CROSWELL-LEXINGTON COMMUNITY SCHOOLS

GEIGER ELEMENTARY HVAC Controls Upgrade

CROSWELL, MICHIGAN PROJECT NO. 2022-017

APRIL 8, 2022

BID DOCUMENTS



architects planners interiors

LIST OF DRAWINGS

IMECHANICAL

M0.00 MECHANICAL GENERAL INFORMATIO

M1.10 MECHANICAL HVAC COMPOSITE NEW WORK PLA

M8.00 TEMPERATURE CONTRO

MEC	HANICAL ABBREVIATIONS	MECH	HANICAL ABBREVIATIONS	MECH	HANICAL ABBREVIATIONS	
ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION	ABBREV
AAV	AUTOMATIC AIR VENT / AIR ADMITTANCE VALVE	HR	HOUR	UR	URINAL	5
AD	ACCESS DOOR	HTG	HEATING	VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)	1
ΑE	AIR EXTRACTOR	HYD	HYDRANT	VTR	VENT THRU ROOF	
AFF	ABOVE FINISHED FLOOR	HZ	HERTZ	W	WASTE	<i>,</i>
APD	AIR PRESSURE DROP	ID	INSIDE DIAMETER	W&V	WASTE AND VENT	, J
ASR	AUTOMATIC SPRINKLER RISER	IE	INVERT ELEVATION	WB	WET BULB TEMPERATURE	} I
BFP	BACKFLOW PREVENTER	IN	INCHES	WC	WATER CLOSET	
ВНР	BRAKE HORSEPOWER	INST	INSTALLED	WG	WATER GAUGE	<u>} </u>
BOD	BOTTOM OF DUCT	INV	INVERT	WH	WALL HYDRANT	
BTU	BRITISH THERMAL UNIT	ISP	INTERNAL STATIC PRESSURE			
BTUH	BRITISH THERMAL UNITS PER HOUR	IW	INDIRECT WASTE			<u></u>
BWV	BACKWATER VALVE	KW	KILOWATT	MECH	IANICAL PIPING SYMBOLS	
CAP	CAPACITY	LAT	LEAVING AIR TEMPERATURE	MEGI	IANICAL FIFING STRIBULS	
CAV	CONSTANT AIR VOLUME	LAV	LAVATORY	ABBREV.	DESCRIPTION	f——Ik
CFH	CUBIC FEET PER HOUR	LBS/HR	POUNDS PER HOUR		PIPE ELBOW UP	
CFM	CUBIC FEET PER MINUTE	LDB	LEAVING DRY BULB TEMPERATURE	<u>_</u>	PIPE ELBOW DOWN	
CIRC	CIRCULATING	LRA	LOCKED ROTOR AMPS		PIPE TEE DOWN	ļ Li
CLG	COOLING	LWB	LEAVING WET BULB TEMPERATURE		DIRECTION OF FLOW	(
CO	CLEAN OUT	MAV	MANUAL AIR VENT	I	UNION	
CONT	CONTINUATION OR CONTINUED	MAX	MAXIMUM		STRAINER	
CONV	CONVECTOR	MBH	1000 BRITISH THERMAL UNITS PER HOUR		CONCENTRIC REDUCER	\leftarrow
CUH	CABINET UNIT HEATER	MCA	MINIMUM CIRCUIT AMPACITY		ECCENTRIC REDUCER	
CV	CONTROL VALVE	MECH	MECHANICAL		EXPANSION JOINT	F
DB	DRY BULB TEMPERATURE	MFR	MANUFACTURER	XXX	FLEXIBLE CONNECTION	<u> </u>
DEG	DEGREES	МН	MANHOLE		PIPE ANCHOR	R
DDC	DIRECT DIGITAL CONTROL	MIN	MINIMUM		PIPE GUIDE	·
DN	DOWN	MISC	MISCELLANEOUS		PIPE CAP OR PLUG	<u> </u>
DTC	DRAIN TILE CONNECTION	MOD	MOTOR OPERATED DAMPER (AUTOMATIC)	── ⋈──	ISOLATION VALVE	D
DWH	DOMESTIC WATER HEATER	MOP	MAXIMUM OVER-CURRENT PROTECTION	————	CIRCULATING PUMP	ţ
(E)	EXISTING	N.C.	NOISE CRITERIA	——————————————————————————————————————	GLOBE VALVE	<u> </u>
