

Bill of Quantities

Project: CETB Biomass – Heating Upgrade Works	Details: Mechanical
Building: Davis 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	Old Building Plantroom; VSD P1; NG Boiler Recirculation Pump	1.00	Nr		
17	Old Building Plantroom; VSD P2; Biomass Recirculation Pump	1.00	Nr		
18	New Building Plantroom; VSD P3; Biomass Recirculation Pump	1.00	Nr		
	<u>Hydraulic Separation Equipment</u>				
19	Low-loss headers, fabricated steel	1.00	item		

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(51) HEATING CENTRE (Continued)

20	Thermal insulation to low-loss headers	1.00	item		
21	Supports and brackets to low-loss headers	4.00	Nr		
	Valves & Controls				
	<u>Old Building Plantroom</u>				
22	Biomass Flow to LLH; Ball Valve	2.00	Nr		
23	Biomass Flow to LLH; Non Return Valve	1.00	Nr		
24	LLH Return to Biomass; Fixed Orifice Double Regulating Valve	1.00	Nr		
25	LLH Return to Biomass; Ball Valve	3.00	Nr		
26	LLH Return to Biomass; Non Return Valve	1.00	Nr		
27	NG Boiler Flow to LLH; Gate Valve	1.00	Nr		
28	LLH Return to NG Boiler; Gate Valve	2.00	Nr		
29	LLH Flow to Distribution System; Gate Valve	1.00	Nr		
30	Distribution System Return to LLH; Gate Valve	2.00	Nr		
	<u>New Building Plantroom</u>				
31	Biomass Flow to LLH; Ball Valve	2.00	Nr		
32	Biomass Flow to LLH; Non Return Valve	1.00	Nr		
33	LLH Return to Biomass; Fixed Orifice Double Regulating Valve	1.00	Nr		
34	LLH Return to Biomass; Ball Valve	3.00	Nr		
35	LLH Return to Biomass; Non Return Valve	1.00	Nr		
	Pressurisation & Water Treatment				
36	Combined dirt separators	1.00	Nr		
37	Side stream filtration units	1.00	Nr		
38	Isolation valves 3" – 330 l/min	4.00	Nr		
	<u>Old Building Plantroom</u>				
39	Particle Filter	1.00	Nr		
40	Magnetic Filter	1.00	Nr		
41	Low Loss Header	1.00	Nr		
	<u>Main Plantroom</u>				
42	Chemical Dosing Pot	1.00	Nr		
	Instrumentation & BMS				
	<u>Old Building Plantroom</u>				
43	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
44	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
45	Pressure Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
46	Heat Meter; Inline Ultrasonic with temperature sensors connecting flow and return line.	1.00	Nr		
	<u>New Building Plantroom</u>				

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47	Temperature Sensors; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	6.00	Nr		
48	Temperature Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	2.00	Nr		
49	Pressure Indicators; 0– 10 Barg; Direct Mounted Probe; Threaded, G 1/2	2.00	Nr		
	<u>Outside Biomass Cabin</u>				
50	Heat Meter; Inline Ultrasonic with temperature sensors connecting flow and return line.	1.00	Nr		
	EXISTING GAS BOILER RETENTION				
51	Modify existing gas boiler pipework connections	1.00	item		
52	Reconnect retained gas boilers	1.00	item		
53	Registered Gas Installer (RGI) works	1.00	item		
54	Gas soundness testing and certification	1.00	item		
55	Control interlock between gas boilers and biomass system	1.00	item		
56	BMS integration of retained boilers	1.00	item		
57	Recommission retained gas boilers	1.00	item		
	PRIMARY & SECONDARY LPHW PIPEWORK				
58	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.				
59	Pipework				
60	pipework generally externally	1.00	Item		
61	pipework generally internally	1.00	Item		
	<u>INSULATION</u>				
62	Pre-insulated buried LPHW pipework, including trenching, bedding, backfill, warning tape and testing				
63	Pipework				
64	Pre insulation	1.00	Item		
65	DN50/125 insulation class	1.00	Item		
66	DN80/160 insulation class	1.00	Item		
67	DN100/200 insulation class	1.00	Item		
68	Thermal insulation to pipework, mineral fibre with aluminium cladding, including valves and fittings				
69	Pipework				
70	insulation	1.00	Item		
	<u>Pipework Accessories</u>				
71	Isolation valves	1.00	Item		
72	Balancing valves	1.00	Item		
73	Motorised control valves	1.00	Item		
74	Air vents	1.00	Item		

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75	Drain valves	1.00	Item		
76	Pipeline identification labels	1.00	Item		
	<u>GENERAL</u>				
77	General services installations; Complete all as per Fingleton White drawings, schedules and specifications and installed in accordance with the Manufacturer's Instructions.				
78	Heating Installations;				
79	operating and Maintenance manuals	1.00	item		
80	working drawings	1.00	item		
81	co-ordinated drawings	1.00	item		
82	as built drawings	1.00	item		
83	marking the positions of holes, mortice's and chases	1.00	item		
84	identification plates and labels	1.00	item		
85	builders works	1.00	item		
86	firestopping and other associated fire protection work	1.00	item		
87	protection and secure storage of all LPG plant and equipment prior to installation	1.00	item		
	<u>M&V Metering</u>				
88	Measurement and verification (M&V) metering installation				
89	Heat meters, ultrasonic type, complete with sensors and integrator	2.00	Nr		
90	Flow meters	1.00	Item		
91	Data logging and reporting interface	1.00	Item		
	<u>Painting & Decorating</u>				
	<u>PAINTING</u>				
92	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				
93	Pipework				
94	pipework generally	1.00	item		
95	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				
96	Pipework				
97	pipework generally	1.00	item		
98	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				

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(51) HEATING CENTRE (Continued)

99	Pipework				
100	pipework generally	1.00	item		
	Testing & Commissioning				
101	All testing, commissioning, and handover documentation; all in accordance with the Engineer's Specifications & Drawings and Manufacturer's Instructions.				
102	Pressure testing of pipework systems	1.00	Item		
103	Flushing and chemical cleaning of systems	1.00	Item		
104	Balancing of LPHW systems	1.00	Item		
105	Commissioning of plant and controls	1.00	Item		
106	Provision of O&M manuals and training	1.00	Item		
	Other Items				
107	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		
108		1	item		
109		1	item		
110		1	item		
111		1	item		
112		1	item		
113		1	item		
114		1	item		
115		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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COLLECTION SUMMARY

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M&E BUILDERS WORK	8	0
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