Renovations For:
Southgate Elementary School

6 William F. Blatt Ave.

Southgate Independent School District

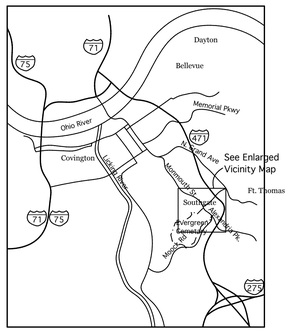
Mr. Greg Duty, Superintendent

Robert Ehmet Hayes & Associates PLLC., Architects

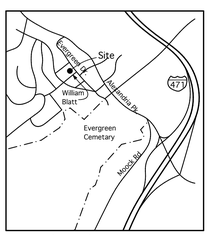
KLH Engineers, PSC: Mechanical/ Electrical Engineers

Roenker Engineering, Inc.: Structural Engineers

Vicinity Map



Vicinity Map



Enlarged Vicinity Map

Abbreviations

ACT	Actual
ADA	Same as HC
AFF	Above Finish Floor
ARD	Abuse Resistant Drywall
BC	Back of Curb
CG	Corner Guard
CJ	Control Joint
CMU	Concrete Masonry Unit
DS	Downspout
DW	Drywall
EJ	Expansion Joint
EWC	Electric Water Cooler
FV	Field Verify
FE	Fire Extinguisher
FFE	Finish Floor Elevation
FRT	Fire Resistant
GA	Gage
GB	Grab Bar
GC	General Contractor
HC	Handicap (ie. complies w/ ADA)
HB	Hose Bibb
LAV	Lavatory
ME	Match Existing
MFR	Manufacturer
MO	Masonry Opening
MR	Mirror
MRD	Moisture Resistant Drywall
NIC	Not In Contract (ie. by others)
NOM	Nominal
PTD	Paper Towel Dispenser
RO	Rough Opening
SND	Sanitary Napkin Disposal
SIM	Similar
SD	Soap Dispenser
SS	Stainless Steel
TTD	Toilet Tissue Dispenser
TJ	Tool Joint
TYP	Typical
UNO	Unless Noted Otherwise
WC	Water Closet
WWF	Welded Wire Fabric

Index to Drawings

ARCHITECTURAL

1 Vicinity Plan; Lower Level Plan; Reflected Ceiling Plan
2 Main Level Plan; Reflected Ceiling Plan; Schedules
3 Balcony/ Roof Plan; Sections, Details

PLUMBING

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PD101 Plumbing Above Ground Demolition Plan- Level 2
PD401 Plumbing Above Ground Demolition Plan - Enlarged Plans
P-100 Plumbing Above Ground - Level 1; Legend; Schedules
P-101 Plumbing Above Ground - Level 2
P-401 Plumbing - Enlarged Plans; Gas Isometric

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M-701 ComCheck & Inspections
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MP100 Mechanical Piping - Level 1
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ED102 Electrical Demolition Plan - Roof
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EL601 Electrical Lighting Compliance; Schedules
EP100 Electrical Power Plan - Level 1
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EP102 Electrical Power Plan - Roof
EP601 Electrical Legend; Abbreviations; Single Lines; Panels
EP602 Electrical Panel Schedules
EP603 Electrical Schedules

General Notes

1. All references to cardinal directions are relative to "Plan North."
2. Provide FRT blocking at all fixtures, lockers, etc. to be mounted on metal stud partitions. Coord. w/ manufacturers
3. Provide DW EJ's @ 24'-0" o.c., max., typ. for entire project
4. Hold new furring 1/2"± away from walls, increasing slightly if necessary to conceal conduit, piping, etc. Intent is to install as tightly as possible to walls and they can abut interior walls if possible. All hat channel furring is directly attached to walls. Verify depth of framing required.
5. Patch all cracks, holes, etc. in existing plaster, drywall, and CMU that is to remain exposed. Texture to match existing adjacent. Existing plaster is popcorn finished.
6. Asbestos abatement by others.
7. Construct new DW & ceilings tight to all pipes, etc. that will penetrate DW & will be exposed. Seal joints tight in DW & utilize edge trims, collars, etc. at ceiling tiles
8. At areas of fixed decorative metal ceiling, cover holes abandoned by conduit, piping, etc. w/ blank escutcheons painted to match ceiling. At smaller fastener holes, fill w/ body filler, sand flush, and paint to match ceiling
9. See MEP dwgs. for locations of unit ventilators, PTACs, radiators, etc. to be removed (none indicated on Sheets 1-3 but all are required). Patch flooring, base, base shoes, walls, etc. to match existing - multiple profiles and finishes required. Paint entire wall.
10. At exist. fixed decorative metal ceilings to remain exposed, cover holes abandoned by conduit, piping, etc. w/ blank escutcheons painted to match ceiling. At smaller fastener holes, fill w/ body filler, sand flush, and paint to match ceiling.

R. EHMET HAYES REGISTERED NO. 3942 COMMONWEALTH OF KENTUCKY ARCHITECT

BG# 19-033

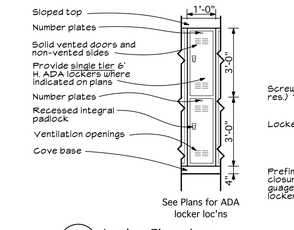
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Educational Use Group "E"
Buildings are non sprinklered

Date: 12-13-18

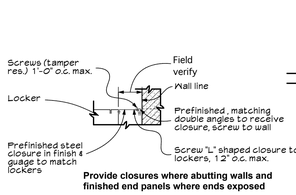
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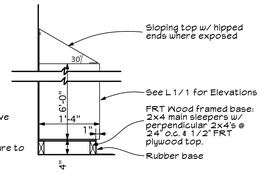
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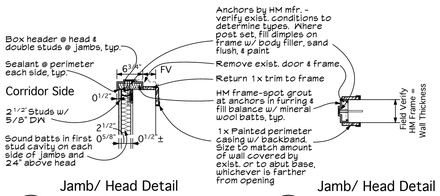
L1 — 1 — Locker Elevations
3/8" = 1'-0"



L2 — 1 — Typical Locker Closures/Fillers
3/4" = 1'-0"

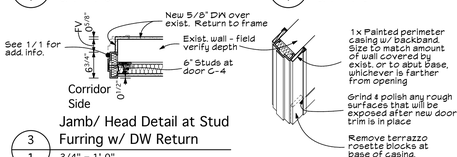


L3 — 1 — Base Detail
3/4" = 1'-0"



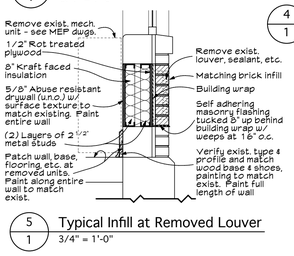
1 — 1 — Jamb/ Head Detail at Stud Furring
3/4" = 1'-0"

2 — 1 — Jamb/ Head Detail Where No Furring
3/4" = 1'-0"



3 — 1 — Jamb/ Head Detail at Stud Furring w/ DW Return
3/4" = 1'-0"

4 — 1 — Sill Iso at No Furring
3/4" = 1'-0"



5 — 1 — Typical Infill at Removed Louver
3/4" = 1'-0"

Lower Level Reflected Ceiling Plan
1/8"=1'-0"

Lower Level Plan
1/8"=1'-0"

See MEP dwgs. for locations of unit ventilators, PTACs, radiators, etc. to be removed (none indicated on Sheets 1-3 but all are required). Patch flooring, base, walls, etc. to match exist. Paint entire wall.

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6 William F. Blatt Ave.
Southgate Independent School District
Southgate, KY
Mr. Greg Duty, Superintendent

ROBERT EHMET HAYES & ASSOCIATES, PLLC
ARCHITECTS
2512 Dixie Hwy. Fort Mitchell, KY 41017 (859) 331-3121

Date:
12-13-18

Sheet
1

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REH # 350-1217 (RTF)

DOOR SCHEDULE

DOOR #	DOOR SIZE	MAT.	TYPE	FRAME MAT.	FRAME TYPE	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	LABEL	HRDW	See notes at Frame Types also REMARKS
M01	3'-0" x 7'-0" x 1 3/4"	Ex	Ex	Ex	Ex	---	---	---		12	See Note 8 below
AD1	3'-1" x 7'-0" x 1 3/4"	WD	HG	HM	1	6/3	1/1	---	20	01	
AD5	3'-1" x 7'-0" x 1 3/4"	WD	VL	HM	1	6/3	1/1	---	20	01	
AD6	2'-8" x 7'-0" x 1 3/4"	WD	VL	HM	1	2/1	2/1	4/1	20	02	
AD7	3'-2" x 7'-0" x 1 3/4"	WD	VL	HM	1	2/1	2/1	4/1	20	01	
AD8	3'-0" x 7'-4" x 1 3/4"	WD	VL	HM	1	6/3	1/1	---	20	03	
AD9	3'-0" x 7'-4" x 1 3/4"	WD	VL	HM	1	6/3	1/1	---	20	03	
AD10	3'-0" x 7'-0" x 1 3/4"	WD	VL	HM	1	6/3	1/1	---	20	02	
200	3'-2" x 7'-0" x 1 3/4"	WD	VL	HM	1	2/1	2/1	4/1	20	04	
201	3'-2" x 7'-0" x 1 3/4"	WD	VL	HM	1	2/1	2/1	4/1	20	01	
202	3'-2" x 7'-0" x 1 3/4"	WD	VL	HM	1	2/1	2/1	4/1	20	04	
203	3'-0" x 7'-4" x 1 3/4"	WD	VL	HM	1	6/3	1/1	---	20	05	
204	2'-10" x 7'-0" x 1 3/4"	WD	VL	HM	1	6/3	1/1	---	20	05	
204A	3'-0" x 7'-0" x 1 3/4"	WD	VL	HM	1	6/3	1/1	---	20	04	
M1	(2) 3'-0" x 7'-0" x 1 3/4"*	WD	VL	Ex	---	---	---	---	20	06	*See Note 8 below
C-1	3'-0" x 7'-0" x 1 3/4"	WD	VL	HM	1	2/1	2/1	4/1	60	07	
C-2	3'-0" x 7'-0" x 1 3/4"	WD	F	Ex	---	---	---	---	60	08	*See Note 8 below
C-2A	2'-8" x 7'-0" x 1 3/4"	WD	F	Ex	---	---	---	---	60	08	*See Note 8 below
C-3	3'-6" x 7'-0" x 1 3/4"	WD	F	HM	1	6/3	1/1	---	20	09	
C-4	3'-0" x 7'-0" x 1 3/4"	WD	VL	HM	1	4/3 Strs	3/1	---	20	10	
C-5	3'-0" x 7'-0" x 1 3/4"	WD	VL	HM	1	4/3 Strs	3/1	---	20	10	
						Sim					
RR1	2'-6" x 7'-0" x 1 3/4"	WD	F	HM	1	2/1	2/1	4/1	20	11	
RR2	2'-6" x 7'-0" x 1 3/4"	WD	F	HM	1	2/1	2/1	4/1	20	11	
JC	2'-8" x 7'-0" x 1 3/4"	WD	F	HM	1	2/1	2/1	4/1	20	07	

DOOR SCHEDULE ABBREVIATIONS AND NOTES:

AL: Aluminum — EX Existing — HM Hollow metal — W: Wood

1. All hollow metal frames shall be mitered, fully welded and ground smooth, ready for finish painting
2. All hollow metal frames to be grouted solid in masonry and spot grouted at anchors in framing
3. Apply sealant @ perimeter of frames, each side
4. Egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.
5. Coordinate door undercuts w/ thresholds & floor finish thicknesses prior to ordering doors so that they are correct height to properly contact threshold & to clear floor finish.
6. See Floor Plans for door swings and details for installation. Several will be changed and will not match existing.
7. Field verify all rough openings prior to ordering doors and frames. Include all adjustments on shop drawings.
8. Fill all holes from abandoned hardware in door & frame, sand flush, & paint.

ROOM FINISH SCHEDULE

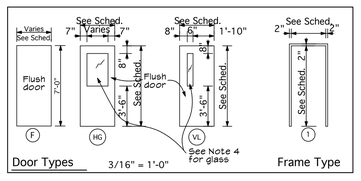
ROOM #	ROOM TITLE	FLOOR	BASE	N. WALL	E. WALL	S. WALL	W. WALL	FINISH	CEILING	CLG HGT	NOTES
C-03	Corridor	CS**	R**	CMU	CMU	CMU*	CMU	P*	AC1	ME	*Do not paint south wall; *See Note 5 below
C-04	Corridor	CS**	R**	CMU	CMU	CMU	CMU	P	AC1	ME	*See Note 5 below
100	Kindergarten Classroom	Ex.	Ex.	Conc	CMU	CMU	Conc	---	AC1	ME	*New clg. only
L1	Lobby	TR	TR	SF	DW	SF	DW	P	Ex.*	11'-0 1/2"	*Paint metal ceiling
C-1	Corridor	TR	TR	PL	PL	PL	PL	P	Ex.*	Varies	*Paint metal ceiling
C-1.1	Ramp	CS	R	PL	O	PL	PL	P	Ex.*	Varies	*Paint metal ceiling
C-2	Corridor	CS	R	DWE/ GB	BR*	DWE	BR*	P	Ex.*	---	*Paint DW ceiling & BR
C-3	Corridor	CS	R	DW/ DWE	DW/ DWE	DW/ DWE	DW/ DWE	P	AC	ME	
C-4	Corridor	CS	R	DW	DW	DW	DW	P	Ex.*	10'-10"	*Paint metal ceiling
C-5	Corridor	CS	R	DW	DW	DW	DW	P	AC1	ME	
V1	Corridor	CS	R	DW	DW	DW	DW	P	DW	9'-7"±	

FINISH SCHEDULE ABBREVIATIONS: Note: See specifications for additional information

AC1	2' X 4' Lay-in ceiling panel	GB	Glass Block - Existing - clean
AC2	2' X 4' Lay-in ceiling panel - impact resistant (Gym)	ME	Match Existing
BR	Brick - Existing	O	Open
Conc.	Concrete-exposed where floor; paint where wall, u.n.o.	P	Paint, see specs
CS	Carpet Squares - see Note 5	PL	Plaster - Existing (See Gen. Note #5 on Title Sheet). Finish is popcorn type.
CMU	Concrete Masonry Units - Existing	R	Resilient Base - see Note 5
DW	Drywall - 5/8" Abuse Resistant (ARD) all walls; 1/2" Type X all soffits, bulkheads, & as noted. See drawings for add. info. Paint	SF	Storefront - Existing
		TR	Terrazzo flooring & base - Existing. Restore per instructions adjacent to Room Finish Schedule
DWE	Existing drywall to remain - patch & skim. Remove exist. & provide new rubber base. Paint	RTR	Resilient Treads & Risers
Ex.	Existing to remain	VCT	Vinyl Composition Tile

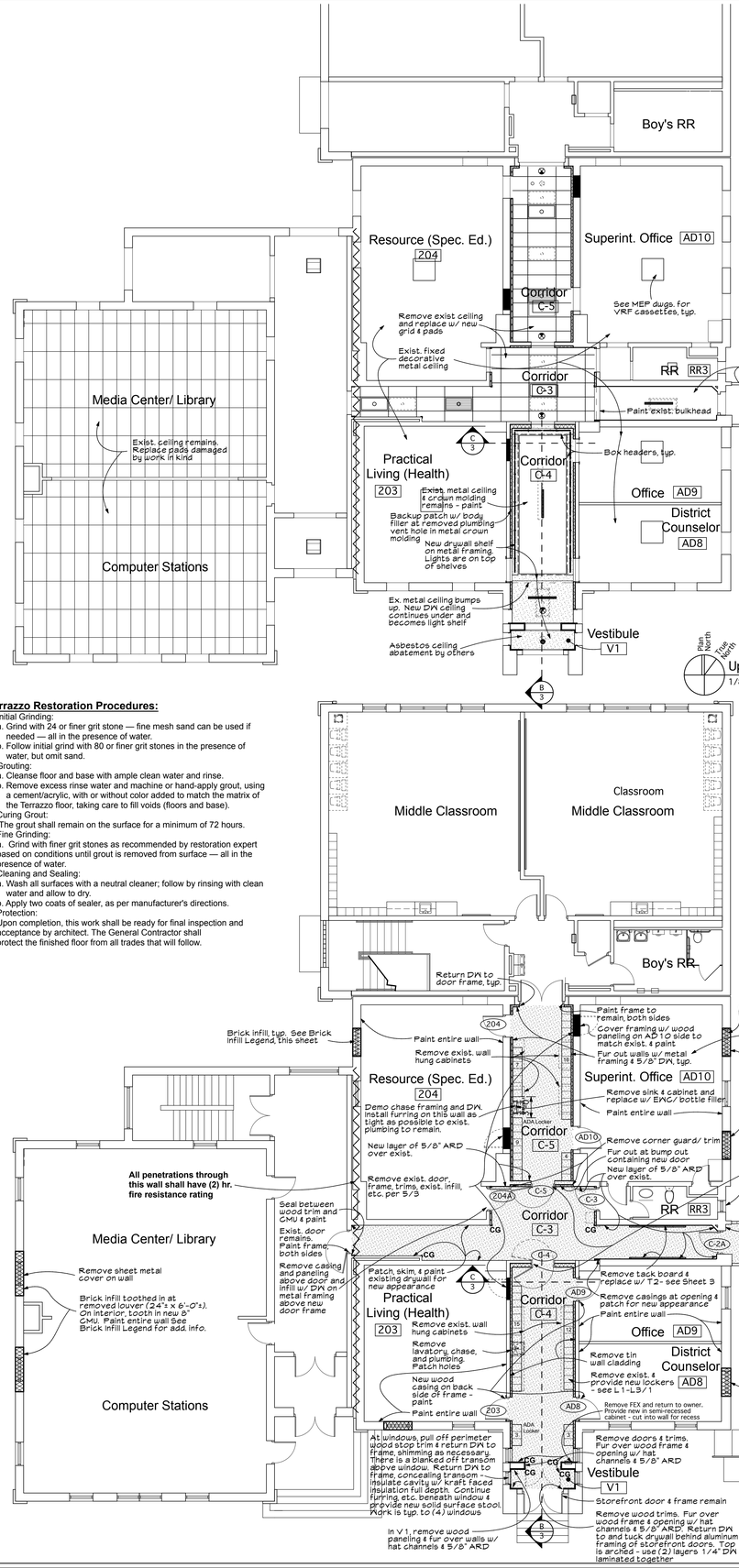
GENERAL NOTES:

1. See Reflected Ceiling Plans for bulkheads and additional info. Paint all.
2. Intent is to match existing ceiling heights. If scheduled heights conflict w/ existing, notify architect for clarification
3. Most rooms on the Floor Plans are not indicated on the above schedule but have room #'s assigned to them. See Sheets 1-3 and MEP drawings for work.
4. Remove all flooring & base in all areas of new flooring & as indicated. In areas of wood trim & where necessary for new appearance at resilient base (damaged from removal), patch walls to appear new prior to new base & trims. Install new base - paint wood base.
5. Part of new carpet alternate. See Floor Plans for additional finishes & alternates (carpet and base) in non-scheduled spaces



General Notes Regarding Doors & Frames:

1. All hollow metal frames to be spot grouted at anchors w/ the balance fill w/ mineral wool insulation.
2. All field welds to be ground smooth & painted to match factory condition.
3. All glazing stops anchors by HM manufacturer
4. Provide 1/4" thick fire rated ceramic glass @ all doors where glass is indicated.
5. Field verify all rough openings prior to ordering or fabricating doors & frames.
6. See details for frame depths & other special door/ frame sizes & conditions not listed in Schedule or shown on this sheet.
7. Paint all hardware (screw heads, glazing stops, etc.) to match frame color



Terrazzo Restoration Procedures:

1. Initial Grinding:
   a. Grind with 24 or finer grit stone — fine mesh sand can be used if needed — all in the presence of water.
   b. Follow initial grind with 80 or finer grit stones in the presence of water, but omit sand.
2. Grouting:
   a. Cleanse floor and base with ample clean water and rinse.
   b. Remove excess rinse water and machine or hand-apply grout, using a cement/acrylic, with or without color added to match the matrix of the Terrazzo floor, taking care to fill voids (floors and base).
3. Curing Grout:
   The grout shall remain on the surface for a minimum of 72 hours.
4. Fine Grinding:
   a. Grind with finer grit stones as recommended by restoration expert based on conditions until grout is removed from surface — all in the presence of water.
5. Cleaning and Sealing:
   a. Wash all surfaces with a neutral cleaner; follow by rinsing with clean water and allow to dry.
   b. Apply two coats of sealer, as per manufacturer's directions.
6. Protection:
   Upon completion, this work shall be ready for final inspection and acceptance by architect. The General Contractor shall protect the finished floor from all trades that will follow.

Brick Infill Legend:

Brick infill toothed in at removed louver on exterior (16"± x 4'-0"± u.n.o.) and framed interior w/ finished surface to match existing. Not all locations are specifically called, but all locations are required - see MEP demo. drawings and detail 5/1

See MEP dwgs. for locations of unit ventilators, PTACs, radiators, etc. to be removed (none indicated on Sheets 1-3 but all are required). Patch flooring, base, walls, etc. to match exist. Paint entire wall.

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ROBERT EHMET HAYES & ASSOCIATES, PLLC
ARCHITECTS
2512 Dixie Hwy. Fort Mitchell, KY 41017 (859) 331-3121

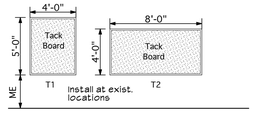
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Sheet 2

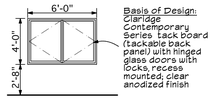
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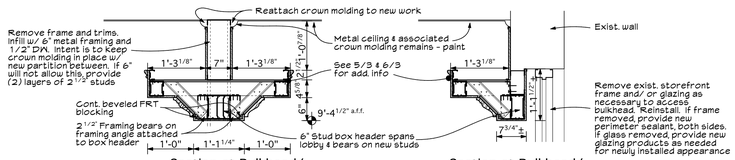
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Tack Board Elevations
3/16" = 1'-0"

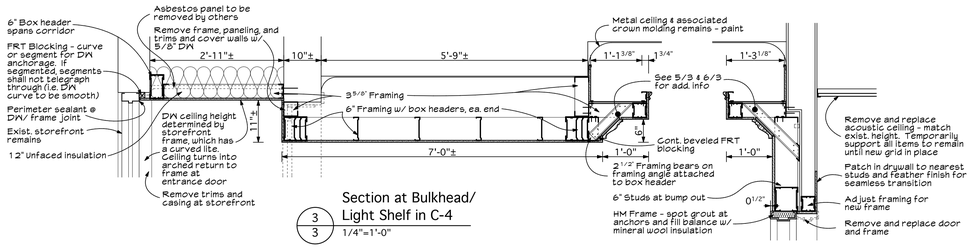


Bulletin Board Display Case
3/16" = 1'-0"



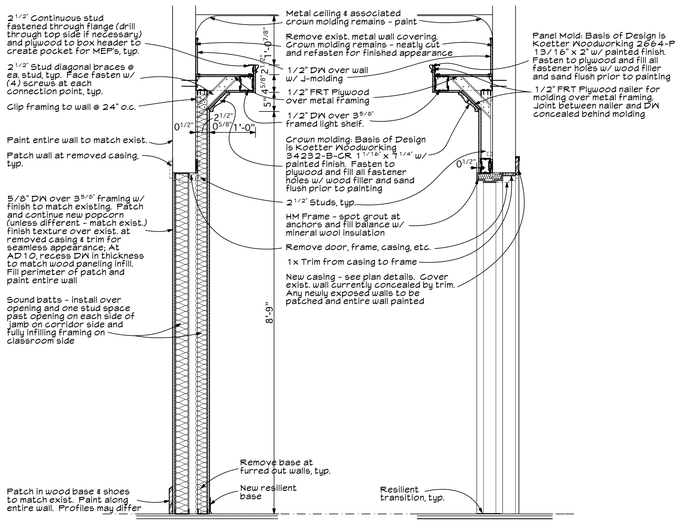
1/3 Section at Bulkhead/ Light Shelf in L1
1/4"=1'-0"

2/3 Section at Bulkhead/ Light Shelf in L1
1/4"=1'-0"



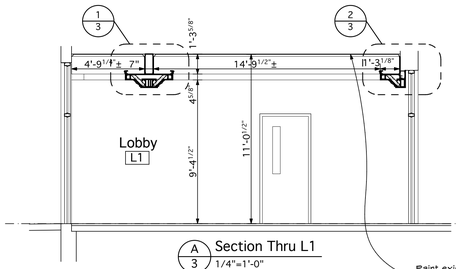
3/3 Section at Bulkhead/ Light Shelf in C-4
1/4"=1'-0"

4/3 Section at Bulkhead/ Light Shelf in C-4
1/4"=1'-0"

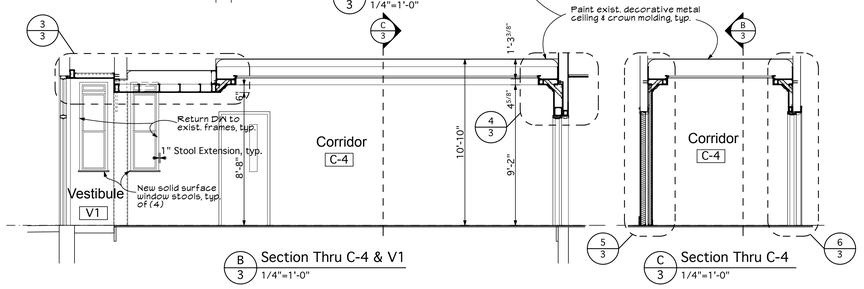


5/3 Section at Door Infill
3/4"=1'-0"

6/3 Section at Door in New Furring
3/4"=1'-0"

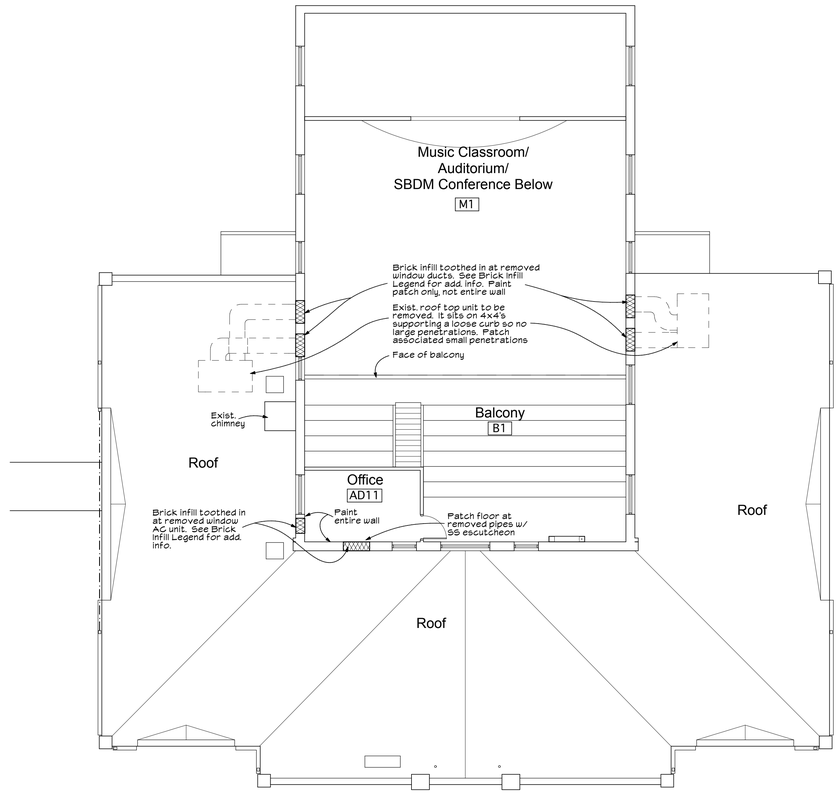


A/3 Section Thru L1
1/4"=1'-0"



B/3 Section Thru C-4 & V1
1/4"=1'-0"

C/3 Section Thru C-4
1/4"=1'-0"



Roof & Balcony Plan
1/8"=1'-0"

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2512 Dixie Hwy. Fort Mitchell, KY 41017 (859) 331-3121

Date:
12-13-18

Sheet
3

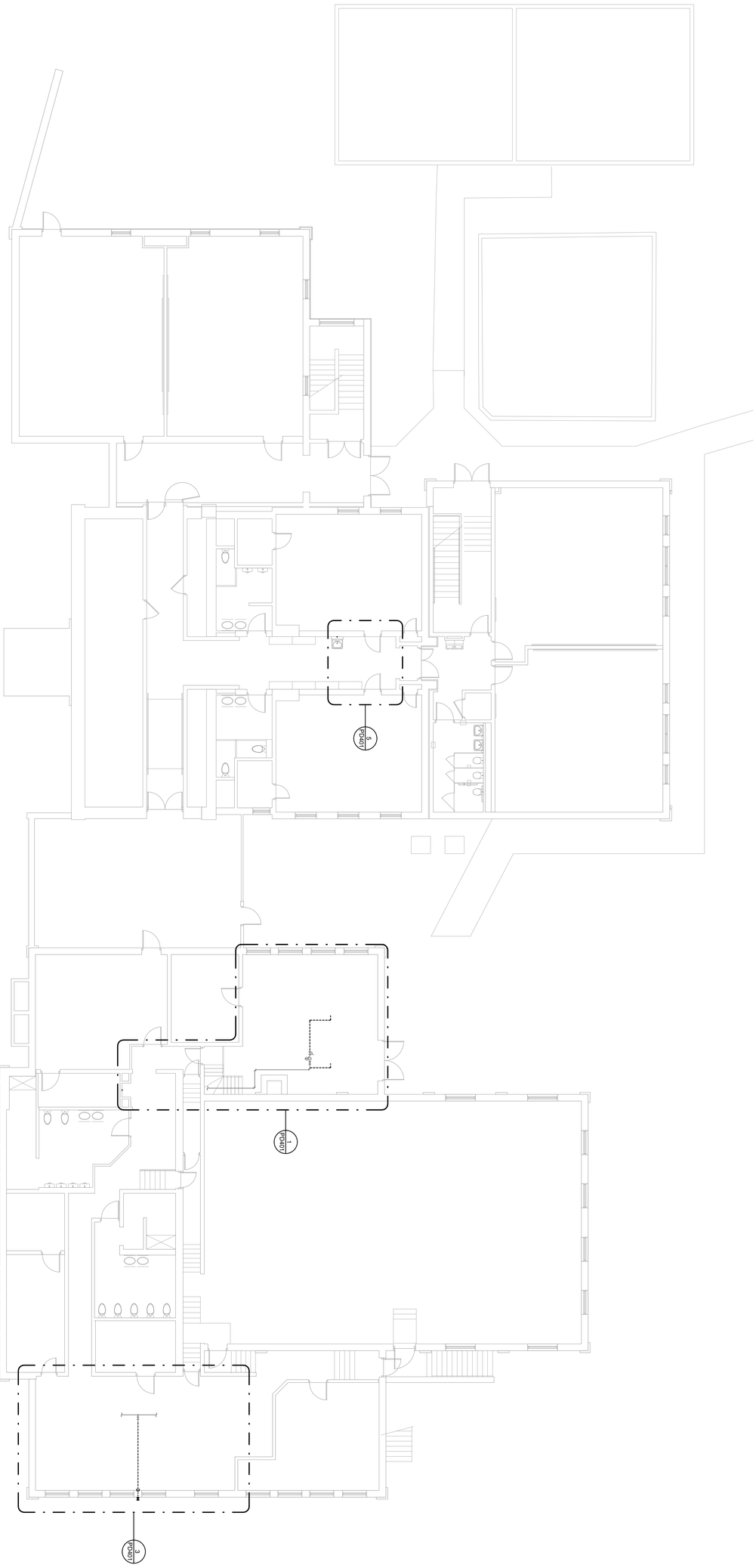
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1 PLUMBING - LEVEL 1 - ABOVE GROUND DEMOLITION PLAN
1/8" = 1'-0"

2" REFERENCE LINE

PD100

PLUMBING - LEVEL 1

JOB NO. 20692.00
SHEET DATE 12/13/18
PROJ. DATE 12/13/18
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08/31/18 SCHEMATIC DESIGN
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12/13/18 CONSTRUCTION DOCS

Renovations For:

Southgate Elementary School

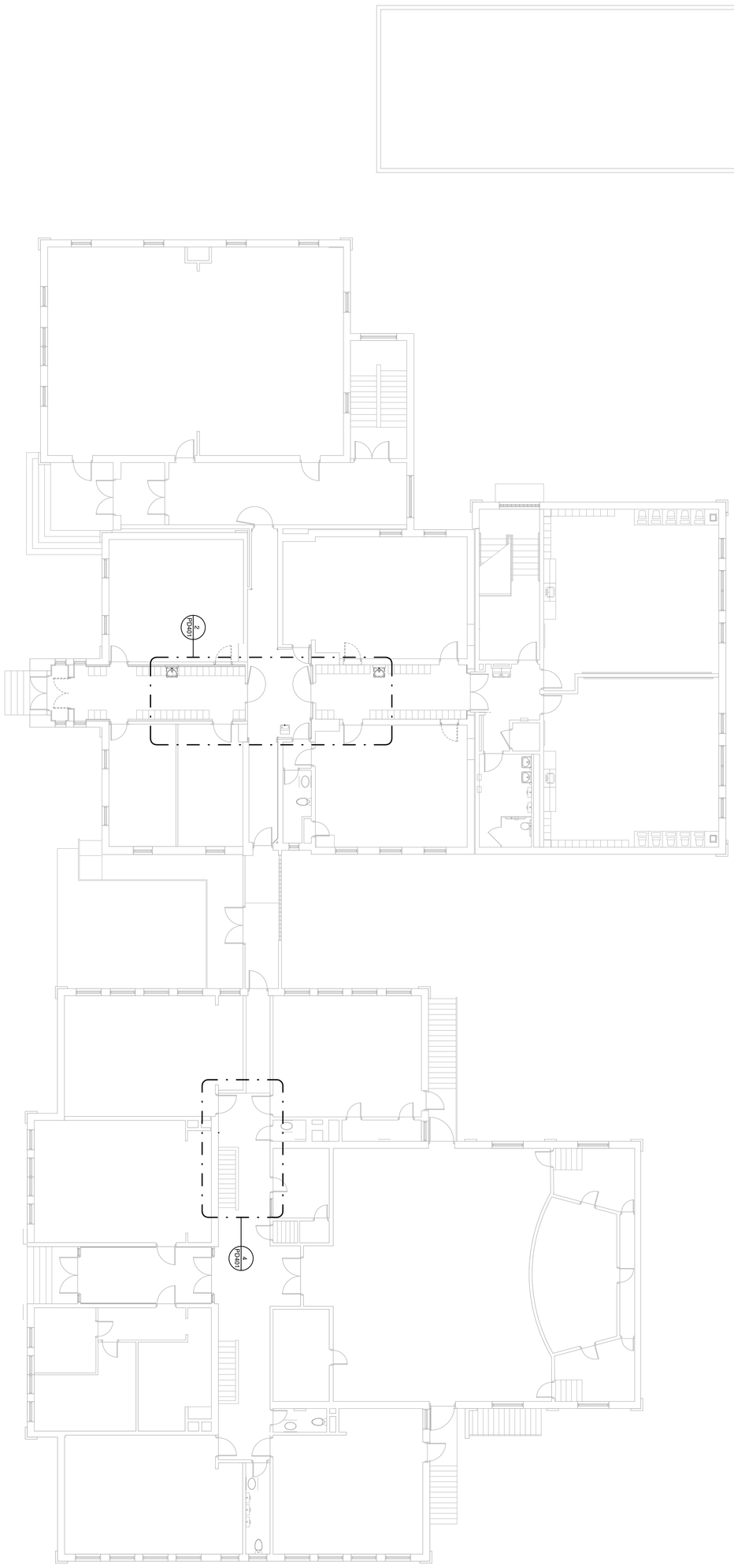
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1 PLUMBING - LEVEL 2 - ABOVE GROUND DEMOLITION PLAN
1/8" = 1'-0"



2" REFERENCE LINE

PD101

PLUMBING - LEVEL 2

JOB NO. 20692.00

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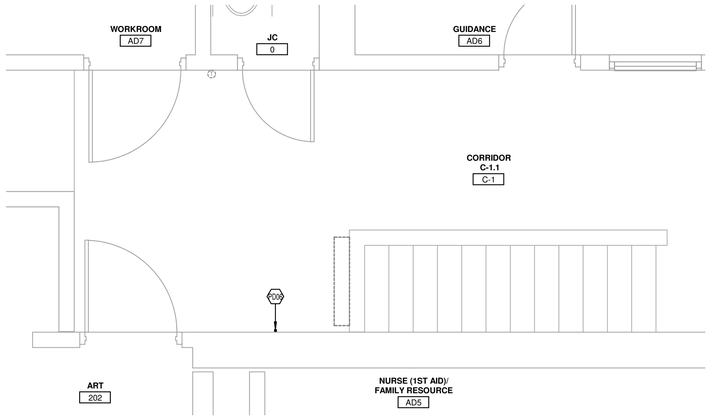
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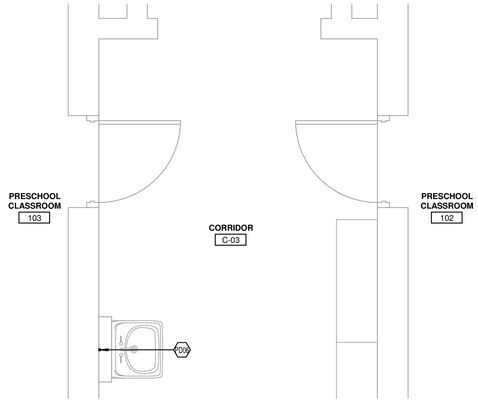
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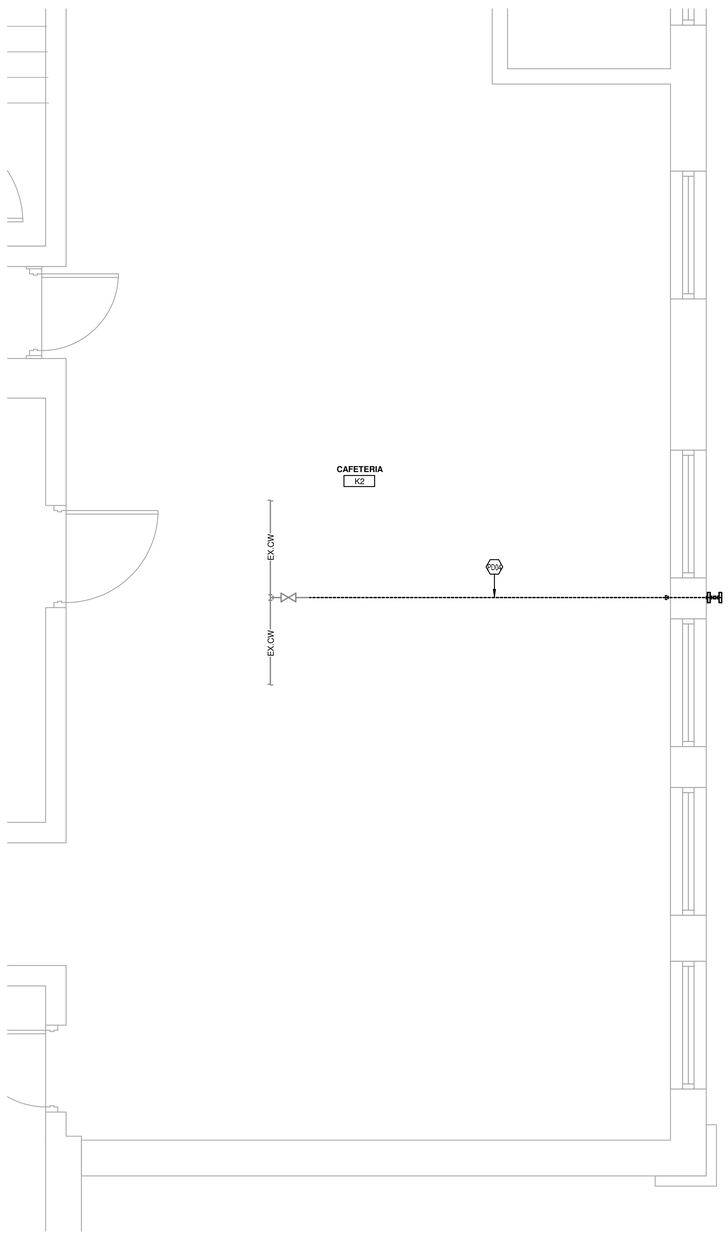
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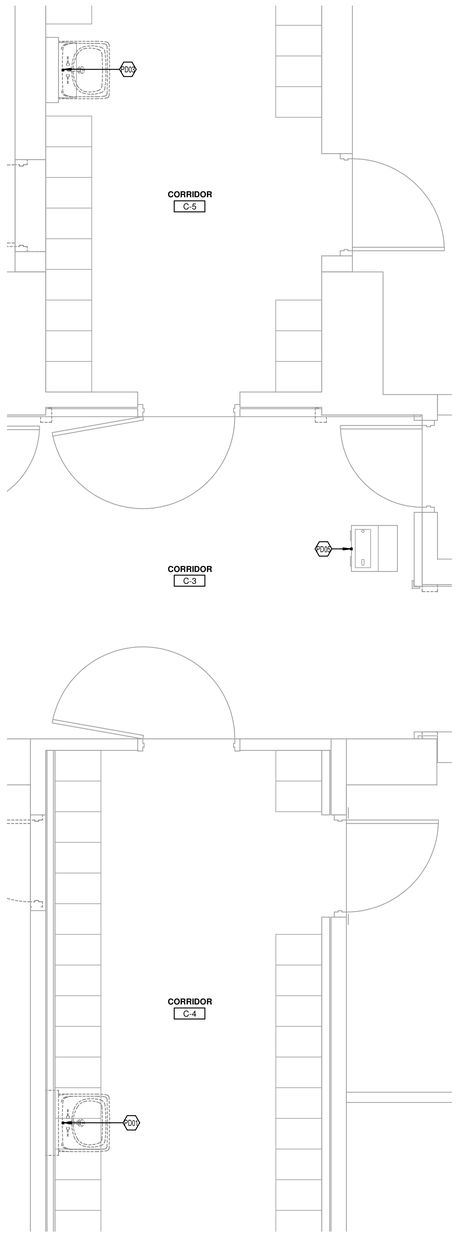
4 PLUMBING - LEVEL 2 - ENLARGED ABOVE GROUND DEMOLITION PLAN AT CORRDIOR C-1
1/2" = 1'-0"



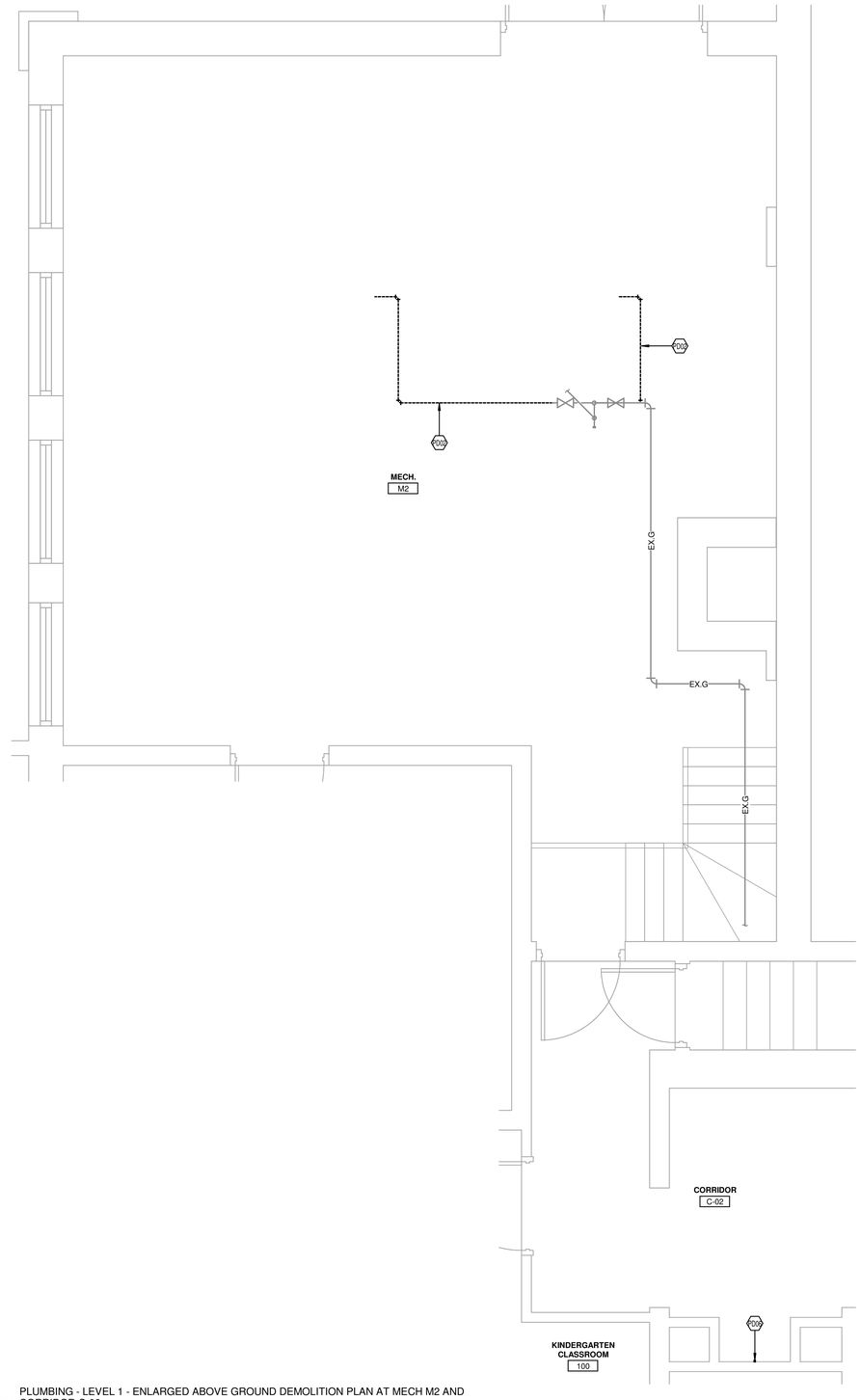
5 PLUMBING - LEVEL 1 - ENLARGED ABOVE GROUND DEMOLITION PLAN AT CORRIDOR C-03
1/2" = 1'-0"



3 PLUMBING - LEVEL 1 - ENLARGED ABOVE GROUND DEMOLITION PLAN AT CAFETERIA K2
1/2" = 1'-0"



2 PLUMBING - LEVEL 2 - ENLARGED ABOVE GROUND DEMOLITION PLAN
1/2" = 1'-0"



1 PLUMBING - LEVEL 1 - ENLARGED ABOVE GROUND DEMOLITION PLAN AT MECH M2 AND CORRIDOR C-02
1/2" = 1'-0"

2" REFERENCE LINE

KEYED NOTES

PD01	DEMOLISH EXISTING SINK. DEMOLISH EXISTING VENT PIPING BACK TO EXISTING VENT MAIN AND CAP. DEMOLISH EXISTING SANITARY PIPE BACK TO FINISHED FLOOR AND CAP WITH NEW FLOOR CLEANOUT. DEMOLISH EXISTING CW AND HW CONNECTIONS BACK TO EXISTING CW AND HW MAINS AND CAP.
PD02	DEMOLISH EXISTING GAS PIPING FROM DEMOLISHED BOILER BACK TO EXISTING SHUTOFF VALVE AND CAP.
PD03	DEMOLISH EXISTING SINK. DEMOLISH EXISTING HW CONNECTION.
PD04	DEMOLISH EXISTING EXTERIOR WALL HYDRANT AND CONNECTED CW PIPING BACK TO EXISTING SHUTOFF VALVE.
PD05	DEMOLISH EXISTING WATER COOLER. DEMOLISH EXISTING VENT PIPING BACK TO EXISTING VENT MAIN AND CAP. DEMOLISH EXISTING SANITARY PIPE BACK TO FINISHED FLOOR AND CAP WITH NEW FLOOR CLEANOUT. DEMOLISH EXISTING CW CONNECTION BACK TO EXISTING CW MAIN AND CAP.
PD06	DEMOLISH EXISTING WATER COOLER. EXISTING SANITARY AND WATER PIPING TO REMAIN TO SERVE NEW ELECTRIC WATER COOLER.

