



The
**Historical
Museum**
at Fort Missoula

KEEPING MISSOULA COUNTY'S HISTORY ALIVE



Museum Emergency Plan

HISTORICAL MUSEUM AT FORT MISSOULA MUSEUM EMERGENCY PLAN

Approved by the Board of Trustees - March 18, 1993

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Revised August 12, 2009

By

Jason R. Bain, Curator of Collections

Approved on August 17, 2009

Missoula County Board of Trustees for Museums

QuickTime™ and a
decompressor
are needed to see this picture.

By Gary Glynn

Chairman

Approved on August 17, 2009

Historical Museum at Fort Missoula

By Robert M. Brown, Ph.D.

Executive Director

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MUSEUM EMERGENCY PLAN

Introduction

The following emergency plan is directed to those emergencies which do not require the response by an outside emergency agency. As a department of Missoula County, the Missoula County Disaster Plan supersedes this plan in the case of any conflict. In the case of any emergency, the first call is to be made to 9-1-1, followed by notification to the Executive Director or next ranking staff member of the Historical Museum, and finally the Missoula County Chief Administrative Officer and the Missoula County Risk Manager are to be notified and their direction followed.

I. Coordination With An Emergency Response Agency

There is a clear distinction between the policies and procedures which are internal and those exercised by a response agency, such as fire or law enforcement. In the event of such an emergency, the most senior Museum employee on site will act as the Facility Coordinator, for the purpose of coordinating with the response agency's Incident Commander. In all instances, the Missoula County Chief Administrative Officer and Risk Manager will be contacted immediately and their decisions and direction will govern Museum response in accordance with Missoula County policy. Senior Museum staff on site will act as Facility Coordinator.

II. Policies Of The Board

It shall be the duty of the Board of Trustees to audit the building, grounds, and the plan at unannounced, irregular intervals.

The Board of Trustees expects to be notified as soon as possible when an emergency occurs, but it does realize that, by the very nature of an emergency, decisions will have to be made immediately. Therefore, the Board authorizes the staff to commit \$1,000 toward emergency response without prior authorization. Any further expenses must be approved by two of the Trustees.

In the event of an emergency, the Museum staff will immediately notify the Chair of the Board of Trustees, the President of the Friends of the Historical Museum, and at least one other trustee. In the event that these individuals cannot be contacted, Museum staff will notify at least two trustees and members of the Friends Executive Committee, while continuing to attempt to contact the others.

The Board expects that Museum staff will contact the Missoula County Risk Manager as soon as possible after an emergency to implement procedures required for insurance purposes.

All Museum staff, employees and volunteers are expected to act in a professional manner, and will defer to the decisions of the Trustees, as expressed by their representatives.

III. Procedures for Staff and Volunteers

A. Emergency Call List

In the case of any emergency, the first call is to be made to 9-1-1, followed by notification to the Executive Director or next ranking staff member of the Historical Museum, and finally the Missoula County Chief Administrative Officer and the Missoula County Risk Manager are to be notified and their direction followed.

A list of Museum staff members shall be maintained at the Reception Desk, in the files of each staff member, with the Museum's security company (Montana Security), and with the local Fire and Police Departments. It is the responsibility of every staff member to provide other staff members with a telephone number, or two, where he/she may reasonably be expected to be reached. This list will be maintained in an appropriate order of priority. The first staff member contacted and arriving at the scene of the emergency will serve as the Facility Coordinator, pending the arrival of the Executive Director.

B. Emergency Response

Emergencies can be categorized according to how they are discovered and when they occur. Each category of emergency should be handled differently, to wit:

- 1.) In the event of an emergency discovered on a Saturday or a Sunday, the Museum staff member on duty shall automatically be designated as the Facility Coordinator, pending the arrival of the Executive Director, and shall be tasked with contacting the remaining staff members to come to his/her assistance as necessary;
- 2.) In the event of an emergency occurring during normal business hours during the regular work week, if the Executive Director is in the building he/she immediately becomes the Facility Coordinator. In the absence of the Executive Director, the order of authority shall be derived from the emergency list, pending the arrival of the Executive Director. If the emergency is localized, it is up to the Facility Coordinator to delegate responsibility to the appropriate individual;
- 3.) In the event of an emergency occurring during off-hours, the Museum's security company (Montana Security) shall notify specific personnel in a predetermined order: (i.e. Fire Department in the case of fire, Police Department in the case of disturbance, Executive Director, Director of Education, Curator of Collections, Development

Director, Collections Assistant, Museum Aide, etc.). In this case, the first staff member contacted shall become the Facility Coordinator, pending the arrival of the Executive Director;

- 4.) In 1999, a panic alarm was installed at the front reception desk (Main Museum, Building 322, and all Museum staff and volunteers trained in its use. FIRST priority is ALWAYS to be given to the safety and security of individuals.

C. Emergency Contacts

The Facility Coordinator shall contact the appropriate response agencies, to wit:

Accident: Local emergency response unit;

Bomb Threat: Local Police Department, with responsibility to follow all further Instructions;

Criminal Activity: Local Police Department, with responsibility to coordinate with the on-scene Incident Commander;

False Alarm: Montana Security;

Fire: Local Fire and Police Departments, with responsibility to coordinate with the on-scene Incident Commander;

Heat or Air Conditioner Failure: Local HV/AC company (i.e. Garden City);

Power Failure: Northwestern Energy;

Structural Damage: Local Fire Department if emergency an immediate threat, followed by the City Engineer.

Water Damage: Local plumber (i.e. Garden City or Thomas Heating & Plumbing);

NOTE: In the event of a medical or fire emergency, Museum personnel shall be directed to call 9-1-1 immediately, then contact the appropriate staff member and board members, as necessary.

D. Recovery

If the recovery nature of the emergency requires additional labor, the Facility Coordinator shall form a Recovery Team, made up of additional Museum staff members and volunteers. It is very important to contact the Museum's regular volunteers immediately, and the media should be contacted if additional volunteers are needed. An up-to-date phone list must be maintained off-site by Museum staff in case it is impossible to enter the Main Museum, Building 322.

E. Power Failure

The most serious safety threat to the Museum is a power failure, with or without fire, in the public areas which do not have natural light. Therefore:

- 1.) Monthly tests of the power failure lights and all electric wiring rigged for displays shall be required;
- 2.) In the event of a power failure, Museum staff members, using flashlights, will enter the galleries to assist and direct visitors and members of the general public to the nearest exits.

F. Training

All Museum employees and volunteers are expected to be familiar with all the policies and procedures put forth in this Emergency Plan, and an annual training/review/emergency session will be conducted and documented annually in March. All new employees will be given training and orientation in the implementation of all safety and recovery plans. An annual simulated emergency training exercise shall also be conducted and documented annually in March.

G. Fire Extinguishers

All fire extinguishers shall be checked and serviced (as necessary) on an annual basis by a professional contractor, and all fire extinguishers will be visually checked the first week of every month by a designated staff person (i.e. Executive Director), who shall be tasked with the responsibility to initial and date the inspection card.

H. Storage

No combustible boxes or material shall be permitted to be stored within at least 24 inches of the ceiling, and not less than 18 inches below sprinkler head deflectors.

