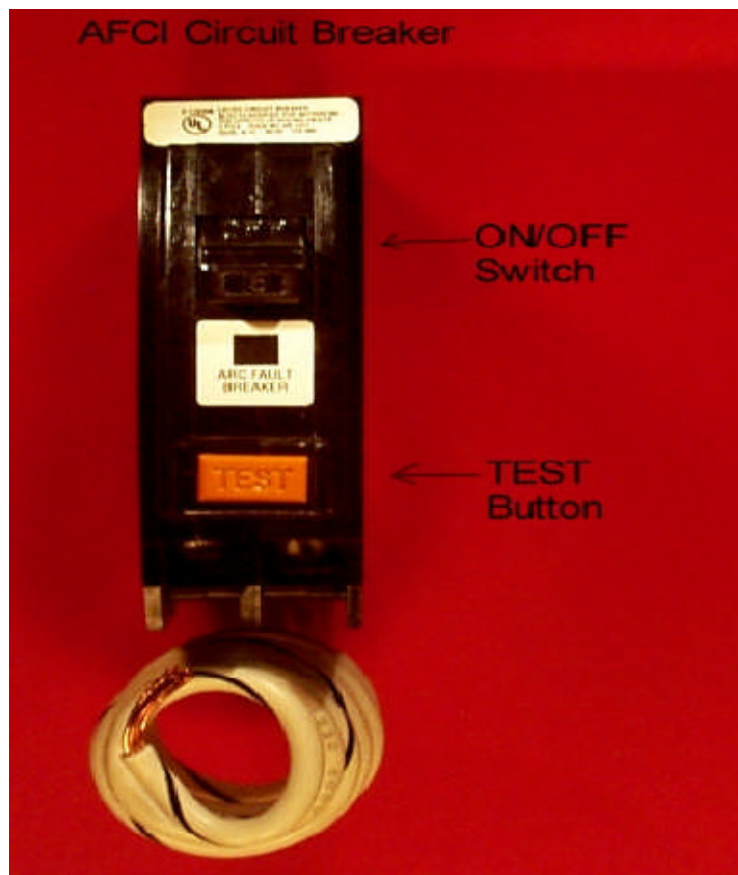


Arc Fault Circuit Interrupter (AFCI) FACT SHEET



THE AFCI

The "AFCI" is an arc fault circuit interrupter. AFCIs are newly-developed electrical devices designed to protect against fires caused by arcing faults in the home electrical wiring. **THE FIRE PROBLEM** Annually, over 40,000 fires are attributed to home electrical wiring. These fires result in over 350 deaths and over 1,400 injuries each year. Arcing faults are one of the major causes of these fires.

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When unwanted arcing occurs, it generates high temperatures that can ignite nearby combustibles such as wood, paper, and carpets. Arcing faults often occur in damaged or deteriorated wires and cords. Some causes of damaged and deteriorated wiring include puncturing of wire insulation from picture hanging or cable staples, poorly installed outlets or switches, cords caught in doors or under furniture, furniture pushed against plugs in an outlet, natural aging, and cord exposure to heat vents and sunlight.

HOW THE AFCI WORKS

Conventional circuit breakers only respond to overloads and short circuits; so they do not protect against arcing conditions that produce erratic current flow. An AFCI is selective so that normal arcs do not cause it to trip. The AFCI circuitry continuously monitors current flow through the AFCI. AFCIs use unique current sensing circuitry to discriminate between normal and unwanted arcing conditions. Once an unwanted arcing condition is detected, the control circuitry in the AFCI trips the internal contacts, thus de-energizing the circuit and reducing the potential for a fire to occur. An AFCI should not trip during normal arcing conditions, which can occur when a switch is opened or a plug is pulled from a receptacle.

Presently, AFCIs are designed into conventional circuit breakers combining traditional overload and short-circuit protection with arc fault protection. AFCI circuit breakers (AFCIs) have a test button and look similar to ground fault circuit interrupter (GFCI) circuit breakers. Some designs combine GFCI and AFCI protection. Additional AFCI design configurations are anticipated in the near future. It is important to note that AFCIs are designed to mitigate the effects of arcing faults but cannot eliminate them completely. In some cases, the initial arc may cause ignition prior to detection and circuit interruption by the AFCI.

