MAXWELL CONSTRUCTION

Sunman-Dearborn Community Schools
BP#1 - Early Mechanical

ADDENDUM 2
Updated Drawings

Date: 8/12/24

440 Nowlin Avenue, Greendale, IN 47025 (812) 537-2200 www.maxwellbuilds.com

Bright Elementary School
8/12/24

CONTROLS POINT LIST SCHEDULE

SUNMAN-DEARBORN COMM. SCHOOL CORP. BRIGHT ELEMENTARY	HARDWARE																												SOFTWARE
	OUTPUT (O)			INPUT (I, D, V, C)																			ALARMS		BMS FUNCTIONS				
	DGTAL		ANALOG	DIGITAL								ANALOG											DGTAL	ANALOG					
Point Description	Control Relay/Contactor	Floating Point Control	Solenoid Valve	Pneumatic Transducer	Electrical Transducer	4-20 ma or 0-10 VDC	Analog Variable Motion	Flow Switch	Space Occupancy Sensor	Current Switch	Over-ride button	Contact Closure	Photocell	Auxiliary Contact	KW Meter Contact	Temperature	Relative Humidity	Set Point Adjustment	Carbon Dioxide Level (ppm)	Carbon Monoxide (ppm)	Lighting Level (Foot candles)	Pressure (in H2O, ft H2O, DP)	Flow Measurement (gpm/cfm)	Electrical Current Flow (amps)	Position Feedback	Trending	Equipment Alarm	Pressure Alarm	Maintenance Notification	High Limit	Low Limit (Temperature)	Run Time Alarm	Scheduled On/Off	Optimum Start/Stop	Totalization	Duty Cycling	Load Shedding	BACNET software point	Lighting Control Integration	Color Graphics Item
Outside Air																													
Unit heater UH																													
Enable/disable																													
Hot water valve																													
Supply fan																													
Space																													
AHU-1, 3, 4																													
Enable/disable																													
Supply fan VSD Enable																													
Supply fan VSD speed																													
Supply fan VSD alarm																													
OA damper																													
RA damper																													
Face and bypass dampers																													
Heating coil valve																													
Chilled water coil valve																													
Return air																													
Mixed air																													
Discharge air																													
Freezestat sensor																													
Supply air duct static pressure																													
AHU-2																													
Enable/disable																													
Supply fan VSD Enable																													
Supply fan VSD speed																													
Supply fan VSD alarm																													
OA damper																													
RA damper																													
Face and bypass dampers																													
Heating coil valve																													
Stages of DX cooling																													
Return air																													
Mixed air																													
Discharge air																													
Freezestat sensor																													
Supply air duct static pressure																													
Domestic water heater plant																													
Water heater status																													
Water heater circ pump status																													
Water heater firing rate %																													
Storage tank temp																													
Thermostatic mixing valve disch																													
HWRP enable/disable																													
HWRP return water temp																													

MECHANICAL SYMBOL SCHEDULE

PIPING SYMBOLS

- AUTOMATIC FLOW CONTROL VALVE
- AIR SEPARATOR
- AUTOMATIC AIR VENT
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- DOUBLE CHECK BACKFLOW PREVENTER
- FLOW METER
- GAS OUTLET TURRET
- GAS COCK
- GATE VALVE
- GLOBE VALVE
- HOSE THREAD END WITH CAP
- INLINE PIPE DROP
- INLINE PUMP
- INLINE PIPE RISE
- MANUAL FLOW CONTROL VALVE
- MANUAL AIR VENT
- METER
- P&T RELIEF VALVE
- P&T PORT
- PIPE BREAK
- PIPE CAP
- PIPE DROP
- PIPE RISE
- PIPE THERMOMETER
- PRESSURE GAUGE
- PRESSURE INDEPENDENT CONTROL VALVE
- PRESSURE REDUCING VALVE
- PRESSURE REGULATING VALVE
- STRAINER
- STRAINER WITH BLOWDOWN
- STEAM TRAP
- TEMPERATURE SENSOR
- THERMOSTATIC MIXING VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- UNION

MECHANICAL SYMBOLS

- BACKDRAFT DAMPER
- COMBINATION SMOKE/FIRE DAMPER
- CONTROL DAMPER ACTUATOR
- DOUBLE WALL DUCTWORK
- DUCT CAP
- DUCT MOUNTED COIL
- DUCTWORK WITH DUCT LINER
- DUCTWORK WITHOUT DUCT LINER
- FAN POWERED VAV BOX WITH REHEAT
- FIRE DAMPER
- FIRE DAMPER
- FLEXIBLE DUCT
- INLINE PUMP
- MANUAL AIR VENT
- OPPOSED BLADE BALANCE DAMPER
- RETURN/EXHAUST/ TRANSFER AIR GRILLE
- SHUTOFF VAV BOX WITH REHEAT
- SINGLE BLADE BALANCE DAMPER
- STRAINER
- STRAINER WITH BLOWDOWN
- SUPPLY AIR DIFFUSER
- TEMPERATURE SENSOR
- THERMOMETER
- UNIT HEATER
- WALL MOUNTED PRESSURE GAUGE

MECHANICAL LINE TYPES

- EXISTING DUCT TO REMAIN
- NEW SUPPLY DUCT
- NEW RETURN DUCT
- NEW OUTSIDE AIR DUCT
- NEW EXHAUST DUCT
- DUCT TO BE REMOVED
- HWS — HOT WATER SUPPLY PIPE
- HWR — HOT WATER RETURN PIPE
- CHWS — CHILLED WATER SUPPLY PIPE
- CHWR — CHILLED WATER RETURN PIPE
- GLY — GLYCOL PIPE
- LPSS — LOW PRESSURE STEAM SUPPLY
- LPSR — LOW PRESSURE STEAM RETURN
- HPSS — HIGH PRESSURE STEAM SUPPLY
- HPSR — HIGH PRESSURE STEAM RETURN
- STR — STEAM CONDENSATE
- CWS — CONDENSER WATER SUPPLY
- CWR — CONDENSER WATER RETURN

GENERAL LINE TYPES

- EXISTING TO REMAIN LINE WEIGHT
- EXISTING TO BE DEMOLISHED LINE TYPE AND WEIGHT
- NEW DUCT LINE WEIGHT
- NEW PIPING LINE WEIGHT
- NEW EQUIPMENT LINE WEIGHT

GENERAL SYMBOLS

- EXTENT OF DEMOLITION
- TIE-IN OF NEW TO EXISTING

MECHANICAL CONTROL SYMBOLS

- S_{CO2} CARBON DIOXIDE SENSOR
- S CARBON MONOXIDE SENSOR
- P DUCT OR PIPE PRESSURE SENSOR
- SECURITY TYPE THERMOSTAT
- T_P PNEUMATIC THERMOSTAT
- T THERMOSTAT
- T_E THERMOSTAT (LINE VOLTAGE)
- T_{THC} THERMOSTAT WITH HUMIDISTAT AND CO2 SENSOR
- H HUMIDISTAT
- DP DIFFERENTIAL PRESSURE SENSOR

ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
A.F.F	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MEASURING STATION
AHU	AIR HANDLER
AS	AIR SEPARATOR
ADS	AIR DIRT SEPARATOR
B	BOILER
CF	CEILING FAN
CHLR	CHILLER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COND	CONDENSATE DRAIN
CUH	CABINET UNIT HEATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D	DIFFUSER
DC	DUCT COIL
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ET	EXPANSION TANK
F	FURNACE
FD	FIRE DAMPER
FM	FLOW METER
FTR	FINNED TUBE RADIATION
HPSR	HIGH PRESSURE STEAM RETURN
HPSS	HIGH PRESSURE STEAM SUPPLY
HVAC	HEATING VENTILATING AND COOLING UNIT
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
L	LOUVER
LPSR	LOW PRESSURE STEAM RETURN
LPSS	LOW PRESSURE STEAM SUPPLY
LRP	LINEAR RADIANT PANEL
MAU	MAKE-UP AIR UNIT
OA	OUTSIDE AIR
OAC	OPENING ABOVE CEILING
P	PUMP
RA	RETURN AIR
RAD	RADIANT HEATER
REL	RELIEF AIR
RET	RETURN AIR
RC	ROOF CAP
RF	RELIEF FAN
RG	RETURN GRILLE
RTU	ROOFTOP UNIT
RV	RELIEF VENT
SA	SUPPLY AIR
SFD	SMOKE FIRE DAMPER
SR	SUPPLY REGISTER
TG	TRANSFER GRILLE
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME BOX

CONTROLS RESPONSIBILITY CHART

ITEM	CONTROL CONTRACTOR	MECHANICAL CONTRACTOR	ELECTRICAL CONTRACTOR	REMARKS
INSTALL INTERIOR AND EXTERIOR LOW VOLTAGE CABLING AND CONDUIT	X			
ROUGH-IN OF THERMOSTAT WALL BOXES	X			
FURNISH CONTROL VALVES	X			
INSTALL CONTROL VALVES		X		
FURNISH PIPE WELLS FOR SENSORS	X			
INSTALL PIPE WELLS FOR SENSORS		X		
PROVIDE 120 VOLT POWER FOR CONTROL PANELS			X	
PROVIDE 120 VOLT POWER BETWEEN SLAVE PANELS	X			
PROVIDE INTERLOCK WIRING BETWEEN DEVICES, PANELS, BOILERS, CHILLERS, ETC		X		1
FURNISH VARIABLE SPEED DRIVES	X			2
INSTALL VARIABLE SPEED DRIVES			X	2
PROVIDE LINE AND LOAD WIRING TO VARIABLE SPEED DRIVES			X	
PROVIDE CONTROL WIRING TO VSD	X			
PROGRAM AND STARTUP VSD	X			
PROVIDE 120 VOLT POWER TO CONTROLS			X	
FURNISH CONTROL DAMPERS	X	X		3
INSTALL CONTROL DAMPERS		X		
FURNISH DAMPER ACTUATORS	X			
INSTALL DAMPER ACTUATORS	X			
WIRE LOW VOLTAGE ACTUATORS	X			
WIRE LINE VOLTAGE ACTUATORS			X	
PROGRAM AND COMMISSION BOILER SEQUENCER		X		
PROGRAM AND COMMISSION CHILLER SEQUENCER		X		
COORDINATE PROJECT SCHEDULE WITH ALL TRADES	X	X	X	
PROVIDE SHOP DRAWINGS TO ALL TRADES	X	X		
VERIFY AND TEST SEQUENCE OF OPERATIONS	X			
TERMINATE DUCT DETECTORS	X			
ROOF PENETRATIONS FOR TEMPERATURE CONTROLS		X		4
EXTERIOR WALL PENETRATIONS FOR TEMPERATURE CONTROLS	X			
PROVIDE DUCT DETECTORS			X	
PROVIDE 120 VOLT POWER TO SOLENOID VALVES			X	5
PROVIDE LOW VOLTAGE CABLING TO SOLENOID VALVES	X			5
PROVIDE AND INSTALL REFRIGERANT MONITORING SYSTEM	X			

REMARKS:

1. MECHANICAL CONTRACTOR/MANUFACTURER SHALL PROVIDE AND INSTALL ALL ASSOCIATED INTERLOCK WIRING AND DEVICES FOR A COMPLETE UNIT.
2. PACKAGED VSDS INTERNAL TO HVAC EQUIPMENTED SHALL BE FURNISHED BY EQUIPMENT MANUFACTURER UNLESS NOTED OTHERWISE. REFER TO EQUIPMENT SCHEDULES FOR VSD'S TO BE FURNISHED BY EQUIPMENT MANUFACTURER.
3. PACKAGED CONTROL DAMPERS INTEGRAL TO HVAC EQUIPMENT SHALL BE FURNISHED BY EQUIPMENT MANUFACTURER UNLESS NOTED OTHERWISE. REFER TO EQUIPMENT SCHEDULES AND DETAILS FOR MORE INFORMATION.
4. COORDINATE WITH GC FOR ROOF PENETRATIONS.
5. COORDINATE WITH MC FOR REFRIGERANT AND GAS PIPING SOLENOID VALVE LOCATIONS.

GENERAL DEMOLITION NOTES

1. ALL EXISTING PENETRATIONS FROM DUCT/ PIPE/ WIRE/ CONDUIT THAT IS REMOVED SHALL BE PATCHED BY PROPER TRADES TO MATCH SURROUNDINGS UNLESS PENETRATION IS TO BE REUSED. PATCH ALL FLOOR AND WALL PENETRATIONS TO MAINTAIN FIRE RATED CONSTRUCTION.
2. ALL ROOF PENETRATIONS NOT BEING REUSED SHALL BE PATCHED TO MAINTAIN EXISTING ROOF WARRANTY. EXISTING CURBS TO BE ABANDONED SHALL BE CAPPED WITH ALUMINUM HOOD PAINTED WITH "N.I.S." (NOT IN SERVICE). INSULATE CAVITY BELOW CAP WITH TIGHT FITTING 3" FOAM BOARD WRAPPED WITH SHEET METAL.
3. ALL PIPE SHALL BE REMOVED TO WITHIN AREAS THAT ARE INACCESSIBLE SUCH AS WALL CAVITIES AND BELOW SLAB. IN FINISHED SPACES REMOVE BELOW SURFACE, CAP WATER TIGHT, AND PATCH SURFACE TO MATCH SURROUNDINGS.
4. ALL PATCHING OF WALLS SHALL MATCH MATERIALS AND WHEN COMPLETE SHALL NOT LOOK LIKE A PATCH.
5. TOOTH-IN NEW BRICK/ BLOCK WITH FULL UNITS, DO NOT CUT FILLER PIECES.
6. PRIOR TO CUTTING EXISTING SLAB ON GRADE, CONTRACTOR SHALL VERIFY EXISTENCE OF EXISTING UTILITIES SUCH AS PIPING, CONDUIT, WIRE, ETC. BY MEANS OF GROUND PENETRATING RADAR TO LOCATE AND DETERMINE DEPTH OF BURY. TAKE PRECAUTIONS TO DE-ENERGIZE POWER TO CIRCUITS AND CAREFULLY CUT AND REMOVE SLAB. ANY UTILITIES THAT WERE LOCATED AND SUBSEQUENTLY DAMAGED SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDED COST TO THE OWNER.

GENERAL MECHANICAL NOTES

1. DUCT AND PIPING LAYOUTS ARE SCHEMATIC IN NATURE. ADDITIONAL TRANSITIONS, ELBOWS, OFFSETS, AND FITTINGS SHALL BE ADDED AS REQUIRED TO COORDINATE WITH OBSTRUCTIONS AND OTHER TRADES.
2. COORDINATE ALL WORK WITH OTHERS TRADES AND EXISTING WORK TO PERMIT ACCESS AND SERVICE CLEARANCES TO ALL SYSTEMS. COORDINATE DUCT WITH ELECTRICAL J-BOXES TO PREVENT OBSTRUCTIONS.
3. DO NOT SCALE DRAWINGS FOR DIMENSIONS. REFER TO DIMENSIONED DRAWINGS.
4. ALL GRILLES, DIFFUSERS, AND REGISTERS SHALL HAVE A VOLUME CONTROL DAMPER UNLESS NOTED OTHERWISE. DAMPER SHALL BE IN AN ACCESSIBLE LOCATION.
5. REFER TO DETAIL SHEETS FOR ADDITIONAL INFORMATION ON INSTALLATION METHODS.
6. DEVIATIONS FROM BASIS OF DESIGN THAT AFFECT OTHER TRADES ARE THE RESPONSIBILITY OF THIS CONTRACTOR. ADDITIONAL COSTS TO PROVIDE LARGER ELECTRICAL CIRCUITS, MORE FLOOR SPACE, ADDITIONAL SUPPORTS, ADDITIONAL MATERIALS, ETC. SHALL BE BORNE BY THIS CONTRACTOR. COORDINATE WITH OTHER TRADES.
7. ALL THERMOSTATS/HUMIDITY SENSORS WITH ADJUSTMENT BUTTONS/ SLIDERS/ KNOBS/ DISPLAYS, ETC. SHALL BE MOUNTED WITH THE TOP OF THE DEVICE NO MORE THAN 48" AFF. IN COMPLIANCE WITH LOCAL AND FEDERAL ADA WHEELCHAIR REACH DISTANCE GUIDELINES. PROVIDE ADDITIONAL SURFACE RACEWAY, BOXES, CONDUIT, ETC AS REQUIRED TO OFFSET AROUND EXISTING DEVICES IN RENOVATION WORK.
8. ALL DUCT SIZES LISTED ARE FOR INTERIOR FREE AREA. ANY DUCTS DESIGNATED OR SPECIFIED TO BE DOUBLE WALL OR INTERNALLY LINED SHALL HAVE OUTER DIMENSIONS ENLARGED TO ACCOMMODATE THE LINER OR INTERSTITIAL INSULATION.

