

1 Firm Buildings (Main Buildings)

1. Faculty of Science (FOS)
2. Sultan Hassanah Bolkiah Institute of Education (SHBIE)
3. Faculty of Arts and Social Sciences (FASS)
4. Institute for Leadership, Innovation and Advancement (ILIA)
5. Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah Institute of Health Sciences (I.H.S)
6. Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah Institute of Health Sciences Extension Building (I.H.S)
7. Information Communication Technology Centre (ICTC)
8. Central Lecture Theatres (CLT)
9. Student Staff Centre (Student Affairs Building)
10. Student Affairs Extension
11. Academic Service Centre
12. Administration and UBD Estate Office Building
13. Mosque
14. Chancellor Hall (Grand Hall)
15. Store and Maintenance Centre
16. Security (Main Gate)
17. Chillers Yard
18. Ancillary Buildings (Incinerator, pump house, Service tunnel, water tank, sub stations, etc)
19. Faculty of Integrated Science (Extension)
20. Science and Technology Research Laboratories
21. Library Extension
22. Faculty of Business, Economic and Policy Studies (SBE)
23. Male and Female amenities and Canteen dining room (hostel)

1.1. Planned Maintenance of Air-Conditioning and Ventilation Installations

1.1.1. The Scope of works for this section is for the planned maintenance of Air- Conditioning and Ventilation Installation listed below, but not limited to the following:-

- 1.1.1.1. Air-Handling Units
- 1.1.1.2. Fan-Coil Units
- 1.1.1.3. Air-Cooled Condensing Units
- 1.1.1.4. Variable Air Volume (VAV) Terminal Units
- 1.1.1.5. Variable Refrigerant Flow (VRF) Units/ VRV Units
- 1.1.1.6. Split-Type Air-Conditioning Units (including any associated indoor unit, outdoor units and respective ducting / insulation/drainpipes)
- 1.1.1.7. Close Control Units (including any associated indoor, outdoor units and accessories)
- 1.1.1.8. Precision Air Conditioning System
- 1.1.1.9. Room Air Conditioning Units (RAC)
- 1.1.1.10. Chilled water condensing Units
- 1.1.1.11. Exhaust Fans
- 1.1.1.12. Air Curtains
- 1.1.1.13. Ductworks and any other associated systems for the smooth
- 1.1.1.14. operation of Air• Conditioning and VentilationSystems

1.2. The Contractor shall refer to the attachment Facilities Data

1.3. The Contractor shall be fully responsible for maintaining all the equipment listed at the schedule of equipment as stated above in full working order throughout the Contract Period.

1.4. The Contractor shall carry out the maintenance works as set-out in Facilities Data and shall honor all the manufacturer's recommendation with regards to the equipment's / systems that are being maintained.

1.5. The specification provided under Facilities Data act only as guidelines. As such the Contractor shall be fully responsible to ensure such maintenance works are in compliance with the manufacturer's requirements and recommendations. Any deviations forthwith shall be notified to the Client's Representative at the Commence of the Contract prior to Commencement of Full Operations.

1.6. The scope of works for this section is for the satisfactory maintenance of all the air-conditioning and ventilation installations and its accessories within the Site Area. All costs for scope of Works and Services for this Section are deemed to be included as per month bill of quantity

1.7. The Contractor, at all times, during the maintenance works shall ensure that the maintenance activities do not render the original supplier / manufacturer's warranty void or invalid. The Contractor shall always refer to the terms and conditions of warranty / indemnity furnished by the original supplier / manufacturer prior to performing any maintenance activities. Any defaults by the Contractor and associated damages arising due to violation of warranty / indemnity terms and conditions shall make the Contractor liable for payment to the Client for the associated damages. The Client shall notify the Contractor of such damages and shall make necessary adjustments to any payment due for the Contractor.

1.8. The Contractor shall be responsible for maintaining any battery packs associated with the air-conditioning and ventilation system including those of remote controls.

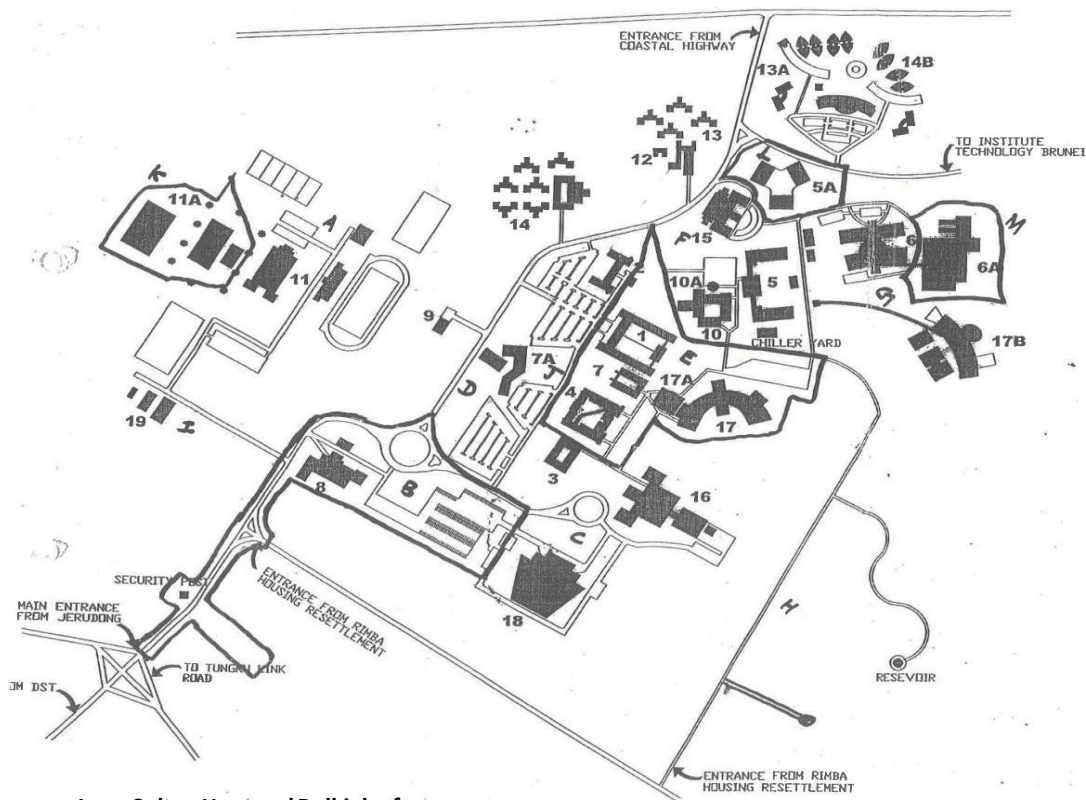
1.9. The Contractor shall also be responsible for providing assistance and troubleshooting configuration and set-point issues that arise in the central or individual control systems during the Contract Period.

