



Township of Cranford

FLOOD RELIEF INFORMATION PACKET

Mayor Daniel Aschenbach

August 2011

TOWNSHIP OF CRANFORD

8 SPRINGFIELD AVENUE • CRANFORD, NEW JERSEY 07016

(908) 709-7200 • FAX (908) 276-7664

www.cranford.com/township

OFFICE OF THE MAYOR



Dear Resident

Hurricane Irene has been a serious challenge for our community. The Township is doing all it can to respond to all requests for service.

Our police, fire, DPW, as well as the entire municipal government are working to meet the challenge.

Some announcements:

- **DEBRIS:** Place only storm debris on your property and not in street. The debris will be picked up by Township by September 6.
- **POWER:** PSEG substation was underwater. 6,000 Cranford residents lost power. We are working with PSEG to get power back and PSEG still expects it will be restored by September 4. PSEG is doing all it can to restore the service.
- **FEMA** We are working with our federal and state officials to get Cranford eligible for FEMA assistance. More details will be forthcoming.
- **COMMUNICATIONS:** Cranford lost TV-35 temporarily. Please check Nixle, Facebook, Cranford.com and local newspapers for the latest.
- **EMERGENCY INFORMATION:** Please continue to contact 911 for emergencies and 272-2222 for non-emergencies.

On behalf of the Township, stay safe and we will do all we can to help get things back to normal.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Aschenbach".

Dan Aschenbach
Mayor

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CONTACT TELEPHONE NUMBERS

Township of Cranford

Emergency	9-1-1
Police Department	908-276-0146 or 272-2222
Fire Department	908-276-0146
Emergency Medical Service	908-276-0146 or 272-2222
Health Department	908-709-7240
Building Department	908-709-7213
Public Works	908-709-3995
Main Switchboard	908-709-7200

Utilities

PSE&G	800-436-PSEG (7734) Emergencies
Elizabethtown Gas	800-242-5830 (Customer Service) 800-427-9977 (Odor of Gas)
Verizon Telephone	800-427-9977
Comcast Cable and Telephone	800-266-2276

Other

American Red Cross	908-756-6414
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Important Notice

The shower facility at the Centennial Avenue Indoor Pool is available to Cranford residents who have been affected by flooding from the recent storm.

Centennial Avenue Pool Complex
401 Centennial Avenue
908-709-7260

Hours:

Monday – Friday
5 am to 8 pm

Saturday & Sunday
9 am to 5 pm

You must bring your own towel, shampoo, etc.

This is in effect until further notice [August 2011]

Important Notice

Do not bring flood related debris to the Conservation Center.

- Please place all flood related debris at the curb. You should document all damages and losses first.
- All flood debris must be curbside by Tuesday, September 6, 2011.
- Arrangements will be made by the Department of Public Works to pick up and dispose of all flood related debris.

Contact Department of Public Works with any questions related to removal of flood debris.

908-709-7217

We appreciate your patience and cooperation as we all work together to clean up safely.

The following information is provided by the Cranford Township Health Officer, Warren Hehl for informational purposes only, to assist in cleanup efforts.

AVOID RISK OF FLOOD-CONTAMINATED FOOD

If all of the food was not removed from the basement and off kitchen and pantry shelves, cautions about the risk of using food that has come in contact with floodwater. Food contamination is often a problem after a flood because floodwater can carry silt, raw sewage, oil or chemical wastes. When in doubt, throw out.

FLOOD-SOAKED BEDDING

Blankets: Put wool blankets through a dry-cleaning process either at a commercial dry-cleaning plant or at a coin-operated facility. Shrinkage and thorough cleaning make wool blankets difficult to wash. For blankets that are washable (rayon, acrylic, cotton) put through two complete washing cycles. Air-dry or use an automatic dryer at proper temperature settings.

Sheets and pillowcases: Put through two complete washing cycles. Bleach using diluted liquid chlorine bleach to help kill germs. Follow your regular drying procedure.

Quilts and comforters: Wash or dry-clean depending on fiber content of the bedding. Usually, it is best to wash cotton quilts.

Pillows: If pillows are foam rubber or stuffed with feathers or fiberfill, put them through a regular washing cycle using sudsy lukewarm water. Do not overload the machine. Two pillows usually make a normal load.

REDUCE ODORS FROM FLOODED BASEMENTS

A chlorine bleach solution may be used to remove odors from basements that have been flooded. First, spray surfaces with luke-warm water to remove flood residue. Start with the floor, then move to the bottom of the walls and work your way up. This will lessen the chances of leaving muddy streaks on any basement surfaces.

Next, use hot water with a heavy-duty cleaner to scrub all surfaces, again, starting at the bottom and working up to the top. Follow up with a rinse using a brush moistened with a solution of two tablespoons chlorine bleach per gallon of water. Repeat scrubbing and rinsing until the odor is gone.

AVOID CARBON MONOXIDE POISONING

Carbon monoxide (CO) is a colorless, odorless gas that can be lethal at high levels. Carbon monoxide levels can build up rapidly if certain types of combustion devices (for example, gasoline-powered generators, camp stoves and lanterns, or charcoal-burning devices) are used indoors. Do not use combustion devices designed for outdoor use indoors.

YARDS

Yards that have been contaminated by flooded sewage systems should be disinfected by a liberal application of lime. Children and animals should be kept away from limed areas until the lime is no longer visible.

Cleaning Your Flooded or Water-Damaged Home

This checklist provides basic information. For details, get the publication "Repairing Your Flooded Home" at <http://www.fema.gov/library/repfhtm.pdf> or from the American Red Cross or Federal Emergency Management Agency, contact your county office of the NDSU Extension Service or see Extension's Coping with Floods website at <http://www.ag.ndsu.nodak.edu/flood/>

Safety

- ◆ **Turn off electricity.** Stand on a dry spot or on a dry wooden block or plastic crate. Use a wooden stick or plastic pipe to pull the fuse box handle to off. Pull out the main fuses, and unscrew each circuit fuse. On a breaker box, use the stick to switch off the main breaker switch and each circuit breaker. If you have to step in water to get to your electric box, call an electrician or your power company. Even if the power company has turned off electricity to your area, make sure your house's power is disconnected so it won't come back on without warning.
- ◆ **Turn off gas.** If you suspect a leak or smell gas, leave your home immediately. Leave the door open. If the gas meter is outside, turn off the gas by using pliers or a wrench to turn the valve a quarter turn so the valve is perpendicular to the pipe.
- ◆ **Make sure water is safe.** Listen for announcements about the local water supply. Private water wells need to be tested and disinfected after floodwaters recede. Water that might be contaminated should be boiled at least 10 minutes.
- ◆ **Make sure food is safe.** Frozen or refrigerated foods warmed above 40 degrees for more than two hours may not be safe to eat. This includes meats, milk products, eggs, casseroles and other foods. Discard anything that is moldy or has an unusual odor or look. Partially thawed frozen foods that still have ice crystals can be safely refrozen. Most once-frozen foods that have thawed can be cooked and eaten immediately if they

haven't been above 40 degrees more than two hours. These foods can be refrozen after cooking.

- ◆ **Stay healthy.** Wash hands with soap and water often. Get a tetanus booster before working in floodwater. Disinfect dishes, appliances and other materials that may have been contaminated by floodwater.
- ◆ **Take care of yourself and your family.** Accept support from family, friends and others. Talk about your feelings to release tension. Discuss the situation with children honestly and openly. Get proper nutrition and rest. Pace yourself, and take one step at a time. Don't be afraid to get help.

