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National Park Service
Cultural Resources

Filing Cabinets and Safes

for Protection of Paper Records, Computer Media, and Photographic Records from Fire Damage

John E. Hunter

As any other government agency or business, the National Park Service must protect a wide range of types and quantities of paper records, computer media, photographic documentation, and audio and video recordings from fire, theft, and unauthorized access. The extent of protection required and how it is to be provided are governed by a number of laws, regulations, guidelines, and standards which apply to classified information, fiscal and personnel records, museum collection records, and museum and archival collections. Park museum collection records are to be protected in accordance with the NPS *Museum Handbook, Part II: Museum Records*, page 2-39 (1984 edition). These requirements also are contained in Special Directive 80-1 (Revised 1990) "Guidance for Meeting NPS Preservation and Protection Standards for Museum Collections." The protection of both collections and their records is addressed in NPS-28 *Cultural Resources Management Guideline*. The protection of administrative records is covered by other NPS, Interior, and General Services Administration (GSA) standards and regulations.

The protection of records while they are in use is the responsibility of the persons using the records, who generally are required to follow specific standard operating procedures. The protection of records not in use against recognized threats generally is accomplished by storing them in filing cabinets and safes or, occasionally, in walk-in vaults; the extent of protection afforded by a container or vault depends upon its design and construction.

Filing cabinets, safes, and vaults can be classified roughly into two types: those intended to protect their contents against fire and those intended to protect their contents against forced attack. Very few units can protect contents against both fire and burglary or other forced

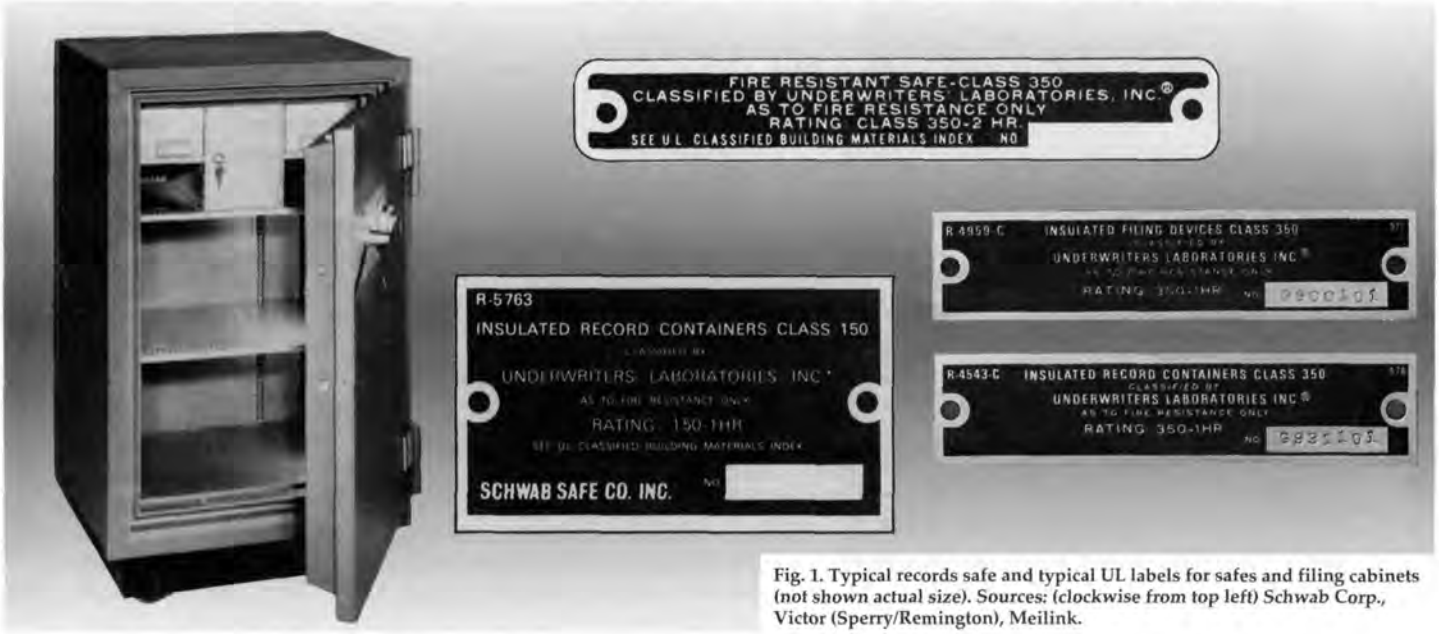

Fig. 1. Typical records safe and typical UL labels for safes and filing cabinets (not shown actual size). Sources: (clockwise from top left) Schwab Corp., Victor (Sperry/Remington), Meilink.

attack. However, either type may thwart surreptitious entry when equipped with high quality locking mechanisms.