1.10. Where required Contractor shall add the appropriate refrigerant during the maintenance works scheduled

1.11. Where applicable systems running on flexible or V-belts shall be replaced by the Contractor.

1.12. The Costs included under Bill quantity are deemed inclusive of all the above Scope of Works. No additional claims or whatsoever will be entertained by the Client in Contractor's failure to include any costs associated therewith.

1.13. The contractor shall provided enough at least two technicians for standby within campus compound during/before/after if required any UBD event within the period of the contract as per S.O instruction



1. Sultan Hassanali Bolkiah of Education
2. Academy of Brunei Studies
3. School of Business Education
4. Faculty of Arts and Social Sciences
5. Faculty of Science
 - a. Faculty of IntergratedScience
6. Faculty of Medicine
 - a. Faculty of Medicine (Extension)
7. Central Lecture Theatre
8. ILIA
9. Simpura Cafe
10. Student Centre Affairs
 - a. Extension of Student Affairs (inspiring Hall)
11. Male Ammenities
12. Female Residential
13. Female Amenities
14. Mosque
15. Administration
 - a. Administration Extension
16. Library
 - a. Extension of Library
 - b. ICTC building
17. Chancellory Hall
18. Store
19. Security Post

APPENDIX ·BI - FIRM BUILDINGS

No	Buildings	
Main Facilities		
1	Faculty of Science (FOS)	Ground Floor First Floor Second Floor Third Floor & Roof Animal House Electrical Plant Room & Genset Room FlammableHouse Growth Chamber
2	Faculty of Integrated Science	Ground Floor First Floor Second Floor Third Floor & Roof
3	Science and Technology Research	Ground Floor First Floor
4	Sultan Hassanal Bolkiah Institute of Education (SHBIE)	Ground Floor FirstFloor Second Floor Roof & Lift Motor Room Rubbish Centre and Gas Cylinder Area
5	Faculty of Business, Economics and Policy Studies (FBEPS)	Ground Floor First Floor
6	Faculty of Arts and Social Science (FASS)	Ground Floor First Floor Second Floor Roof & Lift Motor Room
7	Academy of Brunei Studies- The Language (Faculty of Islamic Studies)	Ground Floor First Floor Second Floor Roof & Lift Motor Room
8	Institute for Leadership, Innovation and Advancement (ILIA)	Ground Floor First Floor Second Floor Third Floor Roof & Lift Motor Room Pump Room, Sub Station, Chiller Yard Rubbish Centre
9	Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah Institute of Health Science (Institute of Medicine)	Ground Floor First Floor Second Floor Pump Room, Sub Station Chiller Yard incinerator
10	Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah Institute of Health Science (Institute of Medicine) Extension	Ground Floor First Floor Second Floor Third Floor Four floor Fifth floor
11	Central Lecture Theatre	Ground Floor First Floor & Roof Level

No	Buildings	
Main Facilities		
12	Student Staff Centre	Lower Ground Floor Upper Ground Floor First Floor, Roof & Lift Motor Room Sub Station Rubbish Centres
13	Student Staff Centre (Extension)	Ground Floor
14	Library	Basement Ground Floor First Floor Second Floor Third Floor Roof & Lift Motor Rooms
15	Information Communication Technology Centre ICTC New (No 178) Block A & B	Sub Lower Ground Floor Lower Ground Floor Upper Ground Floor First Floor Second Floor Third Floor Fourth Floor Roof & Lift Motor Room
16	Administration Building - Administration	Ground Floor First Floor Second Floor Attic Floor and Roof
17	Administration Building- Extension of Administration [Estate office)	Ground Floor First Floor Sub Station
18	Mosque	Main Prayer Hall - Ground Floor Male Ablution Female Ablution Minaret Mezzanine Floor Sub Station & Pump Room Chiller Yard
19	Store and Maintenance Centre	Central Store Maintenance Centre Lockable Compound Vehicle Garage Sub Station
20	Chancellor Hall	Lower Ground Floor Upper Ground Floor including Mezzanine Floor First Floor Roof Pump Room / Water Tank Area Chiller Yard
21	Security MainGate	Ground Floor
22	Service Tunnel	Under Ground
24	Male and Female Amenities	
25	Simpur café	Ground Floor

General

The Contractor shall perform the Works and Services in accordance with the requirements of the specifications detailed hereunder and the appendices herewith. Any deviations to these specifications without prior written approval from the Client's Representative may result in the Contractor to repeat and make good the job without any compensation from the Client.

