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Introduction

Floods are one of the most frequent and costly natural disasters. They can occur any time of the year, in any part of the country. Some floods develop slowly, while others such as flash floods can develop within minutes. Floods can be local, impacting a neighborhood or community, or very large, affecting entire river basins and multiple states.

Pre-Planning for a Flood

Even if your facility is in a community with a low risk of flooding, it is important to know that anywhere it rains, it can flood. Flood risk is based on a number of factors including rain fall, flood-control measures, river flow and tidal-surge data, and changes due to new construction and development.

You can learn about flood risk by contacting the following agencies:

- Local Red Cross Chapter
- Emergency Management Office
- Local National Weather Service Office
- Local Planning and Zoning Department

There are both primary hazards and secondary effects associated with flooding. Primary hazards include:

- Direct water damage to property,
- Debris damage,
- Erosion to earth around structures, and
- Health and environment hazards.

Secondary effects include:

- Disruption of utilities (gas, electric),
- Polluted drinking water,
- Water treatment plant shutdowns,
- Interruption of delivery services, and
- Long-term effects.

Once you know the risk faced by your organization, you can determine what changes are necessary to ensure you are prepared for a flood. By implementing changes, you can minimize and quite possibly prevent damage to utilities and buildings. While flooding may still happen, clean-up and recovery will be significantly reduced.

Changes to consider in order to protect utilities from damage:

- Elevate the following items at least 12 inches above projected flood elevation:

  Electrical Systems - panel board (electric fuses or circuit breakers), electric service lines (at the point where they enter the building), outlets, switches, light sockets, baseboard heaters and wiring.

  Furnace & Water Heater - these can be placed on masonry or protected by a flood wall. Some furnaces that operate horizontally can be suspended from ceiling joists, or downdraft furnaces can be installed in the attic.

  Appliances - washers and dryers can be placed on masonry or protected by a floodwall.

- Receptacles in areas that could get wet should be connected to a ground fault circuit interrupter, (GFCI) to avoid the risk of shock or electrocution.
- Fuel Tanks – anchor them securely and place vents and fill line openings above projected flood levels. Check with your propane company about securing propane tanks.
- Install a floating floor drain plug at the drain location. The plug will rise up and close the drain should water start to back up in the pipe.
- Install an interior or exterior backflow valve on your sewer system, but be sure to check with your building department for permit requirements.
- Seal walls in basements with water proofing compounds to avoid seepage through cracks.
- Install a sump pump, water alarms, flood shields or doors.

Additional flood proofing options:

- Build drainage systems or levees around the property.
- Seal openings such as low windows.
- Construct floodwalls around basement doors and window wells.
- Elevate buildings above projected flood levels.

2005

Hurricane Katrina makes land fall in the city of New Orleans. Levee failure began on the morning of August 30th. Nearly 80% of New Orleans was covered in flood waters. Total losses were estimated at $108 billion.

2011

Hurricane Irene made landfall at North Carolina's outer banks on August 27th. The second landfall was in Galloway, NJ, and the third in the Coney Island area of Brooklyn, NY. NC had 15.74 inches of rain, VA had 13.9 inches, MD, NJ, and NY had 11.5 inches, and New England had 8-10 inches. Total losses were estimated at $15.8 billion.

2012

Super storm Sandy's massive circulation enabled the storm to impact over 1.8 million square miles, from the Mid-Atlantic coastline of the US to the Ohio Valley, into Canada and New England. This is the third most expensive hurricane in US history, at least $25 billion in claims paid for all lines of coverage, and $50 billion in economic losses.

Responding Appropriately During a Flood

- Listen to area radio and television stations and a NOAA weather radio for possible flood warnings, reports of flooding in progress, or other critical information from the National Weather Service.
- Be prepared to evacuate at a moment's notice.
- When a flood or flash flood warning is issued for your area, head for higher ground and stay there.
- Stay away from floodwaters. If you come upon a flowing stream where water is above your ankles, stop, turn around and go another way. Six inches of swiftly moving water can sweep you off of your feet.
- If you come upon a flooded road while driving, turn around and go another way. If you are caught on a flooded road and waters are rising rapidly around you, get out of the car quickly, and move to higher ground. Most cars can be swept away by less than two feet of moving water.
- Keep children out of the water. They are curious and often lack judgment about running or contaminated water.