Though both fire-resistive and security containers have applications in the National Park Service, this paper addresses only filing cabinets and safes and intended to provide fire protection. Fire-resistive and security vaults and security safes and other containers may be addressed in future papers. Some information about selection and application of burglary-resistant safes, depository safes, and other containers designed for protection of valuables against theft can be found in Appendix 1 of NPS-22 "Fee Collection Guideline." The National Park Service also requires that specialized gun vaults be used to protect firearms in museum collections; information about them is available from the WASO Curatorial Services Division's office in Harpers Ferry, West Virginia.

Terminology

The generic terms "insulated filing cabinets" and "fire-resistive filing cabinets" apply to self-contained, moveable cabinets with drawers; these terms encompass the first three classifications given below unless otherwise noted in context. The terms "insulated safes," "fire-resistive safes," and "records safes" refer to a variety of self-contained, moveable cabinets with one or two doors. Several even broader terms, such as "insulated container," "fire-resistive container," and "fire resistant container" may be encountered in product literature, security or fire protection survey reports, journal articles, or books, and refer to both filing cabinets and safes, generally in situations where either type of container is acceptable. While using such broad or generic terms may be acceptable in many situations, only terminology established by Underwriters Laboratories, Inc. (UL) should be used when dealing with vendors and in procurement documents, in order to be precise about what is required.

A number of other terms also are commonly, but incorrectly, used to refer to insulated filing cabinets; among those frequently heard in the National Park Service are "fire file," "security file," "fire safe," and just "safe." Such terms are not correct descriptions of insulated filing cabinets and are not recognized as meaningful by security specialists or manufacturers to refer to either insulated filing cabinets or to records safes; their use should be avoided, particularly in official NPS writings, such as security survey reports, Collection Management Plans, requests for funding, and procurement documents. It is particularly important to maintain the distinction between filing cabinets, which have drawers, and safes, which have doors. (Though commonly less of a problem, it also is important to distinguish between insulated and uninsulated filing cabinets because they are distinctly different.) Finally, it is critical to remember that safes and other locking containers intended for protection of contents against forced or burglarious attack rarely are rated for protection against fire, and that containers intended to protect contents against fire rarely protect for more than a minute or so against forced attack. [NOTE: This situation is less clear cut in respect to vaults, some of which afford both burglary and fire protection; also note the discussion of GSA Class 1 and 2 safes near the end of this paper.]

Fig. 2. Typical SMNA labels for safes and filing cabinets (not shown actual size).

Underwriters Laboratories Classifications

The terms for the various kinds of insulated or fire-resistant containers used to protect records derive from standardized tests promulgated by Underwriters Laboratories, Inc. (UL). These terms reflect design differences among units tested by UL under its Standard for Safety No. 72 "Tests for Fire Resistance of Record Protection Equipment." Record protection equipment that passes UL tests is marked with the manufacturer's or private labeler's name or identification and the rating, as determined by the tests described in Standard 72. Equipment so marked is said to be "UL labeled." See figure 1 for samples of UL labels. Older equipment may bear other labels, in addition to or in lieu of a UL label; labels from the now defunct Safe Manufacturers National Association (SMNA) commonly are encountered. See figure 2 for samples of SMNA labels.

Many users—and prospective users—of fire-resistive containers are not familiar with UL terminology and can find it confusing. All of UL's terms have quite precise meanings and are reflections of design and construction differences that may not be obvious to users interested mainly in appearance and functional differences. Since the specialized terms used by UL and manufacturers appear in promotional and product literature, prospective users should be familiar with them. However, using only the technical terms, to the exclusion of better known, albeit less precise, terms also can be equally confusing. Therefore, this paper uses both the "official" UL-standardized terms and some "unofficial" or everyday terms that many users will recognize. Both sets of terms are presented not only to permit prospective users to understand the subject more fully, but also to foster the use of proper terms, rather than incorrect terms which often are used in casual conversation and which may be misunderstood by security specialists and equipment vendors.

Fire-resistant filing cabinets and safes are tested against the aforementioned UL 72. Burglary-resistant safes are tested against UL 687 "Burglary Resistant

Safes." Locks found on all types of containers and vaults are tested against UL 768 "Combination Locks."