In case of conflict amongst the various documents, the following priority shall apply:

.Scope of Work and Services B).Specification &Facilities Data
Locally and internationally recognized Industry Standards

Any contradiction to any of these specifications and/or between specifications shall be brought to the attention of the Client's Representative, prior to execution of such affected Works, whose decision shall be final.

From time to time, depending on the Work and location, it may be considered economical to deviate from the specifications specified in Clause 1 herein, and the Contractor shall obtain the prior approval and agreement of the Client's Representative for such deviations. Any unauthorized deviations will not be accepted by the Client.

The Client shall have the right to update any of these specifications as and when the Client considers it necessary. The Contractor shall ensure that all Work is performed in accordance with the most recent revision of each specification.

The Contractor shall be deemed to have inspected and examined all premises to understand and satisfy themselves of the requirements set forth in the Contract.

Health, Safety, Security and Environment

The contractor shall familiarize and perform all the works in compliance with the local industry recognized standards for Health, Safety, Security and Environment and shall adhere to the requirements and regulations of relevant local authorities.

Health and Safety

Contractor shall ensure that HSSE requirements, policies and local regulations are strictly adhered to at all times during the Work throughout the Contract Period.

Workers involved in the above works shall be briefed by the Contractor's Safety Officer on prevailing HSSE and strictly adhere to health and safety regulations. Where recommended protective gloves, masks etc. shall be worn to avoid direct contact to body and inhaling of chemicals, pesticides, fungicides, weed killers, etc. All costs incurred thereby in providing these equipments to the workers are to be borne by the Contractor and no extra payment shall be made for such provisions.

SPECIFICATION FOR THE MAINTENANCE OF AIR-CONDITIONING AND VENTILATION INSTALLATIONS

General Requirements

The term 'Equipment' mentioned below under this section is specific to maintenance of Air-Conditioning and Ventilation installations.

The Contractor shall only employ qualified, trained, certified and experienced technicians and mechanics in the type of work being undertaken.

All such maintenance works shall be carried out under the supervision of a competent foreman / supervisor nominated by the Contractor.

The Contractor shall obtain prior approval from the Client's Representative on the employees employed for such maintenance works.

The Contractor shall ensure that required level of laborer's, technicians, mechanics and supervisors are maintained throughout the Contract Period.

The Contractor shall notify the Client's Representative immediately without delay on defective parts that are deemed to be hazardous and/or considered to affect the equipment life. If the defect can be reasonably attributed to negligence or incompetence on the part of the Contractor, the repair shall be entire at the Contractor's expense.

Where it is necessary to shut down equipment for routine maintenance this shall be done in liaison with the Client's Representative in the place affected. This will take the form of shutting down the equipment during the Core Service Hours at a time it will cause least disturbance to the occupants and the operation. Occasions where it is practical to shut down equipment only after Core Service Hours, the Contractor shall make prior special arrangements for access and security clearance with the Client's Representative.

The Contractor shall provide all labor, plant, tools, equipment's, and materials etc. for carrying out the maintenance works.

Where stand-by units are installed, such units shall be changed over each month or as recommended by manufacturer in order that the stand by unit becomes the duty unit and its operating performance can be checked. This will also ensure that all plant items are subjected to equal working times.

The following information is to be recorded every three months for each air-conditioned area and the result submitted to the Client's Representative:-

Dry bulb temperature Wet bulb temperature Relative humidity

Service reports shall be submitted to the Client's Representative within two working days of a service being carried out. The service report is to show full detail of the service and is to state the exact condition of the equipment inspected. Any defects found during the inspection are to be clearly described on the service report.

The Contractor shall provide 24/7 Emergency Response Team (ERT) in the case of emergency.

Maintenance Works Schedule

The following schedules are to be considered as minimum requirements and in performing the following works manufacturer's recommendation shall be strictly adhered. All materials required for the maintenance activities, including but not limited to, grease, oils, belts, filters, refrigerants etc. and all necessary works shall be deemed inclusive of the respective rates for the maintenance activity under their category. No additional claims or whatsoever will be entertained for such materials.

