Standard Operating Procedure for Facilities and System Admin department.

Facility and system admin department handles the following-

1. Electrical (lights/fans/AC/transformer/street light/ TV /coloration plant/water motors / fountains/x-ray machine/UV- disinfectant/blow dryers/ RO plant/softener plant/Water heaters/ chapatti maker / grinder / grater / kneader / mixer / cutter / blender / creamer / oven / refrigerator /Bain-Marie / pest smashers/ steam boilers / stirrer / juicer / bore well / generator / lifts / laundry machines /saloon equipment / STP etc.)
2. Electronics and Networks (Computers / Printers / Fax machine / scanner / copier / projectors / smart class / speakers / auditorium equipment (Light & Sound) / LAN / Routers / CCTV / DVRs / Intercom / PA / Switches / Antenna / Cable network / Tabs / Laptops / servers / OFC / Software / system admin operations etc.)
3. Fire fighting (fire extinguishers)
4. Plumbing (Steam / STP / Gas / Water /RO / Softener plant / Water heaters / bore well / water sump and over head tank /drainage and toilets /etc.)
5. Carpentry and Upholstery (doors / cupboards / cots / benches / tables / chairs / office furniture / Sofa / beds / etc.)
6. Foundry (Welding /Soldering /Windows/ metal doors / sign boards / etc.)
7. Gardening
8. House keeping
9. Physical arrangements
10. Civil (Masonry / Painting / earth moving / etc.)
11. Waste management/Sewage treatment
12. Printing (small quantities) (Bulk quantities to be handled by procurement manager)

SOP for raising complaints & maintenance / attending to complaints & maintenance / closure of complaints & maintenance.

Raising a service request -

1. Fill up the service request form
2. Submit the form on ERP
3. Generate service ticket number
4. Email service ticket number to facility manager

Attending a service request –

1. Facility manager reviews the service request on ERP, if genuine & within the scope of the institution, sends the request for approval of Dean. If not the service request will be rejected. An intimation to the complainant will be sent via ERP and email.
2. Dean reviews the requirement with resident engineer and approves/rejects
3. If approved, a notification to facility manager and the complainant will be sent on ERP and email.
4. Facility manager co-ordinates with procurement manager (procurement SOP to be followed) if purchase are necessary else directs the technician to attend the request.
5. Facility manager to update the stock on ERP and in the stock book.
6. If rejected, a notification with reason will be sent to the facility manager and complainant on ERP and email.

Closure of the Service request

1. The technician attends to the service request and post pictures / other evidence of work completion on ERP.
2. Facility manager reviews the work completion and closes the ticket on ERP.
3. An email of the closure and notification will be sent to the complainant / facility manager and dean.

Standard Operating Procedure for UPS maintenance and Operation

INSTALLATION CONSIDERATION

ENVIRONMENTAL CONSIDERATION

The internal ruggedness and external aesthetics of our UPS Allows the UPS to be installed in an office environment or in an general plant room. A few of the general considerations listed below.

The location must be cool, dry and clean with adequate ventilation to keep the ambient temperature below 40° C. The installation location must be clear of containments such as excessive moisture inflammable or combustive, vapors, chemical fumes and corrosive gases or liquids.

If necessary install exhaust fan in the room to aid air circulation. Use Suitable air filtration systems where UPS has to operate in dusty environments.

The UPS is forced cooled with the aid of internal cooling fans hence a min gap of 150mm to be maintained behind the equipment for adequate airflow. The unit requires front, top and side access for troubles shooting or maintenance. Wherever sealed maintenance free lead acid batteries are used place the batteries in air-conditioned atmosphere i.e., within 27°c for better life of batteries. However for tubular batteries ensure adequate space is Available for maintenance of batteries.

ELECTRICAL CONSIDERATIONS

The input power must be rated for the UPS rating and battery charging at the lowest input range for single phase and correspondingly for three Phases. All UPS should be provided with two earthings one for input power and other for output. Since the UPS Output is isolated one consisting of Phase & Neutral. The neutral requires reference and hence dedicated earth is provided which in turn is shorted to the output neutral. Before Installation confirm correct input MCB/ fuse rating, cable size and type, Cable termination and color code as per conventional standards. Ensure that earth to Neutral voltage is less than 2 volts.

BATTERY AND BACK UP TIME

The UPS has been designed for use with a wide variety of batteries. Incase the batteries are to be installed at a distance from the UPS ensure that cable used is such that the total voltage drop in the cable does not exceed 2 to 3 volts. Batteries are to be mounted on acid resistant wooden racks or racks made of acid resistant material. The batteries should be arranged in battery racks in a manner so as to allow easy and safe access to individual cells for maintenance. Follow all safety instructions of the battery manufacturer. Batteries provide back up depending upon the load, capacity and the ampere rating of the batteries. Referring to the ampere – hour selection chart given by battery manufacturer, can do Battery sizing for various back up time.

BATTERY POWER CABLING.

a) Arrange the batteries in side the battery cabinet secure the batteries to the final position pay attention to the polarity of each individual block of battery.

b) Interconnect the batteries using battery links supplied.

c) After interconnecting all the battery blocks connect the UPS battery interconnecting cable to the open ends of two extreme cells of the string of batteries connected in series.

The connector in RED should be connected to the end having the positive polarity and the connector in BLACK should be connected to the end having negative polarity.

POWER CONNECTION ON UPS

There are independent power connection points for
1. Rectifier Input (i.e., R-Y-B-N-E for 3 Phase)
2. By Pass Power (i.e., R-Y-B-N-E for 3 Phase)
3. Battery power (2 wires Red for positive polarity; Black for negative Polarity.)

INSTALLATION OF UPS

Connect the power cables in the sequence given below. Use correct rated and colour coded cables for installation.

STEP 1: (Connecting rectifier input)

Connect input power cable to Rectifier Input of UPS system. In case of Three Phase check & Ascertain the 3 Phase sequence. Ensure the input voltages are within the specified limits.

STEP 2 (Connecting By pass power)

Connect the by pass supply to the appropriate source.Cable termination may vary depending whether the unit has a common By pass or split By pass.

STEP 3 :(Connecting battery power to UPS)

It is recommended to terminate the supply cables coming from the battery on a suitable junction box and then carry the battery supply from the junction box to the UPS using the supplied battery power cable. DC isolators can be used for isolating batteries for safety and ease of maintenance.

STEP 4 : Switch on the mains on input. Then switch on the mains MCB. Observe for the LED mains on & charger On indications on the front panel confirming the Input to UPS.

STEP 5 : Switch on the “Inverter ON” switch on front panel. Observe the hissing noise in the UPS and the front panel voltmeter to read full voltage and “Inverter ON” LED Indication.

STEP 6 : Once the above step is through Switch on the battery MCB which is provided on the rare side of the panel.

STEP 7: Measure the out put voltage for proper voltage across phase and Neutral and earth. Ensure the load to be connected to be within the rated capacity of the UPS connect the load for normal operation.

LED INDICATIONS ON NORMAL OPERATION

LED	Name	Status
1	Mains on	ON
2	Inverter On	ON
3	Inverter trip	OFF
4	Battery low	OFF
5	Output under/Over voltage	OFF

LED INDICATIONS ON MAINS FAILURE

LED	Name	Status
1	Mains on	OFF
2	Inverter On	ON
3	Inverter trip	OFF
4	Battery low	OFF
5	Output under/ Over voltage	OFF

OTHER FAULTS OR ALARM CONDITIONS:

Fault conditions are those which are hindered the normal operation of the UPS. Eg: Rectifier failure Inverter failure. Alarm conditions are those conditions which do not affect the Operation (i.e., Continuous supply of load power of the unit Immediately but which may lead to cause of disruption of load power eg: battery low)

TROUBLE SHOOTING GUIDE :

The following section will give you a detailed interpretation of the status indicated by LED and the action to be carried out in the same is Encounter.

LED	Name	Status	Condition	Action
1	Mains on	ON OFF	Normal Mains Present Input mains failure	---
2	Inverter On	ON OFF	Normal load on Inverter Inverter Off	--- Check mains MCB /Batt. Fuse in on position Seek Assistance.
3	Inverter TRIP	OFF ON	Normal working Fault condition 1. Output short circuit 2.Over load 3.Battery low 4.Out put Over/under voltage	Reset/Restart Remove load short circuit & restart. Check load of overload Restart after mains resume Seek assistance if condition persists.

4	Battery Low	ON OFF	When battery set discharged below 1.8 V/ cell Batt. getting charged	Ensure battery MCB is on
5	Out put under / Over voltage	OFF ON	Normal working Fault condition	Seek Assistance.

CHARGER CONTROL CARD:

The charger works on the principle of IGBT control to regulate the DC voltage. The charger is designed as a constant voltage charger with current limit. The current signal from the shunts are amplified and normalized to a fixed voltage. Similarly the voltage signal is attenuated and normalized. These two signals are used as a common feed back signal to control the Charging voltage & Charging Current of the charger.

An error Amplifier is configured by an IC And Transistor and the output from the error amplifier is taken from the emitter of the transistor. Depending on the error signal, which in turn represents any change in the output of the charger, is controlled by the number of pulses at the output to the IGBT Switching. This in turn varies the firing angle of the IGBT and a steady output is achieved. The triggering signals are coupled to the IGBT using pulse transformers.

The basic building blocks of the charger control card:

1.Power supply unit.
2.Feedback section.
    a) Voltage section.
    b) Current feedback.
3. Soft start section.
4. Error amplifier.
5. Modulator section.
6. Switching section.
7. Protection circuit.

INVERTOR CONTROL CARD

The main function of this card is to control the inverter and to provide a regulated output. Inverter uses the pulse width modulation technology and uses the technique of sine triangle modulation. Sine wave of 50HZ with very low distortion is generated by phase synchronization card and a triangular wave of higher frequency is generated these two wave forms are compared to generate +PWM and –PWM signals. These are further divided into –PWM And +PWM. These four signals are used to switch the 4 arms of the inverter bridge. The basic sine wave is amplified by a variable gain amplifier to control the output voltage
The following are the basic building blocks of inverter control card:

1) On board power supply.
2) Basic sine wave generator

3) Carrier generator
4) Soft start section
5) Modulator (PWM) stage.
6) Phase synchronization card.
7) Feedback and alarm circuits.

On board power supply

On board power supply On board power supply: The PCB contains its own self starting switched mode power supply to supply the required voltage to the control circuits.

Basic sine wave generator:

Basic sine wave generator: Basic sine wave generator: IC/XR2206, which can generate highly stable low distortion sine wave, is used to generate the basic sine wave.

Carrier generator: Carrier generator: Carrier generator: A high frequency (20 KHz) square wave is generated using TL084. The square wave is fed to an integrator, this gives a linear triangular wave with the frequency as that of the basic square wave.

Soft start section: Soft start section: Soft start section: The soft start is accomplished by slowly raising the reference voltage to the feedback control circuits.

Modulator stage: Modulator stage: Modulator stage: The PWM signals are derived by SINE-TRIANGULAR modulation, keeping triangular wave as the carrier and sine wave as the modulating signal.

