

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
1.0	ARCHITECTURAL ENERGY EFFICIENT FEATURES							
1.1	“Punch Hole” Windows							
	a. Maintain and clean the upper surface of the horizontal shade (which was painted with light colour) from dust and dirt. These will allow maximum daylight reflected deeper into the building.					✓		
1.2	Atrium – Automatic Shading System							
	a. Check & maintain the system works according to the operations logic schedules.			✓				
	b. Inspect and maintain the motor devices and photo sensors according to manufacturer’s maintenance recommendation.				✓			
1.3	Atrium – “Thermal Flue Stack” System							
	a. Clean the glazing and the motorized louvers including rain water leakages inspection.					✓		
	b. Inspect & maintain the system works according to the operations logic schedules.			✓				
	c. Inspect and maintain the actuator devices and sensors to ensure smooth modulating of the louvers.			✓				
	d. Inspect and maintain the back-up ventilation fan system including the fan motors and modulating dampers.			✓				
1.4	Atrium – “Spray Mist Cooling” System							
	a. Monitor the routine maintenance of the system.				✓			

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1.5	b. Check & maintain the system works according to the operations logic schedules.			✓				
	Atrium – “Water Wall Feature” System							
	a. Inspect and maintain the overall water wall pumping system, including the pumps, valves, electronic power meters and power supply to the system.				✓			
2.0	b. Clean the water wall surface from algae to ensure smooth trickling water pass through the surface.				✓			
	MECHANICAL ENERGY EFFICIENT FEATURES							
	c. Inspect the system works according to the operations logic schedules.			✓				
2.1	Air Conditioning System – AHUs, FCUs & Pump Room							
	a. Clean and maintain the AHUs room in good condition including cleaning the dust (if necessary), seal any air leakages (uncontrolled air from outside), keeping the floor dry and remove unnecessary items.			✓				
	b. Inspect & maintain the system works according to the operations logic schedules.		✓					
	c. Inspect and maintain the actuator devices, flow meters, pressure sensors and temperature sensors to ensure smooth control of the system. The off coil temperature sensors readings shall be within $\pm 2^{\circ}\text{C}$ of the set points.			✓				
	d. Clean the strainers in the chilled water piping.						✓	

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2.2	Air Conditioning System – Variable Speed Drives (Inverters)							
	a. Inspect and maintain the inverters according to manufacturer's maintenance recommendation.					✓		
	b. Inspect and clean the air duct pressure sensors according to manufacturer's maintenance recommendation.					✓		
	c. Inspect the system works according to the operations logic schedules. The pressure readings shall be within the 10% of the set point.	✓						
2.3	Air Conditioning System – Variable Air Volumes (VAVs) System							
	a. Inspect and maintain the VAVs boxes / terminals and room temperature sensors according to manufacturer's maintenance recommendation.					✓		
	b. Inspect the system works according to the operations logic schedules. The zone temperature readings shall be within $\pm 2^{\circ}\text{C}$ of the set points.		✓					
2.4	Air Conditioning System – CO₂ Fresh Air Control System							
	a. Inspect and maintain the CO ₂ controllers / sensors according to manufacturer's maintenance recommendation.				✓			
	b. Inspect and clean the CO ₂ sensors from dust accumulation according to manufacturer's maintenance recommendation.			✓				

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	<p>c. Inspect & maintain the system works according to the operations logic schedules. The CO₂ concentration readings shall be within the 10% of the set point.</p> <p>d. Inspect and maintain the actuator devices and dampers including cleaning the dust accumulation on the dampers.</p> <p>e. Inspect, calibrate and ensure accurate read out from the sensors.</p>	✓						
2.5	Air Conditioning System – Heat Recovery Wheel System			✓				
	a. Lubricant the gearboxes as recommended by manufacturer if any.				✓			
	b. Adjust the drive belts as recommended by the manufacturer.				✓			
	c. Inspect and clean the honeycomb or media from dust accumulation according to manufacturer's maintenance recommendation.						✓	
	d. Inspect & maintain the system works according to the operations logic schedules.				✓			
	e. Maintain the pre-filters / screens of the system in good condition.				✓			
2.6	Air Conditioning System – Electronic Air Filters (EAFs)							
	a. Clean the EAF cells and the prefilters according to the manufacturer's maintenance recommendation.			✓				
	b. Inspect the filters appearance and inspect any contaminated sign due to uneven air intake distribution.			✓				