PLOT DATE/TIME:8/1/2024, 10:12:47 AM

THIS MONOCHROME PRINT SHOULD REPRODUCE GRAYSCALE BOXES BELOW IF PRINTED PROPERLY WITH 256 SHADES OF GRAY

LANCER ASSOCIATES ARCHITECTURE
145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com

Indianapolis
9755 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
www.primary-eng.com

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SUNMAN-DEARBORN COMMUNITY SCHOOL CORP.
BRIGHT ELEMENTARY SCHOOL EARLY
MECHANICAL PACKAGE
22593 STATE LINE RD, LAWRENCEBURG, IN 47025

REVISIONS:

#	Date	
1	8/5/2024	ADDENDUM #1
2	8/12/2024	ADDENDUM #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #19150
DATE: 07/24/2024
DRAWN BY: ASL

MECHANICAL INFORMATION SHEET

M001

PRIMARY JOB # 24586

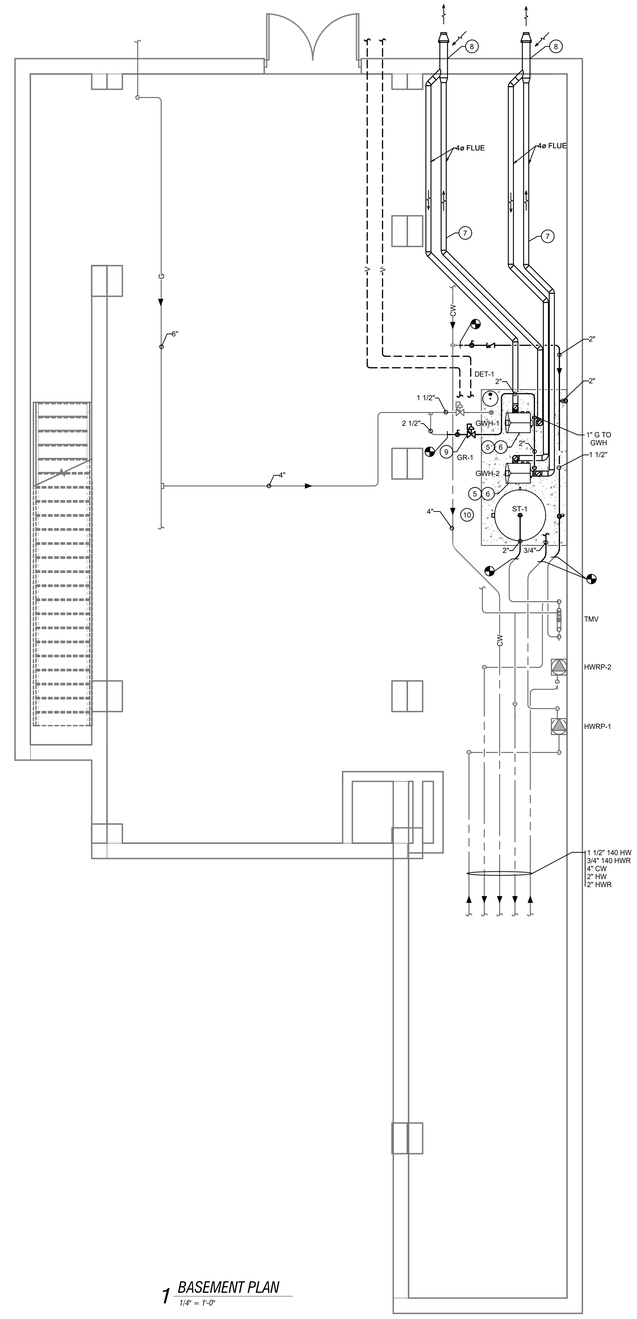
PLAN NOTES

(X)

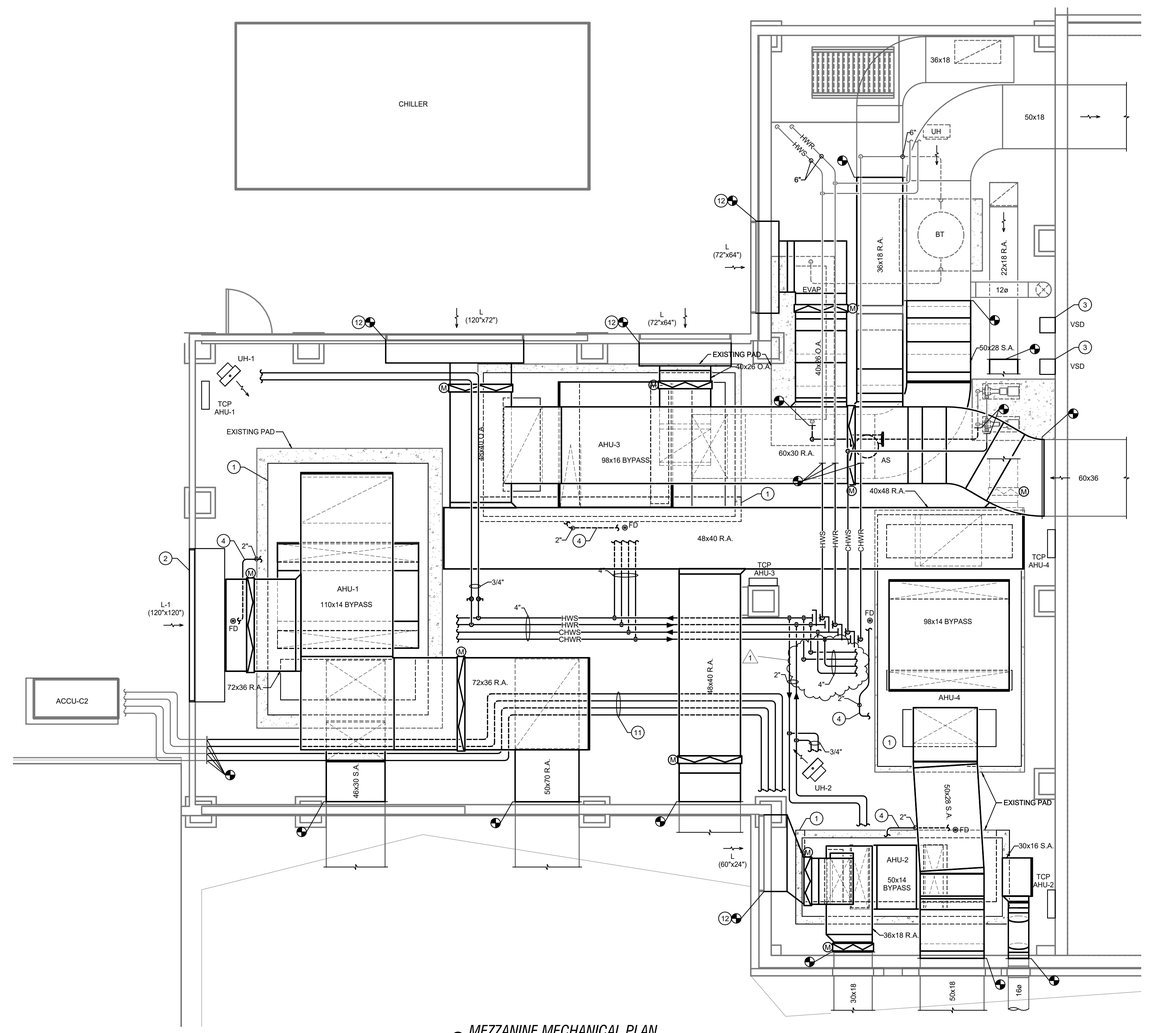
1. PROVIDE AND INSTALL NEW AIR HANDLING UNIT ON EXISTING CONCRETE HOUSEKEEPING PAD. EXTEND EXISTING PAD AS REQUIRED.
2. PROVIDE AND INSTALL NEW LOUVER IN EXISTING OPENING. FIELD VERIFY EXACT DIMENSIONS AND CONDITIONS. SEAL LOUVER PERIMETER AIR AND WATER TIGHT.
3. REINSTALL SALVAGED CHILLED WATER PUMP VARIABLE SPEED DRIVES TO BE FULLY FUNCTIONAL.
4. ROUTE NEW CONDENSATE PIPING FROM NEW AIR HANDLING UNIT TO EXISTING FLOOR DRAIN. CUT EXISTING FLOOR DRAIN GRATE AS REQUIRE TO RECEIVE CONDENSATE.
5. PROVIDE AND INSTALL NEW MODULAR CONDENSING DOMESTIC WATER HEATER. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR CLEARANCE, PIPING, AND VENTING.
6. ROUTE WATER HEATER CONDENSATE DRAIN TO CONDENSATE NEUTRALIZATION KIT AND DISCHARGE DIRECTLY INTO NEAREST FLOOR DRAIN.
7. PROVIDE AND INSTALL NEW POLYPROPYLENE BOILER FLUE. VERIFY VENTING REQUIREMENTS WITH BOILER MANUFACTURER.
8. CORE DRILL EXISTING MASONRY FROM EXTERIOR AS REQUIRED FOR NEW WALL PENETRATION. PATCH AND SEAL WALL PENETRATION WITH GROUT.
9. PROVIDE AND INSTALL NEW GAS REGULATOR. REFER TO DETAIL ON DRAWING SHEET M402 FOR MORE INFORMATION.
10. REFER TO PLUMBING FLOW DIAGRAM ON DRAWING SHEET M401 FOR MORE INFORMATION.
11. TIE-IN TO EXISTING REFRIGERANT PIPING AND EXTEND NEW TO AHU-2. SUPPORT NEW PIPING ON FLOOR. VERIFY PIPE ROUTING, SIZES, QUANTITIES, AND ALL PIPING REQUIREMENTS WITH MANUFACTURER.
12. RECONNECT TO EXISTING LOUVER. PROVIDE AND INSTALL NEW BIRDSCREEN.

GENERAL NOTES

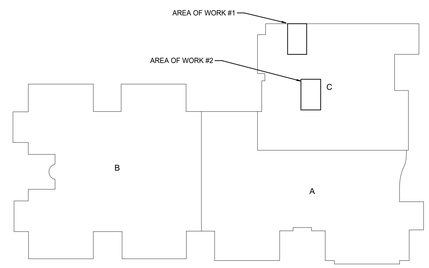
1. UNLESS NOTED OTHERWISE, IN BOILER ROOM AND MECHANICAL MEZZANINE, PROVIDE AND INSTALL ALUMINUM JACKETING ON ALL PIPE INSULATION BELOW 6'-0" AFF. EXTEND JACKETING TO NEAREST FITTING ABOVE 6'-0" AFF.



1 *BASEMENT PLAN*
1/4" = 1'-0"



2 *MEZZANINE MECHANICAL PLAN*
1/4" = 1'-0"



PLOT DATE: TUE, 8/13/2024 - 11:12:57 AM

THIS MONOCHROME PRINT SHOULD DISPLAY GRAYSCALE BOXES BELOW PRINTED PROPERLY WITH 256 SHADES OF GRAY

SCALE: 1/16" = 1'-0" | SCALE: 3/32" = 1'-0" | SCALE: 1/8" = 1'-0" | SCALE: 1/4" = 1'-0" | SCALE: 1/2" = 1'-0" | SCALE: 3/4" = 1'-0" | SCALE: 1" = 1'-0"

LANCER ASSOCIATES ARCHITECTURE
145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com

Indianapolis
9755 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
www.primary-eng.com

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BRIGHT ELEMENTARY SCHOOL
MECHANICAL PACKAGE
22593 STATE LINE RD, LAWRENCEBURG, IN 47025

REVISIONS:

#	Date	Desc.
1	8/12/2024	ADDENDUM #2

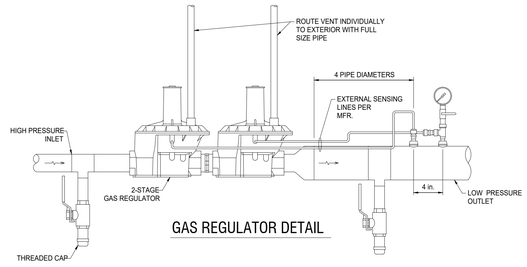
100% CONSTRUCTION DOCUMENTS

PROJECT: #19150
DATE: 07/24/2024
DRAWN BY: ASL

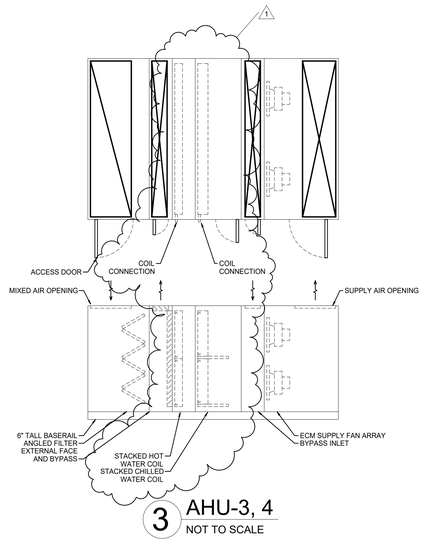
ENLARGED MECHANICAL PLANS

M201

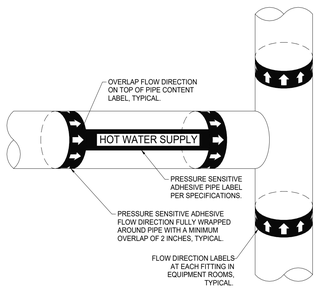
PRIMARY JOB # 24586



GAS REGULATOR DETAIL

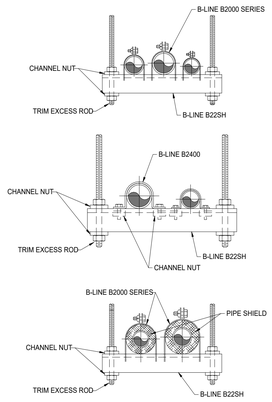


3 AHU-3, 4
NOT TO SCALE



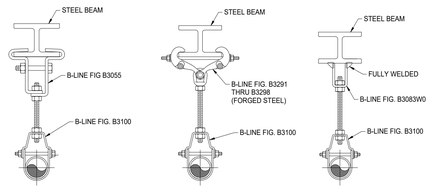
PIPE LABEL DETAIL

SCALE: NTS



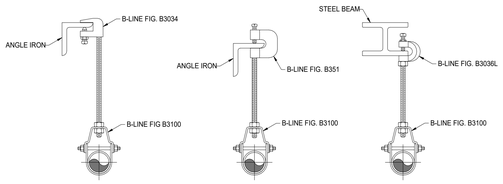
HANGER ASSEMBLY DETAIL

SCALE: NTS



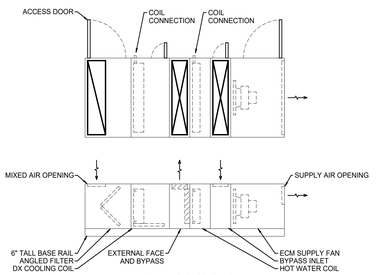
HANGER ASSEMBLY DETAIL

SCALE: NTS

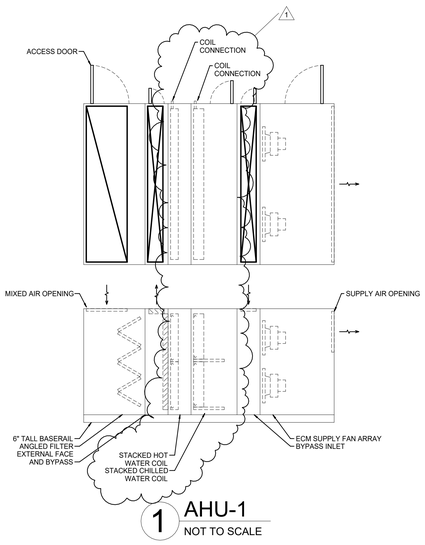


HANGER ASSEMBLY DETAIL

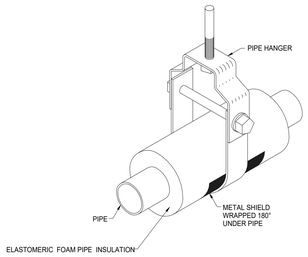
SCALE: NTS

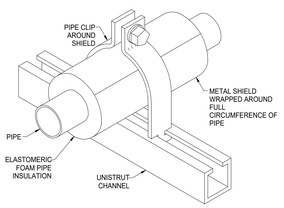


2 AHU-2
NOT TO SCALE



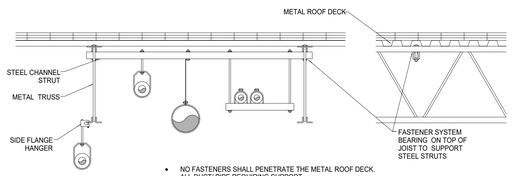
1 AHU-1
NOT TO SCALE





TYPICAL PIPE SUPPORT DETAIL FOR INSULATED PIPE

NOT TO SCALE



- NO FASTENERS SHALL PENETRATE THE METAL ROOF DECK. ALL DUCT/ PIPE REQUIRING SUPPORT
- BETWEEN STRUCTURAL FRAMING MEMBERS SHALL BE SUPPORTED FROM STEEL CHANNEL SYSTEMS
- INSTALLED BY THIS CONTRACTOR
- COORDINATE TO MAXIMIZE PLENUM SPACE WITH OTHER TRADES