EA/EXH	EXHAUST AIR	NIC	NOT IN CONTRACT	<u>—</u> Б—	BALL VALVE	J N
EAT	ENTERING AIR TEMPERATURE	NC	NORMALLY CLOSED	—— / ——	BUTTERFLY VALVE	
EDB	ENTERING DRY BULB TEMPERATURE	NO	NORMALLY OPEN	∑	ANGLE VALVE	
EF	EXHAUST FAN	NOM	NOMINAL		CHECK VALVE (SWING)	<u> </u>
EJ	EXPANSION JOINT	OA	OUTSIDE AIR	—— ♦ %——	CHECK VALVE (SPRING)	
EL	ELEVATION	OBD	OPPOSED BLADE DAMPER	√	PLUG VALVE	
ELECT	ELECTRICAL	OC	ON CENTER / CENTER TO CENTER	—— 	NEEDLE VALVE	
EMS	ENERGY MANAGEMENT SYSTEM	OD	OUTSIDE DIAMETER		OUTSIDE SCREW AND YOKE VALVE (OS&Y)	\leftarrow
ESP	EXTERNAL STATIC PRESSURE	OED	OPEN ENDED DUCT		PRESSURE REGULATING VALVE	
EWB	ENTERING WET BULB TEMPERATURE	ORS	OVERFLOW ROOF SUMP	[<u>\$</u>]	SOLENOID VALVE	#
EWC	ELECTRIC WATER COOLER	OS&Y	OUTSIDE SCREW AND YOKE		CONTROL VALVE (2-WAY / 3-WAY)	
•F	DEGREES FAHRENHEIT	PD	PRESSURE DROP (FEET OF WATER)		CENTRIFUGAL FAN	
FA	FACE AREA (COIL) / FREE AREA (LOUVER)	PRV	PRESSURE REDUCING VALVE	→ →	AUTOMATIC GAS SHUT-OFF VALVE	
FC	FLEXIBLE CONNECTION	PSIA	POUNDS PER SQUARE INCH - ABSOLUTE	∞—	TRAP (PLAN VIEW)	
FD	FLOOR DRAIN	PSIG	POUNDS PER SQUARE INCH - GAUGE	O •	FLOOR DRAIN / FUNNEL FLOOR DRAIN (PLAN VIEW)	
FDC	FIRE DEPARTMENT CONNECTION	PT	PRESSURE / TEMPERATURE PORT	Y _\\\\	FLOOR DRAIN / FUNNEL FLOOR DRAIN (ELEVATION)	
FH	FIRE HYDRANT	RA	RETURN AIR	—— (Ô)	ROOF SUMP	
FHC	FIRE HOSE CABINET	RH	RELATIVE HUMIDITY	—— co	CLEAN OUT (IN FLOOR)	_
FHR	FIRE HOSE RACK	REQD	REQUIRED		CLEAN OUT (IN LINE)	
FHV	FIRE HOSE VALVE	REL.A	RELIEF AIR	— wco	CLEAN OUT (WALL)	_
FLA	FULL LOAD AMPS	RPM	REVOLUTIONS PER MINUTE	BFP	BACKFLOW PREVENTER	7
FLR	FLOOR	RPZ	REDUCED PRESSURE ZONE		WATER METER ASSEMBLY	
FPM	FEET PER MINUTE	RS	ROOF SUMP	+	HOSE BIBB, WALL HYDRANT	_
FFD	FUNNEL FLOOR DRAIN	SA	SUPPLY AIR		DIRECTION OF PIPE PITCH	7
FFE	FINISHED FLOOR ELEVATION	SH	SHOWER		SPRINKLER HEAD (UPRIGHT)	
					,	
FS	FLOOR SINK	SP SaFt / SF	STATIC PRESSURE		SPRINKLER HEAD (SIDEWALL)	
FT	FEET	SqFt / SF	SQUARE FOOT/SQUARE FEET	—FS ♂	FLOW SWITCH SIAMESE CONNECTION (YARD)	<u> </u>
FURN	FURNISHED FACE VELOCITY	SS	SERVICE SINK	₫	SIAMESE CONNECTION (YARD)	SD
FV	FACE VELOCITY	TC	TEMPERATURE CONTROL		SIAMESE CONNECTION (WALL MOUNTED)	
FVC	FIRE VALVE CABINET	T & P	TEMPERATURE AND PRESSURE	⊬ √ +	FIRE HYDRANT	C02
GAL	GALLON	TSP	TOTAL STATIC PRESSURE	<u> </u>	FLOW MEASURING DEVICE	T
GPH	GALLONS PER HOUR	TYP	TYPICAL	☆	BALANCING VALVE	
GPM	GALLONS PER MINUTE	UG	UNDERGROUND	Ĭ □ aav	COMBINATION FLOW MEASURING AND BALANCING DEVICE	\bigoplus