Equipment	Maintenance Works
Air Handling Units (AHU)	<p>Belts</p> <p>Proper belt tensioning is required ensure maximum bearing and component life and is based on brake horsepower required. Belts would reach their permanent stretch after hours of operation. Belt tensions shall be measured in accordance manufacturer's recommendation.</p>
	<p>Filters</p> <p>Check air filters. Clean or replace if clogged or dirty. Coat permanent filterswith oil after cleaning. Change bag filters when pressure drop is 1-inch W.G.</p> <p>Permanent filters - Clean permanent filters by washing under a stream of water to remove dirt and lint. Remove oil filter (aluminum or grease filter) with a wash of mild alkali solution. Rinse in a clean, hot water and allow to dry. Coat both sides of the filter by immersing or spraying it with Air Maze Filter Late W or equivalent. Allow to drain and dry for about 12 hours.</p>
	<p>Coils</p>
	<p>Inspect for leads and corrosion. Repair or replace as required. Check for dirty coils. Clean as required; wash or blow clean with inert gas or compressed air Steam, hot water and chilled water coils should be kept clean to maintain maximum steam and detergent , hot water spray andperformance. If fins become dirty, clean with detergent, or one of the commercially available chemical coil cleaners. Rinse coils thoroughly after cleaning. Refrigerant coils should be kept clean to maintain maximum performance. If fins become dirty, clean with cold water and detergent or one of the commercially available chemicals coil cleaners. Rinse thoroughly after cleaning. Never use steam or hot water to clean a refrigerant coil.</p>
	<p>Fans</p>
	<p>Fan bearings are permanently sealed and lubricated as such do not attempt to lubricatebearings. However, check for unusual noise, high temperatures or vibration; screws, shaft collars, etc.) and tighten as required.</p>
<p>Inspect fan blades (or fan wheel) for build-up of dirt or scale, use soft brush or clean rags to loosen or remove dirt, and flush surfaces with clean water. Inspect components and repair or replace as required. This includes repairing defects in protective coatings. If work performed on fan wheel, check balance and rebalance as required.</p>	
<p>Fan motors should be checked for vibration or temperature.</p>	

Equipment	Maintenance Works
Air Handling Units (AHU)	<p>Dampers Inspect damper assemblies, and report all discrepancies to Client's Representative. Inspection shall include the following:- 1 Verify damper position relative to facility mode of operation. Adjust position indication switches as required .2 Exercise dampers to verify free operation; repair or adjusted as required. 3 Inspect seals and seal contacting surfaces for full contact; adjust seals and/or repair seals and seal contacting surfaces as required. 4 Wipe clean damper operator and connecting linkages; apply a light coat of oil. Clean and inspect bearings; lubricate and adjust bearings as required.</p>
	<p>Operating Valves Verify valve position relative to facility mode of operation. Adjust position indication switches as required. Clean rods on valve operator and apply a light coat of protective oil. Inspect seals; Inspect and tighten packing as required.</p>
	<p>All Valves Exercise all valves and perform routine maintenance, and report all discrepancies to Client's Representative. Grease stems on</p>
	<p>Check Greasing on fan and motor lubrication (if necessary).</p>
Fan Coil Units	<p>Condensation on Units Check for any condensation on unit</p>
	<p>Coil Remove return-air grille access panel and brush between coil fins with stiff wire brush. Follow-up by cleaning with vacuum cleaner. If the coil is cleaned with air hose and nozzle, take care not to drive dirt and dust into other components.</p>
	<p>Fan Wheel</p>
	<p>Lock open and tag unit electrical switch. For access to fan assembly, remove front or bottom panel. Fan assembly may be removed from its tracks if unit has a long conduit lead. Use a stiff brush or vacuum to remove dirt and debris from scroll. Wipe all fan surfaces with a damp cloth.</p>
	<p>Thermostat Ensure all the set-points are appropriate and are working</p>
Volume (VAV)	<p>Ensure electrical connections are intact and to make sure air flow rate is in optimal flow</p>
	<p>Any other manufacturer's recommendation</p>
Variable Refrigerant Flow (VRF) and Variable Refrigerant Volume (VRV) System indoor units	<p>Remove the filters and clean thoroughly and replace. Clean drain outlets; brush or blow down drain lines Ensure the all fixings, bolts, screws etc. of the indoor cassettes are intact Ensure all the set-points are appropriate Ensure electrical connections are intact Check for any refrigerant leaks While servicing the ducted units ensure the access is back in position firmly.</p>

Variable Refrigerant Flow (VRF) and Variable Refrigerant Volume (VRV) System - Outdoor Units	<p>Compressors</p> <ol style="list-style-type: none"> 1. Check for refrigerant leakage and top-up as necessary. 2. Check oil level in sight glass. If low top- up as necessary and record amount used. 3. Leak test all joints with leak industry standard test lamp 4. Check for vibration and security of all components (including compressor holding down bolts). 5. Visually check alignment of pipes 6. Check capillaries, for rubbing damage, etc. 7. Checking operation of crankcase heaters 8. Check compressor operation, take pressure and temperature readings 9. Take and record motor amps 10. Random check of electrical connections and contactor operations 11. Inspect sight glass for moisture and record if not dry. 12. Visual check driers 13. VRF units operate with active oil management system and if any oil shortage is detected in any compressor, oil can be transferred automatically from a compressor in another outdoor unit. Contractor shall ensure the connections of such balancing pipe between outdoor units for uniform oil level. 14. Clean the air-filter and vacuum as necessary. Ensure all such dirt or foreign particles do not enter the other systems. 15. Check drain pipes for cleanliness
	<p>Fan</p> <ol style="list-style-type: none"> 1. Check for smooth operation and if there is any noise report to the Superintending Officer and recommend further action. 2. Open the grille in accordance to manufacturer's recommendation. 3. Clean the fan for settlement of dust or foreign particles. 4. Check the DC fan motor for its smooth operation.
	<p>Compressors</p> <ol style="list-style-type: none"> 1. Check suction superheat and record readings On open drive compressors check security of couplings pulleys and belts, etc.
Split-Type Air Conditioning Units (Indoor Units)/Ceiling Mounted Cassette Type	<p>Remove the filters and clean thoroughly and replace.</p> <p>Clean drain outlets; brush or blow down drain lines</p> <p>Ensure that all fixings, bolts, screws etc. of the indoor cassettes are intact</p> <p>Ensure all the set-points are appropriate</p> <p>Ensure electrical connections are intact</p> <p>Check for any refrigerant leaks</p>
Split-Type Air Conditioning Units (Outdoor Units)	<p>Compressors</p> <ol style="list-style-type: none"> 1. Check for refrigerant leakage and top- up as necessary. 2. Check oil level in sight glass. If low top- up as necessary and record amount used 3. Leak test all joints with industry standard leak test lamp. 4. Check for vibration and security of all components (including compressor holding down bolts). 5. Visually check alignment of pipes 6. Check capillaries, for rubbing damage, etc. 7. Checking operation of crankcase heaters. 8. Check compressor operation, take pressure and temperature readings