The AFCI circuit breaker serves a dual purpose – not only will it shut off electricity in the event of an “arcing fault”, but it will also trip when a short circuit or an overload occurs. The AFCI circuit breaker provides protection for the branch circuit wiring and limited protection for power cords and extension cords. Single-pole, 15- and 20- ampere AFCI circuit breakers are presently available.

WHERE AFCIs SHOULD BE USED

The 1999 edition of the National Electrical Code, the model code for electrical wiring adopted by many local jurisdictions, requires AFCIs for receptacle outlets in bedrooms, effective January 1, 2002. Although the requirement is limited to only certain circuits in new residential construction, AFCIs should be considered for added protection in other circuits and for existing homes as well. Older homes with aging and deteriorating wiring systems can especially benefit from the added protection of AFCIs. AFCIs should also be considered whenever adding or upgrading a panel box while using existing branch circuit conductors.

INSTALLING AFCIs

AFCI circuit breakers should be installed by a qualified electrician. The installer should follow the instructions accompanying the device and the panel box.

In homes equipped with conventional circuit breakers rather than fuses, an AFCI circuit breaker may be installed in the panel box in place of the conventional circuit breaker to add arc protection to a branch circuit. Homes with fuses are limited to receptacle or portable-type AFCIs, which are expected to be available in the near future, or AFCI circuit breakers can be added in separate panel boxes next to the fuse panel box.

TESTING AN AFCI

AFCIs should be tested after installation to make sure they are working properly and protecting the circuit. Subsequently, AFCIs should be tested once a month to make sure they are working properly and providing protection from fires initiated by arcing faults accompanying the device. If the device does not trip when tested, the AFCI is defective and should be replaced.

AFCIs vs. GFCIs

The AFCI should not be confused with the GFCI or ground fault circuit interrupter. The GFCI is designed to protect people from severe or fatal electric shocks while the AFCI protects against fires caused by arcing faults. The GFCI also can protect against some electrical fires by detecting arcing and other faults to ground but cannot detect hazardous across-the-line arcing faults that can cause fires.

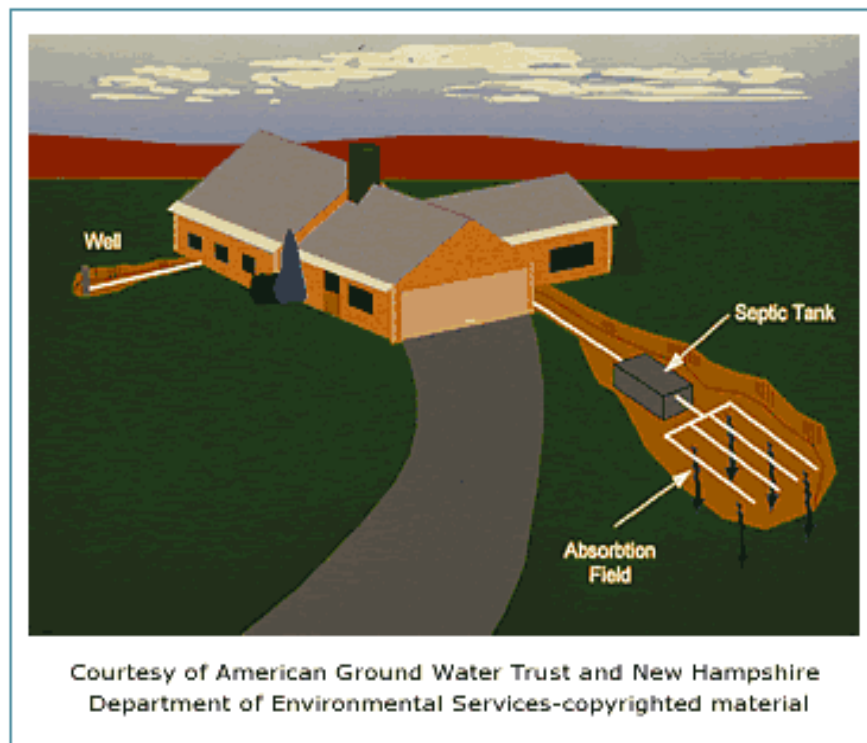
A ground fault is an unintentional electric path diverting current to ground. Ground faults occur when current leaks from a circuit. How the current leaks is very important. If a person's body provides a path to ground for this leakage, the person could be injured, burned, severely shocked, or electrocuted.

