

# CREATING A SYMPATHETIC ENVIRONMENT FOR ARCHIVAL MATERIAL

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An Archive is defined as a collection of historical documents and records. In the modern context, it also includes documents of importance in the scientific, administrative, legal, and other spheres

## **Why create a sympathetic environment for archival material?**

The nature of material in an archive necessitates such a step

Most archival material is organic in nature

- **Paper**
- **Parchment**
- **Leather**
- **Cloth**
- **Adhesive (Gum and Glue)**

Creating a favorable environment essentially consists of

- (a) eliminating adverse factors**
- (b) taking certain preventive measures so that these factors will not recur.**

## Factors that need to be controlled to prevent damage to archival material

- **Moisture and humidity**
- **Heat and temperature**
- **Light**
- **Atmospheric pollutants**
- **Biological agencies**
- **Human error**

# ATTRIBUTES OF AN ARCHIVE BUILDING

## Design

- The building housing the Archives should not only be able to bear the load of the existing archival collection but also future expansion of the collection
- The building housing the Archives should meet the building codes to be able to provide protection to the collection in case of natural disasters (earthquake, floods and other natural disasters)
- The building must be constructed with non-combustible materials, including roofs, walls, columns, and floors

## R **ROOF**

- It should be ensured that the roof does not permit water to penetrate.
- Nothing should be placed on the roof that may cause damage to the roof.
- Do not install skylights or sloped glazed windows in areas where records are regularly present.

## **WALLS**

Walls are a point of entry for moisture from seepage and capillary action from the ground

- Windows and vents on the walls should not open into the collection storage area
- Windows present on the walls of the archival building should be oriented such that light does not penetrate into the collection area



**Water seepage** (from the window)

- - **Water and sewage pipelines should not run through the collection storage area and must be placed away from them to minimize damage in case of pipe burst**
  - **Greenery around the building can bring down the ambient temperature but care should be taken to see that roots of trees around the building do not cause any damage to the structure and also the moisture in the soil does not penetrate into the building**
  - **No fountains, pools, or standing water are allowed over or adjacent to areas where records are stored, processed, used, or exhibited**

## Control of temperature and relative humidity :

- Air conditioning the collection area is a safe method for maintaining the required temperature and relative humidity (RH) levels
- Recommended levels of temperature and relative humidity for preserving collections are usually given as 20°C–22 °C and 50–55%, respectively.
- Although these are recommended levels, it is more important to maintain temperature and RH at constant levels
- Where air conditioning is used, it must be maintained 24x7 and not switched off at night or on holidays **(this can have disastrous results)**

## Where air conditioning is not possible, alternative means for maintaining constant temperature and RH levels must be used

- These include use of khas (*Chrysopogon zizanioides*) [ Vattiveeru (Kannada), Vettiver (Tamil), Ramacham (Malayalam), Khas, Panni(Hindi)] curtains outside the windows. These when wetted at regular intervals bring down the temperature of the room
- The outer walls of the building can be painted with a high reflectance paint so that the walls do not get heated, thereby reducing the temperature within
- RH can be kept within reasonable limits by ensuring proper ventilation in the room
- De-humidifier can be used to bring down the RH to specified levels when humidity levels are high.
- Dehydrating agents such as silica gel may be used to control RH

## Control of light

Light is another factor that is detrimental to archival collections. Sunlight from outside should not be allowed to penetrate into the area where records are stored

- **Sun shades can be constructed to cut out light**
- **Tinted glass or solar reflective films may be used on existing windows**
- **Cloth curtains (preferably cotton) stop dust from entering and allowing air to pass, they also absorb excess moisture in the air. (But they are also a fire hazard)**
- **Venetian blinds may be used. However, these should be cleaned regularly so that dust does not collect on them**
- **Artificial light source should not emit UV rays and also should not give off heat**
- **Recommended levels of illumination for archival material –50-55 lux.**

**Particulate matter such as dust is detrimental to the preservation of archival material.**

- Windows and doors should not have gaps, which would let dust in, when closed
- When open, The windows must be covered by curtains of suitable material, preferably cotton. While stopping dust from entering and allowing air to pass, they also absorb excess moisture in the air.
- Cleaning of archival area should be done preferably using vacuum cleaner

