

Bill of Quantities

Project: CETB Biomass – Heating Upgrade Works	Details: Mechanical
Building: St Brogan's 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	Old Building Plantroom; VSD P3; First Extension Recirculation Pump	1.00	Nr		
19	PE Hall Plantroom; VSD P4; 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	2.00	Nr		
34	Fire Extension return to Distribution System; Ball Valve	1.00	Nr		
35	Distribution System Flow to PE Hall; Ball Valve	1.00	Nr		
36	PE Hall Return to Distribution System; Ball Valve	1.00	Nr		
	<u>PE Hall Plantroom</u>				
37	Original Building Distribution System Flow to PHE; Ball Valve	1.00	Nr		
38	PHE Return to Original Building Distribution System; Ball Valve	2.00	Nr		
39	PHE Flow to Distribution System; Ball Valve	1.00	Nr		
40	Distribution System Return to PHE; Ball Valve	1.00	Nr		
	<u>New Extension Plantroom</u>				
41	Biomass Flow to LLH; Ball Valve	2.00	Nr		
42	Biomass Flow to LLH; Non Return Valve	1.00	Nr		
43	LLH Return to Biomass; Fixed Orifice Double Regulating Valve	1.00	Nr		
44	LLH Return to Biomass; Ball Valve	3.00	Nr		
45	LLH Return to Biomass; Non Return Valve	1.00	Nr		
46	NG Boiler Flow to LLH; Ball Valve	1.00	Nr		
47	LLH Return to NG Boiler; Ball Valve	1.00	Nr		
48	LLH Flow to Distribution System; Ball Valve	1.00	Nr		
49	Distribution System Return to LLH; Ball Valve	3.00	Nr		
	<u>Outside Biomass Cabin</u>				
50	Biomass Flow to LLH; Ball Valve	1.00	Nr		

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51	LLH Return to Biomass; Ball Valve	1.00	Nr		
52	Cold Make Up Water; Ball Valve	1.00	Nr		
	<u>Pressurisation & Water Treatment</u>				
53	Combined dirt separators	1.00	Nr		
54	Side stream filtration units	1.00	Nr		
55	Isolation valves 3" – 330 l/min	4.00	Nr		
	<u>Original Building Plantroom</u>				
56	Particle Filter	1.00	Nr		
57	Magnetic Filter	1.00	Nr		
58	Low Loss Header	1.00	Nr		
59	Dosing Pot	1.00	Nr		
	<u>PE Hall Plantroom</u>				
60	Plate Heat Exchanger	1.00	Nr		
61	Dosing Pot	1.00	Nr		
	<u>New Extension Plantroom</u>				
62	Particle Filter	1.00	Nr		
63	Magnetic Filter	1.00	Nr		
64	Low Loss Header	1.00	Nr		
65	Dosing Pot	1.00	Nr		
	<u>Instrumentation & BMS</u>				
	<u>Original Building Plantroom</u>				
66	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	8.00	Nr		
67	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	8.00	Nr		
68	Pressure Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	8.00	Nr		
69	Heat Meter; Inline Ultrasonic with temperature sensors connecting flow and return line.	2.00	Nr		
	<u>PE Hall Plantroom</u>				
70	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	4.00	Nr		
71	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	4.00	Nr		
72	Pressure Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	4.00	Nr		
	<u>New Extension Plantroom</u>				
73	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
74	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
75	Pressure Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
76	Heat Meter; Inline Ultrasonic with temperature sensors connecting flow and return line.	1.00	Nr		
	DECOMMISSIONING WORKS				

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(51) HEATING CENTRE

(Continued)

	Existing Plant Removal				
77	<i>Removing: Plumbing and Engineering Installations</i>				
	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:–				
78	<i>Removing;</i>				
79	Drain down, flush, isolate and make safe existing heating and fuel systems	1.00	item		
80	Remove existing fossil-fuel boilers, including disconnection, dismantling and removal	2.00	Nr		
81	Remove kerosene systems, including oil storage tanks, pipework and associated equipment, including degassing and cleaning	1.00	item		
82	Remove redundant natural gas plant and associated services	1.00	item		
83	Cart away and dispose of all redundant plant and materials off-site in accordance with regulations	1.00	item		
84	Cap, seal and make good redundant services, including fire stopping	1.00	item		
	EXISTING GAS BOILER RETENTION				
85	Modify existing gas boiler pipework connections	1.00	item		
86	Reconnect retained gas boilers	1.00	item		
87	Registered Gas Installer (RGI) works	1.00	item		
88	Gas soundness testing and certification	1.00	item		
89	Control interlock between gas boilers and biomass system	1.00	item		
90	BMS integration of retained boilers	1.00	item		
91	Recommission retained gas boilers	1.00	item		
	PRIMARY & SECONDARY LPHW PIPEWORK				
92	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.				
93	Pipework				
94	pipework generally externally	1.00	Item		
95	pipework generally internally	1.00	Item		
	INSULATION				
96	Pre-insulated buried LPHW pipework, including trenching, bedding, backfill, warning tape and testing				
97	Pipework				
98	Pre insulation	1.00	Item		
99	DN50/125 insulation class	1.00	Item		
100	DN80/160 insulation class	1.00	Item		
101	DN100/200 insulation class	1.00	Item		
102	Thermal insulation to pipework, mineral fibre with aluminium cladding, including valves and fittings				

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(51) HEATING CENTRE (Continued)

103	Pipework				
104	insulation	1.00	Item		
	<i>Pipework Accessories</i>				
105	Isolation valves	1.00	Item		
106	Balancing valves	1.00	Item		
107	Motorised control valves	1.00	Item		
108	Air vents	1.00	Item		
109	Drain valves	1.00	Item		
110	Pipeline identification labels	1.00	Item		
	<u>GENERAL</u>				
111	General services installations; Complete all as per Fingleton White drawings, schedules and specifications and installed in accordance with the Manufacturer's Instructions.				
112	Heating Installations;				
113	operating and Maintenance manuals	1.00	item		
114	working drawings	1.00	item		
115	co-ordinated drawings	1.00	item		
116	as built drawings	1.00	item		
117	marking the positions of holes, mortice's and chases	1.00	item		
118	identification plates and labels	1.00	item		
119	builders works	1.00	item		
120	firestopping and other associated fire protection work	1.00	item		
121	protection and secure storage of all LPG plant and equipment prior to installation	1.00	item		
	<u>M&V Metering</u>				
122	Measurement and verification (M&V) metering installation				
123	Heat meters, ultrasonic type, complete with sensors and integrator	2.00	Nr		
124	Flow meters	1.00	Item		
125	Data logging and reporting interface	1.00	Item		
	<u>Painting & Decorating</u>				
	<u>PAINTING</u>				
126	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				
127	Pipework				
128	pipework generally	1.00	item		

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(51) HEATING CENTRE

(Continued)

129	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				
130	Pipework				
131	pipework generally	1.00	item		
132	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				
133	Pipework				
134	pipework generally	1.00	item		
	Testing & Commissioning				
135	All testing, commissioning, and handover documentation; all in accordance with the Engineer's Specifications & Drawings and Manufacturer's Instructions.				
136	Pressure testing of pipework systems	1.00	Item		
137	Flushing and chemical cleaning of systems	1.00	Item		
138	Balancing of LPHW systems	1.00	Item		
139	Commissioning of plant and controls	1.00	Item		
140	Provision of O&M manuals and training	1.00	Item		
	Other Items				
141	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		
142		1	item		
143		1	item		
144		1	item		
145		1	item		
146		1	item		
147		1	item		
148		1	item		
149		1	item		

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(51) HEATING CENTRE

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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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