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PLUMBING - ENLARGED DEMOLITION PLANS

PD401

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PLUMBING ELECTRIC WATER COOLER SCHEDULE

MARK	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	WATTS	VOLTS	PHASE	EMERGENCY	FLA	MCA	OCP	ACCESSORIES	CW SIZE (IN)	SAN SIZE (IN)	VENT SIZE (IN)	TRAP SIZE (IN)	INT TRAP
EWC1	DOMESTIC ELECTRIC WATER COOLER	CORRIDOR C-5	ELKAY	EZSDWSLK	15	120	1		1.1			SINGLE STATION, ADA	1/2	1-1/2	1-1/2	---	NO
EWC2	DOMESTIC ELECTRIC WATER COOLER	CORRIDOR C-1	ELKAY	EZSDWSLK	15	120	1		1.1			SINGLE STATION, ADA	1/2	1-1/2	1-1/2	---	NO
EWC3	DOMESTIC ELECTRIC WATER COOLER	CORRIDOR C-03	ELKAY	EZSDWSLK	15	120	1		1.1			SINGLE STATION, ADA	1/2	1-1/2	1-1/2	---	NO
EWC4	DOMESTIC ELECTRIC WATER COOLER	CORRIDOR C-02	ELKAY	EZSDWSLK	15	120	1		1.1			SINGLE STATION, ADA	1/2	1-1/2	1-1/2	---	NO

PLUMBING ELECTRICAL COORDINATON SCHEDULE

ABBREVIATIONS		CONTRACTOR TYPE		MOTOR CONTROL TYPE		CONTROL TYPE	
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	CS	COMBINATION STARTER	TC	TIMECLOCK
MC	MOTOR CONTROL (POWER)	EX	EXISTING	MCC	MOTOR CONTROL STARTER	CPT	CONTROL POWER TRANSFORMER
SD	DUCT SMOKE DETECTOR	FC	FIRE PROTECTION CONTRACTOR	MG	MAGNETIC STARTER OR CONTACT	BAS	BUILDING AUTOMATION SYSTEM
CN	CONTROLS	GC	GENERAL CONTRACTOR	MS	MANUAL STARTER	LOW	LOW VOLTAGE CONTROLS
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE	LINE	LINE VOLTAGE CONTROLS
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MSR	MANUAL STARTER W/ CONTROL RELAY	RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	OV	OVERCURRENT PROTECTION	MAN	MANUAL
FLA	OPERATING FULL LOAD AMPS	OR	OWNER OR OTHERS			FA	FIRE ALARM
MCA	MINIMUM CIRCUIT AMPACITY					CO	CARBON MONOXIDE SENSOR
CP	CORD AND PLUG CONNECTION					INT	INTEGRAL TO EQUIPMENT

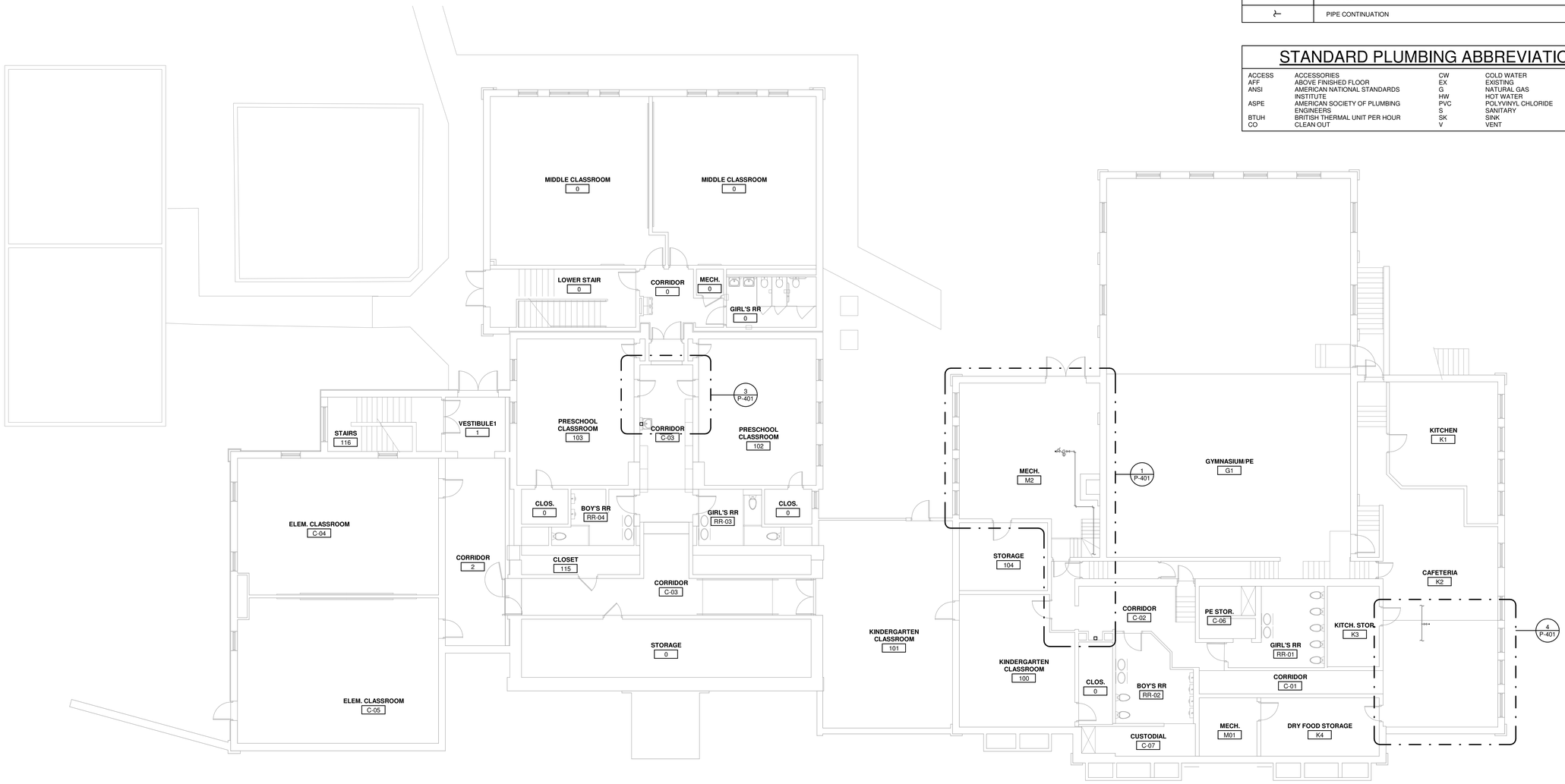
EQUIPMENT MARK	DESCRIPTION	VOLTS (V)	PHASE	EMERGENCY	BHP (HP)	HP (HP)	HTG KW (kW)	WATTS (W)	FLA (A)	MCA (A)	OCP (A)	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE
EWC1	DOMESTIC ELECTRIC WATER COOLER	120	1					15	1.1				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR
EWC2	DOMESTIC ELECTRIC WATER COOLER	120	1					15	1.1				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR
EWC3	DOMESTIC ELECTRIC WATER COOLER	120	1					15	1.1				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR
EWC4	DOMESTIC ELECTRIC WATER COOLER	120	1					15	1.1				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR

PLUMBING LEGEND

SYMBOL	DESCRIPTION
PLAN-VIEW LINE TYPES	
	WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE
	WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK
	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
PIPING LINE TYPES	
—S—	SANITARY WASTE PIPING
—V—	SANITARY VENT PIPING
—CW—	DOMESTIC COLD WATER PIPING
—HW—	DOMESTIC HOT WATER PIPING (120°F)
—G—	NATURAL GAS PIPING
PLUMBING ACCESSORIES	
	UNION
	PIPE CAP
WCO CO	CO - CLEANOUT, FCO - FLOOR CLEANOUT, WCO - WALL CLEANOUT
PIPE VALVES	
	CONTROL VALVE , SHUT-OFF VALVE
	CHECK VALVE
PLUMBING SYMBOLS	
	PIPE UP
	PIPE DOWN
	PIPE TEE DOWN
	PIPE TEE UP
	PIPE CONTINUATION

STANDARD PLUMBING ABBREVIATIONS

ACCESS	ACCESSORIES	CW	COLD WATER
AFF	ABOVE FINISHED FLOOR	EX	EXISTING
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	G	NATURAL GAS
		HW	HOT WATER
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS	PVC	POLYVINYL CHLORIDE
		S	SANITARY
BTUH	BRITISH THERMAL UNIT PER HOUR	SK	SINK
CO	CLEAN OUT	V	VENT



1 PLUMBING - LEVEL 1 - ABOVE GROUND PLAN
1/8" = 1'-0"

2" REFERENCE LINE

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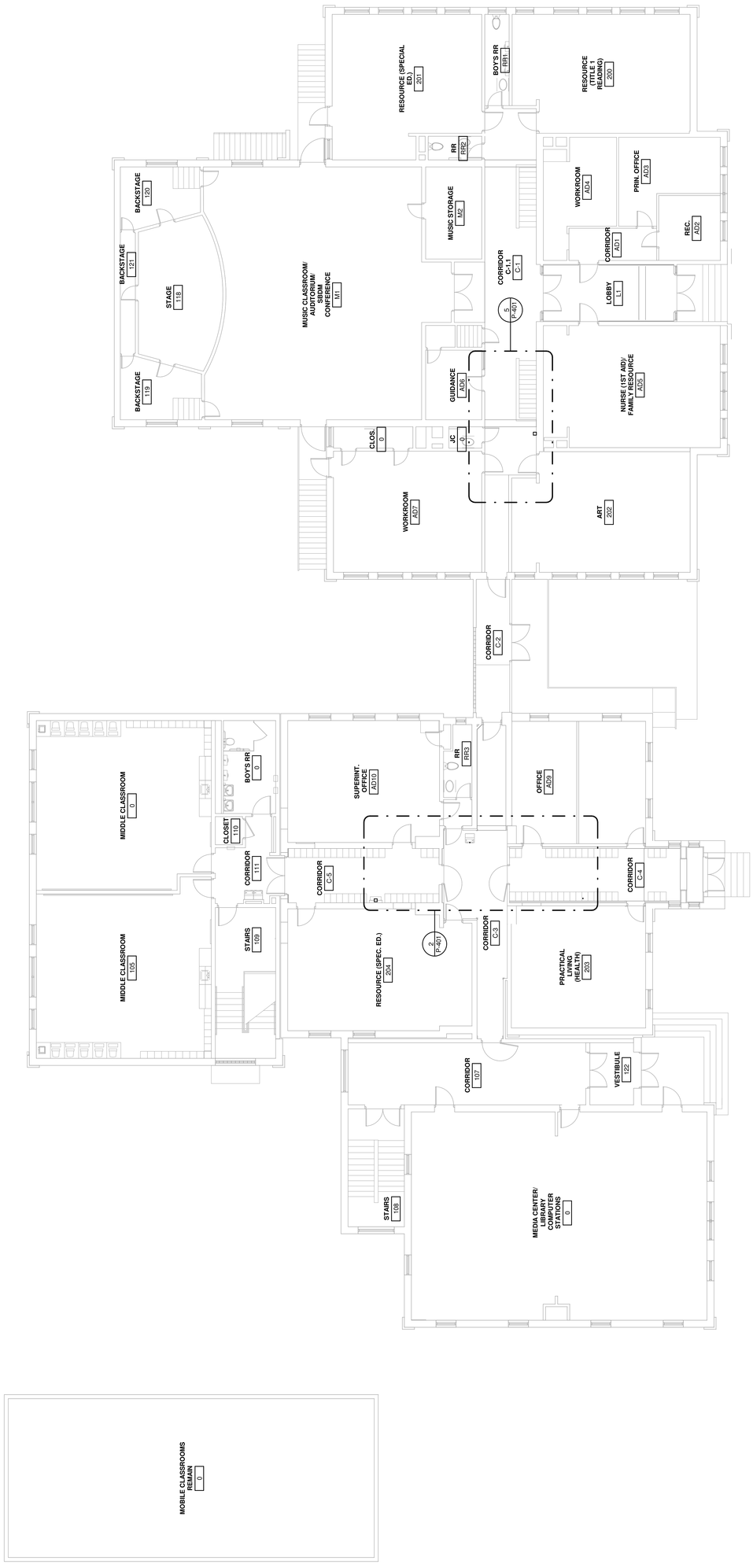
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PLUMBING - LEVEL 1

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1 PLUMBING - LEVEL 2 - ABOVE GROUND PLAN
1/8" = 1'-0"

2" REFERENCE LINE

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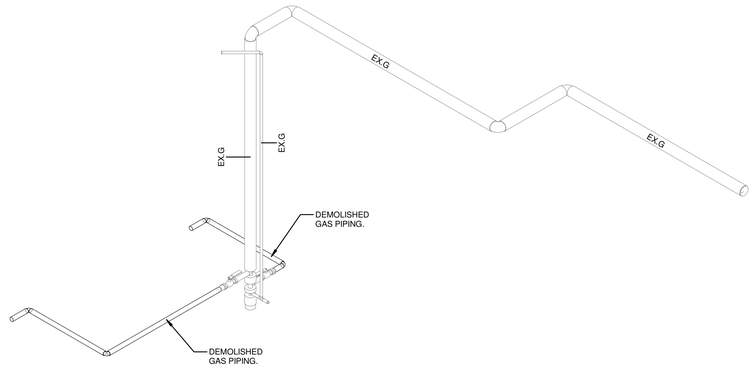
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PLUMBING - LEVEL 2

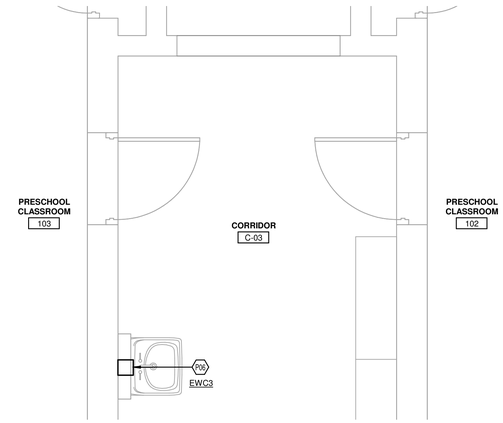
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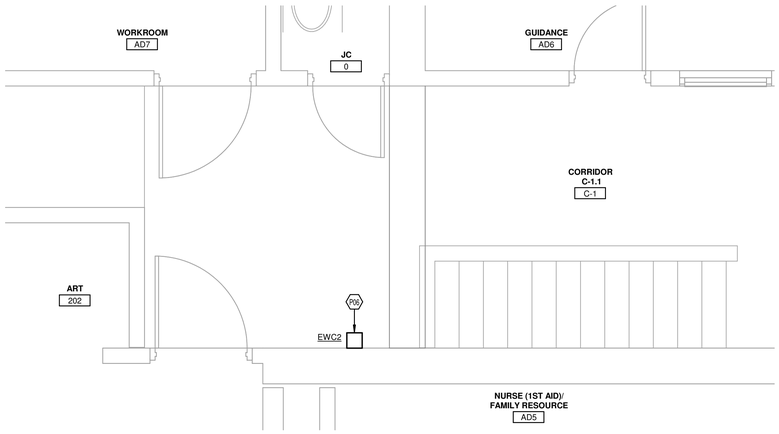
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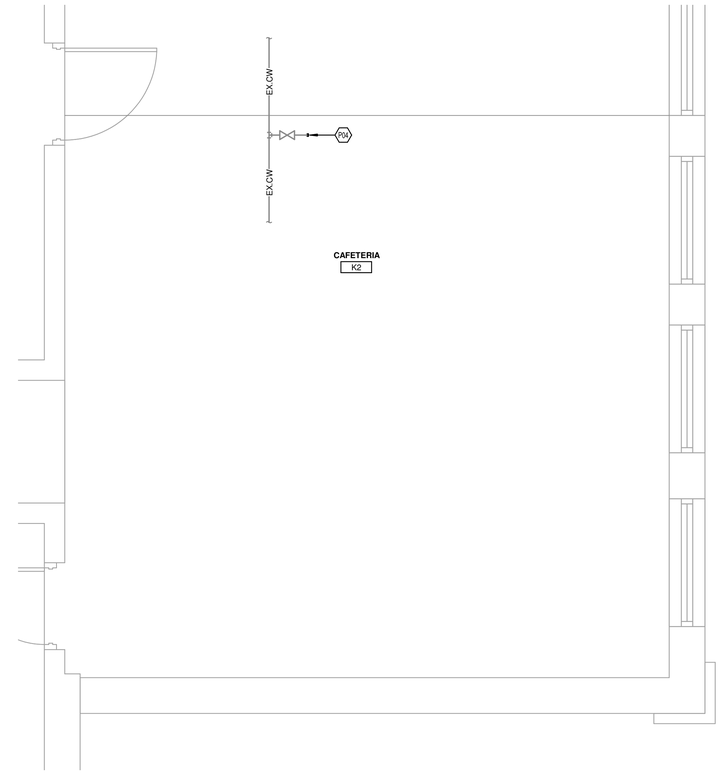
6 PLUMBING - ISOMETRIC - GAS



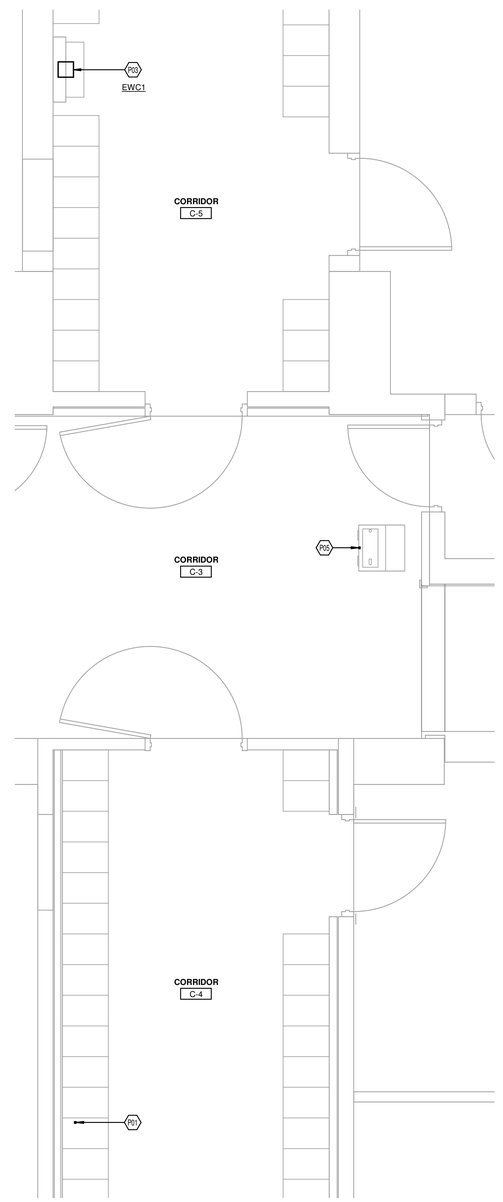
3 PLUMBING - LEVEL 1 - ENLARGED ABOVE GROUND PLAN AT CORRIDOR C-03
1/2" = 1'-0"



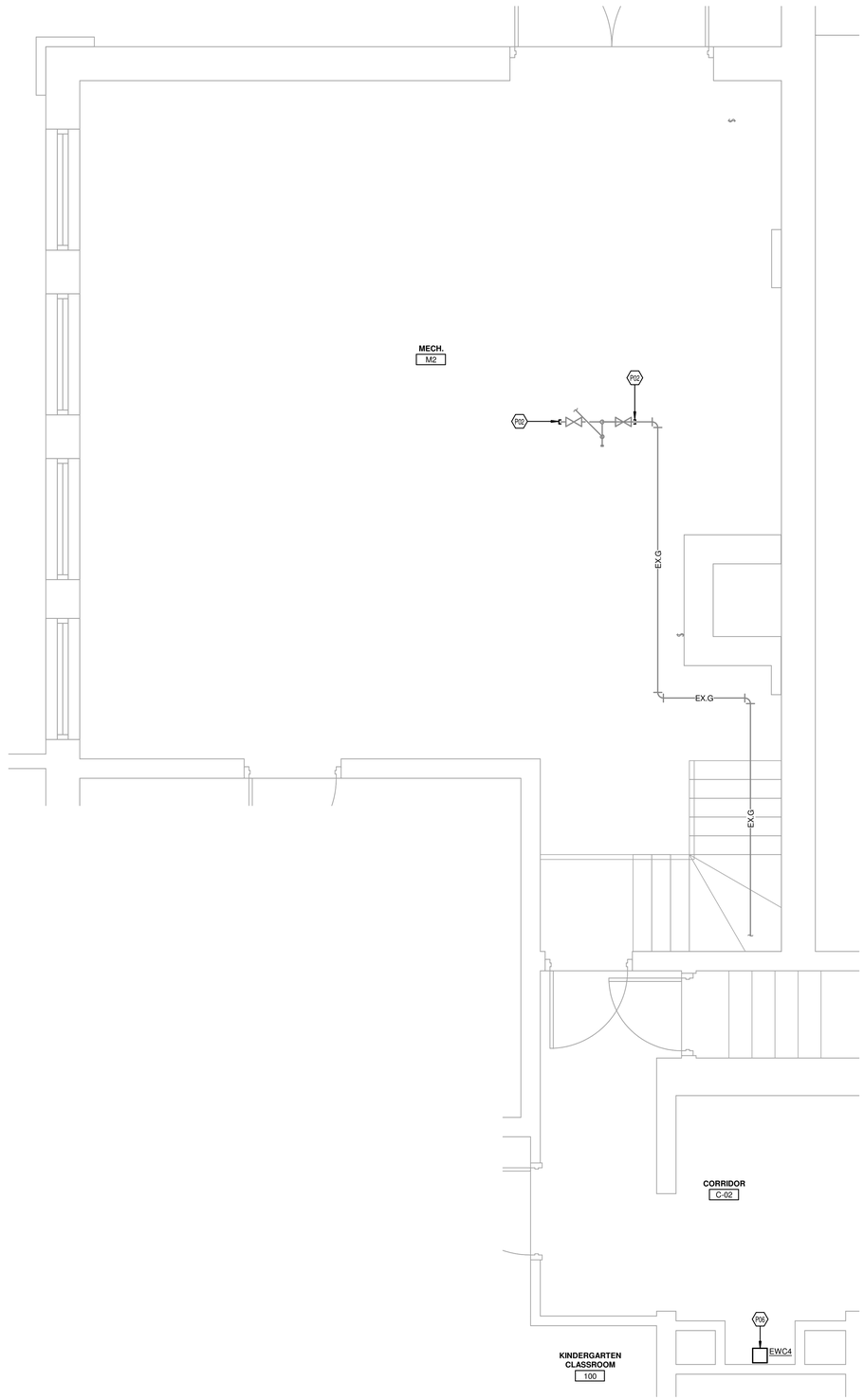
5 PLUMBING - LEVEL 2 - ENLARGED ABOVE GROUND PLAN AT CORRIDOR C-1
1/2" = 1'-0"



4 PLUMBING - LEVEL 1 - ENLARGED ABOVE GROUND PLAN AT CAFETERIA K2
1/2" = 1'-0"



2 PLUMBING - LEVEL 2 - ENLARGED ABOVE GROUND PLAN AT CORRIDORS C-3, C-4, AND C-5
1/2" = 1'-0"



1 PLUMBING - LEVEL 1 - ENLARGED ABOVE GROUND PLAN AT MECH M2 AND CORRIDOR C-02
1/2" = 1'-0"

2" REFERENCE LINE

KEYED NOTES

P01	CAP EXISTING CW AND HW CONNECTIONS BACK TO ABOVE EXISTING CEILING FROM DEMOLISHED SINK. CAP EXISTING SANITARY PIPE WITH FLOOR CLEANOUT FLUSH WITH FINISHED FLOOR.
P02	CAP EXISTING GAS PIPE AT EXISTING SHUTOFF VALVE.
P03	CONNECT EXISTING CW AND SAN CONNECTIONS TO NEW ELECTRIC WATER COOLER. CAP EXISTING HW CONNECTION BACK TO EXISTING HW MAIN FROM DEMOLISHED SINK.
P04	CAP EXISTING CW PIPE AFTER EXISTING SHUTOFF VALVE.
P05	CAP EXISTING CW CONNECTION BACK TO ABOVE EXISTING CEILING FROM DEMOLISHED WATER COOLER. CAP EXISTING SANITARY LINE WITH NEW WALL CLEANOUT AT EXISTING WALL.
P06	CONNECT EXISTING CW AND SAN CONNECTIONS TO NEW ELECTRIC WATER COOLER.

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PLUMBING - ENLARGED PLANS

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MECHANICAL LEGEND

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	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
PIPING LINE TYPES	
	REFRIGERANT SUCTION GAS, LIQUID, AND DISCHARGE GAS LINES
	REFRIGERANT GAS AND LIQUID LINES
CD	CONDENSATE DRAIN
MECHANICAL AIR DEVICES	
SR	SUPPLY REGISTER
RR	RETURN REGISTER
ER	EXHAUST REGISTER
SG	SUPPLY GRILLE
RG	RETURN GRILLE
CD	CEILING DIFFUSER
MECHANICAL DUCTWORK	
UP	SUPPLY DUCT WITH ELBOW TURNED UP
DN	SUPPLY DUCT WITH ELBOW TURNED DOWN
UP	RETURN DUCT WITH ELBOW TURNED UP
DN	RETURN DUCT WITH ELBOW TURNED DOWN
UP	EXHAUST DUCT WITH ELBOW TURNED UP
DN	EXHAUST DUCT WITH ELBOW TURNED DOWN
24X12 SA	SUPPLY DUCT
24X12 RA	RETURN DUCT
24X12 EA	EXHAUST DUCT
24X12 OA	OUTSIDE AIR DUCT
	1" LINED DUCTWORK
	DUCT FLEX CONNECTOR
	FLEXIBLE DUCTWORK CONNECTION
	BRANCH TAKEOFF
	REDUCER, CONCENTRIC
	REDUCER, NONCONCENTRIC

STANDARD HVAC ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
ACCESS	ACCESSORIES
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BAS	BUILDING AUTOMATION SYSTEM
BD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CD	CEILING DIFFUSER
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CLG	COOLING
CO	CARBON MONOXIDE
CO2	CARBON DIOXODE
COP	COEFFICIENT OF PERFORMANCE
CV	CONSTANT VOLUME
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DECIBELS
DB	DRY-BULB TEMPERATURE
DC	DISCONNECT
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE DELTA(CHANGE IN TEMPERATURE)
DIA	DIAMETER
DIW	DEIONIZED WATER
DP	DEW POINT TEMPERATURE
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EG	EXHAUST GRILLE
EMERG	EMERGENCY POWER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
FA	FREE AREA
FD	FIRE DAMPER
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
FURN	FURNISHED
GA	GAUGE
GAL	GALLONS
GPM	GALLONS PER MINUTE
HD	HEAD
HOA	HAND/OFF/AUTOMATIC
HP	HORSEPOWER
HPR	HIGH PRESSURE RETURN (STEAM CONDENSATE)
HSTAT	HUMIDISTAT
HTG	HEATING
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HZ	HERTZ
I/O	INPUT/OUTPUT
IAQ	INDOOR AIR QUALITY
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IPLV	INTERGRATED PART LOAD VALUE
INST	INSTALLED
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPS	LOW PRESSURE STEAM
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
MPR	MEDIUM PRESSURE RETURN (STEAM CONDENSATE)
MPS	MEDIUM PRESSURE STEAM
MRI	MAGNETIC RESONANCE IMAGING
MVD	MANUAL VOLUME DAMPER
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OCP	OVER CURRENT PROTECTION
PD	PRESSURE DROP
PPM	PARTS PER MILLION
PRS	PRESSURE REGULATING (VALVE) STATION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAGE
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SC	SHADING COEFFICIENT
SCD	SMOKE CONTROL DAMPER
SD	SMOKE DETECTOR
SENS	SENSIBLE HEAT
SP	STATIC PRESSURE
TAB	TESTING, ADJUSTING, BALANCE
TDH	TOTAL DYNAMIC HEAD
TDS	TOTAL DISSOLVED SOLIDS
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
UL	UNDERWRITERS LABORATORY
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
WB	WET-BULB (TEMPERATURE)
WG	WATER GAGE
WPD	WATER SIDE PRESSURE DROP
WIRE	WIRED

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
MECHANICAL DUCTWORK ACCESSORIES	
MVD	DUCT WITH MANUAL VOLUME DAMPER
DSD	DUCT MOUNTED SMOKE DETECTOR (HARD WIRE INTERLOCK TO FAN MOTOR BY E.C.) FURNISHED BY E.C., INSTALLED BY M.C.
MECHANICAL STATS & SENSORS	
T	LOW VOLTAGE THERMOSTAT
T	LOW VOLTAGE THERMOSTAT WITH LOCKABLE GUARD
RD	REFRIGERANT MONITOR
MECHANICAL MISCELLANOUS	
UC 0'-1"	1" DOOR UNDERCUT

2" REFERENCE LINE

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Southgate Independent School District
Mr. Greg Duty, Superintendent

STATE OF KENTUCKY
JOSEPH W. PRICE
LICENSED PROFESSIONAL ENGINEER

REVISIONS	
08/31/18	SCHEMATIC DESIGN
10/04/18	DESIGN DEVELOPMENT
12/13/18	CONSTRUCTION DOCS

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PROJ. DATE	12/13/18
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JOB NO.	20692.00

MECHANICAL - LEGEND

M-001

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DEMOLITION GENERAL NOTES

A. REMOVE EXISTING DUCTWORK, CONTROLS, AND MISCELLANEOUS HVAC EQUIPMENT NOT INTENDED FOR REUSE. FIELD VERIFY THE EXACT SCOPE PRIOR TO BID. COORDINATE ALL DEMOLITION WORK WITH THE OWNER AND GENERAL CONTRACTOR.

KEYED NOTES

M01 EXISTING UNIT VENTILATOR TO BE REMOVED. REMOVE ALL ASSOCIATED PIPING, CONTROLS, LOUVER ETC. PATCH AND PAINT ALL WALLS AND FLOORS AS NECESSARY. SEAL EXISTING OPENING BASED OFF DETAIL ON SHEET M-501.

M02 EXISTING RADIANT HEATER TO BE REMOVED. REMOVE ALL ASSOCIATED PIPING AND CONTROLS. PATCH AND PAINT ALL WALLS AND FLOORS AS NECESSARY.

M03 EXISTING DUCTLESS SPLIT TO BE REMOVED. REMOVE ALL ASSOCIATED PIPING, CONTROLS, ETC, PATCH AND PAINT ALL WALLS AND FLOORS AS NECESSARY.

M12 EXISTING UNIT VENTILATOR TO BE REMOVED. REMOVE ALL ASSOCIATED PIPING, CONTROLS, ETC. PATCH AND PAINT ALL WALLS AND FLOORS AS NECESSARY. SEAL EXISTING LOUVER BASED OFF DETAIL ON SHEET M-501.

M14 CAP EXHAUST FLUE AT ROOF AND WALL.

M15 EXISTING BOILER TO BE DEMOED. REMOVE ALL ASSOCIATED PIPING, CONTROLS, ETC. CONCRETE PADS ARE TO REMAIN.

M17 EXISTING STEAM CONDENSATE PUMP TO BE DEMOED. REMOVE ALL ASSOCIATED PIPING, CONTROLS, ETC. PATCH AND PAINT ALL WALLS AND FLOORS AS NECESSARY. CONCRETE PAD FOR PUMP SHALL BE REMOVED AND FLOOR SHALL BE PATCHED ACCORDINGLY.

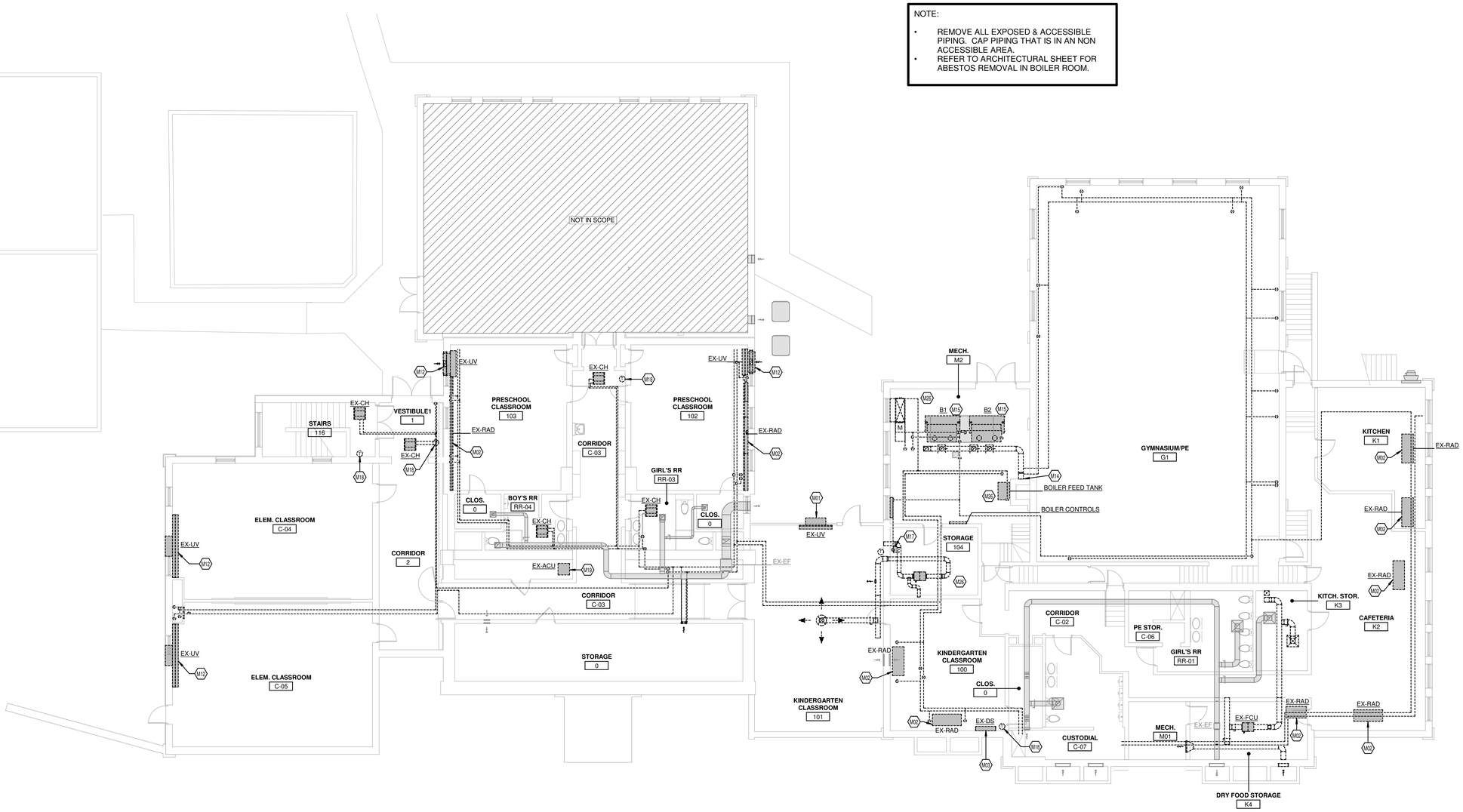
M18 REMOVE EXISTING THERMOSTAT AND PATCH AND PAINT WALL ACCORDING TO ARCHITECTURAL SPECIFICATIONS.

M19 REMOVE EXISTING SELF CONTAINED UNIT AND PATCH WALL ACCORDINGLY.

M26 THE INTENT IS TO CLEAN UP THE MECHANICAL ROOM IN ITS ENTIRETY. ALL UNUSED PIPING, CONTROLS, ETC. SHALL BE REMOVED. THE EXISTING SUMP PUMP IS NEW AND SHALL REMAIN.

NOTE:

- REMOVE ALL EXPOSED & ACCESSIBLE PIPING. CAP PIPING THAT IS IN AN NON ACCESSIBLE AREA.
- REFER TO ARCHITECTURAL SHEET FOR ABESTOS REMOVAL IN BOILER ROOM.



1 MECHANICAL - LEVEL 1
1/8" = 1'-0"

2" REFERENCE LINE

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MECHANICAL - LEVEL 1

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M02 EXISTING RADIANT HEATER TO BE REMOVED. REMOVE ALL ASSOCIATED PIPING AND CONTROLS. PATCH AND PAINT ALL WALLS AND FLOORS AS NECESSARY.

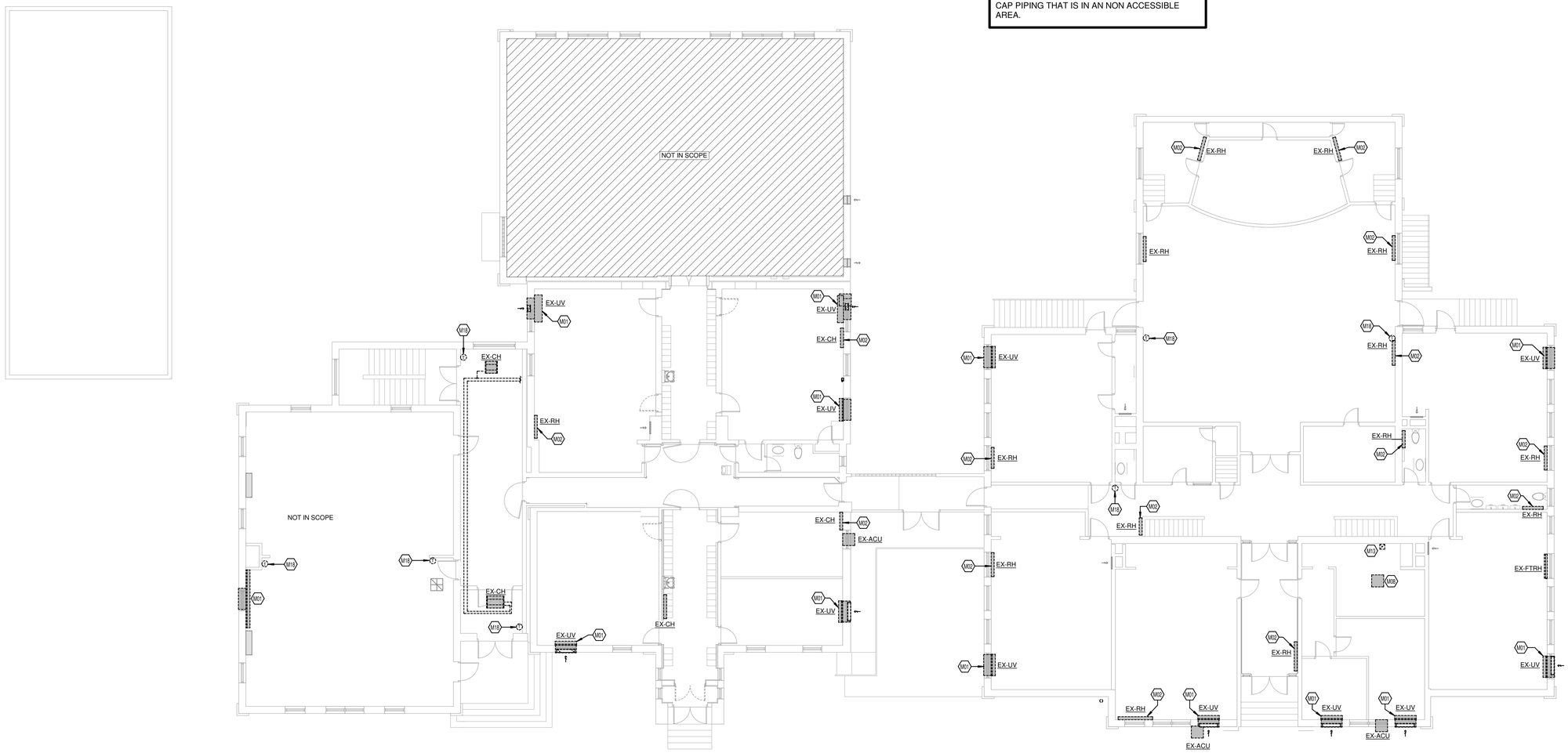
M08 EXISTING SMOKE EATER TO BE DEMOED. REMOVE ALL ASSOCIATED CONTROLS.

M13 FLOOR GRILLE TO BE DEMOED. PATCH FLOOR AS NECESSARY.

M18 REMOVE EXISTING THERMOSTAT AND PATCH AND PAINT WALL ACCORDING TO ARCHITECTURAL SPECIFICATIONS.

NOTE:

REMOVE ALL EXPOSED & ACCESSIBLE PIPING. CAP PIPING THAT IS IN AN NON ACCESSIBLE AREA.



1 MECHANICAL - LEVEL 2
1/8" = 1'-0"

2" REFERENCE LINE

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MECHANICAL - LEVEL 2

MD101

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DEMOLITION GENERAL NOTES

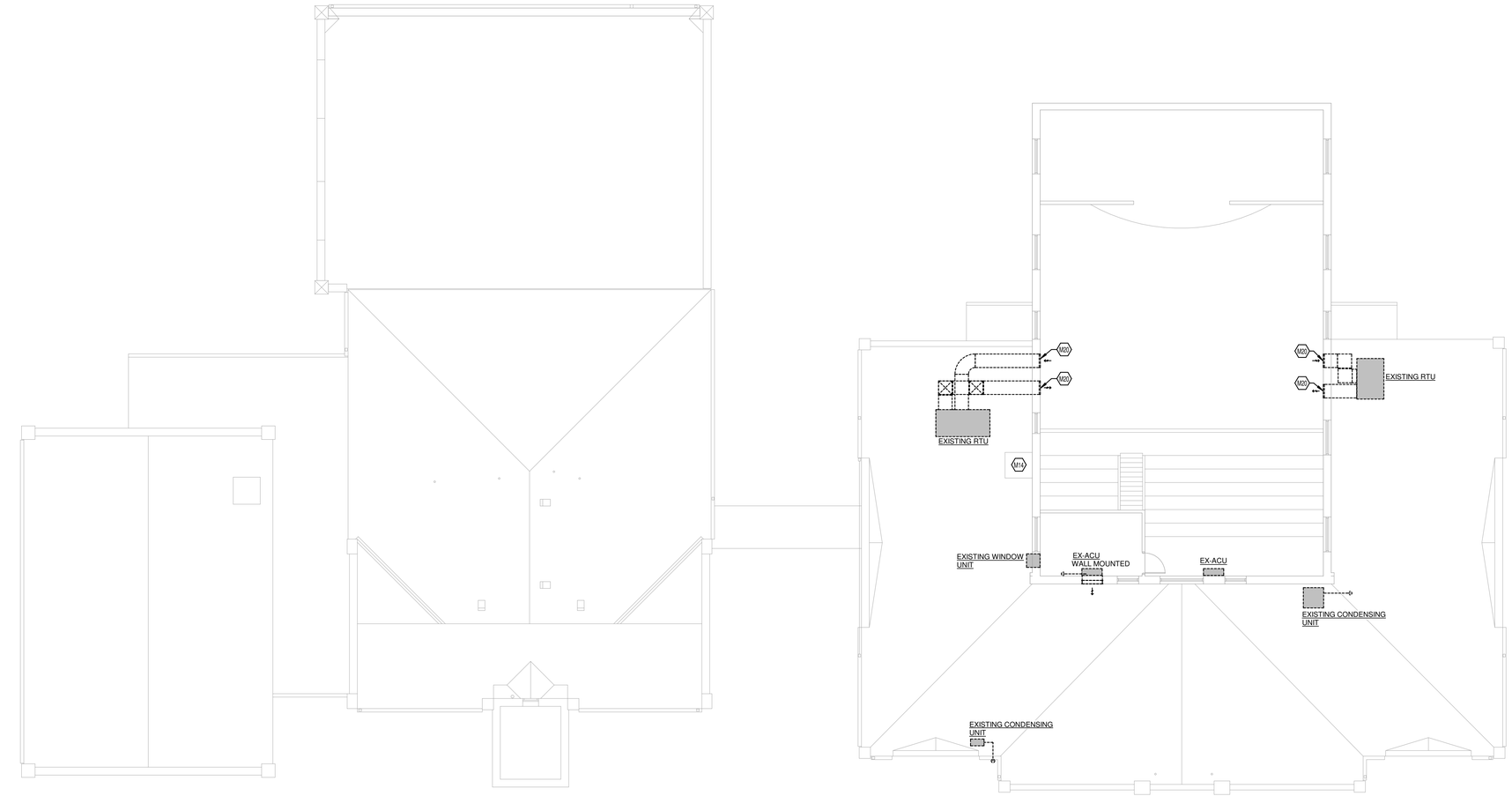
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KEYED NOTES

M14 CAP EXHAUST FLUE AT ROOF AND WALL.
M20 REMOVE EXISTING PENETRATIONS AND PATCH ACCORDING TO ARCHITECTURAL SPECIFICATIONS.