Feedback and Alarm circuits: Feedback and Alarm circuits: Feedback and Alarm circuits: The circuit monitors the output voltage, the output current and the wave form continuously. To protect the invertor from any short time high inrush currents the circuit employs the technique, pulse by pulse current limiting. The inrush current limits the width of the PWM pulses corresponding to the inrush currents, which stay more than the specified time.

FAULT REPORTING:

When the UPS system trips, do not turn off input breaker before observing indications.
Note the observations
While reporting failure, mention details of observation. Also mention conditions when systems failed. (Whether during switching ON/Running condition (or) while making changes at load etc.)
While reporting system failure kindly observe the following details.

1) Input and D.C MCB positions.
2) Indications on front panel.
3) Output readings with your observations.

Standard Operating Procedure for operating and maintenance of STP, RO and Water Treatment Plant

1. Maintenance schedule of RO drinking water plants at mess

S. No	Particulars	WORK DETAILS	Period of maintenance	PARTS REPLACED
1	Sand filter	Back wash & rinsing	Twice in a week	
2	Carbon filter	Back wash & rinsing	Twice in a week	
3	Softener	Regeneration & Rinsing	Twice in a week	
4	Micron filter	Cleaning	Twice in a week	Once in year
5	Membrane filter	Cleaning	Once in year	
6	Storage tank	Cleaning	Once in six months	

2. Maintenance schedule of RO drinking water plants at school block

S. No	Particulars	WORK DETAILS	Period of maintenance	PARTS REPLACED
1	Sand filter	Back wash & rinsing	Once in a week	
2	Carbon filter	Back wash & rinsing	Once in a week	
3	Softener	Regeneration & Rinsing	Once in a week	
4	Micron filter	Cleaning	Once in a week	Once in year
5	Membrane filter	Cleaning	Once in year	
6	Storage tank	Cleaning	Once in six months	

3. **Maintenance schedule of RO drinking water plants at Hotel block GH -1**

S. No	Particulars	WORK DETAILS	Period of maintenance	PARTS REPLACED
1	Sand filter	Back wash & rinsing	Once in a week	
2	Carbon filter	Back wash & rinsing	Once in a week	
3	Softener	Regeneration & Rinsing	Once in a week	
4	Micron filter	Cleaning	Once in a week	Once in year
5	Membrane filter	Cleaning	Once in year	
6	Storage tank	Cleaning	Once in six months	

4. **Maintenance schedule of RO drinking water plants at Hostel block BH -2**

S. No	Particulars	WORK DETAILS	Period of maintenance	PARTS REPLACED
1	Sand filter	Back wash & rinsing	Once in a week	
2	Carbon filter	Back wash & rinsing	Once in a week	
3	Softener	Regeneration & Rinsing	Once in a week	
4	Micron filter	Cleaning	Once in a week	Once in year
5	Membrane filter	Cleaning	Once in year	
6	Storage tank	Cleaning	Once in six months	

5. Maintenance schedule of RO drinking water plants at Staff quarters

S. No	Particulars	WORK DETAILS	Period of maintenance	PARTS REPLACED
1	Sand filter	Back wash & rinsing	Once in a week	
2	Carbon filter	Back wash & rinsing	Once in a week	
3	Softener	Regeneration & Rinsing	Once in a week	
4	Micron filter	Cleaning	Once in a week	Once in year
5	Membrane filter	Cleaning	Once in year	
6	Storage tank	Cleaning	Once in six months	

Process of Reverse osmosis Water plant

The raw water initially passed through WATER BOSS sand filter to reduce the turbidity level and then followed by carbon filter to reduce organic impurity, then this water will be passed through a WATER BOSS water softener, after the above process the water will be passed through micron filters, then stored in a storage tank (soft water tank).

The above filtered water is further pumped into RO membrane by using a high-pressure pump. This water is desalinated in the membrane and product water received. This will be stored in a storage tank (Product water tank).

Process of Reverse osmosis Water plant

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The above filtered water is further pumped into RO membrane by using a high-pressure pump. This water is desalinated in the membrane and product water received. This will be stored in a storage tank (Product water tank).

(b) EQUIPMENT SPECIFICATION :

1. Pressure Sand Filter:

	WB RO 250 liters per hour
Quantity (Nos)	One
Type	Vertical
Diameter (mm)	360
Height (mm)	1450
Material of construction	FRP
Design Code	WB SF-80
Operating pressure (Kg/cm.sq)	2.0
Service flow rate (liters./hour)	2000
Back wash	Once in 48 hours or 5 operation hours of plant
Internal filling	Pebbles & Sand
Valves Inlet /Outlet (NB)	25
Rinse Outlet (NB)	25
Type of valve	MPV

2. Activated Carbon Filter:

	WB RO 250 liters per hour
Quantity (No.)	One
Type	Vertical
Diameter (mm)	360
Height (mm)	1450
Material of construction Design code	FRP WB ACF-80
Operating pressure (Kgs/cm.sq)	2.0
Service flow rate (Liters/hour)	2000
Internal filling	7/14 Silver Impregnated Activated carbon
Valves Inlet /Outlet (NB)	25
Rinse Outlet (NB)	25
Type of valve	MPV
Back wash	Once in 48 hours or 5 operation hours of plant

3. WATER BOSS softener

	WB RO 2000 liters per day
Quantity (No.)	One
Type	Vertical
Diameter (mm)	360
Height (mm)	1450
Material of construction Design code	FRP WB ACF-80
Operating pressure (Kgs/cm.sq)	2.0
Service flow rate (Liters/hour)	2000
Internal filling	Cation resin
Valves Inlet /Outlet (NB)	25
Rinse Outlet (NB)	25
Regeneration	Once in 6000 liters or 5 operation hours of plant

4. Water Boss Micron Filters :

	WB RO 250 liters per hour
Quantity (Nos)	Two
Type	Vertical
Diameter (mm)	180
Height (mm)	680
Material of construction	PP
Design code	WB MF-4020
Operating pressure (Kgs/cm.sq)	5.0
Service flow rate (Liters/hour)	2000
Internal filling	20” Spun candle D2.5” (5µ, 1µ)
Valves Inlet /Outlet (NB)	25
Back wash	Once in 48 hours or 5 operation hours of plant
Accessories	Rigid PVC piping for inlet, outlet & drain.

5. Water Boss Reverse Osmosis System :

Description	WB RO 250 liters per hour
Membrane (Trisep USA)	1(ACM4 4040)
Membrane pressure housing (40-2E-300) ss 304	1
High pressure pump	flow $2m^3$/hr 140mc
High pressure motor 1.5HP 1Φ	1
Flow meter (Product water)	1
Pressure switch (danfoss)	1
Pressure gauge (inlet & Rejection)	2
Service flow rate (Liters/hour)	250
Valve (Rejection (1/2”)	1
Rejection Outlet (1/2”)	1
Type of valve (Needle valve)	1
Salts rejection (Upto)	98.5%
Automation control panel	1
Float switch (Low & High level)	2
Online TDS monitor	1

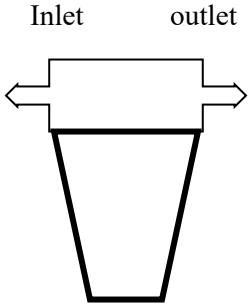
Maintenance

1. Cleaning of the Micron filter (Once in 48 hours or 5 operation hours of plant)

1. Turn bowl of Micron filter clockwise direction .

(i.e unscrew the filter bowl)

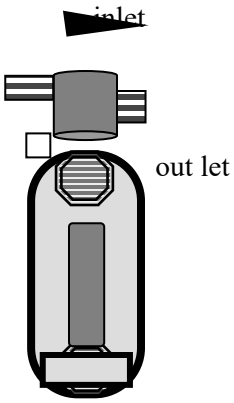
1. Take out the filter
2. clean the filter with water
3. Let the water flow into the drain for about 10 minutes.
4. Reconnect the bowl as before
5. Clean the filter once in two days



2. Backwash of the sand filter (Once in 48 hours or 5 operation hours of plant)

a. Sand filter in filter mode (MPV at no 1 Position)

1. keep the handle in Filter position no 1. Start the pump and open inlet isolation valve
2. the water enters MPV from inlet nozzle & goes into the sand bed and the water comes out from the outlet nozzle through the bottom strainer & riser pipe . the water coming out of the unit would be free from turbidity .



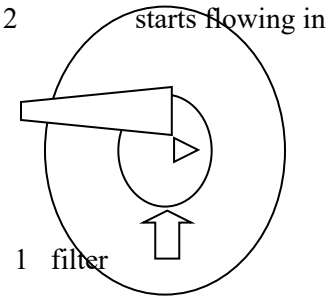
b. backwash mode (MPV at no 2 position)

1. Switch off the pump and close the inlet valve
2. Shift valve (MPV) position to back wash position no
3. Start the pump and open the inlet valve . the water the upward direction through the sand bed and come out from the drain port of the unit (MPV)

   Allow water to flow for 10-15 minutes. Check the water

   quality with the help of turbidity meter

4. Switch off the pump & close the inlet valve . shift the valve (MPV) position to filter mode

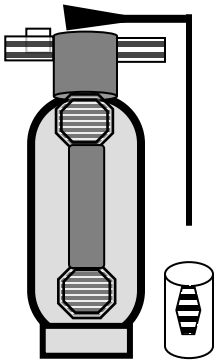


3. Regeneration of softener (Once in 48 hours or 5 operation hours of plant)

inlet outlet

a. Softener in Service mode (MPV at no Position)

1. Keep the handle in service position no 1. Start the pump drain Ejector and open inlet valve



2. The water enters MPV from inlet nozzle & goes down the riser tube & travels up the Resin bed and the water comes out from the outlet nozzle . Soft water available at outlet . once the softener resin gets exhausted i.e. the water hardness exceeds 20ppm (5,500 liters), the softener has to be regenerated.

