

Lebanese University Campus - Hadath

1.3.1.6-Work Parcel 1- List of HVAC Equipment

Faculty Of Medicine-(Bldg.M1.1 & M1.2) - O & M Ref: 1.5.1 - Set 8 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	Air Handling Unit (AHU-M1-12)	11 T.R	1	Variable Air Volume AHU with Supply air flow 2058 lps, External Static pressure 674.4 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-13)	12 T.R	1	Variable Air Volume AHU with Supply air flow 2495 lps, External Static pressure 595.4 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-14)	21 T.R	4	Constant Air Volume AHU with Supply air flow 1980 lps, External Static pressure 182.9 Pa, with 2 coils (heating / cooling) & electrical reheat of 5 Kw	✓
	Air Handling Unit (AHU-M1-15)	19 T.R	2	Constant Air Volume AHU with Supply air flow 1640 lps, External Static pressure 137.9 Pa, with 2 coils (heating / cooling) & electrical reheat of 5 Kw	✓
	Air Handling Unit (AHU-M1-16)	22 T.R	1	Variable Air Volume AHU with Supply air flow 4777 lps, External Static pressure 717.7 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-17)	18 T.R	1	Variable Air Volume AHU with Supply air flow 4110 lps, External Static pressure 678.8 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-25)	15 T.R	1	Constant Air Volume AHU with Supply air flow 2976 lps, External Static pressure 247.5 Pa, with 2 coils (heating / cooling)	✓
	Fan Coil Unit (FCU-M1-1)	1 T.R	1	Horizontal concealed type, 220 Lps @ 30 Pa, with 2 coils (cooling/Heating)	✓
	Fan Coil Unit (FCU-M1-2)	3 T.R	1	Horizontal concealed type, 660 Lps @ 30 Pa, with 2 coils (cooling/Heating)	✓
	Fan Coil Unit (FCU-M1-GR)	2 T.R	1	Horizontal concealed type, 350 Lps @ 30 Pa, with 1 coils (cooling/Heating)	✓

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System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	split unit	12000 btu/hr	2	York	✓
	split unit	12000 btu/hr	1	Climatech	✓
	split unit	18000 btu/hr	1	YORK decorative wall type pump mode HLHA18FSp	✓
	split unit	18000 btu/hr	3	CLIMA SMART	✓
	split unit	18000 btu/hr	1	CHALLENGE AIR	✓
	split unit	24000 btu/hr	7	YORK decorative wall type pump mode HLHA24FSA	✓
	split unit	24000 btu/hr	1	MDV	✓
	split unit	24000 btu/hr	1	PETRA	✓
	split unit	24000 btu/hr	1	CLIMA SMART	✓
	split unit	32000 BTU/hr	3	YORK	✓
	split unit	48000 BTU/hr	2	CLIMA SMART	✓
Ventilation	Fan (F-M1-1)	1640 Lps @ 111 Pa	3	Fire rated centrifugal fan	✓
	Fan (F-M1-2)	1980 Lps @ 133.3 Pa	3	Fire rated centrifugal fan	✓
	Fan (F-M1-3A)	11730 Lps @ 277.3 Pa	1	Centrifugal fan	✓
	Fan (F-M1-3B)	10661 Lps @ 403.7 Pa	1		✓

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System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Ventilation	Fan (F-M1-5)	7468 Lps @ 344 Pa	1	Centrifugal fan	✓
	Fan (F-M1-7)	5856 Lps @ 273.6 Pa	1	Centrifugal fan	✓
	Fan (F-M1-9)	157 Lps @ 62.8 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-27)	1590 Lps @ 152.2 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-35)	210 Lps @ 83.7 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-36)	2142 Lps @ 179.7 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-37)	390 Lps @ 93.6 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-38A)	137 Lps @ 61.9 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-38B)	137 Lps @ 60.3 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-38C)	130 Lps @ 59.6 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-39)	350 Lps @ 89.6 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-41)	2000 Lps @ 204.7 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-47A)	135 Lps @ 77.3 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-48)	130 Lps @ 30 Pa	1	Propeller	✓
	Fan (F-M1-48A)	1500 Lps @ 116.8 Pa	1	Fire rated smoke exhaust fan	✓
	Fan (F-M1-57)	390 Lps @ 65.9 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-58)	390 Lps @ 64.8 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-59)	390 Lps @ 58.5 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-60)	2025 Lps @ 130.5 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-61)	2471 Lps @ 158.7 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-63)	143 Lps @ 72.9 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-64)	400 CFM	1	In line Centrifugal fan	✓
	Fan(F-M1-65)	500 CFM	2	In line centrifugal type exhaust fan	✓