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2.7	Car Park Ventilation – CO Exhaust Air Control System		✓					
		a. Inspect and clean the CO sensors from dust accumulation according to manufacturer's maintenance recommendation.					✓	
		b. Inspect & maintain the system works according to the operations logic schedules.			✓			
		c. Inspect, calibrate the trig values of the sensors.						✓
2.8	Building Control System / Energy Management System (BCS / EMS)							
		a. General cleaning of the Central Equipment and field equipment.			✓			
		b. Inspection of any loose wiring connection and sign of overheating at Central and Digital Controller.					✓	
		c. Perform functional test on all the associated equipment controllers.						
		i. Inspect the readings are within the normal operational range.				✓		
		ii. Inspect the systems by performing step response test.				✓		
		iii. Override test to all dampers and values from 0% - 100% - 0% open.				✓		
		iv. Manual stop / start of all motors / equipment.				✓		

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	v. Force alarm conditions and check system response.				✓			
	vi. OFF power and check power backup response / procedure.				✓			
	d. Verification of input and output points. The list of input / output is listed in the summary of BCS equipment.				✓			
	e. Perform communication test within NCU / NIC and all Digital Controller.			✓				
	f. Report on the condition of the equipment and providing consultation for system expansion.					✓		
	g. Review of the job site system event log and a discussion with the system operators and Building Energy Manager with the following summaries to be printed :							
	i. System Overall Input / Output report.			✓				
	ii. Exception Alarm Report.			✓				
	iii. User Override report.			✓				
	iv. Alarm (Normal & Critical) report.			✓				
	v. Communication Off-line report.			✓				
	vi. Database Maintenance report.			✓				
	vii. Energy Management reports and strategies to optimize the building energy performance.			✓				

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	h. Central Equipment maintenance.							
	i. System Units.				✓			
	ii. Keyboards.				✓			
	iii. Printers (with papers and ink colour).	✓						
	i. Field Equipment maintenance NCUs / NICs:							
	i. LED indications of proper DC power levels, appropriate transmit and receive activity on the trunks, and possible error code indications shall be checked.				✓			
	ii. Power to NCU / NIC shall be forced to initiate self-diagnostic.				✓			
	iii. Verify correct operation of network terminals.				✓			
	iv. Panels shall be visually inspected for sign of corrosion and security of components and connections.				✓			
	v. Heat sink fins shall be clean to maintain their heat dissipation qualities.				✓			
	vi. NCU batteries shall be checked and replaced if necessary.				✓			
	vii. Exterior of each piece of equipment and the transparent window panels of enclosure doors shall be cleaned.				✓			
	j. Field Equipment maintenance for Digital Controllers.				✓			

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	k. Field Equipment maintenance for sensors and actuators (under the service scope of works).			✓				
	l. Input and Output verification. (Including the Energy Efficient Features and Energy Management System).			✓				
	m. Critical Point Verification.			✓				
	n. Check and synchronize all the power meters with BCS / EMS.					✓		
3.0	ELECTRICAL ENERGY EFFICIENT FEATURES							
3.1	Innovative Lighting System.							
	a. Inspect & maintain the system works according to the operations logic schedules.			✓				
	b. Inspect, clean and maintain all the Photo sensors & Occupancy sensors according to the manufacturer.						✓	
	c. Inspect, test and re-configure the system according to the specified daylight level.							✓
3.2	Grid Connected 3.3 kW Photovoltaic (PV) System.							
	a. Inspect the solar array mounting structure from corrosion and loose components.					✓		
	b. Inspect all the PV panel surface from dirt due to dust accumulation, which can reduce the system efficiency.				✓			
	c. Inspect the cable connection of the PV arrays and the field junction boxes.						✓	

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	d. Inspect the Grid Connected Inverters according to the manufacturer's maintenance recommendation.				✓			
	e. Inspect the Protection Devices and Cabling system within the essential main switchboard, including the electronic power meters.					✓		
	f. Inspect & maintain the system works according to the operations logic schedules.		✓					