The following system is used by UL to test, rate, and classify fire-resistive safes and filing cabinets according to their design and fire-resistance characteristics. As noted in UL 72 (quoting):

1.3 Under these requirements [i.e., under UL 72], record protection equipment is exposed to a fire endurance test and an explosion test. Equipment intended to provide impact resistance is also exposed to a fire and impact test. The fire endurance test is intended to demonstrate the ability of the device to prevent the development of temperatures and relative humidity (Classes 125 and 150 only) exceeding the specified limits inside the device for the classification desired. The explosion test is intended to demonstrate the ability of the device to withstand a sudden exposure to high temperatures and prevent an explosion of the device from a buildup of steam or other gases. The fire and impact test is intended to demonstrate the ability of the device to protect contents from heat, to the extent described in the requirements, before and after an impact due to falling 30 feet.

The times and temperatures for the Fire Endurance Test are given in table 1. Quoting again from UL 72:

1.4 The interior sample temperature and relative humidity limitations applied to the three classes of devices reflect the type of records to be stored in the device. Class 350 rated devices are intended to protect paper records, Class 150 rated devices are intended to protect paper and nonpaper records such as EDP media (magnetic tapes) and photographic records, and Class 125 rated devices are intended to also protect flexible computer disks. However, nonpaper records are not used as contents for the test described in these requirements since testing to determine the ability of all available nonpaper records to withstand these conditions is not within the scope of these requirements.

1.6 Record protection equipment may incorporate locking devices, but the burglary resistance of such mechanisms is not within the scope of these requirements.

2.1 Record protection equipment is classified in terms of an interior temperature limit and a time in hours. Three temperature limits are employed: (1) 350°F (177°C), (2) 150°F (66°C), or (3) 125°F (52°C). The time limits employed are 4, 3, 2, 1, or 1/2 hour. The complete rating indicates that the specified interior temperature limit is not exceeded when the device is exposed to the standard test fire as described in these requirements for the length of time specified, including the cool down period following the standard fire exposure.

2.2 Record protection equipment may have additional ratings (be multirated) for integrally constructed subcompartments that, when tested as part of the device, provide a greater degree of protection than the basic equipment. The basic equipment, for example, may be rated Class 350, whereas an integrally constructed subcompartment may be rated Class 125 or 150. A nonrated cabinet, for example, may incorporate insulated drawers rated for a combination of Classes 125, 150, and 350. The hourly time element is the same for the basic equipment, if rated, and each subcompartment or drawer.

The classifications of record protection equipment are given below. Unless otherwise noted, all rated equipment must pass the UL Explosion Test. As noted above, not all rated equipment is required to pass the Impact Test. Mention is made of SMNA labeling in addition to UL labeling. In that context, it is worth noting that Class 125 units were not in existence during the time that SMNA

TABLE 1

UL AND SMNA CLASSIFICATIONS OF CONTAINERS

PRODUCT CLASSIFICATION	U.L. RATING	SMNA CLASS.	SMNA SPEC.	TEST FEATURE
Fire-Resistant Safe	Class 350—4 Hr.	A	F 1-D	Impact
Fire-Resistive Safe	Class 350—2 Hr.	B	F 1-D	Impact
Fire-Resistive Safe	Class 350—1 Hr.	C	F 1-D	Impact
Fire-Resistive Safe	Class 150, 4, 3, 2, or 1 Hr.	Class 150	F 2-D	Impact
Fire-Resistive Safe	Class 125, 4, 3, 2, or 1 Hr.	—	—	Impact
Insulated Filing Device	Class 350—1 Hr.	D	F 2-ND	No-Impact
Insulated Filing Device	Class 350—1/2 Hr.	E	F 2-ND	No-Impact
Insulated Record Container (Ledger File)	Class 350—1 Hr.	C	F 1-D	Impact
Insulated Record Container	Class 350—1 Hr.	C	F 2-D	Impact
Insulated Record Container	Class 150—4, 2, or 1 Hr.	Class 150	F 2-D*	Impact
Insulated Record Container	Class 125—1 Hr.	—	—	Impact
Fire-Insulated Vault Door	Class 350—6 Hr.	6 Hour	F 3	—
Fire-Insulated Vault Door	Class 350—4 Hr.	4 Hour	F 3	—
Fire-Insulated Vault Door	Class 350—2 Hr.	2 Hour	F 3	—
Fire-Insulated File Room Door	Class 350—1 Hr.	1 Hour	F 4	—

NOTES :

Class A	protects paper records from damage by fire (2,000°F) up to 4 hours.
Class B	protects paper records from damage by fire (1,850°F) up to 2 hours.
Class C & D	protects paper records from damage by fire (1,700°F) up to 1 hour.
Class E	protects paper records from damage by fire (1,550°F) up to 1/2 hour.
Class 150	protects EDP records from damage by fire and humidity for rated period.
Class 125	protects EDP records from damage by fire and humidity for rated period.
Impact Test	The Impact Test is used to determine whether or not the fire-resistance of a product would be impaired by being dropped 30 feet while still hot. Fire-resistant equipment is designed specifically to resist fire, and consists of a metal shell filled with a fire-resistant insulation.

