# *2006-2007*
# *Michigan Winter Hazards Awareness*

## INSIDE THIS PACKET

- **Governor's Proclamation**
- **Michigan Committee for Severe Weather Awareness Contacts**
- **Winter Hazards Sample Press Release**
- **Winter Safety Tips**
- **Winter Hazards Frequently Asked Questions (FAQs)**
- **Preventing Frozen Pipes**
- **Preventing Roof Ice Dams**
- **Ice Jams/Flooding**
- **Preventing Flood Damage**
- **Flood Insurance**
- **Heat Source Safety**
- **Generators**
- **Automotive Preparedness**
- **National Weather Service Contacts**

The Michigan Committee for Severe Weather Awareness was formed in 1991 to promote safety awareness and coordinate public information efforts regarding tornadoes, lightning, flooding and winter weather. For more information, visit www.mcswa.org

# STATE OF MICHIGAN

Executive Office

Jennifer M. Granholm
Governor

## CERTIFICATE OF PROCLAMATION

On behalf of the citizens of Michigan, I, Governor Jennifer M. Granholm, do hereby proclaim the week of November 12, 2006, as

## Winter Hazards Awareness Week

**Whereas**, Each year in Michigan, countless people are injured or suffer property damage resulting from winter storms that bring extreme cold, freezing rain, wind, and snow; and,

**Whereas**, Michigan citizens encounter winter hazards such as icy roads, frostbite from extremely cold temperatures, over-exertion from snow removal, and isolation within their own homes due to heavy snowfalls; and,

**Whereas**, The use of wood, kerosene, and space heaters as alternative heating methods greatly increases the probability of residential fires and/or carbon monoxide poisoning; and,

**Whereas**, Inclement winter weather requires drivers take extra precautions to ensure they reach their destinations safely; and,

**Whereas**, The "Michigan Committee for Severe Weather Awareness" and other emergency management officials, in conjunction with the news media, are cooperating to educate the public about these hazards and how to prepare for them; and now therefore be it,

**Resolved**, That I, Jennifer M. Granholm, Governor of the State of Michigan, do hereby proclaim the week of November 12, 2006, as Winter Hazards Awareness Week in Michigan, and I encourage all citizens to learn more about methods of preparation for winter hazards to protect themselves, their families, and their homes during the winter season.

Jennifer M. Granholm
Governor

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# Michigan Committee for Severe Weather Awareness

**November 2006**

**The Committee was formed in 1991 to coordinate public information efforts regarding flood, tornado and winter safety.**

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**FOR IMMEDIATE RELEASE**
**November 1, 2006**

For more information contact:
Any MCSWA committee member

# WINTER HAZARDS AWARENESS WEEK IS NOVEMBER 12-18

LANSING – To focus attention on winter safety precautions, Gov. Jennifer M. Granholm has declared Nov. 12 - 18 as Winter Hazards Awareness Week in Michigan. Heavy snow, extreme cold, ice and wind routinely affect Michigan and can pose dangers to life and property. Michigan residents must remember it does not take record-breaking low temperatures or mountains of snow to make winter dangerous. Abrupt changes in weather are enough to turn enjoyment of the season into tragedy.

"Michigan winters can be severe, so preparedness, awareness and common sense are always important," said Capt. Eddie L. Washington, commander of the Michigan State Police Emergency Management & Homeland Security Division. "During Winter Hazards Awareness Week, I encourage Michigan residents to learn of the dangers associated with cold, snow and ice, as well as threats posed by the use of heat sources such as wood burning stoves, fireplaces and space heaters."

According to the Michigan Committee for Severe Weather Awareness, Michigan's 2005 - 2006 winter season was warmer than usual, but most locations still received average snowfall and frequent storms with accompanying wind, rain, ice and snow were not uncommon. Temperatures ranged from 3 to 6 degrees above normal throughout the winter, but these averages only tell part of the story. The winter started off cold with an arctic air mass on Thanksgiving weekend. The arctic air remained for the first three weeks of December before a significant warm up in January. January was one of the warmest months on record and was the main reason temperatures averaged 3 to 6 degrees above normal. The season ended with temperatures closer to average for February and March.

During fall, it is typical for strong storms to move through the Great Lakes region. These storms are the reason for the phrase, "The Gales of November." In 2005, four strong storms moved through the Great Lakes during the first two weeks of November causing over $15 million in damages. Each storm produced wind gusts in excess 60 mph, damaging trees and buildings and causing tens of thousands of power outages.

The first winter storm of the season hit parts of the Upper Peninsula and Northwest Lower Peninsula with heavy, wet snowfall on Nov. 15 - 17. Most of the snowfall was heavy lake effect snow that resulted in over a foot of snow in the snow belts. Just before Thanksgiving, an arctic front moved through the state with bitterly cold winds that gusted up to 50 mph for the holiday weekend. The cold air also brought a round of heavy lake effect snow to the Upper Peninsula and Northwest Lower Peninsula where 12 to 18 inches of snow fell in lake effect areas.

