

Bill of Quantities

Project: CETB Biomass – Heating Upgrade Works	Details: Mechanical
Building: St Colman's Community College	

Auto code	Description	Quantity	Unit	Rate	Total
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(00) EXTERNAL WORKS

	ENERGY CABIN CIVIL & SITE WORKS				
	<u>BUILDERS WORK</u>				
1	The works include, but are not limited to, site preparation, excavation, concrete foundations, service ducting, drainage works, hardstanding areas, access routes, reinstatement works, and all associated ancillary civil works required to facilitate the complete installation and operation of the Energy Cabin and associated infrastructure.		Note		
	<u>The Contractor shall allow for all labour, supervision, plant, materials, temporary works, traffic and pedestrian management, testing, commissioning support, and compliance with all relevant statutory requirements, specifications, drawings, and health and safety regulations necessary for the proper execution and completion of the works.</u>				
2	Reinforced concrete foundation slab, including excavation, formwork, reinforcement and finishing to required tolerances	55.00	m2		
3	Trenching for underground services, including excavation, bedding, backfill and reinstatement	1.00	item		
4	Underground primary LPHW flow and return pipe stubs terminated at cabin location	1.00	item		
5	Plinths, hardstanding and access provisions	1.00	item		
	Other Items				
6	Provide for all labour, materials, plant and all items which in the tenderers opinion are not specifically allowed for in this section of the works but which can be reasonably inferred from the works requirements as being necessary for the execution and completion of the works. – (List items below)	1.00	item		
7		1.00	item		
8		1.00	item		
9		1.00	item		
10		1.00	item		
11		1.00	item		
12		1.00	item		
13		1.00	item		
14		1.00	item		

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(51) HEATING CENTRE

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	<u>ALTERNATIVE RULES FOR THE MEASUREMENT OF MECHANICAL INSTALLATION</u>				
	<u>INFORMATION REQUIRED</u>				
1	1. Minimum information which must be shown on the drawings that accompany this section – scope and location of work.				
2	2. Information which must accompany this section – relevant drawings and specifications.				
3	3. Mandatory information to be provided – detailed description of the system giving specified output requirements.				
4	4. The tenderer is referred to the Mechanical Services Drawings, Mechanical Equipment Schedules and Mechanical Specification accompanying this Pricing Document.				
	<u>GENERALLY</u>				
5	1. The contractor shall note that this section is measured in accordance with the ARM4 Supplement 2 – Agreed Alternative Rules for the Measurement of Services Installations.				
6	2. The tenderer is referred to the Mechanical Services Drawings and Mechanical Specification accompanying this Pricing Document description of materials and workmanship other than those described hereafter.				
7	3. The tenderer is referred to the Works Requirements accompanying this Pricing Document.				
8	4. For preliminary particulars, please refer to tender documentation				
9	5. Plan, sections and details as shown on the Works Requirements Documents.				
10	6. Specification: Refer to Mechanical Services Work Requirements				
	<u>HEATING PLANTROOM UPGRADE</u>				
11	Mechanical Plant Installation;				
12	Include for upgrade works in each existing school plantroom, including the supply and installation of, secondary header pumps, low-loss headers, three-port modulating mixing valves, pressurisation units, expansion vessels, chemical dosing pots, dirt/air separators, strainers, valves, instrumentation and BMS outstations to provide fully modulating circulation and controllable flow temperature; as per Mechanical Services Drawings and Heating Upgrade – Mechanical Specification				
	<u>Primary Equipment:</u>				
	<u>Pumps</u>				
13	Secondary header pumps, variable speed inline type, duty and standby arrangement				
14	Flexible connectors to pumps	1.00	item		
15	Anti-vibration mounts and inertia bases to pumps	1.00	item		
16	Original Building Plantroom; VSD P1; Biomass Recirculation Pump	1.00	Nr		
17	Original Building Plantroom; VSD P2; NG Boiler Recirculation Pump	1.00	Nr		
18	Fire Extension Plantroom; VSD P3; Distribution System Recirculation Pump	1.00	Nr		
19	PE Hall Plantroom; VSD P4; Biomass Recirculation Pump	1.00	Nr		
20	New Extension Plantroom; VSD P5; Biomass Recirculation Pump	1.00	Nr		