TYPICAL INTERMEDIATE DUCT/ PIPE HANGER SUPPORT FRAMING DETAIL

NOT TO SCALE

PLOT DATE/TIME: 8/1/2024 1:51:22:00 AM

THIS MONOCHROME PRINT SHOULD DISPLAY GRAYSCALE BOXES BELOW IF PRINTED PROPERLY WITH 256 SHADES OF GRAY

LANCER ASSOCIATES ARCHITECTURE
145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com

Indianapolis
9755 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
www.primary-eng.com

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SUNMAN-DEARBORN COMMUNITY SCHOOL CORP.
BRIGHT ELEMENTARY SCHOOL
MECHANICAL PACKAGE
22593 STATE LINE RD, LAWRENCEBURG, IN 47025

STEPHEN LEONARD PACK
REGISTERED
PE11700017
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	8/12/2024	ADDENDUM #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #19150
DATE: 07/24/2024
DRAWN BY: ASL

MECHANICAL DETAILS

M402

PRIMARY JOB # 24586

North Dearborn Elementary
8/12/24

CONTROLS POINT LIST SCHEDULE

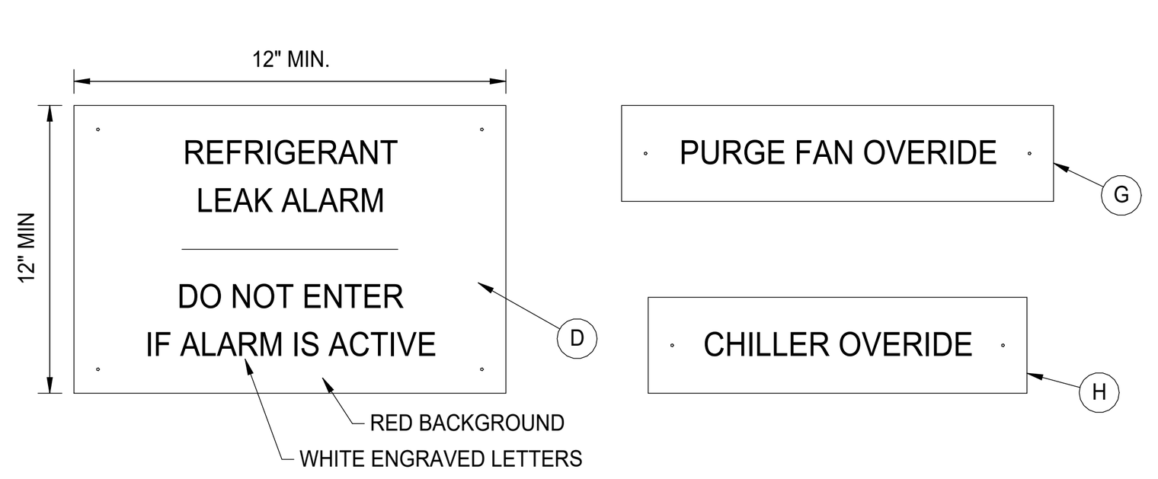
SUNMAN-DEARBORN COMM.	HARDWARE																																SOFTWARE							
SCHOOL CORP.	OUTPUT (O)						INPUT (T, D, V, C)																				ALARMS						BMS FUNCTIONS							
NORTH DEARBORN ELEMENTARY	DGTAL			ANALOG			DIGITAL									ANALOG											DGTAL			ANALOG										
Point Description	Control Relay/Contactor	Floating Point Control	Solenoid Valve	Pneumatic Transducer	Electrical Transducer	4-20 ma or 0-10 VDC	Pressure Switch	Flow Switch	Space Occupancy Sensor	Current Switch	Over-ride button	Contact Closure	Photocell	Auxiliary Contact	KW Meter Contact	Temperature	Relative Humidity	Set Point Adjustment	Carbon Dioxide Level (ppm)	Carbon Monoxide (ppm)	Lighting Level (Foot candles)	Pressure (in H2O, ft H2O, DP)	Flow Measurement (gpm/cfm)	Electrical Current Flow (amps)	Position Feedback	Trending	Equipment Alarm	Freezestat Alarm	Maintenance Notification	High Limit	Low Limit (Temperature)	Run Time Alarm	Scheduled On/Off	Optimum Start/Stop	Totalization	O.A. Reset	Lead/Lag Control	BACNET software point	Lighting Control Integration	Color Graphics Item
Exhaust fans EF																																								X
Enable/disable	X																																X							X
Fan motor status																								X								X								X
Control damper	X																																							X
Refrigerant Exhaust Fan EF-1																																								X
Exhaust fan start/stop	X																							X																X
Intake / Exhaust Dampers	X																								X															X
Refrigerant Leak Detection												X															X													X
Relief fans RF																																								X
Enable/disable	X																																X							X
Fan speed						X																																		X
Fan motor status																								X								X								X
Control damper	X																								X															X
Zone differential pressure																						X																		X
Makuep air unit MAU																																								X
Fan motor status																								X								X								X
Discharge air																X														X	X									X
Mini-split HVAC																																								X
Space																X														X	X									X
Heating hot water plant																																								X
Boiler Plant enable/disable	X																																							X
Hot water supply setpoint						X																				X										X				X
Boiler alarm												X																										X		X
Boiler firing rate																										X												X		X
Boiler status																																						X		X
Boiler leaving temp																																						X		X
HWS loop to building																X										X					X									X
HWR loop from building																X										X														X
Boiler Room Carbon Monoxide																				X						X	X			X										X
Hot water system fill pressure																						X									X									X
Flow meter hot water flow rate FM-1																							X			X														X
Cooling chilled water plant																																								X
Chiller plant enable/disable	X																																							X
Chilled water supply setpoint						X																				X														X
Chiller alarm												X																										X		X
Chiller capacity %																										X												X		X
Chiller status																																						X		X
Chiller leaving water temp																																						X		X
Chiller pump status																								X																X
CHWS loop to building																X										X					X									X
CHWR loop from building																X										X														X
P-1 and P-2 (Hot Water Distribution)																																								X
Pump start/stop	X																							X								X								X
Pump speed						X																				X														X
VSD alarm contact												X																	X											X
System DP																						X				X														X
Chilled water pumps																																								X
Pump start/stop	X																							X								X								X
Pump speed						X																				X														X
VSD alarm contact												X																	X											X
System DP																						X				X														X
Walk-in Cooler																X														X										X
Walk-in Freezer																X														X										X
Domestic water heater plant																																								X
Water heater status																																						X		X
Water heater circ pump status																								X																X
Water heater firing rate %																										X												X		X
Storage tank temp																X										X					X									X
Thermostatic mixing valve disch																X										X				X										X
HWRP enable/disable	X																							X									X							X
HWRP return water temp																X																								X
Lighting Control Relays																																								X
Exterior photo sensor													X																X											X
Exterior parking lights	X																																X							X
Exterior building lights	X																																X							X
Interior lights	X																																X							X

CONTROLS POINT LIST SCHEDULE

SUNMAN-DEARBORN COMM.	HARDWARE																																SOFTWARE							
SCHOOL CORP.	OUTPUT (O)						INPUT (T, D, V, C)																				ALARMS						BMS FUNCTIONS							
NORTH DEARBORN ELEMENTARY	DGTAL			ANALOG			DIGITAL									ANALOG											DGTAL			ANALOG										
Point Description	Control Relay/Contactor	Floating Point Control	Solenoid Valve	Pneumatic Transducer	Electrical Transducer	4-20 ma or 0-10 VDC	Pressure Switch	Flow Switch	Space Occupancy Sensor	Current Switch	Over-ride button	Contact Closure	Photocell	Auxiliary Contact	KW Meter Contact	Temperature	Relative Humidity	Set Point Adjustment	Carbon Dioxide Level (ppm)	Carbon Monoxide (ppm)	Lighting Level (Foot candles)	Pressure (in H2O, ft H2O, DP)	Flow Measurement (gpm/cfm)	Electrical Current Flow (amps)	Position Feedback	Trending	Equipment Alarm	Freezestat Alarm	Maintenance Notification	High Limit	Low Limit (Temperature)	Run Time Alarm	Scheduled On/Off	Optimum Start/Stop	Totalization	O.A. Reset	Lead/Lag Control	BACNET software point	Lighting Control Integration	Color Graphics Item
CSAC-E1, F1, F2																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								
OA damper						X																			X	X										X				X
OA airflow AFMS																							X																	X
RA damper						X																				X										X				X
Heating coil valve						X																																		X
Chilled water cooling valve						X																																		
Return air																X	X																							X
Mixed air																X										X														X
Discharge air																X										X				X										X
Freezestat sensor																X															X									X
Supply air duct static pressure							X															X				X				X										X
CSAC-D1																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								
OA damper						X																			X	X										X				X
OA airflow AFMS																							X																	X
RA damper						X																				X										X				X
Economizer damper						X																			X	X										X				X
Heating coil valve						X																																		X
Stages of DX cooling	X																																							X
Return air																X	X																							X
Mixed air																X										X														X
Discharge air																X										X				X										X
Freezestat sensor																X															X									X
Supply air duct static pressure							X															X				X				X										X
CSAC-G1																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								
OA damper						X																			X	X										X				X
OA airflow AFMS																							X																	X
RA damper						X																				X										X				X
Heating coil valve						X																																		X
Chilled water cooling valve						X																																		X
Heating coil valve						X																																		X
Return air																X																								X
Mixed air																X										X														X
Discharge air																X										X				X										X
Freezestat sensor																X															X									X
Space											X					X	X		X							X				X	X									X
CSAC-D1																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								
OA damper						X																			X	X										X				X
OA airflow AFMS																							X																	X
RA damper						X																				X										X				X
Economizer damper						X																			X	X										X				X
Heating coil valve						X																																		X
Chilled water cooling valve						X																																		
Return air																X	X																							X
Mixed air																X										X														X
Discharge air																X										X				X										X
Freezestat sensor																X															X									X
Supply air duct static pressure							X															X				X				X										X
ERW-A1																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								
Supply air duct static pressure							X															X								X										X
Exhaust fan VSD Enable	X																							X									X							X
Exhaust fan VSD speed						X																				X			X											X
Exhaust fan VSD alarm																																								X
Exhaust air duct static pressure							X															X								X										X
ERV Wheel VSD Enable	X																							X									X							X
ERV Wheel VSD speed						X																				X			X											X
ERV Wheel VSD alarm																																								X
Exhaust air entering																X																								X
Exhaust air leaving																X																								X
Outside air entering																X																								X
Outside air leaving																X										X														X

CONTROLS POINT LIST SCHEDULE

SUNMAN-DEARBORN COMM.	HARDWARE																																SOFTWARE							
SCHOOL CORP.	OUTPUT (O)						INPUT (T, D, V, C)																				ALARMS						BMS FUNCTIONS							
NORTH DEARBORN ELEMENTARY	DGTAL			ANALOG			DIGITAL									ANALOG											DGTAL			ANALOG										
Point Description	Control Relay/Contactor	Floating Point Control	Solenoid Valve	Pneumatic Transducer	Electrical Transducer	4-20 ma or 0-10 VDC	Pressure Switch	Flow Switch	Space Occupancy Sensor	Current Switch	Over-ride button	Contact Closure	Photocell	Auxiliary Contact	KW Meter Contact	Temperature	Relative Humidity	Set Point Adjustment	Carbon Dioxide Level (ppm)	Carbon Monoxide (ppm)	Lighting Level (Foot candles)	Pressure (in H2O, ft H2O, DP)	Flow Measurement (gpm/cfm)	Electrical Current Flow (amps)	Position Feedback	Trending	Equipment Alarm	Freezestat Alarm	Maintenance Notification	High Limit	Low Limit (Temperature)	Run Time Alarm	Scheduled On/Off	Optimum Start/Stop	Totalization	O.A. Reset	Lead/Lag Control	BACNET software point	Lighting Control Integration	Color Graphics Item
Outside Air																X	X									X														X
VAV shutoff reheat boxes																																								X
Enable/disable	X																																X							X
Primary air damper						X																																		X
Primary airflow (cfm)																							X			X														X
Hot water reheat valve		X																																						X
Discharge air																X										X														X
Space											X					X	X		X							X					X									X
VAV fan powered reheat boxes																																								X
Enable/disable	X																																X							X
Primary air damper						X																																		X
Supply fan HI speed	X																							X																X
Supply fan LO speed	X																							X																X
Primary airflow (cfm)																							X			X														X
Hot water reheat valve		X																																						X
Discharge air																X										X														X
Space											X					X	X		X							X					X									X
Duct heating coil DC																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Discharge air																X										X					X									X
Space											X					X	X		X							X					X									X
Vestibule cabinet heater CUH																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Supply fan	X																							X																X
Space											X					X															X									X
Radiant ceiling panel RCP																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Space											X					X	X		X												X									X
Hot water convector CONV																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Space											X					X	X		X												X									X
Finned tube radiation FTR																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Space											X					X	X		X												X									X
Unit heater UH																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Supply fan	X																							X																X
Space											X					X															X									X
CSAC-A1																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								X
OA damper						X																			X	X										X				X
OA airflow AFMS																							X																	X
RA damper						X																				X										X				X
Heating coil valve						X																																		X
Stages of DX cooling	X																																							X
Return air																X	X																							X
Mixed air																X										X														X
Discharge air																X										X				X										X
Freezestat sensor																X															X									X
Supply air duct static pressure							X															X				X				X										X
CSAC-B1, C1																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								X
OA damper						X																			X	X										X				X
OA airflow AFMS																							X																	X
RA damper						X																				X										X				X
Face and bypass damper						X																				X														X
Heating coil valve						X																																		X
Chilled water cooling valve						X																																		X
Return air																X																								X
Mixed air																X										X														X
Discharge air																X										X				X										X
Freezestat sensor																X															X									X
Supply air duct static pressure							X															X				X				X										X