UNIT HEATER

UNDERWRITERS LABORATORY

UNLESS NOTED OTHERWISE

HOSE BIBB

HUB OUTLET

HORSEPOWER

MI	ECHANICAL SYMBOLS		PIPING LEGEND
ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
—— √	RECTANGULAR TAKE-OFF (SINGLE LINE)	——CA——	COMPRESSED AIR PIPING
<u> </u>	, , , , , , , , , , , , , , , , , , ,	——CD——	CONDENSATE DRAIN PIPING
	RECTANGULAR TAKE-OFF (DOUBLE LINE)	——DT——	DRAIN TILE
	ROUND TAKE-OFF (SINGLE LINE)	——F——	FIRE PROTECTION PIPING
	DOLIND TAKE OFF (DOLIDLE LINE)	——FOR——	FUEL OIL RETURN PIPING
Ţ,	ROUND TAKE—OFF (DOUBLE LINE)	——F0S——	FUEL OIL SUPPLY PIPING
	SPIN-IN FITTING (WITH VOLUME DAMPER)	——-G——	NATURAL GAS PIPING
	ELBOW (WITH TURNING VANES)	——BCW——	BOOSTED-DOMESTIC COLD WATER PIPING
Д ——	LEBON (MITT TORRING VANLS)	——BHW——	BOOSTED-DOMESTIC HOT WATER PIPING
	RADIUS RECTANGULAR ELBOW	——CW——	DOMESTIC COLD WATER PIPING
	RADIUS ROUND ELBOW	—NPCW—	NON POTABLE COLD WATER PIPING
H		——TW——	TEMPERED WATER PIPING
	RECTANGULAR ELBOW UP	——HW—— —HW(140°F)—	DOMESTIC HOT WATER PIPING DOMESTIC 140°F HOT WATER PIPING
	ROUND ELBOW UP	——HWR——	DOMESTIC 1407 HOT WATER FIFTING DOMESTIC HOT WATER RETURN PIPING
		SAN	SANITARY WASTE PIPING
	RECTANGULAR ELBOW DOWN	——PSAN——	PUMPED SANITARY PIPING
	ROUND ELBOW DOWN	——V——	VENT PIPING
	CONCENTRIC TRANSITION (DOUBLE LINE)	ST	STORM SEWER PIPING
	CONCENTRIC TRANSITION (DOUBLE LINE)	——PST——	PUMPED STORM PIPING
$-\!$	CONCENTRIC TRANSITION (SINGLE LINE)	RC	RAIN CONDUCTOR PIPING
—	ECCENTRIC TRANSITION (DOUBLE LINE)	ORC	OVERFLOW RAIN CONDUCTOR PIPING
	EGGENTING TRANSMON (DOODLE ENLE)	CHWR	CHILLED WATER RETURN PIPING
─	ECCENTRIC TRANSITION (SINGLE LINE)	CHWS	CHILLED WATER SUPPLY PIPING
R	INCLINED RISE IN DIRECTION OF AIR FLOW	CWR	CONDENSER WATER RETURN PIPING
r R	(DOUBLE LINE) INCLINED RISE IN DIRECTION OF AIR FLOW	——cws——	CONDENSER WATER SUPPLY PIPING
- - -	(SINGLE LINE)	——HHWR——	HEATING HOT WATER RETURN PIPING
	INCLINED DROP IN DIRECTION OF AIR FLOW (DOUBLE LINE)	——HHWS——	HEATING HOT WATER SUPPLY PIPING
D	INCLINED DROP IN DIRECTION OF AIR FLOW	—HPLR—	HEAT PUMP LOOP RETURN PIPING
	(SINGLE LINE)	HPLS	HEAT PUMP LOOP SUPPLY PIPING
	FLEXIBLE CONNECTION	RL	REFRIGERANT LIQUID PIPING
г Г	FLEXIBLE DUCT CONNECTION TO SUPPLY	——RS——	REFRIGERANT SUCTION PIPING
-WW	DIFFUSER	HGB	HOT GAS BY-PASS PIPING
	SUPPLY DIFFUSER	——GXHR——	GEO HEAT EXCHANGE RETURN
		——GXHS——	GEO HEAT EXCHANGE SUPPLY
	LINEAR SLOT DIFFUSER	——STM—— ——HPS——	STEAM PIPING HIGH PRESSURE STEAM PIPING
	RETURN OR EXHAUST GRILLE	——LPS——	LOW PRESSURE STEAM PIPING
		——CR——	STEAM CONDENSATE RETURN PIPING
中	TRANSFER GRILLE	——PCR——	PUMPED STEAM CONDENSATE RETURN PIPING
	CROSS SECTION OF SUPPLY AIR DUCT	——LPC——	LOW PRESSURE CONDENSATE PIPING
	CROSS SECTION OF EXHAUST OR RETURN AIR	——НРС	HIGH PRESSURE CONDENSATE PIPING
	DUCT	МА	MEDICAL AIR PIPING
	EXISTING FIRE DAMPER (HORIZONTAL)	——N——	NITROGEN GAS PIPING
	NEW	02	OXYGEN GAS PIPING