General Cleanup

- ◆ **Get organized.** Set priorities. Remove contaminated mud first. Next scrub with detergent, then wash with a disinfectant. Thoroughly clean and dry your house before trying to live in it and before making permanent repairs.
- ◆ **Remove water from the basement slowly.** If your basement is full or nearly full of water, pump out just 2 or 3 feet of water each day. If you drain the basement too quickly, the pressure outside the walls will be greater than the pressure inside the walls. That may make the walls and floor crack and collapse.
- ◆ **Remove contaminated mud.** Shovel out as much mud as possible, then use a garden sprayer or hose to wash away mud from hard surfaces. Start cleaning walls at the bottom or where damage is worst. Remember to hose out heating ducts, disconnecting the furnace first.
- ◆ **Clean and disinfect.** Scrub surfaces with hot water and a heavy-duty cleaner. Then disinfect with a solution of ¼ cup chlorine bleach per gallon of water or a product that is labeled as a disinfectant to kill germs. Laundry bleaches should not be used on materials that will be damaged or might fade. Sanitize dishes, cooking utensils and food preparation areas before using them.

JUNE 2000



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Thoroughly disinfect areas where small children play. Don't mix cleaning products. A combination of chemicals can give off toxic fumes.

- ◆ **Dry ceilings and walls.** Flood-soaked wallboard should be removed and thrown away. Plaster and paneling can often be saved, but air must be circulated in the wall cavities to dry the studs and sills. The three kinds of insulation must be treated differently. Styrofoam might only need to be hosed off. Fiberglass batts should be thrown out if muddy but may be reused if dried thoroughly. Loose or blown-in cellulose should be replaced since it holds water for a long time and can lose its antifungal and fire retardant abilities.
- ◆ **Prevent mildew growth.** Take furniture, rugs, bedding and clothing outside to dry as soon as possible. Use an air conditioner or dehumidifier to remove moisture or open at least two windows to ventilate with outdoor air. Use fans to circulate air in the house. If mold and mildew have already developed, brush off items outdoors to prevent scattering spores in the house. Vacuum floors, ceilings and walls to remove mildew, then wash with disinfectant. Wear a two-strap protective mask to prevent breathing mold spores.

Cleaning Carpet and Floors

- ◆ **Clean and dry carpets and rugs as quickly as possible.** If sewage-contaminated floodwater covered your carpeting, discard it for health safety reasons. Also discard if the carpet was under water for 24 hours or more. To clean, drape carpets and rugs outdoors and hose them down. Work a disinfecting carpet cleaner into soiled spots with a broom. To discourage mildew and odors, rinse with a solution of 2 tablespoons bleach to 1 gallon water, but don't use this solution on wool or nylon carpets. Dry the carpet and floor thoroughly before replacing the carpet. Padding is nearly impossible to clean so should be replaced. If the carpet can't be removed, dry it as quickly as possible using a wet/dry vacuum and dehumidifier. Use a fan to circulate air above the carpet, and if possible, lift the carpet and ventilate with fans underneath.
- ◆ **Remove hardwood floor boards to prevent buckling.** Remove a board every few feet to reduce buckling caused by swelling. Clean and dry wood before attempting repairs. With wood subflooring, the floor covering (vinyl, linoleum, carpet) must be removed so the subflooring can dry thoroughly which may take several months. Open windows and doors to expose the boards to as much air as possible.

Electrical Cleanup

Practice safety during initial electrical cleanup.

Appliances: Electric motors must be reconditioned or replaced. To clean surfaces, use a heavy-duty cleaner

and hot water, then a bleach solution. Refrigerators, freezers and ovens with foam insulation and sealed components may have little water damage, but since they hold food, they should be cleaned and disinfected.

Electronics: Get a cost estimate from a professional for repairing televisions, radios, computers and similar equipment to decide if the device is worth repairing.

Clean-up Equipment: When using sprayers, wet vacs, vacuum cleaners and other cleaning equipment, use an extension cord with a ground fault circuit interrupter or install a GFCI in the electrical circuits in damp environments.

Hire a professional to replace or recondition electrical wiring and equipment. North Dakota State Electrical Board policy states:

- ◆ All breaker panel boards, breakers, fuses, disconnect switches, controllers, receptacles, switches, light fixtures and electric heaters that have been submerged must be replaced.
- ◆ All electrical equipment, switchgear, motor control centers, boilers and boiler controls, electric motors, transformers and other similar equipment such as appliances, water heaters, dishwashers and oven ranges that have been submerged need to be reconditioned by the original manufacturer or its approved representative, or replaced.
- ◆ Electrical wiring may require replacement depending on the type of wire or cable and what application it was listed for.
- ◆ Splices and termination must be checked to make sure they comply with the National Electrical Code.
- ◆ The electrical system needs to be certified by a licensed N.D. electrical contractor or inspector to assure that the electrical system will be safe to energize.

Cleaning Valuable Items

- ◆ **Wash mud off before items dry, if possible.** Photographs, books and important papers can be frozen and cleaned later. Wash the mud off. Store the articles in plastic bags and put them in a frost-free freezer to protect from mildew and further damage until you have time to thaw and clean them.

Details

- ◆ **Call your insurance agent.** If your insurance covers the damage, your agent will tell you when an adjuster will contact you.
- ◆ **List damage and take photos or videotape as you clean.** You'll need complete records for insurance claims, applications for disaster assistance and income tax deductions.

Cleaning and Disinfecting Your Home After the Flood

Cleaning

The four major steps to cleaning many items after the flood are:

1. **Remove contaminated mud.** Shovel out as much mud as possible, then use a garden sprayer or hose to wash away mud from hard surfaces. Start cleaning walls at the bottom or where damage is worst. Remember to hose out heating ducts, disconnecting the furnace first.
2. **Clean.** Scrub surfaces with hot water and a heavy-duty cleaner. Scrub off all contaminants with a brush. Rinse off soap.
3. **Disinfect.** Bacteria can only be destroyed by disinfecting or sanitizing. This can be done by wiping or spraying surfaces with a solution of ¼ cup chlorine bleach per gallon of water or a product that is labeled with an EPA registration number as a disinfectant. After wiping or spraying with a disinfectant, put the item out in the sun, if possible, for additional natural disinfecting plus drying.
(See cleaners and disinfectants chart on back page.)
4. **Dry.** Ventilate with an entrance and exhaust opening for air to promote cross-ventilation. Place a fan in a window or door with the fan to the outdoors. Seal the rest of the opening with cardboard, plywood or blankets so the fan can

create a vacuum. Wood should have a moisture content of less than 15 percent before drywall, paneling or other coverings are placed over it.

Mildew

If mildew has developed because the molds weren't killed and the source is still damp, a strong product is required to remove it, and the required strength may ruin some household items.

Hard Surfaces

Mildew may be removed from walls and similar hard surfaces with this solution:

- 1 gallon water
- ¼ cup liquid chlorine bleach
- 1 cup trisodium phosphate (available in hardware and discount stores as TSP)

Follow all safety precautions when using this strong solution. Wash a small area at a time. Rinse quickly, and dry with a soft cloth.

Clothing

To remove mildew from clothing or textiles that are colorfast
Soak in a solution of 2 tablespoons liquid chlorine bleach and 1 quart water 5-15 minutes, then rinse.

To remove mildew from non-bleachable items
Mix 1 tablespoon fresh lemon juice and 1 tablespoon salt. Moisten the stain. If possible, spread in the sun to bleach. Rinse thoroughly. Another option is to soak the stain in 3% hydrogen peroxide for 15 minutes.