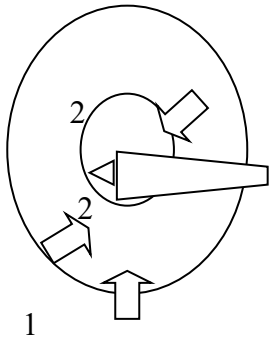
b. Regeneration mode (MPV at no 2 position)

1.Switch off the pump and close the inlet valve

2.Shift valve(MPV) positionno1 to regeneration position no2

3.Ensure salt solution is prepared & salt is completely dissolved

4.Start the pump and open the inlet valve . the salt water starts flowing in the downward direction through the resin bed and come out from the drain port of the unit (MPV)



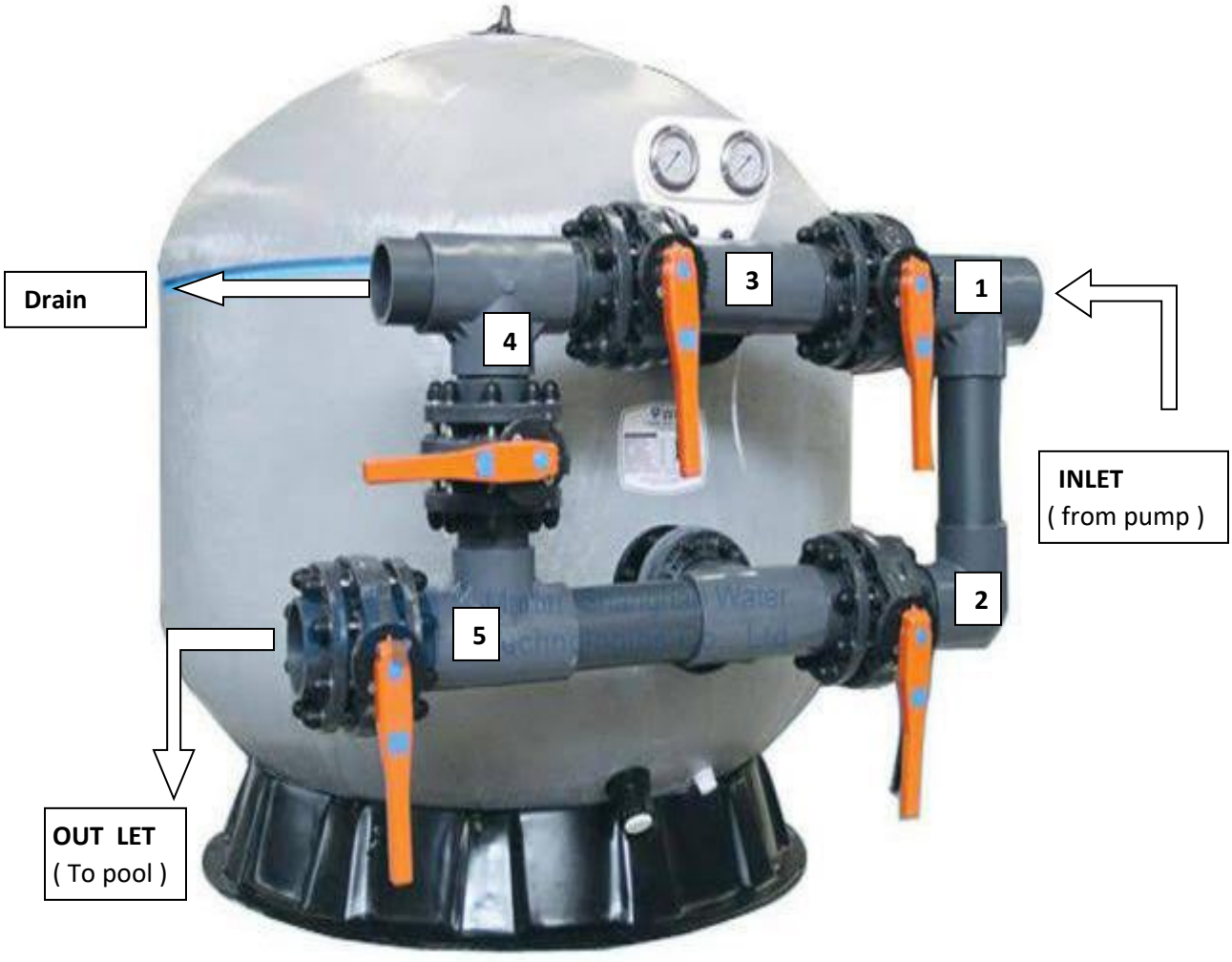
3.Allow salt water to flow into softener unit.

c. Rinse mode (MPV at no 3 position)

1. Switch off the pump and close the inlet valve
2. Shift valve (MPV) position no 2 to rinse position no 3
3. Start the pump and open the inlet valve . the water starts flowing in the upward direction through the resin bed and come out from the drain port of the unit (MPV) Allow water to flow for 10-15 minutes. Check the water quality
4. Switch off the pump & close the inlet valve . shift the valve (MPV) position 3 to service mode (position no 1)

Operating and Maintenance of Swimming pool

S No	Particulars	WORK DETAILS	Period of maintenance	PARTS REPLACED
1	Sand filter	Back wash & rinsing	Every day	
2	Chlorine Gas treatment	Dosing	Every day	15 min. 3kg/hour flow
3	Chlorine powder	Dosing	Every day	500mg
4	Pool floor	Cleaning	Once in two days	
5	Storage tank	Cleaning	Once in six months	



Swimming pool sand filter

Operation and maintenance of filter

1. **Filter Mode**: The water enters from inlet of the filter valve no 1 & goes into the sand bed and the water comes out from the outlet of the filter valve no 5 & go to the pool . The water coming out of the unit would be free from turbidity and suspended solids. The filtered Water is circulated from sump tank to filter and filter to pool , The water circulation should be min 8 hours per day

   i. Valve no 1 & valve no 5 should be open

   ii. Valve no 2 , valve no 3 and valve no 4 should be close

2. **Back wash** : The water pump through valve no 2 & starts flowing in the upward direction through the sand bed and come out from the drain of the filter valve no 3. Allow the water to flow for 10minutes . The turbidity and suspended solids in the filter will come out on drain pipe. Back wash the filter after 8 hours of every circulation.

   i. Valve no 2 & valve no 3 is open

   ii. Valve no 1 , valve no 4 and valve no 5 is close

3. **Rinse** : The water pump through valve no 1 & starts flowing in the down direction through the sand bed and come out from the drain of the filter valve no 4. Allow the water to flow for 05 minutes .

   i. Valve no 1 & valve no 4 is open

   ii. Valve no 2, valve no 3 and valve no 5 is close

   Note : Always first open the valve mentioned in operations and close the other valves

Operating and Maintenance of Water softener

S No	Particulars	WORK DETAILS	Period of maintenance	PARTS REPLACED
1	Sand filter	Back wash & rinsing	After 1,00,000liters filtration	
2	Softener	Regeneration & Rinsing	After 1,00,000liters filtration	
3	Brine water tank (Salt water tank)	Refilling	After 1,00,000liters filtration	100kg salt
4	Brine water tank (Salt water tank	Cleaning	Once in week	
5	Storage tank	Cleaning	Once in six months	

EQUIPMENT SPECIFICATION OF WATER SOFTENER

1. WATER BOSS Sand filter

Quantity (Nos)	One
Type	Vertical
Diameter (mm)	950
Height (mm)	2700
Material of construction	Composite FRP
Design code	WB SF-1000
Operating pressure (Kgs/cm.sq)	4.0
Service flow rate (Max)	15000 Liters/hour
Internal filling	Quartz media
Valves Inlet /Outlet (NB)	40
Rinse Outlet (NB)	40
Type of valve	Fully Automatic MPV
Filter Backwash	Once in 100000 liters or 100 m^3 liters
Accessories	PVC piping for inlet, outlet & drain.

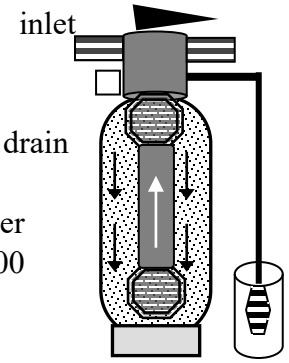
2. WATER BOSS Softener

Quantity (Nos)	One
Type	Vertical
Diameter (mm)	950
Height (mm)	2700
Material of construction	FRP
Design code	WB WS-1000
Operating pressure (Kgs/cm.sq)	4.0
Service flow rate (Liters/hour)	15000
Internal filling	Cation Resin
Valves Inlet /Outlet (NB)	40
Rinse Outlet (NB)	40
Type of valve	Fully automatic MPV
Regeneration as per raw water hardness of 500 ppm	Once in 100000 liters or 100 m3 liters
Accessories	Rigid PVC piping for inlet, outlet & drain.

Fully Automatic backwash sand filter & Regeneration of softener

The system will receive the pulse signal from flow meter cum batcher after drawing 100000 liters of every batch . The system will checks the brine solution tank level if the brine tank is full the system will go to regeneration otherwise it will give the beep alarm. The system will giving a beep alarm, you have to prepare the brine solution and press the rest button on softener MPV valve , then system will go to regeneration process.

1. **<u>Automatic Regeneration of Water softner after every 100000ltiters or 100 m^3</u>**



a. Softener in Service mode

1. The water enters MPV from inlet nozzle & goes down through the resin bed and the water comes out from the outlet nozzle. Soft water available at outlet . Once the softener resin gets exhausted i.e. after 100000 liters softener will go to regeneration mode.

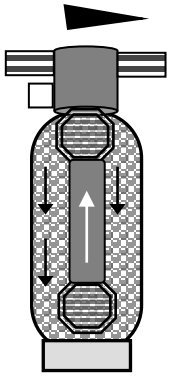
b. Regeneration mode (MPV at regeneration position)

1. The pump will goes to off mode for 60 sec
2. The valve(MPV) goes to regeneration mode
3. Ensure Brine solution (NaCl or common salt) is prepared & NaCl is completely dissolved (take 100kg salt & 600liter water)
4. The pump will start and the brine water starts flowing in the downward direction through the resin bed and come out from the drain port of the unit (MPV) . keep the input pressure below 3kg/cm^2 by regulating the bypass valve
5. Allow brine water to flow into softener unit for 75mins

c. Rinse mode (MPV at rinse mode)

1. The pump will go to off mode for 60 sec
2. The valve (MPV) goes to rinse mode
3. The pump will start and the water starts flowing in the upward direction through the resin bed and come out from the drain port of the unit (MPV). The water will flow for 05 minutes.
4. The pump will goes to off mode for 60 sec.
5. The valve (MPV) go to service mode

2. **<u>Automatic Backwash of the sand filter</u>**



a. Sand filter in filter mode

The water enters MPV from inlet nozzle & goes into the sand bed and the water comes out from the outlet nozzle through the bottom strainer. The water coming out of the unit would be free from turbidity

b. Backwash mode

The pump will go to off mode for 530 sec The valve (MPV) goes to back wash mode ,The pump will start and The water starts flowing in the upward direction through the sand bed and come out from the drain port of the unit (MPV). Allow water to flow for 10minutes.

The pump will go to off mode for 30 sec .The valve (MPV) go to filter mode

1. Operating and Maintenance of STP plant

S. No	Particulars	WORK DETAILS	Period of maintenance	PARTS REPLACED
1	Sand filter	Back wash & rinsing	Every day	
2	Carbon filter	Back wash & rinsing	Every day	
3	Pump	Recirculation	Every day	18 hours
4	Oxygen treatment	Air flow blower	Every day	18 hours
5	Chlorine	Treatment	Every day	
6	Storage tank	Cleaning	Once in six months	
7	Sludge	Removing	Every day	++

SOP for Generator Maintenance and Operation

Preventive maintenance for diesel generator sets.

A-Check (Daily routine Check Daily)

1. Check oil level.
2. Check cleanliness of DG
3. Check Battery Voltage
4. Check any Leakage
5. Check all filter condition
6. Check oil Level
7. Check coolant Level
8. Check V-Belt condition

B-Check (Every 500 Hrs or 6 Month.)

1. Change oil.
2. Change oil filter, fuel filter, bypass filter.
3. Change water Separator
4. Radiator cleaning.

5 Engine & Alternator 40 checks.

C-Check (Every 1500 Hrs or 2 year.)