* Impact tested unloaded.

was classifying equipment so there was no SMNA rating equivalent to the current UL Class 125 rating.

Insulated Record Container. A vertical or lateral style of insulated filing cabinet with one of the three UL fire resistance ratings shown below. Units with these ratings are exposed to fires reaching the temperatures shown in table 1 and have passed the UL impact and explosion tests. (Until 1972 such units received the more familiar UL "Class C" label; they also may have borne the SMNA "Class C" or "Class 150" label.) Insulated Record Containers have two, three, or four drawers and may have a key or combination lock (see figures 3 and 4). The possible ratings are:

- Insulated Record Container, UL Class 350 - 4, 3, 2, or 1 Hour (SMNA C)
- Insulated Record Container, UL Class 150 - 4, 3, 2, or 1 Hour (SMNA 150)
- Insulated Record Container, UL Class 125 - 4, 3, 2, or 1 Hour

Insulated Filing Device. A vertical or lateral style of insulated filing cabinet with one of three UL fire resistance ratings shown below. Units with these ratings are exposed to fire reaching the temperatures shown in Table 1 and have passed the UL explosion test; these units are not rated to pass the UL impact test. (Until 1972 such units received the more familiar UL "Class D" or "Class E" label; they also may have borne the SMNA "Class D," "Class E," or "Class 150" label.) Insulated Filing Devices have two, three, or four drawers and may or may not have a key or combination lock (see figures 3 and 4). The possible ratings are:

Fig. 3. Vertical style of Class 350 insulated filing cabinet for paper records; can be either an Insulated Record Container or an Insulated Filing Device, depending upon whether or not it is drop tested. Source: Schwab Corp.

- Insulated Filing Device, UL Class 350 - 1 or 1/2 Hour (SMNA D or E)
- Insulated Filing Device, UL Class 150 - 1 or 1/2 Hour (SMNA 150)
- Insulated Filing Device, UL Class 125 - 1 or 1/2 Hour

Insulated File Drawer. A vertical style of insulated filing cabinet having only a single drawer and one of three UL fire resistance ratings:

- Insulated File Drawer, UL Class 350 - 1 Hour (SMNA D)
- Insulated File Drawer, UL Class 150 - 1 Hour
- Insulated File Drawer, UL Class 125 - 1 Hour

Fire Resistive Safe. An insulated square or rectangular door safe with one of the three UL fire resistance ratings shown below. Safes with the 1 hour rating may or may not be rated also to withstand an impact test, i.e., they can bear the obsolete, but more familiar, UL or SMNA "C" or "D" labels. Safes rated to withstand longer burn times generally are rated to also withstand an impact test, i.e., they can be equivalent to units carrying the old UL or SMNA "B" or "A" labels. Fire resistive safes have single or double doors and also may have inner doors; most such units can be fitted with a wide variety of interior drawers, racks, shelves, and similar equipment to facilitate storage of and access to the contents (see figures 5 and 6). When a safe is rated UL Class 150 or UL Class 125 and is intended to hold only computer media, it may be referred to as a media safe (see figures 10 and 11). The possible ratings are:

Fig. 4. Lateral style of Class 350 insulated filing cabinet for paper records; can be either an Insulated Record Container or an Insulated Filing Device, depending upon whether or not it is drop tested. Source: Fireking International, Inc.

- Fire Resistive Safe, UL Class 350 - 4, 3, 2, or 1 Hour (SMNA A, B, C, D)
- Fire Resistive Safe, UL Class 150 - 4, 3, 2, or 1 Hour
- Fire Resistive Safe, UL Class 125 - 4, 3, 2, or 1 Hour

Media Box. A portable, insulated box that is intended to hold computer diskettes or tapes and that must be kept inside a properly rated Insulated Record Container, Insulated Filing Device, or Fire Resistive Safe when not in use in order to afford maximum protection. Media Boxes do not, by themselves, afford a significant level of fire protection. However, when placed inside a container that is UL rated for protection of paper records, they may be rated as Class 125 or Class 150 (see figure 8). Some Media Boxes are intended to fit snugly and permanently inside a drawer of an insulated filing cabinet to create a Mixed Media Container (see figure 9). Other Media Boxes are portable, intended to be used to transport as well as to store computer media; these boxes usually have only a one-half hour rating (see figure 7). Either type may be acceptable when used properly. The internal capacity of a media box is quite small. The filing capacity of a media drawer is considerably less than the normal capacity of the same size drawer used for paper records because of the additional insulation required in order to be rated Class 150 or Class 125.