Cleaners and Disinfectants			
Type of Cleaner	Uses	Precautions	Additional Suggestions
Liquid household cleaner (Top Job, Ajax, Janitor in a Drum, Lysol, Mr. Clean)	Wash hard surfaces such as painted walls, floors, woodwork, porcelain.	Dilute with water as directed on container for specific uses.	
Powdered household cleaner (Spic'n Span, Ajax)	Removes mud, silt, greasy deposits.	Dissolve in water to make a solution.	
All-purpose laundry soaps	General household cleaning. Hand-washing and laundry. Moderately and heavily soiled and washable colorfast textiles.	Do not use on wool, silk or fabric blends containing these fibers.	Rinse well to remove suds.
All-purpose laundry detergents (Tide, Wisk, Oxydol, Cheer)	Moderately or heavily soiled washable, colorfast textiles. Outside of appliances. Painted walls and woodwork. Floors.	Do not use on wool, silk or fabric containing these fiber blends.	Rinse well to remove suds.
Light-duty dishwashing soaps (Ivory Snow, Dreft) or detergents (Lux, Joy)	Lightly soiled washable fabrics and household textiles. Rugs and carpets. Appliances and furniture. Washable wall paper.	Rinse well to remove suds.	Safe for wool and silk fibers and fabrics blends containing these fibers. Safe for most dyes.
Household ammonia	Hard surfaces: windows, walls, woodwork, floors, tile, porcelain.	Dilute in water. Do not get in eyes. May irritate skin.	
Trisodium phosphate (TSP 90)	Walls, woodwork, floors.	Powder. Dilute in water. Do not get in eyes. May irritate skin.	6 tablespoons per gallon of water.
Quaternary ammonium disinfectants	Laundry-safe for all fibers.	May cause some color change.	Add at beginning of rinse cycle.
Pine oil disinfectants (Pine-Sol)	Laundry-safe for washable clothing.	Do not use on wool or silk. Pine odor will linger on these fabrics.	Add before putting clothes in washer or dilute in 1 quart water.
Liquid chlorine bleach disinfectants (Clorox, Purex, Hilex)	Laundry.	Do not use on wool, silk or water-repellent fabrics.	Add bleach before putting clothes in washer or dilute in 1 quart water.
Phenolic disinfectants (Lestoil, Lysol)	Laundry-safe for washables.	Do not use on wool or silk.	Add in wash or rinse cycle.

Adapted from Minnesota Division of Emergency Services and Minnesota Extension Service



Coping With Floods

Information For Dealing With Floods

DISINFECTING HARD HOUSEHOLD SURFACES AFTER THE FLOOD

QUESTION: How can I disinfect hard surfaces in my home that have been in contact with sewage-contaminated floodwaters?

ANSWER: Try sodium hypochlorite -- liquid chlorine bleach. Chemists from Ames Laboratory at Iowa State University suggest using a 10 percent liquid chlorine bleach and water solution. That translates into one cup of household bleach to nine cups of water -- or about one and one-half cups of bleach per gallon of water. The chemists say that using a 10 percent bleach and water solution is necessary to disinfect hard surfaces that have been contaminated with floodwaters containing sewage. (Note: be aware that the Iowa Department of health recommends one-half cup of bleach per gallon of water.)

QUESTION: Can I disinfect hard household surfaces with rock salt?

ANSWER: Yes. Use one cup of rock salt per gallon of water. But don't use rock salt on concrete. It will ruin concrete, causing it to chip, fragment, and flake. You can use rock salt on dry wall, and also on plaster -- but be sure to rinse the surface well afterward.

QUESTION: How important is rinsing?

ANSWER: Rinsing is very important. Always rinse after you use bleach or rock salt. But be aware that in a flood situation, some sources of rinse water may be contaminated.

QUESTION: Can I disinfect hard surfaces using trisodium phosphate?

ANSWER: No. Trisodium phosphate is found in some cleansers. It cleans but it will not disinfect surfaces that have been contaminated by floodwaters.

ONE FINAL NOTE: NEVER MIX BLEACH AND AMMONIA! Hazardous fumes will result.

For More Information

For more details about preparing for a flood plus information about cleanup after a flood, contact your county office of the NDSU Extension Service or browse the NDSU Extension Service Coping with Floods site at <http://www.ag.ndsu.nodak.edu/flood/> on the World Wide Web.

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Coping With Floods

Information For Dealing With Floods

Flood-Damaged Furniture and Appliances

DECIDING WHAT TO SALVAGE AND TIPS ON RECONDITIONING

Evaluating appliance damage is a high priority after a flood. Have a service person check flooded appliances before you attempt operation or invest a lot of time in clean-up.

Deciding which furniture to save may be a more personal issue, especially if you have antiques and other pieces with sentimental value. Keep in mind that you don't need to repair all pieces of salvageable furniture immediately. You can clean, dry and store them in a warm, well-ventilated place until you have time to deal with them.

APPLIANCES

Before entering a home after a flood, be sure that the electricity to the dwelling has been completely shut off. (See the fact sheet, "Electrical Systems and Appliances.") Appliances should not be operated until they have been checked by service personnel.

Here are some things that may need to be done:

Electrical motors may need to be reconditioned or replaced.

Wiring and fixtures need to be checked and cleaned. They may also need replacement.

Before cleaning and sanitizing an appliance, be sure the motor is in safe working order. It may not be worth the time to clean up the unit.

A rust inhibitor may need to be applied to all metal parts. Even though an appliance may not have been submerged, rust can develop from dampness in the air.

REFRIGERATORS AND FREEZERS

Sanitize the refrigerator or freezer if water has seeped in. Be sure the motor and freezing unit are in safe working order and insulation is not wet. Wet insulation means replacement may be necessary.

Remove and wash all shelves, crispers and ice trays. Wash thoroughly with water and detergent. Rinse with a disinfectant solution.

Wash the interior of the refrigerator, including the door and door gasket, with hot water and baking soda. Rinse with a disinfectant solution.

Leave the door open for about 15 minutes to allow free air circulation.

If odor remains, place several pieces of activated

charcoal in an open metal container, or use a commercial refrigerator deodorizer.

Wash the outside with a mild detergent and hot water.

LAUNDRY EQUIPMENT

After washers and dryers have been reconditioned, sanitize them as follows:

Pour a disinfectant (chlorine, pine oil or phenolic) into the empty washing machine. Then complete a 15-minute cycle at the "hot" water setting.

Unplug the dryer and wipe the drum and door with a cloth dipped in disinfectant solution. Rinse with a cloth dipped in clear water.

Leave the dryer door open until all parts are thoroughly dry -- preferably overnight.

FURNITURE

Before starting to salvage damaged furniture, decide which pieces are worth restoring. Such decisions should be based on: the extent of damage, cost of the article, sentimental value and cost of restoration. Antiques are probably worth the time, effort and expense of restoration. Unless damage is severe, you may be able to clean and refinish antiques at home.

Related publications:

"Repairing Your Flooded Home." American Red Cross/Federal Emergency Management Agency, 1992.

Don't try to force open swollen wooden doors and drawers. Instead, take off the back of the piece of furniture to let the air circulate. You probably will be able to open the drawers after they dry.

Solid wood furniture can usually be restored, unless damage is severe. It probably will need to be cleaned, dried and reglued. Wood alcohol or turpentine applied with a cottonball may remove white mildew spots on wood. Cream wood restorers with lanolin will help restore good wooden furniture parts.

Wood veneered furniture is usually not worth the cost and effort of repair, unless it is very valuable. If veneer is loose in just a few places, you may be able to glue it adequately.

Upholstered furniture soaks up contaminants from floodwaters and should be cleaned only by a professional. Get a cost estimate to see if furniture is worth saving. Usually, flood-soaked upholstered pieces should be thrown away unless they are antiques or quite valuable.

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Contact your **county office** of the NDSU Extension Service for additional information on preparing for a flood and flood cleanup topics.

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North Dakota State University Agriculture and University Extension
Morrill Hall, P.O. Box 5562, Fargo, ND 58105-5562



Coping With Floods

Information For Dealing With Floods

Home Clean-Up and Sanitation

SAFELY CLEANING A FLOOD-DAMAGED HOME

Clean-up priorities will vary depending upon the kind and seriousness of damage to your home. But assuming major concerns such as structural safety, basement flooding, and electrical and water systems have been addressed, clean-up can begin inside.

Start cleaning your furnishings as soon as possible. Your aim should be to thoroughly dry and clean the house before trying to live in it or have permanent repairs made. Early efforts should include taking furniture, rugs, bedding and clothing outside to dry and prevent mildew.

SET PRIORITIES AND KEEP SAFETY IN MIND

As you begin clean-up, focus on accomplishing the most important tasks first. Resist over-exerting yourself.

Give special attention to cleaning children's toys, cribs, playpens and play equipment. Boil any items a toddler or baby might put in his or her mouth. Discard stuffed toys, water-logged toys and non-cleanable items.