The National Electrical Code requires GFCI protection for receptacles located outdoors; in bathrooms, garages, kitchens, crawl spaces and unfinished basements; and at certain locations such as near swimming pools. A combination AFCI and GFCI can be used to satisfy the NEC requirement for GFCI protection only if specifically marked as a combination device.

¹ Ault, Singh, and Smith, "1996 Residential Fire Loss Estimates", October 1998, U.S. Consumer Product Safety Commission, Directorate for Epidemiology and Health Sciences

Protect Yourself and your Family's Health

A Guide to Drinking Water Quality Testing for Private Wells



Steps to Protecting Your Wells

Steps you and your family members can take to protect your well include:

- Know where your well is located

- Be sure that the well has a cap or sanitary seal to prevent unauthorized use of, or entry into, the well
- Periodically inspect exposed parts of the well for problems such as: -cracked, corroded, or damaged well casing; -broken or missing well cap; -cracking of surface seals
- Slope the area around the well to drain surface runoff away from the well
- Do not cut off the well casing below the land surface
- Hire a certified well driller for any new well construction, modification, or abandonment
- Avoid mixing or using pesticides, fertilizers, herbicides, degreasers, fuels, and other pollutants near the well
- Do not dispose of wastes in dry wells or in abandoned wells
- Pump and inspect septic systems as often as recommended by your local health department
- Never dispose of hazardous materials in a septic system If you have a dug well, it is very important that the well is properly protected from surface water infiltration commonly associated with poor construction or disrepair and from the entry of insects and rodents

Recommended Tests

All drinking water well testing should be done by a Connecticut certified environmental laboratory. A list of state certified laboratories is available from the CT DPH Environmental Laboratories Certification Program at (860) 509-3789.

The following basic tests can identify common contaminants in your well water:

- Total coliform bacteria
- Sodium
- pH,
- color and turbidity
- Hardness
- Iron and manganese
- Chloride
- Nitrite/Nitrate
- Sulfate

Although more tests could be added, this list provides a reasonable approach to determining the overall water quality of your private well.

To be certain of the general quality of your well water, the Department of Public Health (DPH) recommends that you have your well tested annually for:

- Total coliform bacteria
- Nitrite/Nitrate
- pH,
- color and turbidity

Every few years, consider additional tests to cover other contaminants of concern.

Other Contaminants of Concern

Radon

Radon, a naturally occurring radioactive gas, is common in some areas of Connecticut. Presently, there are no federal or state standards for radon in drinking water, only suggested action levels. Before you test your well for radon, the DPH recommends that you test your home's indoor air for radon . If indoor air radon levels are detected, you should contact the DPH Radon Program to discuss whether the levels pose any risk. Although concentrations of radon in your air presents a much higher health risk, we also recommend testing your well water for radon, even if low amounts of radon are found in your air. For more information on indoor air radon testing, please call the DPH, Radon Program at (860) 509-7367.

Well Water Pesticides & Herbicides

Routine testing for pesticides and herbicides associated with home lawn care and gardening and commercial agriculture is expensive, and may not be needed unless your home is located in an area with known problems. However, such testing might be warranted if your water has elevated nitrite/nitrate concentrations or significant amounts of pesticide have been applied near the well.

Volatile and Synthetic Chemicals

The most common volatile organic chemicals (VOC's) include industrial solvents and gasoline compounds such as MTBE and benzene. Synthetic organic chemicals (SOC's) include a variety of carbon-based chemicals used in industry, some household products and agricultural formulations.

If your home is located in an area with gasoline stations, commercial industry, landfills, or agriculture, periodic testing for VOC's and SOC's may be appropriate for your well.

Arsenic

Arsenic is a naturally occurring metal that is toxic to humans and animals. While most areas of Connecticut may have little or no arsenic present in the groundwater, it is recommended that you have your well tested at least once to be sure that arsenic concentrations are below any levels of concern.

Lead and Copper

If your home was built before 1986, within the last five (5) years, or the pH (acidity) of your well water is below 7.0, you should test for lead and copper. Copper plumbing, certain brass fixtures and solder containing lead may be in your home.

Contact your local health department or the DPH Drinking Water Division for more information on how to properly sample for lead and copper.