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Faculty Of Medicine-(Bldg.M1.1 & M1.2) - O & M Ref: 1.5.1 - Set 8 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling	End Suction Pumps (P-M1-3)	39.41 Lps @ 32.66 m Head	3	End suction centrifugal secondary chilled water pump	✓
Heating	End Suction Pumps (P-M1-1)	15.75 Lps @ 33.77 m Head	3	End suction centrifugal secondary hot water pump	✓
	Circulator Pumps (P-M1-2)	14.1 Lps @ 13.59 m Head	2	Circulators for Heat exchanger	✓
	Circulator Pumps (P-M1-4)	15.72 Lps @ 9.36 m Head	2	Circulators for Hot Water Storage Tank	✓
	Hot Water Storage Tank (HWST M1-1)	4900 L	4	Vertical type hot water storage tank with 3.93 Lps flow	✓
	Expansion Tank (EX-M1-1)	1000 L	1	Expansion tank for heating system	✓
	Heat Exchanger (HEX-M1-1)	1465.57 Kw	1	Heat Exchanger Primary temperature	✓
Piping System & Insulation	Black Steel			20mm to 300mm DN	✓
	Galvanized Steel			16mm to 50mm DN	✓
	Fiber Glass insulation			15mm to 50 mm thickness	✓
Ducting System & Insulation	GSD- Medium Pressure				✓
	GSD-Low Pressure				✓
	Fiber Glass insulation			Blanket type/40 mm thick	✓
	VAV-2	235-470 Lps		With Thermostat	✓
	VAV-3	475-660 Lps		With Thermostat	✓
	VAV-4	665-1040 Lps		With Thermostat	✓
	VAV-5	1045-1320 Lps		With Thermostat	✓
	VAV-6	1325-1890 Lps		With Thermostat	✓
Valves	Gate Valves			50mm to 100mm DN	✓
	Balancing Valves			50 mm to 100mm DN	✓
	3 Way Valves				✓
	Globe Valves				✓

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1.3.1.6-Work Parcel 1- List of Plumbing Equipment

Faculty Of Medicine (Bldg. M1.1 & M1.2) - O & M Ref: 1.5.1 - Set 8 / Div 1

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Laboratory Services	Air Compressors (AC-M1-1)	55 Lps @ 6.75 bar	1	Duplex type air compressors	✓
	Air Compressors (AC-M1-2)	46.7 Lps @ 6.55 bar	1	Duplex type air compressors	✓
	Vacuum Pump (VAC-M1-1)	65 Lps @ 716 mmHg	1	Duplex type vacuum pump	✓
	Vacuum Pump (VAC-M1-2)	40 Lps @ 549 mmHg	1	Duplex type vacuum pump	✓
Soft Water	Water Softener (WS-M1-1)	1 Lps	2	Simplex type WS with Exchange capacity 69225 g/m3, Hardness at inlet 350 ppm, Hardness at outlet 5 ppm, & resin volume 72 L, serving water still	✓
	Water Softener (WS-M1-2-2)	0.5 Lps	1	Simplex type WS with Exchange capacity 69225 g/m3, Hardness at inlet 350 ppm, Hardness at outlet 5 ppm, & resin volume 72 L, serving heating water system	✓
	Water still (WD-M1.1-1)	14 Kw	1	Electric type water still	✓
Domestic Hot Water	Circulator Pumps (P-M1-51)	2.1 Lps @ 16.7 m Head	2	Circulators for Hot Water Storage Tank	✓
Drainage	Pump (P-M1-52)	2.4 Lps @ 13 m Head	2	Submersible	✓
	Pump (P-M1-53)	2.4 Lps @ 13 m Head	2	Submersible	✓
Piping System & Insulation	PVC			20mm to 75mm DN	✓
	Copper			15 mm DN	✓
	Galvanized Steel			65mm to 100mm DN	✓
	HDPE			50mm to 250mm DN	✓
	BSP			25mm to 80mm DN	✓
Valves	Ball Valves			15mm to 40mm	✓
	Gate Valves			50 mm	✓
Sanitary Fixtures & Accessories	Drinking Fountain				✓
	Lavatory Mixer LAV-1				✓
	Lavatory Tap LAV-2				✓
	Lavatory Mixer LAV-3				✓
	Sink Mixer				✓
	Sink Tap				✓
	Mop Sink Tap				✓
	Shower Mixers				✓

Lebanese University Campus - Hadath**1.3.1.6-Work Parcel 1- List of Plumbing Equipment****Faculty Of Medicine (Bldg. M1.1 & M1.2) - O & M Ref: 1.5.1 - Set 8 / Div 1**

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Sanitary Fixtures & Accessories	Emergency Shower				✓
	Bib Cock Perineal Hose				✓
	Angle Valves/Flexibles				✓
	WC Flush Valves				✓
	Urinal Flush Valves				✓
	Flush Tanks				✓
	Water Hammer Arrestor				✓
	Hand Dryers				✓
	Liquid Soap Dispensers				✓
	Paper Towel Dispenser				✓