Keep chemicals used for disinfecting and poisons used for insect and rodent control out of children's reach.

Wear protective clothing on legs, arms, feet and hands while cleaning up debris.

GENERAL RULES FOR CLEANING AND DISINFECTING

Wash exposed skin frequently in purified water. Wear rubber gloves to protect against contamination and skin irritation.

Try using a pump-up garden sprayer or hose to remove layers of mud from hard surfaces.

Scrub with a household cleaner/detergent solution and a brush to remove remaining surface oil. Rinse with clean water.

Wash with a disinfectant, such as chlorine bleach, pine oil or a phenolic product, such as Lysol. Remember, a product is considered to be a "disinfectant" only if it is labeled as such. Rinse well.

Dry items thoroughly to prevent mildew growth.

Sanitize dishes, cooking utensils and food preparation areas before using them (see fact sheet, "Disinfecting Dishes, Cookware and Utensils").

REMOVING MOLD AND MILDEW

Brush off mold and mildew growth on household items outdoors to prevent scattering of spores in the house.

Vacuum floors, ceilings and walls to remove mildew. Then wash surfaces with a detergent/household cleaner and water solution.

Wipe mildew-stained areas with a cloth dampened with a solution of 1 cup of chlorine bleach or rubbing or denatured alcohol to 1 gallon water. Pine-based or phenolic products also work well.

PREVENTING MILDEW GROWTH

Use an air conditioner, dehumidifier or heater, if available, to remove moisture. Use fans to circulate air and open all windows.

Turn on electric lights in closets and leave doors open to dry the dampness and humidity.

Spray with a fungicide or other mildew preventive product. Read and follow instructions and precautions on product label. Dry thoroughly.

Related publications:

"Repairing Your Flooded Home," the American Red Cross/Federal Emergency Management Agency, 1992.

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<http://www.ag.ndsu.nodak.edu/flood/>

Contact your **county office** of the NDSU Extension Service for additional information on preparing for a flood and flood cleanup topics.

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North Dakota State University Agriculture and University Extension

Morrill Hall, P.O. Box 5562, Fargo, ND 58105-5562



Coping With Floods

Information For Dealing With Floods

Cleaning Flood-Damaged Carpets and Rugs

WHEN TO DISCARD, CLEAN OR CALL A PROFESSIONAL

When faced with flood-damaged carpeting and rugs, your options will depend on the source of flooding. If floodwater consisted of clean basement seepage or lawn runoff into a sub-basement, drying and cleaning is an easy decision. But if sewage-contaminated floodwater has covered your carpeting, you probably will need to discard it for health safety reasons. You can assume the water and the carpet contain infectious organisms. Throw rugs can usually be saved.

Related publications:

"Repairing Your Flooded Home," American Red Cross/Federal Emergency Management Agency, 1992.

GENERAL RULES

Wall-to-wall carpeting, most large area rugs and any rug with foam backing should be discarded if flooded with contaminated water. Except for valuable rugs, the time and expense of professional cleaning generally is not worth the effort or the health risk.

If you are determined to salvage carpeting soaked with contaminated water, consult a professional cleaning company that services carpets at its own cleaning and drying facilities. A steam cleaning (hot-water extraction) method is preferable.

A wall-to-wall carpet soaked by clean rainwater can be salvaged. Have it professionally cleaned or clean it using the directions below.

Throw rugs usually can be cleaned adequately in a washing machine.

CLEANING RAIN-SOAKED CARPETS

Cleaning basement carpeting indoors is not a good idea in summer because you are adding even more moisture to an already wet area. If the carpeting is installed with tack strips you may be able to remove it, have it cleaned and reinstalled. Padding is nearly impossible to clean so it should be replaced.

If you can't remove the carpeting, dry it as quickly as possible to minimize growth of mildew. If possible, use a wet/dry vacuum system. A dehumidifier can help remove moisture from the air. Keep windows closed when using a dehumidifier.

When the carpet is thoroughly dry, vacuum the area.

Shampoo and repeat the drying process. Keep in mind that most modern carpeting is made of nylon and should not be treated with bleach.

Vacuum again.

You can reduce a musty smell with the following process:

- a) Sprinkle baking soda over the carpet, working it in with a broom or sponge mop.
- b) Leave the baking soda treatment on overnight.
- c) Vacuum the baking soda out. Vacuum twice, moving back and forth in a different direction the second time.

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Coping With Floods

Information For Dealing With Floods

DISCARD WATER-LOGGED TOYS

I threw out the carpet, the sofa and the chair. But how do I throw out my child's teddy bear?

Teddy bears, velveteen rabbits and baby toys may have to be thrown away if they've been contaminated by floodwaters. Water-soaked stuffing likely will require that a toy be tossed.

Every adult who remembers a favorite toy can empathize with the pain these losses will bring to children. No talk about germs and sanitation will ease the pain caused by the loss of a special toy.

The hard reality is the flood is bringing painful losses. Adults can't make everything OK for children. But they can view the situation from the children's level of understanding. By looking through children's eyes, adults can grasp the feelings, reactions and fears of children.

Accept children's emotions as real and legitimate and deserving of attention. To deny these emotions or make fun of them would undermine children's trust and confidence.

Dispose of toys in a manner suitable to the emotion each child feels. A teddy bear thrown on top of a garbage heap only makes the loss harder to take.

To help children deal with their emotions:

--Ease the transition with a brief funeral ceremony. Let children prepare a special burial box or bag.

--Select children's books about loss to read with children. Ask the local librarian for suggestions. One possibility is *The Velveteen Rabbit* about a boy's favorite toy rabbit that becomes contaminated by the child's own germs during an illness. Although the toy must be destroyed, the boy overcomes his grief when he learns of the rabbit's wonderful transformation.

Stories can assure children that other children in the world face the same problem and give suggestions on how to manage the situation.

-- Use art materials to help children express feelings and concerns. Some children may need to express feelings that might be considered negative and unacceptable. Learning to express emotions through creative channels gives children an outlet for pent-up tension.

Art experiences that include movement will help young children who are limited in verbal ability. Consider clay for pounding and pinching, paper for tearing and cutting, and fingerpaints for wiping and smearing.

-- Puppets also provide a way to express emotions and examine solutions.

Source: Iowa State University

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Safe Handling of Food and Utensils After a Flood

Floodwaters may carry silt, raw sewage, oil or chemical waste which can make storm-damaged foods unsafe to eat. If you have a question about the safety of any item, dispose of it. Otherwise keep the following points in mind:

- Discard the following foods if floodwater has covered, dripped on or seeped into the package: fresh produce; meat, poultry, fish and eggs; paper, cloth, fiber, cardboard boxes, even if the contents seem dry, including cereals, pasta products, rice, salt and any sealed packages of crackers, cookies or mixes within a larger paper box; foods with cardboard seals such as mayonnaise and salad dressing; foil or cellophane packages; food in glass jars, including unopened jars with waxed paper, foil, cellophane or cloth covers; home-canned foods (Some tightly sealed home-canned foods may be safe depending on conditions. Contact a food preservation specialist or local health department for advice.); preserves sealed with paraffin; spices, seasonings and extracts; foods, liquids or beverages in crown-capped bottles or containers with pull-tab tops, corks or screw caps; all opened containers and packages; foods in bags or canisters; cans that are dented, leaking, bulging or rusted; and cans that have been tossed about and are far from their normal storage spot.
- Destroy all foods that were covered by water which may have been contaminated with industrial waste, including foods sealed in unopened cans.
- Cans of food that do not have dents or rust can be saved if they are handled properly before they are opened. Be sure to wash and sanitize undamaged containers before opening the can. For added safety boil food before using.
- To disinfect undamaged cans remove paper labels (paper can harbor bacteria) and re-label with a permanent marker. Then wash the containers in a strong detergent solution. Use a brush to remove any dirt and silt. Rinse the scrubbed containers. Thorough removal of dirt and silt and rinsing are extremely important because the disinfecting action of the chlorine solution is diminished by any substances left on the containers.
- Wear rubber gloves to protect your hands during the disinfection process. Strong detergent and bleach solutions can be hard on bare hands.
- Immerse the clean, rinsed containers in a lukewarm (75 to 120 degrees F) solution of chlorine for two minutes. Use 2 tablespoons of 5% chlorine bleach per gallon of water. Chlorine loses its effectiveness when it is in a solution and open to the air or when it comes in contact with unclean materials so it is important to change this disinfecting solution frequently. It must be dumped if you see the water starting to lose its clarity. Remove the containers from the bleach solution and allow to air dry before opening or storing. Use disinfected containers as soon as possible because they may rust.