NOTE:

REMOVE ALL EXPOSED & ACCESSIBLE PIPING. CAP PIPING THAT IS IN AN NON ACCESSIBLE AREA.



1 MECHANICAL - ROOF
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2" REFERENCE LINE

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MECHANICAL - ROOF

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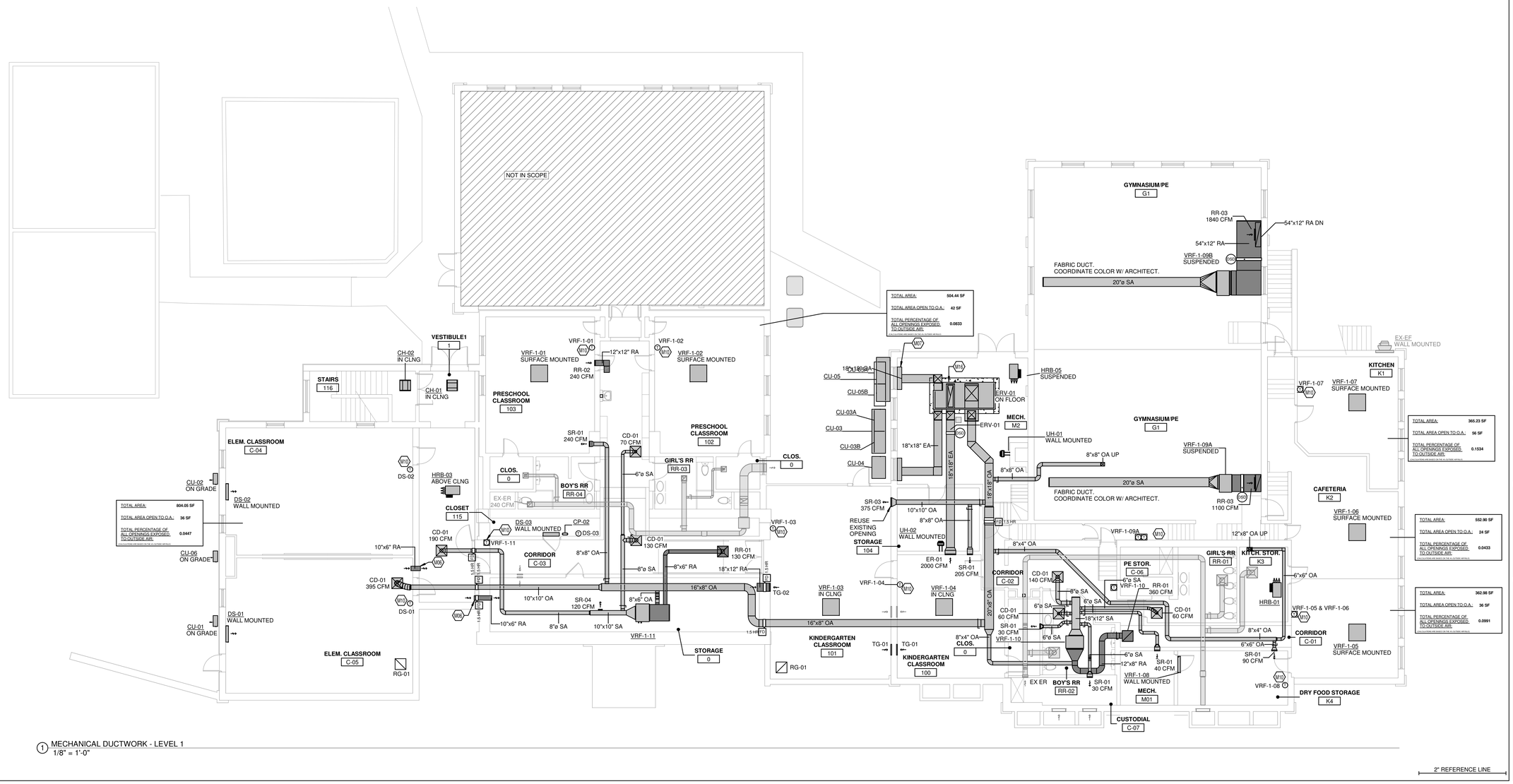
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KEYED NOTES

M06	PROVIDE TRANSFER OPENING IN WALL ABOVE CEILING. EQUIVALENT SIZE AS NOTED ON DRAWINGS.
M07	CONNECT TO EXISTING LOUVER.
M10	PROVIDE 7 DAY PROGRAMMABLE THERMOSTAT IN E.C. PROVDED JUNCTION BOX. PROVIDE LOW VOLTAGE CONTROL WIRING FROM THERMOSTAT TO ASSOCIATED UNIT'S CONTROLLER. PROVIDE NEW WIRE MOLD FOR THERMOSTAT WIRING.
M16	INSTALL NEW ERV ON EXISTING BOILER PAD. EXTEND EXISTING PAD 1' ON ALL SIDE TO ACCOMODATE NEW ERV SIZE.

NEW WORK GENERAL NOTES

A. PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETELY FURNISH, INSTALL, AND PLACE INTO OPERATION, ALL SYSTEMS SHOWN ON THE DRAWINGS AND DELINEATED IN THE SPECIFICATIONS IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES. REPORT ANY KNOWN DISCREPANCIES TO THE ARCHITECT/ENGINEER PRIOR TO INSTALLATION.
B. DO NOT SCALE DRAWINGS; REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS, DOORS, WINDOWS, AND CABINETRY.
C. COORDINATE WORK AND SPACE REQUIREMENTS IN CEILING SPACES WITH OTHER TRADES PRIOR TO INSTALLATION.
D. COORDINATE LOCATIONS AND ORIENTATION OF ROOF MOUNTED EQUIPMENT WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.
E. COORDINATE WALL LOUVERS WITH ARCHITECTURAL ELEVATIONS AND DETAILS.
F. PROVIDE VOLUME DAMPERS AT ALL SUPPLY, RETURN, AND EXHAUST DUCT BRANCH TAKE-OFFS.
G. PROVIDE TURNING VANES IN ALL 90 DEGREE MITERED ELBOWS. OMIT TURNING VANES IN ACOUSTIC LINED RETURN DUCT ELBOWS.
H. PROVIDE FLEXIBLE DUCT ON INLET TO EACH CEILING DIFFUSER. CUT FLEXIBLE DUCTS TO LENGTH NEEDED AND INSTALL WITHOUT KINKS OR SHARP BENDS (BENDS WITH CENTERLINE RADIUS LESS THAN DUCT DIAMETER). SUPPORT FLEXIBLE DUCTS WITH MINIMUM 1" WIDE METAL STRAPS OR SADDLES.
I. SIZES OF ACOUSTIC LINED DUCTS ARE NET INSIDE DIMENSION. INCREASE SHEET METAL SIZE ACCORDINGLY.
J. RUNOUTS TO CEILING DIFFUSERS ARE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.
K. INSTALL ALL EQUIPMENT WITH CODE REQUIRED AND MANUFACTURER RECOMMENDED MINIMUM CLEARANCES FOR SERVICE, ACCESS, AND FIRE PROTECTION.
L. MAINTAIN A MINIMUM OF 10 FEET BETWEEN ALL OUTSIDE AIR INTAKES AND ALL EXHAUST, VENT, AND FLUE OUTLETS.
M. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NON-COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTME E 84.
N. ALL FLOOR PENETRATIONS SHALL BE COORDINATED WITH THE FLOOR STRUCTURE.



1 MECHANICAL DUCTWORK - LEVEL 1
1/8" = 1'-0"

2" REFERENCE LINE

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MECHANICAL DUCTWORK - LEVEL 1

M-100

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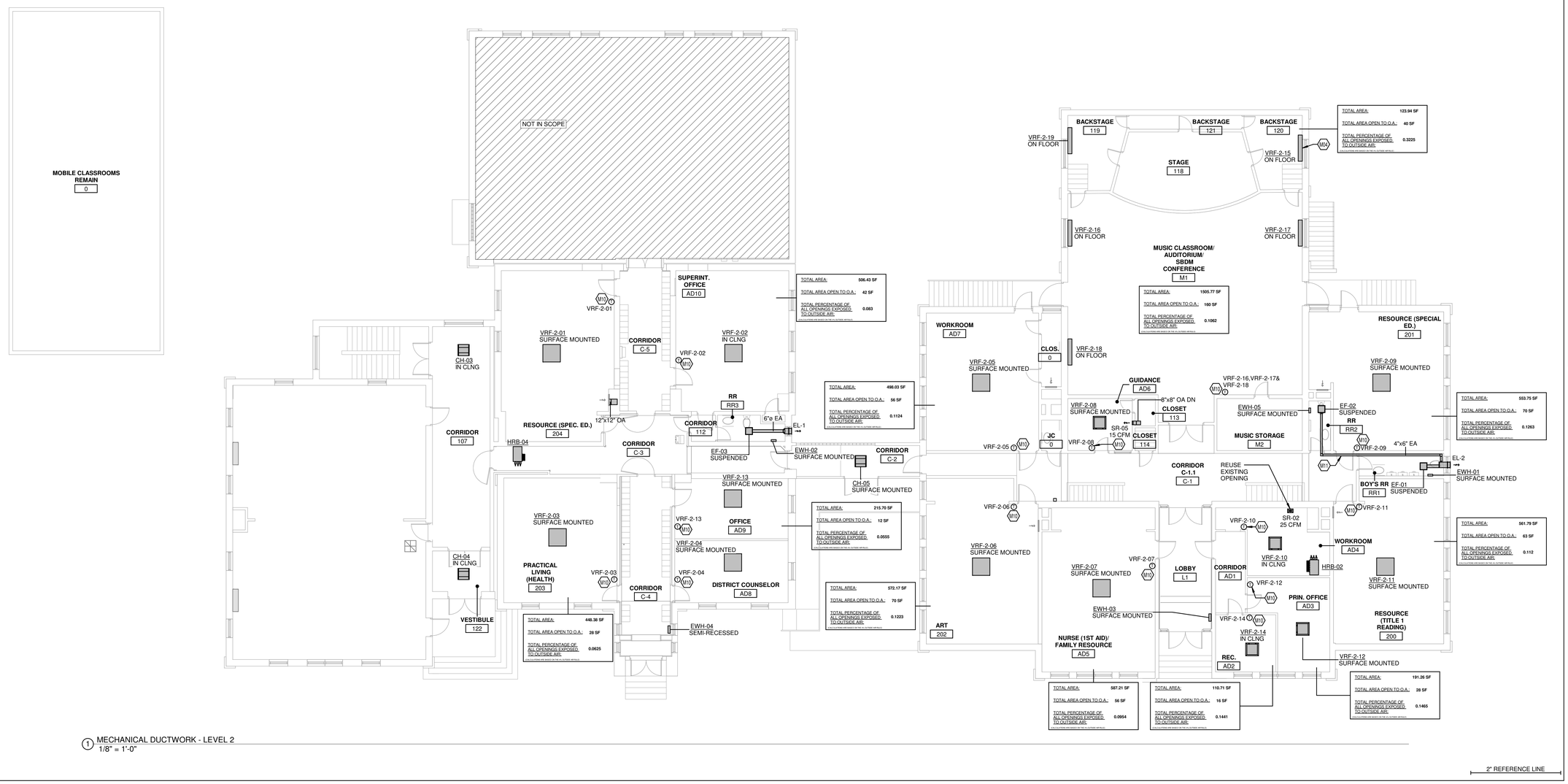
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KEYED NOTES

M04	VRF FLOOR STANDING UNIT TO HAVE OPTIONAL REMOTE CONTOLLER MOUNTED ON THE UNIT.
M10	PROVIDE 7 DAY PROGRAMMABLE THERMOSTAT IN E.C. PROVDED JUNCTION BOX. PROVIDE LOW VOLTAGE CONTROL WIRING FROM THERMOSTAT TO ASSOCIATED UNIT'S CONTROLLER. PROVIDE NEW WIRE MOLD FOR THERMOSTAT WIRING.
M11	DUCTWORK SHALL BE ROUTED DIRECTLY BELOW CROWN MOULDING. DUCTWORK SHALL BE PAINT GRIP W/ COLOR SPECIFIED BY ARCHITECT.

NEW WORK GENERAL NOTES

A. PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETELY FURNISH, INSTALL, AND PLACE INTO OPERATION, ALL SYSTEMS SHOWN ON THE DRAWINGS AND DELINEATED IN THE SPECIFICATIONS IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES. REPORT ANY KNOWN DISCREPANCIES TO THE ARCHITECT/ENGINEER PRIOR TO INSTALLATION.
B. DO NOT SCALE DRAWINGS; REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS, DOORS, WINDOWS, AND CABINETRY.
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H. PROVIDE FLEXIBLE DUCT ON INLET TO EACH CEILING DIFFUSER. CUT FLEXIBLE DUCTS TO LENGTH NEEDED AND INSTALL WITHOUT KINKS OR SHARP BENDS (BENDS WITH CENTERLINE RADIUS LESS THAN DUCT DIAMETER). SUPPORT FLEXIBLE DUCTS WITH MINIMUM 1" WIDE METAL STRAPS OR SADDLES.
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K. INSTALL ALL EQUIPMENT WITH CODE REQUIRED AND MANUFACTURER RECOMMENDED MINIMUM CLEARANCES FOR SERVICE, ACCESS, AND FIRE PROTECTION.
L. MAINTAIN A MINIMUM OF 10 FEET BETWEEN ALL OUTSIDE AIR INTAKES AND ALL EXHAUST, VENT, AND FLUE OUTLETS.
M. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NON-COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTME E 84.
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1 MECHANICAL DUCTWORK - LEVEL 2
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MECHANICAL DUCTWORK - LEVEL 2

M-101

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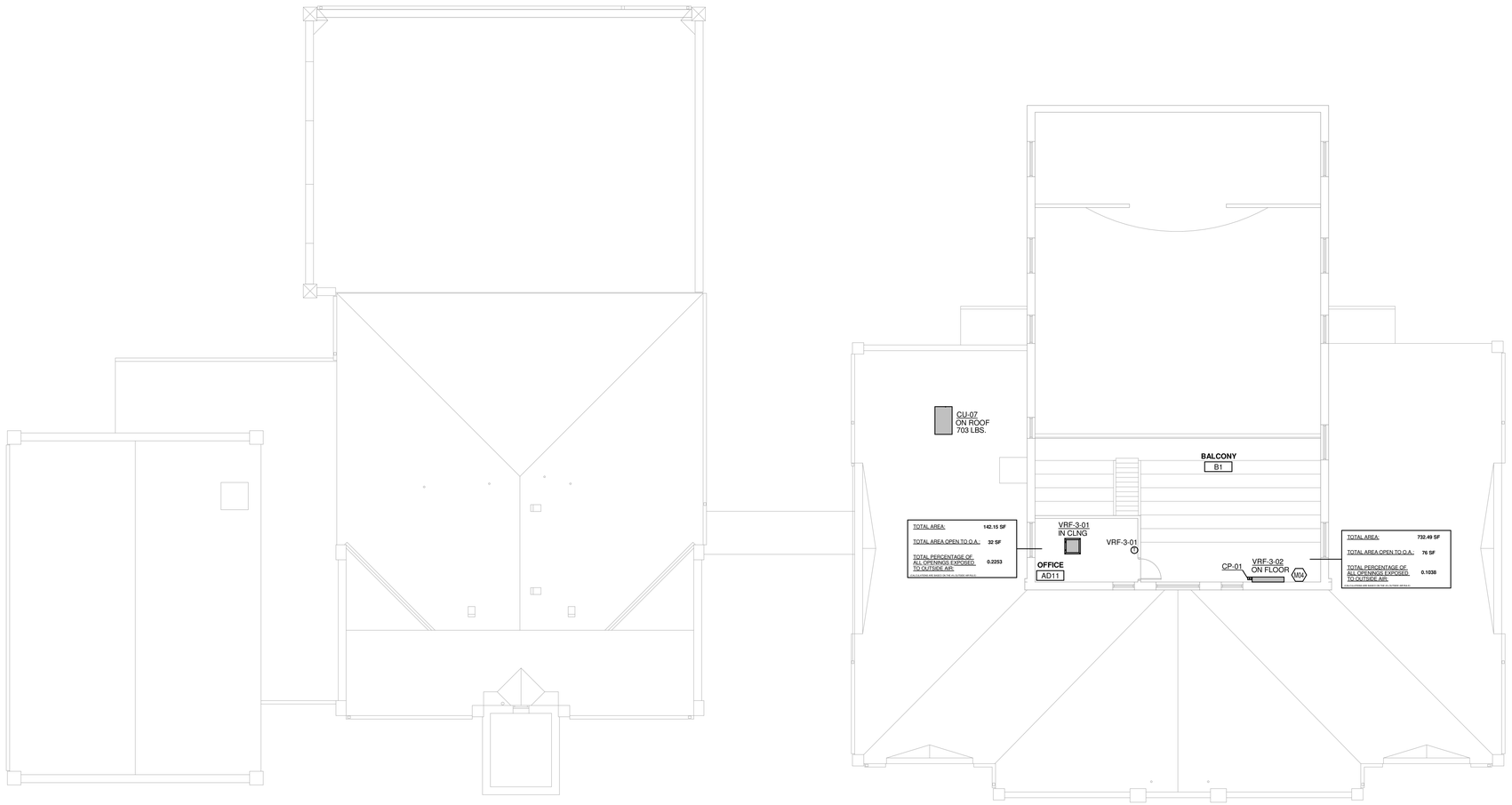
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2" REFERENCE LINE

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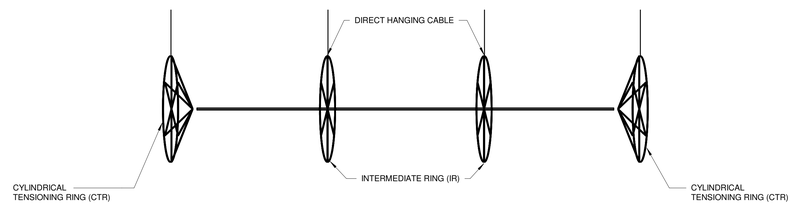
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MECHANICAL DUCTWORK - ROOF

M-102

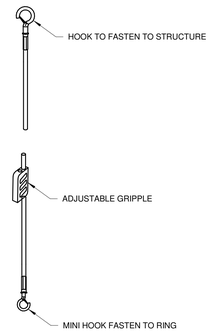
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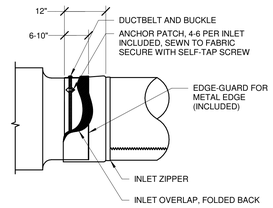
233116.00-02 - FABRIC TENSIONING SYSTEM SUSPENSION DETAIL

SCALE: NONE



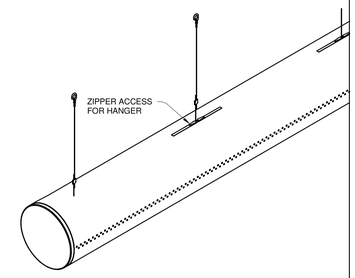
233116.00-01 - FABRIC TENSIONING SYSTEM SUPPORT

SCALE: NONE



233116.00-04 - INLET ATTACHMENT DETAIL

SCALE: NONE

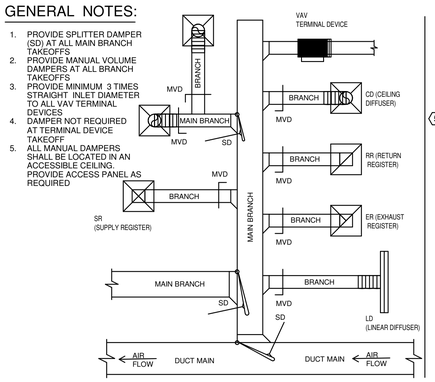


233116.00-03 - STRAIGHT SECTION SUPPORT

SCALE: NONE

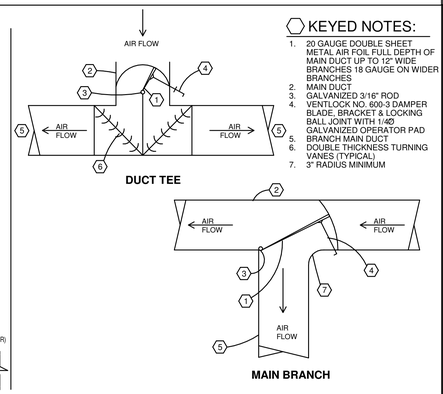
GENERAL NOTES:

1. PROVIDE SPLITTER DAMPER (SD) AT ALL MAIN BRANCH TAKEOFFS
2. PROVIDE MANUAL VOLUME DAMPERS AT ALL BRANCH TAKEOFFS
3. PROVIDE MINIMUM 3 TIMES STRAIGHT INLET DIAMETER TO ALL VAV TERMINAL DEVICES
4. DAMPER NOT REQUIRED AT TERMINAL DEVICE TAKEOFF
5. ALL MANUAL DAMPERS SHALL BE LOCATED IN AN ACCESSIBLE CEILING. PROVIDE ACCESS PANEL AS REQUIRED



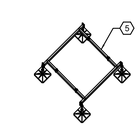
KEYED NOTES:

1. 20 GAUGE DOUBLE SHEET METAL AIR FOIL FULL DEPTH OF MAIN DUCT UP TO 12" WIDE BRANCHES 18 GAUGE ON WIDER BRANCHES
2. MAIN DUCT
3. GALVANIZED 3/16" ROD
4. VENTLOCK NO. 600-3 DAMPER BLADE, BRACKET & LOCKING BALL JOINT WITH 1/4D GALVANIZED OPERATOR PAD
5. BRANCH MAIN DUCT
6. DOUBLE THICKNESS TURNING VANES (TYPICAL)
7. 3" RADIUS MINIMUM



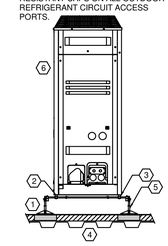
233300.00-01 - MANUAL DAMPER DETAIL

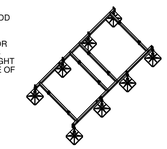
SCALE: NONE



GENERAL NOTES:

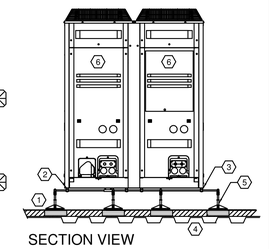
A. ON PROJECTS WITH BUILT -UP ROOFS, ADD CANT ON EQUIPMENT SUPPORTS AND PREFABRICATE PIPING CHASE
B. PLACE EQUIPMENT ACROSS BAR JOIST OR ADD ADDITIONAL STRUCTURAL STEEL AS NECESSARY TO CARRY EQUIPMENT WEIGHT
C. LOCATE A MINIMUM OF 10'-0" FROM EDGE OF ROOF
D. PROVIDE LOCKING-TYPE TAMPER RESISTANT CAPS ON ALL OUTDOOR REFRIGERANT CIRCUIT ACCESS PORTS.





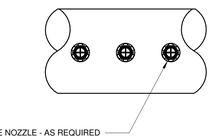
KEYED NOTES:

1. ADJUSTABLE LEG ASSEMBLY WITH ADHERED RUBBER MATS. ANGLED MATS SHALL BE USED WHEN REQUIRED TO MATCH ROOF SLOPE.
2. CLAMP KIT
3. RUBBER VIBRATION ISOLATORS BETWEEN RAIL AND EQUIPMENT
4. ROOF DECK
5. MODULAR FRAME EQUIPMENT SUPPORT
6. VRV/VRF UNIT



238126.00-10 - VRV VRF OUTDOOR CONDENSING UNIT MOUNTING DETAIL

SCALE: NONE



233116.00-06 - ADJUSTABLE NOZZELS

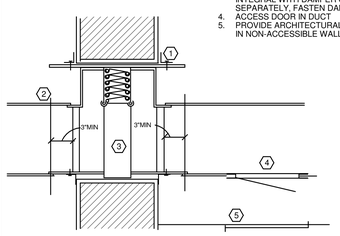
SCALE: NONE

GENERAL NOTES:

A. INSTALLATION TO CONFORM TO NFPA 90A AND MANUFACTURERS INSTRUCTIONS
B. FLOOR INSTALLATION IS SIMILAR TO THAT SHOWN.
C. FIRE DAMPERS TO BEAR THE UL LABEL

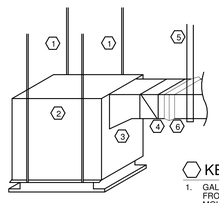
KEYED NOTES:

1. 1.5" x 1.5" ANGLE (18 GA.) FASTEN TO ALL FOUR SIDES OF STEEL SLEEVE (6" O.C.). DO NOT FASTEN TO WALLS.
2. "SLIP BREAK AWAY" CONNECTIONS. DO NOT USE "C" DRIVES, SCREWS OR RIVETS
3. FIRE DAMPER WITH 14 GA. WALL SLEEVE INTEGRAL WITH DAMPER OR FURNISHED SEPARATELY, FASTEN DAMPER TO SLEEVE
4. ACCESS DOOR IN DUCT
5. PROVIDE ARCHITECTURAL ACCESS PANEL IN NON-ACCESSIBLE WALLS OR CEILINGS



233313.00-13 - FIRE DAMPER TYPE B

SCALE: NONE

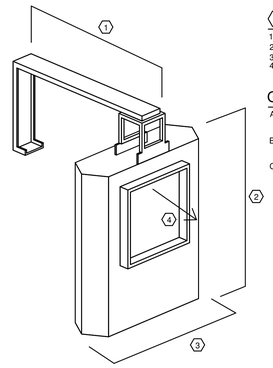


KEYED NOTES:

1. GALVANIZED ALL THREAD ROD SUSPEND FROM BUILDING STRUCTURE AND FROM FAN MOUNTING FLANGES. USE CHANNELS UNDER FAN AS AN ALTERNATIVE SUPPORT
2. CEILING FAN
3. OUTLET FLANGE
4. BACKDRAFT OR MOTOR OPERATED DAMPER (SEE SCHEDULE SPEC'S)
5. METAL HANGER, SECURE TO STRUCTURE AND TO DUCTWORK
6. FLEXIBLE CONNECTION

233423.00-18 - CABINET EXHAUST FAN

SCALE: NONE



KEYED NOTES:

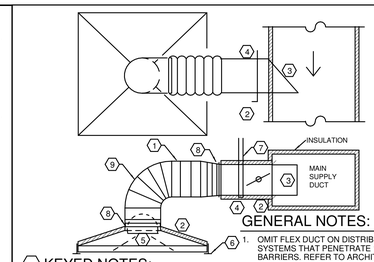
1. DISTANCE FROM WALL 23"
2. UNIT HEIGHT 24⅝"
3. UNIT WIDTH 21⅝"
4. SUPPLY AIR

GENERAL NOTES:

A. IF PLACED IN A CORNER UNIT MUST BE PLACED 12" AWAY FROM BOTH WALLS
B. UNIT CAN BE TURNED AND LOUVERS ADJUSTED TO MOVE HEAT ANYWHERE
C. RETURN AIR COMES IN FROM ALL SIDES OF HEATER

238239.00-01 - ELECTRIC UNIT HEATER MOUNTING A

SCALE: NONE



KEYED NOTES:

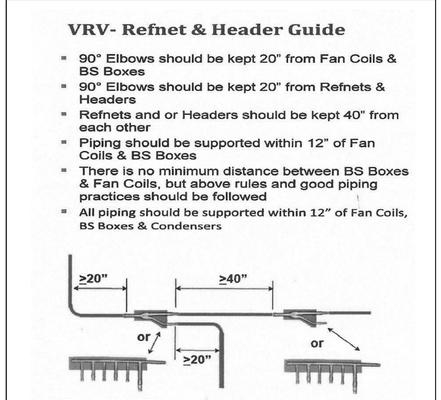
1. MAXIMUM LENGTH OF INSUL. FLEX DUCT EQUALS 5 FEET. FLEX NOT PERMITTED IN INACCESSIBLE CEILINGS
2. INSULATED DUCT, COLLAR AND DIFFUSER BY HVAC CONTRACTOR
3. SCOOP
4. SPIN IN FITTING WITH MANUAL VOLUME DAMPER
5. INTERNAL BUTTERFLY DAMPER FOR DRYWALL APPLICATIONS ONLY. (PROVIDE KEY FOR ADJUSTMENT)
6. SECURE TO CEILING PER MANUFACTURER'S RECOMMENDATIONS AND PER CEILING FINISH. PROVIDE GRID CLIPS PER MFG'R REQUIREMENTS. PROVIDE FRAMING FOR DRYWALL INSTALLATION.
7. HANGER, SECURE TO STRUCTURE AND DUCTWORK
8. PEEL BACK INSULATION AND PROVIDE STRAPPING AND SHEET METAL SCREWS AT FLEX CONNECTION TO DUCT. THEN PROVIDE STRAPPING AROUND INSULATION.
9. SUPPORT FLEX TO PREVENT COLLAPSING

GENERAL NOTES:

1. OMIT FLEX DUCT ON DISTRIBUTION SYSTEMS THAT PENETRATE 1-HR FIRE BARRIERS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE BARRIERS.

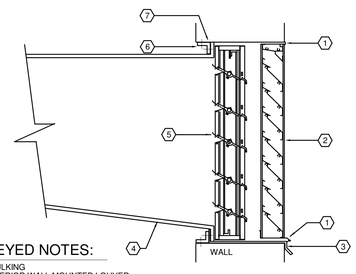
233713.00-04 - DIFFUSER INSTALLATION TYPICAL

SCALE: NONE



232313.00-07 - REFNET INSTALLATION

SCALE: NONE



KEYED NOTES:

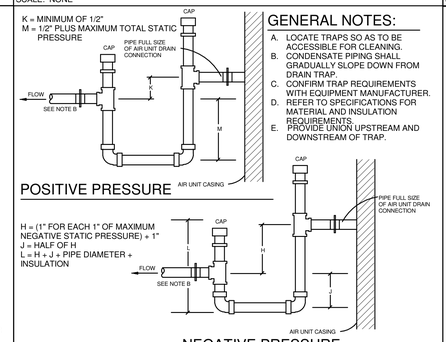
1. CAULKING
2. EXTERIOR WALL MOUNTED LOUVER
3. EXTENDED SILL
4. PITCH INSULATED DUCT 10 DEGREES TOWARD LOUVER AND SEAL WATERTIGHT
5. MOTOR OPER. DAMPER
6. CLIP ANGLE
7. ANCHOR TO WALL AT 12" O/C

GENERAL NOTES:

A. WALL LOUVERS ARE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR. REFER TO ARCHITECTURAL DRAWINGS FOR SIZES AND LOCATIONS, UNLESS SPECIFIED IN SECTION 23 37 13.00.

233713.00-07 - EXHAUST LOUVER DETAIL

SCALE: NONE



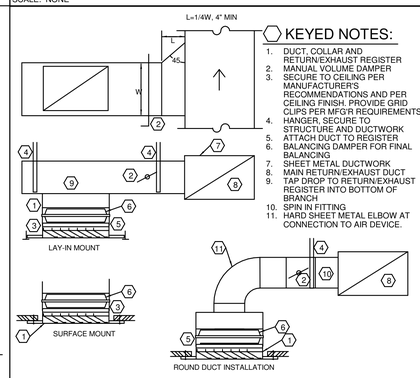
NOTE: OUTDOOR UNITS AND UNITS LOCATED IN UNCONDITIONED SPACES WHICH PROVIDE COOLING IN THE WINTER MUST HAVE HEAT TRACE ON THE CONDENSATE PIPING.

GENERAL NOTES:

A. LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.
B. CONDENSATE PIPING SHALL GRADUALLY SLOPE DOWN FROM DRAIN TRAP.
C. CONFIRM TRAP REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
D. REFER TO SPECIFICATIONS FOR MATERIAL AND INSULATION REQUIREMENTS.
E. PROVIDE UNION UPSTREAM AND DOWNSTREAM OF TRAP.

232113.23-05 - CONDENSATE DRAIN TRAP POSITIVE & NEGATIVE

SCALE: NONE

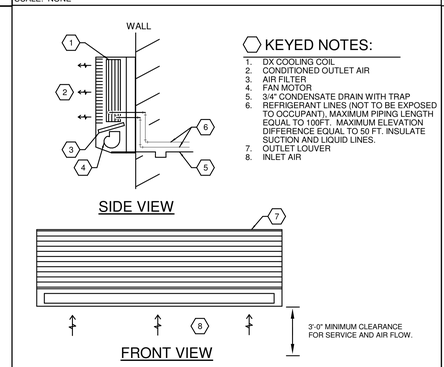


KEYED NOTES:

1. DUCT, COLLAR AND RETURN/EXHAUST REGISTER
2. MANUAL VOLUME DAMPER
3. SECURE TO CEILING PER MANUFACTURER'S RECOMMENDATIONS AND PER CEILING FINISH. PROVIDE GRID CLIPS PER MFG'R REQUIREMENTS
4. HANGER, SECURE TO STRUCTURE AND DUCTWORK
5. ATTACH DUCT TO REGISTER
6. BALANCING DAMPER FOR FINAL BALANCING
7. SHEET METAL DUCTWORK
8. MAIN RETURN/EXHAUST DUCT
9. TAP DROP TO RETURN/EXHAUST REGISTER INTO BOTTOM OF BRANCH
10. SPIN IN FITTING
11. HARD SHEET METAL ELBOW AT CONNECTION TO AIR DEVICE.

233713.00-21 - RETURN/EXHAUST REGISTER INSTALLATION

SCALE: NONE

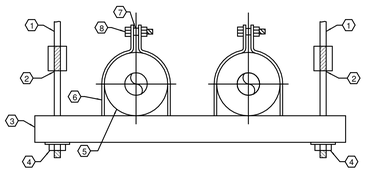


KEYED NOTES:

1. DX COOLING COIL
2. CONDITIONED OUTLET AIR
3. AIR FILTER
4. FAN MOTOR
5. 3/4" CONDENSATE DRAIN WITH TRAP
6. REFRIGERANT LINES (NOT TO BE EXPOSED TO OCCUPANT). MAXIMUM PIPING LENGTH EQUAL TO 100FT. MAXIMUM ELEVATION DIFFERENCE EQUAL TO 50 FT. INSULATE SUCTION AND LIQUID LINES.
7. OUTLET LOUVER
8. INLET AIR

238126.00-06 - DUCTLESS AIR CONDITION UNIT WALL

SCALE: NONE



KEYED NOTES:

1. CONNECT TO STRUCTURE (TYPICAL).
2. GALVANIZED THREADED HANGER RODS (TYPICAL). SEE SPECIFICATIONS.
3. UNISTRUT.
4. PLATED NUT & WASHER (TYPICAL).
5. CONTINUOUS INSULATION AS SPECIFIED, (TYPICAL).
6. CHANNEL MOUNTED CLAMPING SYSTEM (TYPICAL).
7. SPACER SIZED TO PREVENT COMPRESSION OF INSULATION.
8. PLATED DOUBLE NUT AND WASHER.

230529.00-02 - REFRIGERANT PIPING SUPPORT

SCALE: NONE

2" REFERENCE LINE

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MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX

Renovations For:
Southgate Elementary School
Southgate, KY
Mr. Greg Duty, Superintendent
6 William F. Blatt Ave.
Southgate Independent School District

STATE OF KENTUCKY
JOSEPH W. KOBER
LICENSED PROFESSIONAL ENGINEER

REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: CJS	CHK: KTW
PROJ. DATE	12/13/18
SHEET DATE	12/13/18
JOB NO.	20692.00

MECHANICAL - DETAILS

M-501

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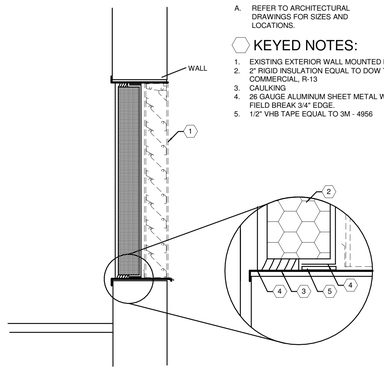
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GENERAL NOTES:

A. REFER TO ARCHITECTURAL DRAWINGS FOR SIZES AND LOCATIONS.

KEYED NOTES:

1. EXISTING EXTERIOR WALL MOUNTED LOUVER
2. 2" RIGID INSULATION EQUAL TO DOW TUFF-R COMMERCIAL, R-13
3. CAULKING
4. 26 GAUGE ALUMINUM SHEET METAL WITH A FIELD BREAK 3/4" EDGE.
5. 1/2" VHB TAPE EQUAL TO 3M - 4956



233713.00-12 - EXISTING SEALING FOR FOUNDATION LOUVERS

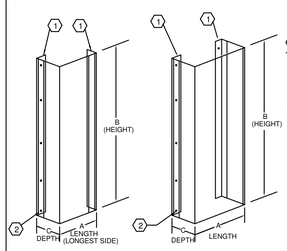
SCALE: NONE

KEYED NOTES:

1. 1-1/2"x1-1/2"x90° PAINTED WALL ANGLES
2. HEX BOLT

SPECIFICATIONS

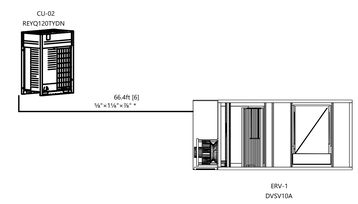
1. 18 GA. CRS FORMED FORMED COVERS
2. 18 GA. CRS 1-1/2" x 1/2" x 90 DEGREE PAINTER WALL ANGLES PROVIDED LOOSE.
3. "B" MAXIMUM = 96" - LARGER UNITS MADE UP OF EQUAL LENGTH MULTIPLE SECTIONS WITH INTERNAL SCAB PLATES.
4. BAKED ENAMEL FINISH - COLOR TO BE SELECTED BY ARCHITECT. PAINTED TRUSS HEAD PHILLIPS TEK SCREWS - PROVIDE LOOSE.



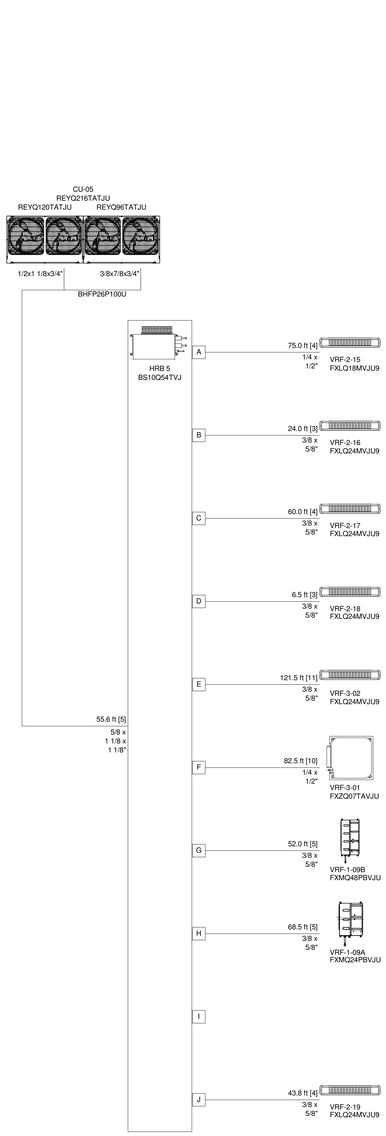
A = 20" MINIMUM
B = 9'-3" MINIMUM AT CLASSROOMS, OFFICES, ETC.
10'-2" MINIMUM AT MEDIA CENTER
C = 8" MINIMUM

232113.23-11 - PIPE ENCLOSURE B

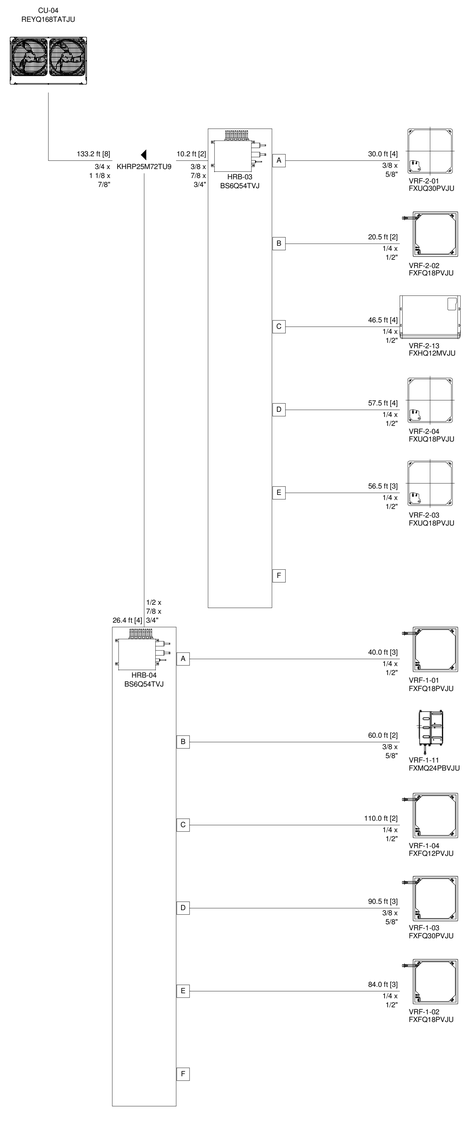
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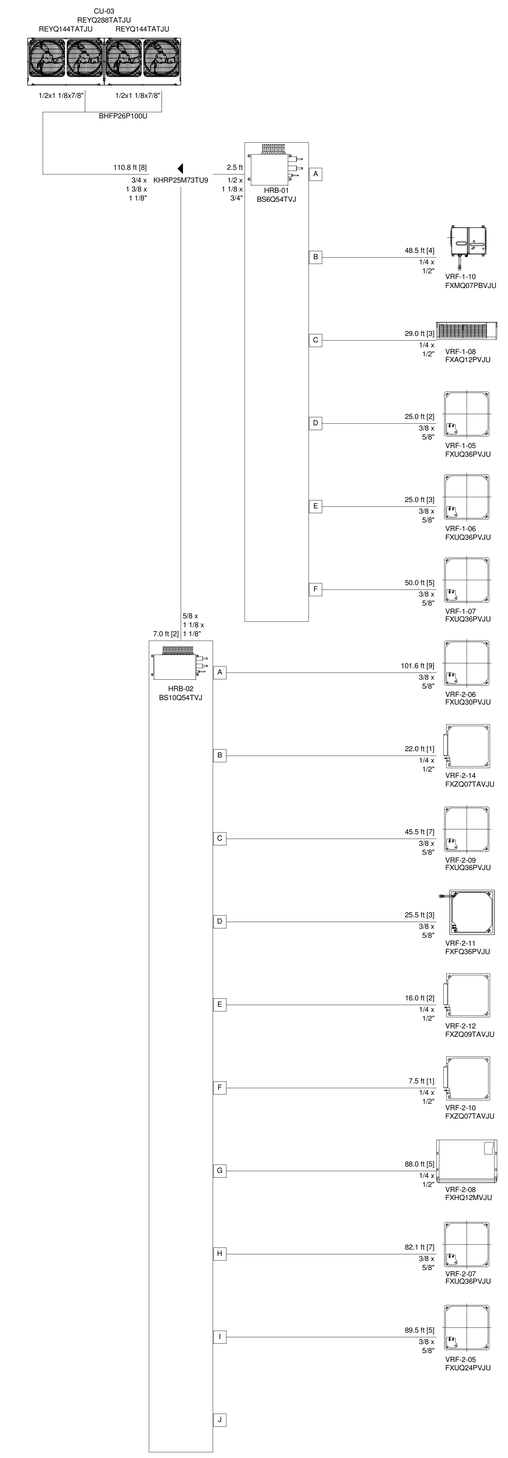
4 ERV Piping Diagram
3" = 1'-0"



5 CU-05 PIPING DIAGRAM
1/8" = 1'-0"



1 CU-04 PIPING DIAGRAM
1/8" = 1'-0"



2 CU-03 PIPING DIAGRAM
1/8" = 1'-0"

2" REFERENCE LINE

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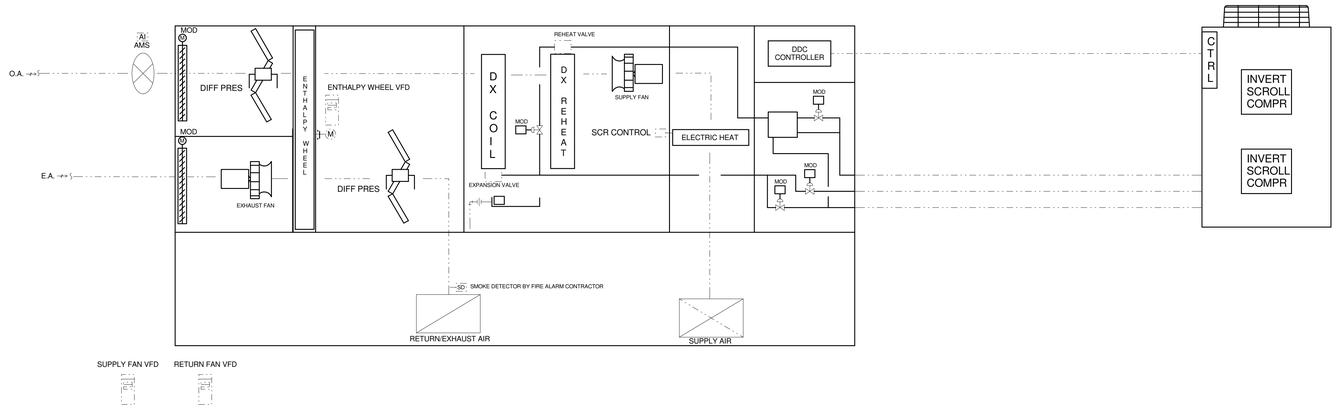
JOB NO. 20692.00

MECHANICAL - DETAILS

M-502

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Energy Recovery Unit (DX, Supply & Exhaust Fan, Electric Heat)

1. General

a. Provide package unit controller and a series of internal expansion valves and DDC controller for connection to the variable refrigerant flow heat recovery system. All heating, cooling, and dehumdification control shall be provided by the expansion valves and heat pump condenser as part of the variable refrigerant flow system. Heating, cooling, and dehumdification shall be accomplished by varying the refrigerant flow and temperature in the direct expansion coil.

b. The TCC is to interface the ERV into the VRF/VRV system control panel.