Recovering from a Flood

When unsure of conditions or safety of buildings and surrounding areas, always contract with a professional rather than taking on the task yourself. The initial steps to flood recovery are crucial. Although floodwaters may be down in some areas, many dangers still exist.

- Use local alerts and warning systems to get information and expert in formed advice as soon as available.
- Avoid moving water.
- Stay away from damaged areas unless your assistance has been specifically requested by police, fire, or relief organizations.
- Emergency workers will be assisting people in flooded areas. You can help them by staying off the roads and out of the way.
- Play it safe. Additional flooding or flash floods can occur. Listen for local warnings and information.
- Return home only when authorities indicate it is safe.
- Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse under the weight of a car.
- Stay out of any building if it is surrounded by floodwaters.

Stay Healthy

- Avoid floodwaters; water may be contaminated by oil, gasoline or raw sewage.
- Service damaged septic tanks, cesspools, pits and leaching systems as soon as possible. Damaged sewer systems are serious health hazards.
- Listen for news reports to learn whether the community's water supply is safe to drink.
- Clean and disinfect everything that got wet. Mud left from floodwaters can contain sewage and chemicals.

Contact your insurance agent or carrier as quickly as possible. Claims adjusters have valuable training and experience that can help the recovery process go smoothly. Keep a written inventory and take pictures of the damage as soon as it is safe to do so. Through all phases of assessment, repair, and clean up, keep a list of:

- Damage to the building.
- Damage to contents – locate all saved receipts for damaged items.
- Repair, cleaning, and removal costs.
- Do not throw away any damaged property without the approval of your insurance adjuster. The adjuster may ask that you keep the damaged items or portions of them until the building can be visited.
- If the building is not habitable during repair and cleanup, keep records of all additional expenses you incur.

For your safety, make sure that you are prepared to safely assess the building. This means that you should:

- Wear sturdy, closed-toed, rubber-soled shoes or boots.
- Wear long sleeves, pants and work gloves.
- Wear a dust mask or respirator, safety glasses or goggles, and a hard hat if hazards require.
- Carry battery-powered lanterns or flashlights to examine the building.
- Use extreme caution at all times.

Assess the safety and extent of damage. If flood damage has been wide-spread in your area, listen to local news broadcasts and emergency alerts as officials may require that you stay out of certain areas until they are deemed safe. When you are able to safely return to the facility, ensure that the flood waters have completely receded. Begin checking the outside of the building. Walk around the entire perimeter, and look for:

- Structural damage to the roof, walls, floor, doors, windows and stair cases.
- Cracks or other damage to the foundation.
- Broken or leaking gas or fuel oil lines.
- Damaged or downed power lines.

Do not enter if there is any sign that the building has serious damage. If local authorities have placed signs on the building or colored tape over doors and/or windows, do not enter. If there has been damage to your utilities, contact the utility company as quickly as possible.

If there is no significant visible damage to the outside, then you may begin assessing the damage to the inside. To ensure your safety and to prevent further damage, turn off all utilities including electric, natural gas or propane supply lines, and main water supply before entering. Look for damage to:

Ceilings – look for signs of sagging. If there is water trapped in the ceiling, you will need to remove the water. You can do this by using a long pole with a nail or other pointed object on the end. Carefully poke holes along the perimeter, let the water drain slowly, and gradually poke holes further down the bulge until all of the water is drained. Never stand beneath any portion of the ceiling that is sagging or poke a hole in the center of the bulge first, as it could cause the entire ceiling to collapse.

Walls – if the wallboard has been saturated, you may need to cut small holes through the walls approximately two inches from the floor to allow water to drain out and facilitate air circulation.

