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Hazardous Materials Storage Cabinets

A. Scope

This section of the Design Guide applies to the design, construction, and installation of hazardous materials storage cabinets. Most of the requirements were taken directly from the International Fire Code, as adopted by Seattle/Washington State, with supporting information from the National Fire Protection Association.

B. Approvals and Listings

1. Storage cabinets shall be UL listed for their intended use.

C. Design

1. Laboratories that store, use or handle more than five gallons of flammable or combustible liquids shall have one or more flammable liquid storage cabinets so that the code provision for doubling the maximum allowable quantity may be applied.
2. Provide corrosive and other listed cabinets as necessary to allow for segregation of incompatibles. Information on incompatible materials may be found [here](#).
3. Total hazardous material storage capacities in a control area must consider fire code maximum allowable quantities.
4. The maximum flammable liquid storage capacity per storage cabinet is 120 gallons.
5. Flammable liquid storage cabinets shall be listed in accordance with UL 1275, or constructed of approved wood or metal in accordance with the following:
 - a. Unlisted metal cabinets shall be constructed of steel having a thickness of not less than 0.044 inch (1.12 mm) (18 gage). The cabinet, including the door, shall be double walled with 1-1/2-inch (38 mm) airspace between the walls. Joints shall be riveted or welded and shall be tight fitting.
 - b. Unlisted wooden cabinets, including doors, shall be constructed of not less than 1-inch (25 mm) exterior grade plywood. Joints shall be rabbeted and shall be fastened in two directions with wood screws. Door hinges shall be of steel or brass. Cabinets shall be painted with intumescent-type paint.
 - c. Unlisted cabinets shall be reviewed and approved by EH&S.

D. Venting Hazardous Materials Storage Cabinets

1. Corrosive material storage cabinets, including those built into laboratory casework, should be vented. If built into laboratory casework, they should vent directly into the fume-hood plenum behind the baffle.
2. Flammable liquid cabinets should not be vented as doing so may compromise the cabinet's fire-resistance performance during a fire. If a flammable liquid storage cabinet is ventilated, then it shall be connected through the lower bung opening to an exterior exhaust in such a manner that the specified performance or UL listing of the cabinet is not compromised. A

flash arrester screen provided by the manufacturer with the cabinet shall replace the other bung. Exhaust vent materials for hazardous materials cabinets shall be compatible with cabinet contents. Vent materials for flammable liquid storage cabinets shall be resistant to high temperatures generated in a fire. Stainless steel, hard-soldered copper, and carbon-steel are all appropriate vent materials for flammable storage cabinets, provided the chosen material is compatible with the intended service. Non-metallic ducts shall not be used to vent flammable storage cabinets.

3. Compatible non-metallic duct material, such as PVC, can be used for acid- or corrosive-material storage cabinet service. Polypropylene is not an appropriate vent duct material since it is combustible.
4. Flammable cabinets built into laboratory casework are not to be vented into the fume- hood exhaust system. No acceptable method of doing this has been identified.
5. Class 1 flammable liquids stored in basements must be kept in vented flammable liquid cabinets. Please consult with EH&S to ensure conformance with this Administrative Rule.
6. If the cabinet is not vented, then it shall be sealed with the bungs supplied by the manufacturer.
7. Toxic material storage cabinets, when used to store highly toxic materials in excess of an exempt amount, shall be vented in a manner similar to flammable liquid storage cabinets.

E. General Installation Requirements

1. Flammable liquid storage cabinets shall not be located near exit doorways, stairways, or in locations that would impede leaving the area.
2. Flammable liquid storage cabinets shall not be wall-mounted unless the cabinet is specifically manufactured and listed (UL 1275) for this application. The mounting of non-listed cabinets could breach the fire-resistant integrity of the cabinet and is not allowed.
3. Flammable and toxic/corrosive liquid storage cabinets shall be seismically anchored to prevent spillage of contents.