I. Electrical Equipment

Live electrical components operating at 50 volts or more must be adequately guarded against accidental contact by an approved enclosure, or by another suitable method.

IV. Building Evacuation Procedure- Main Museum, Building 322

As the primary administrative, exhibition, collections storage/processing, and interpretive center for the Museum, the following procedure shall be rigorously followed when evacuating the Main Museum, Building 322:

- 1.) All personnel shall evacuate the building via the two main stairways, and exit through the three regular doorways on the main floor. Exit route maps are posted in each gallery;
- 2.) If the exit doors or stairways are blocked, personnel on the top floor can exit through the emergency window/door in the office, (located on the south side, west). Personnel in the basement may use either set of cellar doors;
- 3.) Museum staff members will ensure that all visitors and other personnel evacuate the building, as follows:

*The Executive Director shall check the upstairs, North Gallery and proceed down the north stairway to the basement. He/she will check the basement collection storage and carpentry/shop areas, and should return to the foyer via the south

stairway. After meeting with the rest of the Museum staff to confirm that the building has been evacuated, he/she shall clear the foyer and exit via the main entrance, if possible;

*The Curator of Collections shall check the 2nd. floor work/office areas, double check the upstairs, North Gallery, and proceed down the north stairway to the main floor. He/she will check the Main Gallery and the sales shop. After meeting with the rest of Museum staff in the foyer, he/she will exit via the main entrance, if possible;

*The Director of Education (or Development Director, Collections Assistant, and/or Museum Aide (in the absence of the Director of Education)) shall call 9-1-1, close the windows and doors in the 2nd. floor work/office areas, clear these spaces of other persons, and confirm that the 2nd. floor fire door is closed. He/she shall then proceed down the south stairway to the main floor. He/she will check the south, Heath Gallery and the rest rooms. If time permits, he/she will lock the cash register at the reception desk and remove the key. After meeting with the rest of Museum staff in the foyer, he/she will exit via the main entrance, if possible.

- 4.) Particular attention will be given to providing guidance and assistance, as necessary, to evacuating the public, especially those with disabilities (as defined by the Americans With Disabilities Act), the elderly, and children;
- 5.) In the event that the main entrance cannot be used, all personnel will be directed to evacuate the building via the nearest emergency exit. All personnel shall meet at the designated safe location (i.e. Root Cellar) to ensure that the building is entirely evacuated, and to await the arrival of emergency responders;
- 6.) To assist Museum staff in keeping tabs on who is in the building, a sign-in sheet shall be posted in the reception area for use by all permanent and part-time Museum employees. Contractors also will be required to notify Museum staff both when they arrive for work, as well as when they leave for the day;
- 7.) With the occupancy and commencement of operations in Building T-1, exit route maps shall be posted on all floors.

V. Disaster Plan For Historic Structures

A. Wind Damage

High wind can cause damage to a building by suction due to uplift pulling on the building, and by pressure trying to overturn the building or slide it off the foundation. Structures are generally designed to withstand wind on the exterior but not wind that penetrates the building, therefore prevention of wind penetration is most important. Once the wind penetrates the building, it is subject to twice as much wind force.

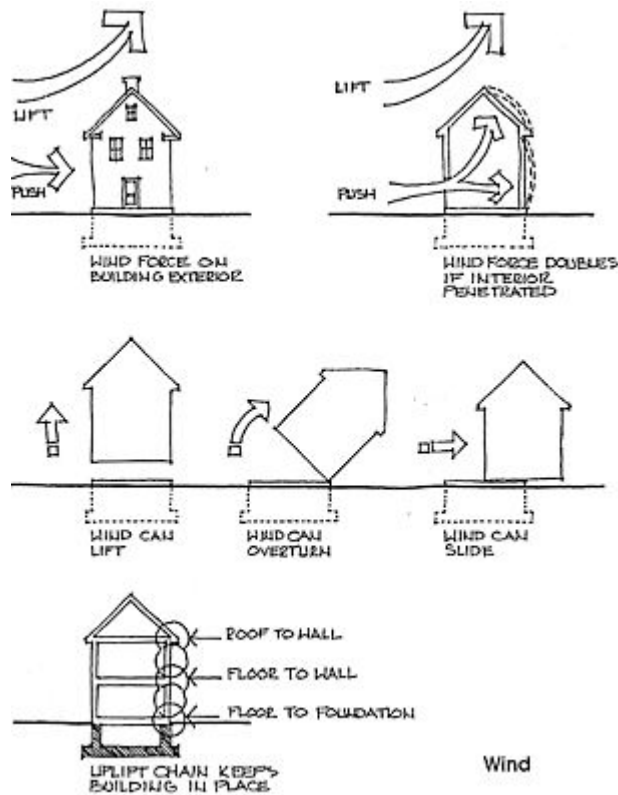


Figure V.A.1

Before:

All historic structures maintained by the Museum shall be thoroughly documented via photograph, and said records shall be maintained in the files of the Curator of Collections. An unbroken uplift chain shall be established from the foundation to the roof of the building. Loss of roof structure is common because of weak connections of the roof structure to the main structure. An unbroken uplift chain anchors the building to the heavy below grade foundation. Particular attention should be paid to auxiliary structures (i.e. porches, cupolas, and towers) as they are exposed to wind over and through them, and are often not as well built as the main structure. Wherever possible, wind penetration to the interior of the structure through failure of window and door openings should be reduced or eliminated by reinforcing these points of ingress without permanently altering the structure in any way. At the discretion of the Curator of Collections, collection material exhibited or stored inside the structure shall either be secured in place and protected from the elements via the application of inert poly-plastic sheeting, or shall be removed to secure temporary storage in Main Museum, Building 322 basement collections storage when threatened with damage. A record of this temporary movement of collection materials shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections.

During:

If there is time, close and secure all doors, windows, and shutters.

If there is time, cover large window areas or openings with plywood covers.

At the direction of the Curator of Collections, remove collections materials in the historic structure to safe, temporary storage in collections processing areas of the Main Museum, Building 322, or to similar facilities in Building T1 where doing so will not unnecessarily endanger either staff personnel or collections themselves. Ensuring the personal safety of staff personnel and visitors is the PARAMOUNT priority.

Vacate the building and proceed to a predetermined safe location (i.e. Root Cellar).

Notification to the appropriate parties shall be made, in accordance with Sections I-III of the Museum Emergency Plan (above).

After:

Water infiltration shall be prevented by covering damaged roofs with temporary tarps or roofing.