Mixed Media Container. An Insulated Records Container, Insulated Filing Device, or Fire Resistive Safe may have two ratings when it comprises integrally constructed subcompartments that, when tested as part of the basic record contain-

Fig. 5. Single door fire resistive safe for paper records. Unit shown is rated Class 350, 2-Hour. Source: Meilink.

er, filing device or safe, provide a greater degree of protection than the basic unit. For example, a Fire Resistive Safe may be rated Class 350 and an integrally constructed compartment within the safe may be rated Class 150 or Class 125. Such units may be referred to as "mixed media" containers. The most common Mixed Media Container found in the National Park Service is a four-drawer Insulated Record Container consisting of one to three drawers with Class 350—1 Hour ratings and one to three drawers with Class 125—1 Hour ratings. Such cabinets are useful for protecting both paper records and computer media or photographic files within the same container, particularly when not enough records of either type are on hand to justify the cost of separate units with different classifications and ratings (see figure 9).

Fig. 6. Double door fire resistive safe for paper records. Unit shown is rated Class 350, 1-Hour. Source: Meilink.

Selection of Appropriate Containers

The selection of a container should be based on two factors: (1) what kinds of media are to be protected, i.e., paper records, computer diskettes, or other plastic-based media, and (2) what form of container would offer the most cost-effective, efficient, and readily accessible storage, i.e., a filing cabinet with drawers or a safe with shelves. (Offices with exceptionally large records storage requirements should consider installation of a UL rated vault, rather than purchasing large numbers of insulated filing cabinets or safes. When records are kept in a fire-insulated vault, they typically are kept in multi-drawer, conventional, non-insulated filing cabinets, and may be protected by automatic fire suppression systems as well.) Consider these factors:

- If most of the media to be stored will be in file folders, a filing cabinet usually will provide the most efficient storage and accessibility. If the media to be stored are boxed, in large ring binders or ledgers, bulky, or of odd shapes or varied sizes, then a safe with some configuration of adjustable shelves or racks may be more practical.
- The size of unit required is based on the volume of records to be protected. Consideration also should be given to whether the volume of records might grow in the future. (As noted, a vault may be more cost-effective or efficient in some circumstances than separate insulated filing cabinets.)
- Determine whether the unit needs a combination or a key lock. Virtually all safes come with a combination lock as standard equipment. However, most filing cabinets may be ordered with either type of lock, or with none at all, or with locks on more than one drawer if desired and as discussed below. If protection against surreptitious entry is desired, then only combination locks should be considered.
- Consider the need for optional accessories, such as caster bases or decorative trim. Most fire-resistive safes are equipped with wheels, but most insulated filing cabinets are not. However, caster bases usually are an available, extra-cost option and can make cabinets easier to move. All types of containers generally are available in a number of different colors, usually at no additional cost. Only certain colors may be available on units purchased from GSA's Federal Supply Schedule vendors.
- Determine whether the floor where the container will be placed can support its loaded weight. The manufacturer's product literature should give net or empty weights for all models, and sales persons usually can help calculate gross or loaded weights based on anticipated contents.
- Determine whether the unit will be placed on the lowest floor of a building (i.e., on grade) or above that level. If the unit will be on a floor above grade, even a poured concrete floor, it should be rated as having passed the UL impact test (i.e., former UL Class A, B, or C). Units without one of those ratings could burst open if they were to drop through the floor during a fire.

Fig. 7. Media box or insert. While within any closed Class 350 safe or filing cabinet, the box affords protection equivalent to a UL Class 125 container. Source: Schwab Corp.

The criteria for selecting fire-resistive containers, based on media to be protected, are:

- **Protection of paper records.** A unit with a Class 350 rating is required in order to protect museum collection accession and catalog records, rare archival documents, and other records made of paper. Such units maintain an internal temperature below 350° F for the rated time, in order to keep the paper contents below the charring point of 420° F. They work by releasing steam from the insulation (which physically entrains water) to the inside of the unit in order to reduce the ability of paper to burn. As a consequence, the relative humidity inside a Class 350 unit during a fire can be expected to be at or near 100%, making these units

Fig. 8. Media box shown inside a two-drawer, Class 350 insulated filing cabinet. This style of box can be removed from the drawer and taken to the work station. Source: Schwab Corp.

unsuitable for protection of plastic-based media which are damaged by prolonged high humidity.