1. Change oil.
2. Change oil filter, fuel filter, bypass filter.
3. Change Air Filter.
4. Change water Separator
5. Radiator cleaning with chemical
6. Check All Electrical terminal & thimbles
7. Check pollution level
8. Engine & Alternator 60 checks

SOP for Bore well/Electrical Motors maintenance

1. **DETERMINE MAINTENANCE FREQUENCY**
   Consult the original manufacturer's guidelines. Consider the timing to schedule your maintenance. Will lines or pumps have to be disabled? Select a time when the system is down and use common sense when deciding the time and frequency.

2. **OBSERVATION IS KEY**
   Get to know your system and make a point to observe your pump while it is still running. Make note of leaks, unusual sounds or vibrations and unusual odors.

3. **SAFETY FIRST**
   Make sure machines are properly shut-down before performing your maintenance and/or systems check. Proper isolation is important not only for electrical systems, but for hydraulic systems as well.

4. **MECHANICAL INSPECTION**
   1. Check that mounting points are secure
   2. Inspect the mechanical seal and packing
   3. Inspect the pump flanges for leaks
   4. Inspect the couplings
   5. Inspect and clean filters

5. **LUBRICATION**
   Lubricate the motor and pump bearing per manufacturer's guidelines. Be sure not to over lubricate. More bearing damage occurs as a result of over greasing than under greasing. If the bearing has a vent cap, remove the cap and run the pump for 30 minutes before reinstalling cap. This will allow excess grease to work its way out of the bearing.

6. **ELECTRICAL/MOTOR INSPECTION**
   1. Check that all terminations are tight
   2. Inspect motor vents and windings for dust/dirt build-up and clean according to manufacturer's guidelines
   3. Inspect starter/contractor for arcing, overheating, etc.
   4. Use a megohmmeter on the windings to check for insulation failure

7. **REPLACE DAMAGED SEALS AND HOSES**
   If any hoses, seals, or O-rings show wear or damage, replace immediately. Using a temporary rubber assembly lubricant will ensure a tight fit and prevent leaks or slips.

SOP for system admin complaints

Raising a service request -

1. Fill up the service request / allotment of IT resources form
2. Submit the form on ERP
3. Generate service ticket number
4. Email service ticket number to System Admin

Attending a service request –

1. System Admin reviews the service request on ERP, if genuine & within the scope of the institution, sends the request for approval of Dean. If not the service request will be rejected. An intimation to the complainant will be sent via ERP and email.
2. Dean reviews the requirement with system admin and approves/rejects
3. If approved, a notification to facility manager and the complainant will be sent on ERP and email.
4. System admin co-ordinates with procurement manager/AMC Vendor (procurement SOP to be followed) if purchase is necessary else attend to the request or outsource to the AMC vendor as and when necessary.
5. System admin to update the stock on ERP and in the stock book if any material is issued or used.
6. If rejected, a notification with reason will be sent to the system admin and complainant on ERP and email.

Closure of the Service request

1. The system admin/AMC vendor attends to the service request and post pictures / other evidence of work completion on ERP.
2. System admin reviews the work completion and closes the ticket on ERP.
3. An email of the closure and notification will be sent to the complainant / facility manager and dean.

SOP for Dish washer maintenance - IFB

1. Turn the dishwasher off – Press the power button to turn the machine off
2. Open the drains – Open the dishwasher's door, lift the drain lever or open the manual drains to drain the dishwasher and empty the tank(s).
3. Clean the wash and rinse arms – Inspect, remove and clean out the wash and rinse arms, as well as the rubber gaskets if any.
4. Clean the dishwasher interior – Flush and thoroughly clean the dishwasher's interior from top to bottom, including all hidden places.
5. Remove the scrap screens and baskets – Once the dish machine is drained and you've cleaned scraps from machine walls, remove, wash and rinse the strainer pans and strainer baskets.
6. Remove and clean all pump screens – Clean the pump intake strainer in the sink.
7. Clean the tank and drain screens – Remove any food debris from the tanks, clean the pump cover and make sure the drain screens are clean.
8. Clean the overflow tube – Remove, clean and rinse the overflow tube within the tank.
9. Wash the curtains – Scrub, rinse and allow curtains to dry at the end of each day's operation. You can also wash them in the dishwasher after you're done with cleaning the machine.
10. Clean the interior again – Remove remaining soil with a cloth or soft brush and mild cleanser and rinse with a hose.
11. Reinstall the parts – Return all strainer pans, strainer baskets, overflow tube, upper and lower wash arms to proper locations. Make sure all parts are fully seated.
12. Occasionally de-lime – If it's time to delime, do it after the dishwasher is thoroughly cleaned and the parts are installed back again.
13. Clean the dishwasher exterior – Use a soft cloth and cleaning chemicals suitable for the dishwasher's surface.
14. Air out – Leave the dishwasher door open and the curtains removed overnight to air out and dry.
15. Mop the floor – Clean the floor around the ware washer and all cleaning areas to prevent soil accumulation and breeding of harmful bacteria.

SOP for Laundry machine maintenance - IFB

Operating procedure:

1. Check electrical supply input rated voltage should be within +/- 5%
2. Check water inlet pressure, adjust if necessary.
3. Check steam inlet pressure, adjust between 4 to 5 Bar.
4. Turn ON the wall mounted main MCB.
5. Turn ON the machine inside MCB (placed in electrical panel).
6. After turn ON the machine MCB, power comes to machine and display will ON.
7. Release the Emergency button.
8. Push the door opening button (yellow color push button) for door opening.
9. Load the garments / linen based on machine capacity (If 30 kg machine load up to 30 kg dry weight).
10. Close the loading door properly.
11. Select required program (ex. Program1/2/3) which we programmed earlier in PLC.
12. Press the PLC start button to run the machine.
13. After program end, Push the door opening button (yellow color push button) for door opening.
14. Unload the garments.

Maintenance:

Daily:

1. Check steam inlet pressure, adjust between 4 to 5 Bar.
2. Check water inlet pressure, adjust if necessary.
3. Check electrical supply input rated voltage should be within +/- 5%
4. Check air pressure inlet pressure, should be 5 to 7 Bar.

Weekly:

1. Clean air inlet and cooling fan filters in electrical control panel.
2. Clean cooling fan window of inverter located on top surface.
3. Check functioning of out-of-balance switch by pushing the probe manually during extraction cycle.
4. Check water and steam line piping for leaks.

After first 2 weeks:

5. Check status of automatic drum bearing greasing device mounted on the bearing housing, OR Grease drum bearings manually. Always use the same type of grease.

6. Clean water line inlet filters.
7. Tighten all electrical terminal connections inside electrical control panel and also in motor terminal box. Tighten all bolted connections of Shock absorbers, motor mounting assembly, suspension system etc.
8. Tighten anchor bolts.

Every month:

1. Clean air inlet and cooling fan filters in electrical control panel.
2. Clean cooling fan window of inverter located on top surface.
3. Check V belt tension, adjust if necessary.
4. Check shock absorbers for any oil leakage.
5. Check functioning of out-of-balance switch by pushing the probe manually during extraction cycle.
6. Check electrical cable routing and physical condition.
7. Check steam and water hose pipes for leakage.
8. Clean water level sensor tube connection between PLC and drum bottom.
9. Clean chemical dosing compartment.

Warning

1. Only authorized persons may operate the machine.
2. NEVER start loading or unloading when electrical power supply is switched off.
3. NEVER switch off electric power supply during loading or unloading.
4. Concentrated liquid chemicals can cause injury or illness, operators should wear adapted clothing during handling concentrated chemicals.
5. Do not tamper with the controls. 6. Check monthly the working of the security functions such as emergency stop button, out of balance switch and door limit switch.
6. Always disconnect the washer from electrical supply before attempting any service.
7. Do not bypass any safety devices.
8. All connections for water, steam drain and electrical power and grounding must comply with local safety codes and be made by licensed personnel.
9. Only authorized persons may make service or repair work to machine.
10. Do not operate the washer with missing or broken parts.
    NOTE: The safety instructions appearing in this manual are not meant to cover all possible conditions that may occur. Caution and care must be observed when installing, maintaining or operating the machine.

Troubleshooting:

Sl No	Problems	Possible causes	Remedies
1.	Machine not responding when starting	-Problem in Input electric supply. -problem in control circuit. -overload relay is tripped	-Check input electric supply and control circuit voltage. -Reset overload relay.
2.	washing does not start after program selection and pressing start button.	-problem in the motor -problem in programming -problem in the VFD -Loading door is not closed properly.	Check motor condition -Check program details -Check if VFD is tripped -Close the door properly
3.	Water intake not functioning.	-defective water valve -Solenoid valve is defective -foreign particles stuck between valve seals. -PLC water selection parameter wrong.	-Check and clean the valve -Check and replace -Clean the valve seals -Check parameters
4.	No heating/low heating (electrical)	-problem in heater circuit -defective heaters -PLC temperature selection is wrong.	-Check heaters continuity and replace if necessary -Check parameters
5.	No heating/low heating (steam)	-problem in heater circuit -defective solenoid valve -PLC temperature selection is wrong. -steam trap malfunctioning -steam pressure is low	-Check heater circuit , -Replace if necesssary. -Check parameters -Clean steam trap. -Provide required pressure.
6.	Not draining	-defective drain valve -drain program is wrong -drain valve/system is blocked. -drain control solenoid coil defective	-Check and replace if necessary. -Check parameters -Replace if necessary.
7.	Drum not holding water/water leaking from drain system	-defective drain valve -drain control solenoid coil defective. -foreign particles stuck between valve seals.	-Check and replace if necessary. -Replace solenoid valve. -Clean seal joints.
8.	Basket running slower than set washing speed	-V belts slipping. -machine overloaded with washing load	-Readjust tensioning. -Load as per specifications.
9.	Loading door leaking	-Door not closed correctly. -linen stuck between door seal. -Damaged door seal. -pressure on door seal is weak. -door lock not functioning.	-Close the door properly -Clear the seal area. -Replace seal if necessary. -Check and rectify the door lock functioning.
10.	Machine stops during extraction cycle	-Out of balance switch is activated due to: -defective shock absorbers. -Suspension springs broken OR wrongly adjusted. -faulty electrical connection. Out of balance	-Replace the shock absorbers. -Check Suspension springs & adjust if necessary - Check wiring connection . - Adjust the out of Balance switch - Replace if necessary. - Check

		switch is not correctly adjusted. -problem with the drain time setting. -washing Load is entangled inside the basket. -washing load is large and not able to distribute evenly.	parameters -Reload the garments -Load correct garments.
11.	Linen is still wet after extraction	-draining process is not complete -water inlet valve is leaky -steam inlet valve is leaky -less extraction duration selection in PLC -extraction RPM not reached. -wrong washing programme.	-Check and confirm. -Rectify/replace valve. -Rectify/replace valve. -Rectify PLC program. -Check and confirm. -Check and confirm.
12.	Noise during basket rotation.	-motor bearing noise -main drum bearing noise -bearing housing bolts loose or broken -basket is rubbing against the outer drum -damaged shock absorber -broken suspension spring.	- Check and replace bearing -Contact customer service -Contact customer service -Contact customer service -Replace shock absorber -Replace spring
13.	Inverter tripping	-weight of linen for washing is more than the specified capacity of the machine. -V belts overtightened. -jammed motor bearings. -jammed basket bearings. -input volage is either very low or very high than specified limits.	-Load correct weight of linen. -Adjust V belts -Replace bearings -Contact customer service -Rectify, provide votage stabilisers if necessary.