Floors – check the floors for sagging. If only a small section of the floor is sagging place thick plywood or thick boards on the floor over the damaged area. Make sure the wood extends at least 12 inches beyond the sag.

Basements – pump out flooded basements gradually (about one-third of the water per day) to avoid structural damage. If too much water is pumped out in a short period of time, the pressure from water-saturated soil on the outside could cause the basement walls to collapse.

Repair and Cleanup

The repair and cleanup process after a flood can be a grueling one. It could take days or weeks for the building to completely dry out. If you have extensive damage, you may need to contact a restoration company for assistance.

- **Remove water** – remove as much standing water as possible. If the water is deep, you may need to use a pump. You can also sweep, squeegee, mop or use a wet vacuum.
- **Repair the building** – make temporary repairs, such as covering holes with plywood, plastic sheeting or tarps, and bracing walls and/or floors. Obtain several estimates from qualified professionals for permanent repairs.
- **Secure the building** – if the building can be secured, relocate your contents to a safe, dry area. If the building cannot be secured against vandalism, move valuables to a secure location or consider renting a storage unit.
- **Increase ventilation** – good ventilation will help dry the building. If it is dry outside, open the doors and windows. An air conditioner and/or dehumidifier can help remove moisture from the air. Blowers and fans can help circulate the air. In colder weather, make sure the heat is on. Be sure to open closet doors, cabinets and drawers to let the insides of these items dry out as well. For areas where there is little air movement, such as closets, consider using desiccants (materials that absorb moisture).
- **Sort and protect contents from further damage** – separate damaged items from undamaged items, and wet items from dry items. Move things you want to save to a safe, dry place. Remove all damaged materials and debris to the outdoors until the adjuster can look at them. You may be able to restore some items such as clothing, shoes, linens, rugs, luggage and furniture, or have them professionally cleaned. Be sure to move them to a well-ventilated area that is out of direct sunlight so they can dry out.

Remediate Moisture and Mold Problems

Many types of mold exist and all have the potential to affect your health. Some mold can produce allergens that may trigger allergic reactions or severe asthma attacks in some people. Other mold produces potent toxins and/or irritants. Potential health concerns are an important reason to prevent mold growth and to remediate (clean up) any existing indoor growth.

- Assess the size of the mold and/or moisture problem and the type of damaged materials before planning remediation work.
- Consider using an outside professional for medium and large remediation efforts.
- Use personal protective equipment and steps to carefully remove moldy building materials to avoid spreading the mold.
- The highest priority must be to protect the health and safety of the building occupants and remediators.
- The remediation plan may include temporary relocation of some or all of the building's occupants.
- Indoor mold is not always obvious. Possible locations of hidden mold include pipe chases and utility tunnels, walls behind furniture, condensation drain pans inside air handling units, porous thermal or acoustic liners inside duct work, or roof materials above ceiling tiles. Hidden mold may be present if a building smells "musty," or if there has been water damage.
- Revise remediation plan as necessary if more damage is discovered during the process.
- Dry wet, non-moldy materials within 48 hours to prevent mold growth
- Clean and dry moldy materials
- Discard moldy porous items that can not be cleaned.

After reviewing the structure, these utilities should be addressed:

