GENERAL NOTES

1. VISIT THE BUILDING SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS, AND TO TAKE MEASUREMENTS AS NECESSARY FOR COMPLETION OF THE WORK ASSOCIATED WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.
2. COORDINATE WORK OF MECHANICAL SUBCONTRACTOR WITH WORK OF OTHER TRADES.
3. DUCTWORK, PIPING AND EQUIPMENT ARE INDICATED DIAGRAMMATICALLY. FIELD-VERIFY LOCATIONS.
4. PRIOR TO FABRICATING DUCTWORK, COORDINATE WITH OTHER TRADES TO ENSURE THAT THE DUCTWORK CAN BE INSTALLED WITH THE INDICATED SIZES AND LOCATIONS.FIELD-VERIFY EXISTING DUCT SIZES AND CONDITIONS.SUBMIT ANY DISCREPANCIES OR PROPOSED CHANGES.
5. PROVIDE VOLUME DAMPERS SO THAT EVERY REGISTER AND GRILLE CAN BE INDIVIDUALLY BALANCED.
6. LOCATE VOLUME DAMPERS AS FAR AWAY FROM REGISTERS AND GRILLES AS POSSIBLE TO MINIMIZE NOISE. LOCATE TO BE UNOBSTRUCTED AND EASILY ACCESSIBLE FOR TESTING AND BALANCING.
7. DUCT ELBOWS SHALL BE LONG-RADIUS TYPE (THROAT RADIUS EQUAL TO OR GREATER THAN DUCT WIDTH IN THE PLANE OF THE TURN) WHEREVER SPACE ALLOWS. IF SPACE IS NOT ADEQUATE, PROVIDE MITERED ELBOWS WITH TURNING VANES.
8. PROVIDE 16 GAUGE SINGLE-THICKNESS TURNING VANES AT MITERED DUCT ELBOWS. VANE EDGES (LEADING AND TRAILING) SHALL BE TANGENTIAL TO AIRFLOW.
9. MOUNT TEMPERATURE SENSORS AT 48 INCHES AFF TO TOP OF ITEM. PROVIDE ELECTRICAL WALL BOX ATTACHED TO FRAMING.
10. WHERE THERMOSTATS/TEMPERATURE SENSORS ARE LOCATED NEAR LIGHT SWITCHES, INSTALL SO THAT LIGHT SWITCHES ARE NEARER TO THE DOOR JAMBS. THE INTENT IS TO LOCATE THERMOSTATS/ TEMPERATURE SENSORS SO THEY WILL NOT INTERFERE WITH ACCESSIBILITY OF LIGHT SWITCHES.

ABBREV	DESCRIPTION
A	ANCHOR
AAV	AUTOMATIC AIR VENT
AC	AIR CONDITIONING UNIT
ACV	AUTOMATIC CONTROL VALVE
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
APD	AIR PRESSURE DROP
APPROX	APPROXIMATLY
ATC	AUTOMATIC TEMPERATURE CONTROL
B	BOILER BURNER UNIT
BD	BAROMETRIC DAMPER
BDD	BACKDRAFT DAMPER
BHP	BREAK HORSEPOWER
BOT	BOTTOM
BTU	BRITISH THERMAL UNITS
CA	COMBUSTION AIR
CBD	COUNTERBALANCED BACKDRAFT DAMPER
CD	CEILING DIFFUSER
CDR	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
CO	CLEANOUT
CPD	CONDENSATE PUMP DISCHARGE
CR	CONDENSATE RETURN
CTE	CONNECT TO EXISTING
CW	COLD WATER
D&D	DROP AND DRIP
DDR	DOUBLE DEFLECTION REGISTER
DEF	DEFLECTION
DEG.F	DEGREES FAHRENHEIT
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EFF'Y	EFFICIENCY
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXG	EXISTING
EXH	EXHAUST
F&T	FLOAT & THERMOSTATIC TRAP
FC	FLEXIBLE CONNECTOR
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FL	FINNED LENGTH OF RADIATION
FM	FLOW METER
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FPF	FINS PER FOOT
FPI	FINS PERINCH
FPM	FEET PER MINUTE
FPT	FREEZE PROTECTION THERMOSTAT
FS	FLOW SWITCH
FT	FT
FTWG	FEET WATER GUAGE
G	GUIDE
GAL	GALLONS
GCR	GRID CORE REGISTER
GPM	GALLONS PER MINUTE
HC	HEATING COIL
HE	HEAT EXCHANGER
HEDV	HOSE END DRAIN VALVE
HG	HOT GAS (REFRIGERANT)
HP	HORSEPOWER
HRC	HEAT RECOVERY COIL

