

X-RAY FACILITY TIPS

Topic 5: Darkroom Conditions for Radiographic Facilities

Darkrooms for radiographic facilities should be painted white or with light colors, since this helps vision in situations where the degree of illumination is minimal. The counter tops should also be white, or light-colored, and a light-colored backing on the wall behind the film loading counter should be resistant to damage from cassettes and cassette covers during loading.

A clean darkroom will result in fewer artifacts from dust and dirt and reduces the amount of effort required for cleaning the cassettes and screens. The darkroom should be cleaned daily at the beginning of the work day before processing or handling any films in the darkroom.

Suggestions for keeping the darkroom clean.

1. Damp mop the darkroom floor.
2. Remove all unnecessary items from counter tops and work surfaces.
3. Use a clean, damp lint-free towel to wipe off the processor feed tray and then the counter tops and other surfaces in the darkroom. Even the passbox should be cleaned daily.
4. Keep hands clean to minimize fingerprints and handling artifacts.
5. Wipe or vacuum overhead air vents and safelights weekly before cleaning the feed tray and counter tops.

For larger darkrooms electrostatic air cleaners may prove useful in reducing the amount of dirt, dust and static electricity in the darkroom. If a new darkroom is being designed, counter top materials which reduce static electricity should be considered.

There should be no smoking, eating, or drinking in the darkroom. Smoking produces ashes that may deposit on screens (artifacts) as well as on sensitive processor detectors. Smoking also produces light which fogs film. Eating also produces particles which may deposit in cassettes and cause artifacts. When any beverage is spilled on a cassette, the screens will probably have to be replaced. If a beverage is spilled in the film bin, the cost of replacing the film may be great.

Care must be taken to ensure that chemical solutions are not spilled and allowed to dry. The powder from dried chemicals may cause film artifacts and can contaminate other chemical solutions.

There should be as little clutter as possible on the counter top used for loading and unloading the cassettes. Anything on the counter top makes cleaning more difficult and provides a convenient place for dust and dirt to accumulate.

Although convenient for film and other storage, there should be no shelves above the counter tops in the darkroom. Shelves provide a place for dust and dirt to accumulate. Whenever a box of film is then removed from the shelves above the counter top, the accumulated dust and dirt are deposited on the area used for loading and unloading cassettes. Cabinets are acceptable if nothing is kept on top of them.

The ceiling of the darkroom should be constructed of a solid material such as drywall. Ceiling tiles, often set in metal channels, allow dirt to sift through the ceiling and fall on the surfaces used for handling cassettes. In addition, light can often enter the darkroom through such tiles, resulting in fog on the radiographic films.

The vent for heating and air conditioning should not enter the room over the counter used for handling cassettes. This provides another source for dust and dirt being deposited on the counter.

Ultraviolet lights are available (inexpensive ones at novelty stores) which help demonstrate the dust and dirt in darkrooms. Some dust and dirt particles fluoresce when exposed to ultraviolet light and can readily be seen if all lights are turned off. However, not all dust and dirt particles fluoresce.

Other often overlooked aspects of the photographic darkroom are the appropriate temperature and humidity conditions. The temperature should be maintained at a comfortable level regardless of the number of individuals working in the darkroom. In addition, the humidity should be maintained between 40 and 60 percent. If the humidity is allowed to drop below 40 percent an increase in static marks on the film will usually result. If humidity rises above 60 percent, the film sometimes becomes sticky and film handling may become difficult. High temperature and/or high humidity cause perspiration resulting in increased finger marks on the final radiographs. Low or high humidity cause difficult film transport for automatic cassette loaders and film handling systems in the darkroom and for rapid film changers.

Other sources of dust and dirt must be controlled. For example, if cassettes are placed on the floor beneath the passbox or in the x-ray room they will accumulate dust which will be carried into the darkroom. In addition to other darkroom cleaning tasks, the passbox should be cleaned every day to prevent dust and dirt from being introduced into the darkroom through this route.

SOURCES

National Council on Radiation Protection and Measurements, NCRP Report No. 99, Quality Assurance for Diagnostic Imaging

1999 ACR Mammography for Technologists Manual

Bushong, Stewart C., Radiologic Science for Technologists Physics, Biology, and Protection, 6th Edition, 1997