FIRE DAMPER (VERTICAL)

COMBINATION FIRE/SMOKE DAMPER (VERTICAL)

COMBINATION FIRE/SMOKE DAMPER

VOLUME DAMPER (MANUALLY ADJUSTABLE)

RETURN OR EXHAUST / SUPPLY AIR FLOW

SMOKE DAMPER

(HORIZONTAL)

MOTORIZED DAMPER

SMOKE DETECTOR

THERMOSTAT OR TEMPERATURE SENSOR

HUMIDISTAT OR HUMIDITY SENSOR

AUTOMATIC AIR VALVE

MANUAL AIR VALVE

CO2 SENSOR

NEW

NEW

EXISTING

	DRAWING INDEX
SHT. NO.	DESCRIPTION
M0.00	MECHANICAL GENERAL INFORMATION
M1.10	MECHANICAL COMPOSITE NEW WORK PLAN
M8.00	TEMPERATURE CONTROLS

ISSUE DATE	ISSUED FOR
04/08/2022	BID DOCUMENTS
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APPROVED	MPH



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APPLICABLE CODES AND REGULATIONS

DRAWING NOTATION

NEW WORK KEY NOTE NO. 1

DEMOLITION KEY NOTE NO. 1

IE: DIFFUSER TYPE = S-1

POINT OF NEW CONNECTION

EXISTING SYSTEM COMPONENT TO BE REMOVED

CFM = 150 (TYPICAL FOR 2)

EQUIPMENT TAG

AIR TERMINAL TAG:

----- EXISTING DEVICES OR EQUIPMENT

DESCRIPTION

NECK SIZE = 12x12 T = TRANSFER

S = SUPPLY R = RETURN

E = EXHAUST

YEAR	CODE
2015	MICHIGAN BUILDING CODE
2015	MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS
2015	MICHIGAN PLUMBING CODE
2015	MICHIGAN MECHANICAL CODE
2015	MICHIGAN UNIFORM ENERGY CODE
2015	INTERNATIONAL FUEL GAS CODE