- **Electricity** – make sure the electrical system is turned off at the main fuse box or breaker panel. Electricity should remain off until an electrician has inspected the system. If you have to step in water to get to the fuse box or circuit breaker, call a professional. Inspect the panel box for any breakers that may have tripped or blown fuses, as they could signal damage. Make sure they are in the off position and mark them with a piece of tape so that you know which ones were tripped or blown.
- **Gas** – check for gas leaks. If you smell gas or hear a blowing or hissing noise, open a window and quickly leave the building. Make sure the gas is turned off at the main valve and call the gas company.
- **Water supply** – if pipes are damaged, turn off the main water valve. If you have municipal water, check with local authorities before using water, as it could be contaminated. If your well is flooded, have it pumped out and water tested for purity before drinking. If in doubt, call your local public health authority.
- **Sewage system** – if you suspect sewage lines are damaged, avoid using the toilet, sink, shower, and tub. Call a plumber to have them repair any broken pipes and have damaged septic tanks, cesspools, pits, and leaching systems repaired as quickly as possible.
- **Telephones** – check each phone to make sure it is on the hook. If you do not hear a dial tone, try unplugging all telephones, and then plug each one in, one at a time, listening to each for a dial tone. If the phone system still does not work, contact the telephone company.
- **Appliances** – if appliances are wet, turn off the electricity at the main fuse box or circuit breaker. Then unplug the appliances and let hem dry out. You should have appliances checked by a professional for water damage or broken connections before using them again.
- **Heating, ventilation and air conditioning systems** – if any portion of these systems were flooded, they should be inspected by a qualified technician. Duct work may need to be cleaned out to remove any debris and to prevent mold growth.

Equipment Protection Action Steps

Flooding can disable vital equipment and systems that affect life safety and public health. Restoration of such machinery in order to restore operations is a matter of great need. The following recommendations were prepared by The Hartford Steam Boiler Inspection and Insurance Company to assist persons in flood affected areas who own or operate equipment and machinery.

The Risk Does Not Recede with the Water

If your equipment, machinery or electrical systems have been exposed to flood waters, you risk their loss even when the water level has dropped. Equipment and machinery may have water, silt or other contaminants within them. Your equipment could be damaged or destroyed if you attempt to start or test it without adequate cleaning and preparation for operation. Do not attempt to operate or test your equipment without properly restoring it. Even when your equipment's exterior appears normal, residual moisture and contaminants can lead to permanent damage.

Dry and Clean Before Using

The following summarizes the steps to prepare your equipment for operation. Most actions involve careful draining, drying, cleaning or lubricating of equipment before attempting to start or energize it. Taking these precautions now can help you to avoid a major equipment failure and enable you to restore vital operations sooner.

Electrical Equipment

- DO NOT ENERGIZE equipment that has been flooded until properly cleaned, dried out, and until insulation has been tested. This includes enclosures, bus ducts, conduit, and cables. Application of power to wet circuits will usually result in serious damage that will require repair or replacement could be difficult. This is especially to be observed if the equipment is vitally needed and obtaining a replacement could be difficult. It is usually better to spend the necessary drying time than to risk destruction of the equipment.
- Windings in electric machinery should not be dried at temperatures exceeding the rating of its insulation system. In general, a maximum temperature of 194 degrees F or 90 degrees C may be used. Check with the manufacturer for equipment specific information and recommendations.
- Dry type transformers should be cleaned and thoroughly dried as described for windings.
- Oil filled transformers should be thoroughly inspected for damage including the insulation bushing and oil samples should be drawn from the tank's top and bottom for analysis. Examine the sample for free moisture in the form of moisture droplets or a cloudy appearance. The laboratory should be instructed to include a Karl Fischer test for dissolved water content. Maximum water content for equipment rated >=69kv is 25 ppm and equipment rated at <69kv is 35 ppm. If water is found in the oil, the oil charge must be dehydrated by the competent service firm.
- Circuit boards that have been immersed can sometimes be salvaged, provided that they were not energized at the time of immersion and further provided that water sensitive components are not mounted to them. This can be done by carefully washing the individual boards in pure water and thoroughly drying before energizing.

Before Operating Machinery

- Contact the manufacturer for its recommendations.
- Inspect foundations for cracking, weakness, or settlement. If settlement is suspected, check and correct alignment of all shafting, and check all stationary components for level.
- Inspect all machine internals for silt accumulations and clean as needed.
- Open the cylinders of all reciprocating engines or compressors that have been immersed and remove foreign material or water.
- Drain and clean lubrication systems. Wipe oil containing elements with lint-free rags and refill with new lubricants as required. Monitor the lubricant charge during the initial hours after resuming operation for indications of water contamination and change lubricant if necessary.
- Ball and roller bearings suspected of being contaminated by water and debris should be opened, solvent cleaned, and then re-lubricated in accordance with the manufacturer's instructions. When cleaning, be especially careful to remove solid debris such as stone particles or metal chips.
- Carefully clean and TEST governors and controls. Many control systems are electric. Refer to recommendations for electrical equipment above.

