

PIPING LEGEND

	GLOBE VALVE (OUTSIDE SCREW & YOKE UNLESS SPECIFIED OTHERWISE)
	BALL VALVE
	BUTTERFLY VALVE
	HOSE END BALL VALVE WITH CAP AND CHAIN
	PLUG VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE (SILENT CHECK TYPE ON PUMP DISCHARGE)
	STRAINER WITH HOSE END BLOWOFF VALVE, CAP AND CHAIN
	2-WAY MODULATING PRESSURE INDEPENDENT ACV
	2-WAY AUTOMATIC CONTROL VALVE (MODULATING)
	2-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
	3-WAY AUTOMATIC CONTROL VALVE (MODULATING)
	TRIPLE DUTY PUMP VALVE, CHECK, BALANCING (FLOW METER), SHUT-OFF
	RELIEF/SAFETY VALVE
	UNION
	BLIND FLANGE
	PIPE - CAPPED
	DIRECTION OF FLOW
	PIPE ANCHOR
	PIPE GUIDE
	PIPE CONNECTION - TOP
	PIPE CONNECTION - BOTTOM
	PIPE - DOWN
	PIPE - UP
	RISE (DOUBLE LINE - PLAN VIEW)
	DROP (DOUBLE LINE - PLAN VIEW)
	PIPE BREAK (DOUBLE LINE)
	PIPE BREAK (SINGLE LINE)

ABBREVIATIONS

GENERAL			
AFF	ABOVE FINISHED FLOOR	PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
AP	ACCESS PANEL	PSIG	POUNDS PER SQUARE INCH GAUGE
ATC	AUTOMATIC TEMPERATURE CONTROL	REQ'D	REQUIRED
CFM	CUBIC FEET PER MINUTE	T	TEMPERATURE
DN	DOWN	TYP	TYPICAL
EXIST.	EXISTING	X	EXISTING EQUIPMENT TO BE REMOVED
GAL	GALLONS	XM	EXISTING EQUIPMENT TO REMAIN
GALV	GALVANIZED	XN	NEW LOCATION OF RELOCATED EQUIPMENT
GC	GENERAL CONTRACTOR	XR	EXISTING EQUIPMENT TO BE RELOCATED
GPM	GALLONS PER MINUTE		
HD	HEAD	BOILER	
MAX	MAXIMUM	B	BOILER
MEH	THOUSAND BTUH	H	HOT WATER
MCA	MINIMUM CIRCUIT AMPS	HW	HOT WATER
MECH	MECHANICAL	HWR	HOT WATER RETURN
MIN	MINIMUM	HWS	HOT WATER SUPPLY
N/A	NOT APPLICABLE	PIPING	
NTS	NOT TO SCALE	MU	MAKE-UP WATER
PSI	POUNDS PER SQUARE INCH		
PSIA	POUNDS PER SQUARE INCH ABSOLUTE		

PIPE HANGER SUPPORT

HEAVY DUTY CLEVIS HANGER (FOR 1/2" UP TO & INCLUDING 3" PIPE)

SUPPORT NUT
GALVANIZED INSULATION SHIELD 12" LONG
NON-COMPRESSIBLE RIGID INSULATION AT SHIELD

ADJUSTABLE HANGER W/ ROLLER (FOR 4" TO 6" PIPE)

LOCKING NUT
INSULATION
PIPE
PIPE COVERING PROTECTION 16 GA SADDLE

NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES.
2. PIPES 8" AND LARGER SHALL BE ROLLER SUPPORTED W/ DUAL RODS.
3. FOR CHW SERVICE OVER 3", REPLACE SADDLE W/ 12" LONG, 14 GAUGE SHIELD W/ RIGID INSULATION BETWEEN THE PIPE AND SHIELD. PROTECT WITH CONTINUOUS VAPOR BARRIER.

