

The Beresford

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Site Contact

Kevin May

Project Engineer

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- Data was sent to CDH Energy August 19, 2016.
- Website data begins August 26, 2016.

Summary

Aegis provided and installed the gas, power, data logger/enclosure, and BTU meters. Aegis performed all of the necessary wire pulls to the data logger and sensors.

Monitored Data Points

Data Point	Description	Eng Units	Instrument	Output
WT	Gross Generator Power Output	kWh	-	Calculated
WT_ACC	Gross Generator Power Accumulator	kW	Veris H-8035-300	Modbus Rs-485
WT_KW	Gross Generator Power Rate	kW	Veris H-8035-300	Modbus Rs-485
WG	Net Generator Power	kWh	-	Calculated
WP	Total Parasitic Loads	kWh	-	Calculated
WP_ACC	Parasitic Loads - Accumulator	kW	Veris H-8035-100	Modbus Rs-485
WP_KW	Total Parasitic Loads - Rate	kW	Veris H-8035-100	Modbus Rs-485
WB	Total Facility Power	kWh	-	Calculated
WB_ACC	Total Facility Power - Accumulator	kW	Veris E50C2A	Modbus Rs-485
WB_KW	Total Facility Power - Rate	kW	Veris E50C2A	Modbus Rs-485
THW1	Recovered Heat Loop Supply Temp - High Temp	F	Badger Series 380	Modbus Rs-485
THW2	Recovered Heat Loop Return Temp - High Temp After HX1 (DHW)	F	-	Resistance
THW3	Recovered Heat Loop Return Temp - High Temp After HX2 (Space Heating)	F	Badger Series 380	Modbus Rs-485
THW4	Riser Heat loop - High Temp After HX4 (Dump Radiator)	F	-	Resistance
FHW	Recovered Heat Loop Flow - High Temp. Loop	gpm	Badger Series 380	Modbus Rs-485
QU	Total Useful Heat Recovery	MBtu/h	-	Calculated
QR	Total Rejected Heat Recovery	MBtu/h	-	Calculated
QU_METER	Total Useful Heat Recovery	MBtu/h	Badger Series 380	Modbus Rs-485
QU_METER_ACC	Useful Heat Recovery - Accumulator	MBtu/h	Badger Series 380	Modbus Rs-485
FG_ACC	Natural Gas Flow to Engine - Accumulator	cf	Romet RM2000	Pulse
FG	Natural Gas Flow to Engine	cf	Romet RM2000	Pulse

IT Information

Aegis DDC is performing data collection and uploading via FTP to data.cdhenergy.com

PUMP SCHEDULE						
PUMP NO.	SERVICE	FLOW	HEAD	H.P.	PHASE	MODEL
P-01	COGEN MODULE	22 GPM	70 FT	3/4	3	BELL & GOSSETT SERIES 1535 353T
P-11	DHW LOOP	30 GPM	15 FT	1/6	1	BELL & GOSSETT PL-45B
P-21	SPACE HEATING LOOP	10 GPM	40 FT	2/5	1	BELL & GOSSETT PL-55
P-31	HEAT DISSIPATION LOOP	30 GPM	35 FT	3/4	3	BELL & GOSSETT SERIES 60 613T

HEAT EXCHANGER HX-11			
DESIGN MANUFACTURER	API HEAT TRANSFER		
MODEL	SBM7M-40		
TYPE	BRAZED PLATE		
MATERIAL	COPPER		
SERVICE	DHW		
	SIDE	HOT	COLD
FLUID TYPE	WATER	WATER	
FLUID FLOW	30 GPM	30 GPM	
TEMPERATURE IN	225 DEG F	172 DEG F	
TEMPERATURE OUT	176 DEG F	207 DEG F	
PRESSURE DROP	0.91 PSI	1.55 PSI	
INLET SIZE	2" NPT	2" NPT	