ABBREV	DESCRIPTION
HRP	HEAT RECOVERY PUMP
HRR	HEAT RECOVERY RETURN
HRS	HEAT RECOVERY SUPPLY
HV	HEATING AND VENTILATING UNIT
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
IN	INCHES
LAT	LEAVING AIR TEMPERATURE
LPCR	LW PRESSURE CONDENSATE RETURN
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LSGV	LOCK & SIELD GATE VALVE
LWT	LEAVING WATER TEMPERATURE
MAN/SS	MANUAL CONTROL WITH VARIABLE SPEED SWITCH
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS
MCA	MINIMUM CIRCUIT AMPERS
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MIN	MINIMUM
MOPD	MAXIMUM OVERCURRENT PROTECTIVE DEVICE
MS	MAGNETIC STARTER
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTER
OPG	OPENING
OS&Y	OUTSIDE SCREW & YOKE GATE VALVE
PD	PRESSURE DROP
PG	PROPYLENE GLYCOL
PRD	PRESSURE RELIEF DAMPER
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
R/D	RADIATION WITH DAMPER
RCHWP	PRESSURE REDUCING VALVE
REF	RETUN EXHAUST FAN
RET	RETURN
RF	RETURN AIR FAN
RL	REFRIGERANT LIQUID
RLA	RATED LOAD AMPERS
RPM	REVOLUTIONS PER MINUTE
S	SWITCH
SCV	SELF-CONTAINED CONTROL VALVE
SDR	SINGLE DEFLECTION REGISTER
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SP	STATIC PRESSURE
SS	STAINLESS STEEL
SUP	SUPPLY
SV	SOLENOID VALVE
T'STAT	THERMOSTAT
TD	TRANSFER DUCT
TDT	THERMO-DYNAMIC TRAP
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TID	THERMALLY INSULATED DUCT
TR	TEMPERATUR RISE
TT	THERMOSTATIC TRAP
TYP	TYPICAL

ABBREV	DESCRIPTION
UH	UNIT HEATER
VB	VACUUM BREAKER
VD	VOLUME DAMPER
VERT	VERTICAL
W/	WITH
W/O	WITHOUT
WC	WATER COLUMN
WG	WALL GRILLE
WG	WATER GUAGE
WPD	WATER PRESSURE DROP
WR	WALL REGISTER

SYMBOL	DESCRIPTION
	ACV 2 - WAY
	BALANCE VALVE
BDD	BACKDRAFT DAMPER
	CAP - PIPE
	CHECK VALVE
	COMBINATION BALANCING, FLOW MEASURING & TIGHT SHUT-OFF VALVE
∅	DUCT DIAMETER
	DUCT SECTION - SUPPLY
	DUCT SECTION - RETURN/EXHAUST
	DUCT TURNING VANES
	FLOAT & THERMOSTATIC TRAP
	ISOLATION VALVE
	GLOBE VALVE
	LOUVER
V	MANUAL AIR VENT
MD	MOTORIZED DAMPER
	OS&Y GATE VALVE
	PETCOCK FOR GAUGE CONNECTION
DN	PITCH DOWN
	PLUG VALVE
P	PRESSURE GAUGE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	RETURN AIR
	RETURN AIR DUCT
	RETURN PIPING (GLYCOL HEATING WATER, CONDENSATE RETURN)
A / M10.1	SECTION I.D. (SECTION A SHOWN ON DWG. M10.1)
	STRAINER
	SUPPLY AIR
	SUPPLY AIR DUCT
	SUPPLY PIPING (GLYCOL HEATING WATER, STEAM)
	TAKE - OFF FROM BOTTOM OF PIPE
	TAKE - OFF FROM TOP OF PIPE
TS	TEMPERATURE SENSOR
	THERMOMETER
	THERMOMETER WELL
	UNION
VD	VOLUME DAMPER
	S (SUPPLY) R (RETURN) E (EXHAUST) T (TRANSFER) SUPPLY DIFFUSER (TYPE 2)
S2 / 400	DIFFUSER DESCRIPTION (SEE REG., GRILLES & DIFF SCHEDULE) QUANTITY 400 CFM EA

BASEBOARD/ FIN TUBE RADIATION

TAG	MANUFACTURER	MODEL	CAPACITY (BTU/FT)	PIPE SIZE (IN)	FPF	ROWS	MOUNTING HEIGHT AFF (IN)	NOTES
FT-1	STERLING	JVA-S11	750	3/4	50	1	15	
FT-2	STERLING	JVA-S11	750	3/4	50	1	15	