During December, two winter storms affected much of the Lower Peninsula. The storms hit on December 9 and 15 with each storm averaging 6 to 12 inches of snow.

The month of January usually produces the coldest temperatures and most severe storms, but in January 2006 there were only two winter storms. The first storm occurred on Jan. 20 - 21, dropping 6 to 12 inches of snow on most of the Lower Peninsula. The second storm on Jan. 24-25 was a strong Alberta Clipper that moved through Lake Superior leaving parts of the Upper Peninsula and Northwest Lower Peninsula covered by up to 12 inches of snow.

February brought two of the strongest storms of the 2005 – 2006 winter season. The first, referred to as the Super Bowl Storm, occurred February 4 - 5, which was the same weekend the City of Detroit was hosting Super Bowl XL. During this storm, the Lower Peninsula was blanketed in 4 to 12 inches of snow with a maximum of 18 inches in the Northeast Lower Peninsula. The heavy, wet snow downed power lines and left thousands of Michigan residents without power.

By far, the most significant winter storm occurred on Feb. 16 - 17. This storm produced snow across Upper and Northern Lower Michigan, an ice storm across Central Lower Michigan and severe thunderstorms across Southern Lower Michigan. Thunder accompanied the snow and ice across Northern and Central Lower Michigan. Ice accumulated up to an inch on trees, power lines and buildings across Central Lower Michigan leaving over 100,000 customers without power, some for several days, and causing over $2 million in damages.

The season ended with a winter storm across Central Lower Michigan on March 2 and one last strong storm on March 13 - 14. The mid-March storm produced over 30 inches of snow in parts of the Western Upper Peninsula. This storm also produced winds up to 60 mph across Southern Lower Michigan, causing two fatalities, as trees fell on cars in Lansing and Oakland County.

To prepare for a winter storm:

**At home:**

- Keep handy a battery-powered flashlight, NOAA weather radio and portable radio, extra food (canned or dried food is best), can opener, and bottled water (at least 3 gallons per person).
- Make sure each member of household has a warm coat, gloves, hat and water-resistant boots. Ensure that extra blankets and heavy clothes are available. Keep on hand items for infant, elderly or disabled family members.
- Be aware of potential fire and carbon monoxide hazards if you plan to use an emergency heating source such as a fireplace, wood stove or space heater.

**Outside:**

- Avoid overexertion, such as shoveling heavy snow, pushing a car, or walking in deep snow. Sweating could lead to chill and hypothermia.
- Walk carefully on snowy, icy sidewalks. Wear loose-fitting, lightweight warm clothing in layers. Wear wool hat and mittens.
- Keep your clothes dry. Change wet socks and clothing quickly to prevent loss of body heat.

- Understand the hazards of wind chill. As wind speed increases, heat is carried away from a person's body more rapidly.

For more information on how to prepare for severe weather, visit the Michigan Committee for Severe Weather Awareness web site at www.mcswa.org. The Michigan Committee for Severe Weather Awareness was formed in 1991. Its mission is to provide information and advice that keeps Michigan residents prepared when severe weather strikes.

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# Winter Safety Tips

## PREPARING FOR A WINTER STORM

**At home:**

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## DURING A WINTER STORM

**At home:**

- To save heat, close off unneeded rooms, cover windows at night and stuff towels or rags in cracks under doors.
- Maintain adequate food and water intake. Food provides the body with energy for producing its own heat.
-

**If stranded in a vehicle:**

- Attach a bright cloth to your antenna to attract attention and then remain in the vehicle.
- Run the motor about 10 minutes each hour for heat. However, open the window slightly for fresh air and make sure that the exhaust pipe isn't blocked.
- Get attention by turning on the dome light and emergency flashers when running the engine.
- Exercise by moving arms, legs, fingers and toes to keep blood circulating and to keep warm.

**If stranded outside:**

- Try to stay dry and cover all exposed parts of the body.
- Prepare a windbreak or snow cave for protection from the wind. Build a fire for heat and to attract attention.
- Do not eat snow. It will lower your body temperature. Melt it first.

Winter Safety Tips

6

## ANYTIME

Listen for All-Hazards NOAA Weather Radio or local radio, television and cable stations for the latest updates on hazardous winter weather.

- To ensure uninterrupted weather information, make sure the NOAA Weather Radio or other radio has a battery-operated backup and fresh batteries. A battery-operated TV is another option.
- For All-Hazards NOAA Weather Radio information, including a station near you, see the NOAA Weather Radio page on the Internet at http://www.nws.noaa.gov/nwr or contact your National Weather Service office.