2. Supply Fan Control

a. The supply fan shall be balanced to supply the required amount of supply air flow during occupied hours and should be off during un-occupied hours. Unit controller shall enable the supply fan accordingly based on building occupancy schedule. Two-position outside air damper to open whenever supply fan starter is energized. Damper to open whether starter "HAND-OFF-AUTO" switch in HAND or AUTO. Supply fan runs once damper operation proven open by damper limit switch. Interlock to be hardwired to prevent supply fan operation until damper proven open. Interlock active whether "HAND-OFF-AUTO" switch in HAND or AUTO. Provide a current status sensor to prove supply fan current.

3. Exhaust Fan Control

a. The exhaust fan shall vary to maintain a building space pressure of-0.02" during occupied hours and shall be off during unoccupied hours . BAS to start exhaust fan based on building occupancy schedule. Two-position exhaust air damper to open whenever exhaust fan starter to be energized. Damper to open whether starter "HAND-OFF-AUTO" switch in HAND or AUTO. Exhaust fan runs once damper operation proven open by damper limit switch. Interlock to be hardwired to prevent exhaust fan operation until damper proven open. Interlock active whether "HAND-OFF-AUTO" switch in HAND or AUTO. Provide a current status sensor to prove exhaust fan current.

4. Energy Recovery Wheel

a. Unit to have four modes of operation - Heating, Cooling, Dehumidification and Deadband.During occupied mode the energy wheel shall run continuously except during economizer operation when wheel is off. Wheel rotational speed shall be controlled by unit manufacturer. The enthalpy wheel speed shall modulate to maintain optimal mixed air temperature and humidity.

a. Heating mode enabled if outside air temperature below Heating Mode Outside Air enable setpoint (65 ºF adj)
   1.) Energy recovery wheel operation is enabled for heating recovery.
   2.) Wheel leaving outside air temperature control loop varies wheel speed to maintain wheel leaving outside air temperature at setpoint (72 ºF, adj.). Control loop increases wheel speed if leaving air temperature falls below setpoint, decreases wheel speed if temperature goes above setpoint.
   3.) Heating shall be enabled if wheel leaving outside air temperature control loop has wheel speed commanded to maximum but wheel leaving outside air temperature is below control loop setpoint (72ºF, adj.) for more than 30 minutes (adj.).
   4.) Heating shall be controlled to maintain supply temperature setpoint. Heating mode shall commence if condensate sensor is not in alarm. On a call for heating, the cooling expansion valves shall stage off and heating expansion valves shall stage on. On a further call for heating the first compressor and reversing valve shall energize to provide heating. The compressors shall modulate to maintain supply air temperature setpoint. If, after a period of 3 minutes, the discharge air temperature cannot be met, the second compressor shall be energized to meet setpoint. Stage more compressors in the same fashion to maintain a maximum supply temperature of 72 degrees. Once discharge temperature setpoint is achieved, modulate the heat accordingly.
   5.) If the outdoor ambient temperature is below 23 deg. F (adj.) then the compressors shall be modulated to a capacity point where the leaving air temperature off the coil is above the leaving air temperature coming of the enthalpy wheel. The electric SCR heat shall be modualted on to maintain the discharge air temperature once the heat pump cannot meet the unit leaving air temperature set point.

b. Cooling mode enabled if outside air temperature above Cooling Mode Outside Air Drybulb enable setpoint (75ºF adj)
   1.) Energy recovery wheel operation is enabled for cooling recovery
   2.) Wheel leaving outside air temperature control loop varies wheel speed to maintain wheel leaving outside air temperature at setpoint (72 ºF, adj.). Control loop increases wheel speed if leaving air temperature rises above setpoint, decreases wheel speed if temperature falls below setpoint.
   3.) Cooling shall be enabled if wheel leaving outside air temperature control loop has wheel speed commanded to maximum but wheel leaving outside air temperature is above control loop setpoint (72ºF, adj.) for more than 30 minutes (adj.).
   4.) Cooling shall be controlled to maintain supply temperature setpoint. Cooling mode shall commence if condensate sensor is not in alarm. On a call for cooling, the reversing valve(s) shall move to the cooling position and compressor(s) shall be staged on. When supply temperature is satisfied, the compressor(s) shall stage off.

c. Dehumidification control is enabled if the wheel leaving outside air dewpoint temperature is above 55 ºF for more than 30 minutes (adj.)
   1.) Cooling operation is enabled.
   2.) Cooling stages on to maintain leaving air temperature at setpoint (55 ºF, adj.).
   3.) Hot gas reheat valve modulates as necessary to maintain the supply air setpoint (72 ºF, adj.).
   4.) Dehumidification control disabled when wheel leaving outside air dewpoint temperature is 3 ºF below setpoint (55ºF, adj.) for more than 30 minutes (adj.).

d. Deadband operation occurs when unit running and Heating, Cooling and Dehumidification modes are off.
   1.) Energy recovery wheel is off and heating and cooling are off.
   2.) No heating or cooling occurs when unit is in deadband (outside air drybulb temperature between 65 ºF and 75ºF, and outside air dewpoint below 55 ºF).

5. Condensate Overflow

a. Provide a high condensate sensor in the condensate pan. Upon detection of high condensate in the condensate pan
shut down water source heat pump and alarm the control panel.

6. Filter Pressure Drop

a. Provide static pressure differential sensor across each filter.

7. Low Limit Control

a. Provide a low limit whenever the supply air temperature drops below 40 deg. F dry bulb that will alarm the system and
shut down the ERV.

8. High Limit Control

a. Provide a high limit whenever the supply air temperature exceeds 90 deg. F dry bulb that will alarm the system and
shut down the ERV.

9. Smoke Detector

a. When the smoke detector is alarmed, the fire alarm system shall be alarmed and the water source heat pump shall fail safe with manual reset. Electrical contractor shall furnish, HVAC Contractor shall mount & Electrical contractor shall wire a UL listed photoelectric smoke detector per local code authority having jurisdiction.

10. Unoccupied

a. In unoccupied mode the ERV shall go to fail safe position. Fail safe position is defined by the following:
   1) The supply and return air fans are off.
   2) The outdoor air and exhaust dampers are closed.
   3) Mechanical cooling and heating are off.
   4) Energy recovery wheel is off.

11. Enthalpy Wheel Cleaning Cyle

a. Enthalpy wheel shall run for five minutes out of every sixty minutes when unit's supply fan is running and wheel is not running for other modes of operation.

12. Control Panel Alarms

a. The Control Panel shall generate an alarm whenever the following condition occur:
   1. The supply fan is commanded on but fails to run (fan's current sensor indicates the fan is off for more than 60 seconds (Adjustable)).
   2. The supply fan is commanded off but continues to run (fan's current sensor the fan is running for more than 60 seconds (Adjustable)).
   3. The exhaust fan is commanded on but fails to run (fan's current sensor indicates the fan is off for more than 60 seconds (Adjustable)).
   4. The exhaust fan is commanded off but continues to run (fan's current sensor the fan is running for more than 60 seconds (Adjustable)).
   5. The energy recovery wheel is commanded on but fails to run (wheel's analog current sensor indicates wheel is off for more than 60 seconds (Adjustable).
   6. The energy recovery wheel is commanded off but continues to run (wheel's analog current sensor indicates wheel is on for more than 60 seconds (Adjustable).
   7. The wheel leaving supply air temperature is less than 40 degrees F (Adjustable) or greater than 90 degrees F (Adjustable) for more than 15 minutes (Adjustable).
   8. The wheel leaving supply air humidity is less than 5% RH (Adjustable) or greater than 95% RH (Adjustable) for more than 60 minutes (Adjustable).
   9. The supply air temperature is less than 40 degrees F (Adjustable) or greater than 80 (Adjustable) degrees F for more than 15 minutes (Adjustable).
   10. The return air temperature is less than 50 degrees F (Adjustable) or greater than 80 degrees F (Adjustable) for more than 15 minutes (Adjustable).
   11. The return air humidity is less than 10% RH (Adjustable) or greater than 70% RH (Adjustable).
   12. The leaving enthalpy wheel exhaust air temperature is below 35 degrees F (Adjustable) for more than 15 minutes (Adjustable).
   13. The leaving enthalpy wheel exhaust humidity is less than 5% RH (Adjustable) or greater than 95% RH (Adjustable) for more than 60 minutes (Adjustable).
   14. The pressure drop across the outside air filter exceeds setpoint of 1.0" WC (adjustable).
   15. The pressure drop across the exhaust air filter exceeds setpoint of 1.0" WC (adjustable).

2" REFERENCE LINE

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
LEXINGTON, KENTUCKY
COLUMBUS, GEORGIA
NEW YORK, NEW YORK
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX

Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate, KY
Southgate Independent School District
Mr. Greg Duty, Superintendent



REVISIONS

DWN: CJS	CHK: KTW
PROJ. DATE	12/13/18
SHEET DATE	
JOB NO.	20692.00

MECHANICAL - DETAILS

M-503

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HVAC LOAD SCHEDULE

THE HEATING AND COOLING LOAD CALCULATIONS ARE BASED ON THE CLTD/CLF (COOLING LOAD TEMPERATURE DIFFERENCE/COOLING LOAD FACTOR) METHOD. ASSUMPTIONS AND EXECUTION OF THESE METHODS ARE PER ASHRAE 183-2007...

HVAC LOADS

COOLING LOAD BREAKDOWN

CROOF	SENSIBLE HEAT GAIN FROM ROOF
CWALL	SENSIBLE HEAT GAIN FROM EXTERIOR WALLS
CPART	SENSIBLE HEAT GAIN FROM PARITIONS
CGLASS	SENSIBLE HEAT GAIN FROM GLAZING
CSOLAR	SENSIBLE HEAT GAIN FROM SOLAR GAIN THROGH GLAZING
CLIGHTS	SENSIBLE HEAT GAIN FROM INTERIOR LIGHTING
CEQUIP	SENSIBLE HEAT GAIN FROM PLUG LOADS, COMPUTERS, ETC.
CPSENS	SENSIBLE HEAT GAIN FROM PEOPLE
CSSENS	TOTAL SENSIBLE HEAT GAIN TO SPACE
CFAN	SENSIBLE HEAT GAIN FROM AIR HANDLER FAN
COAS	SENSIBLE HEAT GAIN FROM OUTDOOR VENTILATION AIR
CTSENS	TOTAL SENSIBLE HEAT GAIN
CPLAT	LATENT HEAT GAIN FROM PEOPLE
COAL	LATENT HEAT GAIN FROM OUTDOOR VENTILATION AIR
CTLAT	TOTAL LATENT HEAT GAIN
CTOT	TOTAL HEAT GAIN (SENSIBLE + LATENT)

HEATING LOAD BREAKDOWN

HROOF	HEAT LOSS FROM ROOF
HWALL	HEAT LOSS FROM EXTERIOR WALLS
HPART	HEAT LOSS FROM PARTITIONS
HGLASS	HEAT LOSS FROM GLAZING
HSLAB	HEAT LOSS FROM SLAB
HSPACE	TOTAL HEAT LOSS FROM SPACE
HOA	HEAT LOSS FROM OUTDOOR VENTILATION AIR
HTOT	TOTAL HEAT LOSS

EQUIPMENT MARK	CROOF	CWALL	CPART	CGLASS	CSOLAR	CLIGHTS	CEQUIP	CPSENS	CSSENS	CFAN	COAS	CTSENS	CPLAT	COAL	CTLAT	CTOT	HROOF	HWALL	HPART	HGLASS	HSLAB	HSPACE	HOA	HTOT	HCU
CU-01	0	0.5	0	0.3	1.5	5.8	0	5.1	13.4	0.4	0	13.9	4.3	0	4.3	18.2	0	1.3	0	1.7	0.8	3.9	0	3.9	
CU-02	0	0.8	0	1.1	4.1	5.4	0	4.9	16.5	0.5	0	16.5	4.1	0	4.1	20.6	0	1.9	0	5.3	0.8	8	0	8	
CU-06	0	0	0	0	0	0.4	6.8	0	7.3	0.2	1.5	9.1	0	1.9	1.9	11	0	0	0	0	0	0	5.9	5.9	
DS-01	0	0.5	0	0.3	1.5	5.8	0	5.1	13.4	0.4	0	13.9	4.3	0	4.3	18.2	0	1.3	0	1.7	0.8	3.9	0	3.9	
DS-02	0	0.8	0	1.1	4.1	5.4	0	4.9	16.5	0.5	0	16.5	4.1	0	4.1	20.6	0	1.9	0	5.3	0.8	8	0	8	
DS-03	0	0	0	0	0	0.4	6.8	0	7.3	0.2	1.5	9.1	0	1.9	1.9	11	0	0	0	0	0	0	5.9	5.9	
VRF-1-01	0	0.2	0	0.3	1.5	3.7	0.6	3.1	9.7	0.3	0	10	2.6	0	2.6	12.6	0	0.4	0	1.7	1	3.2	0	3.2	
VRF-1-02	0	0.6	0	1.3	3.4	3.7	0.6	3.1	13.1	0.4	0	13.5	2.6	0	2.6	16.1	0	1.4	0	6.4	1.9	9.8	0	9.8	
VRF-1-03	0	0.2	0	2.8	8.4	6.7	0.6	4.9	23.8	0.8	0	24.6	4.1	0	4.1	28.7	0	0.4	0	13.2	2.5	16.2	0	16.2	
VRF-1-04	0	0	0	0	0	3.4	0.6	2.6	6.8	0.2	0	8.9	2.2	0	2.2	11.1	0	0	0	0	1.4	1.4	0	1.4	
VRF-1-05	0	0.8	0	1.1	2.8	2.4	0	11	18.3	0.6	8.9	27.8	9.2	11.2	20.4	48.2	0	1.8	0	5.3	0.3	7.5	33.4	40.9	
VRF-1-06	0	0.3	0	0.7	1.9	4.6	0	11.2	18.8	0.6	0	19.5	9.4	0	9.4	28.9	0	0.7	0	3.5	3.3	7.5	0	7.5	
VRF-1-07	0	0.9	0	1.2	3.1	2.4	2.7	1.7	12.3	0.4	5.8	18.6	1.4	7.3	8.7	27.3	0	2.2	0	5.9	2.4	10.6	21.7	32.4	
VRF-1-08	0	0	0	0	0	1.3	2.3	0	3.7	0.1	1.7	5.6	0	2.2	2.2	7.8	0	0	0	0	1.6	1.6	6.6	8.3	
VRF-1-09A	0	0	0	0	0	10.1	0	0	10.1	0.7	0	22.6	0	0	0	22.6	0	0	0	0	1.4	1.4	0	1.4	
VRF-1-09B	0	2.1	0	6	18.9	9.6	0	0	36.8	1.2	0	38	0	0	0	38	0	4.9	0	28.3	1.4	34.6	0	34.6	
VRF-1-10	0	0	0	0	0	7.1	0	0	7.1	0.2	0	7.3	0	0	0	7.3	0	0	0	0	2.7	2.7	0	2.7	
VRF-1-11	0	1.6	0	0	0	11.2	0	0	12.9	0.4	0	13.3	0	0	0	13.3	0	3.8	0	0	4.7	8.5	0	8.5	
VRF-2-01	8	0.2	0	0.3	1.2	4	0.6	5.1	19.8	0.6	0	20.4	4.3	0	4.3	24.7	8.4	0.4	0	1.4	0	10.4	0	10.4	
VRF-2-02	6.8	0.5	0	0.8	2.1	3.4	0.6	0.7	15.2	0.5	0	15.8	0.6	0	0.6	16.4	7.1	1.2	0	3.9	0	12.4	0	12.4	
VRF-2-03	6	0.5	0	0.7	2.8	3	0.6	0.4	14.4	0.4	0	14.9	0.4	0	0.4	15.3	6.3	1.1	0	3.5	0	11	0	11	
VRF-2-04	3	0.6	0	1.1	3.8	1.5	0	0.4	10.6	0.3	0	11	0.4	0	0.4	11.4	3.1	1.5	0	5.3	0	10	0	10	
VRF-2-05	7.4	1	0	1.8	7	3.7	0.6	0.4	22.2	0.7	0	22.9	0.4	0	0.4	23.3	7.7	2.3	0	8.5	0	18.6	0	18.6	
VRF-2-06	7.7	1.1	0	1.5	6.3	3.9	0.6	2.6	24	0.8	0	24.8	2.2	0	2.2	27	8	2.5	0	7.3	0	18	0	18	
VRF-2-07	7.9	0.5	0	1.2	4.7	4	6.8	0.7	26	0.8	0	26.9	0.6	0	0.6	27.5	8.3	1.1	0	5.9	0	15.3	0	15.3	
VRF-2-08	1.7	0	0	0	0	0.8	0	0.2	2.8	0	0	2.9	0.2	0	0.2	3.1	1.7	0	0	0	0	1.7	0	1.7	
VRF-2-09	7.5	1.1	0	1.5	3.8	3.7	0.6	4.6	23	0.7	0	23.8	3.8	0	3.8	27.6	7.8	2.5	0	7	0	17.4	0	17.4	
VRF-2-10	3.7	0	0	0	0	1.8	0.6	0.2	6.4	0.2	0	6.7	0.2	0	0.2	6.9	3.8	0	0	0	0	3.8	0	3.8	
VRF-2-11	7.6	1.1	0	1.5	3.9	3.8	0.6	4.9	23.7	0.7	0	24.5	4.1	0	4.1	28.6	7.9	2.5	0	7.3	0	17.8	0	17.8	
VRF-2-12	2.5	0.3	0	0.5	2	1.3	0.6	0.2	7.6	0.2	0	7.9	0.2	0	0.2	8.1	2.7	0.7	0	2.5	0	5.9	0	5.9	
VRF-2-13	2.9	0.2	0	0.3	0.9	1.4	0	0.4	6.4	0.2	0	6.6	0.4	0	0.4	7	3	0.5	0	1.7	0	5.3	0	5.3	
VRF-2-14	1.5	0.4	0	0.4	1.7	0.7	0	0.2	5.2	0.1	0	5.3	0.2	0	0.2	5.5	1.5	1	0	2.2	0	4.7	0	4.7	
VRF-2-15	4.1	1.7	0	0.7	2.5	2	0	0.4	11.7	0.3	0	12.1	0.4	0	0.4	12.5	4.2	3.9	0	3.6	0	11.9	0	11.9	
VRF-3-01	1.9	0.5	0	0.3	1.4	0.9	0.6	0	6	0.2	0	6.2	0	0	0	6.2	2	1.3	0	1.7	0	5	0	5	

HVAC ACCESSORIES

ACCESSORIES:

1. MOTOR DAMPER
2. ECONOMIZER
3. ROOF CURB
4. HAIL GUARDS
5. INTAKE HOOD
6. VIBRATION ISOLATION
7. FLAT FILTER
8. FILTER/MIXING BOX
9. ACCESS DOOR
10. FLEX CONNECTIONS
11. MOUNTING COLLAR
12. HOT GAS BYPASS
13. FACE/BYPASS DAMPER
14. CONDENSATE PUMP
15. MOTOR GUARD
16. GREASE TRAP
17. DUCT FLANGES
18. BASE RAIL
19. HUMIDIFIER
20. CO2 SENSORS
21. ECON POWERED EXHAUST
22. ECON BAROMETRIC RELIEF
23. HOT GAS REHEAT COIL
24. SHAFT GROUNDING BRUSHES

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS

DC	LOCAL DISCONNECT
MC	MOTOR CONTROL (POWER)
SD	DUCT SMOKE DETECTOR
CN	CONTROLS
TS	TOGGLE SWITCH
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)
FLA	OPERATING FULL LOAD AMPS
MCA	MINIMUM CIRCUIT AMPACITY
CP	CORD AND PLUG CONNECTION

CONTRACTOR TYPE

EC	ELECTRICAL CONTRACTOR
EX	EXISTING
FC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
HC	HVAC CONTRACTOR
MFR	MANUFACTURER
PC	PLUMBING CONTRACTOR
OR	OWNER OR OTHERS

MOTOR CONTROL TYPE

CS	COMBINATION STARTER
MCC	MOTOR CONTROL STARTER
MG	MAGNETIC STARTER OR CONTACT
MS	MANUAL STARTER
VFD	VARIABLE FREQUENCY DRIVE
MSR	MANUAL STARTER W/ CONTROL RELAY
OV	OVERCURRENT PROTECTION

CONTROL TYPE

TC	TIMECLOCK
CPT	CONTROL POWER TRANSFORMER
BAS	BUILDING AUTOMATION SYSTEM
LOW	LOW VOLTAGE CONTROLS
LINE	LINE VOLTAGE CONTROLS
RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
MAN	MANUAL
FA	FIRE ALARM
CO	CARBON MONOXIDE SENSOR
INT	INTEGRAL TO EQUIPMENT

EQUIPMENT MARK	DESCRIPTION	VOLTS (V)	PHASE	EMERGENCY	BHP (HP)	HP (HP)	HTG (kW)	WATTS	FLA (A)	MCA (A)	OCP (A)	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SD TYPE
CH-01	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CH-02	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CH-03	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CH-04	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CH-05	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CP-01	AIR CONDITIONING CONDENSATE PUMP	120	1					93	1.5				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	
CP-02	AIR CONDITIONING CONDENSATE PUMP	120	1					93	1.5		15		EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	
CU-01	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	208	1							16.5	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
CU-02	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	208	1							16.5	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
CU-03	AIR COOLED CONDENSING UNIT	208	3										EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
CU-03A	AIR COOLED CONDENSING UNIT	208	3							55	70		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
CU-03B	AIR COOLED CONDENSING UNIT	208	3							55	70		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
CU-04	AIR COOLED CONDENSING UNIT	208	3							61.9	70		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
CU-05	AIR COOLED CONDENSING UNIT	208	3										EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
CU-05A	AIR COOLED CONDENSING UNIT	208	3							43	50		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
CU-05B	AIR COOLED CONDENSING UNIT	208	3							38	45		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
CU-06	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	208	1							16.5	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
CU-07	AIR COOLED CONDENSING UNIT	208	3							43	50		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
DS-01	DUCTLESS SPLIT HIGH WALL UNIT	208	1							0.6	*		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
DS-02	DUCTLESS SPLIT HIGH WALL UNIT	208	1							0.6	*		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
DS-03	DUCTLESS SPLIT HIGH WALL UNIT	208	1							0.4	*		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
EF-01	CEILING MOUNTED VENTILATOR	120	1					16					EC	EC	EC	MG	MFR	MFR	MFR	TC	EC	EC	EC	
EF-02	CEILING MOUNTED VENTILATOR	120	1					16					EC	EC	EC	MG	MFR	MFR	MFR	TC	EC	EC	EC	
EF-03	CEILING MOUNTED VENTILATOR	120	1					16					EC	EC	EC	MG	MFR	MFR	MFR	TC	EC	EC	EC	
ERV-01	PACKAGED AIR TO AIR ENERGY RECOVERY EQUIPMENT	208	3						109.9	136.1	150		EC	EC	EC	VFD	HC	HC	EC	LOW	HC	HC	HC	DUCT SMOKE
EWH-01	WALL AND CEILING HEATER	208	1					750	3.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
EWH-02	WALL AND CEILING HEATER	208	1					750	3.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
EWH-03	WALL AND CEILING HEATER	208	1				2		9.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
EWH-04	WALL AND CEILING HEATER	208	1				2		9.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
EWH-05	WALL AND CEILING HEATER	208	1					750	3.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
HRB-01	VRF HEAT RECOVERY TERMINAL BOX	208	1							1.0	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
HRB-02	VRF HEAT RECOVERY TERMINAL BOX	208	1							1.0	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
HRB-03	VRF HEAT RECOVERY TERMINAL BOX	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
HRB-04	VRF HEAT RECOVERY TERMINAL BOX	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
HRB-05	VRF HEAT RECOVERY TERMINAL BOX	208	1							1.0	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
UH-01	PROPELLER UNIT HEATER	208	1			1/100	3		14.5				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	
UH-02	PROPELLER UNIT HEATER	208	1			1/100	3		14.5				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	
VRF-1-01	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-02	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-03	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-04	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-05	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-06	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-07	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-08	VRF INDOOR HIGH WALL UNIT	208	1							0.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-09A	VRF INDOOR CONCEALED DUCTED UNIT	208	1							1.8	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE
VRF-1-09B	VRF INDOOR CONCEALED DUCTED UNIT	208	1							3.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE
VRF-1-10	VRF INDOOR CONCEALED DUCTED UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-1-11	VRF INDOOR CONCEALED DUCTED UNIT	208	1							1.8	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-01	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-02	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-03	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-04	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-05	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-06	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-07	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-08	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.8	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-09	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-10	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-11	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-12	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-13	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.8	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-14	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-15	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-16	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-17	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-18	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-2-19	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-3-01	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	
VRF-3-02	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	

HVAC VRF (INDOOR UNITS) SCHEDULE

ACCEPTABLE MANUFACTURERS - DAIKIN, MITSUBISHI, TRANE/MITSUBISHI

EQUIPMENT MARK	DESCRIPTION	LOCATION	FED FROM	WEIGHT (lbs)	MANUFACTURER	MODEL	VOLTS	PHASE	CFM (cfm)	ESP (in WC)	OACFM (cfm)	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT CLG DB (Deg F)	LAT CLG WB (Deg F)	HTG MBH (mbh)	NOMINAL TONS	LAT HTG (Deg F)	MCA (amps)	OCP (amps)
HRB-01	VRF HEAT RECOVERY TERMINAL BOX			68.3	DAIKIN	BS8Q54TVJ	208	1	0	0	0	0	0	0	0	0	0	0	0	0	1.0	15
HRB-02	VRF HEAT RECOVERY TERMINAL BOX			101.4	DAIKIN	BS10Q54TVJ	208	1	0	0	0	0	0	0	0	0	0	0	0	0	1.0	15
HRB-03	VRF HEAT RECOVERY TERMINAL BOX			68.3	DAIKIN	BS6Q54TVJ	208	1	0	0	0	0	0	0	0	0	0	0	0	0	0.6	15
HRB-04	VRF HEAT RECOVERY TERMINAL BOX			68.3	DAIKIN	BS6Q54TVJ	208	1	0	0	0	0	0	0	0	0	0	0	0	0	0.6	15
HRB-05	VRF HEAT RECOVERY TERMINAL BOX	MECHANICAL ROOM	CU-05	101.4	DAIKIN	BS10Q54TVJ	208	1	0	0	0	0	0	0	0	0	0	0	0	0	1.0	15
VRF-1-01	VRF INDOOR IN CEILING CASSETTE UNIT	PRESCHOOL 103	CU-04	56	DAIKIN	FXFQ18PVJU	208	1	490	0.5	0	76	65	13	10	55	54	3	1.5	80	0.4	15
VRF-1-02	VRF INDOOR IN CEILING CASSETTE UNIT	PRESCHOOL CLASSROOM	CU-04	56	DAIKIN	FXFQ18PVJU	208	1	650	0.5	0	76	65	16	14	55	54	10	1.5	89	0.4	15
VRF-1-03	VRF INDOOR IN CEILING CASSETTE UNIT	KINDERGARTEN 101	CU-04	61	DAIKIN	FXFQ30PVJU	208	1	1190	0.5	0	76	65	29	25	55	54	16	2.5	87	0.6	15
VRF-1-04	VRF INDOOR IN CEILING CASSETTE UNIT	KINDERGARTEN 100	CU-04	56	DAIKIN	FXFQ12PVJU	208	1	430	0.5	0	76	65	11	9	55	54	2	1	78	0.3	15
VRF-1-05	VRF INDOOR CEILING SUSPENDED UNIT	CAFETERIA K2	CU-03	58	DAIKIN	FXUQ36PVJU	208	1	910	0.5	446	84	70	48	28	55	54	41	3	81	1.4	15
VRF-1-06	VRF INDOOR CEILING SUSPENDED UNIT	CAFETERIA K2	CU-03	58	DAIKIN	FXUQ36PVJU	208	1	940	0.5	0	76	65	29	20	55	54	8	3	82	1.4	15
VRF-1-07	VRF INDOOR IN CEILING CASSETTE UNIT	KITCHEN K1	CU-03	58	DAIKIN	FXUQ36PVJU	208	1	620	0.5	291	84	70	27	19	55	54	32	3	89	1.4	15
VRF-1-08	VRF INDOOR HIGH WALL UNIT	DRY FOOD STORAGE K4	CU-03	27	DAIKIN	FXAQ12PVJU	208	1	190	0.5	89	84	70	8	6	55	54	8	1	80	0.4	15
VRF-1-09A	VRF INDOOR CONCEALED DUCTED UNIT	GYM G1	CU-03	80	DAIKIN	FXMQ24PBVJU	208	1	1100	0.5	0	76	65	23	23	55	54	3	2	77	1.8	15
VRF-1-09B	VRF INDOOR CONCEALED DUCTED UNIT	GYM G1	CU-03	102	DAIKIN	FXMQ48PBVJU	208	1	1840	0.5	0	76	65	38	38	55	54	35	4	92	3.4	15
VRF-1-10	VRF INDOOR CONCEALED DUCTED UNIT	ABOVE CEILING	CU-03	80	DAIKIN	FXMQ07PBVJU	208	1	350	0.5	0	76	65	7	7	55	54	3	2	82	0.6	15
VRF-1-11	VRF INDOOR CONCEALED DUCTED UNIT	STORAGE 0	CU-04	80	DAIKIN	FXMQ24PBVJU	208	1	640	0.5	0	76	65	13	13	55	54	9	2	87	1.8	15
VRF-2-01	VRF INDOOR CEILING SUSPENDED UNIT	RESOURCE 204	CU-04	58	DAIKIN	FXUQ30PVJU	208	1	990	0.5	0	76	65	25	20	55	54	10	2.5	84	1.4	15
VRF-2-02	VRF INDOOR IN CEILING CASSETTE UNIT	SUPERINT. AD9	CU-04	56	DAIKIN	FXFQ18PVJU	208	1	760	0.5	0	76	65	16	16	55	54	12	1.5	89	0.4	15
VRF-2-03	VRF INDOOR CEILING SUSPENDED UNIT	PRACTICAL LIVING 203	CU-04	58	DAIKIN	FXUQ18PVJU	208	1	720	0.5	0	76	65	15	15	55	54	11	1.5	88	0.6	15
VRF-2-04	VRF INDOOR CEILING SUSPENDED UNIT	DISTRICT COUNSELOR	CU-04	58	DAIKIN	FXUQ18PVJU	208	1	530	0.5	0	76	65	11	11	55	54	10	1.5	92	0.6	15
VRF-2-05	VRF INDOOR CEILING SUSPENDED UNIT	WORKROOM AD7	CU-03	58	DAIKIN	FXUQ24PVJU	208	1	1110	0.5	0	76	65	23	23	55	54	19	2.5	90	0.6	15
VRF-2-06	VRF INDOOR CEILING SUSPENDED UNIT	ART 202	CU-03	58	DAIKIN	FXUQ30PVJU	208	1	1200	0.5	0	76	65	27	25	55	54	18	3	88	1.4	15
VRF-2-07	VRF INDOOR CEILING SUSPENDED UNIT	NURSE AD5	CU-03	58	DAIKIN	FXUQ36PVJU	208	1	1300	0.5	0	76	65	28	27	55	54	15	2	85	1.4	15
VRF-2-08	VRF INDOOR CEILING SUSPENDED UNIT	GUIDANCE AD6	CU-03	56	DAIKIN	FXHQ12MVJU	208	1	140	0.5	0	76	65	3	3	55	54	2	1	88	0.8	15
VRF-2-09	VRF INDOOR CEILING SUSPENDED UNIT	RESOURCE 201	CU-03	58	DAIKIN	FXUQ36PVJU	208	1	1150	0.5	0	76	65	28	24	55	54	17	3	88	1.4	15
VRF-2-10	VRF INDOOR IN CEILING CASSETTE UNIT	WORKROOM AD4	CU-03	36	DAIKIN	FXZQ07TAVJU	208	1	320	0.5	0	76	65	7	7	55	54	4	0.583	86	0.3	15
VRF-2-11	VRF INDOOR CEILING SUSPENDED UNIT	RESOURCE 200	CU-03	67	DAIKIN	FXFQ36PVJU	208	1	1180	0.5	0	76	65	29	25	55	54	18	3	88	1.4	15
VRF-2-12	VRF INDOOR IN CEILING CASSETTE UNIT	PRIN. OFFICE AD3	CU-03	36	DAIKIN	FXZQ09TAVJU	208	1	380	0.5	0	76	65	8	8	55	54	6	0.75	89	0.3	15
VRF-2-13	VRF INDOOR CEILING SUSPENDED UNIT	1-1	CU-04	56	DAIKIN	FXHQ12MVJU	208	1	320	0.5	0	76	65	7	7	55	54	5	1	89	0.8	15
VRF-2-14	VRF INDOOR IN CEILING CASSETTE UNIT	REC AD2	CU-03	36	DAIKIN	FXZQ07TAVJU	208	1	260	0.5	0	76	65	6	5	55	54	5	0.583	92	0.3	15
VRF-2-15	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	BACKSTAGE 120	CU-05	80	DAIKIN	FXLQ18MVJU9	208	1	590	0.5	0	76	65	13	12	55	54	12	1.5	93	0.6	15
VRF-2-16	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	MUSIC CLASSROOM/ AUDITORIUM/ SBDM CONFERENCE M1	CU-05	80	DAIKIN	FXLQ24MVJU9	208	1	560	0.1	0	0	0	24	16	0	0	27	2	0	0.6	15
VRF-2-17	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	MUSIC CLASSROOM/ AUDITORIUM/ SBDM CONFERENCE M1	CU-05	80	DAIKIN	FXLQ24MVJU9	208	1	560	0.1	0	0	0	24	16	0	0	27	2	0	0.6	15
VRF-2-18	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	AUDITORIUM	CU-05	80	DAIKIN	FXLQ24MVJU9	208	1	560	0.1	0	0	0	24	16	0	0	27	2	0	0.6	15
VRF-2-19	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	BACKSTAGE 119	CU-05	80	DAIKIN	FXLQ24MVJU9	208	1	560	0.1	0	0	0	24	16	0	0	27	2	0	0.6	15
VRF-3-01	VRF INDOOR IN CEILING CASSETTE UNIT	OFFICE AD11	CU-05		DAIKIN	FXZQ07TAVJU	208	1	300	0.5	0	76	65	6	6	55	54	5	0.5	90	0.3	15
VRF-3-02	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	AUDITORIUM	CU-05	80	DAIKIN	FXLQ24MVJU9	208	1	560	0.1	0	0	0	24	16	0	0	27	2	0	0.6	15

HVAC DUCTLESS SPLIT SYSTEMS SCHEDULE

ACCEPTABLE MANUFACTURERS - DAIKIN, MISTUBISHI, CARRIER

EQUIPMENT MARK	DESCRIPTION	LOCATION	FED FROM	WEIGHT (lbs)	MANUFACTURER	MODEL	VOLTS	PHASE	CFM (cfm)	ESP (in WC)	NOMINAL TONS	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT CLG DB (Deg F)	LAT CLG WB (Deg F)	HTG MBH (mbh)	LAT HTG (Deg F)	MCA (amps)	OCP (amps)
CU-01	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	WALL MOUNTED		31	DAIKIN	RZQ24PVJU8	208	1	670	0.5	2	76	65	18	14	55	54	4	80	16.5	20
CU-02	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	WALL MOUNTED		31	DAIKIN	RZQ24PVJU8	208	1	800	0.5	2	76	65	21	17	55	54	8	83	16.5	20
CU-06	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	GRADE		31	DAIKIN	RZR18PVJU8	208	1	360	0.5	1	80	67	11	9	55	54	6	74	16.5	20
DS-01	DUCTLESS SPLIT HIGH WALL UNIT	ELEM. CLASSROOM C-05	CU-01	31	DAIKIN	FAQ24PVJU	208	1	670	0.5	2	76	65	18	14	55	54	4	80	0.6	*
DS-02	DUCTLESS SPLIT HIGH WALL UNIT	ELEM. CLASSROOM C-04	CU-02	31	DAIKIN	FAQ24PVJU	208	1	800	0.5	2	76	65	21	17	55	54	8	83	0.6	*
DS-03	DUCTLESS SPLIT HIGH WALL UNIT	CLOSET 115	CU-06	31	DAIKIN	FAQ18PVJU	208	1	360	0.5	1.5	80	67	11	9	55	54	6	74	0.4	*

* - INDOOR UNIT POWERED FROM OUTDOOR UNIT

HVAC AIR COOLED CONDENSING UNIT SCHEDULE

ACCEPTABLE MANUFACTURERS - DAIKIN, MITSUBISHI, TRANE/MITSUBISHI

Equipment Mark	DESCRIPTION	LOCATION	WEIGHT (lbs)	MANUFACTURER	MODEL	VOLTS	PHASE	NOMINAL TONS	CLG MBH (mbh)	CLG SENS (mbh)	MCA (amps)	OCP (amps)	ACCESSORIES
CU-03	AIR COOLED CONDENSING UNIT	GRADE	1483	DAIKIN	REYQ288TATJU	208	3	24	266	0			4
CU-03A	AIR COOLED CONDENSING UNIT	GRADE	780	DAIKIN	REYQ144TATJU	208	3	0	0	0	55	70	4
CU-03B	AIR COOLED CONDENSING UNIT	GRADE	703	DAIKIN	REYQ144TATJU	208	3	0	0	0	55	70	4
CU-04	AIR COOLED CONDENSING UNIT	GRADE	780	DAIKIN	REYQ168TATJU	208	3	14	183	0	61.9	70	4
CU-05	AIR COOLED CONDENSING UNIT	GRADE	1406	DAIKIN	REYQ216TATJU	208	3	18	180	0			4
CU-05A	AIR COOLED CONDENSING UNIT	GRADE	703	DAIKIN	REYQ120TATJU	208	3	0	0	0	43	50	4
CU-05B	AIR COOLED CONDENSING UNIT	GRADE	703	DAIKIN	REYQ96TATJU	208	3	0	0	0	38	45	4
CU-07	AIR COOLED CONDENSING UNIT	ROOF	703	DAIKIN	REYQ120TATJU	208	3	0	0	0	43	50	4

HVAC CONDENSATE PUMPS SCHEDULE

ACCEPTABLE MANUFACTURERS - BECKETT, HARTELL, LITTLE GIANT

EQUIPMENT MARK	DESCRIPTION	LOCATION	WEIGHT (lbs)	MANUFACTURER	MODEL	VOLTS	PHASE	FLA (amps)
CP-01	AIR CONDITIONING CONDENSATE PUMP	BALCONY B1		LITTLE GIANT	VCMX-20UL	120	1	1.5
CP-02	AIR CONDITIONING CONDENSATE PUMP	BALCONY	4.5	LITTLE GIANT	VCC-20-P	120	1	1.5

2" REFERENCE LINE

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FT. THOMAS, KENTUCKY 41075
859-442-8050
859-442-8058 FAX

Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate Independent School District
Southgate, KY
Mr. Greg Duty, Superintendent

REVISIONS

08/31/18	SCHEMATIC DESIGN
10/04/18	DESIGN DEVELOPMENT
12/13/18	CONSTRUCTION DOCS

DWN: CJS CHK: KTW

PROJ. DATE 12/13/18

SHEET DATE 12/13/18

JOB NO. 20692.00

MECHANICAL - SCHEDULES

M-601

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HVAC DIFFUSERS AND REGISTERS SCHEDULE

ACCEPTABLE MANUFACTURERS - PRICE, TITUS, METALAIRE

TAG	MANUFACTURER	MODEL	FACE	MOUNTING	MATERIAL	FINISH	DAMPER TYPE	BORDER STYLE	REMARKS
CD-01	PRICE	SPD	24"x24"	CEILING	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING	
ER-01	PRICE	80	24"x24"	SIDEWALL	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING	MATCH ELEVATION OF EXISTING TRANSFER GRILLE IN SPACE
RG-01	PRICE	500	24"x24"	CEILING	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING	
RR-01	PRICE	500	24"x24"	CEILING	STEEL	STANDARD WHITE	OPPOSED BLADE	LAY IN MOUNTING	
RR-02	PRICE	500	12"x12"	SIDEWALL	STEEL	STANDARD WHITE	OPPOSED BLADE	LAY IN MOUNTING	
RR-03	PRICE	500	36"x24"	DUCT	STEEL	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT	W/ FILTER
SR-01	PRICE	510	12"x12"	SIDEWALL	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING	
SR-02	PRICE	510	12"x8"	FLOOR	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING	
SR-03	PRICE	510	20"x24"	SIDEWALL	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING	
SR-04	PRICE	510	8"x8"	DUCT	STEEL	STANDARD WHITE	BUTTERFLY	SURFACE MOUNT	
SR-05	PRICE		8"x8"	SIDEWALL	STEEL	STANDARD WHITE	BUTTERFLY	LAY IN MOUNTING	
TG-01	PRICE	500	24"x12"	SIDEWALL	STEEL	BLACK FINISH G.C. TO FIELD PAINT TO MATCH CEILING OR WALLS	BUTTERFLY	LAY IN MOUNTING	MATCH ELEVATION OF EXISTING TRANSFER GRILLE IN SPACE
TG-02	PRICE	500	18"x12"	SIDEWALL	STEEL	BLACK FINISH G.C. TO FIELD PAINT TO MATCH CEILING OR WALLS	BUTTERFLY	LAY IN MOUNTING	MATCH ELEVATION OF EXISTING TRANSFER GRILLE IN SPACE

HVAC UNIT HEATERS SCHEDULE

ACCEPTABLE MANUFACTURERS - BERKO, MARKEL, MARLEY

EQUIPMENT MARK	DESCRIPTION	LOCATION	WEIGHT (lbs)	MANUFACTURER	MODEL	VOLTS	PHASE	HTG MBH (mbh)	WATTS	HTG KW (kW)	FLA (amps)
CH-01	WALL AND CEILING HEATER	VESTIBULE1 1	23	BERKO	QFF4008	208	1	7	2000		9.8
CH-02	WALL AND CEILING HEATER	STAIRS 116	23	BERKO	QFF4008	208	1	7	2000		9.8
CH-03	WALL AND CEILING HEATER	CORRIDOR 107	23	BERKO	QFF4008	208	1	7	2000		9.8
CH-04	WALL AND CEILING HEATER	VESTIBULE 122	23	BERKO	QFF4008	208	1	7	2000		9.8
CH-05	WALL AND CEILING HEATER	CORRIDOR C-2	23	BERKO	QFF4008	208	1	7	2000		9.8
EWH-01	WALL AND CEILING HEATER	RESOURCE (TITLE 1 READING) 200	10	BERKO	SRA2024SDF	208	1	3	750		3.6
EWH-02	WALL AND CEILING HEATER	RR1	10	BERKO	SRA2024SDF	208	1	3	750		3.6
EWH-03	WALL AND CEILING HEATER	REC. AD2	22	BERKO	FRA4020F	208	1	4		2	9.6
EWH-04	WALL AND CEILING HEATER		23	BERKO	FRA4020F	208	1	4		2	9.6
EWH-05	WALL AND CEILING HEATER	RR1	10	BERKO	SRA2024SDF	208	1	3	750		3.6
UH-01	PROPELLER UNIT HEATER	MECH. M2	24	BERKO	HUHAA320	208	1	0		3	14.5
UH-02	PROPELLER UNIT HEATER	STORAGE 104	24	BERKO	HUHAA320	208	1	0		3	14.5

HVAC FANS SCHEDULE

ACCEPTABLE MANUFACTURERS - GREENHECK, COOK, ACME

EQUIPMENT MARK	DESCRIPTION	LOCATION	WEIGHT (lbs)	MANUFACTURER	MODEL	VOLTS	PHASE	WATTS (Watts)	CFM (cfm)	ESP (in WC)	FAN RPM (rpm)
EF-01	CEILING MOUNTED VENTILATOR	BOY'S RR RR1	12	GREENHECK	SP-A90	120	1	16	80	0.25	900
EF-02	CEILING MOUNTED VENTILATOR	RR2	12	GREENHECK	SP-A90	120	1	16	80	0.25	900
EF-03	CEILING MOUNTED VENTILATOR	RR3	12	GREENHECK	SP-A90	120	1	16	80	0.25	900