SOP for Laundry dryer machine maintenance - IFB

Safety Information:

1. Read all instructions before using the machine.
2. Machine must be properly connected to electrical earthling system.
3. Do not tamper with the controls.
4. Always disconnect the machine from electrical supply before attempting any service.
5. All connections for exhaust, electrical power and grounding must comply with local codes and be made by licensed personnel.
6. Never operate the machine with any guards/panels removed.
7. Do not bypass any safety devices

NOTE: The safety instructions appearing in this manual are not meant to cover all possible conditions that may occur. Caution and care must be observed when installing, maintaining or operating the machine.

Safety Rules and Precautions:

Caution: improper handling or misuse can lead to personal injury, death and/or property damage.

1. Please ensure to isolate mains before any maintenance or isolate from the unit prior to performing maintenance or repair tasks.
2. Servicing should be handled by authorized personnel only.
3. Ensure that the machine is properly earthed before use.
4. Check the inside of the basket before loading the garment.
5. Protect the machine from direct sunlight and do not splash water on it.
6. Keep your machine above the ground level.
7. Keep your machine dry to avoid corrosion or rusting.
8. Do not dry plastic or rubber articles.
9. Do not clean the lint screen while the unit is running.
10. A tripped motor overload relay must be allowed to cool at least for three minutes before being rest.

Maintenance Chart:

TASK	DAILY	WEEKLY	MONTHLY
Ensure the electrical supply is isolated daily or every 8 hrs. of operation.	✓		
Clean lint box every 4-8hrs depending on the operating conditions.	✓		
Clean the machine with soft damp cloth.	✓		
Open the bypass valve to avoid scaling in radiator	✓		
Remove of lint from the radiator with high pressured air		✓	
Tighten all screws of various terminals in control box			✓
Check the exhaust duct is clear			✓
Lubricate door hand and latch and bearings			✓
Clean electrical control box preferably with compressed air blow.			✓

Do's

1. Always read & understand the operators instruction manual before operating the machine
2. Only authorized persons may operate the machine.
3. Remove dirt or granules from exhaust duct monthly to maintain proper airflow & avoid overheating
4. Clean the mesh in lint box compartment every day to maintain proper airflow and avoid overheating
5. Check the weight of laundry before loading to avoid overload of the machine.
6. Remove laundry immediately after the dryer stops.
7. Always refer guide lines from concerned or trained persons to operate the machine.
8. Check every year the inner drum & especially at welding joints.
9. All security panels must be in place before operating machine
10. All electrical terminals should be tightened before running the machine.
11. Maintenance should be carried out at regular intervals as suggested by IFB.

12. Maintenance & repair must only be carried out by skilled persons.
13. Always use IFB Genuine Parts designed to provide optimum performance.

Don't

1. Never switch off electric power supply during loading & unloading.
2. Do not leave the running machine unattended.
3. Tumble drier will not operate when door is open. Don't bypass the door limit-switch to permit the drier to operate when the door is open.
4. Switch off all electrical connections at the end each working day.
5. Don't run the machine without safety guard provided for transmission system.
6. Don't try to clean the lint mesh when machine running.
7. Don't try to open the cooling door manually.
8. Never stand in front of door while machine is running.
9. Do not try to change or alter the factory set parameters.
10. Check the steam pressure. It should be maintain between 4-6 bars

Trouble Shooting:

SYMPTOM	PROBABLE CAUSE	REMEDY SUGGESTED
Machine not running when switched on	• No Power supply • Door not closed properly • Main or control fuse blown out • Discontinuity in : Transformer Timer (60 min) Elements of push button Motor protection Relay contacts Coils or blower & drive contactors	• Check power supply. • Close the door firmly. • Replace fuse but not without tracing the cause. • Check continuity. Replace faulty components, if required
Blower or drive motor tripping	• Over/Less voltage. • Imbalance of voltage in three phases. • Motor over load faulty motor protection relay	• Check Voltage. • Ensure not less than 380 V. • Ensure uniform voltage in all phase. • Check & set right Replace if required.
Blower running but not rotating	• Fault reversing timer drive motor fuses blown out. • Faulty MPR drive.	• Check replace if required. • Check replace blown fuse, but not without

		ascertaining the cause.
Basket rotating continuously in one direction only.	• Fault relay timer. • One of the drive contactors faulty	• Check, replace if required • Check, replace faulty components.
No heating	• Fault Thermostat • Heater not functioning	• Check Thermostat • Check heater or replace
Less heating	• Lint accumulated. • Exhaust duct is chocked	• Clean lint, ensure dust is cleared • Check clean, replace if required
Excess heating in the basket	• Faulty thermostat.	• Check replace if required
Basket Running slower then rated speed	• Loose or worn out V belts	• Check adjust replace if required
Machine make abnormal noise	• Motor bearing, idler bearing or main bearing worn out. • Foreign matter in drive or blower assembly	• Check replace if required • Check and remove • Set right with the help of 4 No's bearing housing guide bolts

SOP for Chimney maintenance

Cleaning the Grease Traps

Before you start, unplug the unit and let it cool down. Try to conduct thorough cleanings every four to six weeks during off hours when no one is cooking. Make sure to cover the surrounding surfaces and equipment with sheets or plastic.

- Step 1- Remove the traps – Locate the grease traps on the commercial range rood. There should be two on each side of the hood.
- Step 2- Remove grease – Place grease into a separate container. Do not dump any grease down a drain or in the trash. Wipe down to remove any excess grease or residue. You can use a non-abrasive scrubbing pad, soft-bristle brush or cloth to scrub remnants from the traps.
- Step 3- Prepare water and liquid degreaser – Fill either a sink or large tub with warm water and liquid degreaser. Check the degreaser for the appropriate ratio.
- Step 4- Soak traps in water – Immerse the grease traps in the warm water and degreaser. Let them soak for 5-10 minutes.
- Step 5- Remove and dry the traps – Once they're done soaking, let them air dry before reinstalling.

Cleaning the Filters

- Step 6- Remove the filters – Take out the air filters on the commercial range rood.
- Step 7- Prepare water and liquid degreaser – Remove old water used from soaking the grease traps. Refill either the sink or large tub with warm water and liquid degreaser. Check the degreaser for the appropriate ratio.
- Step 8- Soak the filters in water – Let the filters soak in the warm water and degreaser. Since they can attract caked-on grease, you might need to immerse them for 2-3 hours or overnight.
- Step 9- Remove and scrub – Use a soft cloth to lightly scrub off any residue from the filters. Run them through water to rinse off any leftover remnants.
- Step 10- Dry the traps – Once you're done cleaning, let the filters air dry before reinstalling.

Cleaning the Hood's Interior and Exterior

- Step 11- Prepare water and liquid degreaser – Add warm water and liquid degreaser in a bucket. Check the degreaser for the appropriate ratio.

- Step 12- Scrub the interior and fan – Use a non-abrasive scrub pad, soft-bristle brush or cloth to scrub the interior of the range hood. Make sure to thoroughly scrub the exhaust to remove any grease or caked-on debris.
- Step 13- Wipe off the interior and fan – Using a damp towel, remove soapy residue from the interior, exhaust fan and any other components. When finished, use a different towel to dry off.
- Step 14- Scrub the exterior – With warm water and degreaser mixture, use a non-abrasive scrub pad, soft-bristle brush or cloth to scrub the exterior of the range hood.
- Step 15- Wipe off the exterior – Using a damp towel, remove soapy residue from the exterior. When finished, use a different towel to dry off.
- Step 16- Reinstall the grease traps and filters – Once the range hood is clean and dry, reinstall the grease traps and filters.

Before cooking

1. Ensure dust free, grease free hood and duct. (Interior & exterior). Check for leaks.
2. Close all the windows and doors.
3. Start the motor and check if the suction is proper (follow motor SOP for maintenance)

After cooking

1. Check for dust, grease and oil leaks.
2. Follow cleaning SOP

SOP for cookware maintenance (Utensils, Pressure Cookers, Closing lids, Sauté)

1. In case of pressure cookers, ensure the cooker is cleaned, washers, whistle and safety valve are cleaned. The cooker lid must be tightly closed/locked.
2. Never leave an empty pan or frying pan on the heat. An empty cooking vessel in direct contact with a heat source will overheat as there is nothing to help dissipate the heat build-up. This overheating can irreversibly alter the physical properties of the vessel, from changing the colour of the container, to fusing the material with which it was constructed, making the pan useless, if not irreparably damaging the kitchen. Because it doesn't contain anything to help dissipate heat build-up, an empty container in direct contact with heat will quickly overheat. This damage can irreversibly alter the physical and non-stick properties of the product. If we're using an induction source, it can damage all the equipment.
3. Allow the cookware to cool down before washing. The item must be at low enough temperature, otherwise thermal shock may occur which can damage the molecular structure of the materials, significantly reducing the shelf life of the product.
4. Do not use metal utensils that can scratch pans and pots during cooking. Metal utensils can damage the surface of the vessel and reduce its non-stick properties. Using softer materials such as silicone or nylon is recommended.
5. Do not use abrasive, bleach, or alkaline detergents for cleaning. These cleaning products can irreparably damage the items, even those made from materials as sturdy as stainless steel, causing micro-perforations that end up making the item unusable.
6. Preferably wash using hot water. It will be easier to remove grease and dried food stuck to the cookware if it is left to soak in hot water. This also means less scrubbing will be required and less cleaning product will be used.
7. Wipe the utensils after cleaning and store them properly.
8. Use IFB dish washer for plates, spoons, bowls etc. and follow operation of IFB dishwasher SOP.
9. After usage follow SOP for maintenance of IFB dishwasher.

SOP for refrigerator and deep freezer maintenance

1. Clean the condenser every three month or before
2. If any power variation use the stabilizer
3. Frequent checking of refrigerant gas and do the preventive maintenance
4. Clean The Equipment.
5. Check Settings.
6. Defrost On Schedule.
7. Clean Out Units To Prevent Crowding.
8. Clear The Area To Maximize Airflow.
9. Inspect Seals And Fix Leaks.
10. Check Interior Lights.
11. Clean Coils.
12. Clean Fan Blades.
13. Disassemble and clean icemakers.
14. Check refrigerant levels.
15. Observe motor operation.
16. Examine all parts for wear and tear before a minor problem becomes a big problem.
17. Check suction line insulation.
18. Clean drain lines.
19. Inspect compressor operation. Compressor failure can prompt the replacement of the refrigeration unit, which makes compressor operation checks a priority on the refrigeration preventative maintenance checklist.
20. Check electrical connections
21. Test thermometers and recalibrate if necessary.

SOP for maintenance of Grinder / Cutter / Grater / Blender / Kneader / Juicer / Scale machine / Stirrer – Syena Kitchens

1. Avoid overloading the machine
2. Use the proper blade.
3. Ensure required raw power
4. Cleaning after each use.
5. Check for motor function and follow SOP for motor maintenance.