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(51) HEATING CENTRE (Continued)

	Hydraulic Separation Equipment				
21	Low-loss headers, fabricated steel	1.00	item		
22	Thermal insulation to low-loss headers	1.00	item		
23	Supports and brackets to low-loss headers	4.00	Nr		
	Valves & Controls				
	<u>Original Building Plantroom</u>				
24	Biomass Flow to LLH; Ball Valve	2.00	Nr		
25	Biomass Flow to LLH; Non Return Valve	1.00	Nr		
26	LLH Return to Biomass; Fixed Orifice Double Regulating Valve	1.00	Nr		
27	LLH Return to Biomass; Ball Valve	4.00	Nr		
28	LLH Return to Biomass; Non Return Valve	1.00	Nr		
29	NG Boiler Flow to LLH; Gate Valve	3.00	Nr		
30	LLH Return to NG Boiler; Gate Valve	4.00	Nr		
31	LLH Flow to Distribution System; Gate Valve	1.00	Nr		
32	Distribution System Return to LLH; Gate Valve	3.00	Nr		
33	Distribution System Flow to Fire Extension; Ball Valve	1.00	Nr		
34	Fire Extension return to Distribution System; Ball Valve	1.00	Nr		
	<u>First Extension Plantroom</u>				
35	Original Building Distribution System Flow to PHE; Ball Valve	1.00	Nr		
36	PHE Return to Original Building Distribution System; Ball Valve	2.00	Nr		
37	PHE Flow to Distribution System; Ball Valve	1.00	Nr		
38	Distribution System Return to PHE; Ball Valve	3.00	Nr		
	<u>PE Hall Plantroom</u>				
39	Biomass Flow to LLH; Ball Valve	2.00	Nr		
40	Biomass Flow to LLH; Non Return Valve	1.00	Nr		
41	LLH Return to Biomass; Fixed Orifice Double Regulating Valve	1.00	Nr		
42	LLH Return to Biomass; Ball Valve	3.00	Nr		
43	LLH Return to Biomass; Non Return Valve	1.00	Nr		
44	NG Boiler Flow to LLH; Ball Valve	1.00	Nr		
45	LLH Return to NG Boiler; Ball Valve	1.00	Nr		
46	LLH Flow to Distribution System; Ball Valve	1.00	Nr		
47	Distribution System Return to LLH; Ball Valve	3.00	Nr		
	<u>New Extension Plantroom</u>				
48	Biomass Flow to LLH; Ball Valve	2.00	Nr		
49	Biomass Flow to LLH; Non Return Valve	1.00	Nr		
50	LLH Return to Biomass; Fixed Orifice Double Regulating Valve	1.00	Nr		

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51	LLH Return to Biomass; Ball Valve	3.00	Nr		
52	LLH Return to Biomass; Non Return Valve	1.00	Nr		
53	NG Boiler Flow to LLH; Gate Valve	1.00	Nr		
54	LLH Return to NG Boiler; Gate Valve	1.00	Nr		
55	LLH Flow to Distribution System; Gate Valve	1.00	Nr		
56	Distribution System Return to LLH; Gate Valve	3.00	Nr		
	<u>Pressurisation & Water Treatment</u>				
57	Combined dirt separators	1.00	Nr		
58	Side stream filtration units	1.00	Nr		
59	Isolation valves 3" – 330 l/min	4.00	Nr		
	<u>Original Building Plantroom</u>				
60	Particle Filter	1.00	Nr		
61	Magnetic Filter	1.00	Nr		
62	Low Loss Header	1.00	Nr		
63	Dosing Pot	1.00	Nr		
	<u>Fire Extension Plantroom</u>				
64	Particle Filter	1.00	Nr		
65	Magnetic Filter	1.00	Nr		
66	Plate Heater Exchange	1.00	Nr		
67	Dosing Pot	1.00	Nr		
	<u>PE Hall Plantroom</u>				
68	Particle Filter	1.00	Nr		
69	Magnetic Filter	1.00	Nr		
70	Low Loss Header	1.00	Nr		
71	Dosing Pot	1.00	Nr		
	<u>New Extension Plantroom</u>				
72	Particle Filter	1.00	Nr		
73	Magnetic Filter	1.00	Nr		
74	Low Loss Header	1.00	Nr		
75	Dosing Pot	1.00	Nr		
	<u>Instrumentation & BMS</u>				
	<u>Original Building Plantroom</u>				
76	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
77	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
78	Pressure Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
79	Heat Meter; Inline Ultrasonic with temperature sensors connecting flow and return line.	1.00	Nr		