HVAC VENTILATION SCHEDULE

NUMBER	NAME	AREA	LEVEL	CEILING HEIGHT	PEOPLE RED	OA PER PERSON	OA PER SQ FT.	REQ SUP	ACT SUP	REQ OA	ACT OA	ACT RET	ACT EXH	CRIT OA	PRESSURE	PCT OPERABLE	NATURAL VENTILATION
0	CLOS.	50 SF	Level 1	12' - 0"	0		0.12	5	60	8	8	60	0	0.1333	E	0	
0	CLOS.	50 SF	Level 1	12' - 0"	0		0.12	23	20	8	8	20	0	0.4	E	0	
0	CLOS.	83 SF	Level 1	12' - 0"	0		0.12	30	30	12	12	30	0	0.4	E	0	
0	CORRIDOR	131 SF	Level 1	12' - 0"	0		0.06	48	40	10	10	40	0	0.25	E	0	
0	GIRL'S RR	133 SF	Level 1	12' - 0 19/32"	0			60	50	0	0	0	240	0	N	0	
0	MECH.	23 SF	Level 1	12' - 0"	0		0.12	12	10	4	4	10	0	0.4	E	0	
0	STORAGE	499 SF	Level 1	12' - 0"	0		0.12	296	240	75	75	240	0	0.3125	E	0	
1	VESTIBULE1	145 SF	Level 1	12' - 0"	0	5	0.06	23	120	11	56	120	0	0.0916	E	0	
100	KINDERGARTEN CLASSROOM	426 SF	Level 1	12' - 0"	11	10	0.12	400	400	201	201	400	0	0.5525	E	0	
101	KINDERGARTEN CLASSROOM	811 SF	Level 1	12' - 0"	20	10	0.12	776	1130	372	372	1130	0	0.3292	E	0	
102	PRESCHOOL CLASSROOM	504 SF	Level 1	12' - 0"	13	10	0.12	0	590	0	0	590	0	0	E	0.0833	YES
103	PRESCHOOL CLASSROOM	502 SF	Level 1	12' - 0"	13	10	0.12	539	470	238	238	470	0	0.5063	E	0.0278	
104	STORAGE	177 SF	Level 1	12' - 0"	0		0.12	41	60	26	26	60	0	0.4333	E	0	
115	CLOSET	70 SF	Level 1	12' - 0"	0		0.12	19	20	10	10	20	0	0.5	E	0	
116	STAIRS	187 SF	Level 1	12' - 0"	0		0.06	30	440	14	207	440	0	0.0318	E	0	
C-01	CORRIDOR	125 SF	Level 1	12' - 3 3/16"	0		0.06	39	40	10	10	40	0	0.25	E	0	
C-02	CORRIDOR	272 SF	Level 1	11' - 11 3/4"	0		0.06	83	90	20	20	90	0	0.2222	E	0	
C-03	CORRIDOR	194 SF	Level 1	12' - 0"	0		0.06	88	70	15	15	70	0	0.2142	E	0	
C-03	CORRIDOR	377 SF	Level 1	12' - 0"	0		0.06	160	130	29	29	130	0	0.223	E	0	
C-04	ELEM. CLASSROOM	804 SF	Level 1	12' - 0"	20	10	0.12	0	800	0	0	800	0	0	E	0.0447	YES
C-05	ELEM. CLASSROOM	856 SF	Level 1	12' - 0"	21	10	0.12	978	670	391	391	670	0	0.5835	E	0.014	
C-06	PE STOR.	84 SF	Level 1	12' - 0"	0		0.12	26	30	12	12	30	0	0.4	E	0	
C-07	CUSTODIAL	100 SF	Level 1	12' - 0"	0			26	30	0	0	30	150	0	N	0	
G1	GYMNASIUM/PE	1408 SF	Level 1	12' - 0"	0		0.3	2112	1840	528	528	1840	0	0.2869	E	0.0397	
G1	GYMNASIUM/PE	1484 SF	Level 1	12' - 0"	0		0.3	1112	1100	556	556	1100	0	0.5054	E	0	
K1	KITCHEN	365 SF	Level 1	12' - 0"	7	7.5	0.12	0	620	0	291	620	0	0	E	0.1534	YES
K2	CAFETERIA	363 SF	Level 1	12' - 0"	45	7.5	0.18	0	910	0	446	910	0	0	E	0.0991	YES
K2	CAFETERIA	553 SF	Level 1	11' - 11 23/32"	46	7.5	0.18	0	900	0	0	900	0	0	E	0.0433	YES
K3	KITCH. STOR.	125 SF	Level 1	12' - 0"	0		0.12	2	40	19	19	40	0	0.475	E	0	
K4	DRY FOOD STORAGE	204 SF	Level 1	12' - 0"	0		0.12	64	190	30	89	190	0	0.1578	E	0	
M01	MECH.	102 SF	Level 1	12' - 0"	0		0.12	39	40	15	15	40	0	0.375	E	0	
M2	MECH.	686 SF	Level 1	12' - 0"	0		0.12	0	670	0	315	670	0	0	E	0.0816	YES
RR-01	GIRL'S RR	181 SF	Level 1	12' - 0"	0			57	60	0	0	0	400	0	N	0	
RR-02	BOY'S RR	177 SF	Level 1	12' - 0"	0			57	60	0	0	0	480	0	N	0	
RR-03	GIRL'S RR	112 SF	Level 1	12' - 0"	0			48	40	0	0	0	160	0	N	0	
RR-04	BOY'S RR	113 SF	Level 1	12' - 0"	0			48	40	0	0	0	240	0	N	0	
		12476 SF									3963						

HVAC ENERGY RECOVERY UNITS SCHEDULE

ACCEPTABLE MANUFACTURERS - DAIKIN, REZNOR, GREENHECK

EQUIPMENT MARK	DESCRIPTION	LOCATION	WEIGHT (lbs)	MANUFACTURER	MODEL	VOLTS	PHASE	OACFM (cfm)	OA ESP (in WC)	OA BHP (hp)	OA HP (hp)	OA FAN RPM (rpm)	EA CFM (cfm)	EA ESP (in WC)	EA BHP (hp)	EA HP (hp)	EA FAN RPM (rpm)	HTG KW (kW)	FLA (amps)	MCA (amps)	OCP (amps)
ERV-01	PACKAGED AIR TO AIR ENERGY RECOVERY EQUIPMENT	MECHANICAL ROOM	2260	DAIKIN	DVSV10A	208	3	2031	1.5	1.79	2.3	2478	2000	1.5	0.86	2.3	1965		109.9	136.1	150

NOTE: SEE SHEET M-603 FOR ERV CUT SHEET

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800.354.9783 859.442.8050
859.442.8058 FAX

Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate, KY
Southgate Independent School District
Mr. Greg Duty, Superintendent

STATE OF KENTUCKY JOSEPH KEITH WHITE LICENSED PROFESSIONAL ENGINEER

REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: CJS CHK: KTW
PROJ. DATE 12/13/18
SHEET DATE 12/13/18
JOB NO. 20692.00

MECHANICAL - SCHEDULES

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ERV-01

Technical Data Sheet for ERV

Unit Overview

Model Number	Voltage V/Hz/Phase	Required Total Capacity Btu/hr	Required Sensible Capacity Btu/hr	Required Heating Total Capacity Btu/hr	Required Cooling Leaving Dry Bulb °F	Required Cooling Leaving Wet Bulb °F	Required Heating Leaving Dry Bulb °F
DV5V10A	208/60/3	73495	54381	48637	55.0	54.0	75.0

Unit

Model Number:	DV5V10A
Model Type:	Heat Pump
Heat Type:	Electric
Hot Gas Reheat:	MHGRH with Field Provided Humidity Sensor
Energy Recovery:	ERW-Med Cab-Econ: 2835 cfm max, 100% OA: 5145 cfm max
Application:	Constant Volume
Controls:	Microtech III
Outside Air:	100% Outside Air
Altitude:	0 ft
Approval	cETLus

Physical

Dimensions and Weight			
Length	Height	Width	Weight
111.0 in	56.8 in	74.9 in	2291 lb
Corner Weights			
L1	L2	L3	L4
356 lb	363 lb	795 lb	777 lb

Construction			
Exterior	Insulation and Liners	Air Opening Location	
		Return	Supply
Painted Galvanized Steel	1" Injected Foam, R-7, Galvanized Steel Liner	Bottom	Bottom

Electrical

Unit FLA	MCA	MROPD	SCCR
109.9 A	136.1 A	150 A	5 kAIC

Note: Use only copper supply wires with ampacity based on 75° C conductor rating. Connections to terminals must be made with copper lugs and copper wire.

Technical Data Sheet for ERV

Return/Outside/Exhaust Air

Outside Air Option		
Type	Damper Pressure Drop	Exhaust Air Type
None	0.05 inH2O	Powered, Modulating with Building Pressure Control

Exhaust Fan		
Type	Drive Type	Wheel Diameter
SWSI AF	Direct Drive	14 in

Motor		
(Qty) Horsepower	Type	Efficiency
(1) 2.3 HP	ECM	Premium

Performance			
Air Flow CFM	External Static Pressure inH2O	Fan Speed RPM	Brake Horsepower HP
2000	0.75	1965	0.86

Energy Recovery

Design OA Volume	Design Exhaust Volume	Wheel Pressure Drop	Motor HP	Motor FLA
2000 CFM	2000 CFM	0.84 inH2O	0.17 HP	0.7 A

Summer Conditions									
Temperature							Recovered Capacity Btu/hr	Effectiveness	
Outside Air		Return Air		Wheel Leaving		Mixed Air		Total	Sensible
Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F		
93.0	74.0	75.0	63.0	79.0	65.9	79.0	65.9	58862	0.75	0.77

Winter Conditions									
Temperature							Recovered Capacity Btu/hr	Effectiveness	
Outside Air		Return Air		Wheel Leaving		Mixed Air		Total	Sensible
Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F		
0.0	-1.0	70.0	53.0	52.7	42.7	52.7	42.7	145226	0.76	0.77

Bypass Damper: No

Energy Recovery Filters							
Efficiency	Quantity/Size		Face Area		Face Velocity		Air Pressure Drop
	Outdoor	Exhaust	Outdoor ft²	Exhaust ft²	Outdoor ft/min	Exhaust ft/min	Outdoor inH2O	Exhaust inH2O
2 in. MERV 8	(3) 18 in. X 24 in.	(3) 18 in. X 24 in.	9.0	9.0	222.2	222.2	0.06	0.06

Filter Section

Physical				
Type	Quantity / Size	Face Area	Face Velocity	Air Pressure Drop
Combo 2"/4" rack with 2" MERV 8	6 / 18 in x 24 in x 2 in	18.0 ft²	111.1 ft/min	0.02

Technical Data Sheet for ERV

DX Cooling Coil

Physical							
Coil Type	Refrigerant Type	Fins per Inch	Rows	Face Area	Face Velocity	Air Pressure drop	Drain Pan Material
Cu Tube/ Al Fin	R410A	15	3	15.4 ft²	129.6 ft/min	0.39 inH2O	Stainless Steel

Cooling Performance						
Capacity			Indoor Air Temperature			
Total Btu/hr	Sensible Btu/hr	Moisture Removal lb/h	Entering		Leaving	
			Dry Bulb °F	Wet Bulb °F	Dry Bulb °F	Wet Bulb °F	Dewpoint °F
73495	54381	18.2	79.1	66.1	55.0	54.0	53.3

Condensate Connection Size: 3/4 in. Male NPT

Heating Performance			
Total Capacity Btu/hr	Refrigerant Type	Indoor Air Temperature Dry Bulb	
		Entering °F	Leaving °F
48637	R410A	52.6	75.0

Hot Gas Reheat Coil Section

Type	Face Area	Air Pressure Drop	Total Capacity	Leaving Air Temperature	
				Dry Bulb	Wet Bulb
Aluminum Tube Micro-Channel	14.6 ft²	0.02 inH2O	34375 Btu/hr	70.0 °F	58.8 °F

Fan Section

Fan		
Type	Fan Wheel Diameter	Fan Isolation
SWSI AF	14 in	None

Performance				
Airflow	Total Static Pressure	Fan Speed	Brake Horsepower	Altitude
2000 CFM	3.4 inH2O	2478 rpm	1.79 HP	0 ft

Motor				
Type	Horsepower	Efficiency	FLA	Drive Type
ECM Motor	2.3	Premium	5.0 A	Direct Drive

Electric Heat Section

Physical			Electrical
Airflow	Size	Control	FLA A
2000 CFM	36 kW	SCR control	99.9

Performance			
Capacity Btu/hr	Air Temperature		Air Pressure Drop inH2O
	Entering °F	Leaving °F	
122868	0.0	56.6	0.07

Unit Discharge Conditions

AirTemperature				
Motor Heat Btu/hr	Moisture Removal lb/h	Unit Leaving Dry Bulb °F	Unit Leaving Wet Bulb °F	Unit Leaving Dewpoint °F
5144	23.0	56.5	53.4	51.5

Technical Data Sheet for ERV

Internal Pressure Drop Calculation

External Static Pressure:	1.50 inH2O
Filter:	0.02 inH2O
Dirty Filter:	0.50 inH2O
Outside Air:	0.05 inH2O
Energy Recovery:	0.90 inH2O
DX Coil:	0.39 inH2O
Hot Gas Reheat:	0.02 inH2O
Electric Heat:	0.07 inH2O
Total Static Pressure:	3.45 inH2O

Sound

Sound Power (db)								
Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Inlet	74	73	81	76	78	77	72	67
Discharge	74	76	84	81	84	83	80	75

Options

Unit	
Ventilation Controls:	Outdoor Air Monitor
Electrical	
Field Connection:	Non-Fused Disconnect Switch
Powered Receptacle:	Field powered 115V GFI outlet
Power Options:	Phase Failure Monitor
Controls	
Communication Card:	BACnet/MSTP card, Factory installed

Factory Installed Sensors

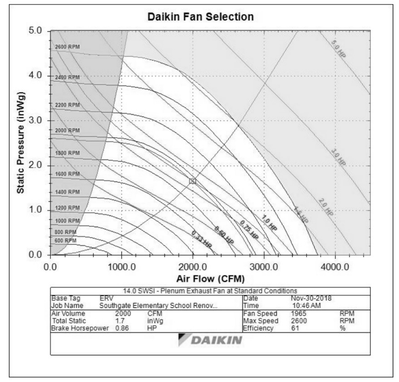
Leaving Coil/Entering Fan Temperature Sensor
BACnet/MSTP Card
Return Air Temperature Sensor
Discharge Air Temperature sensor – Wired in unit, mounted in supply duct
Outside Air Temperature Sensor
Dirty Filter On/Off Switch
Supply Fan Air Proving Via Modbus
Building Static Pressure Sensor
Ebtron Airflow Station
Supply Leaving Wheel Temperature Sensor
Exhaust Leaving Wheel Temperature Sensor
Return Air Relative Humidity Sensor
Energy Wheel VFD

Warranty

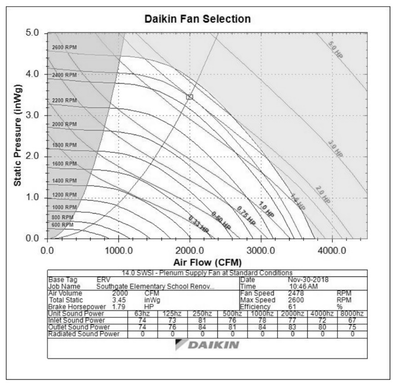
Parts: Standard One Year

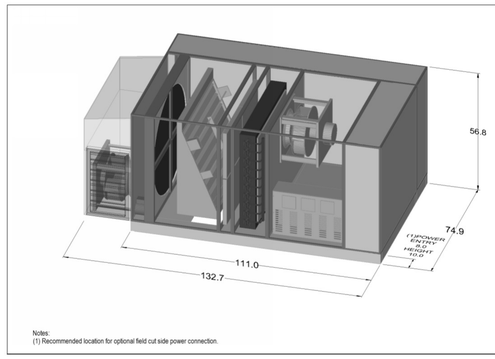
Notes

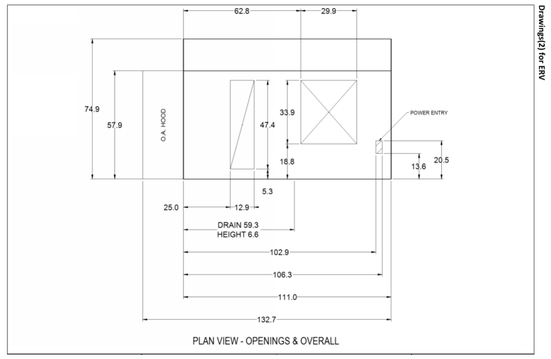
Fan Curve - Exhaust for ERV

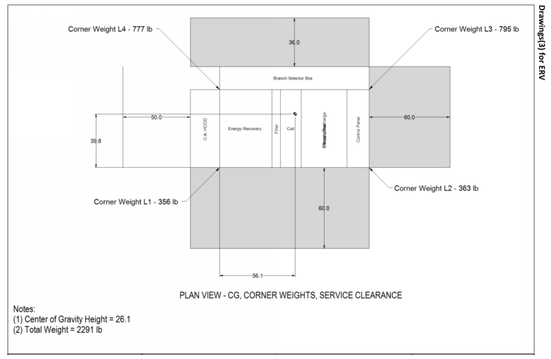


Fan Curve - Supply for ERV









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800.354.9783 859.442.8050
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Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate, KY
Mr. Greg Duty, Superintendent
Southgate Independent School District

STATE OF KENTUCKY
JOSEPH T. WORSEK
LICENSED PROFESSIONAL ENGINEER
THIS PLAN IS NOT VALID UNLESS ORIGINAL AND SIGNED

REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: CJS CHK: KTW
PROJ. DATE 12/13/18
SHEET DATE 12/13/18
JOB NO. 20692.00

MECHANICAL - SCHEDULES

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Mechanical Compliance Certificate

Project Information

Energy Code:	2012 IECC
Project Title:	Southgate Elementary School
Location:	Southgate, Kentucky
Climate Zone:	4a
Project Type:	Alteration

Construction Site:
6 William F. Blatt Ave.
Southgate, KY 41071

Owner/Agent:

Designer/Contractor:

Mechanical Systems List

Quantity System Type & Description

1 CU-03 (Single Zone):
VRF, Air Cooled w/ Heat Recovery Heat Pump
Heating Mode: Capacity = 396 kBtu/h,
No minimum efficiency requirement applies
Cooling Mode: Capacity = 325 kBtu/h,
No minimum efficiency requirement applies
Fan System: CU-03 -- Compliance (Motor nameplate HP method) : Passes

Fans:
VRF110 Supply, Constant Volume, 350 CFM, 0.3 motor nameplate hp
VRF108 Supply, Constant Volume, 190 CFM, 0.3 motor nameplate hp
VRF105 Supply, Constant Volume, 910 CFM, 0.3 motor nameplate hp
VRF106 Supply, Constant Volume, 940 CFM, 0.3 motor nameplate hp
VRF107 Supply, Constant Volume, 620 CFM, 0.3 motor nameplate hp
VRF206 Supply, Constant Volume, 1200 CFM, 0.3 motor nameplate hp
VRF214 Supply, Constant Volume, 260 CFM, 0.3 motor nameplate hp
VRF209 Supply, Constant Volume, 1150 CFM, 0.3 motor nameplate hp
VRF211 Supply, Constant Volume, 1180 CFM, 0.3 motor nameplate hp
VRF212 Supply, Constant Volume, 380 CFM, 0.3 motor nameplate hp
VRF210 Supply, Constant Volume, 320 CFM, 0.3 motor nameplate hp
VRF208 Supply, Constant Volume, 140 CFM, 0.3 motor nameplate hp
VRF207 Supply, Constant Volume, 990 CFM, 0.3 motor nameplate hp
VRF205 Supply, Constant Volume, 1110 CFM, 0.3 motor nameplate hp

1 CU-01 (Single Zone):
Split System Heat Pump
Heating Mode: Capacity = 4 kBtu/h,
Proposed Efficiency = 9.40 HSPF, Required Efficiency = 7.70 HSPF
Cooling Mode: Capacity = 14 kBtu/h,
Proposed Efficiency = 17.30 SEER, Required Efficiency: 13.00 SEER
Fan System: CU-01 -- Compliance (Motor nameplate HP method) : Passes

Fans:
DS01 Supply, Constant Volume, 670 CFM, 0.3 motor nameplate hp

1 CH-01 (Unknown):
Heating: 1 each - Unit Heater, Electric, Capacity = 7 kBtu/h
No minimum efficiency requirement applies
Fan System: CH-01 -- Compliance (Motor nameplate HP method) : Passes

Fans:
CH01 Supply, Constant Volume, 200 CFM, 0.3 motor nameplate hp

Quantity System Type & Description

1 CU-04 (Single Zone):
VRF, Air Cooled w/ Heat Recovery Heat Pump
Heating Mode: Capacity = 222 kBtu/h,
No minimum efficiency requirement applies
Cooling Mode: Capacity = 182 kBtu/h,
No minimum efficiency requirement applies
Fan System: CU-04 -- Compliance (Motor nameplate HP method) : Passes

Fans:
VRF201 Supply, Constant Volume, 990 CFM, 0.3 motor nameplate hp
VRF202 Supply, Constant Volume, 760 CFM, 0.3 motor nameplate hp
VRF213 Supply, Constant Volume, 320 CFM, 0.3 motor nameplate hp
VRF204 Supply, Constant Volume, 530 CFM, 0.3 motor nameplate hp
VRF203 Supply, Constant Volume, 720 CFM, 0.3 motor nameplate hp
VRF101 Supply, Constant Volume, 490 CFM, 0.3 motor nameplate hp
VRF111 Supply, Constant Volume, 640 CFM, 0.3 motor nameplate hp
VRF104 Supply, Constant Volume, 430 CFM, 0.3 motor nameplate hp
VRF103 Supply, Constant Volume, 1190 CFM, 0.3 motor nameplate hp
VRF102 Supply, Constant Volume, 650 CFM, 0.3 motor nameplate hp

1 CH-02 (Unknown):
Heating: 1 each - Unit Heater, Electric, Capacity = 7 kBtu/h
No minimum efficiency requirement applies
Fan System: CH-02 -- Compliance (Motor nameplate HP method) : Passes

Fans:
CH02 Supply, Constant Volume, 200 CFM, 0.3 motor nameplate hp

1 CU-02 (Single Zone):
Split System Heat Pump
Heating Mode: Capacity = 8 kBtu/h,
Proposed Efficiency = 9.40 HSPF, Required Efficiency = 7.70 HSPF
Cooling Mode: Capacity = 17 kBtu/h,
Proposed Efficiency = 17.30 SEER, Required Efficiency: 13.00 SEER
Fan System: CU-02 -- Compliance (Motor nameplate HP method) : Passes

Fans:
DS02 Supply, Constant Volume, 800 CFM, 0.3 motor nameplate hp

1 CH-03 (Unknown):
Heating: 1 each - Unit Heater, Electric, Capacity = 7 kBtu/h
No minimum efficiency requirement applies
Fan System: CH-03 -- Compliance (Motor nameplate HP method) : Passes

Fans:
CH03 Supply, Constant Volume, 200 CFM, 0.3 motor nameplate hp

1 CH-04 (Unknown):
Heating: 1 each - Unit Heater, Electric, Capacity = 7 kBtu/h
No minimum efficiency requirement applies
Fan System: CH-04 -- Compliance (Motor nameplate HP method) : Passes

Fans:
CH04 Supply, Constant Volume, 200 CFM, 0.3 motor nameplate hp

1 CH-05 (Unknown):
Heating: 1 each - Unit Heater, Electric, Capacity = 7 kBtu/h
No minimum efficiency requirement applies
Fan System: CH-05 -- Compliance (Motor nameplate HP method) : Passes

Fans:
CH05 Supply, Constant Volume, 200 CFM, 0.3 motor nameplate hp

1 EWH-01 (Unknown):
Heating: 1 each - Unit Heater, Electric, Capacity = 3 kBtu/h
No minimum efficiency requirement applies

Quantity System Type & Description

Fan System: EWH-01 -- Compliance (Motor nameplate HP method) : Passes

Fans:
EWH01 Supply, Constant Volume, 200 CFM, 0.3 motor nameplate hp

1 EWH-02 (Unknown):
Heating: 1 each - Unit Heater, Electric, Capacity = 3 kBtu/h
No minimum efficiency requirement applies
Fan System: EWH-02 -- Compliance (Motor nameplate HP method) : Passes

Fans:
EWH02 Supply, Constant Volume, 200 CFM, 0.3 motor nameplate hp

1 EWH-03 (Unknown):
Heating: 1 each - Unit Heater, Electric, Capacity = 3 kBtu/h
No minimum efficiency requirement applies
Fan System: EWH-03 -- Compliance (Motor nameplate HP method) : Passes

Fans:
EWH03 Supply, Constant Volume, 200 CFM, 0.3 motor nameplate hp

1 CU-05 (Single Zone):
VRF, Air Cooled w/ Heat Recovery Heat Pump
Heating Mode: Capacity = 232 kBtu/h,
No minimum efficiency requirement applies
Cooling Mode: Capacity = 190 kBtu/h,
No minimum efficiency requirement applies
Fan System: CU-04 -- Compliance (Motor nameplate HP method) : Passes

Fans:
VRF201 Supply, Constant Volume, 990 CFM, 0.3 motor nameplate hp
VRF202 Supply, Constant Volume, 760 CFM, 0.3 motor nameplate hp
VRF213 Supply, Constant Volume, 320 CFM, 0.3 motor nameplate hp
VRF204 Supply, Constant Volume, 530 CFM, 0.3 motor nameplate hp
VRF203 Supply, Constant Volume, 720 CFM, 0.3 motor nameplate hp
VRF101 Supply, Constant Volume, 490 CFM, 0.3 motor nameplate hp
VRF111 Supply, Constant Volume, 640 CFM, 0.3 motor nameplate hp
VRF104 Supply, Constant Volume, 430 CFM, 0.3 motor nameplate hp
VRF103 Supply, Constant Volume, 1190 CFM, 0.3 motor nameplate hp
VRF102 Supply, Constant Volume, 650 CFM, 0.3 motor nameplate hp

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2012 IECC requirements in COM*check* Version 4.0.8.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

________________ ________________ __________
Name - Title Signature Date

COM*check* Software Version 4.0.8.1

Inspection Checklist

Energy Code: 2012 IECC

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.2.4.5 [FO9][3]	Freeze protection and snow/ice melting system sensors for future connection to controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.3 [ME55][2]	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.5.1 [ME59][1]	Demand control ventilation provided for spaces >500 sq.ft. and >25 people/1000 sq.ft. occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7 [ME60][2]	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8.1 [ME7][3]	Piping Insulation exposed to weather is protected from damage (due to sun, moisture, wind, etc.).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME41][3]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.3.1.a [NA][0]	Total cooling capacity without economizers must be less than %varMaxKBtuPerH%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7 [ME10][2]	Ducts and plenums sealed based on static pressure and location.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

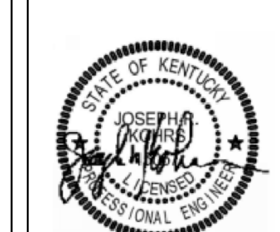
Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2.1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

2" REFERENCE LINE

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
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859-442-8058 FAX
LEXINGTON, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate, KY
Southgate Independent School District
Mr. Greg Duty, Superintendent



REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: CJS	CHK: KTW
PROJ. DATE	12/13/18
SHEET DATE	12/13/18
JOB NO.	20692.00

MECHANICAL ENERGY COMPLIANCE

M-701

OWNERSHIP OF INSTRUMENTS OF SERVICE
All reports, drawings, specifications, computer files, field data, notes and other documents and instruments prepared by the Consultant as instruments of service shall remain the property of the Consultant. The Consultant shall retain all common law, statutory and other reserved rights, including without limitation, the copyright thereto.

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.4.2 [ME66][1]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][3]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][4]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][5]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][6]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][7]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][8]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.6 [ME57][1]	Exhaust air energy recovery on systems meeting Table C403.2.6	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.11 [ME71][2]	Unenclosed spaces that are heated use only radiant heat.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C403.2.4.1 [FI47][1]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][2]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][4]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][5]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][6]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][7]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][8]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C403.2.4.1 [FI47][1]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][2]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2 [FI38][1]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2 [FI20][1]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3 [FI39][1]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3 [FI40][1]	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][1]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][2]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][4]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C403.2.4.3.3 [FI41][1]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][2]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][4]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][5]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][6]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.1 [FI42][1]	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.1 [FI42][2]	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.1 [FI42][3]	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.1 [FI42][4]	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.5.1 [FI7][1]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C303.3, C408.2.5.3 [FI8][1]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.3 [FI43][1]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.2 [FI10][1]	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [FI27][1]	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.1 [FI28][1]	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.4 [FI29][1]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.4 [FI30][1]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.1 [FI31][1]	HVAC equipment has been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

MECHANICAL/ELECTRICAL ENGINEERS
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Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate Independent School District

Southgate, KY
Mr. Greg Duty, Superintendent

STATE OF KENTUCKY JOSEPH T. WHITE LICENSED PROFESSIONAL ENGINEER

REVISIONS

08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: CJS CHK: KTW
PROJ. DATE 12/13/18
SHEET DATE 12/13/18
JOB NO. 20692.00

MECHANICAL ENERGY COMPLIANCE

M-702

2" REFERENCE LINE

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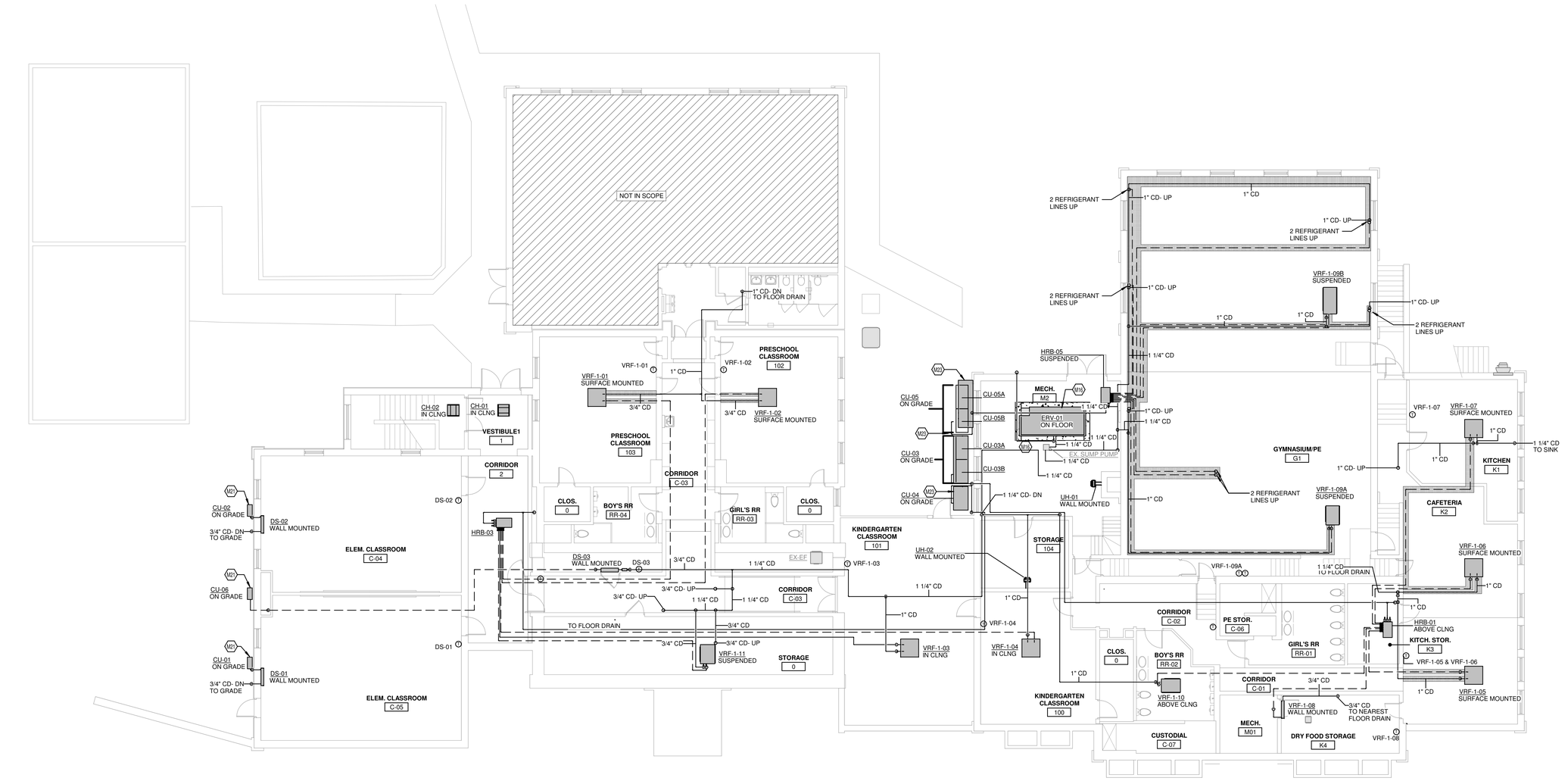
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KEYED NOTES

M16	INSTALL NEW ERV ON EXISTING BOILER PAD. EXTEND EXISTING PAD 1" ON ALL SIDE TO ACCOMODATE NEW ERV SIZE.
M21	PROVIDE NEW CONCRETE PAD FOR CONDENSING UNIT.
M23	PROVIDE BIGFOOT SUPPORT SYSTEM TO RAISE UNITS TO MANUFACTURER RECOMMENDATIONS.

PROVIDE REFRIGERANT PIPING GUARD EQUAL TO RECTORSEAL SLIMDUCT. MC CABLE TO BE INSTALLED IN GUARD ALONG WITH PIPING. COORDINATE SIZING WITH ELECTRICAL CONTRACTOR.

NOTE: ALL PIPE INSULATION SHALL BE WHITE.



1 MECHANICAL PIPING - LEVEL 1
1/8" = 1'-0"

2" REFERENCE LINE

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STATE OF KENTUCKY JOSEPH T. WHITE 24818 LICENSED PROFESSIONAL ENGINEER

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MECHANICAL PIPING - LEVEL 1

MP100

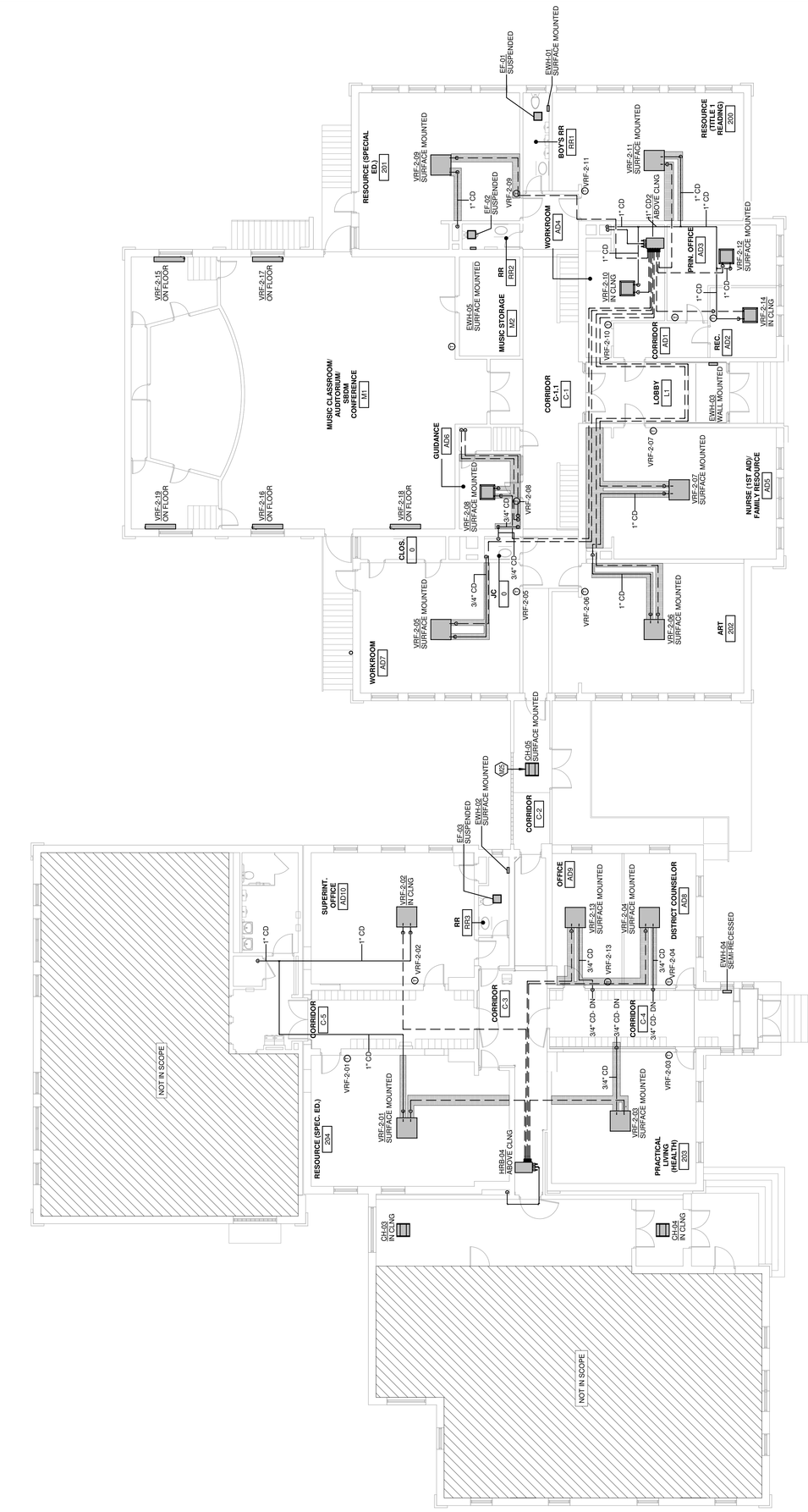
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KEYED NOTES

M25 WIRE MOLD FOR ELECTRICAL CONNECTORS TO BE PROVIDED WITH HEATER

PROVIDE REFRIGERANT PIPING GUARD EQUAL TO RECTORSEAL SLIMDUCT. MC CABLE TO BE INSTALLED IN GUARD ALONG WITH PIPING. COORDINATE SIZING WITH ELECTRICAL CONTRACTOR

NOTE: ALL PIPE INSULATION SHALL BE WHITE



1 MECHANICAL PIPING - LEVEL 2
1/8" = 1'-0"

2" REFERENCE LINE

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MECHANICAL PIPING - LEVEL 2

MP101

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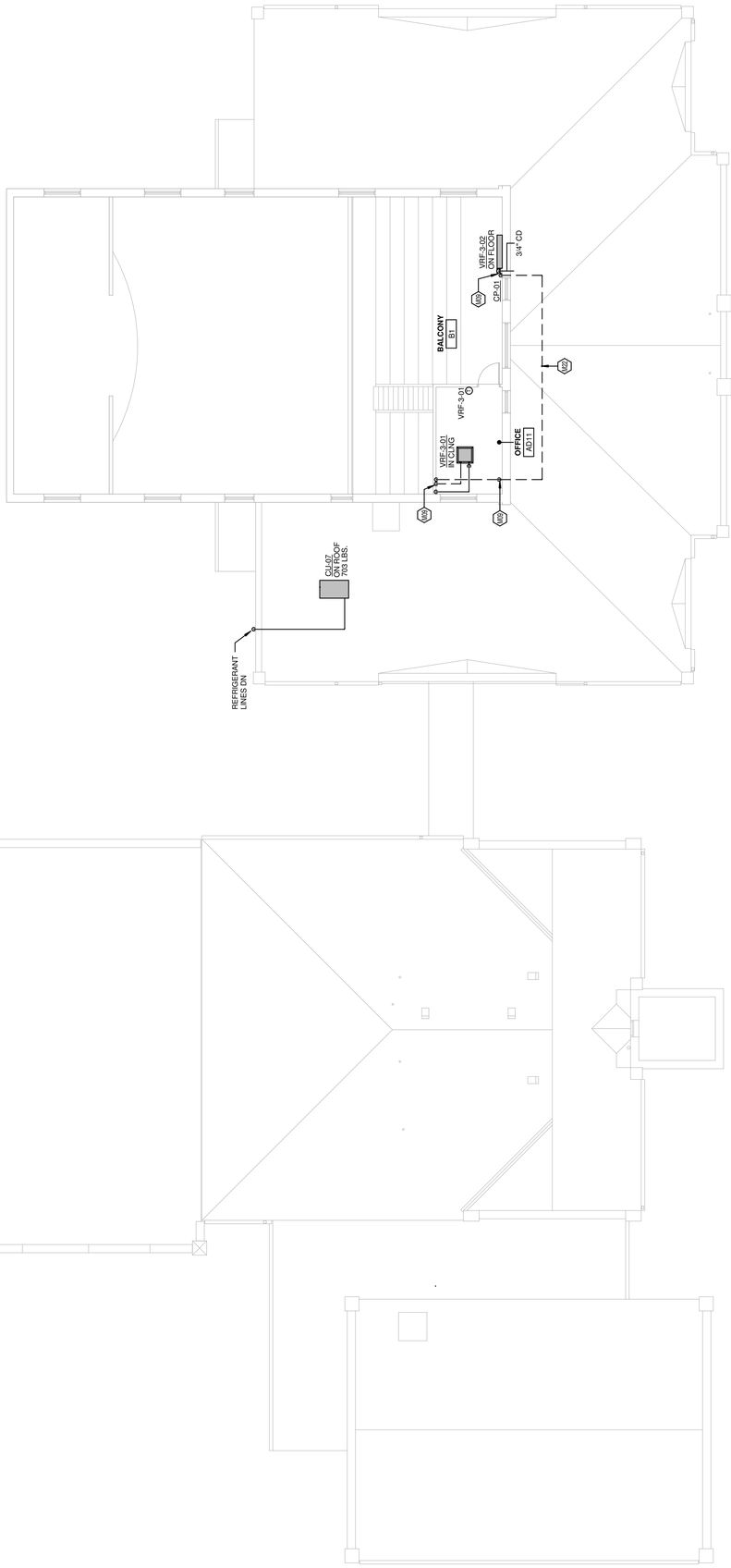
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MECHANICAL
PIPING - ROOF

MP102

KEYED NOTES

M19 PROVIDE SHEET METAL SHROUD TO ENCLOSE ALL VERTICAL PIPING.
M22 ROUTE PIPING ON ROOF, MINIMUM 4' FROM WALL. SUPPORT PIPING PER SPECIFICATIONS.



1 MECHANICAL PIPING - ROOF
1/8" = 1'-0"

2" REFERENCE LINE

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EXISTING CONDITIONS - GENERAL NOTES

A. INTENT OF DOCUMENTS: IT IS NOT THE INTENT OF ELECTRICAL DOCUMENTS THAT EXISTING CONDITIONS BE ACCURATELY SHOWN. EXISTING ELECTRICAL WORK IS SHOWN TO A VERY LIMITED EXTENT ON DRAWINGS AND IS SHOWN FOR GENERAL PLANNING REFERENCE ONLY. LOCATIONS AND INFORMATION WERE DERIVED FROM CURSORY VISUAL OBSERVATIONS OR FROM PORTIONS OF DOCUMENTS THAT WERE PREPARED FOR PREVIOUSLY INSTALLED WORK (NOT FROM RECORD DRAWINGS OR "AS-BUILTS").
B. PRE-BID SURVEY: PERFORM A DETAILED PRE-BID WALK-THROUGH FIELD INSPECTION AND SURVEY TO REVIEW THE EXISTING STRUCTURES AND PREMISES, TO ACCURATELY DETERMINE EXISTING CONDITIONS, AND TO DETERMINE SCOPE OF REQUIRED ELECTRICALLY RELATED WORK. INCLUDE APPLICABLE ACCESSIBLE CEILING CAVITY AREAS IN THIS INSPECTION.
C. RISK MITIGATION: MINIMIZE RISKS TO INDIVIDUALS AND PROPERTY THROUGHOUT THE DURATION OF THE PROJECT. COORDINATE WITH, AND OBTAIN APPROVAL FROM, THE OWNER AND DESIGN PROFESSIONAL FOR ALL MATERIALS, METHODS, STEPS, LOCATIONS, INSTALLATIONS, ETC. PRIOR TO COMMENCEMENT OF WORK. DETERMINE AND EMPLOY MEANS AND METHODS AS REQUIRED TO SAFELY AND SECURELY IMPLEMENT ALL RELATED WORK.
D. REUSE OF REMOVED MATERIALS: DO NOT REUSE REMOVED ELECTRICAL MATERIALS UNLESS SPECIFICALLY INDICATED IN PROJECT DOCUMENTS. EXISTING WIRING SYSTEMS MAY BE UTILIZED ONLY TO THE EXTENT INDICATED IN PROJECT DOCUMENTS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE IN FIELD.
E. PROTECTIVE BARRIERS: PROVIDE AND MAINTAIN TEMPORARY PARTITIONS AND DUST BARRIERS ADEQUATE TO PREVENT THE SPREAD OF DUST AND DIRT TO ADJACENT FINISHED AREAS AND OTHER SYSTEM COMPONENTS. PROTECT ADJACENT INSTALLATIONS DURING CUTTING AND PATCHING OPERATIONS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE. PREVENT AIRBORNE DUST AND PARTICULATE MATTER RESULTING FROM ELECTRICAL WORK FROM ENTERING OCCUPIED SPACES, AND FROM ENTERING AIR INTAKES TO OPERATING HVAC SYSTEMS. MEET WITH OWNER AND HVAC INSTALLER TO DETERMINE SPECIAL INDOOR AIR QUALITY (IAQ) REQUIREMENTS RELATED TO ELECTRICAL THAT MAY APPLY TO THIS PROJECT. COOPERATE FULLY WITH HVAC IAQ REQUIREMENTS THAT AFFECT ELECTRICAL WORK AND ARE AFFECTED BY ELECTRICAL WORK.
F. PENETRATIONS: MAKE REQUIRED ELECTRICAL OPENINGS THROUGH WALLS, FLOORS, ETC. IMMEDIATELY PRIOR TO INSTALLATION OF WORK. PROPERLY AND PERMANENTLY SEAL ELECTRICAL OPENINGS IMMEDIATELY AFTER INSTALLATION OF WORK. PROVIDE TEMPORARY SEALS FOR APPLICATIONS WHERE PENETRATIONS ARE MADE BUT CANNOT BE PERMANENTLY SEALED WITHIN FOUR HOURS.
G. PRE-EXISTING CODE VIOLATIONS: INSPECT EXISTING ELECTRICAL WORK IN AREAS ACCESSED UNDER THIS PROJECT AND BRING INTO COMPLIANCE WITH NFPA 70. THIS APPLIES ONLY TO THE EXTENT THAT SUCH WORK IS UNCOVERED IN THE IMMEDIATE PROJECT AREAS AFFECTED BY CONSTRUCTION ACTIVITIES, AND ONLY TO THE LIMITED EXTENT THAT IT APPLIES TO PRE-EXISTING GENERAL INSTALLATION METHODS SUCH AS MISSING JUNCTION BOX PLATE, OPEN JUNCTION BOX KNOCKOUT, MINOR CONDUIT RE-ANCHORING AND MINOR EXPOSED WIRING/CONNECTIONS. IF MORE EXTENSIVE CODE OR SAFETY VIOLATIONS ARE DISCOVERED, IMMEDIATELY BRING THEM TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE (DETAILED IN WRITING) ALONG WITH PROPOSED COST FOR CORRECTIONS AND IMPACT (IF ANY) ON THE CONSTRUCTION SCHEDULE.
H. TEMPORARY LIGHTING AND POWER: PROVIDE SUFFICIENT LIGHTING AND POWER CENTERS THROUGHOUT INTERIOR OF NEW WORK OR RENOVATION SCOPE. PROVIDE GFCI PROTECTION FOR ALL WORK. COORDINATE WITH GENERAL CONTRACTOR AND OTHER TRADES, AND PROVIDE ANY ADDITIONAL TEMPORARY ELECTRICAL NEEDS THAT ARE REQUIRED. FULLY DEMOLISH TEMPORARY ELECTRIC BY END OF PROJECT. UPON RECEIVING WRITTEN PERMISSION FROM OWNER'S REPRESENTATIVE, TEMPORARY ELECTRICAL SERVICE(S) MAY BE DERIVED FROM EXISTING BUILDING ENERGIZED SERVICE. PROVIDE OVERCURRENT PROTECTION, DISCONNECTS, CABLES, CONDUCTORS, RACEWAY, ETC. ACCORDINGLY. PROVIDE TEMPORARY SERVICE FROM UTILITY IF PERMISSION TO USE EXISTING BUILDING POWER IS NOT GRANTED BY OWNER'S REPRESENTATIVE; ARRANGE WITH LOCAL UTILITY FOR TEMPORARY SERVICE AND PAY ASSOCIATED FEES FOR INSPECTIONS, CONNECTIONS, ETC., AND PAY FOR UTILITY ELECTRIC USAGE/CONSUMPTION COSTS. RESTORE ASSOCIATED SITE AND BUILDING MATERIALS TO THEIR PRE-CONSTRUCTION STATE AND CONDITION AFTER TEMPORARY LIGHTING AND POWER IS NO LONGER NEEDED.
I. INTERIM LIFE-SAFETY PROVISIONS: PROVIDE INTERIM ELECTRICAL FIRE ALARM AND LIFE SAFETY PROTECTION IN DEMOLITION AND CONSTRUCTION AREAS AS INDICATED BELOW. CONTACT DESIGN PROFESSIONAL IF FURTHER DEFINITION IS NEEDED. REMOVE ALL TEMPORARY LIFE SAFETY WORK WHEN NO LONGER NEEDED. PROVIDE TEMPORARY PLASTIC COVERS, OBTAINED FROM SMOKE DETECTOR MANUFACTURER OR OBTAINED FROM A THIRD PARTY AND SPECIFICALLY APPROVED FOR SUCH USE BY SMOKE DETECTOR MANUFACTURER, OVER EXISTING SMOKE DETECTORS WITHIN PROJECT AREA, AND IN ADJACENT AREAS THAT ARE EXPOSED TO CONSTRUCTION-RELATED DUST OR AIRBORNE PARTICULATES, DURING WORKING PERIODS. REMOVE COVERS AFTER EACH SHIFT. PROVIDE TEMPORARY UL 924 COMPLIANT EXIT AND/OR EGRESS LIGHTING ALONG EGRESS ROUTES AFFECTED BY THIS PROJECT, AS OR IF APPLICABLE. PROVIDE TEMPORARY FIRE ALARM SYSTEM PULL STATIONS AND/OR AUDIO/VISUAL ALARM NOTIFICATION DEVICES ALONG ALL AFFECTED EGRESS ROUTES THAT MUST REMAIN ACTIVE DURING THE PROJECT, AS OR IF APPLICABLE.