In order to keep the rain, snow, and ice out damaged window and door openings shall be covered with temporary enclosures. If resources permit, the building shall be inspected by a structural engineer with historic building experience to determine which elements can be repaired, and which have to be replaced or rebuilt. Temporary structural bracing shall be supplied where recommended by a professional. Features determined to be unstable, chimneys for example, shall be braced or removed. Unstable walls and ceilings should be braced until repairs can be made. In all cases, wherever possible historic building materials shall be salvaged and re-utilized in the restoration process. Any and all damage to the historic structure shall be thoroughly documented, via photograph, throughout the building at the direction of the Curator of Collections. All collections materials stored or exhibited within the historic structure shall be evaluated for damage, at the direction of the Curator of Collections, and those requiring remunerative treatment shall be removed to collections processing areas either on the 2nd. floor of the Main Museum, Building 322, or to similar facilities in the basement level of Building T1. Said collections shall then receive conservation treatment appropriate to the level of resources and experience of Museum staff, and/or loaned to conservation professionals for evaluation and treatment, at the discretion of the Curator of Collections. With conservation/restoration work complete, these items shall be returned to the historic structure in question. Those collections materials deemed to have been damaged beyond usefulness, or which could pose a serious preventative conservation risk to other collections materials even after conservation/preservation treatment, shall be deaccessioned and disposed of at the discretion of the Curator of Collections and in full accordance with the guidelines established in the Museum's Collections Policy & Procedures Manual. A record of these activities shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections. In consultation with an historic architect and/or a structural engineer with historic building experience, the Executive Director and Curator of Collections shall develop a plan for repairs to correct the deficiencies that were discovered during the incident. The ultimate goal of said planning shall be to enable the historic structure to better withstand future wind storms.

B. Flood Damage

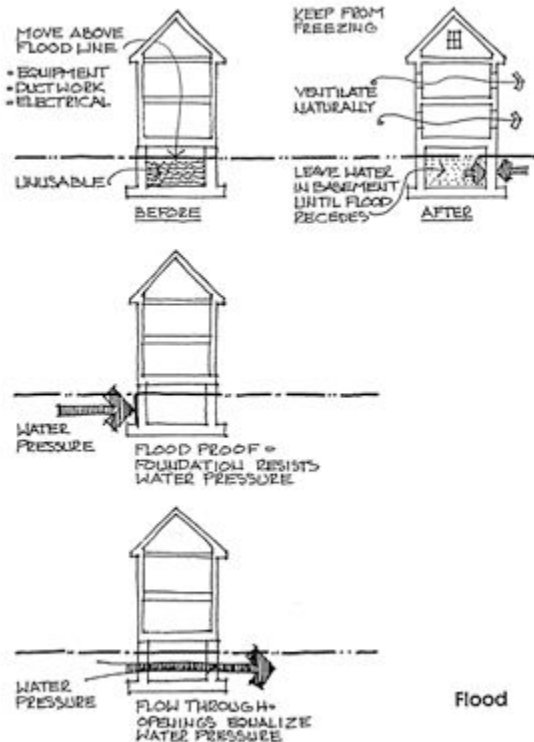


Figure V.B.1

Before:

All historic structures maintained by the Museum shall be thoroughly documented via photograph, and said records shall be maintained in the files of the Curator of Collections. Backflow prevention valves shall be installed in sanitary and storm sewers, where applicable. Heating and electrical equipment, and ductwork shall be evaluated to determine if they reside above flood plain elevations and historical flood levels. Where applicable, a means of draining ductwork and other concealed spaces shall be provided for. Resources permitting, the Museum shall make available self-powered emergency pumps to compensate for loss of power and/or capacity of electric sump pumps. Where applicable, foundation and basement walls shall be evaluated to determine if the design: 1) allows flood waters to flow through, or 2) has been flood-proofed to keep water out. If the water flows through, then the water pressure is equalized on either side of the wall. If the wall is flood-proofed, it must be waterproofed and reinforced to take the force of the flood water from the exterior. Where applicable, and resources permitting, appropriate alterations to said substructures of historic buildings maintained by the Museum shall be implemented. At the discretion of the Curator of Collections, collection material exhibited or stored inside the structure shall either be secured in place, raised to sufficient height to avoid water damage, and protected from the elements via the application of inert poly-plastic sheeting, or shall be removed to secure temporary storage in Main Museum, Building 322 basement

collections storage when threatened with damage. A record of this temporary movement of collection materials shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections.

During:

Turn off all utilities if the historic structure is threatened with flooding.

If possible, sandbag around building or buildings to hold back flood waters.

At the direction of the Curator of Collections, remove collections materials in the historic structure to safe, temporary storage in collections processing areas of the Main Museum, Building 322, or to similar facilities in Building T1 where doing so will not unnecessarily endanger either staff personnel or collections themselves. Ensuring the personal safety of staff personnel and visitors is the PARAMOUNT priority.

Vacate the building if threatened with flooding, and proceed to a predetermined safe location (i.e. Root Cellar).

Notification to the appropriate parties shall be made, in accordance with Sections I-III of the Museum Emergency Plan (above).

After:

Water should NOT be removed from flooded basements and crawl spaces until the ground water has subsided below the foundation level. Removing the water from the interior with high groundwater will cause unequal water pressure on the foundation that could cause failure of the foundation wall. Standing water should be removed from flooded basements and foundations, where applicable, as soon as the groundwater has subsided. Where applicable, the sewer system should be evaluated to determine if it has backed up in the structure during flooding. Such a situation represents a health hazard, and will require thorough cleaning before any repairs to the historic structure are begun. Materials soaked in sewage must either be thoroughly cleaned (if re-used), or discarded entirely. Moisture-damaged building interiors shall be ventilated by natural means and fans. Ventilation through the use of heating and cooling systems (except as noted below), or via methods that use super-dry air to speed drying of the building are NOT recommended and should not be employed. These methods could cause additional damage to sensitive historic building fabric. Moisture-damaged building interiors should be heated to prevent freezing, but great care must be taken not to overheat the building. If resources permit, the building shall be inspected by a structural engineer with historic building experience to determine which elements can be repaired, and which have to be replaced or rebuilt. In all cases, wherever possible historic building materials shall be salvaged and re-utilized in the restoration process. Water-soaked plaster ceilings should be braced until they have dried and the stability of the ceiling has been assured. Water-soaked carpet, other contemporary floor and wall coverings, insulation, and gypsum board shall be removed and discarded entirely, except in cases where said materials represent collections materials that may either be conserved/treated and replaced, or which must be deaccessioned and disposed of in accordance with the guidelines established in the Museum's Collections Policy & Procedures Manual. As a general rule, these materials should not be reused once they have become waterlogged. Historic wall coverings that have been water-soaked probably cannot be reused, and should be removed. Where applicable,

samples of historic wall coverings shall be taken, at the direction of the Curator of Collections, to document the pattern, color, and texture of historic materials for replacement. Historic plaster often can be dried and salvaged with proper ventilation. Where applicable, wall cavities should be opened at the top and bottom, and insulation removed to create airflow through each cavity. Baseboards and/or crown moldings should be carefully removed, and ventilation openings should be cut in the plaster. Historic wood floors should be allowed to dry thoroughly before proceeding with repairs. As wood is a hygroscopic and anisotropic material, moisture in wood causes swelling and warping of the flooring. Ventilation of both surfaces of the wood floor may allow the floor to dry and settle back down. Floor cavities should be opened to create airflow through each. Gentle, conservation-appropriate methods should be employed to remove dirt, mold and mildew, while more abrasive (and ultimately destructive) methods such as power washing or water blasting should be avoided. Any and all damage to the historic structure shall be thoroughly documented, via photograph, throughout the building at the direction of the Curator of Collections. All collections materials stored or exhibited within the historic structure shall be evaluated for damage, at the direction of the Curator of Collections, and those requiring remunerative treatment shall be removed to collections processing areas either on the 2nd. floor of the Main Museum, Building 322, or to similar facilities in the basement level of Building T1. Said collections shall then receive conservation treatment appropriate to the level of resources and experience of Museum staff, and/or loaned to conservation professionals for evaluation and treatment, at the discretion of the Curator of Collections. With conservation/restoration work complete, these items shall be returned to the historic structure in question. Those collections materials deemed to have been damaged beyond usefulness, or which could pose a serious preventative conservation risk to other collections materials even after conservation/preservation treatment, shall be deaccessioned and disposed of at the discretion of the Curator of Collections and in full accordance with the guidelines established in the Museum's Collections Policy & Procedures Manual. A record of these activities shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections. In consultation with an historic architect and/or a structural engineer with historic building experience, the Executive Director and Curator of Collections shall develop a plan for repairs to correct the deficiencies that were discovered during the incident. The ultimate goal of said planning shall be to enable the historic structure to better withstand future flood-related incidents.