- **Protection of plastic media.** A unit with a Class 150 rating is required in order to protect photographic negatives and transparencies, audio and video tapes (reel to reel and cassette), computer disk packs, computer tapes, drawings on Mylar®, and similar media. Such units maintain an internal temperature below 150° F and an internal relative humidity below 85% in order to maintain dimensional stability of the plastic. Such units will, of course, also protect paper records; however, the internal capacity of drawers in Class 150 filing cabinets generally is not sufficient to accommodate file folders. Class 150 safes, on the other hand, usually can accommodate both paper and plastic media easily.
- **Protection of computer diskettes.** A unit with a Class 125 rating is required to protect computer floppy diskettes which are more temperature sensitive than other plastic-based media. Such units maintain an internal temperature below 125° F and an internal relative humidity below 80% in order to maintain dimensional stability of the plastic. Such units also will protect paper records; however, the internal capacity of a Class 125 filing cabinet drawer rarely is sufficient to accommodate anything other than floppy disks. While Class 125 safes can accommodate more than just disks, storing paper records in them is not practical because they generally are too small.
- **Protection of mixed media.** When both paper records and plastic-based records must be protected, select a mixed-media unit, either a safe or a filing cabinet. The rating of the unit will depend upon the media to be protected, though most mixed media units on the market have a "Class 125— 1 Hour" rating for the media compartment and a "Class 350—1 Hour" rating for the compartments intended to hold paper records. Mixed media filing cabinets are conventional Class 350 units with two, three, or four drawers, one or two of which are equipped with "Class 125—1/2 Hour" media boxes. The drawers so equipped are rated "Class 125—1 Hour" because of the additional insulation provided by the media box inside the insulated drawer.

Fig. 9. Filing cabinet style of mixed media container, consisting of a Class 350 upper drawer for paper records and a Class 125 lower drawer for EDP media. Source: Schwab Corp.

Sources of Supply

Most National Park Service needs for insulated filing equipment can be met by vendors on the General Services Administration's (GSA) Federal Supply Schedule (FSC Group 71, Part III, Section E, FSC Class 7110) for "Miscellaneous Furniture: Security Filing Cabinets, Safes, Vault Doors, Map and Plan Files and Accessories, COMSEC Containers and Special Access Control Containers." The most recent Schedule is dated December 16, 1991 and lists awards for the period January 1, 1992 through December 31, 1996. The new Schedule eventually will include multiple awards for each type of product listed.

The April 1991 edition of the Schedule indicated that the new contracts would include additional types of vaults and vault doors, separate combination locks made to new GSA specifications, and design and installation services for vaults and vault doors. However, the Basic Edition of the Schedule released in December 1991 lists none of those products and services. It is hoped that future editions will include those valuable products and services.

Users of the new Federal Supply Schedule may be confused by the variety of different types of safes, filing cabinets, and other containers that it lists. The insulated filing cabinets and safes that parks will buy most often are listed under Group V, which generally consists of commercially available items not made expressly to GSA's specifications. Group V includes insulated safes and filing cabinets, burglary-resistant safes, and depository safes for cash.

Groups I and II comprise special containers and vault doors that are designed for the protection of classified materials, weapons, and similar highly valuable items, primarily against surreptitious theft. Several items in these groups possess some degree of resistance to forced attack and a few have some degree of fire resistance; for the most part, however, these containers achieve the intended protection because of the type of locks on them.

Fig. 10. Double door media safe (Insulated Record Container, Class 150—1 Hour). Source: Schwab Corp.

Group III comprises containers designed to protect electronic data processing and communications equipment against eavesdropping. Group IV comprises wall cabinets, key cabinets, and utility lockers, all with combination locks.

Miscellaneous Information

It is important to repeat that the UL ratings for insulated containers and vault doors do **not** apply to any lock-

ing mechanisms that may be included. A container could receive a UL label for being fire resistive even without a lock. A UL fire resistance label certifies **only** that the safe or filing cabinet will protect the contents from fire damage, not burglary. UL has separate standards for combination and key locks for both insulated and non-insulated containers (refer to UL 768) and a separate rating and labeling system for burglary-resistant safes and vault doors (refer to UL 687).

