

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>1.0</b>	<b>AIR – CONDITIONING AND MECHANICAL VENTILATION SYSTEM</b>							
<b>1.1</b>	<b>Chiller System</b>							
<b>1.1.1</b>	<b>Plant Room</b>							
	<b>i. General</b>							
	a. Inspect plant room cleanliness.		✓					
	b. Inspect for correct labelling.					✓		
	c. Inspect emergency light.		✓					
	d. Inspect ventilation system.		✓					
	e. Inspect condition of door.		✓					
	f. Inspect light intensity.		✓					
	g. Inspect floor trap / drain to ensure good water flow.			✓				
	h. Inspect pump circuit diagram (laminated & framed) are up to date.			✓				
	i. Inspect pump layout diagram (laminated & framed) are up to date.			✓				
	j. Inspect portable fire extinguisher (CO2).			✓				
	k. Inspect chemical dosing pumps.			✓				
	<b>ii. Chillers</b>							
	a. Inspect chillers general condition. If abnormal, trace the faults and rectify as necessary.	✓						

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	b. Take reading of current, voltage, pressure, temperature, etc. Compare with design readings. If abnormal, trace the faults and rectify as necessary.	✓						
	c. Inspect all seals, gaskets and pipes for leaks. Replace as necessary.			✓				
	d. Inspect oil pressure. If abnormal, trace the faults and rectify as necessary.			✓				
	e. Inspect crankcase heater. Repair / replace as necessary.			✓				
	f. Inspect chilled water pressure drop across chillers and condenser. If abnormal, trace the faults and rectify as necessary.			✓				
	g. Inspect the operation of all safety devices. Clean, adjust, lubricate, repair / replace as necessary.			✓				
	h. Inspect purge unit operation.			✓				
	i. Inspect the suction and discharge pressures of all refrigerant compressors. If abnormal, trace the faults and rectify as necessary.			✓				
	j. Drain and flush purge unit. Replace oil.						✓	
	k. Inspect all refrigerant and oil levels. Charge refrigerant and oil into the refrigerant system as necessary.			✓				
	l. Clean condenser tubes.						✓	
	m. Service chillers including changing of compressor oil, filter, leak test and topping up refrigerant.						✓	

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	<b>iii. Pumps</b>							
	a. Inspect condition of pumps. (cleanliness / appearance).			✓				
	b. Inspect all pump bearings for excessive noise, vibration and wear. Lubricate with oil or grease and replace as necessary.			✓				
	c. Inspect all motor bearings, lubricate with grease and replace as necessary.			✓				
	d. Inspect carbon brushes and slip rings of all motors. Clean, repair / replace as necessary.			✓				
	e. Inspect safety devices fitted to all motors. Clean, adjust, lubricate, repair / replace as necessary.			✓				
	f. Inspect all seals for leakages. Repair or replace as necessary.			✓				
	g. Adjust, re-pack and replace pump glands as necessary.			✓				
	h. Inspect each pump / motor alignment, mountings and correct rotation. Adjust or replace as necessary.			✓				
	i. Inspect all rubber couplings between pumps and drive motor. Replace as necessary.			✓				
	j. Inspect all belt drives. Adjust and retension. Replace as necessary.			✓				
	k. Inspect and tighten all bolts and nuts. Replace as necessary.			✓				
	l. Inspect and test pressure switches and gauges. Repair or replace as necessary.			✓				

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	<b>iv. Electric Motors</b>							
	a. Inspect and clean all electric motors. Repair or replace as necessary.			✓				
	b. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	c. Inspect safety devices fitted to motors. Clean, adjust, lubricate, repair or replace as necessary.			✓				
	<b>v. Electrical Switchboard / Control Panel</b>							
	a. Inspect the condition of the panel and its housing. Repair or replace as necessary.			✓				
	b. Inspect and test the control wiring and circuitry. Retighten, repair or replace as necessary.			✓				
	c. Inspect the operation of selector switches. Repair or replace as necessary.			✓				
	d. Inspect the operation of auto-manual selector switches. Repair or replace as necessary.			✓				
	e. Inspect the operation of stop-start buttons. Repair or replace as necessary.			✓				
	f. Inspect or replace indicating bulbs and covers.			✓				
	g. Inspect the routine operation of all electrical starters, electrical control gears and ancillary electrical apparatus. Repair or replace as necessary.			✓				

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	h. Inspect all electrical contactors. Clean and retighten all loose connections.			✓				
	i. Clean or replace electrical contactors as necessary.			✓				
	j. Inspect electric fuses. Replace as necessary.			✓				
	k. Inspect the condition of the conduits, supports and wires. Replace as necessary.			✓				
	<b>vi. Piping and Fittings</b>							
	a. Inspect the condition of every pipe. Repair or replace as necessary.			✓				
	b. Inspect the condition of the pipe supports, brackets, pipe sleeves and piping joints. Repair or replace as necessary.			✓				
	c. Inspect the condition of every valve and fitting. Repair or replace as necessary.			✓				
	d. Inspect and clean strainers. Repair or replace as necessary.					✓		
	e. Inspect for correct labeling. Clean, repair or replace as necessary.					✓		
	f. Inspect chilled water pipe insulation. Replace as necessary.			✓				
	g. Inspect pipe painting. Ensure pipes coatings of anti rust and standard colour paint are clean and in good condition. Replace as necessary.					✓		

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1.1.2	<b>Cooling Towers</b>							
	a. Inspect all water cooling towers general condition. If abnormal, trace the faults and rectify as necessary.	✓						
	b. Inspect all fan and fan bearings. Lubricate with grease. Replace as necessary.			✓				
	c. Inspect all belt drives. Adjust and retension. Replace as necessary.			✓				
	d. Inspect and clean all water screens.			✓				
	e. Inspect the operation of all spray nozzles and clean as necessary.			✓				
	f. Drain, clean and flush cooling tower basin and honey-comb in-fills.			✓				
	g. Inspect and clean float valve. Adjust water level. Replace as necessary.			✓				
1.1.3	<b>Chilled Water Storage and Expansion Tanks</b>							
	a. Inspect all chilled water storage and expansion tanks, chilled water pipes, valves, etc. Clean, service and flush as necessary.			✓				
	b. Actuate all motorized valves to ensure smooth operation over its full operating range. Replace as necessary.				✓			
	c. Inspect pipe insulation and pipe supports. Replace as necessary.						✓	

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1.1.4	d. Inspect all measuring devices for correct operation. Repair or replace as necessary.			✓				
	<b>Piping and Fittings</b>							
	a. Inspect the condition of every pipe. Repair / replace as necessary.			✓				
	b. Inspect the condition of the pipe supports, brackets, pipe sleeves and piping joints. Repair or replace as necessary.			✓				
	c. Inspect the condition of every valve and fitting. Repair or replace as necessary.			✓				
	d. Inspect and clean strainers. Repair or replace as necessary.					✓		
	e. Inspect for correct labeling. Clean, repair or replace as necessary.					✓		
	f. Inspect chilled water pipe insulation. Replace as necessary.			✓				
1.1.5	g. Inspect pipe painting. Ensure pipes coatings of anti rust and standard colour paint are clean and in good condition. Replace as necessary.					✓		
	<b>Air-Handling Units and Fan-Coils</b>							
	a. Inspect all air-handling units and fan-coils. If abnormal, trace the faults and rectify as necessary.			✓				
	b. Inspect all air filters. Clean or replace as necessary.			✓				
	c. Replace all :							
	i. Primary filters.					✓		
	ii. Secondary filters.					✓		