C. Fire Damage

Fire of any origin can result in damage in a range from minor to complete destruction of a historic structure. Documentation of the building and its contents via photograph is very important because fire often results in considerable loss of property. The Curator of Collections shall, therefore, be charged with this task. In order to help prevent the possibility of accidental fire, and in consideration of the conservation needs of collections materials either exhibited or stored in historic structures, smoking is prohibited in or near any Museum structure. Of particular importance to those historic structures under the care and control of the Museum, due to its geographic location, is the risk of damage due to wildland fire. Wildfire risk can be mitigated or reduced by ensuring that grass, brush, and leaves are trimmed or removed around all

historic structures on a regular schedule, and especially when there is a risk of wildfire or forest fire.

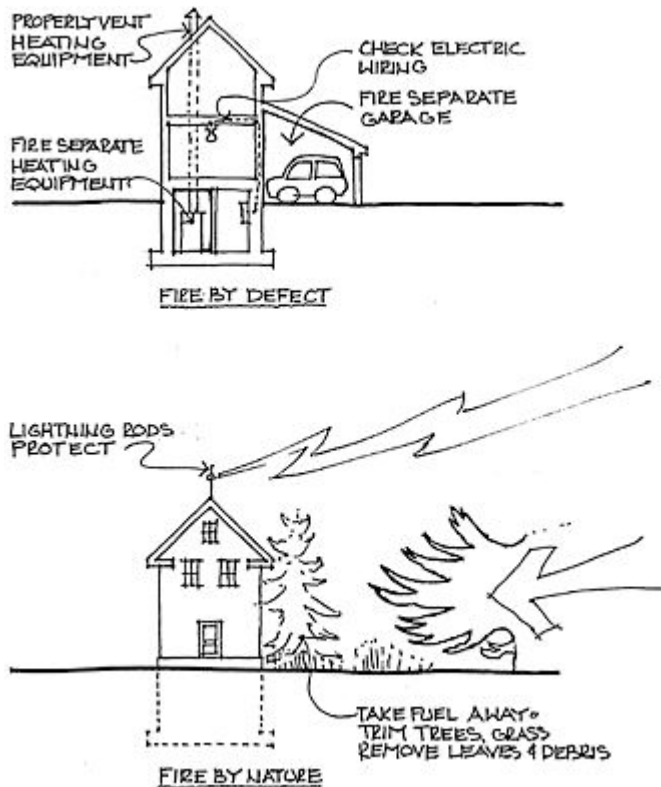


Figure V.C.1

Before:

All historic structures maintained by the Museum shall be thoroughly documented via photograph, and said records shall be maintained in the files of the Curator of Collections. Fire evacuation plans with designated routes and safe meeting areas (i.e. Root Cellar) shall be developed for each historic structure, where appropriate. Due to the relatively small square footage for most of the Museum's historic structures, such evacuation plans are self-explanatory and will not need to be formally promulgated. Resources permitting, lightning protection systems should be installed on historic structures to mitigate the potential of catastrophic fire due to lightning strike, and wiring and electric panels shall be inspected to ensure both that they meet current codes, as well as that no deteriorated wires or devices remain that could cause a fire. Fossil fuel heating devices should be inspected to ensure that they are properly vented, and that flues are adequately separated from combustible construction. At the discretion of the Curator of Collections, collection material exhibited or stored inside the structure shall be fire-proofed (to the extent possible), or shall be removed to secure temporary storage in Main Museum, Building 322 basement collections storage when threatened with damage. A record of this temporary movement of collection materials shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections.

During:

In case of wildfire, if there is time, trim away grass, brush, and remove leaves and other combustible material from around the historic structure.

At the direction of the Curator of Collections, remove collections materials in the historic structure to safe, temporary storage in collections processing areas of the Main Museum, Building 322, or to similar facilities in Building T1 where doing so will not unnecessarily endanger either staff personnel or collections themselves. Ensuring the personal safety of staff personnel and visitors is the PARAMOUNT priority.

Vacate the building and proceed to a designated safe area (i.e. Root Cellar).

Call 911 to get the fire department on the way. Notification to the appropriate parties shall be made, in accordance with Sections I-III of the Museum Emergency Plan (above).

After:

Water infiltration should be prevented by covering damaged roofs with temporary tarps or roofing. Damaged window and door openings should be covered with temporary enclosures, in order to keep the rain, snow, and ice out. If resources permit, the building shall be inspected by a structural engineer with historic building experience to determine which elements can be repaired, and which have to be replaced or rebuilt. In all cases, wherever possible historic building materials shall be salvaged and re-utilized in the restoration process. Building elements such as walls, ceilings, and chimneys that have been determined to be unstable should be braced or removed. Wherever practicable, building repairs/restorations should be designed to meet current building code requirements. Any and all damage to the historic structure shall be thoroughly documented, via photograph, throughout the building at the direction of the Curator of Collections. All collections materials stored or exhibited within the historic structure shall be evaluated for damage, at the direction of the Curator of Collections, and those requiring remunerative treatment shall be removed to collections processing areas either on the 2nd. floor of the Main Museum, Building 322, or to similar facilities in the basement level of Building T1. Said collections shall then receive conservation treatment appropriate to the level of resources and experience of Museum staff, and/or loaned to conservation professionals for evaluation and treatment, at the discretion of the Curator of Collections. With conservation/restoration work complete, these items shall be returned to the historic structure in question. Those collections materials deemed to have been damaged beyond usefulness, or which could pose a serious preventative conservation risk to other collections materials even after conservation/preservation treatment, shall be deaccessioned and disposed of at the discretion of the Curator of Collections and in full accordance with the guidelines established in the Museum's Collections Policy & Procedures Manual. A record of these activities shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections. In consultation with an historic architect and/or a structural engineer with historic building experience, the Executive Director and Curator of Collections shall develop a plan for repairs to correct the deficiencies that were discovered during the incident. The ultimate goal of said planning shall be to enable the historic structure to better avoid or mitigate damage from future fire-related incidents.

D. Snow & Ice Damage

Due to the geographical location and resultant seasonal weather patterns impacting the Museum and its historic structures, damage due to seasonal snow and ice is of significant concern. Structural failure or collapse can occur due to excess load from accumulated snow and ice, although the greater threat of damage is usually due to moisture penetration into the building fabric. Some building configurations cause snow drifting that may result in above average accumulation in certain vulnerable roof areas.