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- Wash all dishes and utensils in hot soapy water with a brush to remove dirt. Sanitize glass, ceramic and china dishes, glass baby bottles and empty canning jars the same way as for undamaged cans. Dishes with deep cracks should be thrown away. Metal pans and utensils can be disinfected by immersing them in water and boiling for 10 minutes.
- Discard porous non-food items that are used with food or put into the mouth and items made of hard rubber, plastic or other flexible (porous)

materials, such as baby bottle nipples, pacifiers, and plastic or wooden dishes and utensils.

- Kitchen utensils made of iron will probably be rusted. Remove the rust by scouring with steel wool. Disinfect with the bleach solution and re-season. To do this, apply a light coat of unsalted fat or oil and place in a 350 degree oven for about an hour.

*Sources: USDA, Florida Extension Service, Nebraska Extension Service, Missouri Extension Service, Pat Beck, NDSU Extension Nutrition Specialist, 701-231-7281
April 1997*

Make Sure Your Water Is Safe

After a flood you must assume that all water sources are contaminated until proven safe. Purify all water used for drinking, cooking, and washing eating and cooking utensils. Also purify the water used for washing hands, body, kitchen and bathroom surfaces. Do not use water that has a dark color, has an odor or contains floating material.

Water for Consumption

- If you suspect your drinking water is contaminated (for example surface water has gotten into your well) or you have received an order to boil water for drinking and cooking:
 - Bring water to a rolling boil for 10 minutes.
 - To reduce the flat taste of boiled water, pour the water back and forth several times between two clean containers.
 - If you don't have the ability to boil water, disinfect with unscented chlorine bleach:
 - Add 1 teaspoon for each 2 gallons of water.
 - Stir the water thoroughly after adding chlorine.
 - Allow chlorinated water to stand for 30 minutes.
 - Instead of chlorine, you can use tincture of iodine:
 - Add 12 drops per gallon of water.
 - Stir the water thoroughly after adding iodine.
 - Allow iodized water to stand for 30 minutes.

Water for Washing Hands, Body, Kitchen and Bathroom Surfaces

- Always use clean or purified water to wash any parts of the body that have come in contact with surfaces contaminated by floodwaters.
- Water in water pipes and toilet flush tanks (not bowls) is safe to drink if the valve on the main water line was closed before the flood.

Making a Chlorine Disinfecting Solution

Household bleaches contain 2 to 6 percent chlorine. The amount of bleach to add to water depends on the percent of chlorine it contains. Check the bottle label and follow these guidelines:

Percent Chlorine in Bleach	Add This Much Bleach To One Quart Water	Bleach To One Gallon Water
2%	2 teaspoons	2 tablespoons
4%	1 teaspoon	1 tablespoon
6%	½ teaspoon	2 teaspoons

Source: South Dakota State University, U.S. Dept. of Agriculture



Coping With Floods

Information For Dealing With Floods

Disinfecting Dishes, Cookware and Utensils

SAFETY GUIDELINES AFTER A DISASTER

During a disaster such as a flood, tornado or fire, kitchen items easily can become contaminated. Floodwaters may contain silt, raw sewage, oil or chemical wastes, while fires may leave residues from toxic fumes or fire-fighting chemicals. Before using any item that has come in contact with these substances, follow the guidelines at right.

Related publications:

"Repairing Your Flooded Home," American Red Cross/Federal Emergency Management Agency, 1992.

DISASSEMBLE, WASH AND DISINFECT

Take apart any item that can be cleaned in pieces. If possible, remove handles from pots. If you have a dishwasher and the hot water temperature is at least 140 degrees F., use a long wash cycle and heated drying cycle to clean and disinfect dishwasher-safe items. Regarding other items, or all items if you don't have a dishwasher, follow these steps:

Wash all items in a strong detergent solution. Use a brush to remove dirt. Rinse in hot water.

Immerse glass, porcelain, china, plastic dinnerware and enamelware for 10 minutes in a disinfecting solution of 2 tablespoons of chlorine bleach per gallon of hot water.

Disinfect silverware, metal utensils, and pots and pans by boiling in water for 10 minutes. Chlorine bleach should not be used in this case because it reacts with many metals and causes them to darken.

Air-dry dishes. Do not use a towel.

Discard and replace soft, porous plastic or wood items saturated by floodwater, since they cannot be sanitized. These include baby bottles, nipples and pacifiers.

If cupboards and counters come in contact with floodwater, clean and rinse them with a chlorine bleach solution before storing dishes.

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FLOOD-SOAKED BEDDING NEEDS SANITATION

Families cannot always move furnishings such as bedding out of danger of possible contamination from germ-laden floodwaters, said Lois Warne, Iowa State University Extension art and design specialist.

Many experiences of Iowa families over the years have shown that getting the family to safety, plus collecting some items of clothing and important family documents, must come first. When flood victims are worried about shutting off electricity and protecting appliances and major furnishings, they do not have much time to move other items.

Cleaning flood-soaked bedding is not quite the same as doing the regular family wash or the semi-yearly cleaning of blankets, Warne said. Laundry appliances in a flood-soaked home generally are not in working condition, or at least they need attention and thorough cleaning before laundering "as usual."

Bedding may be cleaned in a commercial laundry, using the large front-loading machine. Do not overload a washer or dryer. Large or heavy loads need space to move freely in the washer and dryer.

Here are tips for reclaiming flood-soaked bedding, all with emphasis on thorough sanitation since floodwaters are filthy and germ-laden.

For all bedding: Hang out to air and dry thoroughly; then brush to remove excess dirt and soil.

Blankets: Put wool blankets through a dry-cleaning process either at a commercial dry-cleaning plant or at a coin-operated facility. Shrinkage and thorough cleaning make wool blankets difficult to wash. For blankets that are washable (rayon, acrylic, cotton), put them through two complete washing cycles. Air-dry or use an automatic dryer at proper temperature settings.

Sheets and pillow cases: Put through two complete washing cycles. Bleach using diluted liquid chlorine bleach to help kill germs. Follow your regular drying procedure.

Quilts and comforters: Wash or dry-clean depending on fiber content of the bedding. Usually, it's best to wash cotton quilts.

Pillows: If pillows are foam rubber or stuffed with feathers or fiberfill, put them through a regular washing cycle using sudsy lukewarm water. Do not overload the machine. Two

pillows usually make a normal load.

Check the ticking on the feather pillow to see if it is tight. If it is, do not take the feathers out of the pillow. If the ticking is worn, transfer the feathers to a muslin bag larger than the ticking. Sew up the bag, wash feathers in it; then dry, and put them back in the ticking.

Stop the washing process mid-way and turn the pillows over by hand. Plan to use a non-chlorine disinfectant in the wash or rinse water for pillows containing foam, down or feathers. Use bleach on fiberfill pillows.

Air-dry foam rubber pillows. There is danger of fire if they are put in an automatic dryer. Feather pillows may be dried in an automatic dryer at a low temperature setting or may be air-dried. Air-dried pillows can be fluffed up by hand as they are drying.

Do not wash kapok and cotton-filled pillows. The cotton filling will become lumpy because water disintegrates kapok. These pillows probably should not be reclaimed.

Mattresses: Foam-rubber and urethane-foam mattresses are mildew-proof and odorless. The cover can be removed and machine-washed (or you may want to discard it and buy a new cover). The foam mattress part can be thoroughly washed with a garden hose. Squeeze a detergent and water solution through the foam if possible.