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	d. Inspect all water coils, seals and pipe lines for leaks. Rectify as necessary.			✓				
	e. Purge air from all water coils.			✓				
	f. Inspect all fan and fan bearings. Lubricate with grease. Replace as necessary.				✓			
	g. Inspect the routine operation of all automatic temperature control gears and relay.			✓				
	h. Inspect all bearings, pivots and other moving parts. Clean, adjust, lubricate and replace as necessary.			✓				
	i. Inspect all belt drives. Adjust and retension. Replace as necessary.			✓				
	j. Inspect the operation of all automatic water regulating valves. Clean, adjust, lubricate and replace as necessary.			✓				
	k. Inspect the operation of all automatic multi-blade face and by-pass damper. Clean, adjust and lubricate as necessary.			✓				
	l. Inspect operation of thermostat. Replace as necessary.			✓				
	m. Inspect and clean strainers. Repair or replace as necessary.					✓		
	n. Clean cooling coil with high pressure water jet and alkaline cleaning chemicals.					✓		
	o. Inspect insulation. Repair or replace as necessary.					✓		



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	p. Inspect and clean all electric motors. Repair or replace as necessary.			✓				
	q. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	r. Inspect safety devices fitted to motors. Clean, adjust, lubricate, repair or replace as necessary.			✓				
	s. Inspect refrigerant leaks at joints, fittings and piping. Repair and top up refrigerant as necessary.			✓				
	t. Inspect leakage or clogging at drain pan and drain line. Clean, flush, repair or replace as necessary.			✓				
	u. Chemical cleaning for all coils.						✓	
	v. Inspect the operation of CO2 probe and detector and damper. Clean, adjust, Repair or replace as necessary.			✓				
<b>1.1.6</b>	<b>Ducting, Grilles and Dampers</b>							
	a. Inspect all grilles dampers and shutters are working correctly. Clean, adjust, repair or replace as necessary.					✓		
	b. Measure air flow. Adjust and balance air flow as necessary.					✓		
	c. Inspect ductwork for leaks, damage or corrosion. Repair or replace as necessary.					✓		
	d. Inspect for moisture and condensation. Repair or replace insulation as necessary.					✓		

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1.1.7	e. Inspect duct insulation for tears and air leaks. Patch or replace if necessary.					✓		
	f. Inspect the internal of ducting to determine dust built up.							✓
	<b>The Performance of The Complete Ventilation, Pressurization, Exhaust and Smoke Spill System</b>							
	a. Inspect the function of the complete ventilation, pressurization, exhaust and smoke spill system.			✓				
	b. Adjust air volume control dampers as necessary.					✓		
	c. Inspect the operation of all fans and motors.			✓				
1.2	<b>Central Direct Expansion System (DX) (Water Cooled System)</b>							
	<b>1.2.1 Plant Room</b>							
1.2.1	a. Inspect plant room cleanliness.		✓					
	b. Inspect for correct labeling.					✓		
	c. Inspect emergency light.		✓					
	d. Inspect ventilation system.		✓					
	e. Inspect condition of door.		✓					
	f. Inspect light intensity.		✓					
	g. Inspect floor trap / drain to ensure good water flow.			✓				

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	h. Inspect pump circuit diagram (laminated & framed) are up to date.			✓				
	i. Inspect portable fire extinguisher (CO2).			✓				
	j. Inspect chemical dosing pumps.			✓				
<b>1.2.2</b>	<b>Water Cooled Package Unit (WCP)</b>							
	a. Inspect WCP for any abnormalities. Trace the faults and rectify as necessary.	✓						
	b. Take reading of current, voltage, pressure, temperature, etc. Compare with design readings. If abnormal, trace the faults and rectify as necessary.	✓						
	c. Inspect all seals, gaskets and pipes for leaks. Replace as necessary.			✓				
	d. Inspect crankcase heater. Repair or replace as necessary.			✓				
	e. Inspect the operation of all safety devices. Clean, adjust, lubricate, repair or replace as necessary.			✓				
	f. Inspect the suction and discharge pressures of all refrigerant compressors. If abnormal, trace the faults and rectify as necessary.			✓				
	g. Inspect all refrigerant and oils levels. Charge refrigerant and oil into the refrigerant system as necessary.			✓				
	h. Inspect all air filters. Clean or replace as necessary.			✓				

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	i. Inspect all bearings, pivots and other moving parts. Clean, adjust, lubricate and replace as necessary.			✓				
	j. Inspect all belt drives. Adjust and retension. Replace as necessary.			✓				
	k. Inspect operation of thermostat. Replace as necessary.			✓				
	l. Clean cooling coil with high pressure water jet and alkaline cleaning chemicals.						✓	
	m. Inspect insulation. Repair or replace as necessary.			✓				
	n. Inspect and clean condenser as necessary.			✓				
	o. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	p. Inspect leakage or clogging at drain pan and drain line. Clean, flush, repair or replace as necessary.			✓				
	q. Chemical cleaning for all coils.						✓	
<b>1.2.3</b>	<b>Pumps</b>							
	a. Inspect condition of pumps (cleanliness / appearance).			✓				
	b. Inspect all pump bearings for excessive noise, vibration and wear. Lubricate with oil or grease and replace as necessary.			✓				
	c. Inspect all motor bearings, lubricate with grease and replace as necessary.			✓				
	d. Inspect carbon brushes and slip rings of all motors. Clean, repair or replace as necessary.			✓				

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	e. Inspect safety devices fitted to all motors. Clean, adjust, lubricate, repair or replace as necessary.			✓				
	f. Inspect all seals for leakages. Repair or replace as necessary.			✓				
	g. Adjust and re-pack and replace pump glands as necessary.			✓				
	h. Inspect each pump / motor alignment, mountings and correct rotation. Adjust or replace as necessary.			✓				
	i. Inspect all rubber couplings between pumps and drive motor. Replace as necessary.			✓				
	j. Inspect all belt drives. Adjust and retension. Replace as necessary.			✓				
	k. Inspect and tighten all bolts and nuts. Replace as necessary.			✓				
	l. Inspect and test pressure switches and gauges. Repair / replace as necessary.			✓				
<b>1.2.4</b>	<b>Electric Motors</b>							
	a. Inspect and clean all electric motors. Repair or replace as necessary.			✓				
	b. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	c. Inspect safety devices fitted to motors. Clean, adjust and lubricate. Repair or replace as necessary.			✓				

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1.2.5	<b>Electrical Switchboard / Control Panel</b>							
	a. Inspect the condition of the panel and its housing. Repair or replace as necessary.			✓				
	b. Inspect and test the control wiring and circuitry. Retighten, repair or replace as necessary.			✓				
	c. Inspect the operation of selector switches. Repair or replace as necessary.			✓				
	d. Inspect the operation of auto-manual selector switches. Repair or replace as necessary.			✓				
	e. Inspect the operation of stop-start buttons. Repair or replace as necessary.			✓				
	f. Inspect or replace indicating bulbs and covers.			✓				
	g. Inspect the routine operation of all electrical starters, electrical control gears and ancillary electrical apparatus. Repair or replace as necessary.			✓				
	h. Inspect all electrical contactors. Clean and retighten all loose connections.			✓				
	i. Clean or replace electrical contactors as necessary.			✓				
	j. Inspect electric fuses. Replace as necessary.			✓				
k. Inspect the condition of the conduits, supports and wires. Replace as necessary.			✓					