Boilers

- Carefully inspect foundations and settings of boilers for settlement. DO NOT OPERATE a boiler if there is any evidence that the foundation has been undermined.
- Make sure the setting (brickwork, refractory, and insulation materials) is thoroughly dry. Use portable heaters where necessary. If the boiler has been immersed in salt or brackish water, the casing and insulation should be removed at least in wetted areas and the pressure parts should be washed with fresh water. After such washing, new dry insulation material should be applied and the casing re-installed.
- All safety appliances, such as safety and relief valves, steam gage, water column, low-water cutouts, and blow down must be cleaned and repaired as needed.
- All controls must be inspected and tested before operation, especially the water level control and low-water fuel cutoffs.
- Burners should not be fired until checked by a burner technician. An explosion may occur if the combustion controls do not function properly.
- Boilers should not be operated if proper feed water is not available. If operation is essential, and the boiler is to be run on untreated potable water, it will be necessary to blow down the boiler every eight hours and to open and clean the boiler internals at least once per week until proper water quality is re-established. In addition to frequent blow-down, and provided that clean make up water is available, it is also helpful to run with maximum makeup flow while diverting as much condensate as possible to sewer or drain until the boiler water quality returns to normal.

Notes

Notes

About Irwin Siegel Agency, Inc.

Irwin Siegel Agency, Inc. (ISA) is a leading insurance and risk management organization serving the Human Services field and Non-Profit sector, and insures service providers in 50 states and the District of Columbia. ISA continues to set the standards of quality, innovation and value when it comes to developing new programs that meet the dynamic nature of the Human Services and Non-Profit fields.

Our Risk Management Division continues to develop specialized resources to assist our customers in their endeavors to effectively manage risk and control losses. In conjunction with our business partners, we offer loss control training seminars and teleconferences that address important field-related issues. We have also accrued an inclusive video lending library containing information on field-related programs, including but not limited to; vehicle safety, workforce issues, stress management, medication, medication administration, fire safety, self-determination, and working with challenging behaviors.

Not only does our Claims Department offer a caring and experienced staff, but also the claims offices with which we work are staffed with designated adjustors who have extensive training in the Human Services and Non-Profit fields and who are familiar with the unique coverages and nuances of our policies. To supplement our adjustor base, we have a network of distinguished legal professionals who bring years of successful experience to the table, particularly with regard to those legal matters indigenous to the Human Services and Non-Profit fields.

Are you covered?

Some insurance coverages available through ISA include:

Directors & Officers Liability

Employment Practices Liability Insurance

CyberLiability - Network Security, Privacy Liability & Identity Theft Coverage

HIPAA/Medefense Plus

Volunteer Accident Protection

Professional Liability

Availability may vary by state.

Sample of Available Resources

Printed Publications

- Emergency Preparedness
- Volunteer Program Risk Management
- Compliance and Ethics
- 10 Things to Know About HIPAA
- Safety Committee

Flyers & Bulletins

- Employee Safety in Community Settings
- Staying Safe During Winter Storms & Extreme Cold
- Standard Precautions for Infection Control
- Hazard Communications: Important Things to Remember
- Hurricane Disaster Series

Video Lending Library

- Emergency Action Plan: Crisis Under Control
- Natural Disaster Preparedness
- Safe Food Handling: Preventing Foodborne Illness
- Making Sense of Standard Precautions
- Safety and the Supervisor

Partner Programs

- Online Training, including Continuing Education Courses
- Incident Management Training
- Background Checks & Pre-Screening Services

And much more...

irwin siegel agency, inc.

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