2012 NFPA 101 WITH BFS AMENDMENTS

PROJECT

Croswell-Lexington
Community Schools:
Geiger Elementary
HVAC Controls Upgrade

Croswell, Michigan

SHEET

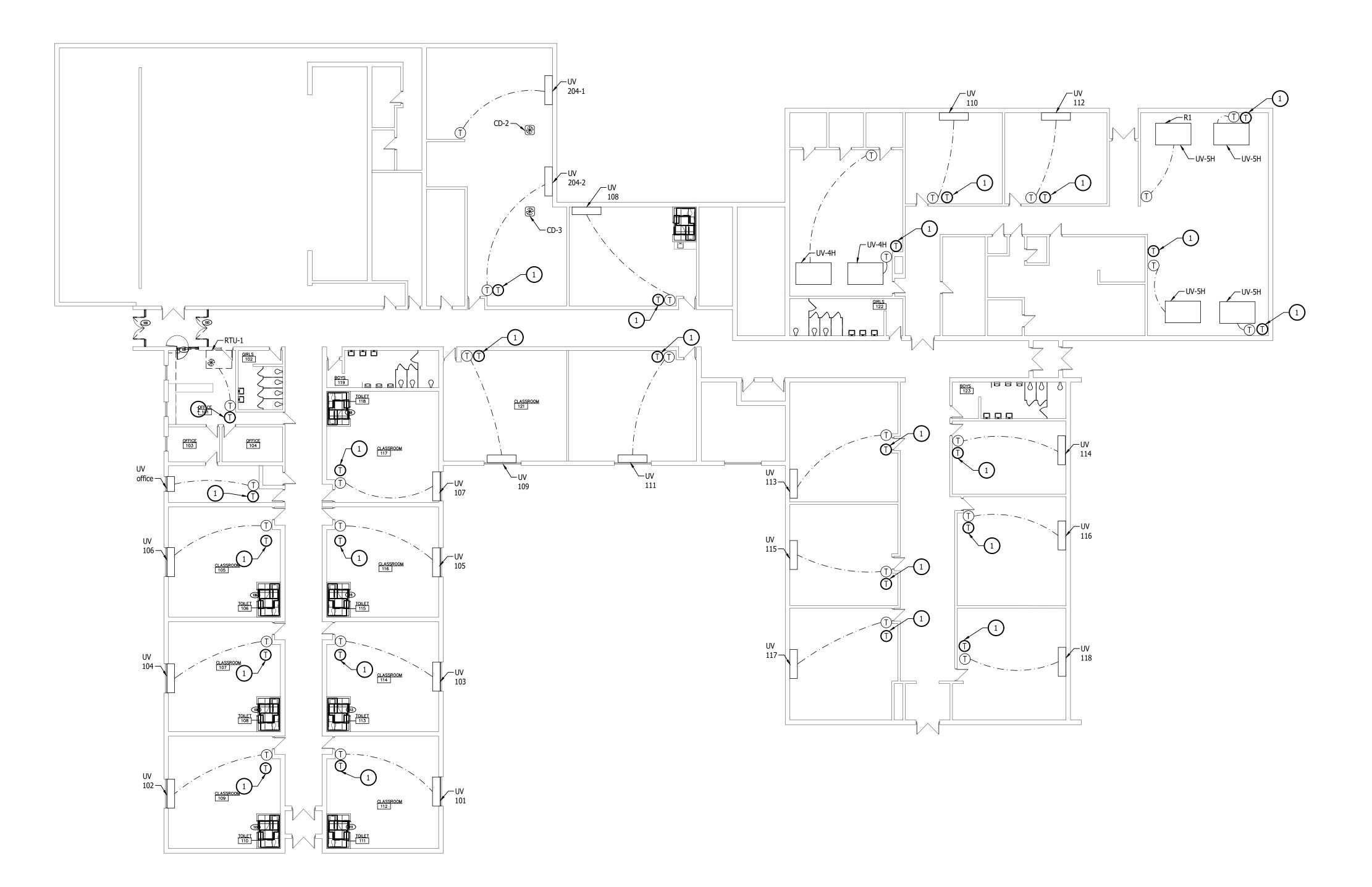
MECHANICAL GENERAL INFORMATION

PROJECT NUMBER

2022-017

SHEET NUMBER

10.00



MECHANICAL HVAC COMPOSITE NEW WORK PLAN SCALE: 1/16" = 1'-0"
SCALE: 1/16" = 1'-0"

	HVAC GENERAL NOTES
А	THESE DRAWINGS ARE DIAGRAMMAITC AND REPRESENT THE GENERAL EXTENT OF THE WORK TO BE PERFORMED. PROVIDE AND EXECUTE ALL HVAC SYSTEMS PER ENGINEER'S SPECIFICATION, AND LOCAL APPLICABLE CODES INCLUDING AMENDMENTS, BULLETINS, ETC. AS WELL AS THE STANDARDS OF INSTALLATION AND EQUIPMENT ESTABLISHED FOR THE BUILDINGS, AND REQUIREMENTS OF THE OWNER.
В	EXCEPT FOR CHANGES AS MAY BE SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD. IN ACCORDANCE WITH ALTERNATES OF OPTIONS AS STATED HEREINAFTER, ALL WORK MUST BE IN FULL ACCORDANCE WITH THE INTENT OF THE PLANS AND SPECIFICATIONS. SYSTEMS ARE TO BE COMPLETE, EFFICIENT, AND SATISFACTORY OPERATION WHEN PROJECT IS DELIVERED TO THE OWNER.
С	THE CONTRACTOR AND EACH SUBCONTRACTOR COVENENTS AND AGREES TO IDEMNIFY, DEFEND, AND HOLD HARMLESS THE CONSULTING ENGINEER, ARCHITECT, AND OWNER FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE, OR EXPENSE INCLUDING ATTORNEYS ARISING FROM A FAILURE OR ALLEGED FAILURE ON THE PART OF THE CONTRACTOR, SUBCONTRACTORS, AND THEIR AGENTS/EMPLOYEES PROPERLY TO DISCHARGE THE OBLIGATIONS ASSUMED BY HIM/HER IN THE PERFORMANCE OF THE WORK, INCLUDING ANY ACT OR OMISSION ALLEGEDLY RESULTING IN DEATH, PERSONAL INJURY, PROPERTY DAMAGE, OR IMPROPER CONSTRUCTION PROTOCOL.
D	CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVAL FROM GOVERNING AUTHORITIES AND FILE NECESSARY FORMS, PAY ALL INSPECTION FEES.
E	CONTRACTOR TO EXAMINE ALL ADJOINING WORK BEFORE COMMENCEMENT OF HIS/HER SCOPE OF WORK. REPORT ANY DISCREPANCIES TO THE CONSTRUCTION MANAGER FOR REVIEW AND APPROVAL. COORDINATE ALL WORK WITH OTHER TRADES TO ENSURE THAT INSTALLATION IS MADE IN ACCORDANCE WITH THE

NEW WORK KEYED NOTES

CONTRACT DOCUMENTS.