Reconditioning of other types of mattresses is too difficult to do at home. For a good innerspring mattress, check with a nearby commercial renovating company to see if it is worth reclaiming. Check cost of renovation against replacement cost. As a general rule, inexpensive mattresses are not worth the expense of reclaiming and should be discarded.

Source: Lois Warne, Extension Art and Design Specialist, Iowa State University Extension

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REDUCE ODORS FROM FLOODED BASEMENTS

A chlorine bleach solution may be used to remove odors from basements that have been flooded, said Mary Yearns, Iowa State University Extension housing specialist.

After checking the structural safety of the basement and removing water and mud, use a coarse brush or long-handled broom to scrub down the floors, walls and ceiling.

"First, spray surfaces with luke-warm water to remove flood residue," Yearns says. "Start with the floor, then move to the bottom of the walls and work your way up. This will lessen the chances of leaving muddy streaks on any basement surfaces."

Next, use hot water with a heavy-duty cleaner to scrub all surfaces, again, starting at the bottom and working up to the top. Follow up with a rinse using a brush moistened with a solution of two tablespoons chlorine bleach per gallon of water. Repeat the scrubbing and rinsing until the odor is gone.

"You'll want to dry out the basement, but if the outdoor air is humid, don't open the windows to do it," Yearns says. It's better to run central air conditioning or a dehumidifier. These methods will remove moisture from the basement air. Running a fan also will help dry things out.

Source: Mary Yearns, Extension Housing Specialist, Iowa State University Extension

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Flood Cleanup: Avoiding Indoor Air Quality Problems

Fact Sheet

Introduction

During a flood cleanup, the indoor air quality in your home or office may appear to be the least of your problems. However, failure to remove contaminated materials and to reduce moisture and humidity can present serious long-term health risks. Standing water and wet materials are a breeding ground for microorganisms, such as viruses, bacteria, and mold. They can cause disease, trigger allergic reactions, and continue to damage materials long after the flood.

This fact sheet discusses problems caused by microbial growth, as well as other potential effects of flooding, on long-term indoor air quality and the steps you can take to lessen these effects. Although the information contained here emphasizes residential flood cleanup, it is also applicable to other types of buildings.

Prepare for Cleanup

Read *Repairing Your Flooded Home*

www.redcross.org/services/disaster/0,1082,0_570_00.htm
prepared by the Federal Emergency Management Agency and the American Red Cross. The booklet discusses flood safety issues and can save your life. The booklet also contains detailed information on proper methods for cleaning up your home. You should also consult the wealth of information on the FEMA, CDC, and The American Lung Association sites on the subject, which are listed below:

- FEMA web site on floods/flooding - www.fema.gov/hazards/floods
- American Lung Association's Fact Sheet on Flood Clean-up - www.lungusa.org/air/flood_factsheet99.html

This fact sheet provides additional information not covered in the original FEMA/American Red Cross booklet on indoor air quality concerns related to flooding (however, because this fact sheet was prepared in 1993, it is more than likely that FEMA and the Red Cross and the American Lung Association do have more up-to-date information and resources available which you should consult). Many of the methods used for general cleanup, as detailed in the booklet, are the same as those used to avoid problems with indoor air quality. For brevity, we have not provided detail on the general methods used for cleanup here. This fact sheet is intended to be used in

conjunction with the FEMA/American Red Cross booklet and resources.

Children are different from adults. They may be more vulnerable to chemicals and organisms they are exposed to in the environment.

Avoid Problems from Microbial Growth

Remove Standing Water

Standing water is a breeding ground for microorganisms, which can become airborne and be inhaled. Where floodwater contains sewage or decaying animal carcasses, infectious disease is of concern. Even when flooding is due to rainwater, the growth of microorganisms can cause allergic reactions in sensitive individuals. For these health reasons, and to lessen structural damage, all standing water should be removed as quickly as possible.

Dry Out Your Home

Excess moisture in the home is an indoor air quality concern for three reasons:

- Microorganisms brought into the home during flooding may present a health hazard. These organisms can penetrate deep into soaked, porous materials and later be released into air or water. Coming in contact with air or water that contains these organisms can make you sick.
- High humidity and moist materials provide ideal environments for the excessive growth of microorganisms that are *always* present in the home. This may result in additional health concerns such as allergic reactions.
- Long-term increases in humidity in the home can also foster the growth of dust mites. Dust mites are a major cause of allergic reactions and asthma.

See Step 4, Dry Out Your Home, of the American Red Cross/FEMA booklet, *Repairing Your Flooded Home*, on steps that should be taken to open up and dry out ceilings, walls, and floors in the home.

Be patient. The drying out process could take several weeks, and growth of microorganisms will continue as long as humidity is high. If the house is not dried out properly, a musty odor, signifying growth of microorganisms can remain long after the flood.

Remove Wet Materials

It can be difficult to throw away items in a home, particularly those with sentimental value. However, keeping certain items that were soaked by water may be unhealthy. Some materials tend to absorb and keep water more than others. In general, materials that are wet and cannot be thoroughly cleaned and dried within 24-48 hours should be discarded, as they can remain a source of microbial growth.

Information on the types of water-damaged materials that should be discarded are provided in Step 4, Dry Out Your Home, of the American Red Cross/FEMA booklet, *Repairing Your Flooded Home*

The booklet suggests that you may be able to dry out and save certain building materials (for example, wallboard, fiberglass insulation, and wall-to-wall carpeting that were soaked only with clean rainwater). You may, however, want to consider removing and replacing them to avoid indoor air quality problems. Because they take a long time to dry, they may be a source of microbial growth. For information on mold prevention and cleanup, visit www.epa.gov/mold or call IAQINFO at 800-438-4318.

In addition, fiberboard, fibrous insulation, and disposable filters should be replaced, if they are present in your heating and air conditioning system and have contacted water. (If a filter was designed to be cleaned with water and was in contact with clean rainwater only, ensure that it is thoroughly cleaned before reinstalling.)

Avoid Problems from the Use of Cleaners and Disinfectants

The cleanup process involves thorough washing and disinfecting of the walls, floors, closets, shelves, and contents of the house. In most cases, common household cleaning products and disinfectants are used for this task. FEMA also suggests the use of disinfectants and sanitizers on the ductwork for the heating and air conditioning system, if it has been flooded.

Disinfectants and sanitizers contain toxic substances. The ability of chemicals in other household products used for cleaning to cause health effects varies greatly, from those with no known health effect to those that are highly toxic. Read and follow label instructions carefully, and provide fresh air by opening windows and doors. If it is safe for you to use electricity and the home is dry, use fans both during and after the use of disinfecting, cleaning, and sanitizing products.

Be careful about mixing household cleaners and disinfectants together. Check labels for cautions on this. Mixing certain types of products can produce toxic fumes and result in injury and even death.

Avoid Carbon Monoxide Poisoning

Carbon monoxide (CO) is a colorless, odorless gas that can be lethal at high levels. Carbon monoxide levels can build up rapidly if certain types of combustion devices (for example, gasoline-powered generators, camp stoves and lanterns, or charcoal-burning devices) are used indoors. Do not use combustion devices designed for outdoor use indoors.

Avoid Problems from Airborne Asbestos and Lead Dust

Elevated concentrations of airborne asbestos can occur if asbestos-containing materials present in the home are disturbed. Airborne asbestos can cause lung cancer and mesothelioma, a cancer of the chest and abdominal linings. If you know or suspect that your home contains asbestos, contact the EPA TSCA Assistance Information Service at (202) 554-1404 for information on steps you should take to avoid exposure.

Lead is a highly toxic metal which produces a range of adverse health effects, particularly in young children. Disturbance or removal of materials containing lead-based paint may result in elevated concentration of lead dust in the air. If you know or suspect that your home contains lead-based paint, contact the National Lead Information Center to receive a general information packet, to order other documents, or for detailed information or questions. Call and speak with a specialist Monday through Friday, 8:00 am to 6:00 pm eastern time (except Federal holidays) at 1 (800) 424-LEAD [5323].