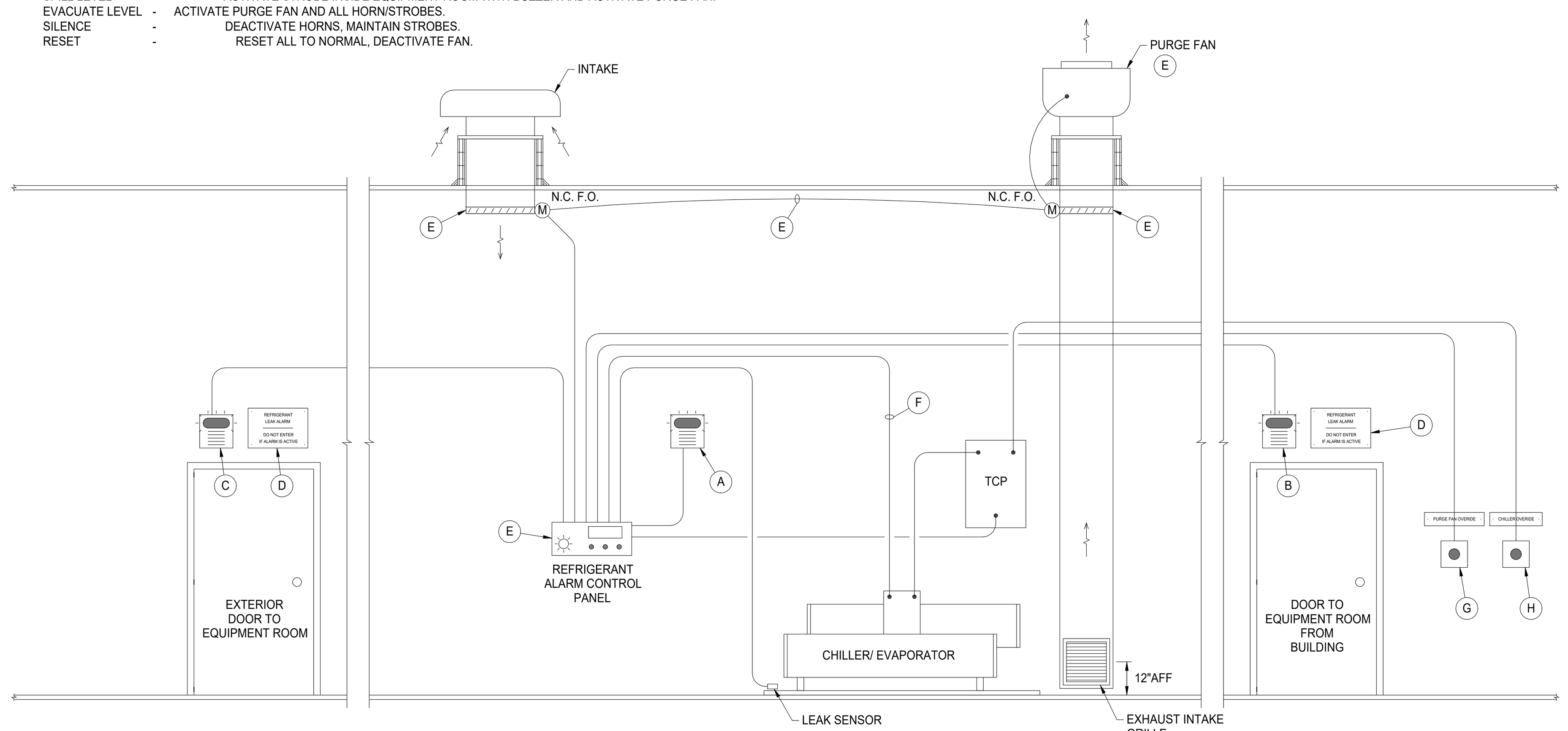


NOTES:

- (A) PROVIDE A/V HORN STROBE INSIDE EQUIPMENT ROOM.
- (B) PROVIDE A/V HORN STROBE OUTSIDE ALL DOORS LEADING INTO EQUIPMENT ROOM.
- (C) PROVIDE WEATHER PROOF EXTERIOR GRADE A/V HORN STROBE OUTSIDE EXTERIOR DOOR.
- (D) PROVIDE ENGRAVED WARNING SIGN ABOVE DOOR.
- (E) INTERLOCK WITH INTAKE DAMPER, EXHAUST DAMPER, AND EXHAUST FAN TO CONTROL PURGE FAN ON ALARM.
- (F) INTERLOCK TO SHUT DOWN CHILLERS ON ALARM.
- (G) PROVIDE H/O/A CONTROL OVERRIDE SWITCH FOR PURGE FAN, INTAKE, AND DAMPERS WITHIN BREAK GLASS BOX EQUAL TO STI-6700 ("BREAK GLASS") WITH (1) SPARE GLASS KIT.
- (H) PROVIDE OFF/AUTO CONTROL OVERRIDE SWITCH FOR CHILLER PLANT, RUN THRU BMS, WITHIN BREAK GLASS BOX EQUAL TO STI-6700 ("BREAK GLASS") WITH (1) SPARE GLASS KIT.

ALARM LEVELS:

SPILL LEVEL - ACTIVATE STROBE INSIDE EQUIPMENT ROOM WITH BUZZER AND ACTIVATE PURGE FAN.
EVACUATE LEVEL - ACTIVATE PURGE FAN AND ALL HORN/STROBES.
SILENCE - DEACTIVATE HORNS, MAINTAIN STROBES.
RESET - RESET ALL TO NORMAL, DEACTIVATE FAN.



REFRIGERANT LEAK DETECTION CONTROL DIAGRAM
SCALE: NTS

CONTROLS INFORMATION

1. EXISTING CONTROL DAMPERS AND CONTROL VALVES SHALL REMAIN. CONTRACTOR SHALL REMOVE EXISTING ACTUATORS. PROVIDE AND INSTALL NEW ACTUATORS ON EXISTING CONTROL DAMPERS AND CONTROL VALVES. MODIFY EXISTING CONTROL VALVE STEM AND CONTROL DAMPER LINKAGE AS REQUIRED.
2. EXISTING VARIABLE SPEED DRIVES AND AIRFLOW MEASURING STATIONS SHALL REMAIN.
3. CONTRACTOR SHALL REMOVE EXISTING TEMPERATURE CONTROLS CABLING, CONDUIT, WIRING, TUBING, SURFACE RACEWAY, WIREMOLD, AND ASSOCIATED MOUNTING DEVICES.
4. CONTRACTOR SHALL REMOVE ALL EXISTING TEMPERATURE CONTROLS SENSORS, THERMOSTATS, RELAYS, CONTROL PANELS, CONTROL UNITS, UNITARY CONTROLLERS, AND POWER SUPPLIES.
5. CONTRACTOR SHALL REMOVE ALL EXISTING EQUIPMENT LABELS. PROVIDE AND INSTALL NEW EQUIPMENT LABELS ON ALL EXISTING EQUIPMENT. ALL EQUIPMENT IDENTIFICATION AND TAGS SHALL BE UNIQUE. UPDATE EQUIPMENT LABELS AND GRAPHICS INFORMATION AS REQUIRED.
6. CONTRACTOR SHALL CLEAN EXISTING VAV TERMINAL FLOW RING AND TUBING TO REMOVE ALL DUST AND DEBRIS.
7. CONTRACTOR SHALL ENGAGE AABC OR NEBB TAB SPECIALIST TO TEST AND BALANCE ALL EXISTING VAV TERMINALS AND ALL EXISTING CENTRAL STATION AIR HANDLING UNITS.
8. CONTRACTOR SHALL CAREFULLY SALVAGE EXISTING LAY-IN CEILING TILES AND WORK THROUGH EXISTING GRID AS REQUIRED TO GAIN ACCESS FOR WORK. CONTRACTOR SHALL INSTALL SALVAGED CEILING TILES AFTER WORK IS COMPLETE.
9. CONTRACTOR SHALL INCLUDE FURNISH AND INSTALLATION OF MINIMUM (10) 18"x18" CEILING MOUNTED ACCESS DOORS EQUAL TO NYSTROM NMT SERIES AS REQUIRED FOR ACCESS TO WORK ABOVE EXISTING GYPSUM AND PLASTER CEILINGS. REFER TO ACCESS DOOR DETAIL.

LANCER ASSOCIATES ARCHITECTURE
145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com
Indianapolis
9785 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
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SUNMAN-DEARBORN COMMUNITY SCHOOL CORP.
NORTH DEARBORN ELEM SCHOOL RENOVATION
27650 SAWMILL RD, WEST HARRISON, IN 47060

ANDREW STEPHEN LOUDERBACK
REGISTERED
PE11700017
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	8/5/2024	ADDENDUM #1
2	8/12/2024	ADDENDUM #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #17087
DATE: 07/24/2024
DRAWN BY: ASL

MECHANICAL CONTROLS

M601

PRIMARY JOB # 24587

THIS MONOCHROME PRINT SHOULD DISPLAY GRAYSCALE BOXES BELOW IF PRINTED PROPERLY WITH 256 SHADES OF GRAY

PLOT DATE/TIME:8/12/2024 10:08:52 AM

Sunman Elementary School
8/12/24

MECHANICAL SYMBOL SCHEDULE

PIPING SYMBOLS

- AUTOMATIC FLOW CONTROL VALVE
- AIR SEPARATOR
- AUTOMATIC AIR VENT
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- DOUBLE CHECK BACKFLOW PREVENTER
- FLOW METER
- GAS OUTLET TURRET
- GAS COCK
- GATE VALVE
- GLOBE VALVE
- HOSE THREAD END WITH CAP
- INLINE PIPE DROP
- INLINE PUMP
- INLINE PIPE RISE
- MANUAL FLOW CONTROL VALVE
- MANUAL AIR VENT
- METER
- P&T RELIEF VALVE
- P&T PORT
- PIPE BREAK
- PIPE CAP
- PIPE DROP
- PIPE RISE
- PIPE THERMOMETER
- PRESSURE GAUGE
- PRESSURE INDEPENDENT CONTROL VALVE
- PRESSURE REDUCING VALVE
- PRESSURE REGULATING VALVE
- STRAINER
- STRAINER WITH BLOWDOWN
- STEAM TRAP
- TEMPERATURE SENSOR
- THERMOSTATIC MIXING VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- UNION

MECHANICAL SYMBOLS

- BACKDRAFT DAMPER
- COMBINATION SMOKE/FIRE DAMPER
- CONTROL DAMPER ACTUATOR
- DOUBLE WALL DUCTWORK
- DUCT CAP
- DUCT MOUNTED COIL
- DUCTWORK WITH DUCT LINER
- DUCTWORK WITHOUT DUCT LINER
- FAN POWERED VAV BOX WITH REHEAT
- FIRE DAMPER
- FIRE DAMPER
- FLEXIBLE DUCT
- INLINE PUMP
- MANUAL AIR VENT
- OPPOSED BLADE BALANCE DAMPER
- RETURN/EXHAUST/ TRANSFER AIR GRILLE
- SHUTOFF VAV BOX WITH REHEAT
- SINGLE BLADE BALANCE DAMPER
- STRAINER
- STRAINER WITH BLOWDOWN
- SUPPLY AIR DIFFUSER
- TEMPERATURE SENSOR
- THERMOMETER
- UNIT HEATER
- WALL MOUNTED PRESSURE GAUGE

MECHANICAL LINE TYPES

- EXISTING DUCT TO REMAIN
- NEW SUPPLY DUCT
- NEW RETURN DUCT
- NEW OUTSIDE AIR DUCT
- NEW EXHAUST DUCT
- DUCT TO BE REMOVED
- HWS — HOT WATER SUPPLY PIPE
- HWR — HOT WATER RETURN PIPE
- CHWS — CHILLED WATER SUPPLY PIPE
- CHWR — CHILLED WATER RETURN PIPE
- GLY — GLYCOL PIPE
- LPSS — LOW PRESSURE STEAM SUPPLY
- LPSR — LOW PRESSURE STEAM RETURN
- HPSS — HIGH PRESSURE STEAM SUPPLY
- HPSR — HIGH PRESSURE STEAM RETURN
- STR — STEAM CONDENSATE
- CWS — CONDENSER WATER SUPPLY
- CWR — CONDENSER WATER RETURN

GENERAL LINE TYPES

- EXISTING TO REMAIN LINE WEIGHT
- EXISTING TO BE DEMOLISHED LINE TYPE AND WEIGHT
- NEW DUCT LINE WEIGHT
- NEW PIPING LINE WEIGHT
- NEW EQUIPMENT LINE WEIGHT

ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
A.F.F	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MEASURING STATION
AHU	AIR HANDLER
AS	AIR SEPARATOR
ADS	AIR DIRT SEPARATOR
B	BOILER
CF	CEILING FAN
CHLR	CHILLER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COND	CONDENSATE DRAIN
CUH	CABINET UNIT HEATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D	DIFFUSER
DC	DUCT COIL
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ET	EXPANSION TANK
F	FURNACE
FD	FIRE DAMPER
FM	FLOW METER
FTR	FINNED TUBE RADIATION
HPSR	HIGH PRESSURE STEAM RETURN
HPSS	HIGH PRESSURE STEAM SUPPLY
HVAC	HEATING VENTILATING AND COOLING UNIT
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
L	LOUVER
LPSR	LOW PRESSURE STEAM RETURN
LPSS	LOW PRESSURE STEAM SUPPLY
LRP	LINEAR RADIANT PANEL
MAU	MAKE-UP AIR UNIT
OA	OUTSIDE AIR
OAC	OPENING ABOVE CEILING
P	PUMP
RA	RETURN AIR
RAD	RADIANT HEATER
REL	RELIEF AIR
RET	RETURN AIR
RC	ROOF CAP
RF	RELIEF FAN
RG	RETURN GRILLE
RTU	ROOFTOP UNIT
RV	RELIEF VENT
SA	SUPPLY AIR
SFD	SMOKE FIRE DAMPER
SR	SUPPLY REGISTER
TG	TRANSFER GRILLE
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME BOX

GENERAL SYMBOLS

- EXTENT OF DEMOLITION
- TIE-IN OF NEW TO EXISTING

MECHANICAL CONTROL SYMBOLS

- CARBON DIOXIDE SENSOR
- CARBON MONOXIDE SENSOR
- DUCT OR PIPE PRESSURE SENSOR
- SECURITY TYPE THERMOSTAT
- PNEUMATIC THERMOSTAT
- THERMOSTAT
- THERMOSTAT (LINE VOLTAGE)
- THERMOSTAT WITH HUMIDISTAT AND CO2 SENSOR
- HUMIDISTAT
- DIFFERENTIAL PRESSURE SENSOR

HYDRONIC SYSTEM CLEANING

1. IN ADDITION TO REQUIREMENTS IN SPECIFICATIONS CONTRACTOR SHALL FLUSH AND FILL NEW AND EXISTING HYDRONIC SYSTEM IN ITS ENTIRETY AT THE COMPLETION OF FINALCONSTRUCTION PHASE. SYSTEM FLUSHING SHALL INCLUDE COMPLETE DRAIN OF ALL SYSTEM FLUID, REFILL WITH WATER AND HVAC HYDRONIC SYSTEM CHEMICAL DETERGENTS FURNISHED BY CHEMICAL TREATMENT CONTRACTOR. FLUID CIRCULATION FOR MINIMUM TIME PERIOD OF 24 HOURS. AND ADDITIONAL COMPLETE DRAIN AND REFILL OF ALL SYSTEM FLUID AS REQUIRED UNTIL SYSTEM FLUID IS CLEAR. OPEN ALL MANAUL AND AUTOMATIC VALVES TO ALLOW FLUSH AND FILL THROUGH ENTIRE SYSTEM. CLEAN ALL NEW AND EXISTING STRAINERS AFTER FLUSH AND FILL IS COMPLETE . VENT AND PURGE ALL PIPING AND COILS OF AIR. REPLACE BYPASS FILTER FEEDER BAG FILTERS AFTER FLUSH AND FILL IS COMPLETE.