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<b>1.2.6</b>	<b>Piping and Fittings</b>							
	a. Inspect the condition of every pipe. Repair or replace as necessary.			✓				
	b. Inspect the condition of the pipe supports, brackets, pipe sleeves and piping joints. Repair or replace as necessary.			✓				
	c. Inspect the condition of every valve and fitting. Repair or replace as necessary.			✓				
	d. Inspect and clean strainers. Repair or replace as necessary.					✓		
	e. Inspect for correct labeling. Clean, repair or replace as necessary.					✓		
	f. Inspect chilled water pipe insulation. Replace as necessary.			✓				
	g. Inspect pipe painting. Ensure pipes coatings of anti rust and standard colour paint are clean and in good condition. Replace as necessary.					✓		
<b>1.2.7</b>	<b>Cooling Towers</b>							
	a. Inspect all water cooling towers general condition. If abnormal, trace the faults and rectify as necessary.	✓						
	b. Inspect all fan and fan bearings. Lubricate with grease. Replace as necessary.			✓				
	c. Inspect all belt drives. Adjust and retension. Replace as necessary.			✓				
	d. Inspect and clean all water screens.			✓				
	e. Inspect the operation of all spray nozzles and clean as necessary.			✓				

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	f. Drain, clean and flush cooling tower basin and clean honey-comb in-fills.			✓				
	g. Inspect and clean float valve. Adjust water level. Replace as necessary.			✓				
	h. Inspect and service motors and controllers. Replace as necessary.			✓				
<b>1.2.8</b>	<b>Ducting, Grilles and Dampers</b>							
	a. Inspect all grilles dampers and shutters are working correctly. Clean, adjust. Repair or replace as necessary.					✓		
	b. Measure air flow. Adjust and balance air flow as necessary.					✓		
	c. Inspect ductwork for leaks, damage or corrosion. Repair or replace as necessary.					✓		
	d. Inspect for moisture and condensation. Repair or replace insulation as necessary.					✓		
	e. Inspect duct insulation for tears and air leaks. Patch or replace if necessary.					✓		
	f. Inspect the internal of ducting to determine dust built up.					✓		
<b>1.3</b>	<b>Central Direct Expansion System (DX) (Air Cooled System) - Air Cooled Split Ducted Unit</b>							
<b>1.3.1</b>	<b>Plant Room</b>							
	a. Inspect plant room cleanliness.		✓					
	b. Inspect for correct labeling.					✓		



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	c. Inspect emergency light.		✓					
	d. Inspect ventilation system.		✓					
	e. Inspect condition of door.		✓					
	f. Inspect light intensity.		✓					
	g. Inspect floor trap/ drain to ensure good water flow.			✓				
	h. Inspect pump circuit diagram (laminated & framed) are up to date.			✓				
	i. Inspect portable fire extinguisher (CO2).			✓				
	j. Inspect chemical dosing pumps.			✓				
<b>1.3.2</b>	<b>Air Handling Unit</b>							
	a. Inspect unit for any abnormalities. Trace the faults and rectify as necessary.	✓						
	b. Take reading of current, voltage, pressure, temperature, etc. Compare with design readings. If abnormal, trace the faults and rectify as necessary.	✓						
	c. Inspect the operation of all safety devices. Clean, adjust, lubricate, repair or replace as necessary.			✓				
	d. Inspect and clean all air filters. Clean or replace as necessary.			✓				
	e. Inspect all bearings, pivots and other moving parts. Clean, adjust, lubricate and replace as necessary.			✓				
	f. Inspect all belt drives. Adjust and retention. Replace as necessary.			✓				

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	g. Inspect operation of thermostat. Replace as necessary.			✓				
	h. Clean cooling coil with high pressure water jet and alkaline cleaning chemicals.						✓	
	i. Inspect insulation. Repair or replace as necessary.			✓				
	j. Inspect condenser. Clean as necessary.			✓				
	k. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	l. Inspect refrigerant leaks at joints, fittings and piping. Repair and top up refrigerant as necessary.			✓				
	m. Inspect leakage or clogging at drain pan and drain line. Clean, flush, repair or replace as necessary.			✓				
	n. Chemical cleaning for all coils.						✓	
<b>1.3.3</b>	<b>Condenser</b>							
	a. Inspect crankcase heater. Repair or replace as necessary.			✓				
	b. Inspect the suction and discharge pressures of all refrigerant compressors. If abnormal, trace the faults and rectify as necessary.			✓				
	c. Inspect all refrigerant and oils levels. Charge refrigerant and oil into the refrigerant system as necessary.			✓				
	d. Inspect refrigerant leaks at joints, fittings, piping and compressors. Repair or replace as necessary.			✓				

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	e. Replace filter dryer.						✓	
	f. Inspect all fans and motors as necessary. Repair or replace as necessary.			✓				
	g. Inspect condensing coil. Repair or replace as necessary. Clean coil and comb the fins as necessary.					✓		
	h. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	i. Inspect compressor units. Replace as necessary.			✓				
	j. Inspect isolating spring / rubber padding. Replace as necessary.						✓	
	k. Chemical cleaning all coils.						✓	
<b>1.3.4</b>	<b>Electric Motors</b>							
	a. Inspect and clean all electric motors. Repair or replace as necessary.			✓				
	b. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	c. Inspect safety devices fitted to motors. Clean, adjust, lubricate, repair or replace as necessary.			✓				
<b>1.3.5</b>	<b>Electrical Switchboard / Control Panel</b>							
	a. Inspect the condition of the panel and its housing. Repair / replace as necessary.			✓				
	b. Inspect and test the control wiring and circuitry. Retighten, repair or replace as necessary.			✓				

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	c. Inspect the operation of selector switches. Repair or replace as necessary.			✓				
	d. Inspect the operation of auto-manual selector switches. Repair or replace as necessary.			✓				
	e. Inspect the operation of stop-start buttons. Repair or replace as necessary.			✓				
	f. Inspect / replace indicating bulbs and covers.			✓				
	g. Inspect the routine operation of all electrical starters, electrical control gears and ancillary electrical apparatus. Repair or replace as necessary.			✓				
	h. Inspect all electrical contactors. Clean and retighten all loose connections.			✓				
	i. Clean or replace electrical contactors as necessary.			✓				
	j. Inspect electric fuses. Replace as necessary.			✓				
	k. Inspect the condition of the conduits, supports and wires. Replace as necessary.			✓				
<b>1.3.6</b>	<b>Ducting, Grilles and Dampers</b>							
	a. Inspect all grilles dampers and shutters are working correctly. Clean, adjust, Repair / replace as necessary.					✓		
	b. Measure air flow. Adjust and balance air flow as necessary.					✓		
	c. Inspect ductwork for leaks, damage or corrosion. Repair or replace as necessary.					✓		

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	d. Inspect for moisture and condensation. Repair / replace insulation as necessary.					✓		
	e. Inspect duct insulation for tears and air leaks. Patch or replace if necessary.					✓		
	f. Inspect the internal of ducting to determine dust built up.					✓		
<b>1.4</b>	<b>Air Cooled Split Unit</b>							
<b>1.4.1</b>	<b>Evaporator (Cooling Unit)</b>							
	a. Inspect unit for any abnormalities. Trace the faults and rectify as necessary.	✓						
	b. Inspect and clean all air filters.			✓				
	c. Inspect leakage or clogging at drain pan and drain line. Clean, flush, repair / replace as necessary			✓				
	d. Chemical cleaning for all coils.						✓	
	e. Inspect refrigerant leaks at joints, fittings and piping. Repair and top up refrigerant as necessary.			✓				
	f. Inspect remote control. Replace as necessary.			✓				
<b>1.4.2</b>	<b>Condenser</b>							
	a. Inspect the suction and discharge pressures of all refrigerant compressors. If abnormal, trace the faults and rectify as necessary.			✓				
	b. Inspect refrigerant leaks at joints, fittings, piping and compressors. Repair or replace as necessary.			✓				