SOP for steamer / idly maker / rice boiler maintenance

1. Clean the equipment.
2. Check for leakage in pipes
3. Maintain the water level in the steamer and frequently change the water.
4. Maintain the pressure required for the cooking

Daily Boiler Maintenance Checklist

1. Inspect around and under your boiler equipment for leaking water.
2. Make sure the area around the boiler is unobstructed and free of materials that may cause obstruction.
3. Check temperature readings and/or pressure readings to make sure all are within the designed range.
4. Closely watch for any error codes or service codes on the display panel if at all applicable.
5. If you notice any error codes, jot them down and give it to the service contractor.
6. Make sure the vent termination is not obstructed or blocked with debris, ice, or snow.
7. Inspect the combustion air opening for blockages.
8. Always listen closely for any unusual vibrations or noises from the equipment.

Monthly Inspection Boiler Checklist

1. Visually inspect the combustion air piping and flue gas vent piping for any indications of leakage, deterioration, or signs of blockage.
2. Examine the relief valve discharge pipe and boiler relief valve for any noticeable signs of leakage or weeping.
3. Investigate the condensate drain line, PVC fittings, drain system, and drain trap for any types of blockages if the system is a condensing boiler.

Periodic Maintenance Checklist for Boilers

1. Visually examine boiler hydronic piping for leaks.
2. If at all possible, inspect burner flame. Anytime the flame looks different from the norm, you should take corrective action.
3. Schedule to have your low water cutoff tested to make sure it's working properly. The low water cutoff is used to make sure the water levels inside of the boiler do not fall below levels recommended by the manufacturer.

Start-up or Annual Service Boiler Maintenance Checklist

4. Rigorously inspect the heating system and rectify any problems.
5. Clean and inspect the heat exchanger of the boiler.
6. Ensure all boiler connections and wiring is intact.
7. Make sure water pH levels are within the proper range.
8. Inspect condensate system and clean and flush the system as necessary.
9. Examine and clean flame sensors, ignitor, and burner assembly.
10. Scrutinize the venting system for deterioration, corrosion, or blockage to ensure all pipe and joint connections are secure.
11. Survey the vent terminations and air inlet to make sure they're unobstructed and clear.
12. Check control settings as well as test safety controls and operating controls.

SOP for Dosa Pan Maintenance

1. Timely clean the burner
2. All pot burner after cooking cover the burner part and do the cleaning and if required remove the burner head and do the deep cleaning
3. Firstly, rub the tawa with gingelly oil and soak in washed rice water for a week.
4. To make golden brown and prevent dosa from sticking. Rub the tawa with half onion before spreading dosas.
5. Additionally, heat the tawa, sprinkle salt, switch off the flame, wipe with cloth and grease oil after it cools.
6. Additionally, clean the tawa with hot water and rub with oil. Keep in oven for one hour upside down.
7. Furthermore, to remove rust – rub tamarind or citric acid, leave for an hour and wash it with warm water.
8. Do not make chapathi in dosa tawa. Keep a separate tawa for dosa.
9. Wipe off with head of brinjal / bottle gourd or onion to prevent dosa from sticking.
10. Also, avoid using hard soaps, detergents and steel scrubber.
11. Always rinse with warm water or wipe with wet tissue after each use.

12. Also, use liquid soap and sponge if the tawa is too oily and also wipe with a dry cloth.
13. Never wash cast iron tawa when it is too hot.
14. Make sure to wipe off clean when tawa is not in use. As water may lead to rust.
15. Dry the tawa, apply oil and keep aside after each use. Else tawa might get rust.
16. Also, to treat tawa, apply malabar palak (basalesoppu / mayalu / valchi bhaji / pui shaak) paste for a week.
17. Finally, avoid acidic foods like lemon & cucumber for cooking in **cast iron tawa** as they may damage seasoning.

SOP for Bain Marie maintenance

1. Clean the Bain marie before and after each meal.
2. Maintain the water quality and water level
3. Avoid the power variation
4. After use, change the water
5. Before keeping food preheating is required
6. Maintain the temperature 60 to 65 degree
7. Repair the water heating coil if found to be damaged.

SOP for Pest smasher Maintenance

1. Cleaning at regular intervals.
2. Replacement of LED tube & coil in case of failure.

SOP for Chapatti maker Maintenance

1. Clean the machine before and after the use.
2. Lubricate the machine using edible oil before and after the use
3. Preventive checks for gas, temperature and motor
4. Avoid POWER FAILURE in use.
5. Periodic inspection and required spare parts replacement.

SOP for maintenance of ICT equipments (Computers, Projectors, smart class, Tabs, Laptops, printers, scanners, photo copiers, CCTV, DVR/NVR, Networking equipments, speakers, IP phones, antenna, biometrics attendance system, servers, OFC etc)

1. Ensure proper ventilation
2. Frequent dusting
3. Continuous power supply through UPS
4. Avoiding power fluctuations through generator
5. Anti-malware installation
6. Frequent back-up of data
7. Checking of lamp life once in a month

SOP for AC maintenance and Operation

1. Condenser Coil – Cleaned as required

Dirty condenser coils raise refrigerant pressure higher than needed, increasing your electric bill.

2. Refrigerant Charge – Checked by superheat/sub cooling method (Thermo charging)

A low or high refrigerant charge can easily go unnoticed and increase operating costs up to 30%. An improper charge can cause compressor shutdown.

3. Controls & Safeties – Inspected & tested

Controls and safeties that do not function properly can increase operation cost and cause other components to fail.

4. Relays & Contactors – Inspected & cleaned

Worn contacts and loose wire connections can lead to motor or compressor failure.

5. Crankcase Heater – Operationally inspected

Crankcase heaters that do not work can lead to a compressor failure.

6. Unit Wiring – Inspected & loose connections tightened

Loose connections can lead to a motor, control, or compressor failure.

7. Temperature & Pressures – Taken & recorded

An accurate record of your equipment's vital data can indicate potential problems, which can be eliminated. A record will be kept with the unit which may reduce emergency service time.

8. Capacitors – Tested

Bad capacitors can lead to compressor and motor failure.

9. Unit Disconnect – Tested

A worn or over-heated disconnect blows fuses and is dangerous.

10. Lubrication – Application to motors & bearings.

Improperly lubricated rotating equipment will eventually fail.

11. Belts & Pulleys – Inspected & adjusted

Loose belts and worn pulleys decrease air flow, increase operating costs and shorten the compressor's life. Belts crack and break with age.

12. Condensate Drain – Checked to assure it is open

Algae and dust can plug a condensate drain which can cause extensive water damage to your furnace.

13. Air Filter – Replaced at customer's option

A restricted air filter can cause your air conditioning unit to waste energy and shorten the compressor's life.

14. Voltage & Amp – Draw of the blower motor, compressor & condenser fan motors checked & recorded

Improper voltage and amp draw increase operating costs and can shorten the life of any motor.

15. Thermostat – Checked & calibrated

Improperly calibrated thermostats cause the unit to run longer than necessary. Every degree your air conditioner operates below 78 degrees can add 5%-8% to the cost of cooling.

16. Motors – Cleaned & inspected

Dirty motors are less efficient and will fail sooner.

SOP for solar water heater maintenance and Operation

Solar energy systems require periodic inspections and routine maintenance to keep them operating efficiently. Also, from time to time, components may need repair or replacement. You should also take steps to prevent scaling, corrosion, and freezing.

PERIODIC INSPECTION LIST

Here are some suggested inspections of solar system components. Also read your owner's manual for a suggested maintenance schedule.

- **Collector shading -** Visually check for shading of the collectors during the day (mid-morning, noon, and mid-afternoon) on an annual basis. Shading can greatly affect the performance of solar collectors. Vegetation growth over time or new construction on your house or your neighbor's property may produce shading that wasn't there when the collectors were installed.

- **Collector soiling -** Dusty or soiled collectors will perform poorly. Periodic cleaning may be necessary in dry, dusty climates.

- **Collector glazing and seals -** Look for cracks in the collector glazing, and check to see if seals are in good condition. Plastic glazing, if excessively yellowed, may need to be replaced.

- **Plumbing, ductwork, and wiring connections -** Look for fluid leaks at pipe connections. Check duct connections and seals. Ducts should be sealed with a mastic compound. All wiring connections should be tight.

- **Piping, duct, and wiring insulation -** Look for damage or degradation of insulation covering pipes, ducts, and wiring.

- **Roof penetrations -** Flashing and sealant around roof penetrations should be in good condition.

- **Support structures -** Check all nuts and bolts attaching the collectors to any support structures for tightness.

- **Pressure relief valve (on liquid solar heating collectors) -** Make sure the valve is not stuck open or closed.

- **Dampers (in solar air heating systems) -** If possible, make sure the dampers open and close properly.

- **Pumps or blowers -** Verify that distribution pumps or blowers (fans) are operating. Listen to see if they come on when the sun is shining on the collectors after mid-morning.

If you can't hear a pump or blower operating, then either the controller has malfunctioned or the pump or blower has.

- **Heat transfer fluids -** Antifreeze solutions in liquid (hydronic) solar heating collectors need to be replaced periodically. It's a task best left to a qualified technician. If water with a high mineral content (i.e., hard water) is circulated in the collectors, mineral buildup in the piping may need to be removed by adding a de-scaling or mild acidic solution to the water every few years.

- **Storage systems -** Check storage tanks, etc., for cracks, leaks, rust, or other signs of corrosion.

SOP for fire extinguisher maintenance and Operation

Introduction

Experiments conducted in school laboratories often require a source of heat from a naked flame or some form of ignition, which can cause a sudden fire. Occasionally electrical faults can cause sparking. Students are fascinated with matches and have the potential to behave irresponsibility. Any of these occurrences can introduce fire into a room and therefore fire extinguishers must be placed in each laboratory and also outside a chemical store, usually close to an exit door. A fire needs heat (ignition), fuel, and oxygen and can engulf a room exceedingly fast, although most deaths result from inhaling the toxic smoke containing dangerous fumes released by the fire melting various plastics and paint in the room.

Types of Extinguishers

An "A-B-C" fire extinguisher can be used on all fires. Other types of extinguishers work only on a certain class of fire. Check the chart below to match extinguishers to a particular class of fire.

Class of fire	Types of extinguishers to use
Class A: Ordinary combustible materials, such as wood, cloth, paper, etc.	• "A-B-C" • Pressurized water
Class B: Flammable liquids, such as oil, gasoline, kerosene, etc.	• "A-B-C" • "B-C" dry chemical • Carbon dioxide
Class C: Presence of energized electrical circuits (e.g., electronic motors, electrical wiring, etc.)	• "A-B-C" • "B-C" dry chemical • Carbon dioxide
Class D: Reactive metals	• D extinguishers **only**
Class K: Oils and fats	• K (for kitchen)

1. Check the accessibility

Do a visual check and assess the visibility and accessibility of the fire extinguisher:

- Fire extinguishers should not be blocked by other objects so that they’re easy to see and access in case of an emergency.
- Secure portable fire extinguishers in a specific location to prevent them from being relocated when not in use.