**Know the difference between a winter storm WATCH (conditions make the storm possible) and winter storm WARNING (the storm is headed for your area).**

**A blizzard WARNING means strong winds, blinding wind-driven snow, and dangerous wind chill. Avoid driving and seek shelter.**

***For more information on winter storms, see http://www.nws.noaa.gov/om/brochures/winterstorm.pdf.***

# Winter Hazards - FAQs

*On average, a major winter storm hits part of Michigan at least once per month between October and April. In 2004 (the most recent year for which records are available), 44 persons died as a direct result of severe winter weather according to local and state medical examiners and health departments. This is in addition to victims of auto accidents due to slippery roads and those who suffer heart attacks while shoveling snow. The following are frequently asked questions about winter weather.*

**1. What is wind chill?**

Wind chill is the perceived temperature resulting from the effect of wind, in combination with cold air, which increases the rate of heat loss from the human body.

**2. What is frostbite and what can you do to treat it?**

Frostbite is damage to body tissue caused by that tissue being frozen. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes, or the tip of the nose. Frostbite varies in severity from frostnip to deep frostbite, depending on the length of exposure, air temperature, and wind speed. For frostnip, place firm, steady pressure from a warm hand against the area. Also, blow on the surface holding the frostnipped area against the body. Do not rub the area, apply snow or submerge it in hot or cold water. Victims of severe frostbite must receive prompt medical attention.

**3. What is hypothermia and what are the warning signs?**

Hypothermia occurs when the body temperature drops to 95 degrees F. or lower. It can develop whenever body heat loss exceeds heat gain. Hypothermia is not exclusive to winter. It can occur during the wind and rain of spring and summer. Hypothermia is often mistaken for fatigue, irritability, or dehydration and may include some of these signs: abnormal decision making; improper response to cold; apathy, lethargy; decreased cooperation; slurred speech; disorientation; shivering; stumbling; and worsening joint stiffness.

**4. How do you treat hypothermia?**

Mild to moderate hypothermia (body temperature greater than 90 degrees F., conscious, shivering, able to walk)

- Prevent further heat loss. Dry, remove from cold and insulate.
- Rewarm by warming the body core first. Rehydrate with warm broth.
- Seek medical attention.

  Severe hypothermia (body temperature less than 90 degree F., unconscious, not shivering).
- Prevent further heat loss.
- Seek immediate medical attention.

**5. What are the various winter weather warnings and advisories?**

- A **winter storm watch** indicates that severe winter weather conditions may affect your area in the next 12 to 48 hours.
- A **winter storm warning** indicates that severe winter conditions are imminent. There are a variety of winter storm warnings including **heavy snow warning**, **ice storm warning** and **lake effect snow warning**.
- A **winter storm warning** for heavy snow indicates snowfalls of at least 6 inches in 12 hours or 8 inches in a 24-hour period are expected. In the Upper Peninsula, it indicates 8 or more inches in 12 hours and 10 or more inches in a 24-hour period.
- **Blizzard warnings** are issued when sustained wind speeds or frequent gusts of at least 35 miles per hour are accompanied by considerable falling and/or blowing snow. Visibility is greatly reduced to near zero during a blizzard.
- **Snow advisories** are issued when snowfalls of 4 to 5 inches are expected in a 12-hour period for the average of the forecast range (or 4 to 7 inches within 12 hours in the U.P.).

Preventing Frozen Pipes

# YOU CAN PREVENT FROZEN PIPES

Frozen pipes aren't just an inconvenience. An average of a quarter-million families have their homes damaged and lives disrupted each winter…all because of water pipes that freeze.

An eighth-inch crack in a pipe can spew up to 250 gallons of water a day, destroying floors, furniture, and personal property. Both plastic (PVC) and copper pipes may burst.

***Before the Cold Hits…***

**INSULATE** pipes in crawl spaces and attics, the ones most susceptible to freezing. Remember: The more insulation, the better protected your pipes will be.
**HEAT TAPE** or thermostatically-controlled heat cables can be used to wrap pipes. Use only products approved by an independent testing organization, such as Underwriters Laboratories, and only for the use intended (exterior or interior). Closely follow all manufacturer's installation and operating instructions.
**SEAL** leaks that allow cold air inside, near where pipes are located. Look for air leaks around electrical wiring, dryer vents and pipes. Use caulk or insulation to keep the cold out and the heat in. With severe wind chill, a tiny opening can let in enough cold air to cause a pipe to freeze.
**DISCONNECT** garden hoses and, if practical, use an indoor valve to shut off and drain water from pipes leading to outside faucets. This reduces the chance of freezing in the short span of pipe just inside the house.

***When the Mercury drops…***

**A TRICKLE** of hot and cold water might be all it takes to keep your pipes from freezing. Let warm water drip overnight, preferably from a faucet on an outside wall.
**OPEN** cabinet doors to allow heat to get to uninsulated pipes under sinks and appliances near exterior walls.