EXISTING CONDITIONS - POWER CONTINUITY NOTES

THE FOLLOWING NOTES BROADLY DEFINE SOME OF THE SPECIALTY BASE BID SCOPE OF WORK REQUIRED TO PROVIDE SPECIAL TEMPORARY POWER FOR NEW AND EXISTING FACILITIES TO ACCOMMODATE UTILITY POWER INTERRUPTIONS. FIELD VERIFY ALL SPECIFICS AND PROVIDE MATERIALS, NORMAL TIME LABOR, PREMIUM TIME LABOR, SERVICES, ETC. FOR ALL WORK UNDER BASE BID, INCLUDING BUT NOT LIMITED TO THE FOLLOWING.

A. INVESTIGATION OF EXISTING CONDITIONS: LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH DEMOLITION AREAS AND SERVING OTHER AREAS OUTSIDE THE DEMOLITION LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE DEMOLITION LIMITS. WHEN SERVICES MUST BE INTERRUPTED, PROVIDE TEMPORARY SERVICES FOR AFFECTED AREAS. IT IS RECOGNIZED THAT THERE MAY BE SOME CONDUIT SYSTEMS RENDERED INACTIVE BY DEMOLITION, CAUSING DISCONNECTION OF "DOWNSTREAM" OUTLETS, ETC. INVESTIGATE THESE TYPES OF CONDITIONS (FOR ALL SYSTEMS) PRIOR TO DEMOLITION. PROVIDE NECESSARY CORRECTIVE ELECTRICAL WORK PRIOR TO DEMOLITION TO ENSURE THAT SUCH "DOWNSTREAM" DEVICES REMAIN PERMANENTLY ACTIVE THROUGHOUT DEMOLITION, DURING NEW CONSTRUCTION, AND AFTER PROJECT COMPLETION.
B. COORDINATION WITH OWNER: CAREFULLY COORDINATE WORK AND SYSTEM SHUTDOWNS IN ADVANCE WITH OWNER'S REPRESENTATIVE, AND WITH AFFECTED TRADES SO THAT NORMAL BUILDING ACTIVITIES AND OTHER CONSTRUCTION TRADES ARE MINIMALLY AFFECTED. PERFORM ELECTRICALLY RELATED CONSTRUCTION WORK, WHICH WILL AFFECT AN OCCUPIED AREA (INCLUDING THOSE WHICH ARE LOCATED OUTSIDE THE IMMEDIATE AREA OF PROJECT WORK) AT SPECIAL TIMES AS DIRECTED BY OWNER'S REPRESENTATIVE IN FIELD. DO NOT INTERRUPT ELECTRICAL UTILITY SERVICE(S) TO THE FACILITY, OR ANY PART THEREOF, UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS, AND THEN ONLY AFTER PROVIDING TEMPORARY ELECTRICAL SERVICE(S)/FEEDS: NOTIFY OWNER AND DESIGN PROFESSIONALS NO FEWER THAN FOURTEEN DAYS IN ADVANCE OF EACH PROPOSED INTERRUPTION OF AN ELECTRICAL SERVICE; DO NOT PROCEED WITH INTERRUPTION OF AN ELECTRICAL SERVICE WITHOUT OWNER'S WRITTEN PERMISSION; DO NOT ENERGIZE ANY NEW WORK WITHOUT NOTIFICATION TO, AND SUBSEQUENT PERMISSION FROM, THE OWNER.
C. COORDINATION WITH BUILDING OPERATIONS: PROVIDE WORK IN A MANNER THAT ENSURES EXISTING SYSTEMS AND COMPONENTS REMAIN FULLY OPERATIONAL IN OCCUPIED SPACES DURING OCCUPIED PERIODS. MAINTAIN EXISTING ELECTRICAL SERVICE AND FEEDERS TO OCCUPIED AREAS AND OPERATIONAL FACILITIES, UNLESS OTHERWISE INDICATED, OR WHEN AUTHORIZED OTHERWISE IN WRITING BY OWNER'S REPRESENTATIVE. PROVIDE TEMPORARY SERVICE DURING INTERRUPTIONS TO EXISTING FACILITIES. SCHEDULE MOMENTARY OUTAGES WHEN NECESSARY FOR REPLACING EXISTING WIRING SYSTEMS WITH NEW WIRING SYSTEMS. WHEN THAT "CUTTING-OVER" HAS BEEN SUCCESSFULLY ACCOMPLISHED, REMOVE RELATED WIRING THAT HAS BEEN ABANDONED.
D. TEMPORARY ARRANGEMENTS: DURING CONSTRUCTION RELATED ELECTRICAL OUTAGES, SWITCHOVERS, DISCONNECTIONS, RECONNECTIONS, ETC. PROVIDE ALL TEMPORARY INSULATED CONDUCTORS, TAPS, JUMPERS, ETC. TO AND FROM EXISTING AND NEW OR TEMPORARY ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO, CONDUCTORS, SPLICES, LUG FITTINGS, REWORK, PREMIUM TIME, SECURITY AND SAFETY MEASURES, ETC. COORDINATE WITH, AND OBTAIN APPROVAL FROM, OWNER AND DESIGN PROFESSIONALS FOR ALL MATERIALS, METHODS, STEPS, LOCATIONS, INSTALLATIONS, SEQUENCING, ETC. PRIOR TO COMMENCEMENT OF WORK. DETERMINE AND EMPLOY MEANS AND METHODS AS REQUIRED TO SAFELY AND SECURELY IMPLEMENT ALL RELATED WORK. COMPLY WITH NFPA 70E. SCHEDULE ALL OUTAGES IN ADVANCE WITH OWNER, AT DAYS OF WEEK AND TIMES OF DAY OR NIGHT AS DIRECTED BY OWNER, AS NECESSARY TO ACCOMMODATE ALL CONSTRUCTION RELATED ELECTRICAL OUTAGES, SWITCHOVERS AND RELATED CONNECTIONS AND DISCONNECTIONS.
E. TEMPORARY GENERATOR: PROVIDE A TEMPORARY MOBILE ENCLOSED TRAILER-MOUNTED DIESEL-FUEL-POWERED PACKAGE GENERATOR (EPA TIER 4 FINAL RATED) SET FOR EACH INSTANCE FOR AS LONG AS IT TAKES TO MODIFY OR REPLACE UTILITY POWER TO ANY PART OF THE FACILITY. PROVIDE SECURED AND PROTECTED TEMPORARY FEEDERS AND TERMINATIONS FROM MOBILE GENERATOR TO EQUIPMENT. REMOVE MOBILE GENERATOR FROM SITE WHEN NO LONGER NEEDED AND REMOVE ALL RELATED TEMPORARY PROVISIONS. PROVIDE ALL REQUIRED DIESEL FUEL FOR TEMPORARY GENERATOR OPERATION. PARK THE TEMPORARY GENERATOR AT A LOCATION AS DIRECTED BY OWNER.

EXISTING CONDITIONS - DEMOLITION NOTES

A. DEFINITION OF DEMOLITION: WHERE THE TERM "DEMOLITION" IS USED IN ELECTRICAL DOCUMENTS, INTERPRET IT TO MEAN "DEMOLITION" OR "SELECTIVE DEMOLITION" AS APPLICABLE FOR THE RESPECTIVE SCOPE OF WORK. WHERE THE TERM "DEMOLISH", "REMOVE" OR SIMILAR TERMS ARE USED IN ELECTRICAL DOCUMENTS, INTERPRET TO MEAN "DISCONNECT, REMOVE, DISPOSE OF, AND REMOVE ALL RELATED ELECTRICAL CONDUIT, RACEWAYS, WIRING, CABLES, BOXES, SUPPORTS, ETC.".
B. GENERAL ACCOMMODATIONS: PROVIDE ELECTRICAL DEMOLITION WORK AS REQUIRED TO ACCOMMODATE PROJECT DEMOLITION AND AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION. DISCONNECT AND REMOVE WORK TO BE ABANDONED, AND AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES, IN AREAS AFFECTED BY THIS PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS OR DETERMINED OTHERWISE DURING PRE-DEMOLITION SURVEY. COORDINATE WORK CAREFULLY WITH OWNER PRIOR TO BEGINNING ELECTRICAL DEMOLITION WORK.
C. REMOVAL OF ABANDONED WORK: REMOVE ACCESSIBLE ABANDONED, INACTIVE AND OBSOLETE RACEWAY SYSTEMS. REMOVE ABANDONED, INACTIVE AND OBSOLETE EQUIPMENT, LUMINAIRES, DEVICES, CONDUIT, RACEWAYS, WIRING, CABLES, BOXES, SUPPORTS, CONTROLS, ETC. ABANDONED RACEWAYS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. THIS APPLIES FOR ALL ELECTRICAL WORK, AND ALL COMMUNICATIONS AND INFORMATION TECHNOLOGY TYPE WORK, INCLUDING ALL SUCH WORK ABOVE CEILINGS, ETC. REMOVE RELATED ABANDONED UNUSED RACEWAY BACK TO THE NEAREST RESPECTIVE "UPSTREAM" JUNCTION BOX THAT REMAINS ACTIVE EVEN IF OUTSIDE OF THE CONFINES OF THE PROJECT AREA. REMOVE ABANDONED UNUSED WIRING AND CABLES BACK TO RESPECTIVE SOURCES SOURCE EVEN IF SOURCES ARE OUTSIDE THE CONFINES OF THE PROJECT AREA.
D. RE-USE OF EXISTING CONDUIT: EXISTING BRANCH CIRCUIT AND SYSTEMS CONDUIT, NOT CONFLICTING WITH NEW CONSTRUCTION AND NOT CONFLICTING WITH OVERHEAD OR CEILING CAVITY REQUIREMENTS, MAY BE RE-USED AT THE DISCRETION OF THE ELECTRICAL INSTALLER AFTER ALL ABANDONED CONDUCTORS AND CABLES HAVE BEEN REMOVED FROM THEM. DO NOT EXCEED NFPA 70 REQUIRED CONDUIT FILL AND DO NOT INSTALL WIRING FED FROM DIFFERENT SOURCES IN COMMON CONDUIT.
E. MODIFICATIONS TO ACCOMMODATE NEW WORK: REMOVE AND RELOCATE EQUIPMENT, LUMINAIRES, DEVICES, CONDUIT, RACEWAYS, WIRING, CABLES, BOXES, SUPPORTS, ETC. THAT CONFLICT WITH CONSTRUCTION RELATED WORK OF ALL TRADES AS NECESSARY TO ACCOMMODATE NEW WORK OF RESPECTIVE TRADES. REWORK AND EXTEND RACEWAY AND WIRING AS REQUIRED TO ACCOMMODATE NEW OR RELOCATED ELECTRICAL WORK. MAINTAIN (OR RECONNECT IF APPLICABLE) REMAINING WIRING. PROVIDE ELECTRICAL DISCONNECTIONS, AND RECONNECTIONS WHERE APPLICABLE, FOR EQUIPMENT TO BE REMOVED (OR RELOCATED) BY OTHER TRADES.
F. CUTTING AND PATCHING: PERFORM CUTTING AND PATCHING REQUIRED FOR DEMOLITION, RESTORED TO MATCH SURROUNDING REMAINING SURFACES, INCLUDING FIRE/SMOKE RATINGS.
G. LUMINAIRES: FOR ALL EXISTING LUMINAIRES WHICH ARE SCHEDULED FOR REUSE, REMOVE FROM EXISTING CEILINGS DURING DEMOLITION; PROTECT DURING CONSTRUCTION; CLEAN, SERVICE (IF REQUIRED), RE-LAMP (WITH LAMPS TO MATCH BUILDING STANDARD) AND REINSTALL AT LOCATIONS INDICATED. FOR ALL EXISTING LUMINAIRES WHICH ARE SCHEDULED TO BE REMOVED AND TURNED OVER TO OWNER, THE LUMINAIRES SHALL BE DISCONNECTED, CAREFULLY REMOVED AND TURNED OVER TO OWNER. TRANSFER SUCH LUMINAIRES TO STORAGE AREA AS DIRECTED IN FIELD.
H. DISPOSAL OF MATERIALS: REFER TO OWNER'S REPRESENTATIVE FOR DISPOSAL INSTRUCTIONS FOR ABANDONED ELECTRICAL MATERIALS REMOVED DURING DEMOLITION AND THEREAFTER. NEATLY STORE ELECTRICAL MATERIALS THAT THE OWNER ELECTS TO RETAIN AT THE SITE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE. LEGALLY DISPOSE OF MATERIALS THAT THE OWNER ELECTS NOT TO RETAIN. DISCONNECT AND REMOVE ELECTRICAL MATERIALS DESIGNATED FOR SALVAGE (REMOVAL AND REUSE, OR FOR TURNING OVER TO OWNER) UNDAMAGED. DISCONNECT AND REMOVE WIRING AND "WHIPS" FROM EQUIPMENT TERMINAL POINTS. CAREFULLY TRANSPORT SALVAGED ELECTRICAL MATERIALS TO A PROTECTED ON-SITE STORAGE LOCATION AS DIRECTED IN FIELD AND NEATLY STORE THEM GROUPED BY SYSTEM TYPE.
I. CLEANING OF REUSED COMPONENTS: CLEAN COMPONENTS TO BE REUSED INSIDE AND OUT, AND REINSTALL WHERE INDICATED ON DRAWINGS. MODIFY AND EXTEND RELATED EXISTING WIRING IN CONDUIT ACCORDINGLY.

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
LIGHTING AND LIGHTING CONTROLS	
	LUMINAIRE (REFER TO THE LUMINAIRE SCHEDULE) NOTE THAT OTHER SHAPES MAY ALSO BE USED TO REPRESENT LUMINAIRES
	SHADED LUMINAIRES DENOTE THOSE CONNECTED TO EMERGENCY OR STANDBY POWER AS APPLICABLE (UNSWITCHED LUMINAIRES ARE EGRESS LIGHTS AND/OR NIGHT-LIGHTS THAT OPERATE 24/7)
A NL a EL	A = LUMINAIRE TYPE (REFER TO THE LUMINAIRE SCHEDULE), NL = NIGHT-LIGHT (UNSWITCHED), a = SWITCHING DESIGNATION, EL = EGRESS LUMINAIRE (UNSWITCHED OR AUTO-ON DURING UTILITY OUTAGE)
TYPE	CEILING-MOUNTED OCCUPANCY SENSOR. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR" = INFRARED, TYPE "US" = ULTRASONIC
MISCELLANEOUS	
T TS	LOW VOLTAGE THERMOSTAT (LEFT) AND TEMPERATURE SENSOR (RIGHT)
	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED) (LEFT) HEAVY DUTY DISCONNECT SWITCH (FUSED) (RIGHT)
VFD	VARIABLE FREQUENCY DRIVE / VARIABLE SPEED DRIVE
M	LINE VOLTAGE MOTOR OPERATED DAMPER
	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD (DIMENSIONS MAY VARY / FLUSH OR SURFACE MOUNTED AS INDICATED)
PAD POLE	OIL FILLED TRANSFORMER
SINGLE LINE DIAGRAM	
M	ELECTRIC UTILITY COMPANY METER AND ASSOCIATED CURRENT TRANSFORMERS
HD M	CUSTOMER ELECTRIC METER AND ASSOCIATED CURRENT TRANSFORMERS HD = HIGH DENSITY METERING CABINET/BANK MOUNTED TO TIGHTLY GROUP ALL METERS TOGETHER
400 400 300	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED)(LEFT) (FUSED)(RIGHT) SIZES MAY BE SHOWN ONLY IN SCHEDULE
PANEL NAME	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD
	SURGE PROTECTIVE DEVICE
WIRE / CABLE / RACEWAY	
LPA-1,3	BRANCH CIRCUIT HOME RUN WITH PANEL NAME AND CIRCUIT NUMBER(S)
	CABLING / RACEWAY INSTALLED CONCEALED IN WALLS OR ABOVE CEILING
	CABLING / RACEWAY INSTALLED BELOW FLOOR OR GRADE
	UTILITY POLE
UP DN	CONDUIT UP OR DOWN

ABBREVIATIONS

(R)	RELOCATE FIXTURE, EQUIPMENT OR DEVICE	IG	ISOLATED GROUND
42"	DISTANCE ABOVE FINISHED FLOOR / GRADE / PAVEMENT	LR	LEGALLY REQUIRED STANDBY
AF	AMP FRAME OF FUSED SWITCH OR CIRCUIT BREAKER	LI	LONG - INSTANTANEOUS
AFCI	ARC-FAULT CIRCUIT INTERRUPTER	LSI	LONG - SHORT - INSTANTANEOUS
AIC	AMPS INTERRUPTING CURRENT	LSIG	LONG - SHORT - INSTANTANEOUS - GROUND FAULT
AT	AMP TRIP OF FUSED SWITCH OR CIRCUIT BREAKER	MCB	MAIN CIRCUIT BREAKER
ATS	AUTOMATIC TRANSFER SWITCH	MFR	MANUFACTURER
BAS	BUILDING AUTOMATION SYSTEM	MLO	MAIN LUGS ONLY
C.T.C.	WORK UNDER DIVISION 27 OR 28 AS APPLICABLE	MTS	MANUAL TRANSFER SWITCH
C/B	CIRCUIT BREAKER	MW	MICROWAVE OVEN
CH	COUNTER HEIGHT OR SPECIAL HEIGHT DEVICE	NIC	NOT IN CONTRACT (SHOWN FOR REFERENCE ONLY)
DW	DISHWASHER	NTS	NOT TO SCALE
E	EMERGENCY	OFE	OWNER-FURNISHED EQUIPMENT - INSTALLED AND WIRED BY E.C.
E.C.	WORK UNDER DIVISION 26	OS	OPTIONAL STANDBY
EMS	ENERGY MANAGEMENT SYSTEM	P.C.	WORK UNDER DIVISION 22
EPO	EMERGENCY POWER OFF	S.C.	WORK UNDER DIVISION 21
ER	EQUIPMENT ROOM	SCCR	SHORT CIRCUIT CURRENT RATING
ERM	ENERGY REDUCTION MAINTENANCE SWITCH	SPD	SURGE PROTECTIVE DEVICE
ESP	EMERGENCY STANDBY RATING	ST	SHUNT TRIP
ETR	EXISTING TO REMAIN	TAAC	TO ABOVE ACCESSIBLE CEILING
EWC	ELECTRIC WATER COOLER	TR	TAMPER RESISTANT
EX.	EXISTING	TTB	TELEPHONE TERMINAL BOARD
FBO	FURNISHED BY OTHERS - INSTALLED AND WIRED BY E.C.	TYP	TYPICAL
FIBO	FURNISHED AND INSTALLED BY OTHERS - WIRED BY E.C.	UCR	UNDER COUNTER REFRIGERATOR
FP	RECEPTACLE TO BE USED FOR A FLAT PANEL DISPLAY.	UL	UNDERWRITER'S LABORATORY
FWE	FURNISHED WITH EQUIPMENT BY OTHERS - INSTALLED AND WIRED BY E.C.	U.L.S.E.	LISTED FOR SERVICE ENTRANCE
GD	GARBAGE DISPOSAL	UNO	UNLESS NOTED OR INDICATED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS
GFEP	GROUND FAULT EQUIPMENT PROTECTION	VFD / VSD	VARIABLE FREQUENCY / SPEED DRIVE
GFI / GFCI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE	VIF	VERIFY IN FIELD
GND	GROUND	VM	VENDING MACHINE
H.C.	WORK UNDER DIVISION 23	VP	VANDAL PROOF
H.O.A.	"HAND - OFF - AUTO" SWITCH	WG	WIRE GUARD
		WR	WEATHER RESISTANT

PLAN-VIEW AND GRAPHIC LINE TYPES

WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
(UNLESS OTHERWISE INDICATED)

WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE
(UNLESS OTHERWISE INDICATED)

WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK
(UNLESS OTHERWISE INDICATED)

GENERAL ELECTRICAL INSTALLATION NOTES

A. CODE COMPLIANCE: PROVIDE ALL ELECTRICAL WORK COMPLIANT WITH ALL PREVAILING CODES.
B. LISTINGS: PROVIDE MATERIALS, COMPONENTS AND ASSEMBLED COMPONENTS WITH LISTINGS AND LABELS FROM A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL), MANUFACTURED, LISTED AND LABELED FOR THEIR INTENDED USE.
C. RATED BUILDING SURFACES: SEPARATE DEVICE BOXES BY A MINIMUM OF 6 INCHES WHERE INSTALLED BACK-TO-BACK WITHIN DEMISING WALLS TO MAINTAIN REQUIRED FIRE AND SOUND RATING (TYPICAL OF ALL DEVICE BOXES INSTALLED ON DEMISING WALLS). PROVIDE LISTED FIRE-RATED WRAPS AROUND ALL RECESSED OUTLET, DEVICE AND EQUIPMENT BOXES IN FIRE/SMOKE RATED WALLS, CEILINGS AND FLOORS TO MEET OR EXCEED THE RESPECTIVE FIRE/SMOKE RATING OF THE SURFACE.
D. RATED PENETRATIONS: SEAL ALL PENETRATIONS THROUGH FIRE-RATED AND/OR SMOKE-RATED MEMBRANES (FLOORS, WALLS, CEILINGS, ETC.) USING SEALANT PRODUCTS THAT MEET OR EXCEED THE RATING OF THE RESPECTIVE MEMBRANE.
E. GANGED DEVICES: INSTALL WIRING DEVICES GANGED WHEREVER POSSIBLE FOR INSTANCES WHERE THEY ARE SHOWN TOGETHER. THIS INCLUDES LOCATIONS ABOVE COUNTERS AND WORK SURFACES WHERE APPLICABLE.
F. OUTLET BOXES NEAR CORNERS: INSTALL WALL-MOUNTED SWITCHES, CONTROLS, RECEPTACLES, OUTLETS, ETC. AT LEAST 6 INCHES FROM WALL CORNERS.
G. CONCEALMENTS: CONCEAL ALL CONDUIT DROPS AND RISES WITHIN WALLS, AND PROVIDE FLUSH-MOUNTED WALL OUTLET BOXES UNLESS OTHERWISE INDICATED.
H. DOCUMENTS OF OTHER TRADES: REVIEW DOCUMENTS OF OTHER TRADES, INCLUDING ARCHITECTURAL, PRIOR TO SUBMITTING A BID. PROVIDE ELECTRICAL WORK FOR EQUIPMENT, DEVICES, ETC. OF OTHER TRADES AS REQUIRED TO RENDER THEM FULLY OPERATIONAL. REFER TO ARCHITECTURAL ELEVATIONS FOR INTENDED LOCATIONS AND MOUNTING HEIGHTS FOR EQUIPMENT AND OUTLETS, ETC. PRIOR TO COMMENCING WITH ANY RELATED ROUGH-IN WORK.
I. SCHEMATIC REPRESENTATIONS: CIRCUITING WORK SHOWN ON DRAWINGS IS FOR SCHEMATIC GENERAL GRAPHIC REPRESENTATION ONLY. DETERMINE SPECIFICS IN FIELD (POINT-TO-POINT ROUTING, HOME-RUN LOCATIONS, METHODS OF CONCEALMENT, ETC.). LOCATIONS AND ROUTING INDICATED ON PLANS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE. LAYOUT AND INSTALL ALL ELECTRICAL WORK IN STRICT COMPLIANCE WITH CHAPTER 1, PART II, ARTICLE 110.26 OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70).
J. HOME-RUN DESIGNATIONS: HOME-RUN DESIGNATIONS INDICATED ON PLANS ARE SCHEMATIC DESIGNATIONS ONLY. DETERMINE EXACT CIRCUIT ASSIGNMENTS IN FIELD BASED ON FIELD CONDITIONS. PROVIDE COLOR-CODED CONDUCTOR INSULATION ACCORDINGLY, CODED PROPERLY DEPENDING ON SYSTEM, PHASE, NEUTRAL, ETC. PROVIDE EQUIPMENT AND PANELBOARD SCHEDULES THAT ACCURATELY INDICATE INSTALLED CONDITIONS.
K. LOCAL DISCONNECTS AND CONTROLS AT EQUIPMENT: LOCAL DISCONNECTS AND LOCAL CONTROLS SHOWN AT OR ON EQUIPMENT IN PLAN-VIEW ARE SHOWN FOR SCHEMATIC ASSOCIATIONS ONLY. AVOID INSTALLING DISCONNECTS OR CONTROLS ON EQUIPMENT ENCLOSURES. INSTALL ON ADJACENT WALLS OR BUILDING STRUCTURE, OR PROVIDE FIELD-FABRICATED UNISTRUT OR EQUIVALENT ASSEMBLIES AS NEEDED. PROVIDE FIELD COORDINATION WITH SITE CONDITIONS AND OTHER TRADES, AND PROVIDE ALL RELATED WORK IN STRICT COMPLIANCE WITH NFPA 70, INCLUDING ARTICLE 110.26.
L. EQUIPMENT & LOAD COORDINATION: REFER TO AND COORDINATE WITH POWER FLOOR PLANS, EQUIPMENT SCHEDULES (INCLUDING EQUIPMENT COORDINATION SCHEDULES), DRAWINGS OF ALL TRADES, ALL DIVISIONS AND SECTIONS OF SPECIFICATIONS AND INSTALLERS OF ALL TRADES. BASED ON ACTUAL EQUIPMENT BEING PROVIDED, DETERMINE AND PROVIDE APPROPRIATE BREAKERS, FUSES, CONDUCTORS, CONTROLS, POWER DISTRIBUTION EQUIPMENT, ETC. PERFORM THESE SERVICES PRIOR TO FURNISHING POWER DISTRIBUTION EQUIPMENT SUBMITTALS.
M. EXTERIOR ELECTRICAL WORK AND WORK SUBJECT TO MOISTURE: EXTERIOR ELECTRICAL WORK SHALL BE WEATHERPROOF AND WATER-TIGHT, AND SHALL BE RUST-RESISTANT. PROVIDE XHHW-2 CONDUCTORS FOR ALL APPLICATIONS THAT ARE BELOW GRADE OR SUBJECT TO MOISTURE. PROVIDE MINIMUM NEMA 3R ENCLOSURES FOR ALL OUTDOOR EQUIPMENT AND ALL INDOOR EQUIPMENT THAT IS SUBJECT TO MOISTURE. PROVIDE NEMA 1 ENCLOSURES FOR ALL OTHER INDOOR EQUIPMENT.
N. EQUIPMENT GROUNDING CONDUCTORS: PROVIDE EQUIPMENT GROUNDING CONDUCTORS IN STRICT COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), INCLUDING ARTICLE 250 AND TABLE 250.122. THESE CONDUCTORS MAY OR MAY NOT BE INDICATED ON SINGLE-LINE DIAGRAMS OR ELSEWHERE, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.
O. OVERHEAD WORK: HOLD ALL NEW OVERHEAD ELECTRICAL WORK AS TIGHTLY AS POSSIBLE TO THE BOTTOM OF THE OVERHEAD STRUCTURE. DO NOT INSTALL ANY ELECTRICAL WORK WITHIN SIX INCHES OF ROOF DECKING.
P. COORDINATION DRAWINGS: LAYOUT ALL PROPOSED RACEWAY ROUTING, ELEVATIONS, INSTALLATION METHODS, ETC. ON COORDINATION DRAWINGS AND COORDINATE ALL PROPOSED RACEWAY ROUTING WITH ALL AFFECTED TRADES PRIOR TO COMMENCING WITH WORK. IN ADDITION, REVIEW THE INFORMATION WITH ARCHITECT, ENGINEER AND OWNER FOR ALL AREAS WHERE THE RACEWAYS WILL BE VISIBLE AFTER COMPLETION OF CONSTRUCTION.
Q. JUNCTION AND PULL BOXES: LOCATE JUNCTION AND PULL BOXES SO THAT THEY REMAIN ACCESSIBLE AFTER ALL CONSTRUCTION WORK IS COMPLETE. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO COMMENCEMENT OF THE WORK. LOCATE BOXES IN A MANNER THAT AVOIDS HAVING TO USE ACCESS PANELS. IF ACCESS PANELS ARE INEVITABLE, PROVIDE THEM RATED TO MEET OR EXCEED THE FIRE AND/OR SMOKE RATINGS OF THE RESPECTIVE CEILING OR WALL, AND OBTAIN APPROVAL OF DESIGN PROFESSIONALS FOR EACH LOCATION..
R. CONDUCTOR TERMINATIONS: IN CASES WHERE CONDUCTOR SIZES ARE TOO LARGE TO FIT INTO LUGS/TERMINALS, PROVIDE APPROPRIATE FACTORY LUG KITS FOR AFFECTED EQUIPMENT IF AVAILABLE. ELSEWHERE, PROVIDE INSULATED BUTT-SPLICES OR EQUIVALENT METHOD, WITH TAILS SIZED TO FIT LUGS/TERMINALS. PROVIDE SPLICES IN SEPARATE BOXES IF REQUIRED BASED ON FIELD CONDITIONS, BOX SIZE LIMITATIONS, ETC. CONCEAL BOXES IN ACCESSIBLE OVERHEAD JOIST SPACES IN FINISHED REGULARLY OCCUPIED AREAS.

EXISTING CONDITIONS NOTES

A. CONDUCTOR TRACING: PRIOR TO COMMENCEMENT OF WORK, TRACE ALL FEEDERS AND BRANCH CIRCUITS WITHIN THE PROJECT AREA, AND AFFECTED BY THE PROJECT, AND DOCUMENT THE RESULTS. DETERMINE AND DOCUMENT EXISTING LOADS FOR ALL CIRCUITS AND FEEDERS WITH LOADS THAT WILL REMAIN. CREATE CURRENT AS-BUILT DIRECTORIES FOR ALL POWER DISTRIBUTION EQUIPMENT. LIKEWISE, DETERMINE AND DOCUMENT ROUTING AND SPECIFICS FOR ALL RELEVANT EXISTING CONDUITS AND PATHWAYS FOR ALL SYSTEMS. SUBMIT THIS INFORMATION TO OWNER AND DESIGN PROFESSIONALS AS INFORMATIONAL SUBMITTALS.
B. ADDED LOADS TO EXISTING CIRCUITS: IN CASES WHERE NEW LOADS ARE INDICATED TO BE CONNECTED TO EXISTING CIRCUITS WITH EXISTING LOADS, CHECK RESULTANT LOAD IN ADVANCE TO ENSURE COLLECTIVE LOAD DOES NOT EXCEED 80 PERCENT OF THE SOURCE CIRCUIT BREAKER AMPERE RATING. IF THAT LOAD IS EXCEEDED, PROVIDE ADDITIONAL CIRCUIT HOME-RUN WORK TO SOURCE PANELBOARD(S) AS REQUIRED TO ACCOMMODATE THE ENTIRE RESULTANT LOAD. DETERMINE ALL APPLICABLE CONDITIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK.
C. REASSIGNMENT OF EXISTING CIRCUITS: IN CASES WHERE EXISTING CIRCUITS ARE REUSED (BASED ON INFORMATION SHOWN ON DRAWINGS OR BASED ON FIELD CONDITIONS) BUT MUST BE CONNECTED TO BREAKERS OTHER THAN THEIR ORIGINAL BREAKER, MODIFY COLOR-CODING AS REQUIRED IF THE NEW BREAKER ASSIGNMENT IS CONNECTED TO A DIFFERENT LINE/PHASE THAN THE ORIGINAL ONE. USE MEANS AND METHODS COMPLIANT WITH NFPA 70 AND WITH AUTHORITIES HAVING JURISDICTION.
D. BREAKERS ADDED TO EXISTING PANELS: PROVIDE NEW BRANCH CIRCUIT BREAKERS, TO MATCH EXISTING IN MANUFACTURER, MODEL AND SCCR/AIC RATING, AS REQUIRED TO RENDER ALL NEW AND MODIFIED ELECTRICAL WORK FULLY OPERATIONAL.
E. POWER CONTINUITY: PROTECT EXISTING ELECTRICAL WORK SERVING EXISTING SPACES AND EQUIPMENT THAT MUST REMAIN OPERATIONAL DURING PART OR ALL OF THE CONSTRUCTION PERIOD, AND ENSURE POWER CONTINUITY IS MAINTAINED FOR SAME THROUGHOUT DURATION OF CONSTRUCTION ACTIVITIES. SEE POWER CONTINUITY NOTES ON OTHER SHEET(S) FOR FURTHER INFORMATION.

ELECTRIC DESIGN CRITERIA

APPLICABLE BUILDING CODES

2013 KENTUCKY BUILDING CODE (BASED ON THE INTERNATIONAL BUILDING CODE)
2014 NFPA 70 - NATIONAL ELECTRICAL CODE
2010 NFPA 72 - NATIONAL FIRE ALARM AND SIGNALING CODE
2012 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)

TAMPER RESISTANT RECEPTACLES

PRESCHOOL EDUCATION FACILITIES.
ELEMENTARY EDUCATION FACILITIES.
SPECIAL EDUCATION FACILITIES.

UTILITY COORDINATION

COORDINATE UTILITY SERVICE WORK CONTAINED WITHIN THIS DRAWING SET WITH RESPECTIVE LOCAL UTILITY COMPANY. KLH HAS STARTED THIS COORDINATION PROCESS WITH UTILITY COMPANY REPRESENTATIVE LISTED BELOW AS PART OF THE DESIGN PHASE. CONTINUE THIS COORDINATION PROCESS PRIOR TO STARTING ANY WORK AND CONTINUE THROUGHOUT CONSTRUCTION PHASE.

OBTAIN AND COMPLY WITH UTILITY INSTALLATION DETAILS AND STANDARDS.

CONTACT 811 "CALL BEFORE YOU DIG" SERVICE PRIOR TO COMMENCING ANY UNDERGROUND WORK.

ELECTRIC SERVICE	
UTILITY COMPANY	DUKE ENERGY
UTILITY CONTACT	BRIAN BEECHER
PHONE NUMBER	859-534-4360
EMAIL ADDRESS	BRIAN.BEECHER@DUKE-ENERGY.COM
DATE(S) CONTACTED	9/17/18
KLH CONTACT	RYAN TERRY

ELECTRICAL SECONDARY SERVICE (OWNER-PURCHASED SECONDARY)	
TRANSFORMER	
OWNERSHIP	UTILITY
NEW OR EXISTING	NEW
SECONDARY VOLTAGE (V)	208V
MAX NUMBER OF CONDUITS IN SECONDARY COMPARTMENT	8
AVAILABLE FAULT CURRENT AT SECONDARY LUGS (A)	27,758A
TRANSFORMER CLEARANCES	
MINIMUM DISTANCE FROM BUILDING	10FT.
MINIMUM DISTANCE FROM EMERGENCY GENERATOR	N/A
MAXIMUM DISTANCE FROM DRIVABLE SURFACE	N/A
WORKING CLEARANCE	
FRONT	10 FT.
SIDE	3 FT.
REAR	3 FT.
METERING	
CURRENT TRANSFORMER (CT) LOCATION	TRANSFORMER CT CABINET (PICK ONE)

RESPONSIBILITY MATRIX (X = FURNISH AND INSTALL)	**UTILITY**	**DIVISION 26 CONTRACTOR**
TRANSFORMER	X	
TRANSFORMER PAD		N/A
PRIMARY CONDUIT		X
PRIMARY CABLE	X	
TERMINATE PRIMARY CABLE	X	
SECONDARY CONDUIT		X
SECONDARY CONDUCTORS		X
TERMINATE SECONDARY CONDUCTORS		X
METER SOCKET		X
CT CABINET		X

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Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate, KY
Southgate Independent School District
Mr. Greg Duty, Superintendent

STATE OF KENTUCKY STEPHEN FEDERLE 27329

REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: RTT CHK: DTJ
PROJ. DATE 12/13/18
SHEET DATE 12/13/18
JOB NO. 20692.00

ELECTRIC - LEGEND

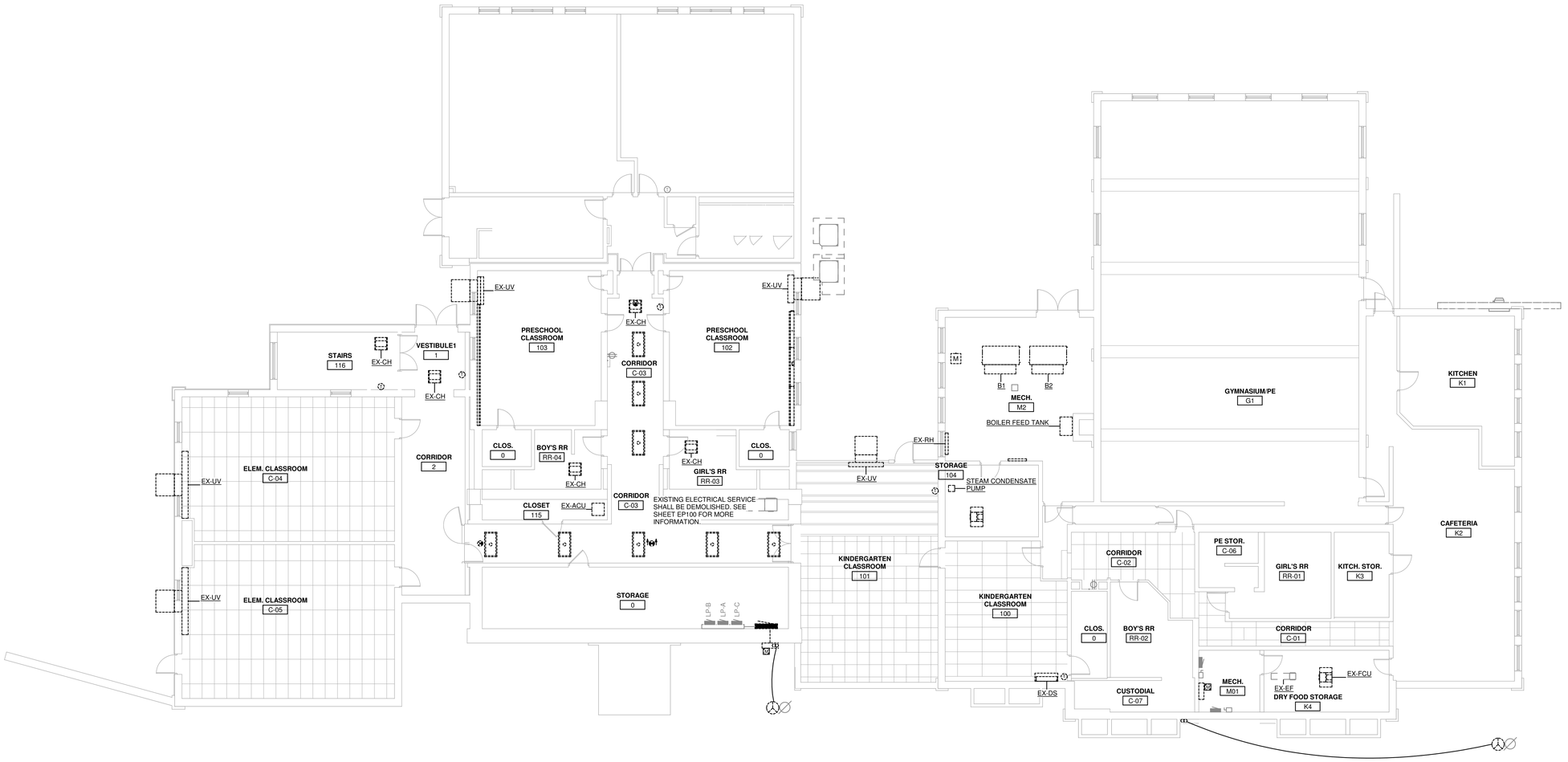
E-001

2" REFERENCE LINE

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GENERAL NOTES

A. SEE SHEET E-001 FOR GENERAL NOTES REGARDING ELECTRICAL DEMOLITION AND EXISTING CONDITIONS.
B. WHERE EXISTING MECHANICAL EQUIPMENT IS SHOWN TO BE DEMOLISHED, ALL ASSOCIATED CIRCUITING AND DISCONNECTING MEANS SHALL BE DEMOLISHED BACK TO THE SOURCE.



1 ELECTRIC DEMOLITION - LEVEL 1
1/8" = 1'-0"

2" REFERENCE LINE

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Southgate Elementary School
Southgate, KY
Mr. Greg Duty, Superintendent
6 William F. Blatt Ave.
Southgate Independent School District

STATE OF KENTUCKY
STEPHEN FEDERER
27329
LICENSED PROFESSIONAL ENGINEER

REVISIONS
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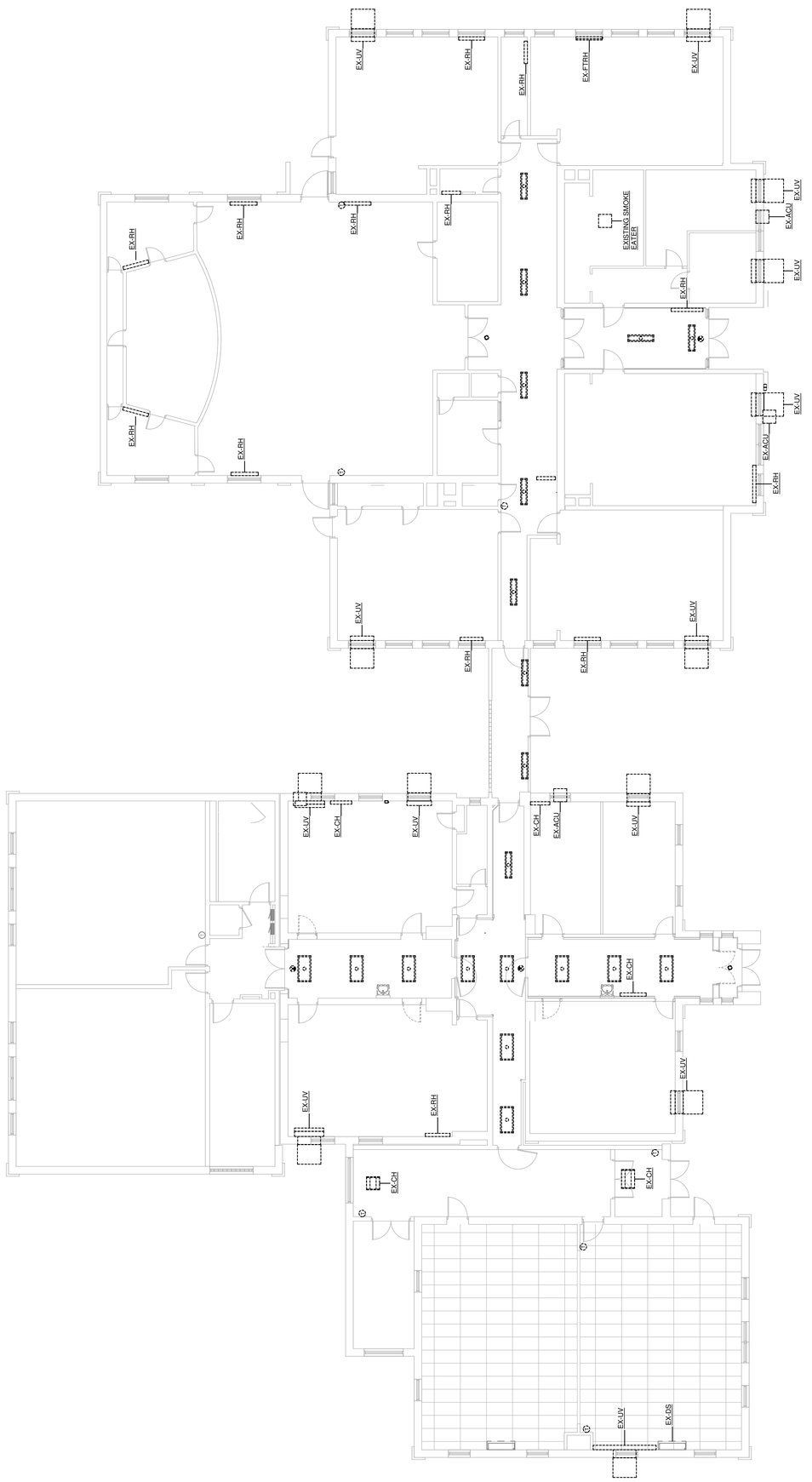
ELECTRIC - LEVEL 1

ED100

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GENERAL NOTES

A. SEE SHEET E-001 FOR GENERAL NOTES REGARDING ELECTRICAL DEMOLITION AND EXISTING CONDITIONS
B. WHERE EXISTING MECHANICAL EQUIPMENT IS SHOWN TO BE REMOVED, REMOVE ALL ASSOCIATED CONDUITING AND DISCONNECTING MEANS SHALL BE DEMOLISHED BACK TO THE SOURCE.



