



# KODAK RELIABLE IMAGE TIP # 58

## Microfilm archive storage considerations

### Room Specifications

#### *for Microfilm Controlled Storage*

---

The specifications below were pulled out of several publications and documents provided by Eastman Kodak Company as guidelines. Of all the reasons for film to deteriorate, temperature and humidity have the most cause and effect. Therefore, a room designed to control these two aspects, at the very least, would improve the longevity of a microfilm collection.

There are also companies that offer modular room construction and additional guidelines.

### Location and Fire Rating

---

The room should be on the 1<sup>st</sup> floor or an upper floor if the flooring and overhead support is adequate for the film cabinet weight and to prevent other floors from crashing into the room during a fire. The room should be constructed to be a 4 to 6-hour fire-resistive area under the Fire Underwriters' regulations (U.S.A.).

It should not be located in a basement or where humidity could be a problem. It should be located so it is not subject to water damage of any type. For instance, it should not be under water pipes or water heaters that could leak into the room.

### Size of Room

---

Several assumptions must be made to determine the size of the room since the amount to store bears a direct relationship to the size. First, how many rolls of microfilm will be stored onsite in controlled storage? Acetate-based film should not be stored together with polyester film. However, acetate film may be in stored in a controlled storage to slow the Vinegar Syndrome deterioration to allow more time for duplication efforts.

The first criterion is a room large enough to store all of the rolls of microfilm in the collection. As an example, consider a collection of 12,000 rolls of microfilm.

- This calls for space for 9 cabinet's total, in a rectangle-shaped room. **This equates to a room 8' x 8'** and allows space for a small table and a 3' aisle between the 2 rows. A typical microfilm closed cabinet is 23.5" wide and 28.5" deep. Add another 27.5" depth for an open drawer.
- The entry door to the room needs to accommodate a cabinet on a dolly. A 3' wide door should be an adequate width.

### Condition and Control of Air

---

- The room must be kept under a slight positive pressure for ventilation and to prevent the entrance of untreated air. This means the introduction of fresh air that is filtered or scrubbed.
- A spray-chamber-type of air conditioner is probably best.

- Consider equipment constructed of corrosion-resistant, high-quality materials to prevent breakdowns and costly repairs.
- Ideally, the conditioner should be located outside the room for ease of maintenance and to prevent water leakage into the room.
- The conditioner housing and all duct work should be well insulated.
- Control of temperature and humidity calls for appropriate instruments, such as a dry- or wet-bulb thermostat, hydrostat, or dew-point controller.
- A temperature of 65 degrees Fahrenheit and humidity constant to 20% would be optimum. However, if cost is prohibitive...
- Relative humidity should be kept between 20% and 30%
- Temperature must not exceed 70 degrees Fahrenheit.
- Since the room needs to be kept at a constant temperature, it should not have windows.
- Dehumidifiers that use desiccants should be avoided. They can create a danger of fine dust particles getting on the film. These particles can cause abrasions on the film when it is used. Some chemical-desiccant particles can form bleached spots on film.
- Use Underwriters' approved automatic fire-control dampers in ducts, installed in accordance with recommendations of the National Fire Protection Association.
- An automatic sprinkler system inside a fire-resistive room containing only safety film is not necessary. Its elimination decreases the danger of accidental water damage. (See local building codes plus the Fire Underwriters' and National Fire Protection Association's regulations concerning valuable record rooms.
- Filter the air to the room to eliminate dust. If there is atmospheric contamination in the locale, and environmental engineer should be consulted to help select the appropriate type of air scrubber or other air purification equipment as needed.

## Other Specifications

---

- No combustibles are allowed in this room. Only metal cabinets, tables, film boxes, etc. should be used. Alternatively, plastic film boxes can be used. Carpet should not be on the floor.
- Sufficient wall insulation should be provided that also has a suitable vapor seal to permit satisfactory temperature control during all seasons of the year and to prevent moisture condensation on, or within, the walls.
- The room should be cleaned daily to prevent accumulation of lint from clothing, dirt from shoes, etc.
- If a spray-chamber is used in the air conditioner, and the water is recirculated, clean the chamber to prevent formation of biological slime. This slime will eventually decompose and give off hydrogen sulfide, one of film's chemical enemies.
- Air purification units also require occasional servicing.
- Precautions should be taken when the conditioning equipment is turned off for maintenance and repairs.

- Even with controlled conditions, stable film should still be inspected at least every two years. Acetate will need to be monitored more often.

## **Further considerations**

---

- These specifications will lead to a sound storage option for irreplaceable film. After the acetate film has been safely duplicated onto polyester film, the room would become available for other film, optical or electronic media storage in the future.
- If this option is desired, the room size may be adjusted to suit the future needs as well.