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(51) HEATING CENTRE

(Continued)

	<u>First Extension Plantroom</u>				
80	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
81	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	4.00	Nr		
	<u>PE Hall Plantroom</u>				
82	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
83	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
84	Pressure Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
85	Heat Meter; Inline Ultrasonic with temperature sensors connecting flow and return line.	1.00	Nr		
	<u>New Extension Plantroom</u>				
86	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
87	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
88	Pressure Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
89	Heat Meter; Inline Ultrasonic with temperature sensors connecting flow and return line.	1.00	Nr		
	<u>Outside Biomass Cabin</u>				
90	Heat Meter; Inline Ultrasonic with temperature sensors connecting flow and return line.	1.00	Nr		
	DECOMMISSIONING WORKS				
	Existing Plant Removal				
91	<i>Removing:Plumbing and Engineering Installations</i>				
	<u>Allow for draining down, disconnecting, removal; making good structures and finishes disturbed; disposal off-site of the following mechanical equipment, fittings and accessories in boiler room; complete. All as per Mechanical Services Engineers Drawing and specification:–</u>				
92	<i>Removing;</i>				
93	Drain down, flush, isolate and make safe existing heating and fuel systems	1.00	item		
94	Remove existing fossil-fuel boilers, including disconnection, dismantling and removal	2.00	Nr		
95	Remove kerosene systems, including oil storage tanks, pipework and associated equipment, including degassing and cleaning	1.00	item		
96	Remove redundant natural gas plant and associated services	1.00	item		
97	Cart away and dispose of all redundant plant and materials off-site in accordance with regulations	1.00	item		
98	Cap, seal and make good redundant services, including fire stopping	1.00	item		
	EXISTING GAS BOILER RETENTION				
99	Modify existing gas boiler pipework connections	1.00	item		
100	Reconnect retained gas boilers	1.00	item		
101	Registered Gas Installer (RGI) works	1.00	item		
102	Gas soundness testing and certification	1.00	item		
103	Control interlock between gas boilers and biomass system	1.00	item		

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(51) HEATING CENTRE (Continued)

104	BMS integration of retained boilers	1.00	item		
105	Recommission retained gas boilers	1.00	item		
	PRIMARY & SECONDARY LPHW PIPEWORK				
106	Supply & Install Steel pipework, black, screwed/welded, for LPHW systems, including fittings, jointing, supports, hangers, anchors, guides, testing and commissioning, complete; all in accordance with the Engineer's Specifications & Drawings and Manufacturer's Instructions.				
107	Pipework				
108	pipework generally externally	1.00	Item		
109	pipework generally internally	1.00	Item		
	<u>INSULATION</u>				
110	Pre-insulated buried LPHW pipework, including trenching, bedding, backfill, warning tape and testing				
111	Pipework				
112	Pre insulation	1.00	Item		
113	DN50/125 insulation class	1.00	Item		
114	DN80/160 insulation class	1.00	Item		
115	DN100/200 insulation class	1.00	Item		
116	Thermal insulation to pipework, mineral fibre with aluminium cladding, including valves and fittings				
117	Pipework				
118	insulation	1.00	Item		
	<u>Pipework Accessories</u>				
119	Isolation valves	1.00	Item		
120	Balancing valves	1.00	Item		
121	Motorised control valves	1.00	Item		
122	Air vents	1.00	Item		
123	Drain valves	1.00	Item		
124	Pipeline identification labels	1.00	Item		
	<u>GENERAL</u>				
125	General services installations; Complete all as per Fingleton White drawings, schedules and specifications and installed in accordance with the Manufacturer's Instructions.				
126	Heating Installations;				
127	operating and Maintenance manuals	1.00	item		
128	working drawings	1.00	item		
129	co-ordinated drawings	1.00	item		
130	as built drawings	1.00	item		
131	marking the positions of holes, mortice's and chases	1.00	item		
132	identification plates and labels	1.00	item		