2. Check the physical state of the fire extinguisher
Pick up the fire extinguisher and check for physical defects or anything that your checklists instruct to look for such as:

- The cylinder's external metal parts should have no signs of damage or corrosion.
- The connection between the cylinder and the hose should be secure.
- The locking pin is secure and goes through the holes of the discharge lever and handle.

3. Check the pressure gauge
The needle of the pressure gauge should be within the green zone. A needle in the left red zone means the fire extinguisher is undercharged while a needle in the right red zone means the cylinder is overcharged. Take care when handling pressure vessels such as fire extinguishers.

4. Check the inspection tag
The inspection tag should be available and shows the signature and date/s when the fire extinguisher is inspected.

Powerful Tool to Ensure Regular and Efficient Fire Extinguisher Inspections
It is crucial to maintaining the safety of the workplace and staying compliant with regulations to be consistent and diligent when conducting scheduled fire extinguisher inspections.

Fire Extinguisher Inspection Checklist

Use this fire extinguisher inspection checklist to check the following about the fire extinguisher:

- Easy to locate with a signage above
- Elevated from the ground and free from obstruction
- Confirm the extinguisher is visible, unobstructed, and in its designated location.
- Verify the locking pin is intact and the tamper seal is unbroken. Examine the extinguisher for obvious physical damage, corrosion, leakage, or clogged nozzle.
- Confirm the pressure gauge or indicator is in the operable range or position, and lift the extinguisher to ensure it is still full.
- Make sure the operating instructions on the nameplate are legible and facing outward.
- Check the last professional service date on the tag. (A licensed fire extinguisher maintenance contractor must have inspected the extinguisher within the past 12 months.)
- Initial and date the back of the tag.

Testing

All extinguishers need to be serviced and tested every 6 years and also when:

- The fire extinguisher has been used
- The pin has been pulled
- The gauge is not in the green (or proper pressure area)

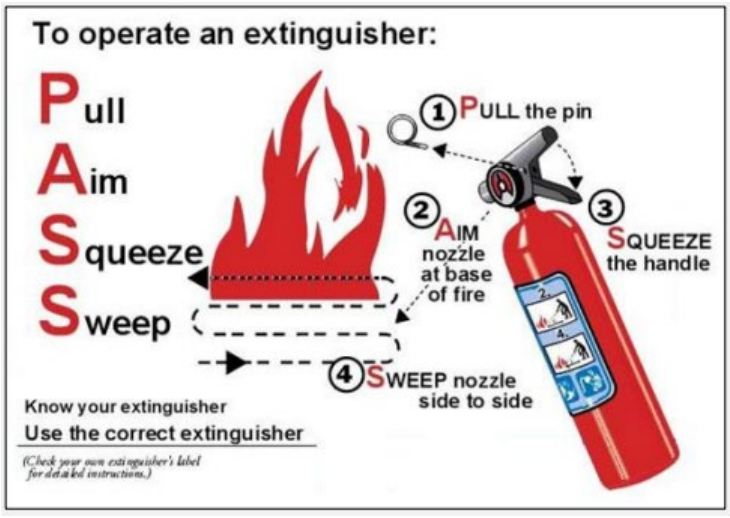
Extinguishers must be inspected by a licensed fire extinguisher maintenance contractor once a year in the intervening 5 years.

Safety notes

- Purchase fire extinguisher/s from a reputable, recognised and certified fire safety company and follow their advice regarding which type of fire extinguisher to purchase.
- Follow the manufacturer's instructions for placement of the fire extinguisher and secure using the correct bracket.
- Secure the fire extinguisher at a height that can be reached by both adults and students
- Secure relevant safety signs above or adjacent to the fire extinguisher. The signs should be white on a red background and visible from 20 meters in all directions.
- Reduce combustibles in rooms.
- Eliminate all combustibles in a chemical store.
- Install ceiling smoke alarms to provide early warning of a fire
- Regularly familiarize yourself with the operating instructions.
- Professional firefighting hands-on training is recommended for staff in high risk areas
- Purchase the correct fire extinguisher to suit the environment in which it will be used. Using the wrong extinguisher type on a fire may have disastrous consequences. It may feed the fire, causing it to spread or result in the operator being injured.

Operating procedure

- Ignore the fire!
- Stay calm.
- Turn off all electrical and gas services to room.
- Immediately evacuate all staff and students to a safe area
- Send responsible students to alert and evacuate rooms either side of the affected area.
- Only return to fight the fire if you are confident that you can bring the fire under control.
- Make sure the fire is not blocking your exit and ensure you can get out quickly if necessary.
- If safe to do so, close doors and windows
- Select the correct class of extinguisher for the type of fire.
- Only stand as close as you can without getting burnt
- Point the extinguisher at the base of the fire, operate and use a sweeping motion to extinguish flames.



- If the fire is not doused by the time the extinguisher is empty, drop the extinguisher and leave the room quickly.

Trouble shooting/emergencies

First aid: If clothing is on fire, stop, drop to the floor and wrap around a blanket, coat or rug (not synthetic) and roll along the ground until flames are extinguished.

- Treat all thermal burns by holding the burnt area under running water for up to twenty minutes until skin returns to normal temperature. Remove clothing from burnt area unless stuck; cover burn with a non-adherent burns dressing, plastic wrap or loosely applied aluminium foil. Seek urgent medical aid.
- Smoke/Toxic fume inhalation: Remove casualty from area to fresh air. Sit up and loosen tight clothing. Administer oxygen if available and you are trained in its use and consider an asthma inhaler if casualty has difficulty in breathing or is wheezing. If breathing stops commence CPR. Seek urgent medical aid.

Maintenance: A pressure test and service of fire extinguishers is required every six months and must be provided by an experienced person from a recognized and certified fire safety company. Test dates must be recorded, usually on a yellow metal tag attached to the extinguisher. Extinguishers failing the test must be removed and a temporary one left as a replacement. A partially discharged extinguisher must be replaced with a full extinguisher immediately. Extinguishers need to be emptied, pressure tested and refilled every five years.

Waste disposal

- Contact a reputable, recognized and certified fire safety company to remove unwanted, depressurized or used extinguishers: Note: a partially used fire extinguished is regarded as an ’empty’ extinguisher.

SOP for lift maintenance

General Instructions –

- Do not overload an elevator.
- No smoking in elevator.
- Do not try to leave a moving elevator.
- Do not try to force open the elevator doors.
- In an emergency, call for help by pressing the call button.
- In case of fire, do not use an elevator.
- Watch your step getting on and off an elevator.
- Do not interfere with opening or closing doors.
- Children below six years to be accompanied by an adult at all the times in the elevator.
- Do not load equipment, construction materials in elevator
- Member's domestic staff must give up their space in elevator if requested to do so by other members.
- Domestic staff is requested to use stairs when possible, especially while descending.
- Management/Society shall not be responsible for any accident or injury and those who use the elevators, do so at their own risk.

Inside the Car-

- Examine the interior of the elevator car for damage to the walls, ceiling, and handrails.
- Examine the position indicator lights and replace any burned out lights.
- Operate the elevator going up and down and check the leveling accuracy, acceleration, and deceleration. Make any adjustments deemed necessary.
- Check to make sure that the door moves smoothly and does not slam or bounce.
- Make sure the door restrictor operates properly and make any necessary repairs.

Outside the Car-

- Check the hall stations and lights and replace any burned out lights.
- Inspect the door panel and clearances.
- Test the Phase 1 firefighters' service.

Machine Room:

- Make sure the machine room does not contain any material unrelated to the elevator.
- Check components for leaks, unusual vibration, or wear.
- Inspect electrical components for evidence of overheating or failure.
- Lubricate components, if necessary.
- Check the oil level.

- Make any necessary adjustments or schedule follow-up service.

Top of Car:

- Check that the stop switch and inspection station function properly.
- Remove any debris from the top of the car.
- Inspect any visible components, including rollers, guide rails, and leveling devices.
- Check the traveling cables for wear and inspect connections.
- Inspect the door operator and its components.
- Check the hoist way for evidence of rodents, fire safety, and vandalism.

Pit:

- Make sure that the stop switch, lights, and GFI outlet function properly.
- Clean the pit and check for signs of leaks.
- Inspect the spring buffers for signs of corrosion, alignment, and secure attachment.
- Inspect all visible components, including rollers, guide rails, safeties, and switches.
- Check the travel cable for wear, pinches, and snags.
- Make sure the sump pump is clean and operating correctly.

The elevator mechanic must fill out a log and note any observations, problems, and recommendations.

SOP for House Keeping

General instructions –

- Wear neat uniform
- Ensure nails are cut
- Wear protective gloves, gumboots, aprons, head cap, mask and goggles.
- Before leaving – discard the mask, head cap, gloves in the bin. Send aprons to laundry, store gumboots and goggles in the storage rack.

Housekeeping areas are categorized as follows –

1) **Café**
   - Dust, Mop and Wipe the floor, Tables, chairs, Canopy (Exterior, Interior, Stand) storage racks, cooking table, Stoves, cylinder, fans, walls, windows, grills, sill, door, edges of windows, doors, bulbs, CCTV, PA system, Intercom etc.
   - Collect the laundry cloths/deliver washed cloths
   - Empty the bins, wash the bin, dry it and insert new dustbin cover.
   - Sanitize chairs, table top, switchboard, door handles and other frequently touched surfaces and materials.
   - Spray the freshener.
   - Re-fill pedal sanitizer

2) **Swimming Pool**
   - Dust, Mop and Wipe the floor of reception area, table, chairs TV, wifi racks, CCTV, PA system, Intercom, Walls, Stairs, Entrance corridor, corridors around the pool, pavilion, shower area, fountains, switch board, window panes, grills, doors, shutter, greasing the shutter, racks, fans and bulbs, etc.
   - Sanitize chairs, table top, switchboard, door handles and other frequently touched surfaces and materials.
   - Spray the freshener
   - Re-fill pedal sanitizer

3) **Hostel Dormitories**
   - Dust, Mop and Wipe the floor of dormitory, Study table, below the study table, chairs, shoe rack, Storage racks, top of the storage racks, cupboards, bunker beds, below the bunker beds, stairs of the bunker beds, Walls, switch board, window panes, grills, doors, fans, fan grills, AC, AC tops, and bulbs, top of the partition, curtains etc. , remove cobwebs
   - Sanitize chairs, table top, switchboard, door handles and other frequently touched surfaces and materials.

- Clean the bed, change the bedspread, pillow covers, empty the bin, wash and reinsert the dustbin cover.
- Send the used bedspread and pillow cover to the laundry. Wash the blanket once in a month, wash the towel, face wipes every day. Wash the curtains once in a month.
- Dust the floor mat using the vacuum cleaner.
- Spray the freshener.
- Re-fill pedal sanitizer.