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	c. Inspect all fans and motors as necessary. Repair / replace as necessary.			✓				
	d. Inspect condensing coil. Repair or replace as necessary. Clean coil and comb the fins as necessary.			✓				
	e. Inspect filter dryer. Replace as necessary.			✓				
	f. Inspect compressor units. Replace as necessary.			✓				
	g. Inspect rubber padding. Replace as necessary.						✓	
	h. Chemical cleaning for all coils.						✓	
	i. Inspect bracket/ hanger. Repair or replace as necessary.			✓				
<b>1.4.3</b>	<b>Electrical Switchboard / Control Panel</b>							
	a. Inspect the condition of the panel and its housing. Repair or replace as necessary.			✓				
	b. Inspect and test the control wiring and circuitry. Retighten, repair or replace as necessary.			✓				
	c. Inspect the operation of selector switches. Repair or replace as necessary.			✓				
	d. Inspect the operation of auto-manual selector switches. Repair or replace as necessary.			✓				
	e. Inspect the operation of stop-start buttons. Repair or replace as necessary.			✓				
	f. Inspect or replace indicating bulbs and covers.			✓				

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	g. Inspect the routine operation of all electrical starters, electrical control gears and ancillary electrical apparatus. Repair or replace as necessary.			✓				
	h. Inspect all electrical contactors. Clean and retighten all loose connections.			✓				
	i. Clean or replace electrical contactors as necessary.			✓				
	j. Inspect electric fuses. Replace as necessary.			✓				
	k. Inspect the condition of the conduits, supports and wires. Replace as necessary.			✓				
<b>1.5</b>	<b>Painting</b>  Clean rust and paint with appropriate one layer of anti-rust paint and finished with existing coloured paint.						✓	
<b>1.6</b>	<b>Other Components or Equipments of The Air-Conditioning System</b>	As per manufacturer's schedule						

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>2.0</b>	<b>FIRE FIGHTING SYSTEM</b>							
<b>2.1</b>	<b>General</b>							
	Manage and supervise the Fire Detection and Alarm, Fire Monitoring and Fire Fighting System operation which shall include:-							
	a. Control and monitoring of all fire systems.	✓						
	b. Man the fire control room during and after office hours.	✓						
	c. Inspect, repair / replace and test the operation of the complete fire fighting system, including the interface and operation of other systems such as lift, ventilation, smoke spill, pressurization, etc.				✓			
	d. Test run fire fighting system and simulate fire alarm to ensure all systems are in good working order. Ensure the BOMBA link is operating.				✓			
	e. Attend to any complaint, urgent request or complaints raised by the S.O. with regards day to day operation.	✓						
	f. Conduct fire drill for each block / complex.						✓	
<b>2.2</b>	<b>Wet Riser, Hose Reel and Sprinkler System.</b>							
<b>2.2.1</b>	<b>Pump Room</b>							
	a. Inspect pump room cleanliness.		✓					
	b. Inspect for correct labeling.					✓		
	c. Inspect emergency light.		✓					
	d. Inspect ventilation system.		✓					
	e. Inspect condition of door.		✓					