1 ELECTRIC DEMOLITION - LEVEL 2
1/8" = 1'-0"

2" REFERENCE LINE

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Renovations For:

Southgate Elementary School

6 William F. Blatt Ave.
Southgate Independent School District

Southgate, KY
Mr. Greg Duty, Superintendent

REVISIONS	
08/31/18	SCHEMATIC DESIGN
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ELECTRIC - LEVEL 2

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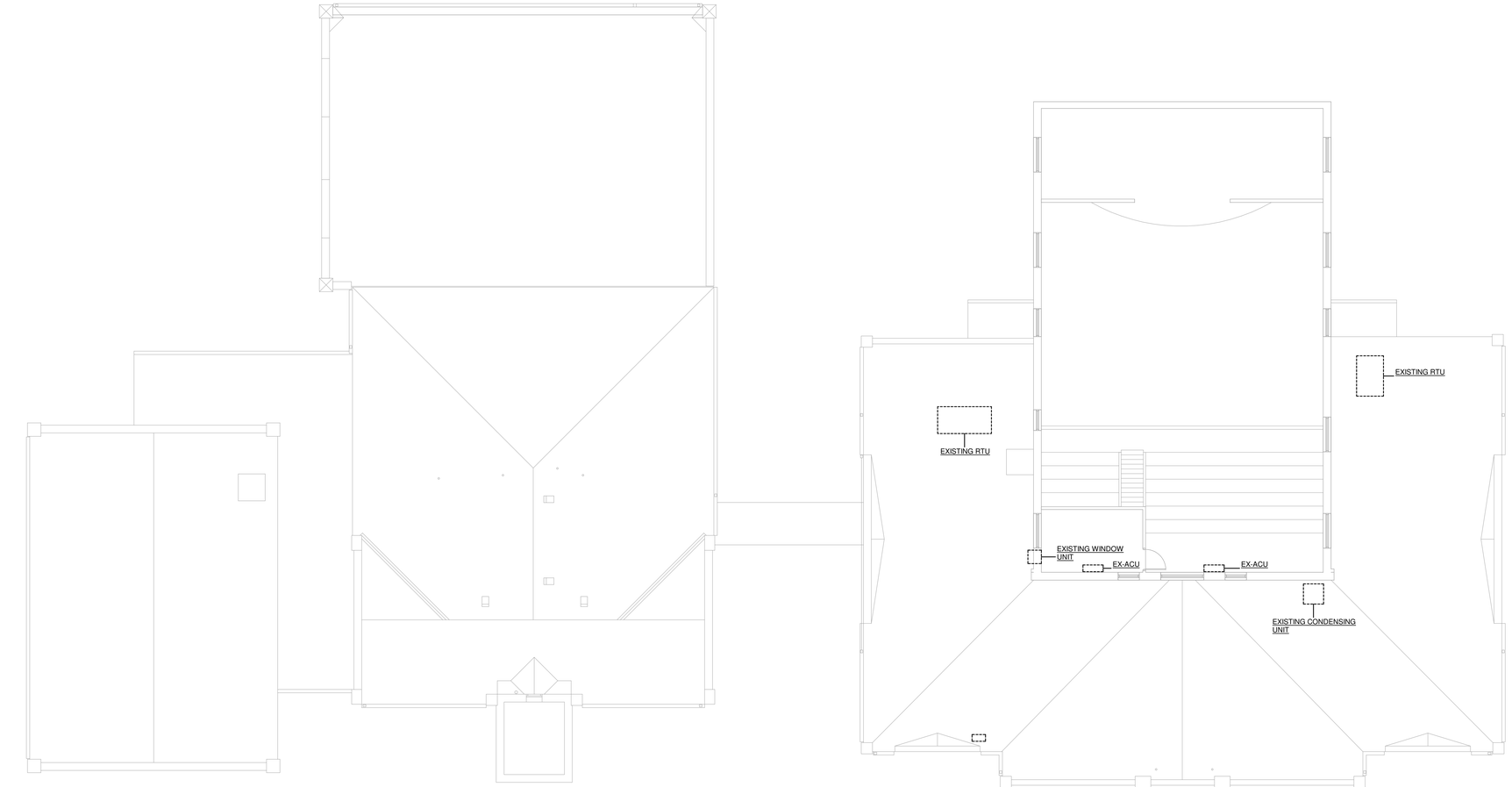
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GENERAL NOTES

A. SEE SHEET E-001 FOR GENERAL NOTES REGARDING ELECTRICAL DEMOLITION AND EXISTING CONDITIONS.
B. WHERE EXISTING MECHANICAL EQUIPMENT IS SHOWN TO BE DEMOLISHED, ALL ASSOCIATED CIRCUITING AND DISCONNECTING MEANS SHALL BE DEMOLISHED BACK TO THE SOURCE.



1 ELECTRIC DEMOLITION - ROOF
1/8" = 1'-0"

2" REFERENCE LINE

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ELECTRIC - ROOF

ED102

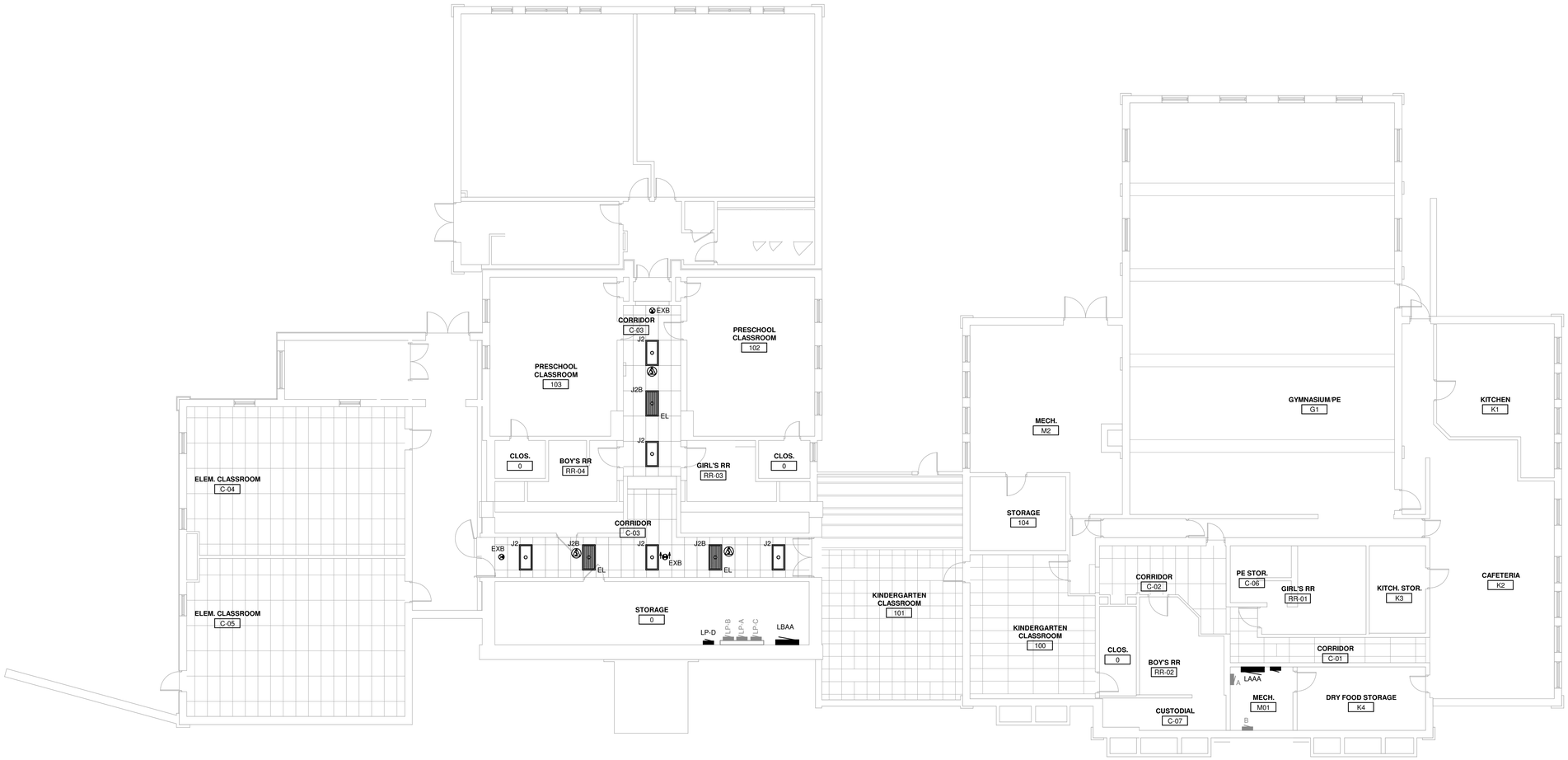
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GENERAL NOTES

A. NEW LIGHT FIXTURES THAT ARE INDICATED TO BE INSTALLED IN EXISTING LIGHT FIXTURE LOCATIONS SHALL BE CONNECTED TO EXISTING LIGHTING CIRCUITS AND CONTROLS MADE AVAILABLE UPON DEMOLITION. NEW LOADS ARE LESS THAN EXISTING LOADS, SO EXISTING OVERCURRENT PROTECTION MAY REMAIN. ALL NEW EXIT SIGNS SHALL BE CONNECTED TO NEAREST LIGHTING CIRCUIT.

B. PROVIDE LABOR AND MATERIAL FOR 150 2" J-HOOKS TO CLEAN UP ANY LOOSE HANGING CABLE IN AREAS WHERE ACT CEILING WILL BE MODIFIED.



1 ELECTRIC LIGHTING - LEVEL 1
1/8" = 1'-0"

2" REFERENCE LINE

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STATE OF KENTUCKY
STEPHEN FEDERE
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REGISTERED
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REVISIONS
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ELECTRIC LIGHTING - LEVEL 1

EL100

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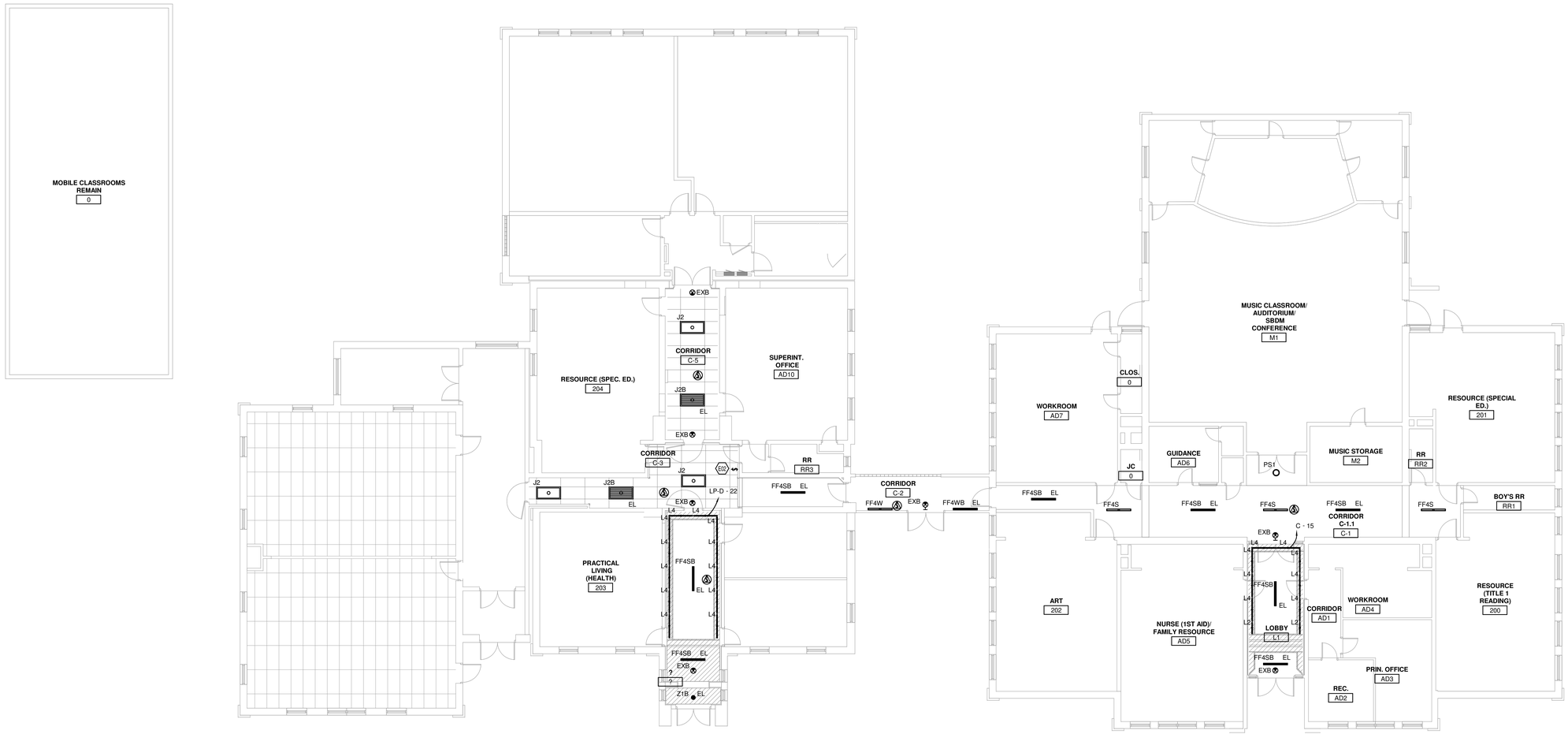
KEYED NOTES

E02 RELOCATE DEVICE INTO NEW FURRING.

GENERAL NOTES

A. NEW LIGHT FIXTURES THAT ARE INDICATED TO BE INSTALLED IN EXISTING LIGHT FIXTURE LOCATIONS SHALL BE CONNECTED TO EXISTING LIGHTING CIRCUITS AND CONTROLS MADE AVAILABLE UPON DEMOLITION. NEW LOADS ARE LESS THAN EXISTING LOADS, SO EXISTING OVERCURRENT PROTECTION MAY REMAIN. ALL NEW EXIT SIGNS SHALL BE CONNECTED TO NEAREST LIGHTING CIRCUIT.

B. PROVIDE LABOR AND MATERIAL FOR 150 2" J-HOOKS TO CLEAN UP ANY LOOSE HANGING CABLE IN AREAS WHERE ACT CEILING WILL BE MODIFIED.



1 ELECTRIC LIGHTING - LEVEL 2
1/8" = 1'-0"

2" REFERENCE LINE

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COMMONWEALTH OF KENTUCKY
STEPHEN H FEDERLE
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REVISIONS
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ELECTRIC LIGHTING - LEVEL 2

EL101

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Interior Lighting Compliance Certificate

2012 IECC
Section 1: Project Information

Project Type: Alterations

Section 2: Interior Lighting and Power Calculation

Floor Area (sq. ft.)	Watts per sq. ft.	Allowed Watts	Proposed Watts	Complies
3000	.99	2970	See Below	Yes

Section 3: Interior Lighting Fixture Schedule

TYPE	LAMP TYPE	BALLAST / DRIVER	LAMP QTY	COUNT	LOAD	TOTAL LOAD
EXB	5W LED, WITH SIGN	NO BALLAST	1	10	5 VA	50 VA
FF4S	23W LED, 3500K, 90+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	1	3	56 VA	168 VA
FF4SB	23W LED, 3500K, 90+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS, 1400 LUMEN EMERGENCY BATTERY PACK	1	8	56 VA	448 VA
FF4W	35W LED, 3500K, 90+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	1	1	35 VA	35 VA
FF4WB	35W LED, 3500K, 90+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	1	1	35 VA	35 VA
J2	55W LED, 3500K, 85+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	1	8	55 VA	440 VA
J2B	55W LED, 3500K, 85+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS, 1400 LUMEN EMERGENCY BATTERY PACK	1	5	55 VA	275 VA
L2	12W LED, 3500K, 80+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	2	2	24 VA	48 VA
L4	12W LED, 3500K, 80+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	4	20	48 VA	960 VA
PS1	10W LED, 3500K, 85+ CRI	INTEGRAL ELECTRONIC, MVOLT, SURFACE ADAPTOR	1	1	10 VA	10 VA
Z1B	15W LED, 3500K, 85+ CRI	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	1	1	15 VA	15 VA
						2484 VA

GENERAL NOTES

A. REFER TO DRAWINGS FOR MOUNTING TYPE, NUMBER OF FACES AND ARROWS OF EXIT SIGNS. VERIFY IN FIELD PRIOR TO INSTALLATION.

B. VERIFY COMPATIBILITY WITH VOLTAGE, CONTROLS, ETC. FOR ALL LUMINAIRE COMPONENTS

C. COORDINATE EACH LUMINAIRE LOCATION WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. CEILING INSTALLERS, ETC. AND PROVIDE APPROPRIATE MOUNTING SYSTEM REQUIRED FOR EACH LUMINAIRE. ALSO, PROVIDE PLASTER FRAMES, WALL BRACKETS, SUPPORTS, OR OTHER APPURTENANCES AS REQUIRED FOR PROPER AND COMPLETE INSTALLATIONS.

D. WEAR CLEAN WHITE COTTON GLOVES WHEN HANDLING EXPOSED REFLECTIVE LUMINAIRE SURFACES. REMOVE PLASTIC SHIPPING BAGS ONLY AFTER INTERIOR WORK IS COMPLETE, AND CLEAN ALL SURFACES WITH CLEAN DRY CHEESECLOTH.

E. MOUNTING HEIGHTS INDICATED ARE TO THE BOTTOM OF THE LUMINAIRE, UNLESS OTHERWISE NOTED.

F. PRODUCTS: PROVIDE PRODUCTS INDICATED ON DRAWINGS AND SCHEDULES. WHERE MULTIPLE MANUFACTURER SERIES/MODEL NUMBERS ARE LISTED FOR A SINGLE LUMINAIRE, PROVIDE ONE OF THOSE LISTED. WHERE A SPECIFIC MANUFACTURER SERIES/MODEL NUMBER IS LISTED AS BASIS-OF-DESIGN, AND WHERE IT IS STATED THAT EQUIVALENTS WILL BE CONSIDERED, ANY PROPOSED NON-LISTED LUMINAIRES ARE SUBJECT TO REVIEW BY DESIGN PROFESSIONAL(S). SUBMITTALS FOR WHICH SHALL BE FURNISHED AT LEAST (10) DAYS PRIOR TO BID DUE DATE. THESE PRE-BID SUBMITTALS SHALL CLEARLY STATE EXACTLY WHAT IS BEING PROPOSED AND SHALL DEMONSTRATE COMPLIANT EQUIVALENCY. SUCH PRE-BID SUBMITTALS WILL NOT BE CONSIDERED IF FURNISHED LESS THAN 14 DAYS PRIOR TO BID DUE DATE. SIMILAR REQUESTS FOR PROPOSED SUBSTITUTIONS MAY BE MADE ONLY AFTER BIDS ARE RECEIVED, AND ONLY IF OWNER CHOOSES TO CONSIDER SUBSTITUTION REQUESTS. DESIGN PROFESSIONAL(S) AND OWNER RESERVE THE RIGHT TO REJECT ALL PRODUCTS THAT ARE NOT DEEMED TO BE FULLY EQUIVALENT TO THE BASIS-OF-DESIGN LISTING(S). SUBMIT ALL REQUESTS AND QUESTIONS THROUGH THE FORMALLY-ESTABLISHED BIDDING PROCESS, NOT DIRECTLY TO ENGINEER.

ELECTRIC LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER / SERIES	SIZE	HOUSING / MOUNTING	MATERIAL	LENS DESCRIPTION	LAMP QTY	LAMP TYPE	LAMP BASE	BALLAST / DRIVER QTY	BALLAST / DRIVER	FINISH	COMMENTS	FIXTURE LOAD	VOLTAGE
EXB	EXIT SIGN - BATTERY - THERMOPLASTIC	CHLORIDE CXXL LITHONIA LQM EL-N HUBBELL CER SURELITES LPX-7 WILLIAMS EXIT-EM	8"x12"x2"	UNIVERSAL, REFER TO PLAN	THERMOPLASTIC	STENCIL FACE	1	5W LED, WITH SIGN		0	NO BALLAST	FINISH SELECTED BY ARCHITECT	RED LETTERS, NI-CAD BATTERY OPERATION	5 VA	120 V
FF4S	LINEAR SURFACE OR PENDANT DIRECT (MATCH EXISTING WHERE APPLICABLE)	LEDALITE TRUGROOVE NULITE REGOLO PRUDENTIAL MARK ARCHITECTURAL FINELITE FOCAL POINT PINNACLE AXIS LIGHTING NEO-RAY	3.5"x4'x3.75""	SEE DESCRIPTION	STEEL	FROSTED	1	23W LED, 3500K, 90+ CRI	4000 LUMENS	2	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	FINISH SELECTED BY ARCHITECT	FIELD REPLACEABLE LED MODULE AND DRIVER	56 VA	120 V
FF4SB	LINEAR SURFACE OR PENDANT DIRECT (MATCH EXISTING WHERE APPLICABLE)	LEDALITE TRUGROOVE NULITE REGOLO PRUDENTIAL MARK ARCHITECTURAL FINELITE FOCAL POINT PINNACLE AXIS LIGHTING NEO-RAY	3.5"x4'x3.75""	SEE DESCRIPTION	STEEL	FROSTED	1	23W LED, 3500K, 90+ CRI	4000 LUMENS	1	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS, 1400 LUMEN EMERGENCY BATTERY PACK	FINISH SELECTED BY ARCHITECT	FIELD REPLACEABLE LED MODULE AND DRIVER, PROVIDE 1400 LUMEN EMERGENCY BATTERY	56 VA	120 V
FF4W	WALL MOUNT - INDIRECT/DIRECT	LEDALITE TRUGROOVE NULITE REGOLO PRUDENTIAL MARK ARCHITECTURAL FINELITE FOCAL POINT PINNACLE AXIS LIGHTING NEO-RAY	3"x4'x5"	WALL MOUNT, ELEVATION 8'	STEEL	FROSTED	1	35W LED, 3500K, 90+ CRI	5200 LUMENS	1	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	FINISH SELECTED BY ARCHITECT	FIELD REPLACEABLE LED MODULE AND DRIVER	35 VA	120 V
FF4WB	WALL MOUNT - INDIRECT/DIRECT	LEDALITE TRUGROOVE NULITE REGOLO PRUDENTIAL MARK ARCHITECTURAL FINELITE FOCAL POINT PINNACLE AXIS LIGHTING NEO-RAY	3"x4'x5"	WALL MOUNT, ELEVATION 8'	STEEL	FROSTED	1	35W LED, 3500K, 90+ CRI	5200 LUMENS	1	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	FINISH SELECTED BY ARCHITECT	FIELD REPLACEABLE LED MODULE AND DRIVER, PROVIDE 1400 LUMEN EMERGENCY BATTERY	35 VA	120 V
J2	VOLUMETRIC	LITHONIA RTL DAYBRITE 2DL COLUMBIA LEPC24 WILLIAMS AHT METALUX 24AC	2'x4'x3-1/8"	RECESSED (COORDINATE CEILING TYPE WITH REFLECTED CEILING PLANS)	STEEL	DUAL VOLUMETRIC ACRYLIC PRISMATIC DIFFUSER, MATTE-WHITE REFLECTOR	1	55W LED, 3500K, 85+ CRI	6000 LUMENS	1	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	FINISH SELECTED BY ARCHITECT	FIELD REPLACEABLE LED MODULE AND DRIVER	55 VA	120 V
J2B	VOLUMETRIC - BATTERY	LITHONIA RTL DAYBRITE 2DL COLUMBIA LEPC24 WILLIAMS AHT METALUX 24AC	2'x4'x3-1/8"	RECESSED (COORDINATE CEILING TYPE WITH REFLECTED CEILING PLANS)	STEEL	DUAL VOLUMETRIC ACRYLIC PRISMATIC DIFFUSER, MATTE-WHITE REFLECTOR	1	55W LED, 3500K, 85+ CRI	6000 LUMENS	1	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS, 1400 LUMEN EMERGENCY BATTERY PACK	FINISH SELECTED BY ARCHITECT	FIELD REPLACEABLE LED MODULE AND DRIVER	55 VA	120 V
L2	ADJUSTABLE COVE	ECOSENSE TROV DAYBRITE COLUMBIA LSI METALUX TRAXON	1-3/5"x2'x1-2/5"	SURFACE MOUNT	ALUMINUM	CLEAR POLYCARBONATE, ADJUSTABLE AIMING 0-180 DEGREES, 120 DEGREE OPTIC	2	12W LED, 3500K, 80+ CRI	1022 LUMENS / FT	0	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	FINISH SELECTED BY ARCHITECT	ADJUST AIMING IN FIELD	24 VA	120 V
L4	ADJUSTABLE COVE	ECOSENSE TROV DAYBRITE COLUMBIA LSI METALUX TRAXON	1-3/5"x4'x1-2/5"	SURFACE MOUNT	ALUMINUM	CLEAR POLYCARBONATE, ADJUSTABLE AIMING 0-180 DEGREES, 120 DEGREE OPTIC	4	12W LED, 3500K, 80+ CRI	1022 LUMENS / FT	0	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	FINISH SELECTED BY ARCHITECT	ADJUST AIMING IN FIELD	48 VA	120 V
PS1	SURFACE ROUND	KENALL MILLENIUM EDGE OR APPROVED EQUAL	13" DIAx3"	SURFACE	ALUMINUM	PEARLESCENT POLYCARBONATE LENS	1	10W LED, 3500K, 85+ CRI	1100 LUMENS	1	INTEGRAL ELECTRONIC, MVOLT, SURFACE ADAPTOR	FINISH SELECTED BY ARCHITECT	FIELD REPLACEABLE LED MODULE AND DRIVER	10 VA	120 V
Z1B	DOWNLIGHT	PATHWAY 6VLFL2X PORTFOLIO LD610 JUNO TC922LED LITEFRAME LF6LED LIGHTOLIER C6L	6" DIAx6-1/2"	RECESSED (COORDINATE CEILING TYPE WITH REFLECTED CEILING PLANS)	ALUMINUM	SEMI-SPECULAR REFLECTOR, MEDIUM DOWNLIGHT OPTIC	1	15W LED, 3500K, 85+ CRI	1400 LUMENS	1	INTEGRAL ELECTRONIC, MVOLT, DIMMABLE, COMPATIBLE WITH SPECIFIED LIGHTING CONTROLS	FINISH SELECTED BY ARCHITECT	FIELD REPLACEABLE LED MODULE AND DRIVER, PROVIDE 1400 LUMEN EMERGENCY BATTERY	15 VA	120 V

2" REFERENCE LINE

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Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate Independent School District

Southgate, KY
Mr. Greg Duty, Superintendent

STATE OF KENTUCKY
STEPHEN N FEDERLE 27329 REGISTERED PROFESSIONAL ENGINEER

REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

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ELECTRIC LIGHTING - LUMINAIRE SCHEDULE

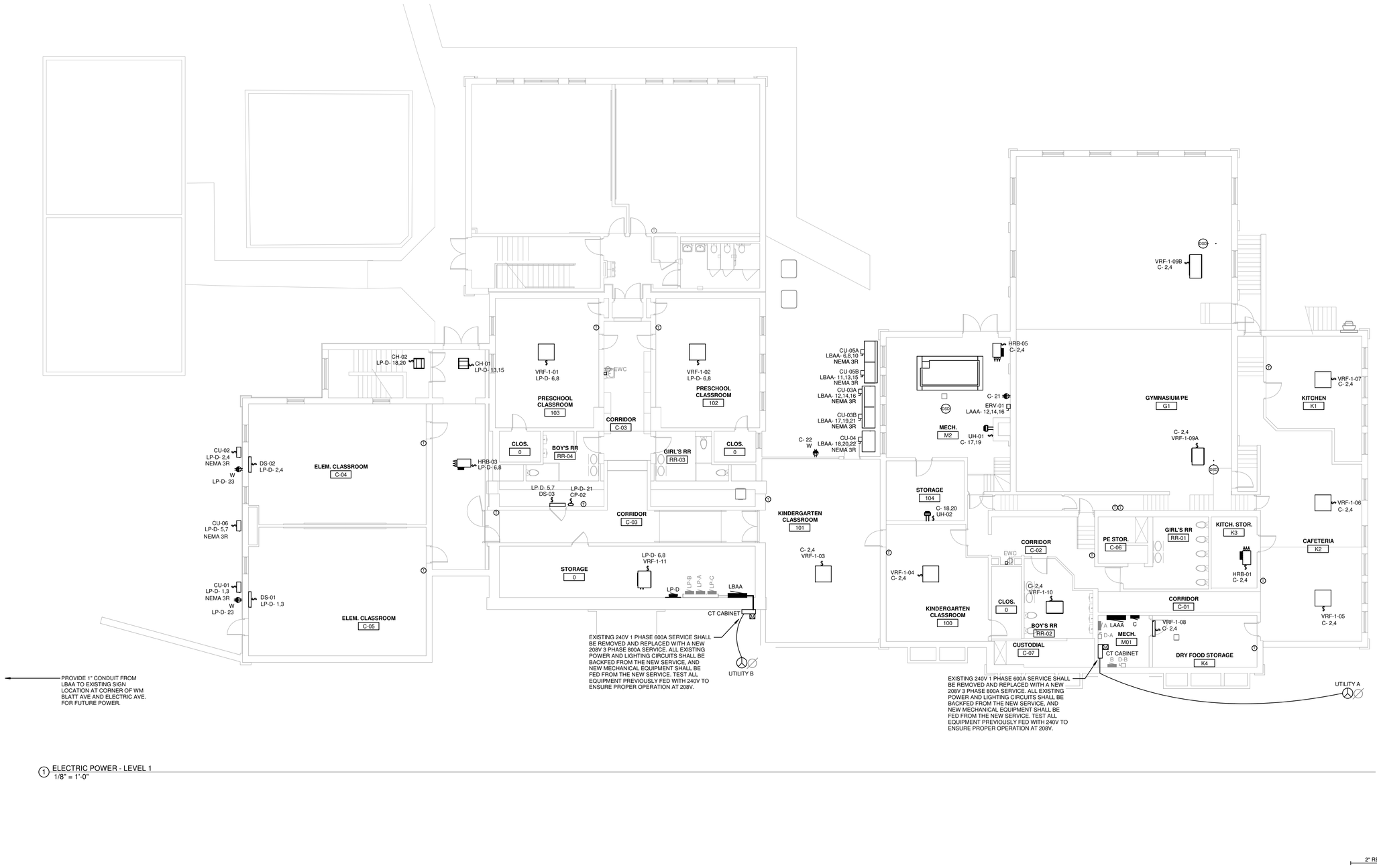
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GENERAL NOTES

A. CONCEAL BRANCH CIRCUITING WHEREVER POSSIBLE. IF BRANCH CIRCUITING PATH IS CLOSE TO REFRIGERANT PIPING, UTILIZE RACEWAY PROVIDED BY MECHANICAL CONTRACTOR TO CONCEAL CIRCUITING. FOR ALL BRANCH CIRCUITING ROUTES THAT MUST BE EXPOSED TO OCCUPIED SPACES, PROVIDE CONDUIT(S) PAINTED WHITE AND HELD TIGHT TO CEILING. ALL CIRCUITING SHOULD BE AS NEAT AND ORDERLY AS POSSIBLE.



1 ELECTRIC POWER - LEVEL 1
1/8" = 1'-0"

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Southgate, KY
Mr. Greg Duty, Superintendent
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Southgate Independent School District

STATE OF KENTUCKY
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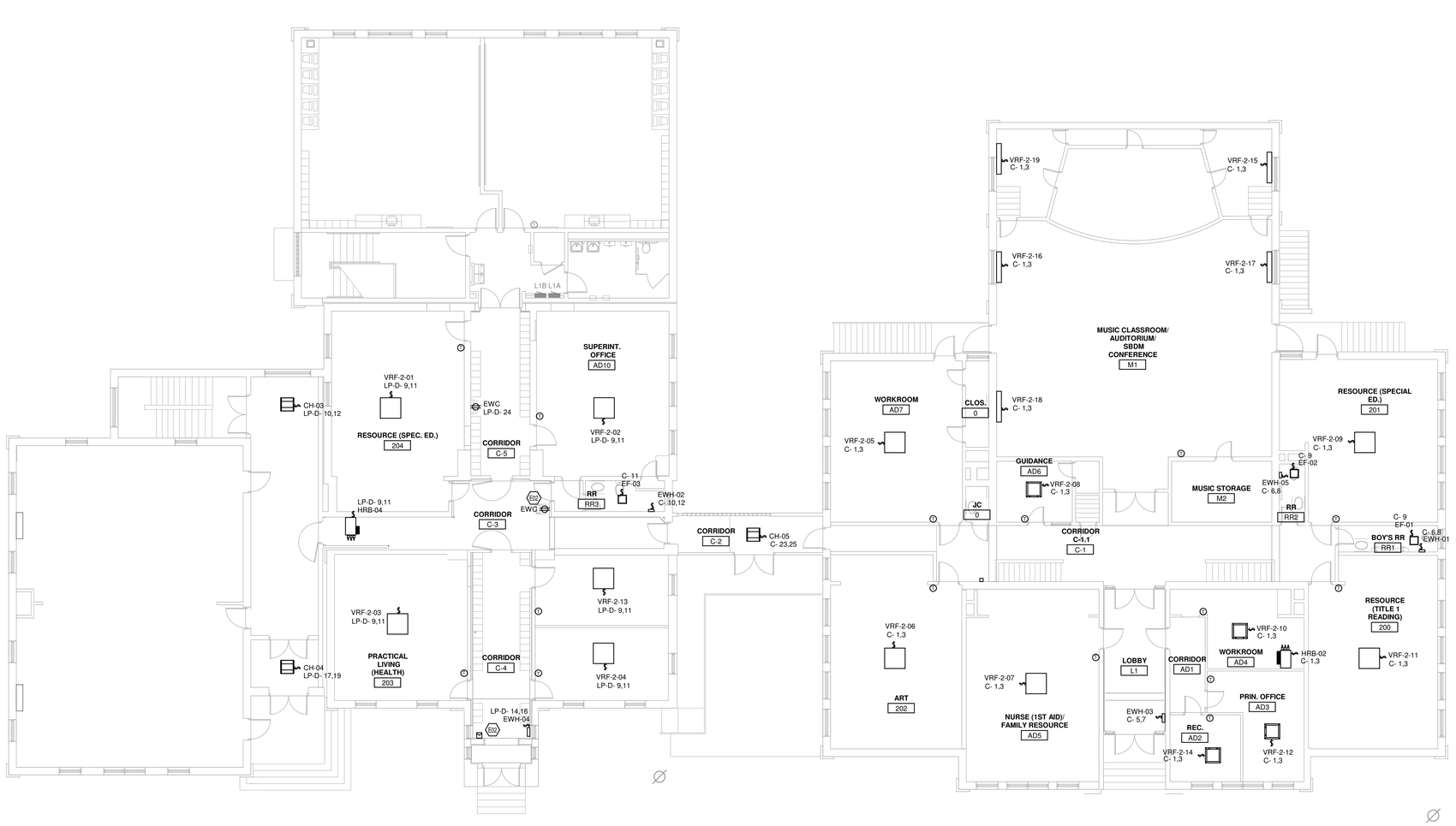
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MOBILE CLASSROOMS REMAIN
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KEYED NOTES

E02 RELOCATE DEVICE INTO NEW FURRING.

1 ELECTRIC POWER - LEVEL 2
1/8" = 1'-0"

2" REFERENCE LINE

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ELECTRIC POWER - LEVEL 2

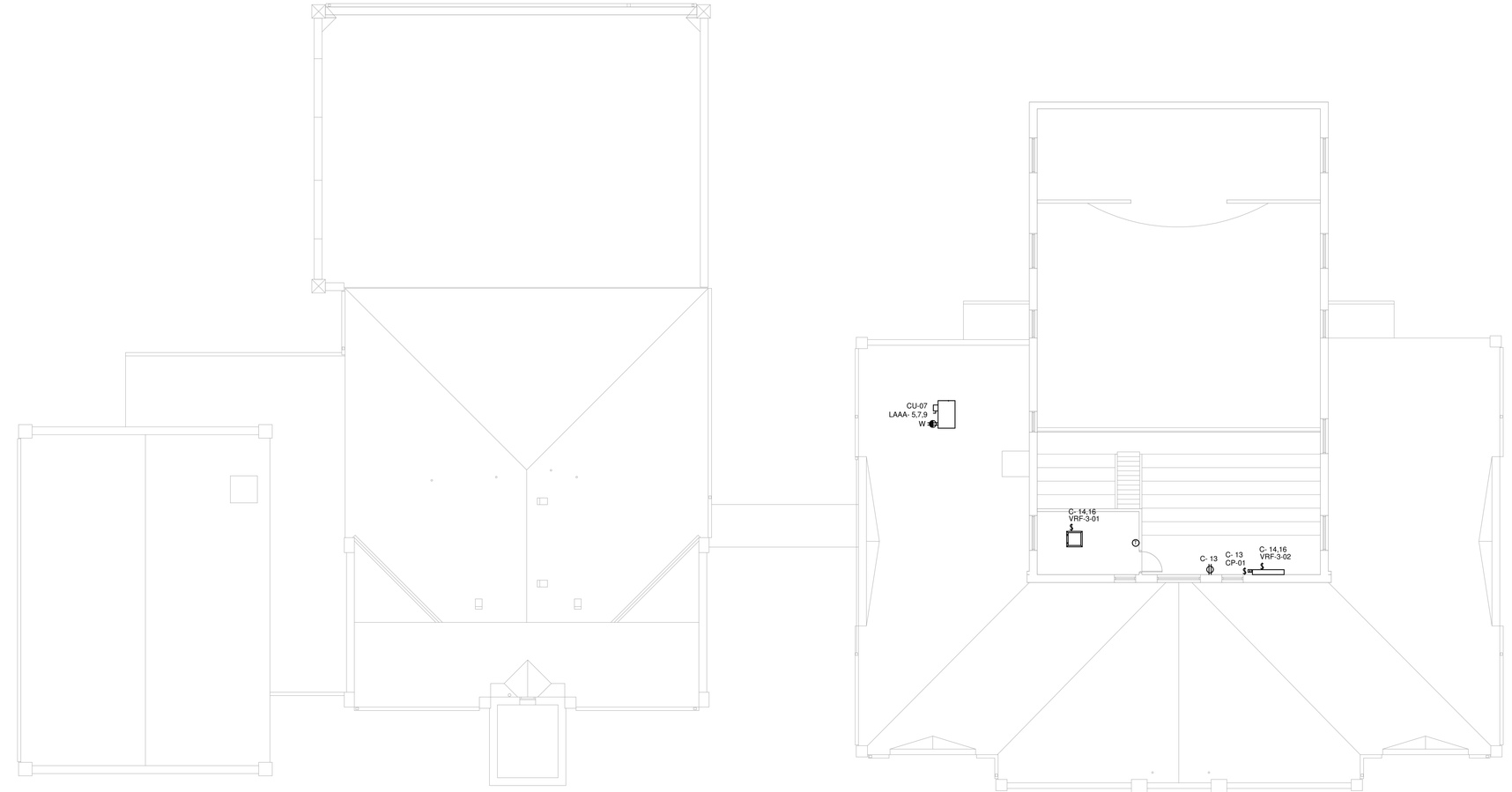
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2" REFERENCE LINE

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ELECTRIC POWER - ROOF

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ELECTRIC SINGLE LINE EQUIPMENT SCHEDULE

NOTES:
ALL CONDUIT SIZES INDICATED ARE MINIMUM SIZES. INCREASE SIZES AS REQUIRED TO ACCOMMODATE CONDUCTOR PULLING EASE, FIELD CONDITIONS, ETC.

"CU" = COPPER CONDUCTOR, "AL" = ALUMINUM CONDUCTOR

TYPICAL EQUIPMENT NAME NOMENCLATURE:
1 - POWER DISTRIBUTION SYSTEM (BLANK - NORMAL, E - EMERGENCY, S - STANDBY, L - LIFE SAFETY)
2 - DESCRIPTION (H - 480Y/277V, L - 208Y/120V)
3 - FLOOR / LEVEL
4 - SEQUENCE

FEEDER ID NOMENCLATURE:
* - INDICATES FEEDER SIZED TO COMPENSATE FOR VOLTAGE DROP
1 - GROUND TYPE (MAY BE BLANK)
U = EQUIPMENT GROUND CONDUCTOR REMOVED FOR SERVICE ENTRANCE FROM UTILITY
P = PARITY-SIZED EQUIPMENT GROUND CONDUCTOR
X = EXISTING FEEDER TO REMAIN UNLESS OTHERWISE NOTED
T = UPSIZED GROUND CONDUCTORS FOR TRANSFORMER SECONDARY

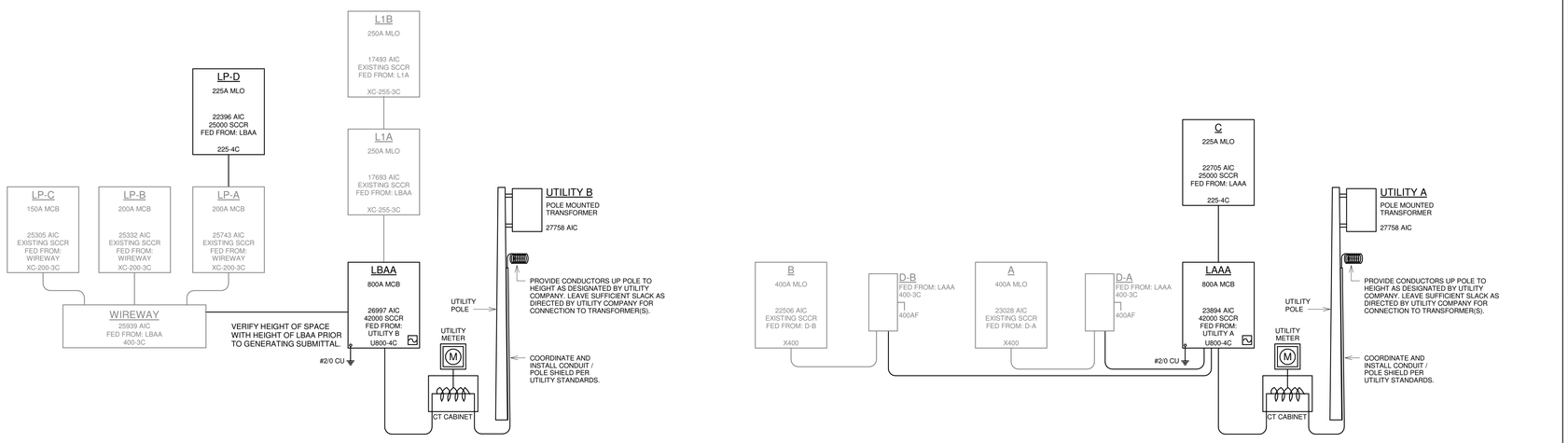
2 - CONDUCTOR AMPACITY
3 - TOTAL NUMBER OF PHASE AND GROUNDED ("NEUTRAL") CONDUCTORS
4 - CONDUCTOR MATERIAL: C = COPPER, A = ALUMINUM
5 - SPECIAL (MAY BE BLANK)
I = ISOLATED GROUND (PROVIDE CONTINUOUS INSULATED ISOLATED EQUIPMENT GROUNDING CONDUCTOR(S) FROM INSULATED ISOLATED GROUND BAR(S) TO RESPECTIVE UPSTREAM SERVICE ENTRANCE OR DERIVED SYSTEM GROUNDING ELECTRODE CONDUCTOR AS APPLICABLE.