Equipment	Maintenance Works
Split type Air-Conditioning System (Standing Type)	Isolate the unit electrically disconnect.
	Coil fins to be straightened by a fin comb.
	Chassis base, compressor and fan mounting to be examine for rust or deterioration. Affected area to be wire brush and treated with bituminous paint or other corrosion inhibitor.
	Check the fans are located on the shaft correctly and are secured.
	Fans shaft to be cleared and greased.
	Test the fan motor insulation resistance using a Mega Ohmmeter and record value on the service report.
	Test the compressor motor winding insulation resistance of both start and run winding using a Mega Ohmmeter and record value on the service report.
	Check the drainage channels from the evaporator section are clear.
	Leak detects with halide or electronic leak detector all refrigerant pipe work on the unit. Report any leaks immediately to Client's Representative.
	Startup unit and record both the starting and running current draw and record these on the service record. Compare values with manufacturer's data - note any difference greater than 10%.
	Filter and front cover to be washed and dried thoroughly.
	Check fan speed control at all speeds if fitted for correct operation.
	Check and record 'air on' and 'air off' temperatures across condenser and evaporator and record.
Precision Air-Conditioning System	Check that the room values shown by the control are accurate
	Check the refrigerant load; make sure that there are no more than a few bubbles in the flow sight glass on the refrigerant circuit
	Check that the temperature and noise emitted by the compressor and the fan are normal
	Check the air filter; clean or replace it if it triggers the dirty filter alarm. Cost of such filter replacements are deemed inclusive of the rates for the respective maintenance activity.
	While cleaning the air filter, remove and inspect the filter cartridge (whenever there is a blocked filter alarm). Tap the filter to remove large particles of dust and then clean with a vacuum cleaner.
	Check the power supply voltage
	Check that the damper can move freely and that the neoprene rubber around the edge of the damper gives a tight
	Check that the noise made by the unit is normal
	Check that evaporation and condensation pressures (or saturated temperatures) are normal
	Check the correct flow of condensation water to the drain
Check whether the MRA condenser is dirty, removing any obstructing materials (leaves, paper, etc.) with a jet compressed air or water	

Equipment	Maintenance Works
Exhaust Fans, Duct Mounted Exhaust Fans	Check for smooth running. Ensure there is no noise generated. Check the fan and impeller for unusual accumulation. Clean as per manufacturer's recommendation as required.
	Check the impeller for build-up of material or dirt which may cause an imbalance with resulting undue wear on bearings and belt drives. Clean as per manufacturer's recommendation as required.
	Inspection of the rotating assembly must be made to detect any indication of weakening of the rotor because of corrosion, erosion, or metal fatigue.
Air Curtains.	Ensure all the units are clean and free from dust.
	Remove the filters and clean thoroughly and replace. Replace filter if necessary.
	Ensure the all fixings, bolts, screws etc. of the units are intact.
Ductworks	Visually inspect for leaks, repair and report
	Visually inspect external insulation for damage and looseness
	All vapour seals shall be inspected for damage and repair
	Flexible connections to be checked for security and damage
	Diffusers and grills to be cleaned by soft brush or vacuum
	Internal insulation to be visually inspected for looseness and damage
	Vacuum clean ductwork where possible
	Wash all return and supply grilles and diffusers with mild non-abrasive cleaner. Do not dirty walls or ceiling whilst cleaning grilles and diffusers.

2.5.2 GUIDELINES FOR MINIMUM REQUIRED FREQUENCIES

Work	Area	Frequency / Requirement
Air Handling Units	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule in item above
Fan Coil Units	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations..	Refer to Maintenance Works Schedule in item above
Variable Air Volume(VAV)	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule in item above
Work	Area	Frequency / Requirement
Variable Refrigerant Flow (VRF) and Variable Refrigerant Volume (VRV) System indoor units	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule in item above
Variable Refrigerant Flow (VRF) and Variable Refrigerant Volume (VRV) System indoor units	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule in item above
Split-Type Air- Conditioning Units (Indoor Units)	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule in item above

Split-Type Air- Conditioning Units/ (Outdoor Units)	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule initem above
Split-Type Air- Conditioning Units (Standing)	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule initem above
Portable Air- Conditioning	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule initem above

Work	Area	Frequency / Requirement
Precision Air- Conditioning	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule initem above
Propeller Wall Mounted Exhaust Fans, Duct Mounted Axial Exhaust Fans,	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule initem above
Air Curtains	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule initem above
Work	Area	Frequency / Requirement
Duct Works (including all types of diffusers, weather louvers, Return Air Grilles)	In accordance with the maintenance schedule above and Schedule of Prices Bill of quantity- Maintenance of Air-Conditioning and Ventilation Installations.	Refer to Maintenance Works Schedule initem above