***If you're away…***

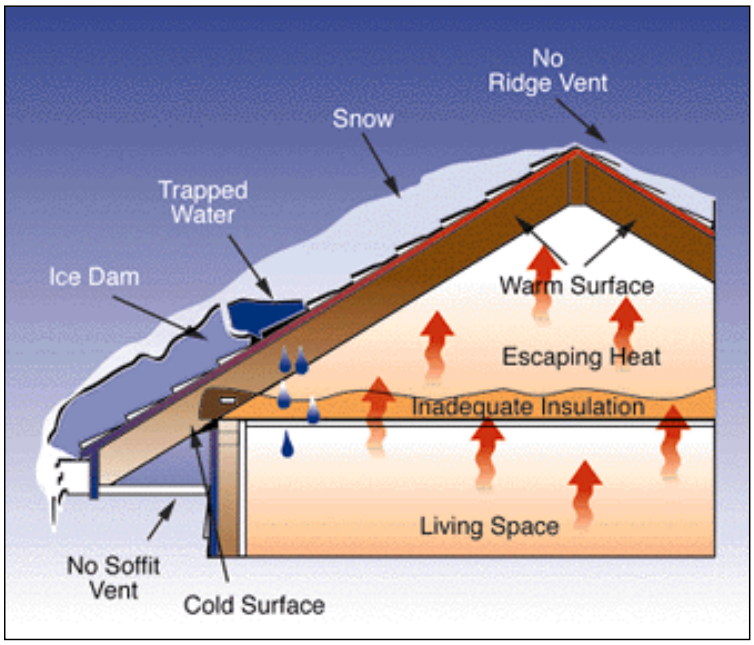
**SET** the thermostat no lower than 55 degrees F.
**ASK** a friend or neighbor to check your house daily to make sure it's warm enough to prevent freezing, or…
**SHUT OFF** and drain the water system. Be aware that if you have a fire protection sprinkler system in your house, it will be deactivated when you shut off the water.

***If your pipes freeze…***

**DON'T TAKE CHANCES.** If you turn on your faucets and nothing comes out, leave the faucets turned on and call a plumber. If you detect that your water pipes have frozen and burst, turn off the water at the main shut-off valve in the house; leave the water faucets turned on. (Make everyone in your family aware of where the water shut-off valve is and how to open and close it.)
**NEVER** try to thaw a pipe with a torch or other open flame. Water damage is preferable to fire damage. You may be able to thaw a frozen pipe with the warm air from a hair dryer. Start by warming the pipe as close to the faucet as possible, working toward the coldest section of pipe.
**DO NOT** use electrical appliances in areas of standing water because electrocution is possible.

Preventing Roof Ice Dams

## Hot Tips for Preventing Cold Weather Damage




**Preventing Ice Dams**

Ice dams are most common in northern climates. They occur when heavy snow buildup melts during the day and then refreezes when temperatures drop overnight.

After several days of freezing-melting cycles, the melted water and ice tend to work up under the shingles until water enters the attic and eventually does damage to the ceilings, wall and contents. If the ice dam goes unnoticed for an extended period, it can significantly damage the building and its contents.

There's no way to guarantee an ice dam won't damage your home, but you can reduce the likelihood of an ice dam forming in the first place:

- Thoroughly clean all leaves, sticks and other debris from rain gutters and down spouts. This allows melting roof snow to flow into gutters and through down spouts.
- Strive to keep snow on your roof to a minimum. Long-handled devices on the market called "roof rakes" let you stand on the ground and pull the snow off the roof. Keeping heavy snow loads off your roof reduces the chances for both ice dam formation and roof failure due to the weight.
- Keep gutters and down spouts clear of snow and icicles all winter.
- Evaluate the insulation and ventilation in your attic. Most experts agree attic insulation should have an R-value of at least R-30 (R-38 is preferable in northern climates). In addition, good airflow from under the eaves or soffit area along the underside of the roof and out through the roof vents is essential. The insulation prevents heat loss from the interior of the home. The venting allows the attic air to stay cold enough to prevent or minimize the freeze/thaw cycle on the roof. Consult a reputable roofing and/or insulation contractor about these improvements.

# Ice Jams/Flooding

**1. What is an ice jam?**
Pieces of floating ice carried with a stream's current can accumulate at any obstruction to the stream flow. These ice jams can develop near river bends, mouths of tributaries, points where the river slope decreases, downstream of dams and upstream of bridges or obstructions. The water held back can cause flooding upstream, and if the obstruction suddenly breaks, flash flooding can occur downstream.

**2. When was the last time ice jam flooding occurred in Michigan?**
Record flooding from backwater caused by ice jams occurred along the Grand River in Ottawa County's Robinson Township during January 2005. Over the years, ice jams have also caused flooding on the River Raisin, Muskegon, Flat, Thornapple, and Kalamazoo Rivers.

**3. When is an ice jam likely to occur?**
An ice jam can occur anytime from early winter to late spring in Michigan, depending upon changes in temperatures that cause alternate freezing and melting of water surfaces. The most likely times are early winter before the surfaces are completely frozen and early spring when the ice cover begins to break up due to melting.

**4. What effect does snow have on flooding potential?**
When the snow melts, it adds water to the ground that drains away in the same way as water from rainfall. On average, one inch of fresh snowfall contains about a tenth of an inch of water. However, as snow accumulates and becomes compacted during the winter, the ratio of snow to water decreases. Thus, 10 inches of snow remaining on the ground into early spring may contain as much as five inches of water.