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1.3.1.7 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Dentistry (Bldg. M1.3 & M1.4) - O & M Ref: 1.5.1 - Set 8 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	Air Handling Unit (AHU-M1-17)	18 T.R	1	Variable Air Volume AHU with Supply air flow 4110 lps, External Static pressure 678.8 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-18)	44 T.R	1	Variable Air Volume AHU with Supply air flow 3075 lps, External Static pressure 393.9 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-19)	25 T.R	1	Constant Air Volume AHU with Supply air flow 5900 lps, External Static pressure 514.2 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-20)	17.5 T.R	1	Variable Air Volume AHU with Supply air flow 3000 lps, External Static pressure 352.2 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-21)	27 T.R	1	Variable Air Volume AHU with Supply air flow 6080 lps, External Static pressure 651.3 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-22)	19 T.R	1	Variable Air Volume AHU with Supply air flow 5150 lps, External Static pressure 547.7 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-25)	15 T.R	1	Constant Air Volume AHU with Supply air flow 2976 lps, External Static pressure 247.5 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-26)	27.5 T.R	1	Variable Air Volume AHU with Supply air flow 5800 lps, External Static pressure 658.4 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-27)	43 T.R	1	Variable Air Volume AHU with Supply air flow 11845 lps, External Static pressure 1014 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-28)	46 T.R	1	Variable Air Volume AHU with Supply air flow 10830 lps, External Static pressure 787.5 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-29)	9 T.R	1	Variable Air Volume AHU with Supply air flow 1554 lps, External Static pressure 760.9 Pa, with 2 coils (heating / cooling)	✓

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1.3.1.7 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Dentistry (Bldg. M1.3 & M1.4) - O & M Ref: 1.5.1 - Set 8 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	Air Handling Unit (AHU-M1-30)	39 T.R	1	Variable Air Volume AHU with Supply air flow 8335 lps, External Static pressure 808.8 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-31)	17 T.R	1	Variable Air Volume AHU with Supply air flow 3000 lps, External Static pressure 401.9 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-32)	15 T.R	1	Constant Air Volume AHU with Supply air flow 3470 lps, External Static pressure 418.7 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-33)	12 T.R	1	Constant Air Volume AHU with Supply air flow 4330 lps, External Static pressure 444.4 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-33A)	6 T.R	1	Constant Air Volume AHU with Supply air flow 1605 lps, External Static pressure 216.8 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-34)		1	Constant Air Volume AHU with Supply air flow 2300 lps, External Static pressure 203.2 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-36)		1	Constant Air Volume AHU with Supply air flow 1830 lps, External Static pressure 177.6 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-37)	12 T.R	1	Constant Air Volume AHU with Supply air flow 1300 lps, External Static pressure 213.5 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-38)	28.5 T.R	1	Variable Air Volume AHU with Supply air flow 6195 lps, External Static pressure 727.1 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-M1-39)	27 T.R	1	Constant Air Volume AHU with Supply air flow 5960 lps, External Static pressure 647.9 Pa, with 2 coils (heating / cooling)	✓

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1.3.1.7 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Dentistry (Bldg. M1.3 & M1.4) - O & M Ref: 1.5.1 - Set 8 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	split unit	24000 btu/hr	2	YORK decorative wall type pump mode HLHA24FSA	✓
Ventilation	Fan (F-M1-1A)	3016 Lps @ 171.7 Pa	1	Centrifugal	✓
	Fan (F-M1-6)	14018 Lps @ 717.8 Pa	1	Centrifugal	✓
	Fan (F-M1-7A)	5478 Lps @ 282.5 Pa	1	Centrifugal	✓
	Fan (F-M1-8)	3468 Lps @ 197.8 Pa	1	Centrifugal	✓
	Fan (F-M1-10)	291 Lps @ 96.8 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-12)	870 Lps @ 132.6 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-13)	960 Lps @ 114.1 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-14)	270 Lps @ 87.7 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-15)	134 Lps @ 56 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-16)	3360 Lps @ 267.4 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-17)	716 Lps @ 92.1 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-18)	600 Lps @ 93.9 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-20)	1430 Lps @ 163.3 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-22)	1430 Lps @ 156.5 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-25)	488 Lps @ 82.2 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-25A)	870 Lps @ 131.2 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-27A)	1580 Lps @ 177.9 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-29)	166 Lps @ 56.7 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-30)	860 Lps @ 118.6 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-32)	600 Lps @ 84.7 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-33)	660 Lps @ 194.6 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-42)	1840 Lps @ 156 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-43)	1780 Lps @ 164.6 Pa	1	Roof supply type fan	✓
	Fan (F-M1-46)	565 Lps @ 96.2 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-47B)	900 Lps @ 144.6 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-54)	3000 Lps @ 822.4 Pa	1	Fire rated smoke exhaust fan	✓
	Fan (F-M1-55)	3000 Lps @ 545.9 Pa	1	Fire rated smoke exhaust fan	✓
	Fan (F-M-62)	151 Lps @ 67.6 Pa	1	Roof extractor type fan	✓
	Fan (F-M1-64)	3000 Lps @ 591.3 Pa	1	Fire rated smoke exhaust fan	✓
	Fan (F-M1-65)	1500 Lps @ 103.2 Pa	1	Fire rated smoke exhaust fan	✓
	Fan	250 CFM 0.5" of water head	1	Centrifugal	✓