CERTIFIED DRAWINGS.

REQUIRED BY THE OWNER.

1 ALTERNATE M1: EXISTING PNEUMATIC THERMOSTAT TO REMAIN. INSTALL FLAT PLATE TEMPERATURE SENSOR ADJACENT TO EXISTING THERMOSTAT.

PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT, DUCTWORK/PIPING SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT

CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S

FURNISH ADEQUATE LIABILITY INSURANCE AND BONDING DOCUMENTS AS

NEW BACNET COMMUNICATIONS TO BE INSTALLED IN PARALLEL THRU EXISTING CEILING GRID. CONTRACTOR TO REPAIR/REPLACE ALL BROKEN CEILING TILES.

ISSUE DATE ISSUED FOR

04/08/2022 BID DOCUMENTS

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KEY PLAN



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PRO

Croswell-Lexington
Community Schools:
Geiger Elementary
HVAC Controls Upgrade

Croswell, Michigan

SHEE

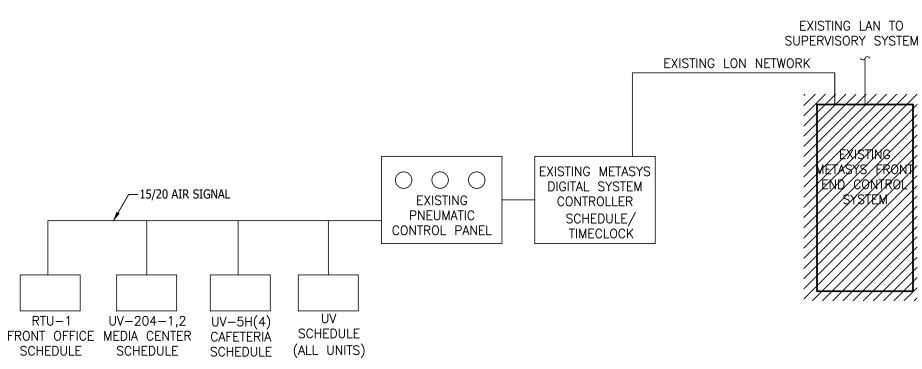
MECHANICAL HVAC COMPOSITE NEW WORK PLAN

PROJECT NUMBER

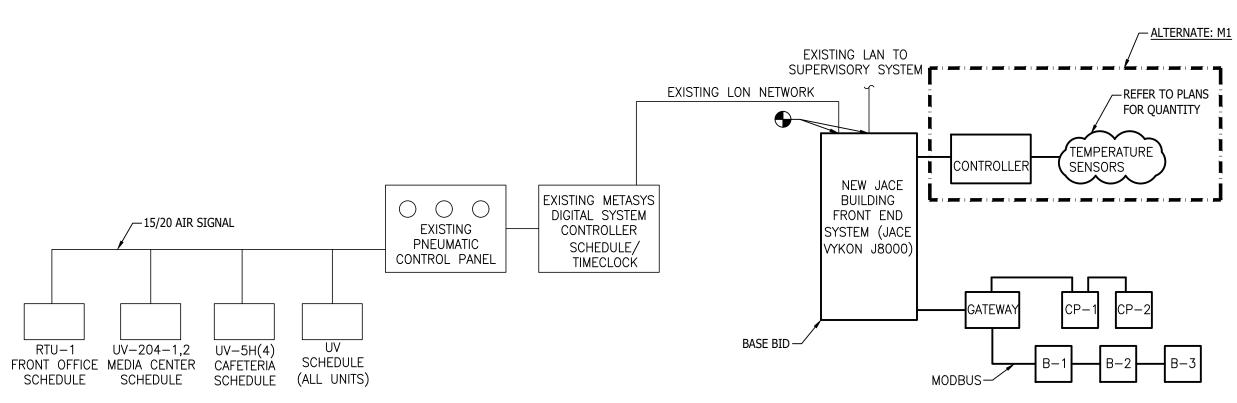
2022-017

SHEET NUMBER

M1.10

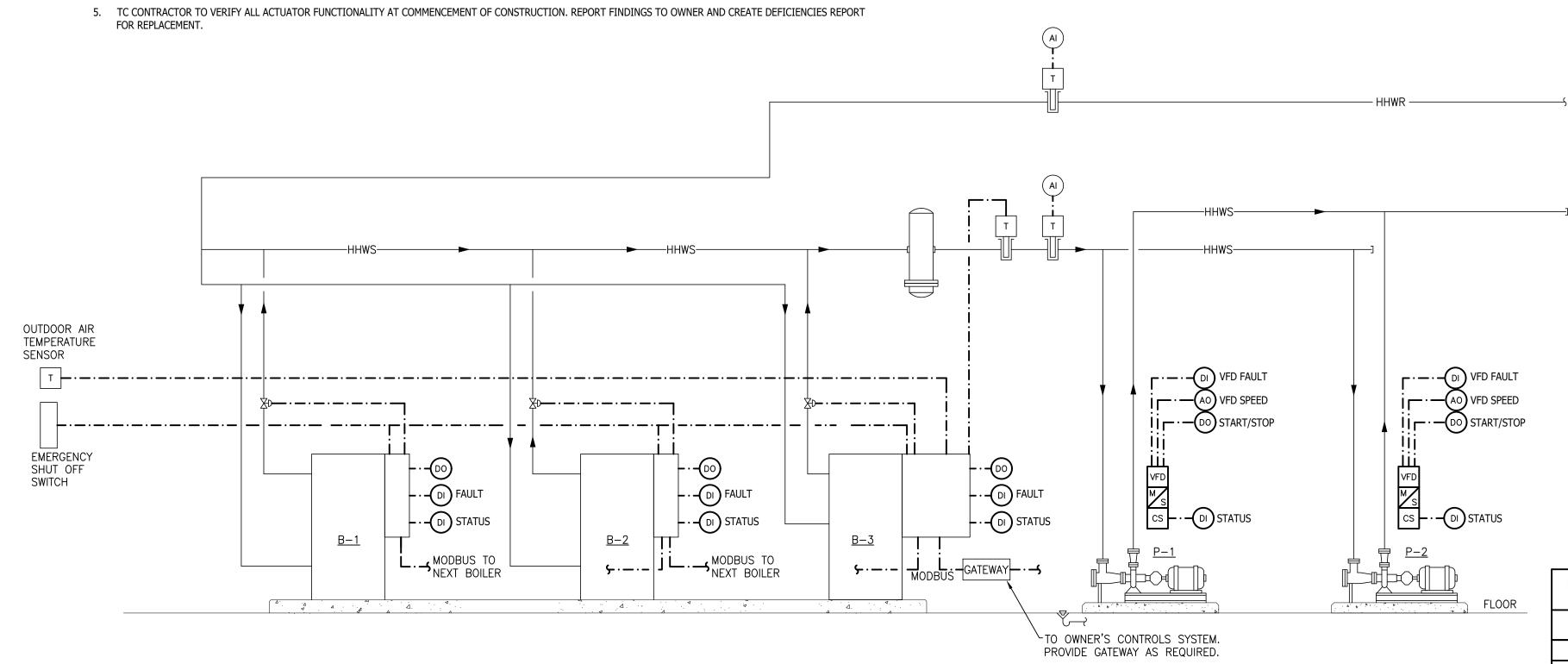


BUILDING AUTOMATION SYSTEM RISER DIAGRAM DEMOLITION