HEAT EXCHANGER HX-21			
DESIGN MANUFACTURER	API HEAT TRANSFER		
MODEL	SBM7M-20		
TYPE	BRAZED PLATE		
MATERIAL	COPPER		
SERVICE	SPACE		
	SIDE	HOT	COLD
FLUID TYPE	WATER	WATER	
FLUID FLOW	22 GPM	25 GPM	
TEMPERATURE IN	220 DEG F	140 DEG F	
TEMPERATURE OUT	170 DEG F	182 DEG F	
PRESSURE DROP	1.28 PSI	2.1 PSI	
INLET SIZE	2" NPT	2" NPT	

COGENERATION SCHEDULE	
DESIGN MANUFACTURER	AEGENCO
FUEL	NATURAL GAS
FUEL INPUT	923 SCFH
THERMAL OUTPUT	523,000 BTU/HR
ELECTRICAL OUTPUT	75 KW
GENERATION TYPE	SYNCHRONOUS
ACOUSTIC LEVEL	70 dba @ 20 FT
VIBRATION ISOLATION	YES
CONTROLS	MICROPROCESSOR BASED
UNIT WEIGHT	3050
MODEL	POWERVERTER
AVG INLET TEMP	170 DEG F
AVG OUTLET TEMP	220 DEG F
MA GAS BOARD APPROVAL #	G1-04-06-12
DIMENSIONS	51" W X 101" L X 51" H

TEMPERATURE SENSOR SCHEDULE				
TS NO.	SERVICE	MODEL	WELL TYPE	
TS-11	COGEN SUPPLY	MAMAC TE-703-C-5A	AT-225	
TS-13	DHW ENTERING H.X.-11	MAMAC TE-703-C-5A	AT-225	
TS-14	DHW LEAVING H.X.-11	MAMAC TE-703-C-5A	AT-225	
TS-15	HWT-1	MAMAC TE-703-C-5A	AT-225	
TS-16	HWT-2	MAMAC TE-703-C-5A	AT-225	
TS-21	COGEN LOOP ENTERING H.X.-21	MAMAC TE-703-C-5A	AT-225	
TS-22N	COGEN USEFUL BTU	BADGER 380	N/A	
TS-23	DHW ENTERING H.X.-21	MAMAC TE-703-C-5A	AT-225	
TS-24	DHW LEAVING H.X.-21	MAMAC TE-703-C-5A	AT-225	
TS-31	COGEN LOOP ENTERING H.X.-31	MAMAC TE-703-C-5A	AT-225	
TS-32	COGEN LOOP LEAVING H.X.-31	MAMAC TE-703-C-5A	AT-225	
TS-32N	COGEN USEFUL BTU	MAMAC TE-703-C-5A	AT-225	
TS-33	DHW ENTERING H.X.-31	MAMAC TE-703-C-5A	AT-225	
TS-34	DHW LEAVING H.X.-31	MAMAC TE-703-C-5A	AT-225	
TS-10	OUTSIDE AIR	MAMAC TE-205-F-5	AT-225	

CONTROL VALVE SCHEDULE						
VALVE NO.	SERVICE	FLOW TYPE	SIZE	VOLTAGE	VALVE MODEL	ACTUATOR
V-11	DHW HEATING LOOP	PROPORTIONAL	1 1/2"	24 V	SCHNEIDER VS2313-526-9-54	MS40-7043M MODULATING
V-12	COGEN SELECTOR VALVE	ON/OFF	2"	24 V	SCHNEIDER VA2313-526-9-64	MA40-7043M ON/OFF
V-21	SPACE HEATING	PROPORTIONAL	1 1/2"	24 V	SCHNEIDER VS2313-526-9-54	MS40-7043M MODULATING

