

23 09 Instrumentation and Control for HVAC

23 09 23 – Direct-Digital Control System for HVAC

23 09 23.10 Control Components/DDC Systems		Crew	Daily Output	Labor-Hours	Unit	Material	2022 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
8140	Optimum start/stop				Point				41.50	41.50
8160	Demand limiting								20.50	20.50
8180	Enthalpy program				↓				41.50	41.50
8200	Boiler optimization				Ea.				1,225	1,225
8220	Chiller optimization				"				1,625	1,625
8240	Custom applications									
8260	Cost varies with complexity									

23 09 43 – Pneumatic Control System for HVAC

23 09 43.10 Pneumatic Control Systems

0010	PNEUMATIC CONTROL SYSTEMS									
0011	Including a nominal 50' of tubing. Add control panelboard if req'd.									
0100	Heating and ventilating, split system									
0200	Mixed air control, economizer cycle, panel readout, tubing									
0220	Up to 10 tons	G	Q-19	.68	35.294	Ea.	5,200	2,275	7,475	9,100
0240	For 10 to 20 tons	G	↓	.63	37.915	↓	5,850	2,425	8,275	10,100
0260	For over 20 tons	G	↓	.58	41.096	↓	6,350	2,650	9,000	10,900
0300	Heating coil, hot water, 3 way valve,									
0320	Freezestat, limit control on discharge, readout		Q-5	.69	23.088	Ea.	3,875	1,450	5,325	6,425
0500	Cooling coil, chilled water, room									
0520	Thermostat, 3 way valve		Q-5	2	8	Ea.	1,675	505	2,180	2,575
0600	Cooling tower, fan cycle, damper control,									
0620	Control system including water readout in/out at panel		Q-19	.67	35.821	Ea.	6,850	2,300	9,150	11,000
1000	Unit ventilator, day/night operation,									
1100	freezestat, ASHRAE, cycle 2		Q-19	.91	26.374	Ea.	3,650	1,700	5,350	6,550
2000	Compensated hot water from boiler, valve control,									
2100	readout and reset at panel, up to 60 GPM		Q-19	.55	43.956	Ea.	7,425	2,825	10,250	12,400
2120	For 120 GPM			.51	47.059		7,325	3,025	10,350	12,600
2140	For 240 GPM			.49	49.180		8,325	3,150	11,475	13,900
3000	Boiler room combustion air, damper to 5 S.F., controls									
3500	Fan coil, heating and cooling valves, 4 pipe control system			3	8		1,625	515	2,140	2,550
3600	Heat exchanger system controls									
			↓	.86	27.907		3,200	1,800	5,000	6,200
4000	Pneumatic thermostat, including controlling room radiator valve									
			Q-5	2.43	6.593		995	420	1,415	1,725
4060	Pump control system									
			Q-19	3	8	↓	1,525	515	2,040	2,450
4500	Air supply for pneumatic control system									
4600	Tank mounted duplex compressor, starter, alternator,									
4620	piping, dryer, PRV station and filter									
4630	1/2 HP		Q-19	.68	35.139	Ea.	13,400	2,250	15,650	18,100
4660	1-1/2 HP			.58	41.739		15,000	2,675	17,675	20,500
4690	5 HP		↓	.42	57.143	↓	38,800	3,675	42,475	48,200

23 13 Facility Fuel-Storage Tanks

23 13 13 – Facility Underground Fuel-Oil, Storage Tanks

23 13 13.09 Single-Wall Steel Fuel-Oil Tanks

0010	SINGLE-WALL STEEL FUEL-OIL TANKS									
5000	Tanks, steel ugnd., stip3, not incl. hold-down bars									
5500	Excavation, pad, pumps and piping not included									
5510	Single wall, 500 gallon capacity, 7 ga. shell		Q-5	2.70	5.926	Ea.	2,275	375	2,650	3,075
5520	1,000 gallon capacity, 7 ga. shell		"	2.50	6.400		3,300	405	3,705	4,225
5530	2,000 gallon capacity, 1/4" thick shell		Q-7	4.60	6.957		4,750	465	5,215	5,925
5535	2,500 gallon capacity, 7 ga. shell		Q-5	3	5.333	↓	6,400	340	6,740	7,550