RDK H001

CALLOUT SYMBOLS

	CONNECT NEW TO EXISTING
	LIMIT OF DEMOLITION

PIPING ABBREVIATIONS

---	HCHWR	HOT/CHILLED WATER RETURN
---	HCHWS	HOT/CHILLED WATER SUPPLY
---	D	DRAIN
---	FOR	FUEL OIL RETURN
---	FOS	FUEL OIL SUPPLY
---	HWR	HOT WATER RETURN
---	HWS	HOT WATER SUPPLY
+++ (NAME) +++		REMOVE EXISTING PIPING

PIPE INSULATION (IECC - 2015 AND ASHRAE 90.1 -2013 COMPLIANCE)

MINIMUM INSULATION THICKNESS IN INCHES FOR INDOOR PIPE SIZES (SEE NOTES BELOW)

PIPING SYSTEM TYPES	FLUID TEMP. RANGE (°F)	PIPE SIZES (IN)		K-FACTOR (BTU-INCH/°F-HR-SF) AT AVE. TEMP. (°F)
		1/2" - 3"	4" - 6"	
LOW TEMPERATURE HEATING	141 - 200	2	2	0.25-0.29 @ 125°F
CHILLED WATER OR GLYCOL HEAT RECOVERY OR INDOOR FREE COOLING CWS OR REFRIGERANT OR COOLING COIL CONDENSATE DRAIN	≤ 60	1	1	0.20-0.27 @ 75°F

NOTES:
1. FOR MINIMUM THICKNESS OF ALTERNATIVE INSULATION TYPES OUTSIDE THE STATED CONDUCTIVITY RANGE, SEE TEST METHOD FOR STEADY STATE HEAT TRANSFER PROPERTIES OF HORIZONTAL PIPE INSULATIONS, ASTM C 335-95, AND THE STATE ENERGY CODE.
2. FOR DUAL TEMPERATURE SYSTEMS (HEATING AND COOLING) USE THE THICKER INSULATION VALUE REQUIRED FOR EITHER HEATING OR COOLING AND PROVIDE VAPOR BARRIER JACKET.
3. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

ADJUSTABLE FLOOR PIPE SUPPORT

PIPE SIZE (IN)	PIPE SIZES (IN)				PLATE INFO (IN)			
	A (MIN)	B (MIN)	C (MIN)	D (MIN)	A (MIN)	B (MIN)	C (MIN)	D (MIN)
UP TO 3	2	2 1/2	9	1/2				
4 TO 12	2 1/2	3	9	5/8				
14 TO 16	3	4	11	3/4				
18 AND LARGER	4	6	13 1/2	1				

PIPE INSULATION WITH ALUMINUM JACKET
12" LONG GALVANIZED INSULATION SHIELD
MIN. 9 LB/CFT DENSITY RIGID INSULATION ON BOTTOM HALF OF PIPE AT SHIELD FOR PIPING 3" AND LARGER
CONCRETE SLAB
CARRIER PIPE
A" PIPE
B" PIPE
THREADED REDUCER
PROVIDE C" x C" x 1/2" NEOPRENE BRIDGE BEARING PAD 70 DURO EQUAL TO MASON MODEL BBP - SEE NOTE 2
C" x C" x 5/16" THICK STEEL PLATE - SEE NOTE 2
SECURE TO SLAB WITH FOUR D" DIA. EXPANSION BOLTS

NOTES:
1. ADJUST HEIGHT OF SUPPORTS FOR ZERO STRESS ON ADJACENT FLANGES.
2. FOR SUPPORTS FOR PIPING WITHIN 10 FEET OF EQUIPMENT, PROVIDE A SECOND LAYER OF STEEL PLATE AND PAD.