**5. How fast do the snow and ice melt?**
Three days with the maximum temperature of about 50 degrees would create enough melting to cause ice breakup on small streams. That amount of warming would also melt two inches of snow.

**6. What happens when rain falls on top of snow?**
Air temperature is still the most important factor in melting snow. Rain will usually not add much heat to the process. At 40 degrees, one inch of rain will only produce a tenth of an inch of added water from snow melt. At the same time, frozen ground will result in more of the available water running off directly to streams.

**7. What is a Hydrologic Outlook?**
A Hydrologic Outlook issued by the National Weather Service provides information on hydro meteorological conditions that could cause flooding or impact water supply. This product will typically be issued if precipitation forecasts and/or snowmelt potential indicate the possibility of flooding beyond 36 hours. The National Weather Service also issues a monthly probabilistic hydrologic outlook that provides the probability of the river reaching a given height over the next 90 days. The Hydrologic Outlook for the spring snowmelt flood potential defines the flood potential from snowmelt based on normal precipitation and rate of melt projected through the normal snowmelt period.

If the actual conditions bring more rapid melt or heavier rains than normal, or if ice jams occur, the flood threat would increase substantially. On the other hand, a gradual or intermittent melt, with minimal additional precipitation, would decrease the flood threat.

# Ice Jams/Flooding

Outlooks are based on calculation of existing snow cover, soil conditions, and stream flow in conjunction with predicted future weather conditions. Normal precipitation and snowmelt rates for the future period are presumed in making these projections. An earlier melt than expected may reduce flood potential. Alternatively, if snow persists into late March, the flood potential increases.

The river crest stage values given in the outlooks are only an indication of potential stream crests rather than specific forecasts. An increase in the potential can be expected if above normal precipitation and/or rapid melting develops. Likewise, the potential will decrease if below normal precipitation and/or more gradual melting occurs.

The main factors contributing to spring snowmelt flooding are:

- High soil moisture in the fall
- Significant frost in the ground
- High water content of existing snow cover
- Rapid, continuous melting
- Moderate to heavy rain during melting
- Ice jams

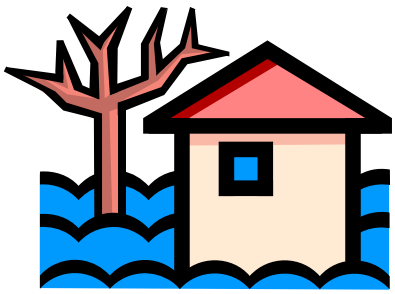
**Flood Potential Categories (assume normal precipitation and melt rates):**

**Minor snowmelt flood potential** - A general term indicating minimal or no property damage but possibly some public threat.

**Moderate snowmelt flood potential** – A general term indicating some inundation of structures and roads near streams; transfer to higher elevation necessary to save property, some evacuation may be required.

**Major snowmelt flood potential -** A general term indicating extensive inundation of structures and roads, and significant evacuations of people and/or transfer of property to higher elevations.

**Record snowmelt flood potential** - Large-scale inundation, requiring substantial resources from outside the local communities; equates to flooding which equals or exceeds the highest stage or discharge at a give site during the period of record keeping.



**The 2007 Hydrologic Outlooks for the spring snowmelt flood potential will be issued in February and March.**

# Preventing Flood Damage

**Are you at Risk?**
Your local floodplain manager, building official, city engineer, or planning and zoning administrator can typically tell you whether you are in a flood or other hazard area. Your local community official is also a good source of information on how to protect yourself, your house and property from flooding and other hazards.

**Ways to protect your house and property**
Basement flood protection can involve a variety of changes to your house and property—changes that can vary in complexity and cost. You may be able to make some types of changes yourself. Complicated or large scale changes or those that affect the structure of your house or its electrical wiring and plumbing should be carried out only by a professional contractor licensed to work in your state, county, or city. Below are some examples of flood protection.

- **Install Sewer Backflow Valves.** In some flood prone areas, flooding can cause sewage from sanitary sewer lines to back up into houses through drainpipes. Sewage backup not only causes damage, but also creates health hazards. Backflow valves have a variety of designs ranging from simple to complex. This is something that only a licensed plumber or contractor should do.
- **Raise or Flood-Proof Heating, Ventilating, and Air Conditioning Equipment**. In flood prone houses, a good way to protect HVAC equipment is to elevate it above the areas that flood. Another method is to leave the equipment where it is and build a concrete or masonry block flood wall around it.
- **Anchor Fuel Tanks.** Unanchored fuel tanks can be easily moved by floodwaters. One way to anchor a tank is to attach it to a large concrete slab whose weight is great enough to resist the force of floodwaters. Elevate tanks to a minimum of at least one foot above the base flood elevation. Floating and/or damaged tanks pose serious threats not only to you, your family, and your house, but also to public safety and the environment.
- **Raise Electrical System Components.** Any electrical system component, including service panels (fuse and circuit boxes), meters, switches, and outlets, can easily be damaged by floodwaters. All components of the electrical system, including the wiring, should be raised at least one foot above the base flood elevation.
- **Raise Washers and Dryers.** Washers and dryers can easily be damaged in a flood. In order to prevent this from happening, utilities can be placed on cinder blocks one foot above the base flood elevation.
- **Add a sump pump in your basement.** Sump pumps can help keep groundwater from entering your home's interior.
- **Cut drywall so that it is one-half to 1-inch off the floor**. This is especially important in basements. Concrete floors commonly absorb ground moisture—especially in winter months. That moisture can wick up the wallboard if it's touching the floor, allowing mold to grow out-of-sight within the walls. (You can hide the gap with wood or rubberized floor trim.)
- **Don't forget to buy flood insurance.** Flood insurance provides year-round financial protection and improves your ability to quickly recover when severe storms strike and cause unexpected flooding. Call your local insurance agent or 1-800-720-1090 to reach National Flood Insurance Program specialists.