No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	f. Inspect light intensity.		✓					
	g. Inspect floor trap / drain to ensure good water flow.			✓				
	h. Inspect pump circuit diagram (Laminated & framed) are up to date.			✓				
	i. Inspect pump layout diagram (Laminated & framed) are up to date.			✓				
	j. Inspect portable fire extinguisher (CO2).			✓				
<b>2.2.2</b>	<b>Tanks</b>							
	a. Inspect for integrity of structure.					✓		
	b. Inspect for leaks. Repair or replace as necessary.			✓				
	c. Inspect for rust. Repair or replace as necessary.			✓				
	d. Inspect operation of ball valve. Repair or replace as necessary.			✓				
	e. Inspect water tank level indicator. Repair or replace as necessary.			✓				
	f. Inspect electrode and clean. Repair or replace as necessary (if equipped).				✓			
	g. Inspect for sediment / sludge. Flush and clean.					✓		
	h. Inspect internal and external cat ladder. Repair / replace as necessary.					✓		
<b>2.2.3</b>	<b>Pumps</b>							
	<b>i. General</b>							
	a. Inspect condition of pumps (cleanliness / appearance).			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	b. Test run each pump on automatic and manual mode.			✓				
	c. Inspect the correct cut-in / cut-out auto mode operation of the pressure switch. Check pressures.			✓				
	d. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	e. Inspect all pump bearings for excessive noise, vibration & wear. Lubricate with oil or grease. Replace as necessary.			✓				
	f. Inspect carbon brushes and slip rings of all motors. Clean, repair or replace as necessary.			✓				
	g. Inspect safety devices fitted to all motors. Clean, adjust, lubricate, repair or replace as necessary.			✓				
	h. Inspect all seals for leakages. Repair or replace as necessary.			✓				
	i. Adjust, re-pack and replace pump glands as necessary.			✓				
	j. Inspect each pump / motor alignment, mountings and correct rotation. Adjust or replace as necessary.			✓				
	k. Inspect all rubber couplings between pumps and drive motor. Replace as necessary.			✓				
	l. Inspect all belt drives. Adjust and retension. Replace as necessary.			✓				
	m. Inspect and tighten all bolts and nuts. Replace as necessary.			✓				
	n. Inspect and test pressure switches and gauges. Repair / replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	<b>ii. Control Panel</b>							
	a. Inspect the condition of the panel and its housing. Repair / replace as necessary.			✓				
	b. Inspect and test the control wiring and circuitry. Retighten, repair / replace as necessary.			✓				
	c. Inspect electric pump starter operation, ensure that the starting sequence is correct. Repair / replace as necessary.			✓				
	d. Inspect the operation of selector switches. Repair / replace as necessary.			✓				
	e. Inspect the operation of auto-manual selector switches. Repair / replace as necessary.			✓				
	f. Inspect the operation of stop-start buttons. Repair / replace as necessary.			✓				
	g. Inspect indicating light for trip and run. Replace as necessary.			✓				
	h. Inspect indicating light for pump on auto and pump manual. Replace as necessary.			✓				
	i. Inspect ammeter and voltmeter. Replace as necessary.			✓				
	j. Inspect and retighten all loose connection of all electrical contactors.			✓				
	k. Clean and replace electrical contactors as necessary.			✓				
	l. Replace electric fuses as necessary.			✓				
	m. Inspect the condition of the conduits, supports and wires. Replace as necessary.			✓				
	n. Inspect / replace indicating bulbs and covers.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>2.2.4</b>	<b>Piping and Fittings</b>							
	a. Inspect the condition of every pipe. Repair / replace as necessary.			✓				
	b. Inspect the condition of the pipe supports, brackets, pipe sleeves and piping joints. Repair or replace as necessary.			✓				
	c. Inspect the condition of every valve and fitting. Repair / replace as necessary.			✓				
	d. Inspect and clean strainers. Repair or replace as necessary.					✓		
	e. Inspect for correct labeling. Clean, repair / replace as necessary.					✓		
	f. Inspect plumbing, pipe-works & fittings and pipe supports. Repair / replace as necessary.			✓				
<b>2.2.5</b>	<b>Landing Valves, Hose Reel Drums, Cradles, Hoses, Nozzles, etc.</b>							
	a. Inspect that the landing valve, canvas hose and hose reel are obstruction free.			✓				
	b. Inspect any missing, damaged or deteriorated parts on the landing valve, canvas hose, diffuser nozzle, cradle, hose reel drum & hose reel. Repair or replace as necessary.			✓				
	c. Inspect the ease of operation and swing of each cradle and hose reel drum. Adjust, repair / replace as necessary.			✓				
	d. Inspect for any leaks / drips at the landing valves, drum goose neck and gate valve. Repair or replace as necessary.			✓				
	e. Ensure that each of the landing valves is complete with the blank cap, chain and the hand wheel. Repair or replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	f. Ensure that the diffuser nozzle & landing valve hand wheel can be operated freely. Repair or replace as necessary.			✓				
	g. Ensure the hose is not twisted or curled.			✓				
	h. Test hose reel and canvas hose for leakage. Replace as necessary.			✓				
	i. Inspect and test system for leaks. Repair / replace as necessary.			✓				
<b>2.2.6</b>	<b>Sprinkler System</b>							
	a. Inspect that the sprinkler heads are obstruction free.			✓				
	b. Inspect that the sprinkle heads are free of foreign matter and suspended object.			✓				
	c. Inspect any missing, damaged or deteriorated parts on the sprinkler head. Repair / replace as necessary.			✓				
	d. Inspect for any leaks / drips at the sprinkler heads. Repair / replace as necessary.			✓				
	e. Inspect for leaks within the system by reading on the pressure gauges.			✓				
	f. Inspect and ensure the proper operation of water alarm gongs.			✓				
	g. Inspect the flow switches and its signal indication.			✓				
	h. Inspect the Jabatan BOMBA breaching inlet and its access.			✓				
<b>2.2.7</b>	<b>Breaching Inlet</b>							
	a. Inspect the condition of breaching box, door and lock. Repair / replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	b. Inspect the condition of male couplings, back pressure valves, blank caps (secured with chain). Repair / replace as necessary.			✓				
	c. Inspect the condition of the wired glass and letters 'Fire Brigade Wet Main Inlet'. Repair / replace as necessary.			✓				
<b>2.3</b>	<b>Fire Detection and Alarm System</b>							
	a. Inspect fire detection and alarm system. Trace the faults and rectify as necessary.	✓						
	b. Inspect and test all main power supply and earthing. Adjust, retighten, repair or replace as necessary.			✓				
	c. Inspect and test all battery charger units. Repair / replace as necessary.			✓				
	d. Inspect all battery electrolyte level and top-up.			✓				
	e. Inspect and test illumination lamps and LEDs. Repair or replace as necessary.			✓				
	f. Inspect and test the functionality of break-glass unit or manual call point. Repair / replace as necessary.			✓				
	g. Test zone rotary switch for functionality. Repair or replace as necessary.			✓				
	h. Inspect and test the functionality of detectors. Repair or replace as necessary.			✓				
	i. Inspect and test system wiring. Repair or replace as necessary.			✓				
	j. Test bell / buzzer and isolation button. Repair / replace as necessary.			✓				
	k. Test alarm & evacuation switch. Repair or replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	l. Test AHU, Lift, smoke spill fan and staircase pressurization tripping mechanism. Ensure all mechanism function effectively. Repair or replace as necessary.  m. Print out the previous month detection and alarm history. Analyze and take appropriate actions.  n. Test Fire Brigade connection.			✓				
<b>2.4</b>	<b>Firemen Intercom System.</b>							
<b>2.4.1</b>	<b>Panel</b>							
	a. Inspect the condition of the panel and its housing.			✓				
	b. Ensure that the panel is in a normal-ready condition.			✓				
	c. Visually inspect condition of components, resistors wires, zone cards, bulbs, etc. Repair or replace as necessary.			✓				
	d. Inspect condition of battery charger. Repair or replace as necessary.			✓				
<b>2.4.2</b>	<b>Battery</b>							
	a. Inspect the condition of the battery and its terminal. Repair or replace as necessary.			✓				
	b. Inspect voltage and ammeter reading. Repair or replace as necessary.			✓				
	c. Inspect and test all battery charger units. Repair or replace as necessary.			✓				
<b>2.4.3</b>	<b>Automatic Control</b>							
	a. Inspect and test the control wiring and circuitry. Random test of the call, talk and fault mode.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	<p>b. Inspect the correct operation of the master and remote handset. Establish conference calls on auto and manual mode. Test disconnect call on auto and manual mode.</p> <p>c. Inspect and test the correct operation of remote status panel.</p>			✓				
<b>2.4.4</b>	<b>Electrical</b>							
	a. Check the operation of the emergency change over in case of power failure. Repair or replace as necessary.			✓				
	b. Check the wiring connection terminals. Repair or replace as necessary.			✓				
	c. Check the condition of the conduits, wires and supports. Repair or replace as necessary.			✓				
<b>2.4.5</b>	<b>Handsets</b>							
	a. Inspect the condition of the master hand set. Repair or replace as necessary.			✓				
	b. Inspect the condition of the remote handset box. Repair or replace as necessary.			✓				
	c. Inspect any missing, damaged or deteriorated parts on the remote handset and accessories. Repair or replace as necessary.			✓				
<b>2.4.6</b>	<b>General</b>							
	a. Keep remote handsets clean and tidy.			✓				
	b. Keep access to panel free from obstructions.			✓				



No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>2.5</b>	<b>Fire Suppression Systems</b>							
<b>2.5.1</b>	<b>Cylinders, Hoses, etc.</b>							
	a. Inspect gas cylinder and pressure gauge. Repair or replace as necessary.			✓				
	b. Inspect the pressure gauge reading of each cylinder. Refill or replace as necessary.			✓				
	c. Inspect any missing, damaged or deteriorated parts on the cylinders, hoses, etc. Repair or replace as necessary.			✓				
	d. Inspect the condition of the discharge valve and the tamper seal. Repair or replace as necessary.			✓				
<b>2.5.2</b>	<b>Pilot Cylinder</b>							
	a. Inspect and test gas discharge abort switch. Repair / replace as necessary.			✓				
<b>2.5.3</b>	<b>Panel</b>							
	a. Inspect and test control panel. Repair or replace as necessary.			✓				
	b. Visually inspect condition of components, resistors wires, zone cards, etc. Repair or replace as necessary.			✓				
	c. Inspect and test AC & DC supply, conduct current voltage continuity and earthing test.			✓				
	d. Inspect and test of change over switch. Repair or replace as necessary.			✓				
	e. Inspect and test indicator bulbs. Repair or replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	f. Inspect condition of battery chargers. Repair or replace as necessary.			✓				
	g. Inspect the condition of the battery and its terminal. Repair or replace as necessary.			✓				
<b>2.5.4</b>	<b>Devices</b>							
	a. Inspect and test the control wiring and circuitry. Retighten, repair or replace as necessary.			✓				
	b. Ensure that the detectors are free from obstructions, dust, dirt and cobwebs. Clean as necessary.			✓				
	c. Inspect the condition of the manual key switch/ pull handle. Repair or replace as necessary.				✓			
	d. Conduct simulation test (minus gas discharge).					✓		
	e. Inspect to ensure that the time delay for the CO <sup>2</sup> discharge is within 25 – 30 seconds, adjust. Repair or replace as necessary.					✓		
	f. Inspect and test the correct operation of interface trip and fire curtain. Repair or replace as necessary.					✓		
	g. Inspect and test the correct operation of the bell and warning light. Repair or replace as necessary.					✓		
	h. Inspect the condition of the manual key switch / pull handle. Replace glass as necessary.			✓				
<b>2.6</b>	<b>Portable Fire Extinguishers</b>							
	a. Obtain Bomba certification upon expiry date.						✓	