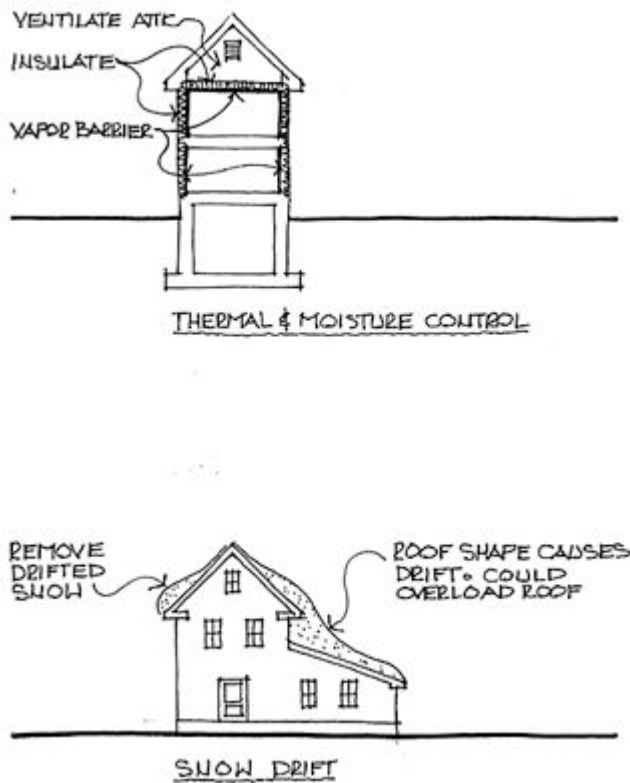


Figure V.D.1

Before:

All historic structures maintained by the Museum shall be thoroughly documented via photograph, and said records shall be maintained in the files of the Curator of Collections. Roof structures in attics should be evaluated for signs of cracked or sagging members (i.e. roof overload) due to excess snow or ice. Resources permitting, a structural engineer with historic building experience shall be contracted to check the number of roofing layers to determine if roof weight exceeds roof structure capacity (without the additional weight of snow), as well as to determine if the roof structure meets current snow load and deadload requirements. Roof drainage systems should be kept clean and free of obstructions via regular maintenance, and

excess snow and ice shall be removed from the roof as it accumulates. Where appropriate, building insulation and vapor barrier systems should be inspected, gaps in vapor barriers should be sealed, and insulation should be added as required. Ice dams will develop at the roof eaves due to heat and moisture flow from the building interior, and should be removed via regular maintenance as time and resources permit. At the discretion of the Curator of Collections, collection material exhibited or stored inside the structure shall either be secured in place and protected from the elements via the application of inert poly-plastic sheeting, or shall be removed to secure temporary storage in Main Museum, Building 322 basement collections storage when threatened with damage. A record of this temporary movement of collection materials shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections.

During:

Monitor snow accumulation and remove if possible.

Provide temporary bracing under roof structures that could be overloaded.

At the direction of the Curator of Collections, remove collections materials in the historic structure to safe, temporary storage in collections processing areas of the Main Museum, Building 322, or to similar facilities in Building T1 where doing so will not unnecessarily endanger either staff personnel or collections themselves. Ensuring the personal safety of staff personnel and visitors is the PARAMOUNT priority.

Vacate the building if threatened with collapse, and proceed to a predetermined safe location (i.e. Root Cellar).

Notification to the appropriate parties shall be made, in accordance with Sections I-III of the Museum Emergency Plan (above).

After:

Snow and ice accumulation should be removed from the roof. If resources permit, the building shall be inspected by a structural engineer with historic building experience to determine which elements can be repaired, and which have to be replaced or rebuilt. In all cases, wherever possible historic building materials shall be salvaged and re-utilized in the restoration process. Ceiling/roof areas that show signs of stress or are sagging should be properly braced and supported. If the roof structure has partially or totally collapsed, temporary tarps or roofing should be supplied and anchored in place to protect the building from further damage. Any and all damage to the historic structure shall be thoroughly documented, via photograph, throughout the building at the direction of the Curator of Collections. All collections materials stored or exhibited within the historic structure shall be evaluated for damage, at the direction of the Curator of Collections, and those requiring remunerative treatment shall be removed to collections processing areas either on the 2nd. floor of the Main Museum, Building 322, or to similar facilities in the basement level of Building T1. Said collections shall then receive conservation treatment appropriate to the level of resources and experience of Museum staff, and/or loaned to conservation professionals for evaluation and treatment, at the discretion of the Curator of Collections. With conservation/restoration work complete, these items shall be returned to the historic structure in question. Those collections materials deemed to have been

damaged beyond usefulness, or which could pose a serious preventative conservation risk to other collections materials even after conservation/preservation treatment, shall be deaccessioned and disposed of at the discretion of the Curator of Collections and in full accordance with the guidelines established in the Museum's Collections Policy & Procedures Manual. A record of these activities shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections. In consultation with an historic architect and/or a structural engineer with historic building experience, the Executive Director and Curator of Collections shall develop a plan for repairs to correct the deficiencies that were discovered during the incident. The ultimate goal of said planning shall be to enable the historic structure to better withstand future stresses due to accumulation of snow & ice.

E. Earthquake Damage

Due to the Museum's geographical location in an earthquake-prone zone (i.e. peak horizontal acceleration of 7-8', with a 10% probability within 50 years), damage to historic structures due to earthquake is of particular concern. Six principal factors influence how and why historic buildings are damaged in an earthquake:

- 1.) Depth of the earthquake and subsequent strength of earthquake waves reaching the surface;
- 2.) Duration of the earthquake, including after-shock tremors;
- 3.) Proximity of the building to the earthquake epicenter, although distance is not necessarily a direct relationship;
- 4.) Geological and soil conditions;
- 5.) Building construction details, including: materials, structural systems, and plan configuration;
- 6.) Existing building condition, including maintenance level.

The first three factors, depth, duration, and proximity to the fault, are beyond human control. Recent earthquakes have shown the fourth factor, geological soil conditions, to be as important as any of the other factors because loose, soft soils tend to amplify ground motion, thereby increasing damage. Further, there is the tendency of soft, unstable soils to "liquefy" as the ground vibrates, causing the building foundations to sink unevenly. This fourth factor, geological and soil conditions, is difficult to address in a situation involving an extant historic structure, although it can be planned for in new construction. The last two factors, the building's construction type and its existing physical condition, are the two factors over which building owners and managers have control and can ultimately affect how the historic property performs in an earthquake. Much of the damage that occurs during an earthquake is directly related to the building's existing condition and maintenance history. Well-maintained buildings, even without added reinforcement, survive better than buildings weakened by lack of maintenance. The capacity of the structural system to resist earthquakes may be severely reduced if previous alterations or earthquakes have weakened structural connections, or if materials have deteriorated from moisture, termite, or other damage. Furthermore, in unreinforced historic masonry

buildings, deteriorated mortar joints can weaken entire walls. Cyclical maintenance, which reduces moisture penetration and erosion of materials, is therefore essential. Because damage can be cumulative, it is important to analyze the structural capacity of the building wherever resources permit.

