

Minimizing the Effects of Power Failures Due to Ice Storms and Winter Weather

Power Failures

If a power failure lasts more than 4 to 5 hours, depending on the outside temperatures and the insulation level in the building, the building may no longer be heated above freezing. Power failures, from ice storms especially, can last several days. When the temperature in the building drops below freezing the fire sprinkler piping and the domestic water piping (toilets, faucets, etc.) is subject to freezing and, ultimately, cracking. The result will be water damage to the building once the temperatures rise and the pipes thaw. The damage from water can be extensive.

Preparation

- Monitor news and weather services in your area during winter months.
- When subfreezing temperatures are predicted, check all heating systems for proper operation. Service as needed.
- If an ice storm is predicted, anticipate a power failure at your facility.
- Develop your plan ahead of time on how you will respond to a lengthy power failure and loss of heat.
- Line up ahead of time appropriate licensed sprinkler contractors, plumbing contractors and electricians to assist with the preparations outlined below.

Protection

If the heating system will be off for several hours to several days due to a power failure, and the temperature in the building will fall below 32° F (0 degrees Celsius), the following protection features should be implemented:

- Shut off and completely drain all fire sprinkler systems.
- If there are any fire sprinklers installed on drops (like in suspended ceiling areas) they should be drained if there are not many. If there are sprinklers on drops over areas with highly damageable equipment, such as computer rooms or materials such as fine arts, these should be drained. For other areas where it is impractical to drain all the sprinkler drops, be ready for water damage when the heat returns. Have buckets, tarps, mops, etc., ready for the water to minimize damage.
- Notify the local fire department and alarm receiving company that you have shut off your fire sprinkler system(s).

- If there is a diesel fire pump on site it may automatically start when the power fails. If so, shut it off and put it on manual start at the controller to conserve the fuel.
- If there is an electric fire pump, and it is connected via an automatic transfer switch to an emergency generator, the transfer switch and the pump controller should be disabled as the sprinklers are shut off. Otherwise it will start and run throughout the power failure needlessly. Shut down all hazardous operations like welding, cutting with a torch, painting, flammable or combustible liquids use, etc., while the sprinklers are off.
- Provide a constant fire watch in all areas while the sprinklers are off. This may be done by employees trained in facility emergencies. If the employees need to leave, hire a security service to provide the constant fire watch. Be sure the employees and/or security officers are trained to turn the sprinklers and fire pump (if there is one) on if there is a fire. Be sure they know to call the fire department as the alarm system may be out of battery backup.
- Shut off and completely drain the domestic water and heating piping systems.
- If portable heating systems are used, make sure they are UL-listed or FM-approved and used in accordance with the manufacturer's instructions. Ensure they are placed on stable surfaces and far enough from any combustible materials that may be ignited. Also, consider the health and safety implications of carbon monoxide build-up in enclosed areas. Fuel should be kept in UL-listed or FM-approved containers and stored in safe areas or outdoors. Refueling should be done outdoors and away from potential ignition sources. Better to not use them than to have them become an ignition source for a catastrophic fire.
- Portable emergency generators also have many of the same life safety and property protection considerations that portable heaters do. They should be used in strict accordance with manufacturer's instructions, including use of licensed electricians to make the connections to building wiring.
- As practical, store water damageable stock off the floor on pallets or in racks to minimize damage in the event of pipe breaks or water infiltration.

Recovery

After the event is over and the power is restored:

- Inspect all fire sprinkler, domestic water and heating system piping before restoring them to service. Make all repairs needed, if any, immediately. Where water has frozen in piping, it is often many hours or even days after power, heat and water are restored before pipe breakage and resulting water damage becomes evident as ice plugs in the piping begin to thaw. Around the clock surveillance of these areas may be warranted to ensure there is no hidden pipe damage and water leakage.
- Do not use open flames, lamps or other high temperature devices to thaw frozen pipes. Experts recommend using hair dryers.

- Restore all fire sprinkler, domestic water and heating system piping to service. Maintain the constant fire watch until this is completed.
- Notify the fire department, Travelers and the alarm company that the systems are back in service.
- Maintain the weather watch. Be especially cautious of rainstorms after snow, as roof pooling can occur with resultant possible collapse. Take measures to ensure all roof drainage is in service.
- Resume normal safe operations.