CONTROLS RESPONSIBILITY CHART

ITEM	CONTROL CONTRACTOR	MECHANICAL CONTRACTOR	ELECTRICAL CONTRACTOR	REMARKS
INSTALL INTERIOR AND EXTERIOR LOW VOLTAGE CABLING AND CONDUIT	X			
ROUGH-IN OF THERMOSTAT WALL BOXES	X			
FURNISH CONTROL VALVES	X			
INSTALL CONTROL VALVES		X		
FURNISH PIPE WELLS FOR SENSORS	X			
INSTALL PIPE WELLS FOR SENSORS		X		
PROVIDE 120 VOLT POWER FOR CONTROL PANELS			X	
PROVIDE 120 VOLT POWER BETWEEN SLAVE PANELS	X			
PROVIDE INTERLOCK WIRING BETWEEN DEVICES, PANELS, BOILERS, CHILLERS, ETC		X		1
FURNISH VARIABLE SPEED DRIVES	X			2
INSTALL VARIABLE SPEED DRIVES			X	2
PROVIDE LINE AND LOAD WIRING TO VARIABLE SPEED DRIVES			X	
PROVIDE CONTROL WIRING TO VSD	X			
PROGRAM AND STARTUP VSD	X			
PROVIDE 120 VOLT POWER TO CONTROLS			X	
FURNISH CONTROL DAMPERS	X	X		3
INSTALL CONTROL DAMPERS		X		
FURNISH DAMPER ACTUATORS	X			
INSTALL DAMPER ACTUATORS	X			
WIRE LOW VOLTAGE ACTUATORS	X			
WIRE LINE VOLTAGE ACTUATORS			X	
PROGRAM AND COMMISSION BOILER SEQUENCER		X		
PROGRAM AND COMMISSION CHILLER SEQUENCER		X		
COORDINATE PROJECT SCHEDULE WITH ALL TRADES	X	X	X	
PROVIDE SHOP DRAWINGS TO ALL TRADES	X	X		
VERIFY AND TEST SEQUENCE OF OPERATIONS	X			
TERMINATE DUCT DETECTORS	X			
ROOF PENETRATIONS FOR TEMPERATURE CONTROLS		X		4
EXTERIOR WALL PENETRATIONS FOR TEMPERATURE CONTROLS	X			
PROVIDE DUCT DETECTORS			X	
PROVIDE 120 VOLT POWER TO SOLENOID VALVES			X	5
PROVIDE LOW VOLTAGE CABLING TO SOLENOID VALVES	X			5
PROVIDE AND INSTALL REFRIGERANT MONITORING SYSTEM	X			

REMARKS:

1. MECHANICAL CONTRACTOR/MANUFACTURER SHALL PROVIDE AND INSTALL ALL ASSOCIATED INTERLOCK WIRING AND DEVICES FOR A COMPLETE UNIT.
2. PACKAGED VSD'S INTERNAL TO HVAC EQUIPMENTED SHALL BE FURNISHED BY EQUIPMENT MANUFACTURER UNLESS NOTED OTHERWISE. REFER TO EQUIPMENT SCHEDULES FOR VSD'S TO BE FURNISHED BY EQUIPMENT MANUFACTURER.
3. PACKAGED CONTROL DAMPERS INTEGRAL TO HVAC EQUIPMENT SHALL BE FURNISHED BY EQUIPMENT MANUFACTURER UNLESS NOTED OTHERWISE. REFER TO EQUIPMENT SCHEDULES AND DETAILS FOR MORE INFORMATION.
4. COORDINATE WITH GC FOR ROOF PENETRATIONS.
5. COORDINATE WITH MC FOR REFRIGERANT AND GAS PIPING SOLENOID VALVE LOCATIONS.

GENERAL MECHANICAL NOTES

1. DUCT AND PIPING LAYOUTS ARE SCHEMATIC IN NATURE. ADDITIONAL TRANSITIONS, ELBOWS, OFFSETS, AND FITTINGS SHALL BE ADDED AS REQUIRED TO COORDINATE WITH OBSTRUCTIONS AND OTHER TRADES.
2. COORDINATE ALL WORK WITH OTHERS TRADES AND EXISTING WORK TO PERMIT ACCESS AND SERVICE CLEARANCES TO ALL SYSTEMS. COORDINATE DUCT WITH ELECTRICAL J-BOXES TO PREVENT OBSTRUCTIONS.
3. DO NOT SCALE DRAWINGS FOR DIMENSIONS. REFER TO DIMENSIONED DRAWINGS.
4. ALL GRILLES, DIFFUSERS, AND REGISTERS SHALL HAVE A VOLUME CONTROL DAMPER UNLESS NOTED OTHERWISE. DAMPER SHALL BE IN AN ACCESSIBLE LOCATION.
5. REFER TO DETAIL SHEETS FOR ADDITIONAL INFORMATION ON INSTALLATION METHODS.
6. DEVIATIONS FROM BASIS OF DESIGN THAT AFFECT OTHER TRADES ARE THE RESPONSIBILITY OF THIS CONTRACTOR. ADDITIONAL COSTS TO PROVIDE LARGER ELECTRICAL CIRCUITS, MORE FLOOR SPACE, ADDITIONAL SUPPORTS, ADDITIONAL MATERIALS, ETC. SHALL BE BORNE BY THIS CONTRACTOR. COORDINATE WITH OTHER TRADES.
7. ALL THERMOSTATS/HUMIDITY SENSORS WITH ADJUSTMENT BUTTONS/ SLIDERS/ KNOBS/ DISPLAYS, ETC. SHALL BE MOUNTED WITH THE TOP OF THE DEVICE NO MORE THAN 48' AFF, IN COMPLIANCE WITH LOCAL AND FEDERAL ADA WHEELCHAIR REACH DISTANCE GUIDELINES. PROVIDE ADDITIONAL SURFACE RACEWAY, BOXES, CONDUIT, ETC AS REQUIRED TO OFFSET AROUND EXISTING DEVICES IN RENOVATION WORK.
8. ALL DUCT SIZES LISTED ARE FOR INTERIOR FREE AREA. ANY DUCTS DESIGNATED OR SPECIFIED TO BE DOUBLE WALL OR INTERNALLY LINED SHALL HAVE OUTER DIMENSIONS ENLARGED TO ACCOMMODATE THE LINER OR INTERSTITIAL INSULATION.

GENERAL DEMOLITION NOTES

1. ALL EXISTING PENETRATIONS FROM DUCT/ PIPE/ WIRE/ CONDUIT THAT IS REMOVED SHALL BE PATCHED BY PROPER TRADES TO MATCH SURROUNDINGS UNLESS PENETRATION IS TO BE REUSED. PATCH ALL FLOOR AND WALL PENETRATIONS TO MAINTAIN FIRE RATED CONSTRUCTION.
2. ALL ROOF PENETRATIONS NOT BEING REUSED SHALL BE PATCHED TO MAINTAIN EXISTING ROOF WARRANTY. EXISTING CURBS TO BE ABANDONED SHALL BE CAPPED WITH ALUMINUM HOOD PAINTED WITH "N.I.S." (NOT IN SERVICE). INSULATE CAVITY BELOW CAP WITH TIGHT FITTING 2" FOAM BOARD WRAPPED WITH SHEET METAL.
3. ALL PIPE SHALL BE REMOVED TO WITHIN AREAS THAT ARE INACCESSIBLE SUCH AS WALL CAVITIES AND BELOW SLAB. IN FINISHED SPACES REMOVE BELOW SURFACE, CAP WATER TIGHT, AND PATCH SURFACE TO MATCH SURROUNDINGS.
4. ALL PATCHING OF WALLS SHALL MATCH MATERIALS AND WHEN COMPLETE SHALL NOT LOOK LIKE A PATCH.
5. TOOTH-IN NEW BRICK/ BLOCK WITH FULL UNITS, DO NOT CUT FILLER PIECES.
6. PRIOR TO CUTTING EXISTING SLAB ON GRADE, CONTRACTOR SHALL VERIFY EXISTENCE OF EXISTING UTILITIES SUCH AS PIPING, CONDUIT, WIRE, ETC. BY MEANS OF GROUND PENETRATING RADAR TO LOCATE AND DETERMINE DEPTH OF BURY. TAKE PRECAUTIONS TO DE-ENERGIZE POWER TO CIRCUITS AND CAREFULLY CUT AND REMOVE SLAB. ANY UTILITIES THAT WERE LOCATED AND SUBSEQUENTLY DAMAGED SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDED COST TO THE OWNER.

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145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com

Indianapolis
9755 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
www.primary-eng.com

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RENOVATIONS TO SUNMAN ELEMENTARY SCHOOL
925 N Meridian St, Sunman, IN 47041

ANDREW STEPHEN LOUDERBACK
REGISTERED
PE11700017
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	8/5/2024	ADDENDUM #1
2	8/12/2024	ADDENDUM #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #23138
DATE: 07/24/2024
DRAWN BY: ASL

MECHANICAL INFORMATION SHEET

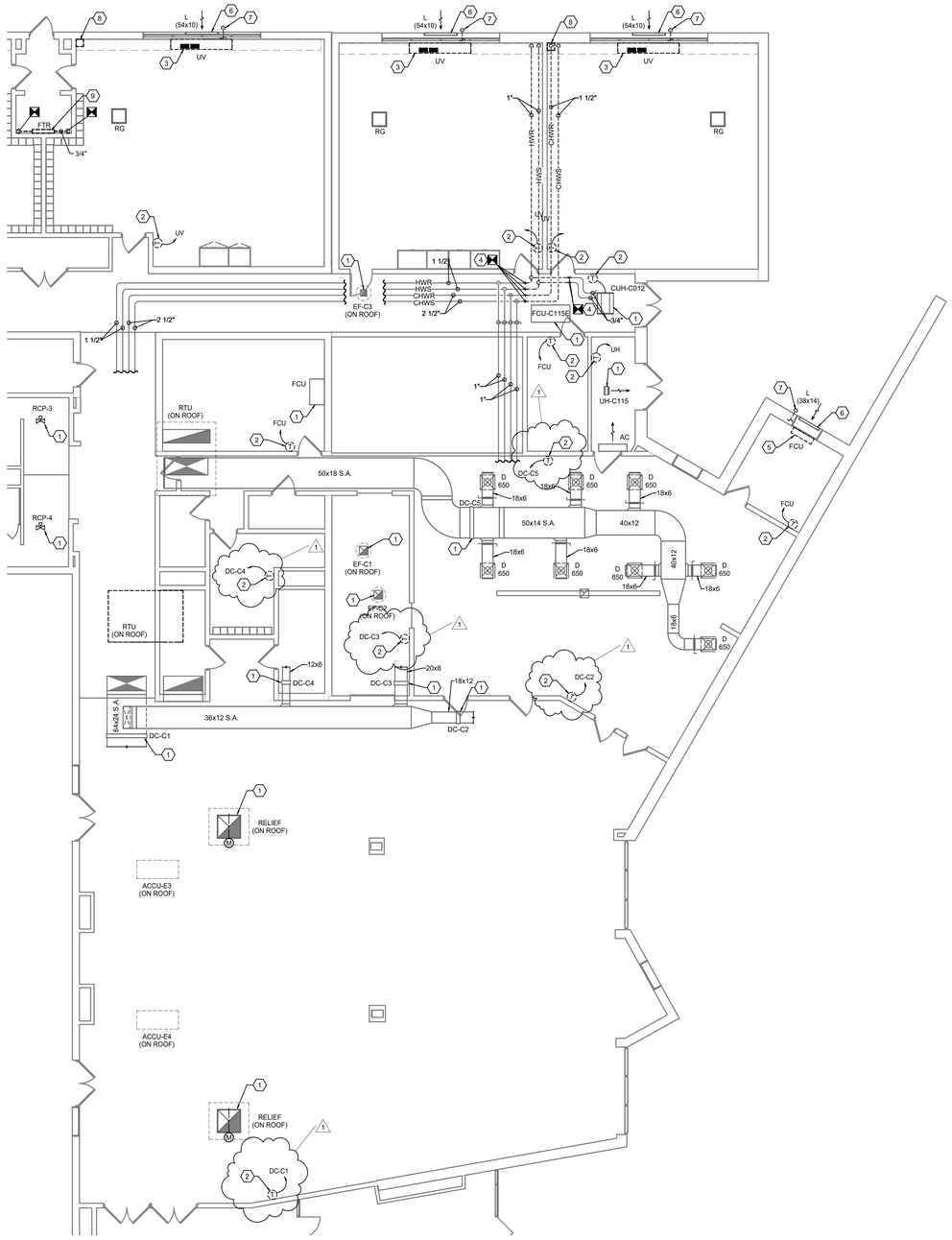
M001

PRIMARY JOB # 24588

DEMOLITION PLAN NOTES

(X)

1. REMOVE EXISTING CONTROLS COMPLETE INCLUDING ASSOCIATED WIRING AND MOUNTING DEVICES. PREPARE REMAINING EQUIPMENT TO RECEIVE NEW CONTROLS. REFER TO CONTROLS DETAILS ON M601 FOR MORE INFORMATION.
2. REMOVE EXISTING THERMOSTAT COMPLETE INCLUDING ASSOCIATED WIRING, WIREMOLD, AND MOUNTING DEVICES.
3. REMOVE EXISTING UNIT VENTILATOR COMPLETE INCLUDING ASSOCIATED PIPING, MOUNTING DEVICES, AND CONTROLS.
4. DISCONNECT AND REMOVE EXISTING PIPING COMPLETE INCLUDING ASSOCIATED HANGERS. CAP REMAINING PIPING AT NEAREST ACTIVE MAIN.
5. DISCONNECT AND REMOVE EXISTING FAN COIL UNIT COMPLETE INCLUDING ASSOCIATED PIPING, MOUNTING DEVICES, AND CONTROLS. CAP AND ABANDON EXISTING LOUVER.
6. EXISTING LOUVER TO REMAIN. REMOVE EXISTING BIRD SCREEN. REMOVE ALL DIRT, DUST, DEBRIS, AND OBSTRUCTIONS. PREPARE LOUVER FOR RECONNECT WITH NEW.
7. REMOVE EXISTING CONDENSATE PIPING COMPLETE. PATCH REMAINING OPENING WITH COLOR MATCHING NON-SHRINK GROUT.
8. REMOVE EXISTING SHEET METAL PIPE CHASE COMPLETE INCLUDING ASSOCIATED MOUNTING DEVICES.
9. REMOVE EXISTING FINNED TUBE RADIATION COMPLETE INCLUDING ASSOCIATED PIPING, MOUNTING DEVICES, AND CONTROLS. CAP AND ABANDON REMAINING PIPING AT FLOOR PENETRATION.