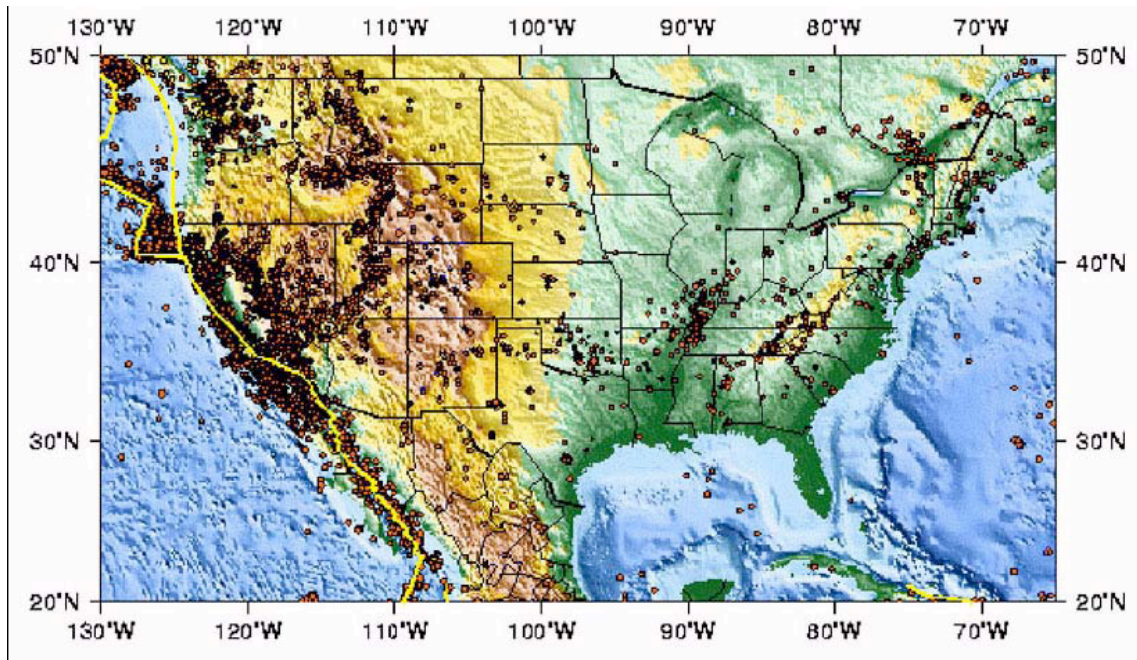


Figure V.E.1- Seismicity of the conterminous United States 1977 – 1997 (from the website at <http://neic.usgs.gov/neis/general/seismicity/us.html>). This reproduction shows earthquake locations without regard to magnitude or depth. The San Andreas fault and other plate boundaries are indicated with white lines.

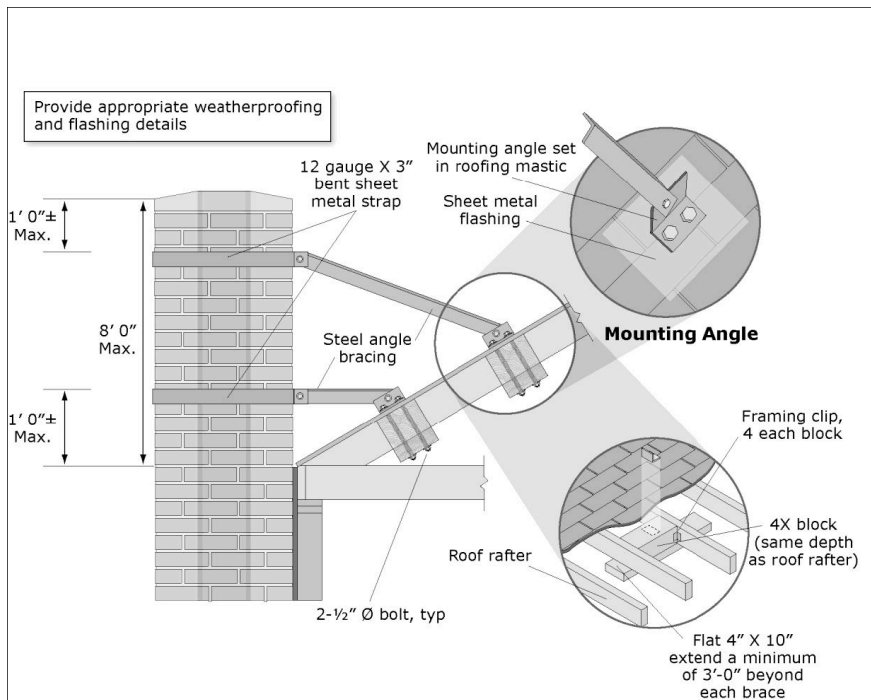


Figure V.E.2- Unreinforced masonry chimney bracing (ER).

Before:

All historic structures maintained by the Museum shall be thoroughly documented via photograph, and said records shall be maintained in the files of the Curator of Collections. Adequate maintenance ensures that existing historic materials remain in good condition and are not weakened by rot, rust, decay or other moisture problems. Wherever practicable and applicable, historic buildings should be well-maintained and an evacuation plan developed. Great care should be taken to integrate any alterations to a historic structure with the historic aesthetic of the building. Time and resources permitting (and where APPLICABLE to the building in question), the following preventative steps should be taken incrementally to better prepare the Museum’s historic structures to withstand the rigors of an earthquake while limiting damage to the structure, as well as risk of damage to collections materials stored or exhibited therein and/or injury to staff personnel and visitors:

- 1.) Check roofs, gutters, and foundations for moisture problems, and for corrosion of metal ties for parapets and chimneys. Make repairs and keep metal painted and in good condition;
- 2.) Inspect and keep termite and wood boring insects away from wooden structural members. Check exit steps and porches to ensure that they are tightly connected and will not collapse during an emergency exit;
- 3.) Check masonry for deteriorating mortar, and address repairs as soon as time and resources permit. Repoint, matching the historic mortar in composition and

- detailing;
- 4.) Bolt sill plates to foundations and add plywood stiffeners to cripple wall framing around wood frame buildings. Reinforcement should be kept behind decorative crawlspace lattice or other historic features;
 - 5.) Reinforce floor and roof framing connections to walls using joist hangers, metal straps, threaded bolts, or other means of mechanical fasteners. Tie columns to beams; reinforce porch and stair connections as well;
 - 6.) Repair weakened wooden structural systems by adding, pairing, or bracing existing members. Consider adding non-ferrous metal straps in alternating mortar joints if extensive repointing is done in masonry walls;
 - 7.) Reinforce projecting parapets and tie parapets, chimneys, balconies, and unsecured decorative elements to structural framing. Connections should be made as unobtrusive in appearance as possible. In some cases, concrete bond beams can be added to reinforce the top of unreinforced masonry or adobe walls;
 - 8.) Properly install and anchor new diaphragms, such as roof sheathing or subflooring, to the walls of a structure prior to installing finish materials;
 - 9.) Avoid awkwardly placed exposed metal plates or rosettes when using threaded bolts through masonry walls. When exposed plates will interfere with the decorative elements of the facade, less visible grouted bolts or plates that can be set underneath exposed finished materials should be utilized;
 - 10.) Sensitively-designed metal bracing should be utilized along building exteriors to tie the unsupported face of long exterior walls to the floor framing. This is often seen along side or party walls in commercial or industrial buildings;
 - 11.) Utility companies should be contacted for information on flexible connectors for gas and water lines, and earthquake activated gas shut-off valves;
 - 12.) Local emergency material should be collected for reference, and simple household or office mitigation measures should be implemented, such as installing latches to keep cabinets from flying open or braces to attach tall bookcases to walls.