RDK H012

HVAC DEMOLITION NOTES

- THE LOCATIONS OF EXISTING EQUIPMENT INCLUDING PIPING, DUCTWORK, EQUIPMENT, CONDUTTS, ETC ARE SHOWN IN AN APPROXIMATE WAY ONLY. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS AND COMMENCEMENT OF WORK TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
- TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
- COORDINATE EQUIPMENT REMOVAL WITH ALL PARTIES TO PROVIDE DISCONNECTION. REMOVE EQUIPMENT BY UNFASTENING AT THE SUPPORTS OR ATTACHMENTS. ALSO REMOVE THE ATTACHMENTS FROM THE BUILDING, LEAVING NO COMPONENT OF THE ORIGINAL INSTALLATION.
- EXERCISE CARE WITH EQUIPMENT THAT IS TO BE RELOCATED OR TURNED OVER TO THE OWNER. EXAMINE THE EQUIPMENT BEFORE REMOVAL IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE TO DETERMINE ITS CONDITION. DELIVER THE OWNER-RETAINED EQUIPMENT TO AN ON-SITE LOCATION DESIGNATED BY THE OWNER AND OBTAIN ACKNOWLEDGMENT OF RECEIPT IN ORIGINAL CONDITION.
- PROMPTLY REPAIR ANY DAMAGE CAUSED DURING/ BY THE EXECUTION OF WORK. DAMAGE INCLUDES BUT IS NOT LIMITED TO DESTRUCTION OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.
- NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
- ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
- ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
- DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS PIPE INTERIORS OR SHAFTS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
- DRAIN, PURGE, OR OTHERWISE REMOVE, COLLECT, AND PROPERLY DISPOSE OF CHEMICALS, LIQUIDS, GASES, EXPLOSIVES, ACIDS, FLAMMABLES, OR OTHER DANGEROUS MATERIALS BEFORE PROCEEDING WITH DEMOLITION OPERATIONS.
- PROPERLY LABEL ALL UNLABELED PIPES THAT REMAIN WITH COLOR PIPE MARKERS AND VALVE TAGS. MOUNT A VALVE AND SERVICE CHART IN THE AREA OF DEMOLITION THAT IDENTIFIES ALL LABELED SERVICES. TURN ONE COPY OF SAME OVER TO THE OWNER.
- ALL DEMOLITION SCOPE ASSOCIATED WITH LOW VOLTAGE WIRING FOR CONTROLS AND ASSOCIATED INTERLOCKS SHALL BE INCLUDED IN THIS CONTRACT.

HVAC GENERAL NOTES

- GENERAL NOTES APPLY TO ALL DRAWINGS.
- THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERRABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
- THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS-BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER IMMEDIATELY.
- THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS-BUILT" DRAWINGS.
- CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
- SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST ONE WEEK IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
- DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
- ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION. SHALL BE NEW.
- THE FIRE PROOFING OF THE BUILDING STRUCTURE IS NOT TO BE REMOVED FOR THE INSTALLATION OF HANGERS, SUPPORTS, DUCTWORK, ETC. IF FIRE PROOFING IS DAMAGED, IT SHALL BE REPAIRED AT THE EXPENSE OF THE TRADE.
- CONTRACTOR SHALL TEST AND CALIBRATE ALL CONTROLS AND VERIFY ALL ARE FULLY FUNCTIONAL AND SUBMIT DOCUMENTATION. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- REFER TO THE PROJECT SPECIFICATIONS FOR FURTHER REQUIREMENTS.

BOILER SCHEDULE (HOT WATER)

TAG	LOCATION	CAPACITY					PRESS. (PSIG)		WATER				BREECHING		BURNER			MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS		
		OUTPUT (GROSS I=B=R)		NATURAL GAS			MAX DESIGN	RELIEF VALVE	ENT (°F)	LVG (°F)	GPM	%P.G.	°F	CFM	TYPE	TURN DOWN	BLOWER				
		MBH	BHP	INPUT (CFM)	PRESSURE (IN.WG)	EFFICIENCY (%)											HP			V	PH
B-2	WOLFSPWAMP SCHOOL	2581	76.5	3082	7 / 14	83.1	80	50	160	180	226	0	-	1101	POWERFLAME - WCR3-G-20	4:1	1 1/2	208	3	WEIL-MCLAIN - BG1088-W	1,2,3,4

NOTES:
1 REFER TO SPECIFICATIONS, ON DRAWING NOTES, AND DETAILS FOR ADDITIONAL INFORMATION.
2 PROVIDE WITH FULLY MODULATING BURNER. PROVIDE WITH SINGLE POINT ELECTRICAL CONNECTION AND STEP DOWN TRANSFORMER FOR BURNER CONTROLS, REMOTE START/STOP, BACNET INTEGRATION, PROVIDE W ALL CONTROL POINTS TO MATCH EXISTING.
3 PROVIDE WITH CSD-1 CONTROLS.
4 PROVIDE WITH 14"Ø BAROMETRIC RELIEF DAMPER

DATE	CHK	DESCRIPTION

NUMBER: 0200375
DATE: 08/27/2020

LONGMEADOW
WOLFSPWAMP
ELEMENTARY SCHOOL
BOILER REPLACEMENT

DRAWN BY: JFL
CHECKED BY: JFL
SCALE: NONE

HVAC
LEGEND, NOTES,
DETAILS
AND SCHEDULES