**Gases, like sulphur dioxide (SO<sub>2</sub>), hydrogen sulphide (H<sub>2</sub>S), hydrochloric acid (HCL) etc., in an industrial atmosphere and the nitric oxides from the exhausts of automobiles, constitute a threat to archival material. Acidity that might be already present in the paper, as a result of the manufacturing process, will further increase due to the ingress of these gases and the paper deteriorates fast.**

- It is best that the Archives building is well away from any industry and also far removed from the road.
- There should be plenty of greenery around the building to ensure the presence of fresh air.

## Control of biological agents

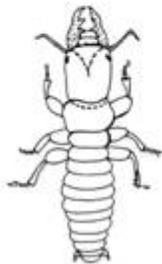
Archival material are liable to be attacked by a number of insect species like silver fish, book worms, cockroaches, termites etc, fungal species, and rodents



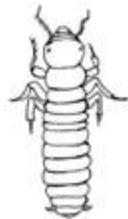
King Termite



Queen



Soldier



Worker



Silverfish



Bookworm Beetle (larva)

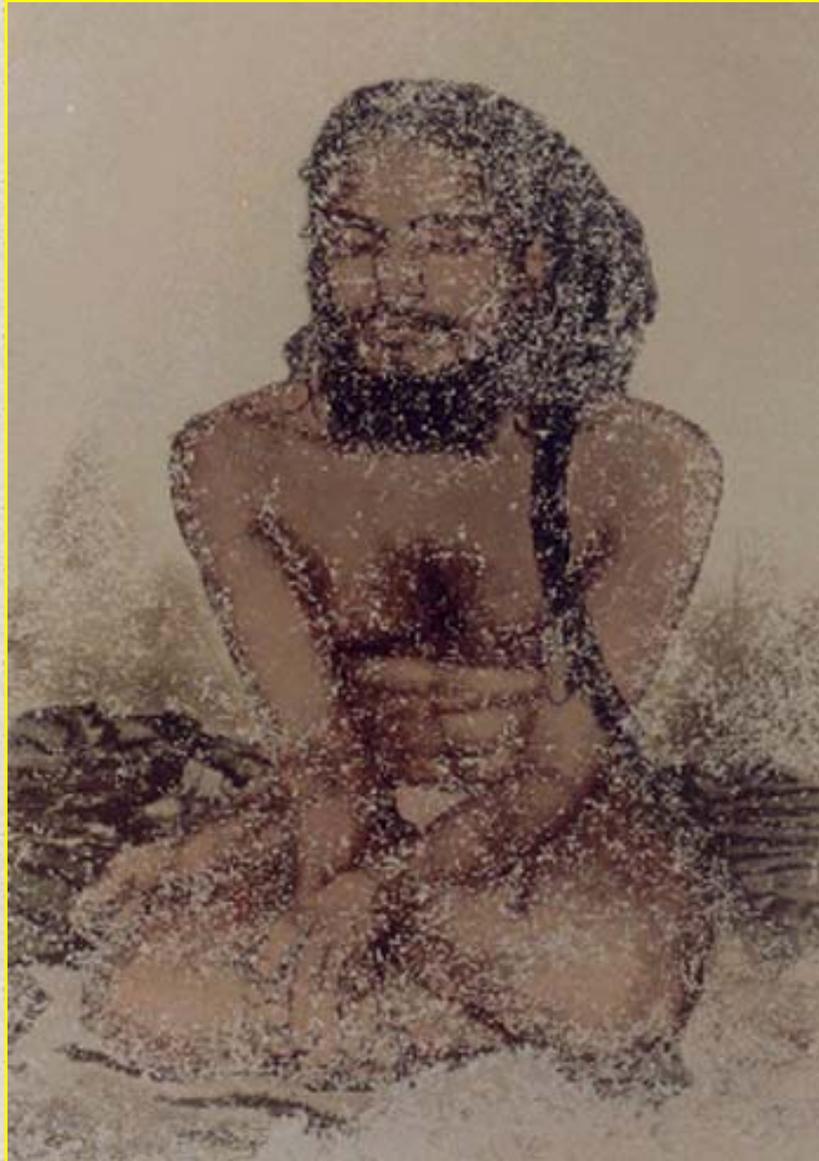
- **The building should be termite proofed. It should be ensured that there are no joints, cracks, crevices in the floor and walls of the building.**
- **Regular checking of building should be done so that remedial measures can be taken on the first sign of termite infestation**
- **It is the general practice to keep small quantities of insect repellants like Paradichloro benzene (in sachets) in the shelves.**  
(The use of chemicals however, has to be approached with some caution, since the long-range effect of the chemicals on the objects as well as on humans, will have to be considered.)
- **Regular cleaning and vacuuming of the archival storage area should be done to prevent any insect infestation.**
- **The lowermost rung of the shelf should be at least 6 inches above the ground.**



