Canadian Conservation Institute
Institut canadien de conservation

CCI Notes 1/3

Closing a Museum for the Winter

Introduction

It is important to prepare museum buildings and collections for winter closing in a well planned and organized manner.

Security

Some insurance policies become ineffective if the building insured is not occupied or regularly inspected. It is therefore important to inform the insurance company of the closing date and to confirm that the coverage is adequate.

Inform the fire department of the museum closing and activate the alarm system.

Request that local police check the building daily. If the museum has a burglar alarm system, connect it.

To discourage prowlers, use a photocell or a timer to illuminate selected lights. Inexpensive movement detectors can be purchased and connected to the burglar alarm.

Cover windows with well constructed panels fastened from the inside. Haphazard boarding up, and poorly maintained buildings appear deserted and attract vandals.

If large windows are not shuttered or boarded, masking tape may be applied to the panes to discourage birds from flying into them.

Exterior Maintenance

Ensure that eavestroughs and downspouts are securely attached and cleared of debris, which can cause ice dams, forcing water up under the roof shingles. A plumber's snake is handy for cleaning downspouts. Better still, mesh guard laid over eavestroughs will eliminate this annual cleaning task. Ideally, gutters and downspouts should be run in a straight line to prevent accumulation of debris and pockets of water. At the ground level, downspouts should carry water away from the foundation.

Ensure that lightning rods are properly grounded.

Clear roof and wall vents.

Check the roof for loose, cracked, bulging, curled, worn or missing shingles and have them replaced. This check can be done from the ground with the aid of binoculars.

Check the roof flashing for leaks.

Inspect trees near the building. Remove branches not strong enough to carry a load of snow without breaking and damaging the building.

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Check the outside of the building, securing anything that could blow around in high winds.

Pest Control

Ensure that all possible access holes, such as vents and windows, are covered with wire mesh. Wire mesh will also prevent rodents from gnawing through wooden sills or climbing through vents. Mothballs placed in strategic locations are reputed to act as a temporary deterrent but are not reliable over the long term.

Bait and place mousetraps, recording their location. A new type of mousetrap, referred to as a **glue board**, uses a sticky adhesive surface to trap the rodent.

Use of rodent poisons in a museum can lead to death of rodents in inaccessible places, causing odor and attracting insects.

Bats can be discouraged by keeping a strong incandescent bulb turned on at all times. Exercise extreme caution when exposed to dust from bat dung, as it is a host for histoplasmosis, a serious health hazard.

To discourage rodents, remove anything that might attract them. Foodstuffs are likely to be removed before a closing, but remember that materials such as soap, candles, and sponge also attract rodents.

Fill cracks in the foundation with cement and use metal collars to cover seams where waterpipes run through floors and outside walls.

Trim branches that are close to the building in order to prevent squirrels from jumping onto the building and finding their way in through the eaves.

To discourage birds from nesting in unused chimneys, cover all stovepipes with tight metal caps: a two-pound coffee tin works well for stovepipes.

Inspect collections thoroughly for signs of insect infestation. Re-inspect them when the museum opens again. Use of mothballs, moth flakes and moth crystals (naphthalene, paradichlorobenzene) or insect strips (dichlorvos) cannot be generally recommended for protection of museum artifacts.

Fuller information on pest control can be obtained from CCI.

Interior Maintenance

In areas where temperature falls below 0°C certain precaution must be taken.

Plumbing

When water and heat are turned off:

Drain all pipes and toilets. S-traps and toilet bowls can be filled with alcohol, antifreeze, or kerosene to prevent freezing. If alcohol is used, seal basin drains with plugs to prevent evaporation.

If the water supply is pumped in, shut off the switch to the pump, drain water from all the faucets and from the pump itself. To accomplish the latter, a plug can usually be removed from the bottom of the pump, with a wrench.

Turn off the hot water heater and drain the hot water tank.

When water remains on:

To prevent freezing, run plug-in heat-wraps along pipes and pour antifreeze into toilet tanks.

Occasional Heating

Some seasonal museums open in winter for special occasions. For the safety of the collections and the building, it is recommended that sudden and drastic changes in heat be avoided, as this causes the relative humidity (RH) to fluctuate rapidly and drastically. If a building must be heated up, it should be done gradually over two or three days. A comparable cool-down period is also recommended.

Woodstoves, which may add warmth and charm to special occasions, can be a serious fire hazard. The local fire marshal can be asked to inspect them for problems with installation or safety. Well-seasoned firewood and maintenance of a regular cleaning schedule for stovepipes and flues will minimize build-up of creosote.

Existing Deficiencies

In some historic buildings stained wallpaper, cracked plaster, and other signs of ageing are left untouched to lend to a building's historic integrity.