At the discretion of the Curator of Collections, collection material exhibited or stored inside the structure shall either be secured in place and protected from the elements via the application of inert poly-plastic sheeting, or shall be removed to secure temporary storage in Main Museum, Building 322 basement collections storage when threatened with damage. A record of this temporary movement of collection materials shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections.

During:

At the direction of the Curator of Collections, remove collections materials in the historic structure to safe, temporary storage in collections processing areas of the Main Museum, Building 322, or to similar facilities in Building T1 where doing so will not unnecessarily endanger either staff personnel or collections themselves. Ensuring the personal safety of staff personnel and visitors is the PARAMOUNT priority.
DROP to the ground; take COVER by getting under a sturdy table or other piece of furniture;

and HOLD ON on until the shaking stops. If there isn't a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.

Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.

Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, loadbearing doorway.

Stay inside until shaking stops and it is safe to go outside. Research has shown that most injuries occur when people inside buildings attempt to move to a different location inside the building or try to leave.

Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on. Notification to the appropriate parties shall be made, in accordance with Sections I-III of the Museum Emergency Plan (above).

After:

If resources permit, the building shall be inspected by a structural engineer with historic building experience to determine which elements can be repaired, and which have to be replaced or rebuilt. In all cases, wherever possible historic building materials shall be salvaged and re-utilized in the restoration process. Ceiling/roof areas that show signs of stress or are sagging should be properly braced and supported. If the roof structure has partially or totally collapsed, temporary tarps or roofing should be supplied and anchored in place to protect the building from further damage. Any and all damage to the historic structure shall be thoroughly documented, via photograph, throughout the building at the direction of the Curator of Collections. Time and resources permitting (and where APPLICABLE to the building in question), the following remunerative steps should be taken to restore and retrofit the damaged historic structure:

- 1.) Inspect and improve all lateral tie connections and diaphragms;
- 2.) Reinforce walls and large openings to improve shear strength in locations of doors, windows, and storefront openings. Carefully locate "X" and "K" bracing to avoid visual intrusion, or use moment frames, which are a hidden perimeter bracing in large openings. From a preservation perspective, the use of a more hidden system in finished spaces is generally preferable;
- 3.) Strengthen masonry walls or columns with new concrete reinforcement or fiber wrap systems. Avoid the use of heavy spray concrete or projecting reinforced walls that seriously alter the historic relationship of the wall to windows, trim, and other architectural moldings or details;
- 4.) Selectively locate new shear walls constructed to assist the continuous transfer of loads from the foundation to the roof. If these walls cannot be set behind historic finishes, they should be located in secondary spaces in conjunction with other types of reinforcement of the primary spaces or features;
- 5.) Consider the internal grouting of rubble masonry walls using an injected grout mixture that is compatible in composition with existing mortar. Ensure that exposed areas are repaired and that the mortar matches all visual qualities of the historic mortar joints in tooling, width, color and texture;

- 6.) Evaluate odd-shaped buildings and consider the reinforcement of corners and connections instead of infilling openings with new construction. Altering the basic configuration and appearance of primary facades of buildings is damaging to those qualities that make the building architecturally significant.

All collections materials stored or exhibited within the historic structure shall be evaluated for damage, at the direction of the Curator of Collections, and those requiring remunerative treatment shall be removed to collections processing areas either on the 2nd. floor of the Main Museum, Building 322, or to similar facilities in the basement level of Building T1. Said collections shall then receive conservation treatment appropriate to the level of resources and experience of Museum staff, and/or loaned to conservation professionals for evaluation and treatment, at the discretion of the Curator of Collections. With conservation/restoration work complete, these items shall be returned to the historic structure in question. Those collections materials deemed to have been damaged beyond usefulness, or which could pose a serious preventative conservation risk to other collections materials even after conservation/preservation treatment, shall be deaccessioned and disposed of at the discretion of the Curator of Collections and in full accordance with the guidelines established in the Museum's Collections Policy & Procedures Manual. A record of these activities shall be maintained in both the Building Files, as well as the Accession Records by the Curator of Collections. In consultation with an historic architect and/or a structural engineer with historic building experience, the Executive Director and Curator of Collections shall develop a plan for repairs to correct the deficiencies that were discovered during the incident. The ultimate goal of said planning shall be to enable the historic structure to better withstand future stresses due to earthquake.

VI. Protection of Collections

Collections are the *raison d'être* of the Museum, and their preservation before, during, and after an emergency incident shall be of primary importance. To this end, Collections Department staff shall be charged with the responsibility to ensure that collections materials are stored and exhibited in safe and secure locations, according to professional standard, in a manner designed to mitigate or eliminate (where possible) the potential of damage or destruction during an emergency. To this effect, collections shall receive the due care of responsible Museum staff, as follows:

- 1.) Collections shall be stored in enclosures and with acid-free supplies appropriate to material type, and designed with preventative conservation of the collection items in mind;
- 2.) Furthermore, collections shall be stored at least 6 inches above the floor, more than 24 inches below ceilings, and greater than 18 inches from sprinkler heads;
- 3.) Collections shall be maintained away from HV/AC ductwork and overhead piping, as well as doors, windows, and other points of ingress (to the extent possible);
- 4.) Whenever possible, collections shall be housed in gasket-sealed, carbon-filtered Delta cabinets, on powder-coated metal shelving, or in polyurethane-sealed wooden cabinetry capable of mitigating the deleterious effects of an emergency incident (i.e. wind, flood, fire, earthquake, etc.);
- 5.) In order to prevent loss of invaluable collections-related data, hard copy Accession

Records shall be maintained in fire-proof cabinetry or in a fire-proof vault, while duplicate electronic collections/catalog records shall be produced on a regular basis, stored on an external hard drive, and maintained off-site by responsible Museum staff (i.e. Curator of Collections);

- 6.) Collections either stored or exhibited in historic structures vulnerable to emergency incidents shall be protected *in-situ* and/or transferred to secure temporary storage in accordance with the policies set forth in Section V of this document.

If collections must be relocated beyond the Museum premises in the aftermath of a disaster, they may be stored, temporarily, at the Missoula Art Museum building, at the National Guard Armory, or in another of the extant (and appropriate) structures at Fort Missoula, as negotiated.