EQUIPMENT	PHASE	POWER BRANCH	EQUIPMENT TYPE	SUPPLY FROM	SPACE NUMBER	SPACE NAME	VOLTAGE	POLES	WIRES	DEMAND (kVA)	DEMAND (A)	MAINS RATING (A)	MAINS FRAME RATING (A)	MAINS TYPE	FEEDER ID	FEEDER	VD %	LUGS TYPE	SPD	ULSE	GEC	ENCLOSURE TYPE	200% NEUTRAL	K-RATING	FAULT CURRENT (A)	SHORT CIRCUIT RATING (A)	NOTES
UTILITY A	New Construction	NORMAL	Pole Mounted Transformer				208	3						MAIN LUGS ONLY								NEMA 3R			27758		
-- LAAA	New Construction	NORMAL	Distribution Panelboard	UTILITY A	M01	MECH.	208	3	4	145.9 kVA	405 A	800	800	THERMAL MAGNETIC	U800-4C	(3) SETS OF (4) #300 KCMIL CU IN 3" CONDUIT EACH	0.545		Yes		Yes	NEMA 1			23894	42000	
---- C	New Construction	NORMAL	Branch Panelboard	LAAA	M01	MECH.	208	3	4	18.9 kVA	53 A	225	225	MAIN LUGS ONLY	225-4C	(4) #4/0 AWG CU, (1) #4 AWG CU GND. IN 3" CONDUIT	0.558					NEMA 1			22705	25000	
---- D-A	Existing	NORMAL	Safety Switch	LAAA	M01	MECH.	208	2	3	32.0 kVA	154 A	400	400	MAIN LUGS ONLY	400-3C	(2) SETS OF (3) #3/0 AWG CU, (1) #3 AWG CU GND. IN 2" CONDUIT EACH	0.599					NEMA 1			23264	EXISTING	
------ A	Existing	NORMAL	Branch Panelboard	D-A	M01	MECH.	208	2	3	32.0 kVA	154 A	400	400	MAIN LUGS ONLY	X400	EXISTING FEEDER, AT RATING INDICATED, TO REMAIN UNLESS NOTED OTHERWISE	0.614					NEMA 1			23028	EXISTING	
---- D-B	Existing	NORMAL	Safety Switch	LAAA	M01	MECH.	208	2	3	32.0 kVA	154 A	400	400	MAIN LUGS ONLY	400-3C	(2) SETS OF (3) #3/0 AWG CU, (1) #3 AWG CU GND. IN 2" CONDUIT EACH	0.626					NEMA 1			22742	EXISTING	
------ B	Existing	NORMAL	Branch Panelboard	D-B	M01	MECH.	208	2	3	32.0 kVA	154 A	400	400	MAIN LUGS ONLY	X400	EXISTING FEEDER, AT RATING INDICATED, TO REMAIN UNLESS NOTED OTHERWISE	0.641					NEMA 1			22926	EXISTING	
UTILITY B	New Construction	NORMAL	Pole Mounted Transformer				208	3						MAIN LUGS ONLY								NEMA 3R			27758		
-- LBAA	New Construction	NORMAL	Distribution Panelboard	UTILITY B	0	STORAGE	208	3	4	151.4 kVA	420 A	800	800	THERMAL MAGNETIC	U800-4C	(3) SETS OF (4) #300 KCMIL CU IN 3" CONDUIT EACH	0.228		Yes		Yes	NEMA 1			26997	42000	
---- LP-D	New Construction	NORMAL	Branch Panelboard	LBAA	0	STORAGE	208	3	4	23.6 kVA	65 A	225	225	MAIN LUGS ONLY	225-4C	(4) #4/0 AWG CU, (1) #4 AWG CU GND. IN 3" CONDUIT	0.283					NEMA 1			22396	25000	
---- L1A	Existing	NORMAL	Branch Panelboard	LBAA	111	CORRIDOR	208	2	3	20.8 kVA	100 A	250	250	MAIN LUGS ONLY	XC-255-3C	EXISTING FEEDER, (3) #250 KCMIL CU, (1) #4 AWG CU GND. IN 3" CONDUIT	0.809					NEMA 1			17693	EXISTING	
------ L1B	Existing	NORMAL	Branch Panelboard	L1A	111	CORRIDOR	208	2	3	0.0 kVA	0 A	250	250	MAIN LUGS ONLY	XC-255-3C	EXISTING FEEDER, (3) #250 KCMIL CU, (1) #4 AWG CU GND. IN 3" CONDUIT	0.809					NEMA 1			17493	EXISTING	
---- WIREWAY	Existing	NORMAL	WireWay	LBAA	0	STORAGE	208	2	3	20.8 kVA	100 A	400	400	MAIN LUGS ONLY	400-3C	(2) SETS OF (3) #3/0 AWG CU, (1) #3 AWG CU GND. IN 2" CONDUIT EACH	0.261					NEMA 1			25939	EXISTING	
------ LP-A	Existing	NORMAL	Branch Panelboard	WIREWAY	0	STORAGE	208	2	3	0.0 kVA	0 A	200	200	THERMAL MAGNETIC	XC-200-3C	EXISTING FEEDER, (3) #3/0 AWG CU, (1) #1 AWG CU GND.	0.261					NEMA 1			25743	EXISTING	
------ LP-B	Existing	NORMAL	Branch Panelboard	WIREWAY	0	STORAGE	208	2	3	0.0 kVA	0 A	200	200	THERMAL MAGNETIC	XC-200-3C	EXISTING FEEDER, (3) #3/0 AWG CU, (1) #1 AWG CU GND.	0.261					NEMA 1			25332	EXISTING	
------ LP-C	Existing	NORMAL	Branch Panelboard	WIREWAY	0	STORAGE	208	2	3	0.0 kVA	0 A	150	150	THERMAL MAGNETIC	XC-200-3C	EXISTING FEEDER, (3) #3/0 AWG CU, (1) #1 AWG CU GND.	0.261					NEMA 1			25305	EXISTING	

EXISTING LOADS OF EXISTING EQUIPMENT SHOWN WITH 0.0 KVA IN THIS SCHEDULE ARE ACCOUNTED FOR IN PEAK DEMAND NUMBERS ACQUIRED FROM DUKE ENERGY.

GENERAL ELECTRICAL POWER DISTRIBUTION NOTES

A. PARALLEL CONDUCTOR SETS: CUT PARALLEL SERVICE/FEEDER CONDUCTORS TO EXACTLY THE SAME LENGTHS AND USE CONDUCTORS FROM THE SAME FACTORY RUN. TORQUE ALL CONNECTIONS FOR PARALLEL SERVICE/FEEDER CONDUCTORS TO IDENTICAL VALUES.
B. OVERCURRENT PROTECTION RATINGS: UNLESS INDICATED OTHERWISE, PROVIDE FULLY-RATED OR SERIES-RATED OVERCURRENT PROTECTION (OCP) AS REQUIRED TO COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 70. PROVIDE EQUIPMENT AND OCP RATED TO MEET OR EXCEED THE AVAILABLE SERIES-RATED FAULT CURRENT AT THE RESPECTIVE NODE IN THE POWER DISTRIBUTION SYSTEM. SERIES-RATED BREAKERS/SYSTEMS ARE NOT PERMITTED WHERE PROHIBITED BY PREVAILING CODES AND STANDARDS, INCLUDING APPLICATIONS INVOLVING MOTOR CONTRIBUTION AS ADDRESSED IN ARTICLE 240.86(C) OF NFPA 70. FURNISH ELECTRONIC COPIES OF THE ELECTRICAL DOCUMENTS TO THE MANUFACTURER'S REPRESENTATIVE AND/OR EQUIPMENT SUPPLIER SO THAT PROPERLY RATED AND BRACED EQUIPMENT IS PROVIDED UNDER BASE BID. IF FAULT CURRENT VALUES ARE NOT INDICATED ON PLANS, ALSO PROVIDE FAULT CURRENT CALCULATIONS AND FURNISH RESULTS WITH EQUIPMENT SUBMITTALS.
C. GROUNDING ELECTRODE CONDUCTOR SYSTEM: PROVIDE GROUNDING ELECTRODE CONDUCTOR SYSTEM IN STRICT COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), INCLUDING ARTICLE 250 AND TABLE 250.66. THESE CONDUCTORS MAY OR MAY NOT BE INDICATED ON SINGLE-LINE DIAGRAMS, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.
D. DERIVED SYSTEM GROUNDING ELECTRODES: REFER TO DERIVED SYSTEM GROUNDING ELECTRODE CONDUCTOR SCHEDULE FOR MINIMUM GROUNDING ELECTRODE CONDUCTOR SIZES. CONNECT TO BUILDING OR STRUCTURE GROUNDING ELECTRODE SYSTEM.
E. ELEVATORS: VERIFY OVERCURRENT PROTECTION REQUIREMENTS AND CONDUCTOR REQUIREMENTS WITH ELEVATOR VENDOR PRIOR TO FURNISHING POWER DISTRIBUTION EQUIPMENT SUBMITTALS. PROVIDE COPPER CONDUCTORS FOR FINAL CONNECTIONS AT ALL ELEVATOR CONTROLLERS. PROVIDE FULL PARITY-SIZED EQUIPMENT GROUNDING CONDUCTOR FOR ALL FEEDS TO ELEVATOR CONTROLLERS, SIZED THE SAME AS THE PHASE CONDUCTORS. PROVIDE AT LEAST THE SAME SIZE EQUIPMENT GROUNDING CONDUCTOR FOR ALL "UPSTREAM" FEEDERS AS WELL. COORDINATE ALL ELEVATOR RELATED WORK WITH ELEVATOR INSTALLER PRIOR TO COMMENCING WITH MATERIAL PROCUREMENT OR ANY RELATED WORK. CONTACT LOCAL AUTHORITY HAVING JURISDICTION, INCLUDING ELECTRICAL INSPECTOR, AND PROVIDE SHUNT TRIP DEVICE IN ELEVATOR MACHINE ROOM (INSTEAD OF AT ELEVATOR FEEDER SOURCE), IF REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
F. FLUSH MOUNTED EQUIPMENT: PROVIDE FLUSH MOUNTED POWER DISTRIBUTION AND RELATED EQUIPMENT FOR APPLICATIONS IN FINISHED AREAS AND COORDINATE THESE LOCATIONS AND INSTALLATIONS WITH ARCHITECT, OWNER AND AFFECTED TRADES. ELSEWHERE PROVIDE SURFACE MOUNTED EQUIPMENT UNLESS FLUSH MOUNTED EQUIPMENT IS SHOWN ON DRAWINGS OR UNLESS NEEDED TO ACCOMMODATE UNUSUAL CONDITIONS.
G. POWER DISTRIBUTION EQUIPMENT LABELS: IN ADDITION TO LABELS REQUIRED WITHIN THE SPECIFICATIONS, INCLUDE CORRESPONDING MAXIMUM AIC (AVAILABLE INRUSH CURRENT) AND SHORT-CIRCUIT CURRENT RATING (SCCR) FOR EACH PIECE OF POWER DISTRIBUTION EQUIPMENT, ALONG WITH ARC FLASH LABELS COMPLIANT WITH ARTICLE 110.16 OF NFPA 70. ALSO INCLUDE CONDUCTOR COLOR CODING FOR THE BUILDING AND PHASE ROTATION AS APPLICABLE.
H. CONDUCTOR TERMINATIONS: IN CASES WHERE CONDUCTOR SIZES ARE TOO LARGE TO FIT INTO LUGS/TERMINALS, PROVIDE APPROPRIATE FACTORY LUG KITS FOR AFFECTED EQUIPMENT IF AVAILABLE. ELSEWHERE, PROVIDE INSULATED BUTT-SPLICES OR EQUIVALENT METHOD, WITH TAILS SIZED TO FIT LUGS/TERMINALS. PROVIDE SPLICES IN SEPARATE BOXES IF REQUIRED BASED ON FIELD CONDITIONS, BOX SIZE LIMITATIONS, ETC. CONCEAL BOXES IN ACCESSIBLE OVERHEAD JOIST SPACES IN FINISHED REGULARLY OCCUPIED AREAS.
I. ALUMINUM CONDUCTORS: PROVIDE THE FOLLOWING SUPPLEMENTAL WORK FOR ALUMINUM-CONDUCTOR ELECTRICAL EQUIPMENT CONNECTIONS, REGARDLESS OF WHO FURNISHES THE EQUIPMENT: REVIEW EQUIPMENT SUBMITTALS. INSTALLATION DOCUMENTS AND NAMEPLATES TO DETERMINE IF THERE ARE ANY WARRANTY OR UL LIMITATIONS REGARDING COPPER VERSUS ALUMINUM WIRING CONNECTIONS AT EQUIPMENT; IF THERE ARE ANY LIMITATIONS, PROVIDE LOCAL DISCONNECT AT OR NEAR EQUIPMENT (EXTERNAL TO THE EQUIPMENT) AND TERMINATE ALUMINUM CONDUCTORS TO THE LINE-SIDE LUGS/TERMINALS OF THE DISCONNECT SWITCH; PROVIDE COPPER CONDUCTORS FROM LOAD-SIDE LUGS/TERMINALS OF THE DISCONNECT SWITCH TO THE RESPECTIVE EQUIPMENT FACTORY DISCONNECT OR LUG/TERMINALS AS APPLICABLE; COORDINATE ALL RELATED WORK WITH ALL AFFECTED INSTALLERS.
J. TRANSFORMER PRIMARY DISCONNECTS: UNLESS LOCATED IN THE SAME ROOM WITHIN 25 FEET OF THE SOURCE OF PRIMARY POWER AND WITHIN SIGHT OF SAME, PROVIDE LOCAL PRIMARY DISCONNECT SWITCH FOR EACH TRANSFORMER. PROVIDE FUSED DISCONNECT SWITCH FOR APPLICATIONS WHERE A TAP RULE IS BEING APPLIED, OTHERWISE THE DISCONNECT SWITCH MAY BE NON-FUSED. IN CASES WHERE IT IS PHYSICALLY IMPOSSIBLE TO INSTALL A PRIMARY DISCONNECT SWITCH CLOSE TO THE RESPECTIVE TRANSFORMER IN A CODE-COMPLIANT MANNER, PROVIDE PERMANENTLY INSTALLED LOCK-OUT/TAG-OUT PROVISIONS AT THE UPSTREAM OVERCURRENT PROTECTION DEVICE AND RELATED INFORMATIONAL SIGNAGE AT THE TRANSFORMER.
K. FEEDER TAPS: PERFORM FEEDER TAPS IN ACCORDANCE WITH NFPA 70. PERFORM FEEDER TAPS TO PARALLELED-SET FEEDERS BY RESPECTIVELY TAPPING ALL PHASE, GROUNDED AND GROUNDING CONDUCTORS TO ENSURE UNIFORM CURRENT FLOW IN ALL SETS.
L. BREAKER FRAME SIZES: AMPERE RATINGS INDICATED ON DRAWINGS FOR CIRCUIT BREAKERS ARE SHOWN TO DEFINE OVERCURRENT REQUIREMENTS/TRIP RATINGS. PROVIDE BREAKER FRAMES IN SIZES AND TYPES GREATER THAN THE DESIGNATED OVERCURRENT TRIP RATINGS WHERE NECESSARY TO ACHIEVE THE REQUIRED SELECTIVE COORDINATION, AND/OR AS NECESSARY FOR OTHER APPLICABLE REASONS.
M. HOUSEKEEPING PADS: SEE SPECIFICATION SECTION 260529.00 FOR REQUIREMENTS ASSOCIATED WITH CONCRETE HOUSEKEEPING PADS.
N. PLYWOOD EQUIPMENT BOARDS: SEE SPECIFICATION SECTION 260529.00 FOR REQUIREMENTS ASSOCIATED WITH PLYWOOD EQUIPMENT BOARDS.
O. 1200A AND LARGER BREAKERS: FOR ALL CIRCUIT BREAKERS WHERE THE CURRENT TRIP SETTING IS RATED AT, OR CAN BE ADJUSTED TO, 1200A OR LARGER, PROVIDE DOCUMENTATION AS TO THE LOCATION OF THESE CIRCUIT BREAKERS IN THE SYSTEM AND PROVIDE AT LEAST (1) OF THE (4) MEANS TO REDUCE THE CLEARING TIME AS NOTED IN ARTICLE 240.87(B) OF NFPA 70.
P. FIELD ADJUSTMENTS OF CIRCUIT BREAKERS: SET FIELD-ADJUSTABLE OVERCURRENT TRIP VALUES AS INDICATED ON DRAWINGS (UNLESS OTHERWISE SPECIFIED IN OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY). UNLESS INDICATED OTHERWISE ON DRAWINGS, OR DIRECTED OTHERWISE BY AHJ OR PREVAILING CODES, MANUFACTURER SHALL FURNISH SETTING INFORMATION BASED ON PROJECT REQUIREMENTS AND PREVAILING CODES, WHILE MINIMIZING THE POSSIBILITY OF NUISANCE TRIPPING. MANUFACTURER SHALL PROVIDE REMOVABLE AND SEALABLE COVERS OVER ALL ADJUSTABLE CIRCUIT BREAKER SETTINGS PER NEC 240.6(C).
Q. ELECTRIC UTILITY SERVICE WORK: PROVIDE ALL ELECTRIC UTILITY SERVICE WORK IN STRICT COMPLIANCE WITH PREVAILING REQUIREMENTS OF THE UTILITY COMPANY. THE DRAWINGS INDICATE RELATED REQUIREMENTS AT A SCHEMATIC LEVEL. IT IS NOT THE INTENT OF THESE DRAWINGS TO DETAIL ANY SUCH WORK. UTILITY COMPANY WILL PROVIDE (FURNISH AND INSTALL) UTILITY TRANSFORMER(S). PROVIDE METER SOCKET(S) AND EMPTY CONDUIT (WITH DRAG LINE) FROM METER TO CURRENT TRANSFORMER LOCATION. UNLESS METERING OCCURS AT A PAD-MOUNTED UTILITY TRANSFORMER, PROVIDE CURRENT TRANSFORMER (CT) CABINET COMPLIANT WITH UTILITY COMPANY STANDARDS. PROVIDE CONCRETE PAD OR VAULT FOR PAD-MOUNTED UTILITY TRANSFORMER(S), AS DIRED BY UTILITY COMPANY AND COMPLIANT WITH UTILITY COMPANY STANDARDS. COORDINATE WITH UTILITY COMPANY AS REQUIRED TO PROVIDE COMPLETE OPERATIONAL ELECTRIC SERVICE(S).
R. CRITICAL OPERATIONS POWER SYSTEMS (COPS): THIS PROJECT IS IN WHOLE OR IN PART A MISSION-CRITICAL FACILITY THAT REQUIRES COMPLIANCE WITH ARTICLE 708 OF NFPA. PROVIDE INDICATED WORK, AND WORK ASSOCIATED WITH INDICATED WORK, IN STRICT COMPLIANCE WITH ARTICLE 708 OF NFPA 70. THERE ARE TOO MANY REQUIREMENTS AND DETAILS TO LIST IN THIS NOTE. THOROUGHLY READ, REFERENCE AND COMPLY WITH ARTICLE 708 OF NFPA 70 IN ITS ENTIRETY, AND CONSIDER IT, ALONG WITH ALL PREVAILING CODES, TO BE PART OF THE PROJECT BASE-BID REQUIREMENTS.
S. SERVICE VOLTAGE ALTERATION: THE ELECTRICAL SERVICES FOR THIS BUILDING ARE BEING ALTERED, RESULTING IN A NEW VOLTAGE. THE PREVIOUS SERVICES WERE 240V 1PH. THE NEW SERVICES WILL BE 208Y 3PH. TEST EXISTING EQUIPMENT AND COORDINATE WITH EQUIPMENT MANUFACTURERS TO ENSURE THAT ALL EXISTING EQUIPMENT TO REMAIN CAN BE FED WITH 208Y IN LIEU OF 240V.



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Renovations For:
Southgate Elementary School
Southgate, KY
Mr. Greg Duty, Superintendent
6 William F. Blatt Ave.
Southgate Independent School District

COMMONWEALTH OF KENTUCKY
STEPHEN H FEDERIE
27329
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: RTT	CHK: DTJ
PROJ. DATE	12/13/18
SHEET DATE	12/13/18
JOB NO.	20692.00

ELECTRIC POWER - SINGLE LINE DIAGRAM

EP601

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OWNERSHIP OF INSTRUMENTS OF SERVICE
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PANEL NAME: LP-D

SUPPLY FROM: LBAA | **MAINS RATING (A):** 225 | **FAULT CURRENT (A):** 22396 | **SURGE SUPRESSION:**
LOCATION: STORAGE 0 | **MAINS TYPE:** MAIN LUGS ONLY | **SHORT CIRCUIT RATING (A):** 25000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** 225-4C | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (4) #4/0 AWG CU, (1) #4 AWG CU GND. IN 3" CONDUIT | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A		B		C		POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1								1.60	1.60												2
3	CU-01 DS-01	2.749	#12	#12	20 A	20 A	2			1.60	1.60			2	20 A	20 A	*#10	*#10	2.14	CU-02 DS-02	4
5												1.58	0.30								6
7	CU-06 DS-03	1.855	*#10	*#10	20 A	20 A	2	1.58	0.30					2	15 A	15 A	#12	#12	0.423	HRB-03 VRF-1-01 VRF-1-02 VRF-1-11	8
9	HRB-04 VRF-2-01 VRF-2-02 VRF-2-03 VRF-2-04	0.612	#12	#12	15 A	15 A	2			0.41	1.02										10
11	VRF-2-13											0.41	1.02	2	15 A	15 A	#12	#12	1.776	CH-03 I MOTOR CORRIDOR 107	12
13								1.02	1.00												14
15	CH-01	1.711	#12	#12	15 A	15 A	2			1.02	1.00			2	15 A	15 A	#12	#12	0.332	EWH-04	16
17												1.02	1.02								18
19	CH-04 I MOTOR VESTIBULE 122	1.006	#12	#12	15 A	15 A	2	1.02	1.02					2	15 A	15 A	#12	#12	1.932	CH-02	20
21	CP-02	0.214	#12	#12	15 A	15 A	1			0.18	0.58			1	20 A	20 A	#12	#12	0.803	CORRIDOR C-4	22
23	MAINTENANCE RCPT	1.137	#12	#12	20 A	20 A	1					0.36	0.40	1	20 A	20 A	#12	#12	0.755	(G) EWC	24
25																					26
27																					28
29																					30
31																					32
33																					34
35	SPARE	--	--	--	20 A	--	1					0.00	0.00	1	--	20 A	--	--	--	SPARE	36
37	SPARE	--	--	--	20 A	--	1	0.00	0.00					1	--	20 A	--	--	--	SPARE	38
39	SPARE	--	--	--	20 A	--	1			0.00	0.00			1	--	20 A	--	--	--	SPARE	40
41	SPARE	--	--	--	20 A	--	1					0.00	0.00	1	--	20 A	--	--	--	SPARE	42
							TOTAL CONNECTED LOAD:	9.1 kVA		7.4 kVA		6.1 kVA									

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Heating	4035 VA	100.00%	4035 VA
Lighting	576 VA	125.00%	720 VA
Motor	17282 VA	104.47%	18054 VA
Non-Continuous	400 VA	100.00%	400 VA
Receptacle	360 VA	100.00%	360 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(1) 15A / 1P, (7) 15A / 2P, (10) 20A / 1P, (1) 20A / 1P (G), (3) 20A / 2P

PANEL TOTALS	
TOTAL CONNECTED LOAD:	22.7 kVA
DEMAND CALCULATION NOTES:	
TOTAL DEMAND:	23.6 kVA
TOTAL DEMAND AMPS:	**65 A**

PANEL NAME: C

SUPPLY FROM: LAAA | **MAINS RATING (A):** 225 | **FAULT CURRENT (A):** 22705 | **SURGE SUPRESSION:**
LOCATION: MECH. M01 | **MAINS TYPE:** MAIN LUGS ONLY | **SHORT CIRCUIT RATING (A):** 25000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** 225-4C | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (4) #4/0 AWG CU, (1) #4 AWG CU GND. IN 3" CONDUIT | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A		B		C		POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	HRB-02 VRF-2-05 VRF-2-06 VRF-2-07 VRF-2-08	2.424	#12	#12	15 A	15 A	2	1.11	1.24					2	15 A	15 A	#12	#12	1.957	HRB-01 HRB-05 VRF-1-03 VRF-1-04 VRF-1-05	2
3	VRF-2-09 VRF-2-10 VRF-2-11 VRF-2-12 VRF-2-14...									1.11	1.24									VRF-1-06 VRF-1-07 VRF-1-08 VRF-1-09A VRF-1-09B...	4
5												1.00	0.75								6
7	EWH-03 I MOTOR LOBBY L1	0.213	#12	#12	15 A	15 A	2	1.00	0.75					2	15 A	15 A	#12	#12	1.065	EWH-01 EWH-05	8
9	EF-01 EF-02	0.069	#12	#12	15 A	15 A	1			0.03	0.37										10
11	EF-03	0.055	#12	#12	15 A	15 A	1					0.02	0.37	2	15 A	15 A	#12	#12	0.816	EWH-02	12
13	CP-01	0.455	#12	#12	15 A	15 A	1	0.36	0.08												14
15	LOBBY L1	0.443	#12	#12	20 A	20 A	1			0.38	0.08			2	15 A	15 A	#12	#12	0.103	VRF-3-01 VRF-3-02	16
17	UH-01	1.897	#12	#12	20 A	20 A	2					1.51	1.51								18
19								1.51	1.51					2	20 A	20 A	#12	#12	1.754	UH-02	20
21	MECH. M2	0.355	#12	#12	20 A	20 A	1			0.18	0.18			1	20 A	20 A	#12	#12	0.489	MAINTENANCE RCPT	22
23												1.02									24
25	CH-05	1.824	#12	#12	20 A	20 A	2	1.02													26
27																					28
29																					30
31																					32
33																					34
35	SPARE	--	--	--	20 A	--	1					0.00	0.00	1	--	20 A	--	--	--	SPARE	36
37	SPARE	--	--	--	20 A	--	1	0.00	0.00					1	--	20 A	--	--	--	SPARE	38
39	SPARE	--	--	--	20 A	--	1			0.00	0.00			1	--	20 A	--	--	--	SPARE	40
41	SPARE	--	--	--	20 A	--	1					0.00	0.00	1	--	20 A	--	--	--	SPARE	42
							TOTAL CONNECTED LOAD:	8.6 kVA		3.6 kVA		6.2 kVA									

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Heating	10317 VA	100.00%	10317 VA
Lighting	384 VA	125.00%	480 VA
Motor	7106 VA	107.03%	7605 VA
Receptacle	540 VA	100.00%	540 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(3) 15A / 1P, (6) 15A / 2P, (11) 20A / 1P, (3) 20A / 2P

PANEL TOTALS	
TOTAL CONNECTED LOAD:	18.3 kVA
DEMAND CALCULATION NOTES:	
TOTAL DEMAND:	18.9 kVA
TOTAL DEMAND AMPS:	**53 A**

PANEL NAME: LBAA

SUPPLY FROM: UTILITY B | **MAINS RATING (A):** 800 | **FAULT CURRENT (A):** 26997 | **SURGE SUPRESSION:** Yes
LOCATION: STORAGE 0 | **MAINS TYPE:** THERMAL MAGNETIC | **SHORT CIRCUIT RATING (A):** 42000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** UB00-4C | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (3) SETS OF (4) #300 KCMIL CU IN 3" CONDUIT EACH | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A		B		C		POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	L1A	SL	SL	SL	250 A	250 A	2	10...	10.40					2	400 A	400 A	SL	SL	SL	WIREWAY	2
3										10.40	10.40										4
5												9.14	4.65								6
7	LP-D	SL	SL	SL	225 A	225 A	3	7.41	4.65					3	50 A	50 A	#10	#6	1.293	CU-05A	8
9										6.11	4.65										10
11												4.11	5.94								12
13	CU-05B	1.082	#6	#10	45 A	45 A	3	4.11	5.94					3	70 A	70 A	#8	#4	0.887	CU-03A	14
15										4.11	5.94										16
17												5.94	6.69								18
19	CU-03B	0.82	#4	#8	70 A	70 A	3	5.94	6.69					3	70 A	70 A	#8	#4	0.853	CU-04	20
21										5.94	6.69										22
23																					24
25																					26
27																					28
29																					30
							TOTAL CONNECTED LOAD:	55.5 kVA		54.2 kVA		36.5 kVA									

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Heating	4035 VA	100.00%	4035 VA
Lighting	576 VA	125.00%	720 VA
Motor	99281 VA	105.05%	104299 VA
Non-Continuous	400 VA	100.00%	400 VA
Receptacle	360 VA	100.00%	360 VA
Spare	41600 VA	100.00%	41600 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(1) 45A / 3P, (1) 50A / 3P, (3) 70A / 3P, (1) 225A / 3P, (1) 250A / 2P, (1) 400A / 2P

PANEL TOTALS	
TOTAL CONNECTED LOAD:	146.3 kVA
DEMAND CALCULATION NOTES:	100% EXISTING
TOTAL DEMAND:	151.4 kVA
TOTAL DEMAND AMPS:	**420 A**

PANEL NAME: LAAA

SUPPLY FROM: UTILITY A | **MAINS RATING (A):** 800 | **FAULT CURRENT (A):** 23894 | **SURGE SUPRESSION:** Yes
LOCATION: MECH. M01 | **MAINS TYPE:** THERMAL MAGNETIC | **SHORT CIRCUIT RATING (A):** 42000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** UB00-4C | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (3) SETS OF (4) #300 KCMIL CU IN 3" CONDUIT EACH | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A		B		C		POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	D-A	SL	SL	SL	400 A	400 A	2	16...	16.00					2	400 A	400 A	SL	SL	SL	D-B	2
3										16.00	16.00										4
5												4.65	8.58								6
7	CU-07	1.723	#6	#10	50 A	50 A	3	4.65	3.59					3	225 A	225 A	SL	SL	SL	C	8
9										4.65	6.17										10
11												13...									12
13								13.20						3	150 A	150 A	#6	#1/0	0.827	ERV-01	14
15										13.20											16
17																					18
19																					20
21																					22
23																					24
25																					26
27																					28
29																					30
							TOTAL CONNECTED LOAD:	53.4 kVA		56.0 kVA		26.4 kVA									

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Heating	10317 VA	100.00%	10317 VA
Lighting	384 VA	125.00%	480 VA
Motor	60640 VA	116.32%	70538 VA
Receptacle	540 VA	100.00%	540 VA
Spare	64000 VA	100.00%	64000 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(1) 50A / 3P, (1) 150A / 3P, (1) 225A / 3P, (2) 400A / 2P

PANEL TOTALS	
TOTAL CONNECTED LOAD:	135.9 kVA
DEMAND CALCULATION NOTES:	100% EXISTING
TOTAL DEMAND:	145.9 kVA
TOTAL DEMAND AMPS:	**405 A**

PANEL SCHEDULE LEGEND

(EX)	=	EXISTING CIRCUIT TO REMAIN
(#)	=	NEW CIRCUIT TO EXISTING CIRCUIT BREAKER
(G)	=	PROVIDE GROUND-FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER
(GE)	=	PROVIDE GROUND-FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKER
(ST)	=	PROVIDE SHUNT TRIP CIRCUIT BREAKER
(A)	=	PROVIDE ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER
(L)	=	PROVIDE LOCK-ON DEVICE
(LT)	=	PROVIDE LOCK-OUT/TAG-OUT DEVICE
(->)	=	CONNECT BRANCH CIRCUIT, WHICH WAS DISCONNECTED FROM ANOTHER SOURCE AS PART OF SELECTIVE DEMOLITION, TO POLE SPACE(S) INDICATED. DETERMINE EXACT POLE ASSIGNMENT(S) BASED ON EXISTING COLOR-CODING OF THE BRANCH CIRCUIT CONDUCTOR INSULATION. PROVIDE NEW BREAKER IF REQUIRED.
*	=	WIRE SIZED TO COMPENSATE FOR VOLTAGE DROP
**	=	REFER TO DRAWINGS FOR SPECIFICATIONS
SL	=	SEE THE SINGLE LINE DIAGRAM / SCHEDULE FOR WIRE SIZE AND VOLTAGE DROP

PANEL SCHEDULE GENERAL NOTES

A. PROVIDE HACR RATED BREAKERS ON ALL MOTOR LOADS.
B. PROVIDE LOCKING TYPE BREAKER FOR ALL LIFE SAFETY AND NIGHT LIGHTING BRANCH CIRCUITS.
C. ALL VOLTAGE DROP CALCULATIONS AND COMPENSATED WIRE SIZES ARE BASED ON RIGHT ANGLE CIRCUIT LENGTHS TO THE LAST DEVICE. ACTUAL VOLTAGE DROP VARIES BASED ON INSTALLED WIRE LENGTH.

PANEL KEY

--	--	--
--	LP-D	LBAA
--	C	LAAA

2" REFERENCE LINE

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800.354.9783 859.442.8075
859.442.8058 FAX

Renovations For:
Southgate Elementary School
Southgate, KY
Mr. Greg Duty, Superintendent
6 William F. Blatt Ave.
Southgate Independent School District

STATE OF KENTUCKY
STEPHEN N FEDERLE
27329
REGISTERED PROFESSIONAL ENGINEER

REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: RTT CHK: DTJ
PROJ. DATE 12/13/18
SHEET DATE 12/13/18
JOB NO. 20692.00

ELECTRIC POWER - PANEL SCHEDULES

EP602

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ELECTRIC EQUIPMENT SUPPLY SCHEDULE

EQUIPMENT MARK	SUPPLY FROM	CKT	EMERG.	LOAD (kVA)	AVAILABLE FAULT CURRENT	VOLTS	POLE	HTG KW	WATT	HP	FLA (A)	MCA (A)	RQD OCP (A)	BREAKER RATING (A)
CH-01	LP-D	13,15		2.04	1712	208 V	2				9.8			15
CH-02	LP-D	18,20		2.04	1525	208 V	2				9.8			15
CH-03	LP-D	10,12		2.04	1720	208 V	2				9.8			15
CH-04	LP-D	17,19		2.04	2414	208 V	2				9.8			15
CH-05	C	23,25		2.04	1585	208 V	2				9.8			20
CP-01	C	13		0.18	1981	120 V	1		93		1.5		15	15
CP-02	LP-D	21		0.18	2144	120 V	1		93		1.5		15	15
CU-01	LP-D	1,3		3.09	1257	208 V	2					16.5	20	20
CU-02	LP-D	2,4		3.09	1927	208 V	2					16.5	20	20
CU-03A	LBAA	12,14,16		17.83	6857	208 V	3					55	70	70
CU-03B	LBAA	17,19,21		17.83	7369	208 V	3					55	70	70
CU-04	LBAA	18,20,22		20.07	7900	208 V	3					61.9	70	70
CU-05A	LBAA	6,8,10		13.94	4020	208 V	3					43	50	50
CU-05B	LBAA	11,13,15		12.32	4262	208 V	3					38	45	45
CU-06	LP-D	5,7		3.09	2004	208 V	2					16.5	20	20
CU-07	LAAA	5,7,9		13.94	3534	208 V	3					43	50	50
DS-01	LP-D	1,3		0.11	1283	208 V	2					0.6	*	20
DS-02	LP-D	2,4		0.11	1962	208 V	2					0.6	*	20
DS-03	LP-D	5,7		0.08	4813	208 V	2					0.4	*	20
EF-01	C	9		0.02	1237	120 V	1		16					15
EF-02	C	9		0.02	1368	120 V	1		16					15
EF-03	C	11		0.02	716	120 V	1		16					15
ERV-01	LAAA	12,14,16		39.59	11059	208 V	3					109.9	136.1	150	150
EWH-01	C	6,8		0.75	2057	208 V	2					3.6			15
EWH-02	C	10,12		0.75	1283	208 V	2					3.6			15
EWH-03	C	5,7		2.00	5922	208 V	2	2				9.6			15
EWH-04	LP-D	14,16		2.00	7215	208 V	2	2				9.6			15
EWH-05	C	6,8		0.75	2352	208 V	2					3.6			15
HRB-01	C	2,4		0.19	3864	208 V	2						1.0	15	15
HRB-02	C	1,3		0.19	3674	208 V	2						1.0	15	15
HRB-03	LP-D	6,8		0.11	2150	208 V	2						0.6	15	15
HRB-04	LP-D	9,11		0.11	2440	208 V	2						0.6	15	15
HRB-05	C	2,4		0.19	1751	208 V	2						1.0	15	15
UH-01	C	17,19		3.02	2252	208 V	2	3		1/100	14.5				20
UH-02	C	18,20		3.02	2308	208 V	2	3		1/100	14.5				20
VRF-1-01	LP-D	6,8		0.08	1947	208 V	2					0.4	15	15	15
VRF-1-02	LP-D	6,8		0.08	2170	208 V	2					0.4	15	15	15
VRF-1-03	C	2,4		0.11	1677	208 V	2					0.6	15	15	15
VRF-1-04	C	2,4		0.06	2372	208 V	2					0.3	15	15	15
VRF-1-05	C	2,4		0.26	2672	208 V	2					1.4	15	15	15
VRF-1-06	C	2,4		0.26	2280	208 V	2					1.4	15	15	15
VRF-1-07	C	2,4		0.26	1724	208 V	2					1.4	15	15	15
VRF-1-08	C	2,4		0.08	10048	208 V	2					0.4	15	15	15
VRF-1-09A	C	2,4		0.34	2799	208 V	2					1.8	15	15	15
VRF-1-09B	C	2,4		0.64	1502	208 V	2					3.4	15	15	15
VRF-1-10	C	2,4		0.11	5121	208 V	2					0.6	15	15	15
VRF-1-11	LP-D	6,8		0.34	8538	208 V	2					1.8	15	15	15
VRF-2-01	LP-D	9,11		0.26	1951	208 V	2					1.4	15	15	15
VRF-2-02	LP-D	9,11		0.08	2324	208 V	2					0.4	15	15	15
VRF-2-03	LP-D	9,11		0.11	3357	208 V	2					0.6	15	15	15
VRF-2-04	LP-D	9,11		0.11	6696	208 V	2					0.6	15	15	15
VRF-2-05	C	1,3		0.11	1768	208 V	2					0.6	15	15	15
VRF-2-06	C	1,3		0.26	2439	208 V	2					1.4	15	15	15
VRF-2-07	C	1,3		0.26	4328	208 V	2					1.4	15	15	15
VRF-2-08	C	1,3		0.15	2516	208 V	2					0.8	15	15	15
VRF-2-09	C	1,3		0.26	1929	208 V	2					1.4	15	15	15
VRF-2-10	C	1,3		0.06	4198	208 V	2					0.3	15	15	15
VRF-2-11	C	1,3		0.26	2647	208 V	2					1.4	15	15	15
VRF-2-12	C	1,3		0.06	4345	208 V	2					0.3	15	15	15
VRF-2-13	LP-D	9,11		0.15	4639	208 V	2					0.8	15	15	15
VRF-2-14	C	1,3		0.06	6133	208 V	2					0.3	15	15	15
VRF-2-15	C	1,3		0.11	1224	208 V	2					0.6	15	15	15
VRF-2-16	C	1,3		0.11	1442	208 V	2					0.6	15	15	15
VRF-2-17	C	1,3		0.11	1460	208 V	2					0.6	15	15	15
VRF-2-18	C	1,3		0.11	1950	208 V	2					0.6	15	15	15
VRF-2-19	C	1,3		0.11	1204	208 V	2					0.6	15	15	15
VRF-3-01	C	14,16		0.06	2592	208 V	2					0.3	15	15	15
VRF-3-02	C	14,16		0.11	3111	208 V	2					0.6	15	15	15

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS

DC	LOCAL DISCONNECT
MC	MOTOR CONTROL (POWER)
SD	DUCT SMOKE DETECTOR
CN	CONTROLS
TS	TOGGLE SWITCH
CB	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)
FLA	OPERATING FULL LOAD AMPS
MCA	MINIMUM CIRCUIT AMPACITY
CP	CORD AND PLUG CONNECTION

CONTRACTOR TYPE

EC	ELECTRICAL CONTRACTOR
EX	EXISTING
FC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
HC	HVAC CONTRACTOR
MFR	MANUFACTURER
PC	PLUMBING CONTRACTOR
OR	OWNER OR OTHERS

MOTOR CONTROL TYPE

CS	COMBINATION STARTER
MCC	MOTOR CONTROL STARTER
MG	MAGNETIC STARTER OR CONTACT
MS	MANUAL STARTER
VFD	VARIABLE FREQUENCY DRIVE
MSR	MANUAL STARTER W/ CONTROL RELAY
OV	OVERCURRENT PROTECTION

CONTROL TYPE

TC	TIMECLOCK
CPT	CONTROL POWER TRANSFORMER
BAS	BUILDING AUTOMATION SYSTEM
LOW	LOW VOLTAGE CONTROLS
LINE	LINE VOLTAGE CONTROLS
RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
MAN	MANUAL
FA	FIRE ALARM
CO	CARBON MONOXIDE SENSOR
INT	INTEGRAL TO EQUIPMENT

EQUIPMENT MARK	DESCRIPTION	VOLTS (V)	PHASE	EMERGENCY	BHP (HP)	HP (HP)	HTG (kW)	WATTS	FLA (A)	MCA (A)	OCP (A)	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SD TYPE
CH-01	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CH-02	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CH-03	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CH-04	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CH-05	WALL AND CEILING HEATER	208	1					2000	9.8				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
CP-01	AIR CONDITIONING CONDENSATE PUMP	120	1					93	1.5				EC	EC	EC	MG	MFR	MFR	INT	MFR	MFR	MFR	MFR	
CP-02	AIR CONDITIONING CONDENSATE PUMP	120	1					93	1.5				EC	EC	EC	MG	MFR	MFR	INT	MFR	MFR	MFR	MFR	
CU-01	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	208	1							16.5	20		EC	EC	EC	MG	MFR	MFR	LOW	MFR	MFR	MFR	MFR	
CU-02	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	208	1							16.5	20		EC	EC	EC	MG	MFR	MFR	LOW	MFR	MFR	MFR	MFR	
CU-03	AIR COOLED CONDENSING UNIT	208	3										EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
CU-03A	AIR COOLED CONDENSING UNIT	208	3							55	70		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
CU-03B	AIR COOLED CONDENSING UNIT	208	3							55	70		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
CU-04	AIR COOLED CONDENSING UNIT	208	3							61.9	70		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
CU-05	AIR COOLED CONDENSING UNIT	208	3										EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
CU-05A	AIR COOLED CONDENSING UNIT	208	3							43	50		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
CU-05B	AIR COOLED CONDENSING UNIT	208	3							38	45		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
CU-06	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	208	1							16.5	20		EC	EC	EC	MG	MFR	MFR	LOW	MFR	MFR	MFR	MFR	
CU-07	AIR COOLED CONDENSING UNIT	208	3							43	50		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
DS-01	DUCTLESS SPLIT HIGH WALL UNIT	208	1							0.6	*		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
DS-02	DUCTLESS SPLIT HIGH WALL UNIT	208	1							0.6	*		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
DS-03	DUCTLESS SPLIT HIGH WALL UNIT	208	1							0.4	*		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR	
EF-01	CEILING MOUNTED VENTILATOR	120	1					16					EC	EC	EC	MG	MFR	MFR	MFR	TC	EC	EC	EC	
EF-02	CEILING MOUNTED VENTILATOR	120	1					16					EC	EC	EC	MG	MFR	MFR	MFR	TC	EC	EC	EC	
EF-03	CEILING MOUNTED VENTILATOR	120	1					16					EC	EC	EC	MG	MFR	MFR	MFR	TC	EC	EC	EC	
ERV-01	PACKAGED AIR TO AIR ENERGY RECOVERY EQUIPMENT	208	3						109.9	136.1	150		EC	EC	EC	VFD	HC	HC	EC	LOW	HC	HC	HC	DUCT SMOKE
EWH-01	WALL AND CEILING HEATER	208	1					750	3.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
EWH-02	WALL AND CEILING HEATER	208	1					750	3.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
EWH-03	WALL AND CEILING HEATER	208	1			2			9.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
EWH-04	WALL AND CEILING HEATER	208	1			2			9.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
EWH-05	WALL AND CEILING HEATER	208	1					750	3.6				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	
HRB-01	VRF HEAT RECOVERY TERMINAL BOX	208	1							1.0	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
HRB-02	VRF HEAT RECOVERY TERMINAL BOX	208	1							1.0	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
HRB-03	VRF HEAT RECOVERY TERMINAL BOX	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
HRB-04	VRF HEAT RECOVERY TERMINAL BOX	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
HRB-05	VRF HEAT RECOVERY TERMINAL BOX	208	1							1.0	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
UH-01	PROPELLER UNIT HEATER	208	1			1/100	3		14.5				EC	EC	EC	MG	MFR	MFR	INT	MFR	MFR	MFR	MFR	
UH-02	PROPELLER UNIT HEATER	208	1			1/100	3		14.5				EC	EC	EC	MG	MFR	MFR	INT	MFR	MFR	MFR	MFR	
VRF-1-01	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-02	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-03	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-04	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-05	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-06	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-07	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-08	VRF INDOOR HIGH WALL UNIT	208	1							0.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-09A	VRF INDOOR CONCEALED DUCTED UNIT	208	1							1.8	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	DUCT SMOKE
VRF-1-09B	VRF INDOOR CONCEALED DUCTED UNIT	208	1							3.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	DUCT SMOKE
VRF-1-10	VRF INDOOR CONCEALED DUCTED UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-1-11	VRF INDOOR CONCEALED DUCTED UNIT	208	1							1.8	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-01	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-02	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-03	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-04	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-05	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-06	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-07	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-08	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.8	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-09	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-10	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-11	VRF INDOOR CEILING SUSPENDED UNIT	208	1							1.4	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-12	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-13	VRF INDOOR CEILING SUSPENDED UNIT	208	1							0.8	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-14	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-15	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-16	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-17	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-18	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-2-19	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-3-01	VRF INDOOR IN CEILING CASSETTE UNIT	208	1							0.3	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	
VRF-3-02	VRF INDOOR FLOOR MOUNT CONSOLE UNIT	208	1							0.6	15		EC	EC	EC	MG	MFR	MFR	LOW	HC	HC	HC	HC	

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Renovations For:
Southgate Elementary School
6 William F. Blatt Ave.
Southgate Independent School District

Southgate, KY
Mr. Greg Duty, Superintendent

STATE OF KENTUCKY
STEPHEN N FEDERLE
27329
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS
08/31/18 SCHEMATIC DESIGN
10/04/18 DESIGN DEVELOPMENT
12/13/18 CONSTRUCTION DOCS

DWN: RTT CHK: DTJ
PROJ. DATE 12/13/18
SHEET DATE 12/13/18
JOB NO. 20692.00

ELECTRIC POWER - SCHEDULES

EP603

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