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133	builders works	1.00	item		
134	firestopping and other associated fire protection work	1.00	item		
135	protection and secure storage of all LPG plant and equipment prior to installation	1.00	item		
	<u>M&V Metering</u>				
136	Measurement and verification (M&V) metering installation				
137	Heat meters, ultrasonic type, complete with sensors and integrator	2.00	Nr		
138	Flow meters	1.00	Item		
139	Data logging and reporting interface	1.00	Item		
	<u>Painting & Decorating</u>				
	<u>PAINTING</u>				
140	Paint to all gas pipework; include for 1 no. Zinc phosphate primer and an overcoat in yellow Ochre Ral 1024 paint; all paint to be neat, drip and ripple free, and suitable for the temperature of pipe which it is applied to; application in accordance with the manufacturers instructions; all in accordance with M&E engineer's drawings and specification				
141	Pipework				
142	pipework generally	1.00	item		
143	Paint to un-insulated- visible heating pipework; include for 1 no. Zinc phosphate primer and an overcoat; all paint to be neat, drip and ripple free, and suitable for the temperature of pipe which it is applied to; application in accordance with the manufacturers instructions; all in accordance with M&E engineer's drawings and specification				
144	Pipework				
145	pipework generally	1.00	item		
146	Paint to insulated heating pipework; include for 1 no. Zinc phosphate primer; all paint to be neat, drip and ripple free, and suitable for the temperature of pipe which it is applied to; Recoat fittings and welds with four weeks of installation; application in accordance with the manufacturers instructions; all in accordance with M&E engineer's drawings and specification				
147	Pipework				
148	pipework generally	1.00	item		
	<u>Testing & Commissioning</u>				
149	All testing, commissioning, and handover documentation; all in accordance with the Engineer's Specifications & Drawings and Manufacturer's Instructions.				
150	Pressure testing of pipework systems	1.00	Item		
151	Flushing and chemical cleaning of systems	1.00	Item		
152	Balancing of LPHW systems	1.00	Item		
153	Commissioning of plant and controls	1.00	Item		
154	Provision of O&M manuals and training	1.00	Item		
	<u>Other Items</u>				

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(51) HEATING CENTRE

(Continued)

155	Provide for all labour, materials, plant and all items which in the tenderers opinion are not specifically allowed for in this section of the works but which can be reasonably inferred from the works requirements as being necessary for the execution and completion of the works. – (List items below)		item		
156		1	item		
157		1	item		
158		1	item		
159		1	item		
160		1	item		
161		1	item		
162		1	item		
163		1	item		

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(51) HEATING CENTRE (Continued)

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M&E BUILDERS WORK

	INSPECTION, TESTING, COMMISSIONING & HANDOVER				
	The Contractor is referred to the M&E Drawings packages, M&E Particular Specification and M&E Builders Works Schedule for details.				
1	General items to be allowed for in accordance with Mechanical Particular Specification.	1.00	item		
2	General items to be allowed for in accordance with Electrical Particular Specification.	1.00	item		
3	Form service penetrations through walls and floors	1.00	item		
4	Fire stopping to penetrations through fire-rated construction	1.00	item		
5	Electrical containment within plantrooms (mechanical scope)	1.00	item		
6	Making good and reinstatement of disturbed building fabric	1.00	item		

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Report Summary

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COLLECTION SUMMARY

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M&E BUILDERS WORK	10	0
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