In such cases, carefully document existing damage so that staff can detect additional deterioration. A sketched elevation is useful for this purpose.

Basements

Long periods of very cold weather, in conjunction with structural problems, can damage foundations. This can result in separation of the building from the foundation, and caving in of parts of the foundation.

Basements of unheated buildings can be economically kept at a temperature above freezing with the use of electric baseboard heaters. If the basement is unheated and shows signs of excessive moisture, a portable dehumidifier can be used. If the unit is advertised as the non-freezing type, it should be noted that ambient temperatures in excess of 18°C are necessary for efficient operation.

Moisture problems can occur in heated basements as well. Two common structural flaws that can cause such problems as:

(1) inadequate drainage caused by leaking drain pipes or a badly graded foundation; and

(2) improperly insulated walls and an imperfect vapour barrier, causing condensation of water on the surface of the masonry behind the insulation and formation of an ice lens.

If the building has a sump pump, check to ensure that it is in good working order.

Collections

Relative Humidity Control

Leaving a museum building unheated will not threaten the stability of collections. In fact, it will eliminate a major source of dirt, as most heating systems also generate incomplete combustion products and circulate dust. Damage, by sub-zero temperatures, to materials in collections is rare, with the possible exception of oil or acrylic paintings, which have been known to crack at low temperatures. What must be avoided is a sudden drop in temperature, which can produce high RH and condensation.

New buildings that are well sealed, with humidistatic control, should maintain a constant RH at energy-saving low temperatures.

Materials that require a more constant RH can be kept in a micro-environment, using silica gel as described in CCI Technical Bulletin 10, *Silica Gel*.

One of the first places where condensation occurs is the inside face of exterior walls. It is therefore advisable to remove all objects hanging on, and all furniture and objects positioned against or near, exterior walls. Observe correct handling methods when doing so.

Enclosed spaces such as cupboards and wardrobes have a natural buffering capacity, which helps reduce sudden changes in RH. On the other hand, moist air can condense when trapped in such environments.

When they are sitting on cold floors, wardrobes, bureaus and trunks can also trap moisture, due to rising damp. For this reason, it is advisable to raise them on blocks.

The most popular coverings for furniture are polyethylene or cotton. Cotton can be used inside polyethylene to provide a buffer against condensation.

Light

It is preferable to keep objects in the dark to prevent damage caused by visible and ultraviolet light. If windows cannot be shuttered or boarded up, shades or drapes can be closed, if there are any. However, if these window coverings are original accessioned items, they should be removed so that they will not be damaged by the sun, and replaced by drapes that are not part of the collection.

Floods

If the museum is in an area where there is danger of flooding, raise furniture off the floor on blocks. Roll up and store rugs as described in CCI Note no. 13/3, *Rolled Storage for Textiles*.

Snow Removal

The problem of snow and ice can be simplified by their immediate clearance; prevent build-up.

Snow-blowers and blade-type removal equipment will chip and scrape historic materials such as cobblestone, brick, and stone pavement.

The practice of using salt can initiate corrosive action on brick, concrete, and metal. A mixture of crushed limestone and urea powder, which helps to keep walkways clear but does not cause efflorescence, is available commercially.

Lock-up

When locking up the building, ensure that switches in the panel box for operating electrical equipment (heat- wraps, photo-cell timers, etc.) are left in the "on" position.

Organizing It All

Once a policy on closing procedures for the museum has been established, duties in preparation for closing should be assigned to staff, and contingency plans drawn up to deal with emergencies.

In addition, a schedule of inspection and maintenance visits should be drawn up and strictly adhered to throughout the duration of the closure (Figure 1).

Suppliers

Anti-skid urea and calcium carbonate sand:
hardware stores

Non-freezing dehumidifer:
hardware and department stores.

Water alert alarm:
hardware stores

Heat-wrap:
Canadian Tire stores

Photo-cell on timer:
major electrical suppliers; AMF Paragon has a complete line.

Movement detectors:
Security system companies in conjunction with local police can recommend which type to use. Infra-red, micro-wave, ultra-sonic, or photo-electric types are all possibilities, but the type selected must be site-specific.

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Figure 1

Inspection Calendar (Sample)

	October	November	December	January	February	March	April
Exterior:							
Windows, doors							
Snow/Ice build-up on roof							
Interior:							
Sump pump							
Recording hygrothermograph							
Toilet Bowl							
Pipes							
Silica Gel							
Mousetraps							
Inspected by (initial)							

Emergency Phone

Fire _____ Police _____

Sewer _____ Insurance Company _____

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Copies are also available in French

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