What the Tests Will Tell You

Results will reveal the level at which any of the tested substances were found in your water sample. The mere presence of some contaminants in well water does not necessarily imply that there is a problem. However, when levels exceed state or federal health standards, you should take steps to correct the situation. First, make sure that your well is properly constructed and sealed from the outside environment. If treatment is needed, contact a licensed commercial contractor to determine what water treatment options are available to treat the contaminated water in your well. The DPH Drinking Water Division website also has informational documents concerning all common drinking water quality problems and their solutions.

For more information about water quality testing for private wells and preventing well contamination, contact the CT DPH Drinking Water Division:

Connecticut Department of Public Health Environmental Health Section 410 Capitol Avenue, MS#51EHS Hartford, CT 06134-0308 (860) 509-7293 www.dph.state.ct.us/BRS/Water/DWD.htm

You can also contact your local health department. To find a directory of local health departments, visit the DPH website:

www.dph.state.ct.us/Local_health/index.asp

For additional information on how to interpret the test results you can visit the Environmental Protection Agency's Groundwater and Drinking Water website: **www.epa.gov/OGWDW/mcl.html#mcls**

Lead in the Air - EPA Health and Environment

In addition to exposure to lead in air, other major exposure pathways include ingestion of lead in drinking water and lead-contaminated food as well as incidental ingestion of lead-contaminated soil and dust. Lead-based paint remains a major exposure pathway in older homes. [Learn more about lead in paint, dust and soil.](#)

Once taken into the body, lead distributes throughout the body in the blood and is accumulated in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system. Lead exposure also affects the oxygen carrying capacity of the blood. The lead effects most commonly encountered in current populations are neurological effects in children and cardiovascular effects (e.g., high blood pressure and heart disease) in adults. Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits and lowered IQ.

Lead is persistent in the environment and accumulates in soils and sediments through deposition from air sources, direct discharge of waste streams to water bodies, mining, and erosion. Ecosystems near point sources of lead demonstrate a wide range of adverse effects including losses in biodiversity, changes in community composition, decreased growth and reproductive rates in plants and animals, and neurological effects in vertebrates.

Connecticut Record Number of Firms Shut Down

Connecticut Secretary of the State Susan Bysiewicz says that nearly 7,000 businesses shut down in the first half of 2009, a new record for the first half of any year since these figures were first recorded in 2000. Bysiewicz says the figure represents a 17% increase in the number of business failures from the first two quarters of 2008. The number of new businesses is also down. She says business starts of nearly 14,000 in the first half of 2009 were down 9.6% from 2008 figures.

As reported in the US Chamber of Commerce July 21st weekly newsletter;
Source: *Hartford Courant*

Connecticut has adapted the:

IECC - International Energy Conservation Codes

These codes deal with insulation R-factor requirement & fenestration (windows) U-factor along with other energy efficient components and materials. Some of these may have to have higher efficiency rating to make up for the lack of energy efficient areas in existing areas of the building. Home inspectors do not inspect for code compliancy however

knowledge of this information can only make you a better professional in making recommendation to your clients in areas you are required to inspect & report on.

Building Energy Codes Glossary Link

<http://resourcecenter.pnl.gov/cocoon/morf/ResourceCenter/article//1295>

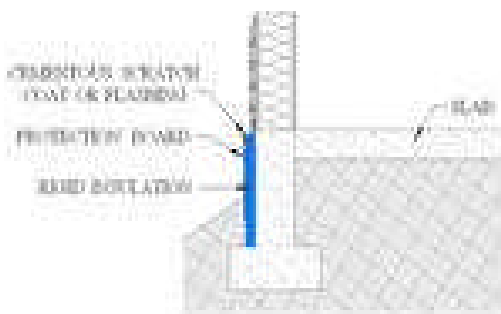
These codes apply to new construction as well as additions and modifications to existing Residential and Commercial Building that are heated

Use REScheck <http://energycode.pnl.gov/REScheckWeb/>

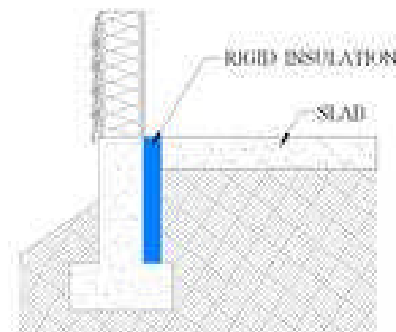
Use COMcheck <http://energycode.pnl.gov/COMcheckWeb/>

Where and How Should Perimeter Slab Insulation be Applied?