1 MECHANICAL DEMOLITION PLAN - FIRST FLOOR -UNIT C

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

SCALE: 1/16" = 1'-0" | SCALE: 3/32" = 1'-0" | SCALE: 1/8" = 1'-0" | SCALE: 1/4" = 1'-0" | SCALE: 1/2" = 1'-0" | SCALE: 3/4" = 1'-0" | SCALE: 1" = 1'-0"

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145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com

Indianapolis
9755 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
www.primary-eng.com

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MECHANICAL DEMO PLAN - FIRST FLOOR - UNIT C

MD101C

PRIMARY JOB # 24588

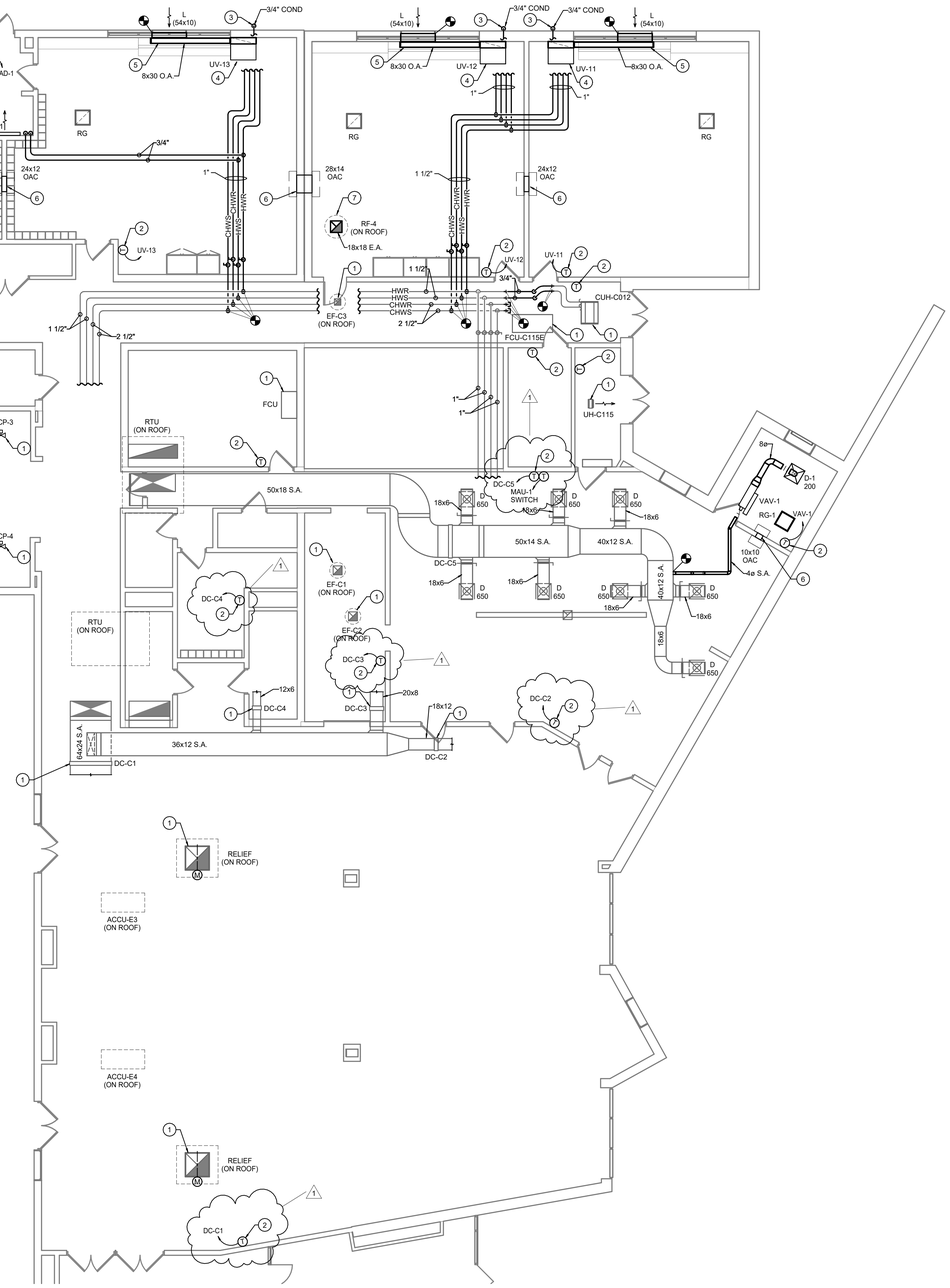
D C B A

N TRUE NORTH

PLAN NOTES

(X)

1. PROVIDE AND INSTALL NEW CONTROLS FOR EXISTING EQUIPMENT. REFER TO DRAWING SHEET M601 FOR MORE INFORMATION.
2. PROVIDE AND INSTALL NEW THERMOSTAT FOR EXISTING EQUIPMENT. ROUTE NEW WIRING THROUGH SURFACE RACEWAY TO NEW THERMOSTAT AT ADA ACCESSIBLE MOUNTING HEIGHT.
3. CORE DRILL EXISTING EXTERIOR MASONRY WALL FROM EXTERIOR FOR NEW CONDENSATE PIPE PENETRATION. SEAL WITH COLOR MATCHING NON-SHRINK GROUT.
4. PROVIDE AND INSTALL NEW VERTICAL UNIT VENTILATOR. REFER TO UNIT VENTILATOR DETAILS ON DRAWING SHEET M401 FOR MORE INFORMATION.
5. CONNECT NEW 8" WIDE x 30" TALL OUTSIDE AIR DUCT THROUGH NEW CHASE FROM EXISTING LOUVER TO NEW UNIT VENTILATOR REAR PLENUM.
6. PROVIDE AND INSTALL THROUGH-WALL RELIEF AIR OPENING ABOVE CEILING. LOCATE TO MAINTAIN CLEARANCE EQUAL TO MINOR DUCT DIMENSION OR 12" MINIMUM EACH SIDE FOR AIRFLOW.
7. PROVIDE AND INSTALL NEW ROOF-MOUNTED RELIEF FAN. CUT EXISTING ROOF AS REQUIRED FOR NEW OPENING. MAINTAIN EXISTING ROOF WARRANTY.



1 FIRST FLOOR MECHANICAL PLAN - UNIT C

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

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0 16 32 48 SCALE: 1/16" = 1'-0"
0 8 16 24 32 SCALE: 3/32" = 1'-0"
0 8 16 24 SCALE: 1/8" = 1'-0"
0 4 8 12 SCALE: 1/4" = 1'-0"
0 2 4 6 SCALE: 1/2" = 1'-0"
0 2 4 SCALE: 3/4" = 1'-0"
0 1 2 3 SCALE: 1" = 1'-0"

LANCER ASSOCIATES ARCHITECTURE
145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com
Indianapolis
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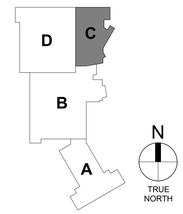
MECHANICAL PLAN - FIRST FLOOR - UNIT C

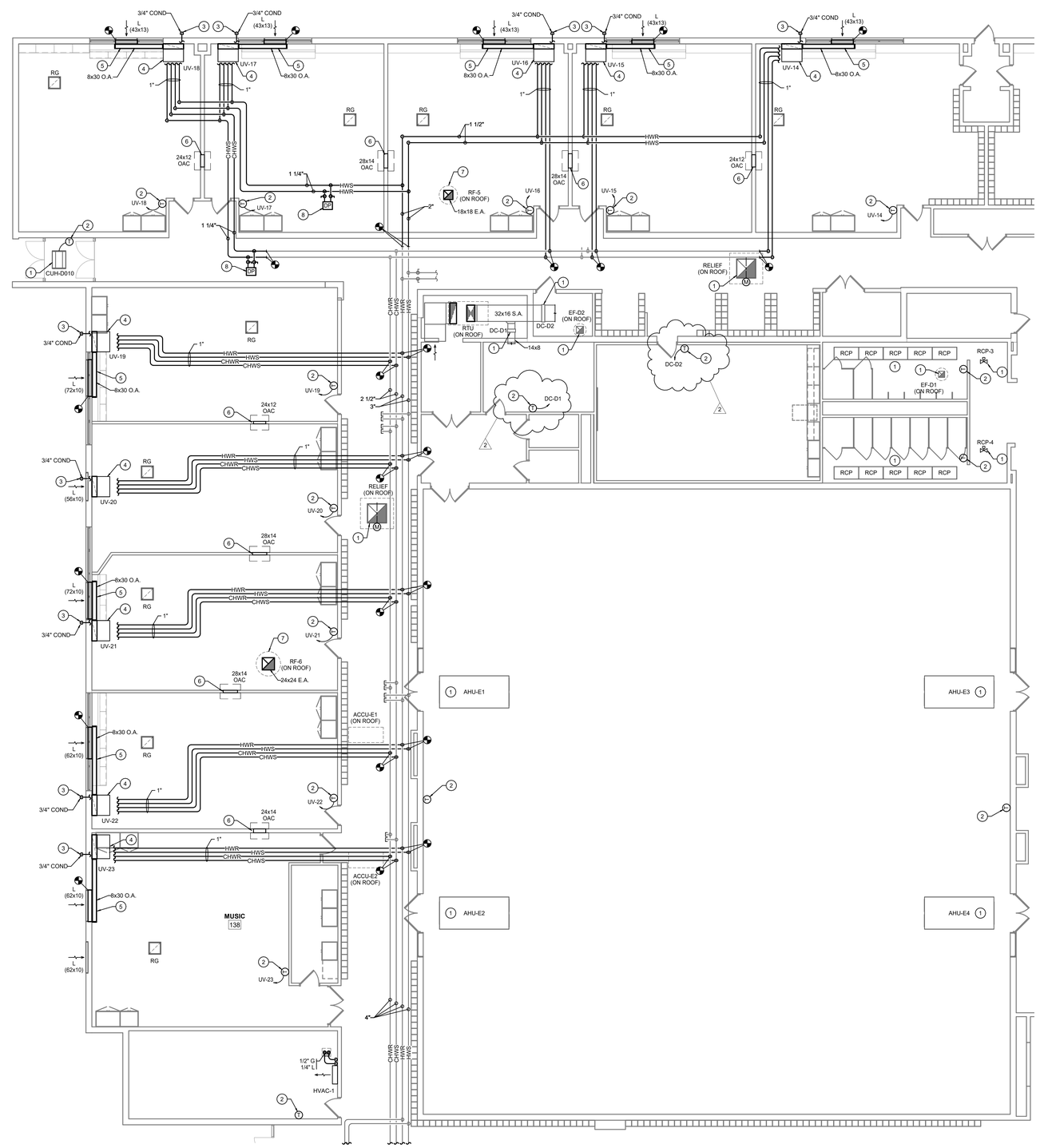


M101C

PRIMARY JOB # 24588

PLAN NOTES

1. PROVIDE AND INSTALL NEW CONTROLS FOR EXISTING EQUIPMENT. REFER TO DRAWING SHEET M601 FOR MORE INFORMATION.
2. PROVIDE AND INSTALL NEW THERMOSTAT FOR EXISTING EQUIPMENT. ROUTE NEW WIRING THROUGH SURFACE RACEWAY TO NEW THERMOSTAT AT ADA ACCESSIBLE MOUNTING HEIGHT.
3. CORE DRILL EXISTING EXTERIOR MASONRY WALL FROM EXTERIOR FOR NEW CONDENSATE PIPE PENETRATION. SEAL WITH COLOR MATCHING NON-SHRINK GROUT.
4. PROVIDE AND INSTALL NEW VERTICAL UNIT VENTILATOR. REFER TO UNIT VENTILATOR DETAILS ON DRAWING SHEET M401 FOR MORE INFORMATION.
5. CONNECT NEW 8" WIDE x 30" TALL OUTSIDE AIR DUCT THROUGH NEW CHASE FROM EXISTING LOUVER TO NEW UNIT VENTILATOR REAR PLENUM.
6. PROVIDE AND INSTALL THROUGH-WALL RELIEF AIR OPENING ABOVE CEILING. LOCATE TO MAINTAIN CLEARANCE EQUAL TO MINOR DUCT DIMENSION OR 12" MINIMUM EACH SIDE FOR AIRFLOW.
7. PROVIDE AND INSTALL NEW ROOF-MOUNTED RELIEF FAN. CUT EXISTING ROOF AS REQUIRED FOR NEW OPENING. MAINTAIN EXISTING ROOF WARRANTY.
8. NEW DIFFERENTIAL PRESSURE SENSOR FOR VARIABLE SPEED PUMP CONTROL.



1 FIRST FLOOR MECHANICAL PLAN - UNIT D

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

SCALE: 1/16" = 1'-0" | SCALE: 3/32" = 1'-0" | SCALE: 1/8" = 1'-0" | SCALE: 1/4" = 1'-0" | SCALE: 1/2" = 1'-0" | SCALE: 3/4" = 1'-0" | SCALE: 1" = 1'-0"

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145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com
Indianapolis
9755 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
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RENOVATIONS TO SUNMAN ELEMENTARY SCHOOL
925 N Meridian St, Sunman, IN 47041

ANDREW STEPHEN LOVERICH
REGISTERED
PE11700017
STATE OF INDIANA
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2	9/12/2024	ADDENDUM #2

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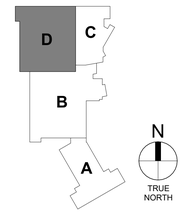
MECHANICAL PLAN - FIRST FLOOR - UNIT D



M101D

PRIMARY JOB # 24588

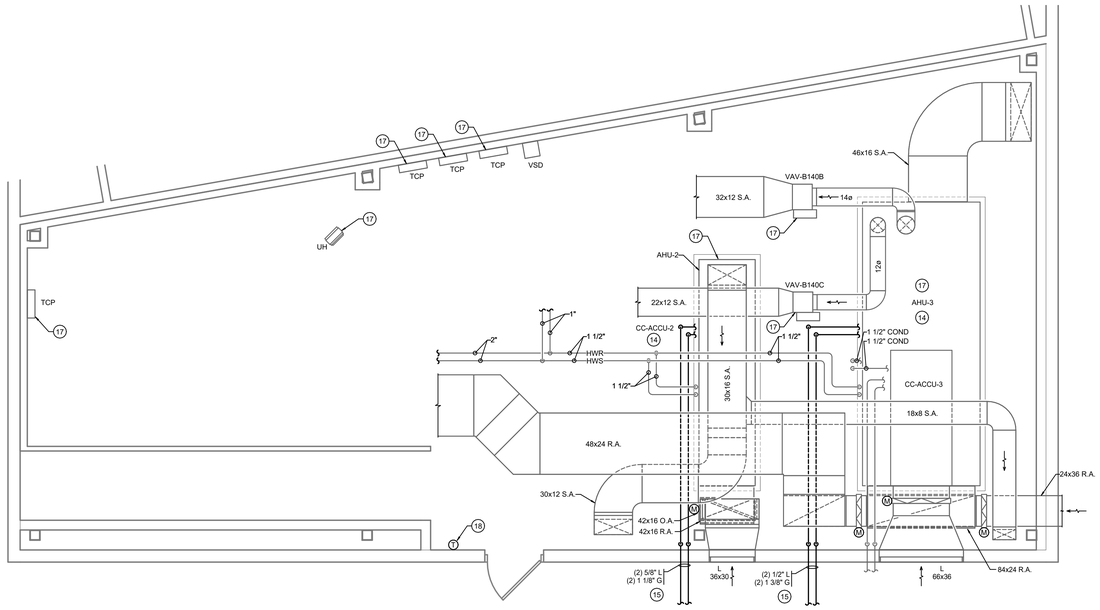
PLAN NOTES

(X)

1. PROVIDE AND INSTALL NEW MODULAR CONDENSING BOILER/WATER HEATER. REFER TO DETAILS ON DRAWING SHEET M402 FOR MORE INFORMATION. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR CLEARANCE, PIPING, AND VENTING.
2. TIE-IN TO EXISTING DOMESTIC COLD WATER PIPING AND ROUTE NEW TO NEW SYSTEM FILL STATION. REFER TO SYSTEM FILL STATION DETAIL ON DRAWING SHEET M402 FOR MORE INFORMATION.
3. PROVIDE AND INSTALL NEW BYPASS FILTER FEEDER, FURNISHED BY CHEMICAL TREATMENT PROVIDER. REFER TO WATER TREATMENT SPECIFICATIONS FOR MORE INFORMATION.
4. ROUTE BOILER FLUE CONDENSATE DRAIN TO NEW FLOOR MOUNTED CONDENSATE NEUTRALIZATION TANK. MODIFY INLET AND OUTLET CONNECTIONS AS REQUIRED FOR TRAP DEPTH AND CONDENSATE PIPE FALL. DISCHARGE DIRECTLY INTO NEAREST FLOOR DRAIN.
5. PROVIDE AND INSTALL NEW POLYPROPYLENE FLUE. VERIFY VENTING REQUIREMENTS WITH BOILER MANUFACTURER.
6. PROVIDE AND INSTALL NEW COMBUSTION AIR INTAKE. VERIFY VENTING REQUIREMENTS WITH BOILER MANUFACTURER. MAINTAIN MINIMUM 15' TO FLUE TERMINATION.
7. PROVIDE AND INSTALL NEW GAS REGULATOR. REFER TO DETAIL ON DRAWING SHEET M403 FOR MORE INFORMATION.
8. CORE DRILL EXISTING MASONRY FROM EXTERIOR AS REQUIRED TO ROUTE NEW VENT PIPING. PATCH AND SEAL WALL PENETRATION WITH GROUT.
9. TIE-IN TO EXISTING GAS PIPING AND INSTALL AUTOMATIC CONTROL VALVE, FURNISHED BY TCC.
10. BOILER ROOM CARBON MONOXIDE MONITOR FURNISHED AND INSTALLED BY TCC.
11. FLOW METER FURNISHED BY TCC, INSTALLED BY MC. INSTALL PER MANUFACTURER'S INSTALLATION REQUIREMENTS FOR CLEARANCE AND UPSTREAM/DOWNSTREAM STRAIGHT PIPE LENGTHS.
12. ROUTE WATER HEATER CONDENSATE DRAIN TO CONDENSATE NEUTRALIZATION KIT AND DISCHARGE DIRECTLY INTO NEAREST FLOOR DRAIN.
13. REFER TO PLUMBING FLOW DIAGRAMS ON DRAWING SHEET M403 FOR MORE INFORMATION.
14. PROVIDE AND INSTALL NEW CUSTOM EVAPORATOR COIL SECTION IN EXISTING AIR HANDLING UNIT AND ROUTE NEW REFRIGERANT PIPING TO NEW CONDENSING UNIT.
15. VERIFY PIPE ROUTING, SIZES, QUANTITIES, AND ALL PIPING REQUIREMENTS WITH MANUFACTURER.
16. PROVIDE AND INSTALL EQUIPMENT ON NEW 4" TALL CONCRETE HOUSEKEEPING PAD.
17. PROVIDE AND INSTALL NEW CONTROLS FOR EXISTING EQUIPMENT. REFER TO DRAWING SHEET M601 FOR MORE INFORMATION.
18. PROVIDE AND INSTALL NEW THERMOSTAT FOR EXISTING EQUIPMENT. ROUTE NEW WIRING THROUGH SURFACE RACEWAY TO NEW THERMOSTAT AT ADA ACCESSIBLE MOUNTING HEIGHT.