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1.3.1.7 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Dentistry (Bldg. M1.3 & M1.4) - O & M Ref: 1.5.1 - Set 8 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Piping System & Insulation	Black Steel			20mm to 300mm DN	✓
	Galvanized Steel			16mm to 50mm DN	✓
	Fiber Glass insulation			15mm to 50 mm thickness	✓
Ducting System & Insulation	GSD- Medium Pressure				✓
	GSD-Low Pressure				✓
	Fiber Glass insulation			Blanket type/40 mm thick	✓
	VAV-2	235-470 Lps		With Thermostat	✓
	VAV-3	475-660 Lps		With Thermostat	✓
Ducting System & Insulation	VAV-4	665-1040 Lps		With Thermostat	✓
	VAV-5	1045-1320 Lps		With Thermostat	✓
	VAV-6	1325-1890 Lps		With Thermostat	✓
Valves	Gate Valves			50mm to 100mm DN	✓
	Balancing Valves			50 mm to 100mm DN	✓
	3 Way Valves				✓
	Globe Valves				✓

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1.3.1.7-Work Parcel 1- List of Plumbing Equipment

Faculty Of Dentistry (Bldg. M1.3 & M1.4) - O & M Ref: 1.5.1 - Set 8 / Div 1

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Soft Water	Water Softener (WS-D-1)	1 lps	1	Simplex type WS with Exchange capacity 69225 g/m3, Hardness at inlet 350 ppm, Hardness at outlet 5 ppm, & resin volume 72 L	✓
Domestic Hot Water	Electric Water Heater (EWH D1-1)	100	1	3 KW Electric water heater	✓
	Electric Water Heater (EWH D2-1)	100	2	3 KW Electric water heater	✓
Drainage	Pump (P-D-51)	1.6 Lps @ 10 m Head	2	Submersible	✓
	Pump (P-D-52)	2 Lps @ 10 m Head	2	Submersible	✓
Piping System & Insulation	PVC			20mm to 75mm DN	✓
	Copper			15 mm DN	✓
	Galvanized Steel			65mm to 100mm DN	✓
	HDPE			50mm to 250mm DN	✓
	BSP			25mm to 80mm DN	✓
Valves	Ball Valves			15mm to 40mm	✓
	Gate Valves			50 mm	✓
Sanitary Fixtures & Accessories	Drinking Fountain				✓
	Lavatory Mixer LAV-1				✓
	Lavatory Tap LAV-2				✓
	Lavatory Mixer LAV-3				✓
	Sink Mixer				✓
	Sink Tap				✓
	Mop Sink Tap				✓
	Shower Mixers				✓
	Emergency Shower				✓
	Bib Cock Perineal Hose				✓
	Angle Valves/Flexibles				✓
	WC Flush Valves				✓
	Urinal Flush Valves				✓
	Flush Tanks				✓
	Water Hammer Arrestor				✓
	Hand Dryers				✓
	Liquid Soap Dispensers				✓
	Paper Towel Dispenser				✓

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1.3.1.8 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Public Health (Bldg. Q) - O & M Ref: 1.5.1 - Set 10 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	Air Handling Unit (AHU-Q-1)	13 T.R	1	Variable Air Volume AHU with Supply air flow 2390 lps, External Static pressure 1106 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-2)	19 T.R	1	Variable Air Volume AHU with Supply air flow 2300 lps, External Static pressure 858.9 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-3)	26 T.R	1	Variable Air Volume AHU with Supply air flow 4590 lps, External Static pressure 537 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-4)	18 T.R	1	Variable Air Volume AHU with Supply air flow 1875 lps, External Static pressure 747.6 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-5)	17.5 T.R	1	Variable Air Volume AHU with Supply air flow 1449 lps, External Static pressure 524.2 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-6)	26 T.R	1	Variable Air Volume AHU with Supply air flow 2165 lps, External Static pressure 529 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-7)	31 T.R	1	Variable Air Volume AHU with Supply air flow 3060 lps, External Static pressure 841.5 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-8)	36 T.R	1	Variable Air Volume AHU with Supply air flow 3590 lps, External Static pressure 701.2 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-9)	24 T.R	1	Variable Air Volume AHU with Supply air flow 2574 lps, External Static pressure 732.5 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-10)	21 T.R	1	Variable Air Volume AHU with Supply air flow 3420 lps, External Static pressure 1010 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-11)	20 T.R	1	Variable Air Volume AHU with Supply air flow 3655 lps, External Static pressure 713 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-12)	15 T.R	1	Variable Air Volume AHU with Supply air flow 3120 lps, External Static pressure 1308 Pa, with 2 coils (heating / cooling)	✓