Item	Description	Kuantiti /Qty	Unit/ Unit	Kadar/ Rate	Jumlah Amount	
					₹	₳
	<u>MAINTENANCE OF AIR-CONDITIONING AND VENTILATION</u>					
	<u>INSTALLATIONS</u>					
	<u>NOTES</u>					
	All maintenance works for air-conditioning and ventilation installations below shall be in accordance with Section 5 - Specification and Facilities Data and as per manufacturer's recommendation for maintenance and operation.					
	<u>AIR CONDITIONING INSTALLATIONS</u>					
	<u>Performance of category D (Monthly) Maintenance Works as per specification and in accordance with manufacturer's recommendation</u>					
A	<u>Air Handling Units (AHU)</u>					
1	<u>Faculty of Science</u>					
	Ground Floor	12	sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
	Faculty of Science - Third Floor & Lift Motor Room	12	Sum			
	Faculty of Science - Animal House	12	Sum			
2	<u>Sultan Hassanah Bolkiah Institute of Education (SHBIE) -</u>					
	Ground Floor (IBER)	12	Sum			
	First Floor	12	sum			
	Second Floor	12	Sum			
3	<u>Pengiran Anak Puteri Rashidah Sa'adatun Bolkiah Institute of Health Science (I.H.S Main Building)</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
4	<u>Institute of Health Science (Extension) -</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
5	<u>Integrated Science Building</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
	Third Floor	12	Sum			
	Fourth Floor	12	Sum			
B	<u>Split-Type Air-Conditioning Units (Indoor Units) Wall / Ceiling Mounted/Cassette Type/Standing Type and Outdoor Unit</u>					
1	Mosque	12	Sum			
2	Faculty of Science	12	Sum			
3	Integrated Science Building	12	Sum			
C	<u>Fan Coil Units (FCU)</u>					
1	<u>Faculty of Science</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
	Third Floor & Lift Motor Room	12	Sum			
	Animal House	12	Sum			
	Growth Chamber	12	Sum			
2	<u>Institute of Medicine (Extension)</u>	12	Sum			
3	<u>Integrated Science Building</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
	Third Floor	12	Sum			
4	<u>Sultan Hassanah Bolkiah Institute of Education (SHBIE) -</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
5	<u>Institute of Medicine (Extension)</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
D	<u>Ductworks</u>					
1	<u>Institute of Health Science</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
	To Collection (BOQ 1 of 7)					

Item	Description	Kuantiti /Qty	Unit/ Unit	Kadar/ Rate	Jumlah Amount	
					\$	€
	<u>Performance of category D (Monthly) Maintenance Works as per specification and in accordance with manufacturer's recommendation</u>					
D	<u>Ductworks</u>					
2	<u>Integrated Science Building</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
	Third Floor	12	Sum			
3	<u>Sultan Hassanah Bolkiah Institute of Education (SHBIE) -</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
4	<u>Institute of Medicine (Extension)</u>					
	Ground Floor	12	Sum			
	First Floor	12	Sum			
	Second Floor	12	Sum			
	<u>Performance of category G (Quarterly) Maintenance Works as per specification and in accordance with manufacturer's recommendation</u>					
A	<u>Air Handling Units (AHU)</u>					
1	<u>Faculty of Arts and Social Sciences (FASS)</u>					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
2	<u>Academy of Brunei Studies - (Faculty of Islamic Studies)</u>					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
3	<u>Institute for Leadership, Innovation and Advancement (ILIA)</u>					
	- Ground Floor	4	Sum			
	- First Floor	4	Sum			
	- Second Floor	4	Sum			
	- Third Floor	4	Sum			
3	<u>Central Lecture Theatre</u>					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
5	<u>Student Staff Centre</u>					
	Lower Ground Floor	4	Sum			
	Upper Ground Floor	4	Sum			
	First Floor and Lift Room	4	Sum			
6	<u>Academic Service Centre (Educational Technology Centre, Library & Information Communication Technology Centre) -</u>					
	Basement	4	Sum			
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Third Floor	4	Sum			
7	<u>Information Communication Technology Centre</u>					
	Sub Lower Ground Floor	4	Sum			
	Upper Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Third Floor	4	Sum			
	Fourth Floor	4	Sum			
8	<u>Administration</u>					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Attic Floor & Roof	4	Sum			
9	<u>Chancellor Hall</u>					
	Lower Ground Floor including Carpark	4	Sum			
	Upper Ground Floor including Mezzanine Floor and Projector Room	4	Sum			
	First Floor	4	Sum			
10	<u>School of Business Education</u>					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
11	<u>Pro-chancellory Arts Centre</u>					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	To Collection (BOQ 2 of 7)					