**Termite eaten photograph**



**Insect eaten manuscript**



**Surface eaten by silver fish**

- **It should be ensured that there is no water seepage in the building, because high humidity conditions are conducive to the growth of fungus. This will lead to deterioration of the archival material**
- **In every shelf, a few sheets of blotting paper impregnated with a 5% solution of Thymol in Ethanol, may be kept as an additional precaution.**
- **Temperature and RH should be maintained at specified levels constantly to prevent the growth of fungus**



**Photograph destroyed by fungus**

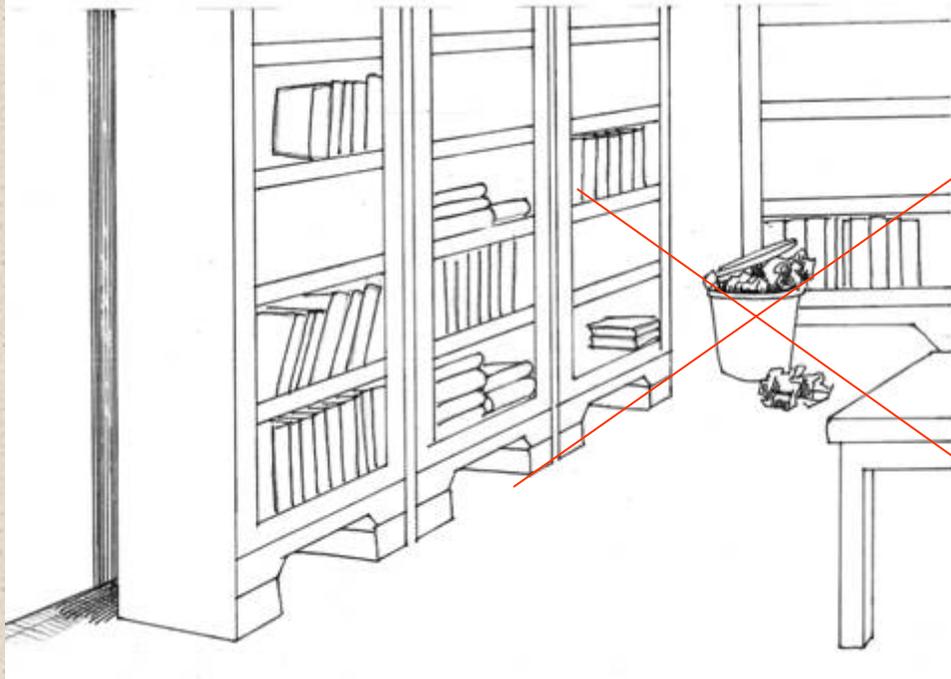
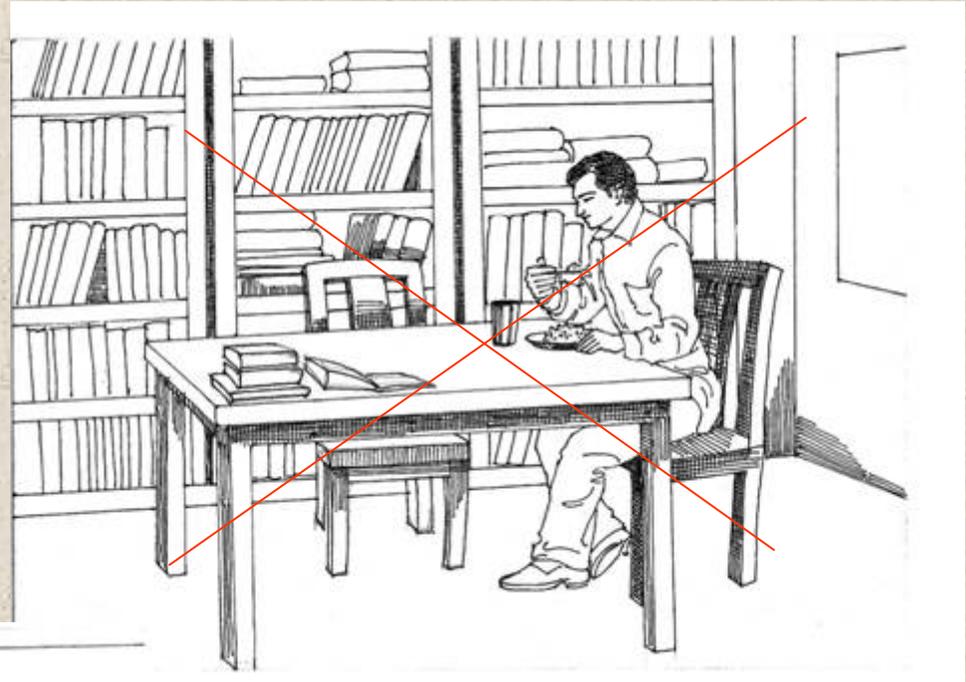
Physical damage to archival material can be caused by common household rats. These animals are very destructive and have been known to reduce invaluable collections to pieces in a night.