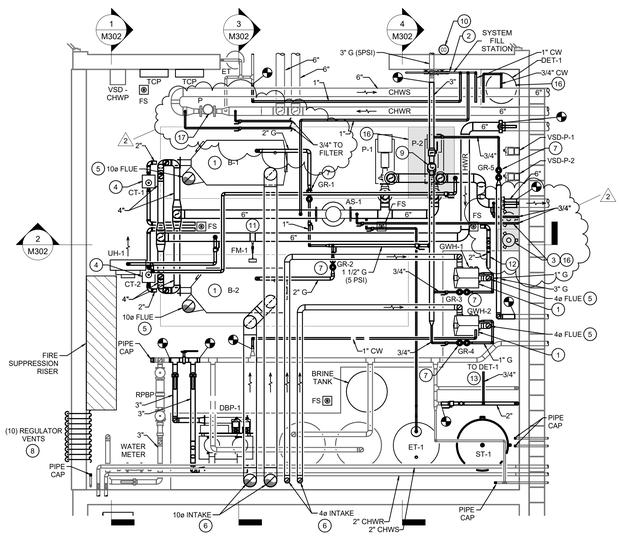
GENERAL NOTES

1. UNLESS NOTED OTHERWISE, IN BOILER ROOM AND MECHANICAL MEZZANINE, PROVIDE AND INSTALL ALUMINUM JACKETING ON ALL PIPE INSULATION BELOW 6'-0" AFF. EXTEND JACKETING TO NEAREST FITTING ABOVE 6'-0" AFF.



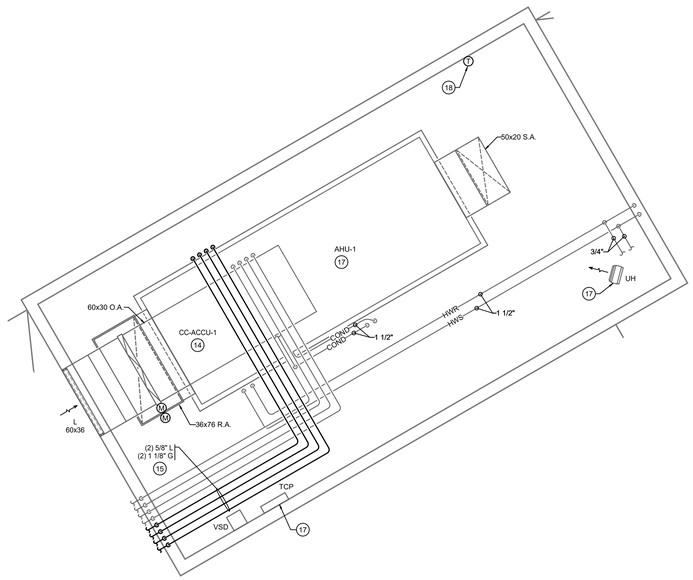
2 UNIT B MEZZANINE LEVEL MECHANICAL PLAN

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



3 BOILER ROOM MECHANICAL PLAN

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



1 UNIT A MEZZANINE LEVEL MECHANICAL PLAN

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

LANCER ASSOCIATES ARCHITECTURE
145 NORTH EAST STREET
INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com
Indianapolis
9785 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
www.primary-eng.com

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SUNMAN-DEARBORN COM. SCHOOL CORP.
RENOVATIONS TO SUNMAN ELEMENTARY SCHOOL
925 N Meridian St, Sunman, IN 47041

REVISIONS:

#	Date	Desc.
1	8/5/2024	ADDENDUM #1
2	8/12/2024	ADDENDUM #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #23138
DATE: 07/24/2024
DRAWN BY: ASL

MECHANICAL PLANS - ENLARGED

M301

PRIMARY JOB # 24588

N
TRUE NORTH

THIS MONOCHROME PRINT SHOULD DISPLAY GRAYSCALE BOXES BELOW IF PRINTED PROPERLY WITH 256 SHADES OF GRAY.

PLOT DATE/TIME: 8/12/2024 8:53:25 AM

0 16 32 48 SCALE: 1/16" = 1'-0"
0 8 16 24 32 SCALE: 3/32" = 1'-0"
0 8 16 24 SCALE: 1/8" = 1'-0"
0 4 8 12 SCALE: 1/4" = 1'-0"
0 2 4 6 SCALE: 1/2" = 1'-0"
0 2 4 SCALE: 3/4" = 1'-0"
0 1 2 3 SCALE: 1" = 1'-0"

CONTROLS POINT LIST SCHEDULE

SUNMAN-DEARBORN COMM. SCHOOL CORP. SUNMAN ELEMENTARY	HARDWARE: OUTPUT (O) DGTAL			ANALOG			INPUT (T, D, V, C) DIGITAL									ANALOG											ALARMS DGTAL			ANALOG			SOFTWARE: BMS FUNCTIONS							
Point Description	Control Relay/Contactor	Floating Point Control	Solenoid Valve	Pneumatic Transducer	Electrical Transducer	4-20 ma or 0-10 VDC	Pressure Switch	Flow Switch	Space Occupancy Sensor	Current Switch	Over-ride button	Contact Closure	Photocell	Auxiliary Contact	KW Meter Contact	Temperature	Relative Humidity	Set Point Adjustment	Carbon Dioxide Level (ppm)	Carbon Monoxide (ppm)	Lighting Level (Foot candles)	Pressure (in H2O, ft H2O, DP)	Flow Measurement (gpm/cfm)	Electrical Current Flow (amps)	Position Feedback	Trending	Equipment Alarm	Freezestat Alarm	Maintenance Notification	High Limit	Low Limit (Temperature)	Run Time Alarm	Scheduled On/Off	Optimum Start/Stop	Totalization	O.A. Reset	Lead/Lag Control	BACNET software point	Lighting Control Integration	Color Graphics Item
Heating hot water plant																																								
Boiler Plant enable/disable	X																																							X
Hot water supply setpoint						X																				X										X				X
Boiler alarm												X																										X		X
Boiler firing rate																										X												X		X
Boiler status																																						X		X
Boiler leaving temp																																						X		X
HWS loop to building																X										X					X									X
HWR loop from building																X										X														X
Boiler Room Carbon Monoxide																				X						X	X			X										X
Hot water system fill pressure																						X									X									X
Flow meter hot water flow rate FM-1																							X			X														X
Cooling chilled water plant																																								X
Chiller plant enable/disable	X																																							X
Chilled water supply setpoint						X																				X														X
Chiller alarm												X																										X		X
Chiller capacity %																										X												X		X
Chiller status																																						X		X
Chiller leaving water temp																																						X		X
Chiller pump status																								X														X		X
CHWS loop to building																X										X					X									X
CHWR loop from building																X										X														X
																																								X
P-1 and P-2 (Hot Water Distribution)																																								
Pump start/stop	X																							X								X					X			X
Pump speed						X																				X														X
VSD alarm contact												X																	X											X
System DP																						X				X														X
Chilled water pumps																																								
Pump start/stop	X																							X								X					X			X
Pump speed						X																				X														X
VSD alarm contact												X																	X											X
System DP																						X				X														X
Walk-in Cooler																X														X										X
Walk-in Freezer																X														X										X
Domestic booster pump (DBP-1)																																								
Enable/disable	X																															X							X
Entering water pressure																						X																		X
Leaving water pressure																						X																		X
VSD alarm contact												X																												X
Full Bacnet integration																																						X		X
Domestic water heater plant																																								X
Water heater status																																						X		X
Water heater circ pump status																								X																X
Water heater firing rate %																										X												X		X
Storage tank temp																X										X					X									X
Thermostatic mixing valve disch																X										X				X										X
HWRP enable/disable	X																							X									X							X
HWRP return water temp																X																								X
Lighting Control Relays																																								X
Exterior photo sensor													X																X											X
Exterior parking lights	X																															X							X
Exterior building lights	X																															X							X
Interior lights	X																															X							X

CONTROLS POINT LIST SCHEDULE

SUNMAN-DEARBORN COMM. SCHOOL CORP. SUNMAN ELEMENTARY	HARDWARE: OUTPUT (O) DGTAL			ANALOG			INPUT (T, D, V, C) DIGITAL									ANALOG											ALARMS DGTAL			ANALOG			SOFTWARE: BMS FUNCTIONS							
Point Description	Control Relay/Contactor	Floating Point Control	Solenoid Valve	Pneumatic Transducer	Electrical Transducer	4-20 ma or 0-10 VDC	Pressure Switch	Flow Switch	Space Occupancy Sensor	Current Switch	Over-ride button	Contact Closure	Photocell	Auxiliary Contact	KW Meter Contact	Temperature	Relative Humidity	Set Point Adjustment	Carbon Dioxide Level (ppm)	Carbon Monoxide (ppm)	Lighting Level (Foot candles)	Pressure (in H2O, ft H2O, DP)	Flow Measurement (gpm/cfm)	Electrical Current Flow (amps)	Position Feedback	Trending	Equipment Alarm	Freezestat Alarm	Maintenance Notification	High Limit	Low Limit (Temperature)	Run Time Alarm	Scheduled On/Off	Optimum Start/Stop	Totalization	O.A. Reset	Lead/Lag Control	BACNET software point	Lighting Control Integration	Color Graphics Item
AHU-1, AHU-3																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								X
OA damper						X																			X	X										X				X
RA damper						X																				X										X				X
OA heating coil valve						X																																		X
OA heating coil IFB damper						X																			X	X														X
OA stages of DX cooling	X																																							X
RA stages of DX cooling	X																																							X
OA module leaving air																X										X														X
Return air																X																								X
Mixed air																X										X														X
Return air module leaving air																X										X				X										X
Freezestat sensor																X															X									X
Supply air duct static pressure																						X				X				X										X
AHU-2, AHU-E1 through E4																																								X
Enable/disable	X																																X							X
Supply fan VSD Enable	X																							X									X							X
Supply fan VSD speed						X																				X			X											X
Supply fan VSD alarm																																								X
OA damper						X																			X	X										X				X
RA damper						X																				X										X				X
Heating coil valve						X																																		X
Stages of DX cooling	X																																							X
Return air																X																								X
Mixed air																X										X														X
Discharge air																X										X				X										X
Freezestat sensor																X															X									X
Space											X					X	X		X							X				X	X									X
RTU-1, RTU-2, RTU-3																																								X
Enable/disable	X																																X							X
Supply fan enable	X																							X									X							X
Stages of DX cooling	X																																							X
OA damper																									X	X														X
Mixed air																X										X														X
Discharge air																X										X				X	X									X
Freezestat sensor																X															X									X
Makuep air unit MAU																																								X
Fan motor status																								X								X								X
Discharge air																X										X				X	X									X
Exhaust fans EF																																								X
Enable/disable	X																																X							X
Fan motor status																								X								X								X
Control damper	X																																							X
Relief fans RF																																								X
Enable/disable	X																																X							X
Fan speed						X																																		X
Fan motor status																								X								X								X
Control damper	X																								X															X
Zone differential pressure																						X																		X
Mini-split HVAC																																								X
Space																X														X	X									X

CONTROLS POINT LIST SCHEDULE

SUNMAN-DEARBORN COMM. SCHOOL CORP. SUNMAN ELEMENTARY	HARDWARE: OUTPUT (O) DGTAL			ANALOG			INPUT (T, D, V, C) DIGITAL									ANALOG											ALARMS DGTAL			ANALOG			SOFTWARE: BMS FUNCTIONS							
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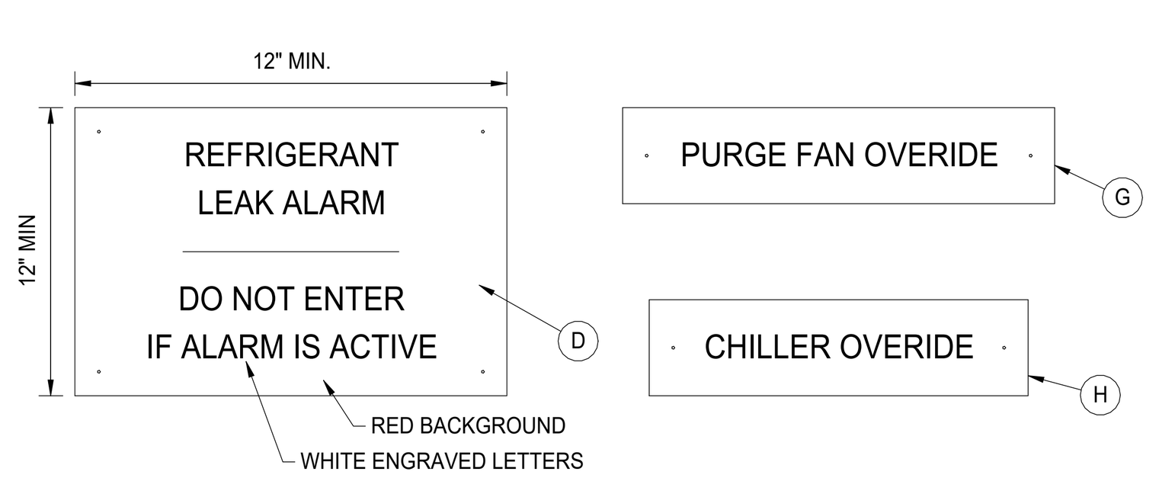
Outside Air																X	X									X														X
Unit Ventilator (UV-1 to 23)																																								X
Enable/disable	X																																X							X
Supply fan						X																		X		X						X								X
OA/RA dampers						X																			X	X														X
Face and Bypass dampers						X																				X														X
Heating coil valve (preheat)						X																																		X
Cooling coil valve						X																																		X
Mixed air																X										X														X
Supply air																X										X				X										X
Freezestat sensor																X															X									X
Space											X					X	X		X							X				X	X									X
VAV shutoff-reheat boxes																																								X
Enable/disable	X																																X							X
Primary air damper						X																																		X
Primary airflow (cfm)																							X			X														X
Hot water reheat valve		X																																						X
Discharge air																X										X														X
Space											X					X	X		X							X					X									X
Duct heating coil DC																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Discharge air																X										X					X									X
Space											X					X	X		X							X					X									X
Vestibule cabinet heater CUH																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Supply fan	X																							X																X
Space											X					X															X									X
Radiant ceiling panel RCP																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Space											X					X	X		X												X									X
Unit heater UH																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Supply fan	X																							X																X
Space											X					X															X									X
Fan coil unit FCU																																								X
Enable/disable	X																																X							X
DX cooling	X																																							X
Supply fan	X																							X																X
Space											X					X															X									X
Radiant wall panel RAD																																								X
Enable/disable	X																																X							X
Hot water valve						X																																		X
Space											X					X	X		X												X									X
Refrigerant Exhaust Fan EF-1																																								X
Exhaust fan start/stop	X																							X																X
Intake / Exhaust Dampers	X																								X															X
Refrigerant Leak Detection												X															X													X