# Flood Insurance

**1. Is flood damage covered by my homeowners insurance?**

Flood damage is excluded in nearly all homeowners and renters insurance policies, but can be purchased as a separate policy.

**2. Where do I get flood insurance?**

Any licensed property/casualty insurance agent can sell a flood insurance policy. If you are unable to locate an agent, contact the National Flood Insurance Progam's (NFIP) agent referral program at 1-888-CALL FLOOD or go to http://www.floodsmart.gov/floodsmart/pages/purchaseinsurance.jsp

**3. Is there a waiting period before my flood insurance policy becomes effective?**

There is a 30-day waiting period before a new or modified flood insurance policy becomes effective.

**4. Are all flood insurance policies the same?**

Flood insurance coverage can be purchased for homes and businesses – separate coverage must be purchased for the building and its contents.

**5. Do I need to live in a floodplain to get flood insurance?**

You do not need to live in a floodplain to purchase flood insurance – coverage is available to any building located in a community that has qualified for the National Flood Insurance Program. Click here or go to http://www.fema.gov/fema/csb.shtm for Michigan's flood insurance participating community listing from the NFIP.

**6. Is water back up in basements covered by a flood insurance policy?**

Coverage for water back up in basements (drains/sewers) is excluded from the flood insurance policy.

**7. Can I get coverage for water back up in basements?**

Although basement water back up is excluded under most homeowners insurance policies, coverage can be obtained by purchasing an endorsement. Most insurance companies offer sewer and drain back up as optional coverage. Coverage and limits vary by insurance company, so check with your agent/company about specifics. Some insurance companies include full coverage for sump pump failure while others specify items that are covered.

**8. Are there steps I can take to minimize losses from water back up in basements?**

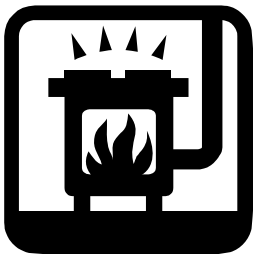
- Never store perishables or valuables in basements that you can't afford to lose or replace.
- Do not store any item near basement drains.
- Check storm drain lines to make sure they're clear of debris, roots, etc.
- Grade the property around your home to drain water away from it.
- Install gutters and make sure downspouts are extended away from the foundation in order to carry water away from the basement walls.
- Use shelving or store items several inches above the potential water level in order to prevent loss.
- If you do have some water seepage following storms, take corrective measures to alleviate problems in the future.

# Heat Sources Safety

Each year fire claims the lives of 4,000 Americans, injures tens of thousands, and causes billions of dollars worth of damage. People living in rural areas are more than twice as likely to die in a fire as those living in mid-sized cities or suburban areas. The misuse of wood stoves, portable space heaters and kerosene heaters is especially common risks in rural areas.

The United States Fire Administration (USFA) believes rural fire problems can be reduced by teaching people to recognize the hazards. The following precautionary steps can greatly reduce an individual's chances of becoming a fire casualty.

## Wood Stoves



Wood stoves cause over 9,000 residential fires every year. Carefully follow the manufacturer's installation and maintenance instructions. Look for solid construction, such as plate steel or cast iron metal. Check for cracks and inspect legs, hinges and door seals for smooth joints and seams. Use only seasoned wood for fuel, not green wood, artificial logs, or trash. Inspect and clean your pipes and chimneys annually and check monthly for damage or obstructions. Be sure to keep combustible objects at least three feet away from your wood stove.

## Electric Space Heaters

Buy only heaters with the Underwriter's Laboratory (UL) safety listing. Check to make sure it has a thermostat control mechanism, and will switch off automatically if the heater falls over. Heaters are not dryers or tables; don't dry clothes or store objects on top of your heater. Space heaters need space; keep combustibles at least three feet away from each heater. Always unplug your electric space heater when it is not in use.

## Kerosene Heaters

Buy only UL-approved heaters and check with your local fire department on the legality of kerosene heater use in your community. Never fill your heater with gasoline or camp stove fuel; both flare up easily. Only use crystal clear K-1 kerosene. Never overfill any portable heater. Use the kerosene heater in a well ventilated room.