**Prevention of the entry of these rodents into a building goes a long way in protecting the archival collections.**

- **Doors to the record areas must not open directly onto the outside, refreshment areas, locations where there is lot of movement of public, and other similar areas**
- **Holes in the walls and other possible entry points should be sealed**

**Hygienic conditions should be maintained in the area.**

- **No eatables and drinks should be allowed in the area where the archival collections are stored.**
- **Canteen and refreshment areas should be located away from the collection area.**
- **Dustbins should be emptied regularly and garbage should not be allowed to pile up**



## Control of human error

Importance of scrupulous care and proper techniques in the handling of Archival Materials can never be over-emphasized.

**Proper training: The personnel must be properly trained in care and maintenance. Paper, being a delicate material, can easily be damaged due to wrong handling.**

- **Documents in a fragile condition should be encapsulated in polyester film, so as to avoid direct handling.**
- **Individual sheets, with writing on only one side, can be mounted on acid-free mount boards.**

## **ESSENTIALS OF STORAGE AREA**

The storage area has to be well designed for the well being of the collection. Besides maintaining constant temperature and RH, stagnation of air should not be allowed. Shelves form an important part of the Archival storage

**If wooden shelves are used, they should be made of good quality wood —insect proof, water proof**

**If steel shelves are used and these are painted, care must be taken not to use toxic paints**

**These should be rust proof**

**Shelves should not have sharp edges and corners, which can damage the documents**

**It is preferable to use shelves with slots so as to allow circulation of air  
Shelving arrangement should be such that it allows easy access for cleaning**

**Shelves should be placed away from the walls to prevent any transfer of moisture from the walls and also to ensure circulation of air  
Distance between successive racks may vary from 0.71–1 m with a central passage of 1.5–2 m**

***Can Consult "IS": 2663-1964 Code of Practice for the Basic Elements in the Design of Buildings for Archives***

## Conclusion

Regular inspection of the archives and regular maintenance of temperature and relative humidity, as well as regular cleaning is crucial to conserve the collection .

As the oft repeated saying goes “Prevention is better than cure”. Therefore, if proper preventive measures are in place, it will necessitate minimal intervention. Thus the possibility of wrong or bad curation is reduced.