BUILDING AUTOMATION SYSTEM RISER DIAGRAM NEW WORK NO SCALE

- PROVIDE A SYSTEM EQUIPMENT UPGRADE OF THE DISTRICT'S BUILDING AUTOMATION SYSTEM (AKA ENERGY MANAGEMENT SYSTEM) FRONT END SYSTEM (CURRENTLY METASYS/PNEUMATIC) TO BACNET TRIDIUM NIAGARA AX SUPERVISOR VERSION N4 WITH CURRENT PATCHES. PROVIDE FOR BACNET OVER IP LICENSING AND COMMUNICATION FOR THE BUILDING.
- 2. <u>ALTERNATE M1:</u> PROVIDE BUILDING FLOOR PLANS WITH INTERACTIVE SPACE THERMAL IMAGING INDICATING THE RESPECTIVE EQUIPMENT OPERATION. PROVIDE AN "EMERGENCY MASTER SHUT OFF" OPERATION FOR THE BUILDING MANAGEMENT SYSTEM.
- 3. TC CONTRACTOR TO DEVELOP A DEFICIENCIES LIST OF EXISTING TERMINAL EQUIPMENT AND RELATED COMPONENTS SYSTEM THAT MAY HAVE ISSUES, ASSUME FOR BIDDING PURPOSES THAT COMMUNICATIONS AND WIRING IS IN TACT. SCOPE OF WORK DOES NOT REQUIRE TO CORRECT ANY IDENTIFIED DEFICIENCIES - ANY POTENTIAL WORK WOULD BE COORDINATED WITH LEXINGTON-CROSELL SCHOOL DISTRICT PERSONNEL ASSOCIATED WITH THIS PROJECT.
- 4. TC CONTRACTOR TO INCLUDE AN ALLOWANCE OF \$5,000 THAT IS TO BE APPLIED TO THE SYSTEM DEFICIENCIES. ANY UNUSED FUNDS SHALL BE RETURNED TO THE OWNER AS A CREDIT.