## Fireplaces

Fireplaces regularly build up creosote in their chimneys. They need to be cleaned out frequently and chimneys should be inspected for obstructions and cracks to prevent deadly chimney and roof fires. Check to make sure the damper is open before starting any fire. Never burn trash, paper or green wood in your fireplace. These materials cause heavy creosote buildup and are difficult to control. Use a screen heavy enough to stop rolling logs and big enough to cover the entire opening of the fireplace to catch flying sparks. Don't wear loose-fitting clothes near any open flame. Make sure the fire is completely out before leaving the house or going to bed. Store cooled ashes in a tightly sealed metal container outside the home.

Finally, having a working smoke alarm dramatically increases your chances of surviving a fire. And remember to practice a home escape plan frequently with your family.

# Generators

*The following information, developed by the Red Cross with technical advice from the Centers for Disease Control and Prevention, the National Fire Protection Association (publisher of the National Electric Code ®) and the U. S. Consumer Product Safety Commission, is provided to address questions about using a generator when disaster strikes.*

**1. Purchasing a Generator**

If you choose to buy a generator, be sure to get one that is rated for the amount of power that you think you will need. Examine the labels on lighting, appliances, and equipment you plan to connect to the generator to determine the amount of power that will be needed to operate the equipment.

For lighting, the wattage of the light bulb indicates the power needed. Appliances and equipment usually have labels indicating power requirements on them. Choose a generator that produces more power than will be drawn by the combination of lighting, appliances, and equipment you plan to connect to the generator including the initial surge when it is turned on. If your generator does not produce adequate power for all your needs, stagger the operating times for various equipment.

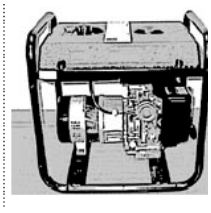
If you cannot determine the necessary amount of power, ask an electrician to determine that for you. (If your equipment draws more power than the generator can produce, then you may blow a fuse on the generator or damage the connected equipment.)

**2. Using a Generator**

The primary hazards to avoid when using a generator are carbon monoxide (CO) poisoning from the toxic engine exhaust, electric shock or electrocution, and fire. Follow the directions supplied with the generator. Every year, people die in incidents related to portable generator use.

***Under no circumstances should portable generators be used indoors***, including inside a garage, carport, basement, crawlspace, or other enclosed or partially-enclosed area, even with ventilation. Opening doors and windows or using fans will not prevent CO buildup in the home. The CO from generators can rapidly lead to full incapacitation and death, but CO can't be seen or smelled. Even if you cannot smell exhaust fumes, you may still be exposed to CO. If you start to feel sick, dizzy, or weak while using a generator, get to fresh air RIGHT AWAY - DO NOT DELAY.

Be sure to place the generator away from windows, doors, and vents that could allow CO to come indoors. To avoid electrocution, keep the generator dry and do not use in rain or wet conditions. To protect the generator from moisture, operate it on a dry surface under an open canopy-like structure, such as under a tarp held up on poles. Only touch the generator with DRY hands.



It is a good idea to install battery-operated CO alarms or plug-in CO alarms with battery back-up in your home, according to the manufacturer's installation instructions. If CO gas from the generator enters your home and poses a health risk, the alarm will sound to warn you. Test the battery frequently and replace when needed.

**3. Be sure to turn the generator off and let it cool down before refueling**. Gasoline spilled on hot engine parts could ignite.

Store generator fuel in an approved safety can. Use the type of fuel recommended in the instructions or on the label on the generator. Local laws may restrict the amount of fuel you may store, or the storage location. Ask your local fire department for additional

information about local regulations. Store the fuel outside of living areas in a locked shed or other protected area. Do not store it near a fuel-burning appliance, such as a natural gas water heater in a garage. If the fuel is spilled or the container is not sealed properly, invisible fuel vapors can travel along the ground and be ignited by the appliance's pilot light or by arcs from electric switches in the appliance.

**4. Plug appliances directly into the generator. Or, use a heavy duty, outdoor-rated extension cord** with wattage or amperage capacity at least equal to the sum of the connected appliance loads. Check that the entire cord is free of cuts or tears and that the plug has all three prongs, especially a grounding pin. Never try to power the house wiring by plugging the generator into a wall outlet, a practice known as "backfeeding." This is an extremely dangerous practice that presents an electrocution risk to utility workers and neighbors served by the same utility transformer. It also bypasses some of the built-in household protection devices.

**5. Future Considerations**

It is recommended that a generator be connected to house wiring by having a qualified electrician install a power transfer switch. This switch must be installed in accordance with the National Electrical Code® (NEC), which is published by the National Fire Protection Association, and all applicable state and local electrical codes. Call a qualified electrician or check with your utility company to see if they can install the appropriate equipment.