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
2.7	b. Inspect any missing, damaged or deteriorated parts on the cylinder, pressure gauge, hose connector, discharge valve, handle, cylinder safety pin, seal and cylinder holder. Repair or replace as necessary.			✓				
	c. Inspect fire extinguisher cabinet. Repair or replace as necessary.			✓				
	d. Inspect the condition of the content. Refill / Replace as necessary.			✓				
	<b>Painting</b>							
	a. Inspect painting, ensure the system (equipment, control panel and piping) are painted with anti rust and coated with red gloss paint.					✓		

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>3.0</b>	<b>LIFT</b>							
<b>3.1</b>	<b>Motor Room</b>							
	a. Inspect motor room cleanliness.			✓				
	b. Inspect for correct labeling.			✓				
	c. Inspect emergency light.			✓				
	d. Inspect ventilation system.			✓				
	e. Inspect condition of door.			✓				
	f. Inspect light intensity.			✓				
	g. Inspect circuit diagram (Laminated & framed) are up to date.			✓				
	h. Inspect layout diagram (Laminated & framed) are up to date.			✓				
	i. Inspect portable fire extinguisher (CO2).			✓				
	j. Inspect for abnormal noise and vibration. Determine source, adjust, repair or replace as necessary.			✓				
	k. Inspect gearbox oil level, condition, leaks, play and backlash. Adjust , repair or replace as necessary.			✓				
	l. Inspect and lubricate bushes or bearings. Replace as necessary.			✓				
	m. Inspect leakage from traction machine cover gaskets, oil seals. Repair or replace as necessary.			✓				
	n. Inspect brake action and adjust as necessary.			✓				
	o. Inspect brake lining and brake spring. Replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	p. Inspect main sheaves and beam pulley. Repair or replace as necessary.			✓				
	q. Inspect over speed governor for abnormal noise and vibration. Clean, repair / replace as necessary.			✓				
	r. Inspect function of recall control switch operation. Reset or replace as necessary.			✓				
	s. Inspect controller cooling fan operation. Replace as necessary.			✓				
	t. Inspect condition of fans, relays, contactors and contacts inside the controller. Clean, repair or replace as necessary.			✓				
	u. Inspect fuses and tighten terminal wires. Repair and replace as necessary.			✓				
	v. Inspect the operation of inverter. Inspect operation of system, repair and replace as necessary.			✓				
	w. Inspect EBOPS – battery / condition and emergency light / fan operation. Replace as necessary.			✓				
	x. Clean governor machine.			✓				
	y. Clean traction machine.			✓				
	z. Clean lift controller.			✓				
<b>3.2</b>	<b>Hoist Way</b>							
	a. Inspect cleanliness of car top.			✓				
	b. Inspect control switches and lighting. Repair or replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	c. Inspect tightness of electrical connection in terminal box. Retighten as necessary.			✓				
	d. Inspect and adjust car top safety gear linkage.			✓				
	e. Inspect and lubricate car top pulley as necessary.			✓				
	f. Inspect condition and clean ventilator fan.			✓				
	g. Inspect and adjust door panel (door self closer).			✓				
	h. Inspect anti crime device.			✓				
	i. Inspect hoist way limit and safety switches. Adjust, repair or replace as necessary.			✓				
	j. Inspect operation of load compensating device. Adjust, repair or replace as necessary.			✓				
	k. Inspect operation of overload device / buzzer. Repair or replace as necessary.			✓				
	l. Inspect car guide shoes / rollers oil level and flow of automatic lubricators. Top-up as necessary.			✓				
	m. Inspect counter weights guide shoes / rollers oil level and flow of automatic lubricators. Top-up as necessary.			✓				
	n. Inspect wear on linings for car guide shoes / rollers and counter weights guide shoes / rollers. Replace as necessary.			✓				
	o. Inspect for abnormal noise. Determine source, adjust, repair or replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	p. Inspect wire ropes, governor ropes condition and tension. Retension, replace as necessary.			✓				
	q. Inspect conditions of guide rails. Replace as necessary.			✓				
	r. Inspect traveling cable alignment. Adjust, replace as necessary.			✓				
	s. Inspect and tighten all hoist way bolts and nuts.			✓				
	t. Inspect and clean smoke detectors.			✓				
<b>3.3</b>	<b>Lift Car</b>							
	a. Inspect riding comfort, abnormal noise, vibration and leveling. Adjust as necessary.			✓				
	b. Inspect, alarm bell/ intercom/ voice synthesizer. Repair and replace as necessary.			✓				
	c. Inspect buttons, Braille features, switches and indicators condition. Repair and replace as necessary.			✓				
	d. Inspect emergency light and fan. Repair and replace as necessary.			✓				
	e. Inspect floor height measurement (clearance). Adjust as necessary.			✓				
	f. Inspect condition of suspension roller, track and doors. Repair and replace as necessary.			✓				
	g. Inspect door sill and sliding shoes. Repair and replace as necessary. Check clearance.			✓				
	h. Inspect door contact and check alignment. Adjust as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	i. Inspect function of car door safety device (safety edge/ photocell/ full height sensor). Repair and replace as necessary. j. Inspect tiling / wall panel, repair and replace as necessary.			✓				
<b>3.4</b>	<b>Entrance</b>							
	a. Inspect landing door contact, check alignment. Repair and replace as necessary.			✓				
	b. Inspect landing door lock switch. Repair and replace as necessary.			✓				
	c. Inspect suspension rollers and track. Repair and replace as necessary.			✓				
	d. Inspect landing sill & shoes. Repair and replace as necessary. Check clearance.			✓				
	e. Inspect indicators, hall lanterns, call buttons and Braille features. Repair and replace as necessary.			✓				
<b>3.5</b>	<b>Lift Pit</b>							
	a. Inspect pit cleanliness and lighting.			✓				
	b. Ensure lift pit is in dry condition.			✓				
	c. Inspect oil and spring buffer. Top-up, repair and replace as necessary.			✓				
	d. Inspect alignment of buffer strike plates. Repair and replace as necessary.			✓				
	e. Inspect, adjust and lubricate / grease tension pulley.			✓				
	f. Inspect safety catch or stop switches. Adjust, repair / replace as necessary.			✓				
	g. Inspect clearance compensating pulley. Adjust as necessary.			✓				



No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	h. Inspect oil compensating pulley and compensating ropes / chain. Top-up as necessary.			✓				
	i. Inspect plunger and buffer casing. Clean as necessary.			✓				
<b>3.6</b>	<b>Automatic Rescue Device (ARD)</b>							
	a. Inspect ARD operation.			✓				
	b. Inspect battery electrolyte level, top up as necessary.			✓				
	c. Inspect battery, grease terminals. Repair and replace as necessary.			✓				
	d. Inspect equalizing charge. Replace if defective.			✓				
<b>3.7</b>	<b>Building Control Room</b>							
	a. Inspect operation of master intercom. Repair and replace as necessary.			✓				
	b. Inspect operation of key switches. Repair and replace as necessary.			✓				
	c. Inspect operation of indicators. Repair and replace as necessary.			✓				
	d. Inspect operation of TV monitor, CPU and keyboard. Repair and replace as necessary.			✓				
	e. Inspect operation of system. Repair and replace as necessary.			✓				
	f. Arrange and attend to Department of Occupational Safety and Health inspections, mandatory checks, tests and paying the necessary fees.	As required						