The insulation can be applied outside (see figure below) or inside (see figure below) the foundation wall. Exterior applications require a metal flashing or durable finish for protection. They must have a rigid, opaque, and weather-resistant covering that prevents the degradation of the insulation's performance. The protective covering must cover the exposed (above-grade) area of the insulation and extend to a minimum of 6 in. below grade.

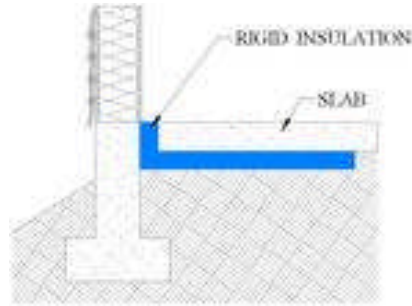


Exterior perimeter slab insulation.



Interior vertical perimeter slab insulation.

The insulation can also be placed vertically along the foundation wall (figure above, interior) or horizontally under the slab (figure below).



Interior horizontal perimeter slab insulation.

Perimeter slab insulation can be "traded-off" using a software tool like REScheck or COMcheck. Additional insulation is added in another part of the structure to compensate for the missing insulation in the slab. The code permits this trade-off, but when carpet is placed on a cold slab, the higher humidity levels that result can attract dust mites and mold. Last Modified: 2009-05-13

What Buildings Must Comply with the Energy Code?



Residential home

The energy code applies to all new residential and commercial buildings as well as additions to such buildings. The code also applies to alterations and repairs to portions of the building affected by the energy code. Residential buildings are defined as buildings with three stories or fewer above grade where the occupants can live for a long time (e.g., houses, apartments, dormitories, but not hotels/motels). Commercial buildings are simply defined as all buildings that do not fall into the "residential" category.

Buildings with very low energy use (peak design rate of energy usage less than 3.4 Btu/h per square foot) and buildings that are neither heated nor cooled are exempt from the energy code. Commercial buildings with service water heating and/or electric lighting must comply with the energy code regardless of their exempt status.

Last Modified: 2009-05-13

News Release

U.S. Environmental Protection Agency

New England Regional Office

July 21, 2009

Contact: Jim Murphy, (617) 918-1028

Environmental Sampling to Begin at Raymark Superfund Site in Stratford, Conn.

(Boston, Mass. - July 21, 2009) – EPA will begin sampling approximately 300 monitoring wells installed around the former Raymark Facility in Stratford, Conn. The very visible, but low-impact well inspection and sampling activities begin this week and will extend through the fall. The wells are primarily on public streets with a limited number of wells located on private commercial and residential properties. The well clusters generally contain 2 - 3 wells of different depths grouped together at several dozen locations between the former facility on East Main Street and the Housatonic River.

The sampling crews will be utilizing small vans and pick-up trucks for the well inspections and sampling. The usual work day for the sampling will be between the hours of 7 a.m. and 4 p.m., Monday through Friday.

Prior to groundwater sampling, wells are inspected and evaluated to determine whether they need to be "developed." Development essentially cleans out accumulated sediments and allows a water sample to be removed. After development, sampling of each well involves installing a long cylindrical pump into the well to extract groundwater at various depths. It can take up to two hours to perform this sampling at each monitoring well.

Soil gas samples will also be collected at a number of the permanent monitoring stations located within the residential area bounded by Housatonic Avenue and Ferry Boulevard. These locations are again primarily in the public streets, co-located with the groundwater wells.

EPA is performing this comprehensive sampling to provide the data that will be used to update the 2003 Groundwater Remedial Investigation Report and to complete the Feasibility Study that will discuss the possible cleanup options for the groundwater and its associated vapors which have been monitored by EPA over the past several years. EPA is currently planning a Proposed Plan to address groundwater in 2010 or 2011.

Results of the groundwater and soil gas sampling are anticipated to be published in 2010 as part of the third Five Year Review for the Raymark Superfund Site.

Raymark Industries was a manufacturer of automotive brakes, clutch parts, and other friction components, primarily for the automotive industry. Raymark and its predecessors operated at a 34-acre parcel at 75 East Main Street in Stratford from 1919 until 1989 when operations ceased. Raymark's manufacturing waste was historically disposed of as fill at 75 East Main Street, at a minimum of 46 residential properties, and at numerous commercial and municipal properties in Stratford. EPA has taken response actions at a number of these properties.