For power outages, permanently installed stationary generators are better suited for providing backup power to the home. Even a properly connected portable generator can become overloaded. This may result in overheating or stressing the generator components, possibly leading to a generator failure. Be sure to read instructions that come with the generator to make sure you operate it within its limitations for power output.

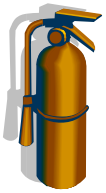
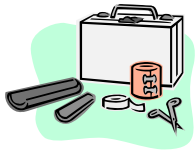
# Automotive Preparedness

**Getting Ready for Winter**

Ensure the vehicle is winterized by late fall. This includes having the proper mix of anti-freeze and water in the cooling system, topping off the windshield washing solution, and checking the tire treads. Have a mechanic check the belts, hoses, tires, battery and coolant.

Keep the fuel tank near full, as low fuel levels can cause condensation to form, degrading fuel quality and possibly causing fuel line freeze-up. Additionally, gas stations may be closed during a severe winter storm, so it is wise to fill up if warnings of an impending storm are being broadcast.

Your car should always be equipped with emergency supplies.

Keep the following items stored in a portable container:

- A small battery powered radio (AM is sufficient) and extra batteries
- Flashlight with extra batteries
- Cellular phone
- Windshield scraper
- Jumper Cables
- Fire extinguisher
- Maps
- Shovel
- Blanket
- Flares
- Bottled water
- First aid kit
- Tire repair kit and pump
- Tow chain or rope
- Nonperishable, high energy foods (granola bars, canned nuts, raisins, hard candy, trail mix, peanut butter and crackers).

**If travel is necessary:**

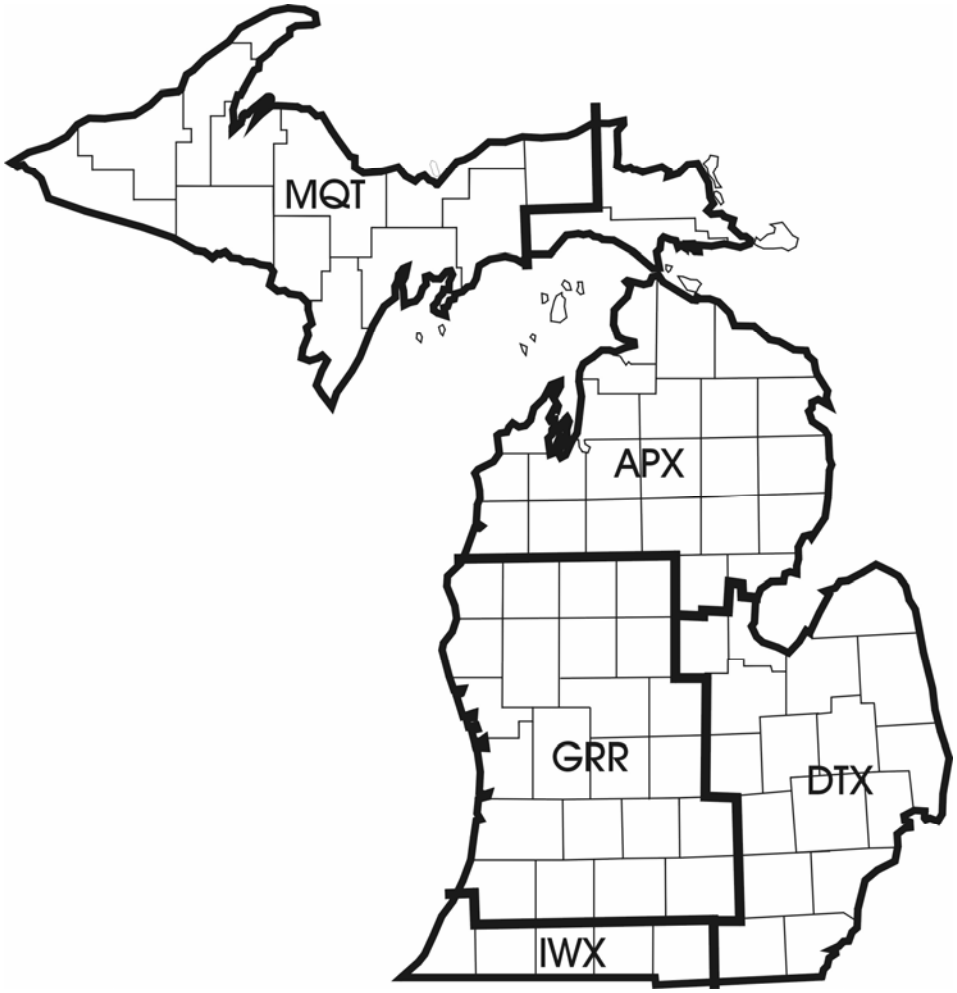
- Inform someone of your destination and travel time. Take along a cell phone in case you must call for help.

**If the power goes out:**

- Use extreme caution when driving. If traffic signals are out, treat each signal as a stop sign – come to a complete stop at every intersection and look before you proceed.

- Do not call 9-1-1 to ask about the power outage. Listen to news radio stations for updates.

# NOAA's National Weather Service Contacts

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