Item	Description	Kuantiti /Qty	Unit/ Unit	Kadar/ Rate	Jumlah Amount	
					\$	€
B	Variable Refregerant Volume (VRV) / Variable Refregerant Flow (VRF) - Indoor Units <u>Performance of category G (Quarterly) Maintenance Works as per specification and in accordance with manufacturer's recommendation</u>					
1	Student Staff Centre (Extension) Ground Floor	4	Sum			
2	Extension of Administration First Floor	4	Sum			
3	Library (Extension) Ground Floor	4	Sum			
	First floor	4	Sum			
	Second Floor	4	Sum			
	Third floor	4	Sum			
C	Variable Refregerant Volume (VRV) / Variable Refregerant Flow (VRF) - Outdoor Units <u>Performance of category G (Quarterly) Maintenance Works as per specification and in accordance with manufacturer's recommendation</u>					
1	Student Staff Centre (Extension) - Ground Floor	4	Sum			
2	Extension of Administration First floor	4	sum			
3	Library (Extension) Ground Floor	4	Sum			
	First floor	4	Sum			
	Second Floor	4	Sum			
	Third floor	4	sum			
D	Fan Coil Units (FCU)					
5	Faculty of Arts and Social Sciences (FASS) Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Roof & Lift Motor Room Motor Room	4	Sum			
6	Academy of Brunei Studies - (Faculty of Islamic Studies) - Ground Floor	4	Sum			
7	Institute for Leadership, Innovation and Advancement (ILIA) - Ground Floor	4	Sum			
	- First Floor	4	Sum			
	- Second Floor	4	Sum			
	- Ancillary Facilities (Plant Room, Pump Room etc)	4	Sum			
8	Central Lecture Theatre Ground Floor	4	Sum			
	First Floor	4	Sum			
9	Student Staff Centre Lower Ground Floor	4	Sum			
	Upper Ground Floor	4	Sum			
	First Floor and Lift Room	4	Sum			
10	Academic Service Centre (Educational Technology Centre, Library & Information Communication Technology Centre) Basement	4	Sum			
	Roof & Lift Motor Room	4	Sum			
	Sub Lower Ground Floor	4	Sum			
	Lower Ground Floor	4	Sum			
	Upper Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Third Floor	4	Sum			
	Fourth Floor	4	Sum			
	Lift Motor Room	4	Sum			
11	Administration Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Attic Floor & Roof	4	Sum			
12	Chancellor Hall Upper Ground Floor including MezzanineFloor and Projector Room	4	Sum			
	First Floor	4	Sum			
15	Faculty of Business, Economics and Policy Studies (FBEPS) Ground Floor	4	Sum			
	First Floor	4	Sum			
16	Pro-chancellory Arts Centre Ground Floor	4	Sum			
	First Floor	4	Sum			
	To Collection (BOQ 3 of 7)					

Item	Description	Kuantiti /Qty	Unit/ Unit	Kadar/ Rate	Jumlah Amount	
					\$	€
	Performance of category G (Quarterly) Maintenance Works as per specification and in accordance with manufacturer's recommendation					
D	Precision Air Conditioning					
1	Information Communication Technology Centre - ICTC new Building - Lower Ground Floor	4	Sum			
K	Ductworks					
3	Faculty of Arts and Social Sciences (FASS) Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
4	Academy of Brunei Studies - (Faculty of Islamic Studies) - Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
5	Institute for Leadership, Innovation and Advancement (ILIA) - Ground Floor	4	Sum			
	- First Floor	4	Sum			
	- Second Floor	4	Sum			
	- Third Floor	4	Sum			
7	Pro-chancellery Arts Centre	4	Sum			
7	Central Lecture Theatre Ground Floor	4	Sum			
	First Floor	4	Sum			
8	Student Staff Centre - Lower Ground Floor	4	Sum			
	Upper Ground Floor	4	Sum			
	First Floor and Lift Room	4	Sum			
9	Academic Service Centre (Educational Technology Centre, Library & Information Communication Technology Centre) - Basement	4	Sum			
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Third Floor	4	Sum			
	Sub Lower Ground Floor	4	Sum			
	Lower Ground Floor	4	Sum			
	Upper Floor	4	Sum			
10	Information Communication Technology Centre - ICTC new First Floor	4	Sum			
	Second Floor	4	Sum			
	Third Floor	4	Sum			
	Fourth Floor	4	Sum			
11	Administration Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Attic Floor & Roof	4	Sum			
12	Chancellor Hall Lower Ground Floor including Carpark	4	Sum			
	Upper Ground Floor including Mezzanine Floor and Projector Room					
	First Floor	4	Sum			
15	School of Business Education Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	To Collection (BOQ 4 of 7)					

Item	Description	Kuantiti /Qty	Unit/ Unit	Kadar/ Rate	Jumlah Amount	
					₹	₹
	<u>Performance of category G (Quarterly) Maintenance Works as per specification and in accordance with manufacturer's recommendation</u>					
	<u>E Split-Type Air-Conditioning Units (Indoor Units) Wall / Ceiling Mounted Cassette Type</u>					
4	Academic Service Centre (Educational Technology Centre, Library & Information Communication Technology Centre)	4	Sum			
5	Administration	4	Sum			
6	Extension of Administration (1st Floor)	4	Sum			
7	Store and Maintenance Centre - Central Store	4	Sum			
8	Store and Maintenance Centre - Maintenance Centre	4	Sum			
9	Chancellor Hall	4	Sum			
10	Science and Technology Research Laboratories	4	Sum			
11	School of Business Education	4	Sum			
17	Male and female hostel amenities	4	Sum			
18	Main Security Guard	4	Sum			
	<u>F Chilled Water Condensing Units</u>					
1	Institute for Leadership, Innovation and Advancement (LLIA)	4	Sum			
2	Pengiran Anak Puteri Rashidah Sa'adatul Bolkihah Institute of Health Science (Institute of Medicine)	4	Sum			
3	Information Communication Technology Centre - ICTC new Building	4	Sum			
4	Chancellor Hall	4	Sum			
5	Institute of Medicine (Extension)	4	Sum			
6	Faculty of Science (Extension)	4	Sum			
	<u>G Air Curtain</u>					
1	Pengiran Anak Puteri Rashidah Sa'adatul Bolkihah Institute of Health Science (Institute of Medicine) (All Floor)					
2	Administration (All Floor)	4	Sum			
3	Administration Extension (All Floor)	4	Sum			
4	School of Business Education	4	Sum			
5	Student Staff Centre (All Floor)					
6	Sultan Hassanah Bolkihah Institute of Education (SHBIE) (All Floor)	4	Sum			
7	Central Lecture Theatre	4	Sum			
8	Chancellor Hall					
9	Faculty of Science	4	Sum			
10	Upper Ground Floor including Mezzanine Floor and Projector Room	4	Sum			
11	Integrated Scice Building (All Floor)	4	Sum			
12	Science and Technology Research Laboratories (All Floor)	4	Sum			
13	Information Communication Technology Centre - ICTC new (All Floor)	4	Sum			
14	Pro-chancellory Arts Centre (All floor)	4	Sum			
15	Academic Service Centre (Educational Technology Centre, Library & Information Communication Technology Centre)	4	Sum			
	To Collection (BOQ 5 of 7)					