REGISTERS, GRILLES, AND DIFFUSERS

TAG	MANUFACTURER	MODEL	NECK SIZE (IN.)	NC	SP (IN. WG)	THROW (FT)	DAMPER	FINISH	BORDER	NOTES
S-1	PRICE	520	36x16	22	0.05	45	NO	WHITE POWDER COAT	SURFACE MOUNT	DBL DEFLECTION
E-1	PRICE	530	8x6	15	0.04	N/A	NO	WHITE POWDER COAT	SURFACE MOUNT	
E-2	PRICE	530	8x8	15	0.04	N/A	NO	WHITE POWDER COAT	SURFACE MOUNT	

#2 FUEL OIL TRANSFER PUMP SET

TAG	MANUFACTURER	MODEL	GPH	PSI	INLET (IN)	OUTLET (IN)	RELIEF VALVE (IN)	ELECTRIC			NOTES
								HP (EACH)	PHASE	VOLT	
FOP-1	PREFERRED UTILITIES	ATPS-105-208-50	195	50	1/2	1/2	1/2	3/4	3	208	

HEATING PUMPS

TAG	MANUFACTURER	MODEL	SERVICE	FLOW (GPM)	HEAD (FT/WG)	SPEED (RPM)	ELECTRICAL			MOTOR CONTROL	NOTES
							POWER	PHASE	VOLT		
P-1	GRUNDFOS	MAGNA3 40-120F	GLYCOL HW SYSTEM	45	20	VARIABLE	450 W	1	115	INTEGRAL VFD	
P-2	GRUNDFOS	MAGNA3 40-120F	GLYCOL HW SYSTEM	45	20	VARIABLE	450 W	1	115	INTEGRAL VFD	
P-3	GRUNDFOS	TYPE 3000 #N15085	CONDENSATE RECEIVER	50	40	VARIABLE	0.75 HP	3	208	INTEGRAL VFD	
P-4	GRUNDFOS	TYPE 3000 #N15085	CONDENSATE RECEIVER	50	40	VARIABLE	0.75 HP	3	208	INTEGRAL VFD	

DEAERATOR TANK

TAG	MANUFACTURER	MODEL	STEAM PSIG	CAPACITY (LB/HR)	FEEDWATER OUTLET TEMP (DEG F)	PUMP QUANTITY	PUMP CAPACITY (GPM)	HEAD (FT/WG)	MOTOR HP (EACH)	VOLTS/PH	NOTES
DA-1	HURST	OM-26	10	26000	210	2 (REDUNDANT)	45	30	1.5	208/3	

LOUVERS

TAG	MANUFACTURER	MODEL	SERVICE	AIR FLOW (CFM)	MAX FACE VELOCITY (FPM)	MIN FREE AREA (SQ.FT)	RATED APD (IN WG)	HEIGHT (IN) x WIDTH (IN)	DEPTH (IN)	BLADE STYLE	NOTES
L-1	GREENHECK	EDJ-401	BOILER ROOM RELIEF	4650	480	9.64	0.04	72 x 36	4	J	

UNIT HEATERS

TAG	MANUFACTURER	MODEL	OUTPUT (BTUH)	AIR FLOW (CFM)	EWT (DEG.F)	WATER FLOWRATE (GPM)	WPD (FT WG)	HP	VOLT/PH	DIMENSIONS (WxDxH) (IN)	MOUNTING TYPE	NOTES
UH-1	STERLING	HS-18	10000	395	180	1.3	3	9 WATTS	115/1	18x16x5	SUSPENDED	

BOILERS

TAG	MANUFACTURER	MODEL	FUEL TYPES	BOILER PASSES	GROSS OUTPUT (MBH)	BOILER OPERATING STEAM PRESSURE	MULTI-FUEL BURNER		FAN MOTOR POWER REQUIREMENTS	NOTES
							MANUFACTURER	MODEL		
B-1	HURST	SERIES 500, 500 BHP	#2 OIL, NATURAL GAS	4	16738	12 PSIG	LIMPSFIELD	LC62	25 HP, 208/3	
B-2	HURST	SERIES 500, 500 BHP	#2 OIL, NATURAL GAS	4	16738	12 PSIG	LIMPSFIELD	LC62	25 HP, 208/3	
B-3	HURST	SERIES 500, 150 BHP	#2 OIL, NATURAL GAS	4	5021	12 PSIG	LIMPSFIELD	LC21	7.5 HP, 208/3	