Copies of this fact sheet, and other information on indoor air quality, are available from:

Indoor Air Quality Information Clearinghouse [IAQINFO]
Phone: 800-438-4318 or (703) 356-4020 Fax: (703) 356-5386 or, E-mail at iaqinfo@aol.com

Additional Information

The Federal Emergency Management Agency's Flood website - www.fema.gov/hazards/floods/ Publications are available from:

FEMA – www.fema.gov
Jessup, MD 20794-2012
Phone: 800-480-2520/Fax: 301-362-5335

American Lung Association's Fact Sheet on Flood Clean-up - www.lungusa.org/air/flood_factsheet99.html

Centers for Disease Control (CDC) Key Facts About Hurricane Recovery - www.bt.cdc.gov/hurricanes/index.asp

Food contamination is often a problem after a flood because flood water can carry silt, raw sewage, oil or chemical wastes. Filth and disease-causing bacteria can contaminate any food the water contacts and make that food unsafe to eat.

Examine metal cans carefully

Metal cans of food that are free of dents or rust can be saved if the following steps are followed.

- Remove the labels and re-label each can with a permanent marker.
- Wash the unopened cans in a strong detergent solution.
- Use a brush to remove all silt.
- Immerse the scrubbed containers in a lukewarm solution of chlorine for one minute. (Use 1 tablespoon of household chlorine bleach to each gallon of water.)
- Allow cans to thoroughly air-dry before opening or storing.

Discard damaged foods

Discard the following foods if flood water has covered, dripped on, or seeped into the package.

- Containers of nuts, spices, seasonings, and flavorings.
- Canisters or bags of grains, flour, sugar, salt, coffee, and tea.
- Food in paper, plastic, cloth, fiber or cardboard packages (i.e., pasta, cereal, crackers, mixes).
- Jars or bottles of food that have screw-top or crimp-topped lids. This includes virtually all home-canned and commercially-canned foods in glass jars (jams, jellies, honey, molasses, syrups, fruits, pickles, vegetables, baby food, condiments, etc.).

Discard porous non-food items

Any porous items that are used with food or come in contact with the mouth should be discarded. This includes:

- bottle nipples and pacifiers,
- plastic storage containers,
- wooden bowls,
- disposable silverware,
- plastic utensils, and
- paper, foam, or plastic dishes.

Clean non-porous dishes thoroughly

Glass and china dishes, metal and glass cookware, glass baby bottles, and empty canning jars can be saved. They must be thoroughly cleaned.

- Wash in a strong detergent solution; remove all filth and mud.
- Disinfect china and glass dishes, metal pots, pans, utensils and silverware in a chlorine solution for 1 minute. (Use 1 tablespoon of household chlorine bleach to each gallon of water.)

... and justice for all

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File Health and Safety-6

Written by Patricia Redlinger, extension food science specialist, and Diane Nelson, extension communication specialist

Molds

in Your Home

Kenneth Hellevang, P.E.
Engineer

Health Effects

Exposure to mold is common both inside and outside the home, but some people are more sensitive to mold than others, especially those with allergies and asthma. Mold exposure may cause cold-like symptoms, watery eyes, sore throat, wheezing and dizziness, and trigger asthma attacks.

Because some mold spores are very small and can easily be breathed deeply into the lungs, it is not safe to live in houses with high mold levels. Exposure to high spore levels can cause the development of an allergy to mold.

Detection of Mold

Molds can usually be detected by a musty odor, and discoloration of surfaces is common with mold growth. The mold may change surfaces to white, green, brown, black or orange.

If you see or smell mold, you have a problem. Reliable sampling for mold can be expensive since it requires special equipment and training. Testing is not generally recommended as a first step.



North Dakota State University
Fargo, North Dakota 58105

SEPTEMBER 1999

Conditions for Mold Growth

Molds grow on organic materials such as paper, leather, dirt and soap scum. They grow best at warm temperatures, between 77 and 86 degrees Fahrenheit, although they can grow in temperatures between 32 and 95 degrees.

Molds grow in moisture. Water leaks, flooding, high relative humidity and condensation are all situations that increase the growth of mold.

Places Molds Grow

Basements may have mold if they are wet or damp. Moisture seeping through concrete walls and floors will cause this dampness, resulting in mold on walls, floors, carpeting and materials (including firewood) that are stored in your basement.

Bathrooms are more likely to have mold growth if exhaust fans are not used while showering or bathing. Soap scum, shower walls, ceramic tile and fiberglass are all possible surfaces for mold growth.

Laundry rooms are common places to find mold if damp towels and clothing are present. Unvented clothes drying, which produces high levels of relative humidity, can also cause mold growth.

Kitchens are possible sites for mold growth if large amounts of water are boiled using no

exhaust fan. Refrigerator pans in automatic defrosting refrigerators also commonly have mold.

Closets often have mold growth, especially if clothing is stored damp or dirty or there is a cool outside wall in the closet. And there's a chance mold will be growing behind furniture.

How to Prevent Mold

- Cleaning, disinfecting and drying surfaces prevents mold growth. Mold will grow on damp surfaces within a couple days at normal temperatures.
- Reduce moisture levels in the bathroom by running an exhaust fan during and after showers.
- Fix plumbing leaks and seepage to prevent the buildup of moisture and prevent the growth of molds.
- Store clothing dry and clean to prevent the growth of mold on clothes.
- Reduce humidity levels by discontinuing use of a humidifier if the relative humidity is more than 40 percent, and use dehumidifiers and air conditioners when levels of humidity are high. Also, ventilate with outside air during the winter when outside temperatures are colder than indoor temperatures. Ventilating with warm summer air typically increases the air's relative humidity in a basement.
- Increase the flow of air within your home. Moving furniture away from walls and opening closet doors to permit air circulation limits the growth of molds.
- Prevent condensation. Insulating walls and installing storm or thermal pane windows keeps walls warm and limits condensation.

Cleanup and Removal of Mold

- Materials should be dried quickly; mold will grow within about 2 days.
- Anyone spending more than a brief time cleaning in a moldy environment should use a HEPA filter mask; typically it will have two straps. Also, use gloves.
- Porous materials should be thrown out or completely decontaminated if they are moldy. Materials such as hard plastic, glass and metal can be cleaned and disinfected.
- Remove the mold using a non-ammonia soap or detergent. Never mix bleach and ammonia. Surfaces from which the mold cannot be completely removed should be treated with enough chlorine bleach to keep the surface moist for at least 15 minutes, rinsed, then rapidly dried.
- Disinfect by applying a solution of ¼ cup chlorine bleach per 1 gallon water or follow manufacturer's recommendations. The surface should be thoroughly wetted with the solution. Keep the surface wet with the bleach solution 10 to 15 minutes to kill the mold. Allow the solution to dry naturally 6 to 8 hours.

Other products that kill mold are biocides. These biocides have Environmental Protection Agency (EPA) registration numbers on the bottle and instructions for the intended application.

Methods to Remove Mold from Various Products

Painted Surfaces Inside the Home

Scrub moldy surfaces with a solution of 1 cup chlorine bleach to 1 gallon water. A little detergent may be added to the solution, but do not mix bleach with cleaners containing ammonia. Rinse with clean water and allow to dry thoroughly before painting or papering.

Painted Exterior Surfaces

Scrub mold on paint with a solution of 1/3 cup detergent that does not contain ammonia, 1 quart chlorine bleach and 3 quarts water.

Bathrooms

Scrub surfaces with a solution of 1 cup chlorine bleach, 1 tablespoon detergent that does not contain ammonia and 1 gallon water. Keep the surface wet for about 10 minutes, then rinse well with water and dry.

Roofs with Asphalt Shingles and Fiberglass Panels

Use a mixture of 3 parts chlorine bleach and 1 part water at the rate of 1 gallon per about 40 square feet. This solution will damage metal rain gutters and plants, so control runoff and rinse surfaces contacted by the solution.