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>4.0</b>	<b>ESCALATOR</b>							
<b>4.1</b>	<b>General</b>							
	a. Inspect and clean motor compartment upper and bottom, track surface, handrail and step.			✓				
	b. Inspect and clean track surface and steps.	✓						
	c. Inspect stop buttons / key switch, soft stop. Repair / replace as necessary.		✓					
	d. Inspect balustrade lighting. Repair or replace as necessary.		✓					
	e. Inspect skirting / comb plate / step gap lighting. Adjust, repair or replace as necessary.			✓				
	f. Inspect for abnormal noise and vibration. Determine source, adjust, repair / replace as necessary.			✓				
	g. Clean traction machine, control panel, landing, step, pit and motor room.			✓				
	h. Inspect brake action. Adjust as necessary.			✓				
	i. Inspect brake slip distance and riding comfort. Adjust, as necessary.			✓				
	j. Inspect emergency stop switches at upper and lower landing. Adjust, repair or replace as necessary.			✓				
	k. Inspect riding comfort and leveling. Adjust as necessary.			✓				
	l. Clean and inspect operation key switch. Adjust, as necessary.			✓				
	m. Clean all outer decking.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	n. Clean all relays and contactors. Replace as necessary.			✓				
	o. Clean gap between step and skirt panel.			✓				
	p. Clean up motor room and pit.			✓				
	q. Inspect the pit equipment. Adjust as necessary.			✓				
<b>4.2</b>	<b>Comb Plate</b>							
	a. Inspect the condition of comb plate. Clean and replace as necessary.			✓				
	b. Inspect the contact, movability and setting of comb plate. Adjust as necessary.			✓				
<b>4.3</b>	<b>Steps</b>							
	a. Inspect function of maintenance operating panel. Reset and adjust as necessary.			✓				
	b. Inspect correct setting step guides. Adjust as necessary.			✓				
	c. Inspect function of water level switch.			✓				
	d. Inspect and clean yellow side frame at step. Replace as necessary.			✓				
	e. Inspect the alignment of steps. Adjust as necessary.			✓				
	f. Inspect the condition of step wheel. Adjust as necessary.			✓				
<b>4.4</b>	<b>Step Chains</b>							
	a. Inspect step chain tension. Adjust as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	b. Inspect setting and function of step chain monitoring contact.			✓				
	c. Inspect condition of tangential rails. Adjust repair or replace as necessary.			✓				
	d. Lubricate step chains.			✓				
	e. Inspect operation for broken step chain device. Adjust as necessary.			✓				
	f. Inspect spring setting for step chain tensioning device. Adjust as necessary.			✓				
	g. Inspect the elongation and even tension for step chain. Adjust as necessary.			✓				
	h. Grease main sprocket for step chain.			✓				
	i. Inspect the condition of step chain wheel. Repair or replace.			✓				
	j. Lubricate brake pins as necessary.			✓				
	k. Clean brake wheel and shoe.			✓				
	l. Inspect brake linings for wear. Replace as necessary.			✓				
<b>4.5</b>	<b>Handrail Drive Chain</b>							
	a. Inspect handrail drive chain. Adjust, retension, lubricate, repair or replace as necessary.			✓				
<b>4.6</b>	<b>Drive Chain</b>							
	a. Inspect drive chain. Lubricate, repair or replace as necessary.			✓				
<b>4.7</b>	<b>Handrail</b>							
	a. Inspect handrail entrance switches at upper and lower landing. Adjust as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	b. Check and clean handrail surface.			✓				
	c. Clean inside of handrail and handrail profile.			✓				
	d. Inspect handrail speed and temperature. Adjust as necessary.			✓				
	e. Inspect the tension of handrail. Adjust as necessary.			✓				
<b>4.8</b>	<b>Truss</b>							
	a. Remove the dust inside the truss.			✓				
	b. Check and tighten the track fastening.			✓				
	c. Wash tracks.			✓				
<b>4.9</b>	<b>Drive Unit</b>							
	a. Inspect oil level of gear. Top-up or change as necessary.			✓				
	b. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	c. Inspect carbon brushes and slip rings of all motors. Clean, repair / replace as necessary.			✓				
	d. Inspect safety devices fitted to all motors. Clean, adjust, lubricate, repair / replace as necessary.			✓				
<b>4.10</b>	<b>Main Drive Shaft</b>							
	a. Inspect the main drive shaft for normal operation. Adjust, repair / replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>4.11</b>	<b>Handrail Drive Shaft</b>							
	a. Inspect spring setting for handrail drive. Adjust as necessary.			✓				
	b. Inspect the drive shaft for normal operation. Adjust, repair / replace as necessary.			✓				
	c. Lubricate bearings.			✓				
<b>4.12</b>	<b>Safety Switches</b>							
	a. Inspect handrail safety contact. Adjust or replace as necessary.			✓				
	b. Inspect skirt switches. Adjust or replace as necessary.			✓				
	c. Inspect broken steps contacts. Adjust or replace as necessary.			✓				
	d. Combing contact. Adjust or replace as necessary.			✓				
	e. Step sag contact. Adjust or replace as necessary.			✓				
<b>4.13</b>	<b>Automatic Lubrication System</b>							
	a. Inspect lubrication system (if fitted). Top up as necessary.			✓				
<b>4.14</b>	<b>Monitoring Devices</b>							
	a. Inspect overspeed, underspeed devices. Replace as necessary.			✓				
	b. Inspect step monitor. Replace as necessary.			✓				
	c. Check the control system of the escalator. Replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	d. Clean the connection boxes. Tighten all screws and check the condition of cables.			✓				
	e. Inspect rectifier's voltage. Replace as necessary.			✓				
	f. Test all safety devices. Adjust as necessary.			✓				
	g. Carry out electrical insulation test and earth continuity test for all electrical equipment. Repair or replace as necessary.			✓				
	h. Test the contract speed of the escalator. Adjust as necessary.			✓				
<b>4.15</b>	<b>Building Control Room</b>							
	a. Inspect operation of key switches. Repair / replace as necessary.			✓				
	b. Inspect operation of indicators. Repair / replace as necessary.			✓				
	c. Inspect operation of TV monitor, CPU and keyboard, repair / replace as necessary.			✓				
	d. Inspect operation of system, repair / replace as necessary.			✓				
	e. Arrange and attend to Department of Occupational Safety and Health inspections, mandatory checks, tests and paying the necessary fees.	As required						

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>5.0</b>	<b>COLD WATER SUPPLY AND BOOSTER PUMP</b>							
<b>5.1</b>	<b>Pump Room</b>							
	a. Inspect pump room cleanliness.		✓					
	b. Inspect for correct labeling.					✓		
	c. Inspect emergency light.		✓					
	d. Inspect condition of door.		✓					
	e. Inspect light intensity.		✓					
	f. Inspect floor trap / drain to ensure good water flow.			✓				
	g. Inspect pump circuit diagram (Laminated & framed) are up to date.			✓				
	h. Inspect pump layout diagram (Laminated & framed) are up to date.			✓				
	i. Inspect portable fire extinguisher (CO2).			✓				
<b>5.2</b>	<b>Tanks (Suction &amp; Storage)</b>							
	a. Inspect for integrity of structure.			✓				
	b. Inspect for leaks. Repair / replace as necessary.			✓				
	c. Inspect for rust. Repair / replace as necessary.			✓				
	d. Inspect operation of ball valve. Repair / replace as necessary.			✓				
	e. Inspect water tank level indicator. Repair / replace as necessary.			✓				
	f. Inspect electrode and clean. Repair / replace as necessary (if equipped).			✓				