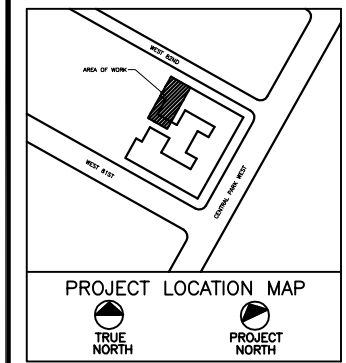
INSULATION TABLE			
LOAD	PIPE SIZE	MAX PIPE TEMP	INSULATION THICKNESS
COGEN LOOP	1.5"-2"	200°F	1.5"
SPACE HEATING	1"	120°F	1"
DHW	1.5"-4"	180°F	1.5"
DHW	2"-4"	180°F	2"
EXHAUST	3"	250°F	1"
HEAT DISSIPATION	1.5"	180°F	1.5"
DUCT	10"	150°F	1"

GLYCOL FEED SYSTEM GF-1	
UNIT NO	GF-1
SERVICE	HOT WATER
TANK CAPACITY (GALLONS)	6
FLUID TYPE	40% P.G.
ELECTRICAL	120V/1PH/60 HZ
MANUFACTURER	AXIOM INDUSTRIES
MODEL	MF200-S

DHW STORAGE TANK SCHEDULE (HWT-11,12)	
DESIGN MANUFACTURER	RECO USA
WEIGHT	1500 LBS
CAPACITY	250 GALLONS
ORIENTATION	VERTICAL
LINING	CEMENT
DIAMETER	30"
LENGTH	78"
MODEL	V3078
MANWAY	12" X 16"
MAX OPERATING PRESSURE	150 PSI
RELIEF VALVE	WATTS 3/4 174A-150

HEAT EXCHANGER HX-31			
DESIGN MANUFACTURER	API HEAT TRANSFER		
MODEL	SBM7M-40		
TYPE	BRAZED PLATE		
MATERIAL	COPPER		
SERVICE	DHW		
	SIDE	HOT	COLD
FLUID TYPE	WATER	40% P.G.	
FLUID FLOW	30 GPM	30 GPM	
TEMPERATURE IN	225 DEG F	172 DEG F	
TEMPERATURE OUT	176 DEG F	207 DEG F	
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INLET SIZE	2" NPT	2" NPT	

HEAT DISSIPATION HX-32	
DESIGN MANUFACTURER	IEA OR EQUAL
SERVICE	HEAT DISSIPATION
FLOW RATE	35 GPM
GROSS HEAT LOAD	500 MBH
INLET WATER TEMP	197 DEG F
OUTLET WATER TEMP	158
BLOWER FAN	1 HP
NUMBER OF FANS	1
MODEL	HCR-M28-01-08-S XX
FAN SPEED	880 RPM
LIQUID MEDIUM	40% P.G.
DRY WEIGHT	575 LBS



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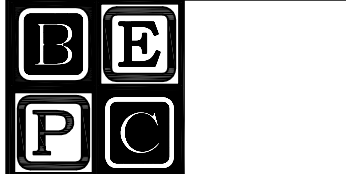
ALL DRAWINGS ARE TO BE READ NOT SCALED.

- NOTES:
- ALL PIPE TO BE COPPER "L" UNLESS OTHERWISE NOTED
 - COGEN HEAT DISSIPATION LOOP TO BE 40% PROP. GLYCOL. ALL FILLING OF GLYCOL LOOP BY AEGIS.
 - CONTRACTOR SHALL PROTECT FROM HARM AND MAINTAIN ALL EXISTING EQUIPMENT, PLANT, FACILITY, ETC. TO REMAIN.