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1.3.1.8 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Public Health (Bldg. Q) - O & M Ref: 1.5.1 - Set 10 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	Air Handling Unit (AHU-Q-13)	15.5 T.R	1	Variable Air Volume AHU with Supply air flow 2800 lps, External Static pressure 1127 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-14)	11.5 T.R	1	Variable Air Volume AHU with Supply air flow 1810 lps, External Static pressure 1066 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-15)	14.5 T.R	1	Variable Air Volume AHU with Supply air flow 2915 lps, External Static pressure 850.5 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-16)	22 T.R	1	Variable Air Volume AHU with Supply air flow 2330 lps, External Static pressure 983.6 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-17)	18 T.R	1	Variable Air Volume AHU with Supply air flow 2050 lps, External Static pressure 1137 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-18)	8 T.R	1	Variable Air Volume AHU with Supply air flow 1620 lps, External Static pressure 1077 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-19)	6 T.R	1	Variable Air Volume AHU with Supply air flow 815 lps, External Static pressure 960.4 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-20)	15 T.R	1	Variable Air Volume AHU with Supply air flow 2205 lps, External Static pressure 713.3 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-21)	11.5 T.R	1	Constant Air Volume AHU with Supply air flow 2840 lps, External Static pressure 350.4 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-22)	22 T.R	1	Variable Air Volume AHU with Supply air flow 4380 lps, External Static pressure 750.4 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-23)	43 T.R	1	Variable Air Volume AHU with Supply air flow 8130 lps, External Static pressure 692 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-24)	33 T.R	1	Constant Air Volume AHU with Supply air flow 5100 lps, External Static pressure 1159 Pa, with 2 coils (heating / cooling)	✓

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1.3.1.8 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Public Health (Bldg. Q) - O & M Ref: 1.5.1 - Set 10 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	Air Handling Unit (AHU-Q-26)	15 T.R	1	Variable Air Volume AHU with Supply air flow 2520 lps, External Static pressure 890.5 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-27)	17 T.R	1	Variable Air Volume AHU with Supply air flow 3135 lps, External Static pressure 1145 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-28)	17 T.R	1	Variable Air Volume AHU with Supply air flow 3285 lps, External Static pressure 1178 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-29)	9 T.R	1	Variable Air Volume AHU with Supply air flow 1600 lps, External Static pressure 786.8 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-30)	19 T.R	1	Variable Air Volume AHU with Supply air flow 3250 lps, External Static pressure 739.4 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-31)	16 T.R	1	Variable Air Volume AHU with Supply air flow 1355 lps, External Static pressure 510 Pa, with 2 coils (heating / cooling)	✓
	Air Handling Unit (AHU-Q-32)		1	Constant Air Volume AHU with Supply air flow 500 lps, External Static pressure 33.1 Pa, with 2 coils (heating / cooling)	✓
	Fan Coil Unit FCU-Q-3	3 T.R	1	Constant Air Volume FCU, Horizontal Type, with Supply air flow 610 Lps, External Static pressure 75 Pa, with 2 coils (heating/cooling)	✓
	Fan Coil Unit FCU-Q-4	1.5 T.R	1	Constant Air Volume FCU, Horizontal Type, with Supply air flow 371 Lps, External Static pressure 75 Pa, with 1 coil (heating/cooling)	✓
	split unit	1.86 KW R22	1	HAULING	✓
	split unit	3.5 KW	1	HAULING	✓
	split unit	5 KW	2	HAULING	✓
	split unit	12000 BTU/hr	1	YORK decorative wall type pump mode HLHA12FSA	✓
	split unit	18000 BTU/hr	11	O GENERAL	✓
	split unit	24000 BTU/hr	2	YORK decorative wall type pump mode HLHA24FSA	✓
	split unit	26000 BTU/hr	2	LG	✓
	split unit	26000 BTU/hr	1	MITSUBISHI	✓

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1.3.1.8 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Public Health (Bldg. Q) - O & M Ref: 1.5.1 - Set 10 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	split unit	35000 BTU/hr	1	MDV	✓
	split unit	36000 BTU/hr	1	YORK high wall decorative heat pump MCH36/BO0H36	✓
	split unit	60000 BTU/hr	2	MDV	✓
	FCU	4 Ton	3	Petra FCU 2 pipe , concealed duct type model CP18C3	✓
	FCU	3 Ton	1	Petra FCU 2 pipe , ceiling decorative type model RAC12GCC3	✓
	FCU	1.6 Ton	2	Petra FCU 2 pipe , ceiling decorative type model RAC5GCC3	✓
Ventilation	Fan (F-Q-01)	765 Lps @ 117 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-02)	1500 Lps @ 129 Pa	1	Smoke Exhaust fan	✓
	Fan (F-Q-03)	100 Lps @ 59 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-04)	620 Lps @ 93 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-05)	2550 Lps @ 122 Pa	1	Roof supply type fan	✓
	Fan (F-Q-06)	10215 Lps @ 279 Pa	1	Centrifugal type exhaust fan	✓
	Fan (F-Q-07)	780 Lps @ 144 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-08)	900 Lps @ 97 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-09)	3000 Lps @ 360 Pa	1	Smoke Exhaust fan	✓
	Fan (F-Q-10)	620 Lps @ 113.4 Pa	1	Roof extractor type exhaust fan	✓
	Fan (F-Q-11)	620 Lps @ 107 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-12)	3630 Lps @ 166 Pa	1	Roof supply type fan	✓
	Fan (F-Q-13)	3440 Lps @ 189 Pa	1	Roof supply type fan	✓
	Fan (F-Q-14)	920 Lps @ 119 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-15)	3052 Lps @ 178 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-16)	560 Lps @ 101 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-17)	160 Lps @ 68 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-18)	160 Lps @ 73 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-19)	4140 Lps @ 57 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-20)	320 Lps @ 82 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-21)	350 Lps @ 86 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-22)	1920 Lps @ 129 Pa	2	Roof extractor type fan	✓
	Fan (F-Q-23)	5000 Lps @ 234 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-24)	1310 Lps @ 109 Pa	1	Roof extractor type fan	✓