Most manufacturers of insulated filing cabinets can provide more than one key or combination lock if individual control of the drawers is desired. One lock can control one, two, three, or all four drawers. Similarly, it is possible to have two locks on the same drawer if it is desirable that two persons be required for access. Most manufacturers allow both key and combination locks to be mixed on the same cabinet; for example, the top drawer could have a combination lock controlling all the drawers and each drawer could be controlled with a key lock after the primary lock has been opened. There is always an additional cost when more than one lock is desired on a cabinet. Locks sometimes can be added after a unit is in service, though at a much higher cost than if ordered factory installed. Similar locking arrangements can be made for compartments inside records and security safes.

It also is important to note that conventional, commercially available insulated filing cabinets and safes have **no UL burglary resistance ratings.** Insulated containers are essentially double or single walled sheet metal boxes lined with friable mineral and/or expanded foam insulation. They are designed to protect only against fire damage to contents. As such, they can be penetrated quickly and easily by a variety of small powered and non-powered hand tools. At one time, GSA did have on Federal Supply Schedule a four-drawer insulated filing cabinet with a 5 man-minute rating against forced entry. These special cabinets were made by Mosler®. They were essentially a standard, legal-size Class C insulated filing cabinet with outside cladding of approximately 1/8" thick steel. They also had slightly more sophisticated combination locks and locking mechanisms. These cabinets are no longer made, though many are still protecting museum records in NPS areas. The only commercially available containers having both a one-hour (or longer) UL fire-resistance rating and a UL burglary-resistance rating are a series of single-door safes made by two companies, one in Great Britain and one in Japan. They are available in the United States, but are quite expensive. No domestic or foreign company currently makes a filing cabinet combining both ratings.

GSA has specifications for six classes of safes intended for protection against either forcible or surreptitious entry. These safes are not intended for protection of valuables, but are intended to hold government classified information. Two of the six classes of safes also have fire resistance ratings. Class 1 safes afford protection for 30 man-minutes against surreptitious entry, 10 man-minutes against forced entry, 1 hour protection against fire damage to contents, 20 man-hours against manipulation of the lock, and 20 man-hours against radiological attack. Class 2 safes afford 20 man-minutes against surreptitious entry, 1 hour protection against fire damage to contents, 5 man-minutes against forced entry, 20 man-hours against manipulation of the lock, and 20 man-hours against radiological attack.

Potential Problems with Insulation in Fire-Resistant Filing Cabinets

The WASO Curatorial Services Division (CSD) occasionally receives complaints from field personnel about filing cabinet insulation creating dust on cabinet contents or causing excessive levels of relative humidity inside a cabinet, leading to formation of mildew on contents. The following information is what CSD staff have been able to learn about these and some related issues. This information has been provided to NPS Regional Curators for distribution to field curatorial staffs, but may be of equal interest to persons responsible for protecting other types of records in parks. This information also may be applicable to insulated safes, although similar problems with insulated safes have not been reported to CSD.

Fig. 11. Single door media safe (Insulated Record Container, Class 125—1 Hour). Source: Chubb.

Most insulated filing cabinets—and presumably most insulated safes—retain their ability to insulate against fire indefinitely, so long as the insulation is intact and the container is not damaged and retains its physical integrity. All the manufacturers currently or recently on Federal Supply Schedule claim that their containers will retain the UL rating until they are exposed to fire; once exposed to fire, however, the rating is lost and the container no longer affords any significant degree of protection and should be replaced. The Underwriters Laboratories tests of insulated containers (UL 72) does not address the issue of life expectancy. UL investigated life expectancy some sixty or seventy years ago, at a time when ordinary Portland cement concrete and vermiculite was a common insulation, and was unable to reach any conclusion regarding unit longevity. UL has indicated that all the major domestic manufactures except FireKing® use some form of concrete and that FireKing uses a gypsum mixture. Since containers using both types of insulation must pass the same fire resistance tests to be UL rated, users should consider them to be fundamentally equivalent.

Some years ago, at least one manufacturer, and possibly more, used ordinary Portland cement as insulation. Cabinets thus insulated lost their ratings after about eight years due to evaporation of water from the insulation. However, because those cabinets bore labels warning of the problem and the manufacturers have not used that form of insulation for a number of years, it is unlikely that any of those cabinets still are in service. Offices having cabinets with an eight-year label should replace them as soon as possible.