No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	g. Inspect for sediment. Clean and flush. Do water sampling.					✓		
	h. Inspect internal and external cat ladder. Repair / replace as necessary.					✓		
<b>5.3</b>	<b>Pumps</b>							
	<b>i. General</b>							
	a. Inspect condition of pumps (cleanliness / appearance).			✓				
	b. Test run each pump on automatic and manual mode.			✓				
	c. Inspect the correct cut-in/ cut-out auto mode operation of the pressure switch. Check pressures.			✓				
	d. Inspect all pump bearings for excessive noise, vibration & wear. Lubricate with oil or grease. Replace as necessary.			✓				
	e. Inspect all motor bearings, lubricate with grease. Replace as necessary.			✓				
	f. Inspect carbon brushes and slip rings of all motors. Clean, repair / replace as necessary.			✓				
	g. Inspect safety devices fitted to all motors. Clean, adjust, lubricate, repair / replace as necessary.			✓				
	h. Inspect all seals for leakage. Repair / replace as necessary.			✓				
	i. Adjust and re-pack and replace pump glands as necessary.			✓				
	j. Inspect each pump / motor alignment, mountings and correct rotation. Adjust or replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	k. Inspect all rubber couplings between pumps and drive motor. Replace as necessary.			✓				
	l. Inspect all belt drives. Adjust and retension. Replace as necessary.			✓				
	m. Inspect and tighten all bolts and nuts. Replace as necessary.			✓				
	n. Inspect and test pressure switches and gauges. Repair / replace as necessary.			✓				
	<b>ii. Control Panel</b>							
	a. Inspect the condition of the panel and its housing. Repair / replace as necessary.			✓				
	b. Inspect and test the control wiring and circuitry. Retighten, repair / replace as necessary.			✓				
	c. Inspect electric pump starter operation, ensure that the starting sequence is correct. Repair / replace as necessary.			✓				
	d. Inspect the operation of selector switches. Repair / replace as necessary.			✓				
	e. Inspect the operation of auto-manual selector switches. Repair / replace as necessary.			✓				
	f. Inspect the operation of stop-start buttons. Repair / replace as necessary.			✓				
	g. Inspect indicating light for trip and run. Replace as necessary.			✓				
	h. Inspect indicating light for pump on auto and pump manual. Replace as necessary.			✓				
	i. Inspect ammeter and voltmeter. Replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
	j. Inspect and retighten all loose connection of all electrical contactors.			✓				
	k. Clean and replace electrical contactors as necessary.			✓				
	l. Replace electric fuses as necessary.			✓				
	m. Inspect the condition of the conduits, wires and supports.			✓				
	n. Inspect / replace indicating bulbs and covers.			✓				
	o. Inspect and ensure tank level and pump operations are correctly registered in the BMS (Building Management System).			✓				
<b>5.4</b>	<b>Piping and Fittings</b>							
	a. Inspect the condition of every pipe. Repair / replace as necessary.			✓				
	b. Inspect the condition of the pipe supports, brackets, pipe sleeves and piping joints. Repair / replace as necessary.			✓				
	c. Inspect the condition of every valves and fittings. Repair / replace as necessary.			✓				
	d. Inspect and clean strainers. Repair / replace as necessary.					✓		
	e. Inspect for correct labeling. Clean, repair / replace as necessary.					✓		
	f. Inspect plumbing, pipe-works & fittings and pipe supports. Repair / replace as necessary.			✓				
	g. Brush pipes to clean of accumulated dust.					✓		

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
5.5	<b>Pressure Vessel</b>							
	a. Inspect and test pressure vessel / hydro-pneumatic vessel for leaks. Replace diaphragm as necessary. b. Inspect and test system pressure. Adjust as necessary.			✓				
5.6	<b>Submersible Pumps</b>							
	a. Inspect electrical termination for tightness.			✓				
	b. Inspect all seals for leakage. Replace as necessary.			✓				
	c. Inspect pump and motor bearings for excessive noise, vibration & wear. Replace as necessary.			✓				
	d. Inspect for correct rotation.			✓				
	e. Inspect condition of one way valve. Replace as necessary.			✓				
	f. Inspect float sensors for correct indication. Adjust, repair or replace as necessary.		✓					
	g. Inspect impeller for blockage. Clean, repair or replace as necessary.		✓					
	h. Inspect and test run each pump on auto and manual mode under load condition.		✓					
	i. Inspect the pump suction. Clean pump pit, repair or replace as necessary.		✓					
5.7	<b>Painting</b>							
	Inspect painting, ensure the system (equipment and piping) are painted with anti rust and coated with correct colour paint.				✓			

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>6.0</b>	<b>NATURAL GAS SYSTEM</b>							
	a. General inspection for sign of leakage – check for hissing noise, smell, white cloud, bubbles from underground pipe. Repair as necessary.			✓				
	b. Inspect and test Emergency Shut Off Valve. Repair / replace as necessary.			✓				
	c. Inspect that there is no unauthorized changes to the approved installation.			✓				
	d. Inspect leaks at all flanges, threaded and welded connection of all piping and fittings. Repair / replace as necessary.			✓				
	e. Inspect for corrosion or damage at support, pipeline and fittings. Repair / replace as necessary.			✓				
	f. Inspect painting, ensure the system (equipment and piping) are painted with anti rust and coated with correct colour paint.						✓	
	g. Ensure no condensation or sweating at regulators and piping. Repair / replace as necessary.			✓				
	h. Inspect the connections to equipment, ensure the fittings and hoses are in good working condition. Repair / replace as necessary.			✓				
	i. Perform general housekeeping in main riser.			✓				
	j. Inspect all signages are in good condition. Repair / replace as necessary.			✓				
	k. Perform functional test on Emergency shut off valve.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
<b>7.0</b>	<b>GONDOLA</b>							
	a. Inspect motor, bearing and other related parts. Repair / replace as necessary.			✓				
	b. Observe for any leakage of hydraulic oil. Repair / replace / refill as necessary.			✓				
	c. Inspect for any missing or damaged component or parts. Repair / replace as necessary.			✓				
	d. Inspect safety catch device, emergency brake, limit switch and other related parts. Repair / replace as necessary.			✓				
	e. Inspect main switch, power cable, panel, supply and emergency stop button. Repair / replace as necessary.			✓				
	f. Inspect and test buzzer or alarm. Repair / replace as necessary.			✓				
	g. Test run unit to ensure good operating condition.			✓				
	h. Check wire ropes, replace as necessary.			✓				

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
8.0	<b>OTHER MECHANICAL EQUIPMENT AND SYSTEM</b>							
	a. Inspect general condition of equipment and plant room. Ensure the equipment and plant room are kept free from dust, debris and dry at all time.	✓						
	b. Test system or equipment for manual and automatic operation.			✓				
	c. Inspect, detect and rectify leakages.			✓				
	d. Inspect all bearings, moving parts, etc. Lubricate with oil or grease, replace as necessary.			✓				
	e. Inspect for abnormal noise or vibration and rectify as necessary.			✓				
	f. Inspect all bolts and nuts and tighten as necessary.			✓				
	g. Inspect level control electrodes.			✓				
	h. Inspect instrumentation, pressure switches and gauges in working order. Repair / replace as necessary.			✓				
	i. Inspect valves operation. Lubricate, repair / replace as necessary.			✓				
	j. Inspect all electric motors, fans, pump, etc. Repair / replace as necessary.			✓				
k. Inspect and test electrical control panel, starters, protection devices, etc. Repair / replace as necessary.			✓					

No.	Description	Maintenance Frequency						
		D	W	M	3M	6M	Y	2Y
9.0	<b>INSPECTION OF MECHANICAL SERVICES ABOVE CEILING</b>							
	a. Inspect for proper anchorage of all mechanical services. Repair or replace as necessary.					✓		
	b. Inspect for leaks at ducting, piping and insulation. Repair or replace as necessary.					✓		
	c. Ensure the spaces are free from debris. Remove all rubbish and wastes.					✓		