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1.3.1.8 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Public Health (Bldg. Q) - O & M Ref: 1.5.1 - Set 10 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Ventilation	Fan (F-Q-25)	1045 Lps @ 109 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-26)	1240 Lps @ 92 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-27)	1190 Lps @ 129 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-28)	1780 Lps @ 180 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-29)	990 Lps @ 85 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-30)	560 Lps @ 84 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-31)	710 Lps @ 83 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-32)	2925 Lps @ 156 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-33)	1275 Lps @ 100 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-34)	615 Lps @ 102 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-35)	875 Lps @ 125 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-35S)	1500 Lps @ 180 Pa	1	Smoke Exhaust fan	✓
	Fan (F-Q-36)	288 Lps @ 25 Pa	1	Propeller	✓
	Fan (F-Q-37)	288 Lps @ 25 Pa	1	Propeller	✓
	Fan (F-Q-38)	288 Lps @ 25 Pa	1	Propeller	✓
	Fan (F-Q-39)	3000 Lps @ 446 Pa	1	Smoke Exhaust fan	✓
	Fan (F-Q-40)	444 Lps @ 53 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-41)	3000 Lps @ 382 Pa	1	Smoke Exhaust fan	✓
	Fan (F-Q-42)	960 Lps @ 77 Pa	1	Roof extractor type fan	✓
	Fan (F-Q-43)	288 Lps @ 25 Pa	1	Propeller	✓
	Fan (F-Q-2TP)	497 Lps @ 40 Pa	1	Propeller	✓
Cooling	End Suction Pumps (P-Q-1)	53.8 Lps @ 20.5 m Head	2	End suction centrifugal secondary chilled water pump	✓
Heating	End Suction Pumps (P-Q-2)	21 Lps @ 20.5 m Head	2	End suction centrifugal secondary hot water pump	✓
	Circulator Pumps (P-Q-3)	9.35 Lps @ 14.4 m Head	2	Circulators for Heat exchanger	✓
	Circulator Pumps (P-Q-4)	8.25 Lps @ 11.7 m	2	Circulators for Hot water storage tank	✓
	Expansion Tank (EX-Q-1)	750 Lps	1	Expansion tank for heating system	✓
	Hot Water Storage Tank (HWST-Q-1)	4500 L	3	Vertical Type Hot Water Storage Tank of 2.75 Lps flow	✓
	Heat Exchanger (HEX-Q-1)	488.3 KW	2	Heat Exchanger Primary temperature 95 deg C, secondary temperature 60 deg C	✓
Piping System & Insulation	Black Steel			16mm to 200mm DN	✓
	Galvanized Steel			32 mm DN	✓
	Fiber Glass insulation			15mm to 50 mm thickness	✓

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1.3.1.8 - Work Parcel 1 - List of HVAC Equipment

Faculty Of Public Health (Bldg. Q) - O & M Ref: 1.5.1 - Set 10 / Div 2

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Ducting System & Insulation	GSD- Medium Pressure				✓
	GSD-Low Pressure				✓
	Fiber Glass insulation			Blanket type/40 mm thick	✓
	VAV-1	0-230 Lps		With Thermostat	✓
	VAV-2	235-470 Lps		With Thermostat	✓
	VAV-3	475-660 Lps		With Thermostat	✓
	VAV-4	665-1040 Lps		With Thermostat	✓
	VAV-5	1045-1320 Lps		With Thermostat	✓
	VAV-6	1325-1890 Lps		With Thermostat	✓

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1.3.1.8 - Work Parcel 1 - List of Plumbing Equipment