BRAZED PLATE HEAT EXCHANGER

TAG	MANUFACTURER	MODEL	SERVICE	TOTAL HEAT EXCHANGED (MBH)	PERFORMANCE								NOTES
					SYSTEM SIDE (10 PSIG STEAM)				LOAD SIDE (MIXTURE OF 30% PROPYLENE GLYCOL & WATER)				
					LB/HR	INLET TEMP (DEG F)	OUTLET TEMP (DEG F)	PRESSURE DROP (PSI)	FLOW RATE (GPM)	INLET TEMP (DEG F)	OUTLET TEMP (DEG F)	PRESSURE DROP (PSI)	
HX-1	BELL & GOSSETT	BP424-10	GLYCOL HW SYSTEM	650	675	249	238.7	1.42	47	150	180	6.19	

FANS

TAG	MANUFACTURER	MODEL	SERVICE	AIR FLOW (CFM)	E.S.P (IN.WG)	RPM	SONES	HP	PHASE	VOLT	MOTOR CONTROL	DRIVE	DAMPER	NOTES
SF-1	GREENHECK	LBP-18-10	BOILER B-1	4000	0.4	1162	16.7	1	3	208	VFD	BELT	SPRING LOADED BDD	AIRFLOW BASED UPON BOILER MAXIMUM FIRING RATE
SF-2	GREENHECK	LBP-18-10	BOILER B-2	4000	0.4	1162	16.7	1	3	208	VFD	BELT	SPRING LOADED BDD	AIRFLOW BASED UPON BOILER MAXIMUM FIRING RATE
SF-3	GREENHECK	LBP-18-4	BOILER B-3	1300	0.4	632	5.3	1/4	3	208	VFD	BELT	SPRING LOADED BDD	AIRFLOW BASED UPON BOILER MAXIMUM FIRING RATE
EF-1	GREENHECK	CSP-A410	105, 106	300	0.4	1000	4	139 WATTS	1	115	BAS ON/OFF	DIRECT	GRAVITY BDD	

REHEAT COIL SCHEDULE

TAG	MANUFACTURER	SERVICE	FINNED LENGHT (IN)	NOMINAL HEIGHT (IN)	ROWS	CAPACITY (MBH)	AIR FLOW (CFM)	EAT (DEG. F)	DRY BULB LAT (DEG.F)	APD (IN.WG)	WATER FLOW (GPM)	EWT (DEG.F)	LWT (DEG.F)	WPD (FT.WG)	NOTES
HC-1	MCQUAY	SF-1	36	24	1	260	3000	-20	60	0.1	17	180	150	2	
HC-2	MCQUAY	SF-2	36	24	1	260	3000	-20	60	0.1	17	180	150	2	
HC-3	MCQUAY	SF-3	36	24	1	130	1500	-20	60	0.1	8.7	180	150	2	

DUCTLESS AIRCONDITIONER

MANUFACTURER	SYSTEM TYPE	MODEL (INDOOR/OUTDOOR)	SERVICE	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	INDOOR UNIT		OUTDOOR UNIT				PIPING SIZES				ELECTRIC				EER (BTUH PER WATT)	NOTES
						AIR FLOW HI/MED/LOW (CFM)	NOISE (HI SPEED) dB(A)	WEIGHT (LBS)	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	SUCTION (IN)	LIQUID (IN)	MAX. LENGTH (FT)	MAX HEIGHT (FT)	VOLTS	PHASE	MCA (AMPS)	MAX FUSE (AMPS)		
FUJITSU	AIR COOLED HEAT PUMP	AUU18RLF/AOU18RLFC	103	18	20	471/418/353	42	33	22-7/16	22-7/16	13-11/16	1/2	1/4	164	49	208	1	14.5	20	13.9	INCLUDE OPTIONAL FRESH AIR KIT UTZ-VXAA

HARRIMAN

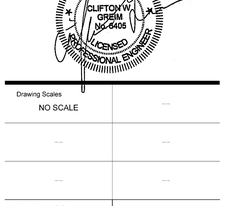
AUBURN PORTLAND MANCHESTER

UNIVERSITY OF SOUTHERN MAINE
CENTRAL HEAT PLANT UPGRADES

PORTLAND, ME

Harriman Project No.	14411

Key Plan



Proj North

Issues and Revisions

Mark	Date	Description
	08-12-14	SCHEMATIC DESIGN
	08-25-14	REVISED SCHEMATIC DESIGN
	09-05-14	DESIGN DEVELOPMENT
	09-19-14	PROGRESS REVIEW
	09-26-14	PROGRESS REVIEW
	10-03-14	PROGRESS REVIEW
	10-10-14	FINAL REVIEW
	10-23-14	100% REVIEW
	10-31-14	ISSUED FOR BID

Drawing Scales	
NO SCALE	---
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PA / PE: CG	
Drawn By: JSL	

LEGEND, GENERAL NOTES & SCHEDULES

M00.1

Plot Date: 10/29/2014 9:00:58 AM