Wood Shingles, Decks and Other Untreated Wood

Scrub surfaces with a solution of 1 quart chlorine bleach and 1 ounce detergent in 3 quarts water. Rinse thoroughly. If stains remain, increase the concentration of bleach to water and re-treat. Allow wood to dry thoroughly before painting or enclosing.

Clothing and Other Textiles

Brush, shake, sun and air mildewed textiles outdoors. Launder washable items with detergent and chlorine bleach when appropriate.

Leathers

Dyes used on leathers are very sensitive to numerous substances. Moisten a cloth with a solution of 1 cup denatured alcohol to 1 cup water, wipe away visible mold, dry in circulating air.

Carpet and Rugs

Discard pads containing mold. It is nearly impossible to clean and destroy all the mold in a pad. It is best to hire a professional carpet cleaner or restorer to clean wall-to-wall carpet. If you try to save the carpet yourself, apply rug shampoo with a carpet shampooer according to manufacturer's directions. Expose mold growing on the back of carpet to the direct rays of the sun. Paint the carpet backing with a solution of 1/4 teaspoon chlorine bleach to 1 cup water or another sanitizing product applied according to the label directions. Rinse several times. After shampooing and sanitizing, dry the carpet or rugs quickly by laying outdoors in the sun and wind, or use fans to speed drying.

Upholstered Furniture and Mattresses

Brush surface mold away with a broom outdoors. Vacuum using an upholstery attachment. Discard the disposable vacuum cleaner bag. Use the services of a professional upholstery cleaner, or sponge the item with detergent suds and wipe with a clean cloth. Avoid getting the stuffing wet. Wipe the furniture with a cloth moistened with a solution of 1 cup denatured or rubbing alcohol to 1 cup water and dry thoroughly. Place the item in the sun for a few hours and air it thoroughly or use a fan and indirect heat to dry. If mold is growing deep in the padding of an upholstered piece, nothing will eliminate the mold or odor except renovation or replacement.

Books

Stand books on end. Spread out pages to dry. Wipe off mold with a clean, dry cloth. After a few hours, stack and press to avoid wrinkling. Alternate opening and stacking until completely dry. Sprinkle talcum powder or cornstarch on pages to absorb moisture. Books may be frozen until you have time to work with them. Place books in a closed container with moth crystals to stop mold growth.

Dealing with Stress after a Disaster

A natural disaster leaves a trail of property destruction, and many times it leaves its victims with a damaged sense of balance. In addition to restoring buildings and replacing material possessions, victims may need to devote time to restoring their own emotional equilibrium during the recovery period. This can be especially important for children who do not have years of life experience to guide them.

Recognizing Symptoms of Family Stress

According to Family Information Services, families experiencing stress may have symptoms that include:

- little time to spend together
- sense of frustration — too much to do
- desire for the simpler life
- never time to relax
- infrequent opportunities for conversation
- explosive arguments
- bickering
- conversations centered on time and tasks rather than people and feelings
- meals eaten in haste
- constant rushing from place to place, task to task
- escaping into work or other activities
- isolation in a room
- insufficient one-on-one contact
- sense of guilt



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Focusing on the present can help people work through many of life's setbacks, both big and small. Spending time wondering "what could have been" or thinking about "if only" will cause more stress because the situation is in the past and out of their control.

Tips

- Be extra patient.
- Determine what's really important, keeping in mind that your spouse's viewpoint on what should be considered top priority may be different from yours.
- Don't expect things to instantly restore themselves. Accept that restoration (both physical and emotional) takes time.
- Realize that disaster victims have suffered losses and it's natural for them to express disbelief, anger, sadness, anxiety and depression afterwards.
- Realize that the emotions of victims will roller-coaster and moods can change unexpectedly.
- Don't overlook the feelings of children as you deal with the situation. They need to feel that they can count on you for the extra attention, love and support needed to get through.
- Reassure them, making sure they understand they are not responsible for the problems you face.
- Try to keep your family diet as nourishing as possible under the circumstances.
- Refocusing on the big picture, instead of the little details and the little problems, will give you a sense of competency.
- Talk with friends, family, counselors or members of the clergy. In crisis situations, a supportive network is essential.
- Be aware of the tendency to resort to bad habits when you are under stress.
- Get enough sleep. Being a "sleep cheat" ultimately will backfire. Try to get 7 to 8 hours of sleep every night. Avoid sleeping pills since these pills negatively alter normal sleep patterns.
- Make a list. List the things that need to be done first, second, third and so on. By ranking what needs to be done, the tasks that cannot be put off are taken care of first. Too often, we try to do everything at once with the result that nothing gets done the right way.
- Learn acceptance. So often, we worry about things that we cannot control. Face that fact. If you cannot control a situation or occurrence, then learn to accept that as a reality. Conserve your energies for the things you can control.

*Based on information developed by Clemson Cooperative Extension following Hurricane Hugo.
Revised for Virginia audiences by Virginia Cooperative Extension.*

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Helping Your Child Cope with Disaster

It is normal for children to be afraid, especially after a natural disaster. The fear may last for an extended time and is best handled with kindness and understanding from parents and other adults. Children should be encouraged to talk about their feelings and express their fears through play, drawing, painting or clay/playdough.

Research indicates that children's fears vary according to age, maturation and previous learning experiences. Four major fears common in children are death, darkness, animals and abandonment.

Children's fears may be intensified when adults refuse or are reluctant to discuss them with children. Many families ban all painful topics from family conversation. Such strategies inflict high costs in terms of intensified despair and negativity among children. To help children cope with fears, adults must take the time to talk with children.



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Following a disaster some children may:

- Be upset at the loss of a favorite toy, blanket, teddy bear, etc.
- Be angry. They may hit, throw, kick to show their anger.
- Become more active and restless.
- Be afraid of the disaster recurring. They may ask many times, "Will it come again?"
- Be afraid to be left alone or be afraid to sleep alone. Children may want to sleep with a parent or another person. They may have nightmares.
- Behave as they did when younger. They may start sucking their thumb, wetting the bed, asking for a bottle, wanting to be held.
- Have symptoms of illness such as nausea, vomiting, headaches, not wanting to eat, running a fever.
- Be quiet and withdrawn, not wanting to talk about the experience, become upset easily, crying and whining frequently.
- Feel guilty that they caused the disaster because of some previous behavior.
- Feel neglected by parents who are busy trying to clean up and rebuild their lives and homes.

- Refuse to go to school or to child care arrangements. The child may not want to be out of the parent's sight.
- Become afraid of loud noises, rain, storms.
- Not show any outward sign of being upset. Some children may never show distress because they do not feel upset. Other children may not give evidence of being upset until several weeks or months later.

What Parents Can Do To Help Children Cope with Feelings

- Talk with your child, providing simple, accurate information to questions.
- Talk with your child about your own feelings.
- Listen to what your child says and how your child says it. Is there fear, anxiety, insecurity? Repeating the child's words may be very helpful, such as "You are afraid that..." or "You wonder if the storm will come again tonight." This helps both you and the child clarify feelings.
- Reassure your child, "We are together. We care about you. We will take care of you."
- You may need to repeat information and reassurances many times. Do not stop responding just because you told the child once or even 10 times.
- Hold your child. Provide comfort. Touching is important for children during this period. Close contact helps assure children that you are there and will not abandon them.
- Spend extra time putting your child to bed. Talk and offer assurance. Leave a night light on if that makes the child feel more secure.
- Observe your child at play. Listen to what is said and how the child plays. Children frequently express feelings of fear or anger while playing with dolls, trucks or friends after a disaster.
- Provide play experiences to relieve tension. Work with playdough or paint, play in water, etc. If children show a need to hit or kick, give them something safe like a pillow, ball or balloon. Allow a safe, open space for them to play if possible.
- If your child lost a meaningful toy or blanket, allow the child to mourn and grieve (by crying, perhaps). It is all part of helping the young child cope with feelings about the disaster. In time, it may be helpful to replace the lost object.
- If you need help for your child, contact your Extension office, mental health agency or a clergy member.

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