Archives at the National Centre for Biological Sciences (NCBS)
Tata Institute for Fundamental Research

Archives Maintenance Checklist

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Version 1. December 2023. Neha Panwar, Ravi k. Boyapati, Sindhu Nagaraja.

Preventive Check List

	Method	Range	Frequency and action	Action
Temperature	Data dump from Data Loggers	Range: 23 C, +/-1 C. Sensor limits: **Repository:** High: 25 C Low: 20 C **Lab-18 Processing:** High: 25 Low: 21 **Quarantine:** High: 25.5 Low: 22.0 **Conservation Lab:** High: 26 Low: 20	Every tuesday	1) Record on Archives computer inside RR 2 (Reading Room 2) 2) Copy to archives system (location- Desktop- Archives office). 3) Alert if outside range.

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Relative Humidity	Data dump from Data Loggers	Range: rH: 55% +/- 5% Sensor limits: **Repository** High: 70% Low: 30% **Lab-18 Processing:** High: 80% Low: 40% **Quarantine:** High: 60% Low: 40% **Conservation Lab:** High: 85% Low: 40%	Every tuesday	Record on Archives computer inside RR2 (Reading Room 2). Copy to the archives system (location- Desktop- Archives office) and Gdrive (https://docs.google.com/spreadsheets/d/1OuGbnW1U7ttYEewiWI18-DxiQAufGiTMga6QKZ_6kpc/edit#gid=1068002261). Alert if numbers are out of range.
Water Leakages	1. Observe floor, walls and pipes in three AHU shafts in corridor + storage, two drainage shafts in reading room + storage + one in Lab 18. 2. Check by the Electrical Team of nine water sensors in AHU, drainage shafts, sink area and other vulnerable areas.	Alarm triggered when wet surface contacts sensor.	1. Daily 2. Once in three months	Alert at appearance of any water, including moisture. Record in online register

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Pests	Observation of Glue Traps	Glue traps should be free of pests	1. Daily 2. Deep cleaning-weeking once on saturday 3. Microbial fumigation	Replace when full or with presence of any species as large as an adult cockroach
Vandalism	Observation of storage and reading room racks	Should be free of visible vandalism	Daily	Alert with photos at appearance of any vandalism
Fire	Checking of fire sensors in storage, exhibition room and reading room by Civil Dept.	Check working status.	Once in 3 months	Record in online maintenance register. Replace batteries when needed.
Light	Checking of all lights by the Electrical Team, including daylight.	**Reading Rooms**: ~ 330 to 660 lux **Storage Area** (during access): ~ 200 to 400 lux **Exhibit (direct light on original document)**: ~ 50 to 100 lux	Once in 3 months	Record in online maintenance register. Replace lights or add lights if not meeting requirements.

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Air Quality and HVAC test	Checking done by the HVAC team.	< 10 ppb: Sulphur dioxide, Nitrogen dioxide, Ozone. < 5 ppb: Acetic acid, formaldehyde. <50 ppb: Dust particles. Assumes removal of larger particles through air filtration	Once in 3 months	Record in online maintenance register. Alert if air quality is out of specified limits. Replace AC filters
Dissociation	Archives staff			If observed contact archives staffs
Physical forces	Archives staff			If observed contact archives staffs/ hospitality

Archives Management: Maintenance Checklist

	Resource	**Frequency**
Door Bell	Batteries – AA Batteries --3 Units	Check once in a month. 25th of every month. Log in the maintenance register. Replace as needed.
Phone	Batteries-- AA Batteries-- 3 Units	Check once in a month. 25th of every month. Log in the maintenance register. Replace as needed.
Stationery	Printer cartridges, notebooks, pencils, pens, etc.	Once a month. Replace as needed.

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Disaster Management Preparedness Kit	Minimum of Ziplock Bags- 10 pairs, Heavy Duty Trash Bags- 5 bags, Bloating papers- 30, scissors- 2, heavy duty tape-3, rubber gloves- 5 pairs, masks- 5, flashlights and batteries-3, first aid kit-2, trolly- 1	Check manually once in a month. Use the chart below to record and remarks.

Preventive Checklist - Working Sheet

https://docs.google.com/document/d/11PpdEZvKFk7QjY4N5J1Zonp6dkf_vCP6nW1l98LybgI/edit

Archives at NCBS - Controlled Environment Equipment Details

Lab	Space	AC	Dehumidifier	Fan
Archives (Basement) **Remote alarm- Krushnamegh Kunte Lab- ground floor**	**Storage**	Three ACs. Mitsubishi Electric, AC Indoor unit, Ceiling suspended along the window line DX AC-1 x 1.5 TR Non-Inverter Ductable Split AC (Mitsubishi) Ceiling Suspended Corner Room Model no.:	Two Dehumidifiers. Aerial AD-750, 55 liters. Along the window wall on the floor	