Attachments

In-House Equipment and Location

<u>Item</u>	<u>Location</u>
*Bldg. 322 Fire Sprinkler System	Main Museum, Building 322- Basement, North Wall
Book Trucks	N/A
Clipboards	Main Museum, Building 322- Staff Offices
Drying Space	Building T1- Collections Processing Room
Emergency Disaster Kit	Main Museum, Building 322- Collections Processing Room
Emergency Funds	Main Museum, Building 322- Office of the Executive Director Petty Cash, Authorized
Fire Extinguisher Locations:	
<u>Main Museum, Building 322</u> –	
First Floor:	(1) Small In Heath Gallery (1) Small By Fire Panel (1) Small By Reception Desk (1) Small In Main Gallery (1) Medium In Janitor’s Hall/Staircase
Second Floor:	(1) Small In Staff Offices (1) Small In Hall To Collections Processing Room
Basement:	(1) Small In North Gallery (1) Large On North End Wall (1) Large In Center Of Room (1) Very Large At Bottom Of South Stairs
<u>Grounds</u> –	
ADC Barrack Building:	(1) Small Inside Italian Exhibit (1) Small Inside Entrance Door To Storage Room (1) Small Inside North Exit Door In Storage Room
Building T-1:	(2) / Floor
Drummond Depot:	(1) Small Inside Exhibit Door (1) Large On Floor Inside

Grant Creek Schoolhouse:	MMRC North Door
Homestead Cabin:	(1) Small On Piano
Miller Creek Guard Cabin:	(1) Small Beside Stove
NCO Quarters:	(1) Small Behind Exhibit Door
	(1) Small In Southwest Room
	(1) Small In Northeast Room
Sliderock Lookout:	(1) Small Inside Door
St. Michael's Church:	(1) Small On Floor In Southwest Corner
Storage Warehouse:	(1) Large Inside East Northeast Door
	(1) Large Inside West Southwest Door
	(1) Large Inside South Door
First Aid Kits	Main Museum, Building 322- Staff Offices, Staff Kitchen,
Flashlights	Main Museum, Building 322- 1 st . Floor Security Panel, Reception Desk, Staff Offices
	Reception Desk
Folding Tables	Main Museum, Building 322- Heath Gallery Storage Closet
*Gas Heater Shut-Off	Main Museum, Building 322 Basement, Museum Store Closet
Grounds Sprinkler System	Pump House
Heating/Cooling system	Main Museum, Building 322- 2 Outdoors, 1 Attic
HEPA Vacuum Cleaner	Main Museum, Building 322- Collections Processing Room
Keys	Main Museum, Building 322- Office of the Executive Director
*Main Electrical Cut-Off	Main Museum, Building 322- Basement, South Wall
*Main Water Shut-Off	Main Museum, Building 322- Basement, North Wall
Master Fire Alarm	Main Museum, Building 322- 1 st . Floor Security Panel
Nearest CB Radio	Fire Department, South Ave.
Paper Towel Supply	Main Museum, Building 322- Women's Restroom
Portable Fans	Main Museum, Building 322- Collections Processing Room
Portable Pump	N/A
Smoke Detectors	Main Museum, Building 322-

Throughout Building

Telephone Numbers

Contact	Telephone #
<u>Missoula County:</u>	
Chief Administrative Officer	(406)-258-4229
Commissioners' Office, Manager	(406)-258-3399
Risk Manager	(406)-523-4876 (406)-523-4873
<u>Staff:</u>	
Robert M. Brown, Executive Director	(406)-543-2624 (h) (406)-544-3418 (c)
Jason R. Bain, Curator of Collections	(425)-330-3664
Dorene Might-Dyer, Director of Education	(239)-246-6421
Diane Sands, Director of Development	(406)-251-2001
Rachel Bartlett, Collections Assistant	(406)-777-2250
Carolyn Thompson, Education Assistant	(406)-543-6345
Sharon Garner, Museum Aide	(406)-721-6269
Dale Johnson, Volunteer	(406)-543-3303
<u>Board of Trustees:</u>	
Michael Fussell	(406)-721-6996 (w) (406)-549-0923 (h) (406)-544-3103 (c)
Gary Glynn	(406)-549-5685 (h) (406)-218-8956 (c)
Addrien Marx	(406)-677-0077 (h) (406)-677-4253 (c)
John Rimel	(406)-728-1900, ext. #121 (w) (406)-251-2464 (h) (406)-880-2464 (c)
Robert Tutskey	(406)-728-4576 (w) (406)-721-0668 (h) (406)-546-9399 (c)

Resource List

Service/Item	Contact	Telephone #
Architect	Adler Architects	(406)-549-4861
Blank Newsprint	Missoulian	(406)-523-5200
Cardboard Boxes	Mayflower	(406)-543-5131
Carpenter	Roger Bergmeier	(406)-728-8701 (406)-240-5727
Cold Storage	Food Services of America	(406)-542-2141
Conservation:		
Textile	NETCC	(978)-441-0400
Document	NEDCC	(508)-470-1010
County DES Director		(406)-721-5700, ext. #3448
Day Spring Service Inc.		(406)-543-6070
Dehumidifiers	Lanham Heating & Air	(406)-721-5520
Denatured Alcohol	NEDCC	(508)-470-1010
Dry Ice	VW Ice	(406)-728-9530
Drying Space	On-site or County	(406)-721-5700, ext. #3391
Electric Fans	Ace Hardware	(406)-728-3030
Electrician	Pete's/Palmer	(406)-543-3086
Excavation	Jerry's	(406)-542-2267
Exterminator	Orkin	(406)-721-3595
Fire, Fire, Ambulance		911
Freeze Drying	Document Reprocessors	(415)-362-1290
Freezer/Wax Paper	Ace Hardware	(406)-728-3030
Fumigation	Orkin	(406)-721-3595
Glazier	City Glass	(406)-721-1530
HD Extension Cords	Ace Hardware	(406)-728-3030
Heavy Equipment	Triple W Equipment	(406)-549-4171
Hospitals	Community	(406)-728-4100
	St. Patrick's	(406)-543-7271
Insurance	Hal Luttschwager	(406)-721-5700, ext. #4873
Janitorial	Purity	(406)-240-6144
Legal Advisor	Mike Sehestedt	(406)-721-5700, ext. #4779
Locksmith	Art & Ray's	(406)-549-7667 (406)-728-5203, ext. #7159
Metal Book Trucks	Public Library	(406)-721-2665
Mycologist	UM Biology Dept.	(406)-243-5122
Photographer	Scott Breum	(406)-728-6277
Plastic Crates	Meadow Gold Dairies	(406)-543-3173
Plastic Sheeting	Ace Hardware	(406)-728-3030
Plumber	Garden City	(406)-728-5550
Portable Generator	Long Machinery	(406)-721-4050

Portable Lighting	Western MT Lighting	(406)-543-7166
Portable Sump Pump	AAA Plumbing	(406)-728-3131
		(406)-251-3541
Pumping	Alpine Water	(406)-728-3900
Radio	KGRZ	(406)-728-1450
	KGVO	(406)-721-1290
	KLCY/KYSS	(406)-728-9300
	KUFM	(406)-243-4931
	KYLT	(406)-728-5000
	XT93	(406)-721-9300
Refrigerator Trucks	Jim Palmer	(406)-721-5151
Security	Montana Security	(406)-251-3192
Television	KECI	(406)-721-2063
	KPAX	(406)-543-7106
	KTMF	(406)-542-8900
Trash Cans & Buckets	Ace Hardware	(406)-728-3030
Trucks	U-Haul	(406)-728-8893
Utility Company	Northwestern Energy	(888)-467-2669
Wet Vacuum	Vac Shop	(406)-549-2353

With the acquisition of Building T-1, if the emergency is localized elsewhere, Building T-1 may provide workspace for drying, storage, and recovery, as needed.