UL indicated to CSD that whether or not the insulation of a container causes elevated relative humidity inside the container depends on the manufacturer, the nature of that company's insulation, quality control on each batch

of insulation, and the relative humidity conditions prevailing when the insulation was mixed and poured. Theoretically, excessive humidity can be a problem in any manufacturer's insulated filing cabinet or safe. The liner inside some brands of cabinets is purely cosmetic—there so the insulation is not visible—and is not intended to prevent excessive humidity. The presence or absence of a liner does not necessarily affect the cabinet's performance during a fire and may not affect its UL rating. In any cabinet without a liner, exposed insulation can powder with time, but that phenomenon is not considered detrimental to the cabinet's performance or UL rating. Only cracking, spalling, or loosening of insulation are likely to reduce the cabinet's ability to protect the contents. UL is unaware of any manufacturer of unlined cabinets that offers users a way to encapsulate or coat insulation to eliminate dusting. Moreover, the only solution to a problem of excessive internal humidity is to allow the cabinet to dry out for several months before placing it back into service.

The April 1989 issue of *Marketips*, newsletter of the GSA's Federal Supply Service, contained an article which is quoted below (in italics).

Asbestos in Insulated Filing Cabinets

A report received from the Department of Defense concerning testing which was recently conducted on insulated filing cabinets, indicates that insulated filing cabinets manufactured by the Remington-Rand Company during the 1940s and 1950s contained and are releasing asbestos. Many of these cabinets are still in service.

The testing was initiated following reports of a powdery residue in some files. The powder resulted from a breakdown of the cabinet insulating material over the years. A number of different cabinet brands, approximately 78 samples, were tested. Although other brands have also been found to have powdery residues, only the Remington-Rand [cabinets] were found to contain asbestos. Other materials used in insulation for filing cabinets include diatomaceous earth, gypsum, and vermiculite.

General Services Administration recommends that insulated cabinets manufactured by the Remington-Rand Company be removed from service and disposed of in accordance with provisions of Subchapter H of the Federal Property Management Regulations (FPMR) relating to the utilization and disposal of property. The containers should not be released for sale to the general public or transferred to other agencies.

Offices having insulated filing cabinets or insulated safes that were manufactured by Remington-Rand prior to 1960 should determine whether their continued use might pose health and safety problems. The following guidance is provided for consideration:

- If the insulation is not powdery or if the insulation is not visible inside the container (i.e., is covered by a liner), there probably is no **current** danger of asbestos release or contamination and the container can remain in use if it otherwise is still serviceable and functional.
- If the insulation is powdery, a sample of it should be tested to determine whether asbestos is present. If asbestos is present, then proper disposal of the cabinet is strongly advised. If asbestos is not present, there should be no reason to dispose of the cabinet if it otherwise is in good condition.
- Powdering of insulation is not unusual in older cabinets and its presence does not necessarily indicate loss of fire protection ability. However, when powdering is excessive or damaging to materials filed in the cabinet, the problem deserves attention. The cabinet's manufacturer should be asked to provide instructions for sealing the insulation against further powdering or for taking other corrective action. Our understanding, based on conversations with staff at Underwriters Laboratories, is that sealing the insulation with spray lacquer or something similar may be effective and should not affect the fire rating of the cabinet. When powdering is excessive and sealing either is not possible or proves ineffective, replacing the cabinet may be the only solution.
- Occasionally, insulation may crack, spall, or powder to the point that it becomes measurably thinner. In such circumstances, the container may not fully afford the rated fire protection to the contents, and replacement of the unit may be in order. Such deterioration is rare and usually encountered only in old cabinets or ones severely damaged in transit. If it is encountered in a new cabinet, the manufacturer should be notified so corrective action can be taken under the warranty.

Park personnel responsible for protecting museum records are requested to inform the WASO Curatorial Services Division of any filing cabinets or safes that are found to contain asbestos, regardless of the brand or age. We also would like to hear about any insulated filing cabinets or safes, regardless of brand or age, that are presenting any form of trouble, such as loose, friable, cracked, or powdery insulation, poor fit and finish, or internal relative humidity high enough to cause mildew on paper. For each problem unit, we wish to know the brand and model number, type of unit (i.e., 4-drawer cabinet, media file, etc.), vendor, and date of acquisition. We will share any information we receive with the Regional Curators and try to determine the extent of the problem with any given brand, model, or type of unit. If any currently marketed brands or models are found to be trouble-prone, we will report the problem to GSA and consider deleting them from our list of recommended units.

Information about cabinets should be sent to either Supervisory Staff Curator John E. Hunter or Museum Specialist Donald R. Cumberland at:

Curatorial Services Division
National Park Service
Building 45, Shenandoah Street
Harpers Ferry, West Virginia 25425
FTS or commercial telephone: 304-535-6127/6072

John E. Hunter is supervisory staff curator, Curatorial Services Division, Harpers Ferry Office.