing (Aliphone JP-DV-FID with SRX-IVFRA surface mount box)
C. Power Supply: 120 volt. (Aliphone PS-2420LL)
D. Door Release Relay: Form C, 24V DC; normally open and normally closed capability; compatible with door hardware. (Aliphone RY-1826L)
E. Cable: CMP plenum rated PVC jacketed low conductor 18 AWG, or as required by manufacturer's application. (Aliphone 871902)
Installation: Wire system to manufacturer's requirements in accordance with Sections 260519. Wiring shall be in conduit in areas with inaccessible or exposed ceilings. Conduits shall be minimum 1/2 inch, sized per NEC requirements, with back boxes at equipment locations and conduit stubbed to accessible ceiling area.
1. Locate power supply above accessible ceiling.
2. Adjust card display and camera for proper operation.

PAULDING COUNTY OFFICES
INTERIOR ALTERATIONS OF FORMER FRITZ HOUSE
451 McDONALD PIKE
PAULDING, OHIO 45879
PROJECT: C1-4750
DRAWN BY: LJR
CHECKED BY: KAB
SHEET
SP-3
8 OF 8

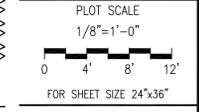


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PAULDING COUNTY OFFICES
INTERIOR ALTERATIONS OF FORMER FRITZ HOUSE
451 McDONALD PIKE
PAULDING, OHIO 45879

SPECIFICATIONS
DIVISIONS 23-28

PROJECT: C1-4750

DRAWN BY: LJR

CHECKED BY: KAB

SHEET

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