4) Hostel entrance, corridors and stairs

- Dust, Mop and Wipe the floor of corridors, walls, table, below the table, chairs, shoe rack, Storage racks, top of the storage racks, cupboards, pooja table, stairs, railings, stair sidewall, switch board, window panes, grills, doors, fans, fan grills, AC exterior, bulbs, remove cobwebs, entrance door, wi-fi rack, CCTV, PA System, Intercom, etc. drinking water area, cloth drying hangers, dormitory doors. Storage room, Below the stairways, concrete benches etc.
- Sanitize chairs, table top, switchboard, door handles and other frequently touched surfaces and materials.
- Empty the bin, wash and reinsert the dustbin cover.
- Send the used table cloth to the laundry. Replace the table cloth.
- Dust the floor mat using the vacuum cleaner.
- Clear water outlets, clean water taps.
- Spray the freshener.
- Re-fill pedal sanitizer

5) Hostel terrace

- Dust, Mop and Wipe the terrace, remove animal waste and de-silt.
- Check for water clogging.
- Remove plant vegetation if any.
- Clear water outlets.

6) Staff quarters – Entrance, corridors and stairs

- Dust, Mop and Wipe the floor of corridors, walls, table, below the table, chairs, shoe rack, Storage racks, top of the storage racks, cupboards, pooja table, stairs, railings, stair sidewall, switch board, window panes, grills, doors, fans, fan grills, AC exterior, bulbs, remove cobwebs, entrance door, Wi-Fi rack, CCTV, PA System, Intercom etc. drinking water area, cloth drying hangers, dormitory doors. Storage room, Below the stairways, concrete benches, electrical meter, panel board etc.
- Sanitize chairs, table top, switchboard, door handles and other frequently touched surfaces and materials.
- Empty the bin, wash and reinsert the dustbin cover.
- Dust the floor mat using the vacuum cleaner.
- Clear water outlets, clean water taps.
- Spray the freshener

- Re-fill pedal sanitizer

7) Hospital nursing station and corridor-

- Dust, Mop and Wipe the floor of the nursing station, walls, table, below the table, chairs, shoe rack, Storage racks, top of the storage racks, cupboards, beds, below the beds, switch board, window panes, grills, doors, fans, fan grills, AC interior, bulbs, remove cobwebs, entrance door, Wi-Fi rack, CCTV, PA System, Intercom, medicine counter, fridge, etc.
- Sanitize chairs, table top, switchboard, door handles and other frequently touched surfaces and materials.
- Empty the bin, wash and reinsert the dustbin cover.
- Dust the floor mat using the vacuum cleaner.
- Clear water outlets, clean water taps.
- Spray the freshener
- Change bed covers, pillow covers, table cloth etc. and send the used one to the laundry.
- Re-fill pedal sanitizer.

8) PE storage room

- Dust, Mop and Wipe the floor of the storage room, walls, table, below the table, chairs, storage racks, top of the storage racks, cupboards, switch board, window panes, grills, doors, fans, fan grills, bulbs, remove cobwebs, entrance door, Wi-Fi rack, CCTV, PA System, Intercom, etc.
- Sanitize chairs, table top, switchboard, door handles and other frequently touched surfaces and materials.
- Empty the bin, wash and reinsert the dustbin cover.
- Dust the floor mat using the vacuum cleaner.

9) Boiler room
10) Generator room
11) NCC Office

- Dust, Mop and Wipe the floor of the Office, walls, table, below the table, chairs, storage racks, top of the storage racks, cupboards, switch board, window panes, grills, doors, fans, fan grills, bulbs, remove cobwebs, entrance door, Wi-Fi rack, CCTV, PA System, Intercom, etc.
- Sanitize chairs, table top, switchboard, door handles and other frequently touched surfaces and materials.
- Empty the bin, wash and reinsert the dustbin cover.
- Dust the floor mat using the vacuum cleaner.

12) Class rooms

- Dust, Mop and Wipe the floor of the classroom, walls, Teacher's table, Chair, Student's desk and bench, below the table, chairs, storage racks, Smart Board, Projector, smart class rack (inside and outside), top of the rack, top of the storage racks, Keyboard & Mouse, switch board, window panes, grills, doors, fans, fan grills, bulbs, remove cobwebs, entrance door, Wi-Fi rack, CCTV, PA System, Intercom, etc.
- Sanitize chairs, table top, desk and benches switchboard, door handles and other frequently touched surfaces and materials.
- Empty the bin, wash and reinsert the dustbin cover.
- Dust the floor mat using the vacuum cleaner.
- Desks and countertops should be wiped down with a clean towel and non-toxic disinfectants.
- Trash bins next to teacher's desks and general ones used by students should be emptied periodically in order to reduce odors and prevent overflowing.
- Keyboards should be unplugged and sprayed between keys with compressed air to dislodge crumbs and other debris.
- Dust bookshelves and seldom-accessed cabinet tops with a microfiber cloth or moist towel to trap the dust,
- Doorknobs and handles should be disinfected using with a non-toxic disinfectant spray and a dry towel at the end of every day.
-

13) Labs –

- Dust, Mop and Wipe the floor of the Labs, walls, Teacher's and Student table, Chair, below the table, chairs, storage racks, top of the storage racks, switch board, window panes, grills, doors, fans, fan grills, bulbs, remove cobwebs, entrance door, Wi-Fi rack, CCTV, PA System, Intercom, etc.

Laboratory rules for students –

- DO NOT enter the laboratory without permission.
- DO NOT use any equipment unless permitted to do so by the teacher.
- Make sure you know exactly what you are supposed to do. If in doubt, ask the teacher.
- Long hair MUST always be tied back securely.
- ALWAYS wear eye protection when instructed to do so.
- ALWAYS check that the label on the bottle is EXACTLY the same as the material you require. If in doubt, ask the teacher.
- DO NOT eat, drink or taste anything in the laboratory or any food brought into the laboratory.
- Any substance accidentally taken into the mouth must be spat out IMMEDIATELY and the mouth washed out with plenty of water before reporting to the teacher.
- Any cut, burn or other accident MUST be reported at once to the teacher.
- Any chemicals spilled on the skin or clothing MUST be washed at once with plenty of water and reported to the teacher.

- Always WASH your hands after practical work.

1) Assembly areas
2) Library
3) Seminar Hall
4) Auditorium
5) Staff room
6) Offices (Chairman, Dean, Principal, Vice-Principal, Coordinators, Conference Room, Exam Officer, Account Office, Student counselors, career counselor etc.)
7) Corridors and stairways
8) Prayer hall
9) Strong room
10) Idea Lab
11) School Building Terrace
12) Roads
13) Water tank Area
14) School Reception

Solid Waste Management Infrastructure

Waste Identification

Wet Waste	Cooked and uncooked food, plant leaves, compostable materials, coffee powder, tea powder, meat and poultry waste etc.
Sanitary Waste	Menstrual cloth (used), disposable diapers, sanitary napkins, bandages, etc.
Dry Waste (paper)	All types of paper, paper plates, tickets, telephone bills, wrappers, leaflets, flyers, etc.
Dry Waste (plastic/ glass)	All types of plastic, plastic bags, coke bottles, water bottles, garbage packs, milk packets, pouches, bangles, crockeries, etc.
Dry Waste (hazardous)	Used syringes, insecticides and containers, discarded medicines, battery cells, household chemicals, etc
E-Waste	Mobile, CDs, Electronic equipment, CFL, Tube lights
Dry Waste (others)	Metal items, tetra packs, aluminum foils, aluminum cans, thermocol, bottles, plates, utensils, packaging material etc.
Garden Waste	Plant leaves, dry and wet cut branches
Inert Waste	All types of construction materials, cement, mud, sweeping dust etc.

Cleaning Practices

All corridors, open spaces, parks, other common spaces like activity rooms, science labs of the school (both external and internal) should be cleaned at any given time. The following cleaning routine should be adhered to:

Sweeping and Mopping of floor

- Sweeping of corridors with disinfectant at least once a day
- Frequent brooming of the corridor through the course of the day
- Vacuum cleaning of carpets at least daily using appropriate vacuum cleaning equipment

Garbage Bins

- Remove garbage from dustbins and clean them if required
- Provide separate dustbins for biodegradable and non-biodegradable materials
- Replace cleared dustbins to original spot
- If any trash is found anywhere in the complex, pick up immediately

Doors, Windows and Walls

- Spray windows and glass surfaces with water or appropriate cleaning solution
- Removal of all cobwebs and stains
- Extensive cleaning of outer-surface of windows to be carried out at least once a month
- If any fingerprints, smudges or stains found on the corridor wall then the same to be cleaned immediately

Vents and Fixtures

- Dusting of light fittings, wall decorations, other fixtures using feather brush and duster
- Air conditioning vents and sprinklers should also be dusted and checked for proper functioning

Toilets:

- Fixtures including toilets and sinks should be free of streaks, soil, stains and soap scum
- Should have good quality basic fitments like ablution taps and wash basins, etc.
- Mirrors and windows should be free of dust and streaks
- Dispensers should be free of dust, soiling and residue and replaced/replenished when empty
- Waste should be disposed of appropriately on a daily basis
- Provisioning of soap, toilet paper, hand towel/dryer, sanitary pads dispenser, dustbins, and other necessary items
- Toilet bowls, urinals and adjoining areas should be cleaned with disinfectant on a daily basis, and the use of acid-based disinfectants should be avoided
- Toilet floors should be kept dry to the extent possible/feasible
- There should be well functioning drainage system

Common spaces:

- Sweeping of corridors, pavements, other external areas at least twice a day
- Cleaning internal common spaces like lift, stairs area, indoor parking area, etc. regularly
- Composting leaves, biodegradable waste (if feasible)

Playground:

- Sweeping of park/garden area regularly
- Removing grass and hedge trimmings on the same day
- Cleaning park benches and other outdoor equipment every day
- Sweeping basketball court/volleyball court area
- Ensure that no water trenches stay in the playground

Lab and Other Activity Rooms' Equipment

- Lab equipment should be regularly cleaned and well maintained
- A list of all chemicals and salts present must be regularly updated and safe disposal of chemicals to be ensured

- Sports room equipment should be checked at regular intervals to see if there is need of repair or replacement with new equipment
- Other activity rooms' equipment like music instruments should be checked at regular intervals to see if there is need of repair or replacement with new equipment

School Cafeteria/Canteen:

- School canteen should be regularly cleaned
- Dustbins should be placed at easily accessible spots to prevent littering
- There should be hand washing facility in the canteen (Utensil washing sinks in case of attached kitchen)
- Segregation and composting of food waste (if feasible)

Do's and Don'ts

DO	DON'T
Collect waste, rubbish and debris within the school and dispose as per set frequency.	DO NOT let waste and trash accumulate within the premises.
Dispose all waste as per guidelines.	DO NOT dispose waste outside or near parking lots, playground, drainage, swimming pool, ditches or any other location where they can damage the environment.
Keep all equipment clean; do not allow a build-up of wastes.	DO NOT let equipment get damaged or rusted; replace if unsuitable for further use.
Oversee to ensure that correct procedures are followed and SOP guidelines are complied with	DO NOT let contractors conduct maintenance in conflict with proper procedures and guidelines; monitor closely.
Impose Penalty on defaulters for littering/spitting/open urinating within the school premises or near the boundary walls	DO NOT allow littering, spitting, open urination or any other practices that affect the cleanliness and aesthetics of the premises.