Faculty Of Public Health (Bldg. Q) - O & M Ref: 1.5.1 - Set: 10 / Div: 1

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Laboratory Services	Air Compressor (AC-PH-1)	46.7 Lps @ 8 bar	1	Duplex type air compressor	✓
	Vacuum pump (VAC-PH-1)	44.7 lps @ 635 mm HG	1	Duplex type vacuum pump	✓
Soft Water	Water Softener (WS-PH-1)	0.5 lps	1	Simplex type WS with Exchange capacity 69225 g/m3, Hardness at inlet 350 ppm, Hardness at outlet 5 ppm, & resin volume 36 L	✓
	Water Softener (WS-PH-2)	1 lps	1	Simplex type WS with Exchange capacity 69225 g/m3, Hardness at inlet 350 ppm, Hardness at outlet 5 ppm, & resin volume 72 L	✓
Domestic Hot Water	Circulator pumps (P-PH-52)	0.65 lps @ 14 m head	2	Hot Water storage tank circulator pumps one acting as stand by	✓
Distilled Water	Water Still (WD-PH-1)	14 KW	1	Electric type water still	✓
	Booster pumps	25 Gpm, 41.5 m Head	1	Booster pumps for distilled water system	✓
Drainage	P-H-53	1.26 Lps @ 6.1 Mwg	2	Submersible Pumps	✓
	P-H-54	1.26 Lps @ 6.1 Mwg	2	Submersible Pumps	✓
	P-H-55	1.26 Lps @ 6.1 Mwg	2	Submersible Pumps	✓
	P-H-56	1.96 Lps @ 8.5 Mwg	2	Submersible Pumps	✓
Piping System & Insulation	PVC			16mm to 75mm DN	✓
	Copper			15mm to 42 mm DN	✓
	Polypropylene			50mm to 110mm DN	✓
	Galvanized Steel			20mm to 50mm DN	✓
	HDPE			50mm to 315mm DN	✓
	BSP			15mm to 80mm DN	✓
	Fiber Glass Insulation			25mm thickness	✓
Valves	Ball Valves		76	15mm to 50mm	✓
	Globe Valves		12	15mm	✓
Sanitary Fixtures & Accessories	Drinking Fountain				✓
	Lavatory Mixer LAV-1				✓
	Lavatory Tap LAV-2				✓
	Lavatory Mixer LAV-3				✓

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1.3.1.8 - Work Parcel 1 - List of Plumbing Equipment

Faculty Of Public Health (Bldg. Q) - O & M Ref: 1.5.1 - Set: 10 / Div: 1

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Sanitary Fixtures & Accessories	Sink Mixer				✓
	Sink Tap				✓
	Mop Sink Tap				✓
	Shower Mixers				✓
	Emergency Shower				✓
	Bib Cock Perineal Hose				✓
	Angle Valves/Flexibles				✓
	WC Flush Valves				✓
	Urinal Flush Valves				✓
	Flush Tanks				✓
	Water Hammer Arrestor				✓
	Hand Dryers				✓
	Liquid Soap Dispensers				✓
	Paper Towel Dispenser				✓

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1.3.1.9 Work Parcel 1 - List of HVAC Equipment

Faculty of Science/Library/Old Cafeteria

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling / Heating	Split Unit	22000 BTU/hr	2	Haier	✓
	Split Unit	12000 BTU/hr	40	Mitsuko	✓
	Split Unit	12000 BTU/hr	4	LG	✓
	Split Unit	9000 BTU/hr	2	Haier	✓
	Split Unit	12000 BTU/hr	44	Goblen	✓
	Split Unit	24000 BTU/hr	1	Ameri-cool	✓
	Split Unit	30000 BTU/hr	2	Ameri-cool	✓
	Split Unit	24000 BTU/hr	1	O-General	✓
	Split Unit	18000 BTU/hr	1	Air Cool	✓
	Split Unit	12000 BTU/hr	1	Hanover	✓
	Split Unit	12000 BTU/hr	5	Air Cool	✓
	Split Unit	12000 BTU/hr	1	Hi-General	✓
	Split Unit	12000 BTU/hr	3	Haier	✓
	Split Unit	12000 BTU/hr	25	Samsung	✓
	Split Unit	12000 BTU/hr	5	O-General	✓
	Split Unit	24000 BTU/hr	17	LG	✓
	Split Unit	12000 BTU/hr	4	Galanz	✓
	Split Unit	12000 BTU/hr	2	Maytag	✓
	Split Unit	44000 BTU/hr	8	Goblen	✓
	Split Unit	18000 BTU/hr	2	Clima Smart	✓
	Split Unit	18000 BTU/hr	8	Ameri-cool	✓
	Split Unit	30000 BTU/hr	4	Air Cool	✓
	Split Unit	24000 BTU/hr	1	Air Cool	✓
	Split Unit	24000 BTU/hr	33	A-General	✓
	Split Unit	24000 BTU/hr	4	O-General	✓
	Split Unit	12000 BTU/hr	1	A-General	✓

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1.3.1.9 Work Parcel 1 - List of HVAC Equipment

Faculty of Science/Library/Old Cafeteria

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Cooling/ Heating	Split Unit	24000 BTU/hr	4	Rolls	✓
	Split Unit	18000 BTU/hr	20	Rolls	✓
	Split Unit	12000 BTU/hr	4	Rolls	✓
	Split Unit	12000 BTU/hr	2	Carrier	✓
	Dx-Split Unit	180000 Btu/hr	8	Ameri-cool	✓
	Cold ROOM/block A-5F-2 Coils	3 Hp/2.2 Kw	1	Dorin model:K30G S-01-R-22	✗
	Air Handling Unit (AHU)/Library-Roof	1000000 BTU/hr	1	Weather-Mate Constant Air Volume AHU with one coil (Cooling/Heating)	✓
	Air Cooled Chiller/Library-Roof	80 TR	1	Weather-Mate	✓