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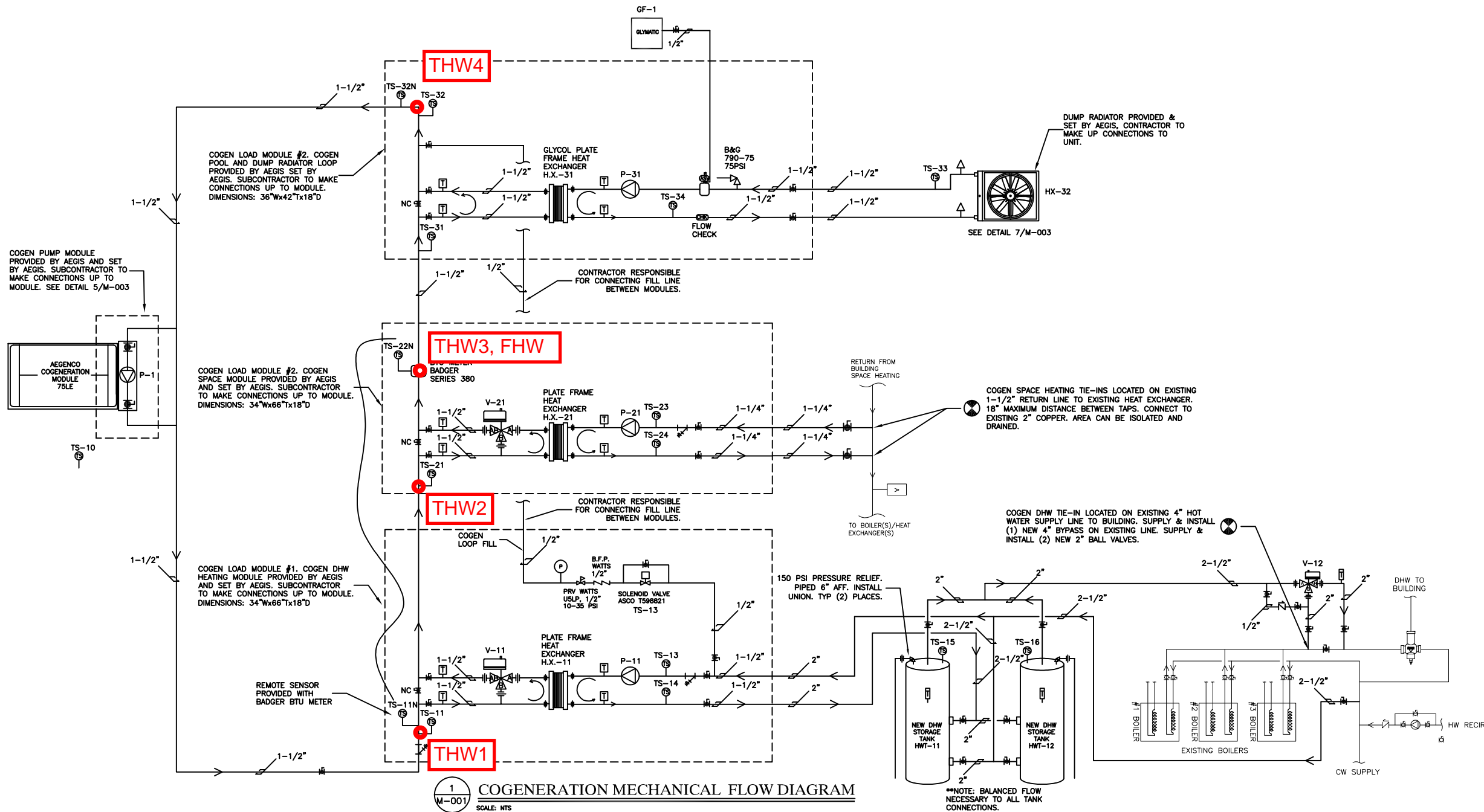
DRAWING TITLE:
COGENERATION MECHANICAL FLOW DIAGRAM

DESIGN BY:	KM	DATE:	8/25/15
DRN BY:	KM	DATE:	10/7/15
CKD BY:	AD	DATE:	X
FINAL CKD BY:	JCB	DATE:	X
SCALE:	AS NOTED	DATE:	
DWG No.	PAGE 3 OF 11		

M-001.00

PROJECT NO.
60-252

B-SCAN:



1 M-001 COGENERATION MECHANICAL FLOW DIAGRAM
 SCALE: NTS