2

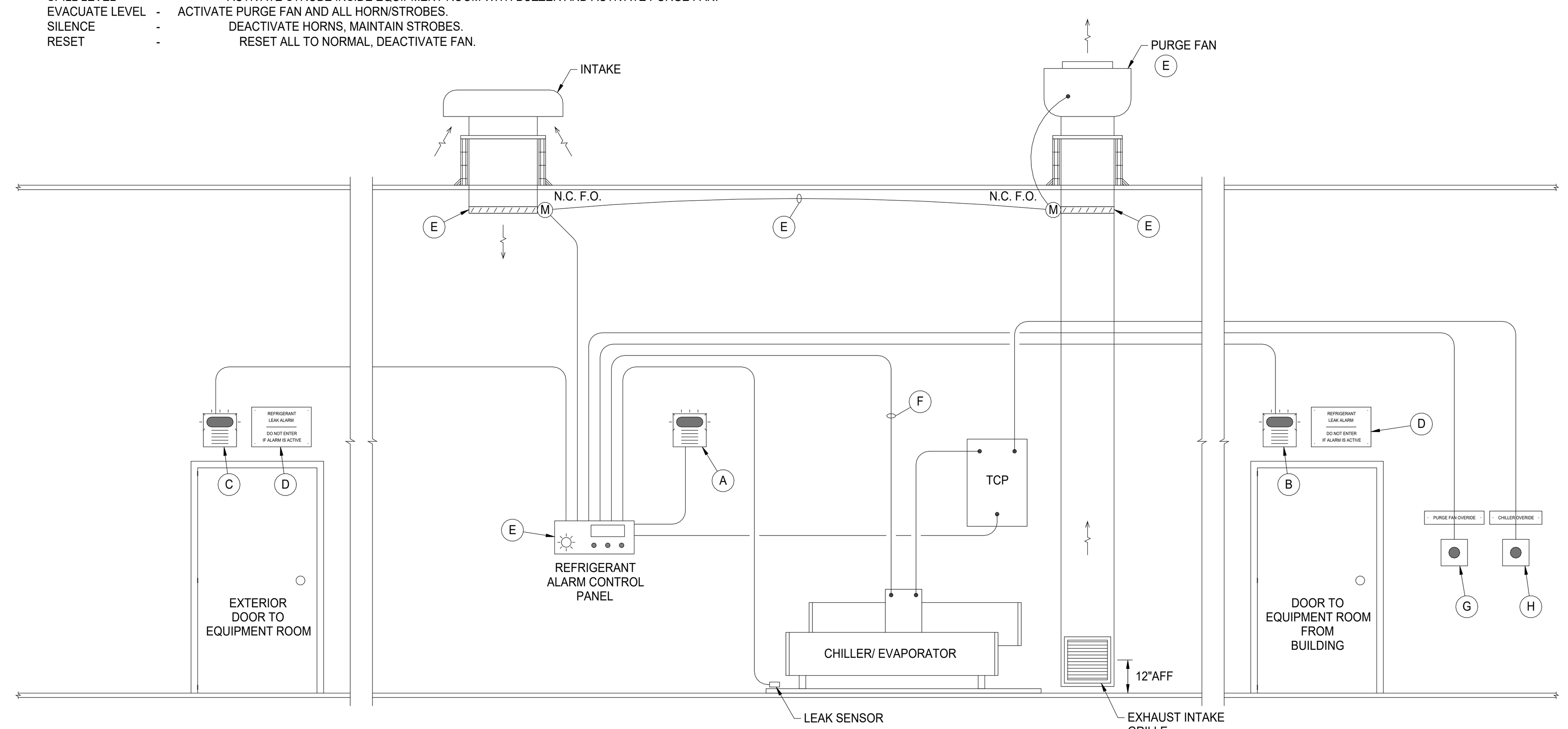


ALARM LEVELS:

SPILL LEVEL - ACTIVATE STROBE INSIDE EQUIPMENT ROOM WITH BUZZER AND ACTIVATE PURGE FAN.
EVACUATE LEVEL - ACTIVATE PURGE FAN AND ALL HORN/STROBES.
SILENCE - DEACTIVATE HORNS, MAINTAIN STROBES.
RESET - RESET ALL TO NORMAL, DEACTIVATE FAN.

NOTES:

(A) PROVIDE A/V HORN STROBE INSIDE EQUIPMENT ROOM.
(B) PROVIDE A/V HORN STROBE OUTSIDE ALL DOORS LEADING INTO EQUIPMENT ROOM.
(C) PROVIDE WEATHER PROOF EXTERIOR GRADE A/V HORN STROBE OUTSIDE EXTERIOR DOOR.
(D) PROVIDE ENGRAVED WARNING SIGN ABOVE DOOR.
(E) INTERLOCK WITH INTAKE DAMPER, EXHAUST DAMPER, AND EXHAUST FAN TO CONTROL PURGE FAN ON ALARM.
(F) INTERLOCK TO SHUT DOWN CHILLERS ON ALARM.
(G) PROVIDE H/O/A CONTROL OVERRIDE SWITCH FOR PURGE FAN, INTAKE, AND DAMPERS WITHIN BREAK GLASS BOX EQUAL TO STI-6700 ("BREAK GLASS") WITH (1) SPARE GLASS KIT.
(H) PROVIDE OFF/AUTO CONTROL OVERRIDE SWITCH FOR CHILLER PLANT, RUN THRU BMS, WITHIN BREAK GLASS BOX EQUAL TO STI-6700 ("BREAK GLASS") WITH (1) SPARE GLASS KIT.



REFRIGERANT LEAK DETECTION CONTROL DIAGRAM

SCALE: NTS

CONTROLS INFORMATION

1. EXISTING CONTROL DAMPERS SHALL REMAIN. CONTRACTOR SHALL REMOVE EXISTING ACTUATORS. PROVIDE AND INSTALL NEW ACTUATORS ON EXISTING CONTROL DAMPERS . MODIFY EXISTING CONTROL DAMPER LINKAGE AS REQUIRED.
2. EXISTING VARIABLE SPEED DRIVES AND AIRFLOW MEASURING STATIONS SHALL REMAIN.
3. CONTRACTOR SHALL REMOVE EXISTING TEMPERATURE CONTROLS CABLING, CONDUIT, WIRING, TUBING, SURFACE RACEWAY, WIREMOLD, AND ASSOCIATED MOUNTING DEVICES.
4. CONTRACTOR SHALL REMOVE ALL EXISTING TEMPERATURE CONTROLS SENSORS, THERMOSTATS, RELAYS, CONTROL PANELS, CONTROL UNITS, UNITARY CONTROLLERS, AND POWER SUPPLIES.
5. CONTRACTOR SHALL REMOVE ALL EXISTING EQUIPMENT LABELS. PROVIDE AND INSTALL NEW EQUIPMENT LABELS ON ALL EXISTING EQUIPMENT. ALL EQUIPMENT IDENTIFICATION AND TAGS SHALL BE UNIQUE. UPDATE EQUIPMENT LABELS AND GRAPHICS INFORMATION AS REQUIRED.
6. CONTRACTOR SHALL CLEAN EXISTING VAV TERMINAL FLOW RING AND TUBING TO REMOVE ALL DUST AND DEBRIS.
7. CONTRACTOR SHALL ENGAGE AABC OR NEBB TAB SPECIALIST TO TEST AND BALANCE ALL EXISTING VAV TERMINALS AND ALL EXISTING CENTRAL STATION AIR HANDLING UNITS.
8. CONTRACTOR SHALL CAREFULLY SALVAGE EXISTING LAY-IN CEILING TILES AND WORK THROUGH EXISTING GRID AS REQUIRED TO GAIN ACCESS FOR WORK. CONTRACTOR SHALL INSTALL SALVAGED CEILING TILES AFTER WORK IS COMPLETE.
9. CONTRACTOR SHALL INCLUDE FURNISH AND INSTALLATION OF MINIMUM (10) 18"x18" CEILING MOUNTED ACCESS DOORS EQUAL TO NYSTROM NMT SERIES AS REQUIRED FOR ACCESS TO WORK ABOVE EXISTING GYPSUM AND PLASTER CEILINGS. REFER TO ACCESS DOOR DETAIL.
10. CONTRACTOR SHALL REMOVE ALL EXISTING PNEUMATIC CONTROL VALVES INCLUDING ASSOCIATED TUBING. PROVIDE AND INSTALL NEW CONTROL VALVE WITH DDC ACTUATOR. TIE-IN TO EXISTING HYDRONIC PIPING. REFER TO CONTROL VALVE SCHEDULE FOR MORE INFORMATION.

CONTROL VALVE SCHEDULE

TAG	SYSTEM	FLOW (GPM)	CONTROL VALVE	LINE SIZE NPS
DUCT COILS				
D1	HOT WATER	1.59	2-WAY	3/4
D2	HOT WATER	6.65	3-WAY	3/4
C1	HOT WATER	22.00	3-WAY	1 1/2
C2	HOT WATER	3.50	3-WAY	3/4
C3	HOT WATER	1.75	2-WAY	3/4
C4	HOT WATER	0.82	2-WAY	3/4
C5	HOT WATER	20.00	2-WAY	1 1/2
AIR HANDLING UNITS				
AHU-1	HOT WATER	20.00	3-WAY	1 1/2
AHU-2	HOT WATER	9.80	3-WAY	1
AHU-3	HOT WATER	15.00	3-WAY	1 1/4
REHEAT VAV TERMINALS				
VAV-A1A	HOT WATER	1.20	2-WAY	3/4
VAV-A1B	HOT WATER	1.20	2-WAY	3/4
VAV-A2A	HOT WATER	1.20	2-WAY	3/4
VAV-A103	HOT WATER	2.00	2-WAY	3/4
VAV-A104	HOT WATER	2.00	2-WAY	3/4
VAV-A105	HOT WATER	2.00	2-WAY	3/4
VAV-A106	HOT WATER	2.75	2-WAY	3/4
VAV-A107	HOT WATER	1.00	2-WAY	3/4
VAV-A111	HOT WATER	2.75	2-WAY	3/4
VAV-A112	HOT WATER	2.75	2-WAY	3/4
VAV-A113	HOT WATER	1.00	2-WAY	3/4
VAV-A117	HOT WATER	2.75	2-WAY	3/4
VAV-A118	HOT WATER	2.00	2-WAY	3/4
VAV-A119	HOT WATER	2.00	2-WAY	3/4
VAV-A120	HOT WATER	2.00	2-WAY	3/4
VAV-A121	HOT WATER	2.25	2-WAY	3/4
VAV-B100	HOT WATER	1.00	2-WAY	3/4
VAV-B101	HOT WATER	2.00	2-WAY	3/4
VAV-B101	HOT WATER	2.00	2-WAY	3/4
VAV-B102	HOT WATER	1.00	2-WAY	3/4
VAV-B103	HOT WATER	1.00	2-WAY	3/4
VAV-B104	HOT WATER	1.00	2-WAY	3/4
VAV-B105	HOT WATER	1.00	2-WAY	3/4
VAV-B106	HOT WATER	1.00	2-WAY	3/4
VAV-B107	HOT WATER	1.00	2-WAY	3/4
VAV-B113	HOT WATER	1.25	2-WAY	3/4
VAV-B115A	HOT WATER	1.00	2-WAY	3/4
VAV-B115B	HOT WATER	1.75	2-WAY	3/4
VAV-B116	HOT WATER	1.00	2-WAY	3/4
VAV-B117	HOT WATER	1.00	2-WAY	3/4
VAV-B123	HOT WATER	1.00	2-WAY	3/4
VAV-B137	HOT WATER	3.00	2-WAY	3/4
VAV-B138	HOT WATER	1.00	2-WAY	3/4
VAV-B140A	HOT WATER	1.50	2-WAY	3/4
VAV-B140B	HOT WATER	3.75	2-WAY	3/4
VAV-B140C	HOT WATER	2.50	2-WAY	3/4
VAV-B140D	HOT WATER	1.50	2-WAY	3/4
VAV-B141	HOT WATER	1.25	2-WAY	3/4
VAV-B142	HOT WATER	1.00	2-WAY	3/4
VAV-B144	HOT WATER	1.00	2-WAY	3/4
VAV-B147	HOT WATER	1.00	2-WAY	3/4
VAV-C011	HOT WATER	1.50	2-WAY	3/4
CABINET UNIT HEATERS				
CUH-A110	HOT WATER	1.00	2-WAY	3/4
CUH-A116	HOT WATER	1.00	2-WAY	3/4
CUH-A122	HOT WATER	1.50	2-WAY	3/4
CUH-A124	HOT WATER	2.50	2-WAY	3/4
CUH-A125	HOT WATER	2.50	2-WAY	3/4
CUH-B014	HOT WATER	2.50	2-WAY	3/4
CUH-B100	HOT WATER	1.00	2-WAY	3/4
CUH-B134	HOT WATER	1.50	2-WAY	3/4
CUH-C010	HOT WATER	6.00	2-WAY	1
CUH-C012	HOT WATER	2.50	2-WAY	3/4
CUH-D013	HOT WATER	2.50	2-WAY	3/4
UNIT HEATERS				
UH-A	HOT WATER	4.40	2-WAY	3/4
UH-B	HOT WATER	6.10	2-WAY	1
UH-C115	HOT WATER	1.90	2-WAY	3/4
RADIANT CEILING PANELS				
RCP-1	HOT WATER	6.00	2-WAY	1
RCP-2	HOT WATER	6.00	2-WAY	1
RCP-3	HOT WATER	10.00	2-WAY	1
RCP-4	HOT WATER	10.00	2-WAY	1

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INDIANAPOLIS, IN 46204

PRIMARY ENGINEERING INC
Fort Wayne
2828 Lake Ave.
Fort Wayne, Indiana 46805
260.424.0444 ph
info@primary-eng.com
Indianapolis
9785 Crosspoint Blvd., Suite 103
Indianapolis, Indiana 46256
317.324.1221 ph
www.primary-eng.com

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SUNMAN-DEARBORN COMM. SCHOOL CORP.
RENOVATIONS TO SUNMAN ELEMENTARY SCHOOL
925 N Meridian St, Sunman, IN 47041

ANDREW STEPHEN LOUDERBACK
REGISTERED
PE11700017
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	8/5/2024	ADDENDUM #1
2	8/12/2024	ADDENDUM #2

100% CONSTRUCTION DOCUMENTS

PROJECT: #23138
DATE: 07/24/2024
DRAWN BY: ASL

MECHANICAL CONTROLS

M601

PRIMARY JOB # 24588

PLOT DATE/TIME:8/12/2024 9:56:19 AM
THIS MONOCHROME PRINT SHOULD DISPLAY GRAYSCALE BOXES BELOW IF PRINTED PROPERLY WITH 256 SHADES OF GRAY