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		• PEY-SP24JA <G • PEY-SP24JA <G • PE-P18JAK <G>		
	Archives Reading Room 1	DX AC Chilled water AHU- Catered from the Corridor AHU Model no: PE-P18JAK <G		USHA Maxx Air Not Fixed- Movable
	Archives Reading Room 2	Mitsubishi Electric, AC indoor unit, Ceiling Suspended at the entrance of the Recording Room Model no: MS-GK10VA		USHA Maxx Air- Not Fixed- Movable
	Processing area	DX AC AHU—5 TR Chilled Water AHU- Entrance Corridor end	Dehumidifier 34 Liters capacity, 7liters tank, AD-750 (Aerial)- Room Corner	
	Recording Room	DX AC-0.8 TR Hi-wall Non-Inverter Split AC (Mitsubishi)- Ceiling Suspended in the room		

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	Exhibit Space	DX AC- 2 x 2 TR Inverter Ductable Split AC (Mitsubishi)- Inside the Grid False ceiling accessible from Storage room		
	Archives Front Desk and Foyer	DX AC AHU—5 TR Chilled Water AHU- Entrance Corridor		
Lab 18 (Remote alarm fixed in the Hortus garden)	**Processing area**	DX AC AHU—5 TR Chilled Water AHU- inside false ceiling above the window	Dehumidifier - 1 x 34 liters capacity, 7 liters tank - Next to processing are AHU shaft	
	Office area	DX AC AHU—5 TR Chilled Water AHU- inside false ceiling above the window		
	Quarantine room	Split AC- Wall mounted.Model No. FTL35UV16, wall opposite the entry door.	Dehumidifier - 1 x 34 liters capacity, 7 liters tank -	
	Conservation Lab	Daikin Ductable AC Model No.: FDBF18CRV16- suspended from the ceiling near the window		

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General notes on Space Design and maintenance

- **Light**: Minimize UV exposure (< 75 uW / lumen of visible light). UV-filter Plexiglass windows. Blinds/curtains to reduce sunlight in offices. Storage cells stay dark unless in use.
    - Reading Rooms: ~ 330 to 660 lux
    - Storage Area (during access): ~ 200 to 400 lux
    - Exhibit (direct light on original document): ~ 50 to 100 lux
- **Air Quality**: Minimize dust and contaminants that lead to acidification of archival documents. Monitor particle counts on a weekly basis. The following specifications can be evaluated over the course of running the facility, but they point to the need for an air filtration system and careful consideration of wall and floor covering material.
    - < 10 ppb: Sulphur dioxide, Nitrogen dioxide, Ozone.
    - < 5 ppb: Acetic acid, formaldehyde.
    - < 50 ppb: Dust particles. Assumes removal of larger particles through air filtration.
- **Temperature and rH**: In general, keeping temperature in the range of 21-23 C is acceptable for the storage stacks. And rH in the range of 45-55 %. Low rH results in brittleness to documents. High rH results in increased chances of mold and other biological growth. Incase of malfunction of any devices, use a portable fan to circulate the air.
- **Noise**: Background room noise levels across the archives from all the environment control equipment should be similar to a quiet room/library. **30-40 dBA.**
- **Controls and backup**: All specifications for temperature, rH, air quality and light are around the clock. So, backup is needed during power outages and system failure.
- **Nature of archive material**: All specifications for temperature, rH, air quality and light are being made for a broad set of paper-based archival material. The specifications for photographic and audiovisual material in magnetic form will vary and these will be stored in separate smaller containers with different specifications.
- **Permissible failure time**: In the event of a failure of the humidity or temperature control, there should be sensor feedback to alert for maintenance and repair. All archive material will be stored in alkaline buffered folders, which can absorb (resist) any acid development in the short term. If there is a catastrophic failure, one can assume an available two-day window to rectify the system. However, sensitive material needs to be relocated as soon as possible into a controlled desiccant/vacuum chamber.
- **Water:** Place the archival materials minimum 6” above the floors that damage caused due to minor flooding can be avoided.
- **Fire**: Use of Metal storage will contribute to resisting minor fire accidents. Remove any AHU / power unit outside the archives facility.
- **Pests:** Place gum traps in the area that are considered to be an pest entry point of the area and change when there is any pest adhered to it, if left, that itself may

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attract insects. Spices pouches could be placed in the storage boxes and shelves to avoid infestation; this has to be replaced every 3 months. The areas insects are observed and action: Window beading, entry door, AHU shaft, AC vent, Pipe installed area. Inform archives staff and contact Civil department or lab support or in case insects are observed inside. If the pest like termite is observed outside the archive premises contact the Hospitality department. Microbial fumigation checking and servicing will be carried out by lab support with hydrogen peroxide once in 12 months. Formal building Inspection of the archives and the building where archives are located from architectural/civil viewpoint once in 6 months [15th of the sixth month. Housekeeping, dusting and mopping should be practiced daily and maintain a register to record the attendance. Deep cleaning will be performed twice a month, 2nd and 4th Saturday, 2:00pm or coordinate with Hospitality Department

- **Maintenance:** For Archives storage AC & Dehumidifiers—Manufacturer's One-year warranty/guarantee is over. Currently maintained by NCBS AC Department. Contact Basavaraj - 9901031082 (jalihal@ncbs.res.in)
  Venkat - 9243407855 (venkat@ncbs.res.in)

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