EXISTING PNEUMATIC CONTROL SYSTEMS TO REMAIN IN PLACE. PROVIDE AND INSTALL A BACNET INDICATE THE FOLLOWING PARAMETERS TO THE END USER ON THE THERMOGRAPHIC IMAGING MAP. SPACE TEMPERATURE (+/- 3°F BASED ON USER SETPOINT (ADJ.)

TEMPERATURE SENSOR SPACE FLATPLANT SENSOR CONTROL DIAGRAM

COMPATIBLE FLAT PLATE TEMPERATURE SENSOR ADJACENT TO EXISTING PNEUMATIC THERMOSTAT AND INTEGRATE RESPECTIVE TEMPERATURE SENSOR INTO THERMOGRAPHIC FLOOR PLAN. THE SENSOR SHALL

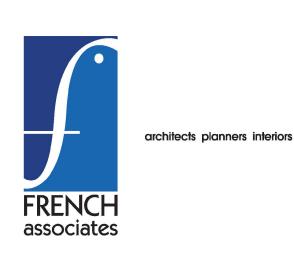
HEATING HOT WATER SYSTEM CONTROL DIAGRAM

HEATING HOT WATER SYSTEM SEQUENCE OF OPERATIONS:
NOTE: ALL SETPOINTS AND TIME INTERVALS SHALL BE ADJUSTABLE BY THE SYSTEM OPERATOR.

- WITH THE HYDRONIC HEATING PUMPS' HAND/AUTO/OFF SWITCH IN THE "AUTO" POSITION, THE DDC SYSTEM SHALL ENERGIZE THE LEAD PUMP. ONE OF THE PUMPS SHALL BE DESIGNATED "LEAD PUMP" AND SHALL OPERATE CONTINUOUSLY. THE OTHER PUMP SHALL SERVE AS THE "STANDBY PUMP".
- 2. THE DDC SYSTEM SHALL ALTERNATE PUMP OPERATION BASED ON RUN TIME HOURS OR AT THE BEGINNING OF EACH
- 3. EACH PUMP WILL PROVE OPERATION TO THE DDC SYSTEM WITH ITS CURRENT SWITCH. IF A PUMP FAILS, AN ALARM WILL BE SENT TO THE DDC SYSTEM AND THE STANDBY PUMP WILL BE ACTIVATED.
- THE PUMP SPEED SHALL BE ADJUSTED DURING BALANCING AND SET AT A FIXED OPERATING SPEED.
- WHEN ENABLED BY THE BMS, THE BOILER CONTROL PANEL (INTERNAL TO THE LEAD BOILER) SHALL CONTROL THE FIRING OF THE BOILERS BASED HEATING HOT WATER SUPPLY WATER SETPOINT. IF A BOILER FAILS, AN ALARM WILL BE GENERATED AND STANDBY BOILERS WILL BE ACTIVATED.
- 6. IF THE PRIMARY BOILER CANNOT MAINTAIN SUPPLY WATER SETPOINT, THE FIRST LAG BOILERS SHALL BE ENERGIZED. AS SUPPLY WATER SETPOINT IS MET, THE LAG BOILERS SHALL BE DE-ENERGIZED.
- WHEN THE EMERGENCY SHUT OFF SWITCH IS ACTIVATED, THE BOILERS SHALL IMMEDIATELY BE DE-ENERGIZED AND AN ALARM SHALL BE SENT TO THE BMS (THRU MONITORING OF THE EMERGENCY SHUT-OFF SWITCH).
- 8. THE BUILDING DDC SYSTEM SHALL MONITOR ALL TEMPERATURE POINTS INDICATED, BOILER STATUS, BOILER ALARM, PUMP ALARM, PUMP STATUS, AND OUTSIDE AIR TEMPERATURE.

HEATING HOT WATER SUPPLY (HHWS) RESET SCHEDULE OUTSIDE AIR HHWS **TEMPERATURE** TEMP. ≥ 50°F 150°F ≤ 25°F 180°F

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TEMPERATURE CONTROLS

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HEATING HOT WATER SYSTEM CONTROL DIAGRAM