Ventilation	Fan block A & C	900 m3/hr	8	Propeller Wall Axial Fan	✓
	Fan block A Attic	400 CFM	66	Centrifugal Exhaust Fan	✓
	Fan block A Attic	900 CFM	30	Centrifugal Exhaust Fan	✓
	Fan block A & B Roof	600 CFM	3	Roof Exhaust type Fan	✓
	Fan Library-GF	600 CFM	3	Propeller Wall Axial Fan	✓
	Fan # 1 Library-4 BAS	15230 m3/hr	1	Centrifugal Fan	✓
	Fan # 2 Library-4 BAS	22542 m3/hr	1	Centrifugal Fan	✓
	Fan # 3 Library-4 BAS	123733 m3/hr	1	Centrifugal Fan	✓
	Fan # 4 Library-2R	13500 m3/hr	1	Centrifugal Fan	✓
	Fan # 8 block A-2R	11000 m3/hr	1	Centrifugal Fan	✓
	Fan # 6 block A-2R	900 CFM	1	Centrifugal Fan	✓
	Fan # 7 block A-2R	2400 CFM	1	Tubeaxial Fan	✓
	Fan # 9 block A-2R	2900 CFM	1	Axial Fan	✓
	Fan # 2 block A-2R	7000 CFM	1	Centrifugal Fan	✓
	Fan # 3 block A-1Bas	6000 CFM	1	Centrifugal Fan	✓

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1.3.1.9 Work Parcel 1 - List of HVAC Equipment

Faculty of Science/Library/Old Cafeteria

System	Equipment	Capacity	Qty	Technical Description	Maintenance Instruction Provided in O&M Manuals Listed in Appendix 1.5.1
Ventilation	Fan # 1&2 block A-1Bas-Kn	900 CFM	4	Propeller Wall Axial Fan	✓
	Fan # 10 block A-Attic-Lift Room	9000 CFM	1	Centrifugal Fan	✓
	Fan # 1,2,& 3-block B-GF	600 CFM	3	Exhaust Wall Axial Fan	✓
	Fan # 4-block C-5BAS	600 CFM	1	Exhaust Wall Axial Fan	✓
	Fan # 1-Cafeteria-Attic	4000 CFM	1	Exhaust Inline Fan	✓
	Fan # 2-Cafeteria-Attic	35000 CFM	1	Fresh Inline Fan	✓
	Fan # 3-Cafeteria-Attic	40000 CFM	1	Exhaust Inline Fan	✓
	Fan # 4-Cafeteria-Attic	6000 CFM	1	Exhaust Inline Fan	✓
	Fan # 5 block A-2R	11500 CFM	1	Centrifugal Fan	✓
	Fan # 3 block A-2R	11500 CFM	1	Centrifugal Fan	✓
	Fan # 11 block A-GF-EX	2500 CFM	1	Roof Exhaust type Fan	✓
	Fan # DSPN block A-GF-EX	2500 CFM	1	Roof Exhaust type Fan	✓
	Fan # 10 block A-3BAS	11500 CFM	1	Centrifugal Fan	✓
	Hood # 1 block A1-4F	2000 CFM	1	Exhaust Fan	✓

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1.3.1.9 - Work Parcel 1 - List of Plumbing Equipment

Faculty of Science , old cafeteria & Library

System	Equipment	Capacity	Qty	Technical Description	Level	Room No.	Maintenance Instruction Provided in Section 1.4.2
Soft Water				Not Applicable			N/A
Domestic Hot Water				Not Applicable			N/A
Drainage	Pump	0.5 HP 3 AM	2	Submersible	Basement	Cafeteria	✓

Piping System & Insulation	Galvanized Steel			1/2" to 4" DM			✓
	Copper			15 mm DM			✓
	Cast Iron			2" to 12" DM			✓
	HDPE			50mm to 110mm DM			✓

Valves	Ball Valve			1/2" to 2" DM			✓
	Gate valve			1/2" to 5" DM			✓

Sanitary Fixtures & Accessories	Drinking Fountains			Not Applicable			N/A
	Lavatories*		239				✓
	EWC(European Water Closet)**		193				✓
	AWC(Asiatic Water Closet)**		9				✓
	Urinals**		110				✓
	6KG Powder Fire Extinguishers		196				✓
	4.5KG CO2 Fire Extinguishers		11				✓
	9Liter H2O Fire Extinguishers		3				✓
	Showers*			Not Applicable			N/A
	Hand Dryers			Not Applicable			N/A
	Liquid Soap Dispensers			Not Applicable			N/A
	Paper Towel Dispensers			Not Applicable			N/A
	Fire Hose Real		33				✓
	Mixer for Sink		10				✓
	Mixer for Sink in Laboratory		220				✓