Item	Description	Kuantiti /Qty	Unit/ Unit	Kadar/ Rate	Jumlah Amount	
					\$	€
	Performance of category G (Quarterly) Maintenance Works as per specification and in accordance with manufacturer's recommendation					
N	DX system - Indoor Units and Outdoor Unit					
1	Administration Extension					
	Ground Floor	4	Sum			
2	Faculty of Business, Economics and Policy Studies (FBEPS)					
	Ground Floor	4	Sum			
	VENTILATION SYSTEMS INSTALLATIONS					
	Performance of category G (Quarterly) Maintenance Works as per specification and in accordance with manufacturer's recommendation					
N	Ventilation Fans					
1	Faculty of Science					
	- Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Third Floor & Lift Motor Room	4	Sum			
	Animal House	4	Sum			
2	Sultan Hassanal Bolkiah Institute of Education (SHBIE) -					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Roof & Lift Motor Room	4	Sum			
3	Faculty of Arts and Social Sciences (FASS)					
	- Ground Floor	4	Sum			
	- First Floor	4	Sum			
	- Second Floor	4	Sum			
	- Third Floor	4	Sum			
	- Roof & Lift Motor Room	4	Sum			
4	Academy of Brunei Studies - (Faculty of Islamic Studies) -					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Roof & Lift Motor Room	4	Sum			
5	Institute for Leadership, Innovation and Advancement (ILIA)					
	- Ground Floor	4	Sum			
	- First Floor	4	Sum			
	- Second Floor	4	Sum			
	- Third Floor	4	Sum			
	- Roof & Lift Motor Room	4	Sum			
	- Ancillary Facilities (Plant Room, Pump Room etc)	4	Sum			
6	Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah Institute of Health Science (Institute of Medicine)					
	- Ground Floor	4	Sum			
	- First Floor	4	Sum			
	- Second Floor	4	Sum			
	- Ancillary Facilities (Plant Room, Pump Room etc)	4	Sum			
7	Central Lecture Theatre					
	-Ground Floor	4	Sum			
	First Floor	4	Sum			
	Lower Ground Floor	4	Sum			
	Upper Ground Floor	4	Sum			
	First Floor and Lift Room	4	Sum			
8	Student Staff Centre (Extension) -					
	Ground Floor	4	Sum			
9	Academic Service Centre (Educational Technology Centre, Library & Information Communication Technology Centre)					
	Basement	4	Sum			
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Third Floor	4	Sum			
	Roof & Lift Motor Room	4	Sum			
	To Collection (BOQ 6 of 7)					

Item	Description	Kuantiti /Qty	Unit/ Unit	Kadar/ Rate	Jumlah Amount	
					\$	€
10	Information Communication Technology Centre - ICTC new					
	Building - Sub Lower Ground Floor	4	Sum			
	Building - Lower Ground Floor	4	Sum			
	Building - Upper Floor	4	Sum			
	Building - First Floor	4	Sum			
	Building - Second Floor	4	Sum			
	Third Floor	4	Sum			
	Building - Fourth Floor	4	Sum			
	Building - Lift Motor Room	4	Sum			
11	Administration -					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
	Second Floor	4	Sum			
	Attic Floor & Roof	4	Sum			
12	Extension of Administration					
	Ground Floor	4	Sum			
	First Floor	4	Sum			
13	Mosque - Ancillary Facilities (Pump Room and Sub Station)	4	Sum			
14	Chancellor Hall -					
	Lower Ground Floor including Carpark	4	Sum			
	Upper Ground Floor including Mezzanine					
	Floor and Projector Room	4	Sum			
	First Floor	4	Sum			
	To Collection (BOQ 7 of 7)					

Item	Description	Kuantiti /Qty	Unit/ Unit	Kadar/ Rate	Jumlah Amount	
					S	€
	MAINTENANCE OF AIR-CONDITIONING AND VENTILATION INSTALLATIONS					
	Collection					
	From Page BOQ 1 of 7					
	From Page BOQ 2 of 7					
	From Page BOQ 3 of 7					
	From Page BOQ 4 of 7					
	From Page BOQ 5 of 7					
	From Page BOQ 6 of 7					
	From Page BOQ 7 of 7					
Grand Total Amount For This Quotation						