More information: Cleanup work at the Raymark site (epa.gov/region1/superfund/sites/raymark)

NEWS from CPSC

U.S. Consumer Product Safety Commission

Office of Information and Public Affairs

Washington, DC 20207

FOR IMMEDIATE RELEASE

July 21, 2009

Release # 09-282

Firm's Recall Hotline: (800) 380-6940

CPSC Recall Hotline: (800) 638-2772

CPSC Media Contact: (301) 504-7908

Heating System Thermostats Recalled by OJ Electronics Due to Shock Hazard

WASHINGTON, D.C. - The U.S. Consumer Product Safety Commission, in cooperation with the firm named below, today announced a voluntary recall of the following consumer product. Consumers should stop using recalled products immediately unless otherwise instructed.

Name of Product: 208-Volt and 240-Volt Thermostats **Units:** About 30,000

Importer/Distributor: OJ Electronics, of Chicago, Ill.

Hazard: The recalled thermostat's floor sensor or its cable can be damaged from cutting, drilling, or nailing. This poses a risk of electric shock to consumers if the power supply is not disconnected.

Incidents/Injuries: None reported.

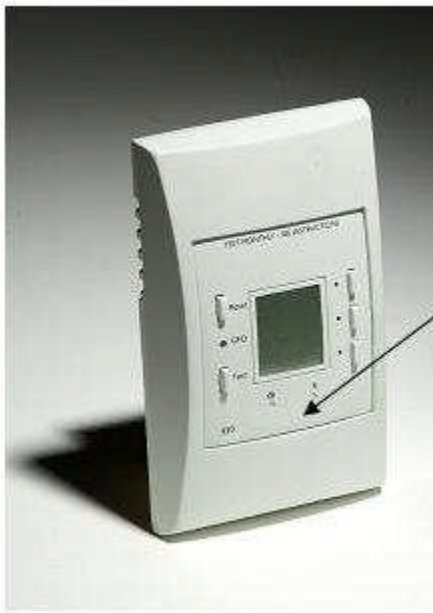
Description: The recall involves thermostats that have a built-in GFCI and are designed for use in under-floor heating systems. Thermostats included in the recall are connected to 208-Volt or 240-Volt power supplies (120V units are not included in the recall). They were sold under the brand names of Canisol, Danfoss, Elektra, Momento, OJ Microline, Raychem, Thermosoft, Warmly Yours and Warmup. The brand name is located on the front of the thermostat.

Sold at: Various home improvement stores, tile shops and other retail shops nationwide from January 2004 through December 2008 for between \$150 and \$200.

Manufactured in: Denmark

Remedy: Consumers should not cut, drill or nail into the heated floor, and contact the manufacturer to arrange for a free in-home repair.

Consumer Contact: For additional information, contact OJ Electronics at (800) 380-6940 between 9 a.m. and 5 p.m. CT Monday through Friday or visit the firm's Web site at www.ojelectronics.com



CPSC is still interested in receiving incident or injury reports that are either directly related to this product recall or involve a different hazard with the same product. Please tell us about it by visiting <https://www.cpsc.gov/cgi-bin/incident.aspx>

NEWS from CPSC

U.S. Consumer Product Safety Commission

Office of Information and Public Affairs

Washington, DC 20207

FOR IMMEDIATE RELEASE

July 9, 2009

Release # 09-266

Firm's Recall Hotline: (877) 524-2086

CPSC Recall Hotline: (800) 638-2772

CPSC Media Contact: (301) 504-7908

Kidde Recalls Dual Sensor Smoke Alarms; Can Fail to Warn of a Fire

WASHINGTON, D.C. - The U.S. Consumer Product Safety Commission, in cooperation with the firm named below, today announced a voluntary recall of the following consumer product. Consumers should stop using recalled products immediately unless otherwise instructed.

Name of Product: Kidde Model PI2000 Dual Sensor Smoke Alarms

Units: About 94,000

Manufacturer: Walter Kidde Portable Equipment Inc., of Mebane, N.C.

Hazard: An electrostatic discharge can damage the unit, causing it not to warn consumers of a fire.

Incidents/Injuries: The firm has received two reported incidents of smoke alarm malfunctions involving electrostatic discharge during installation. No injuries have been reported.

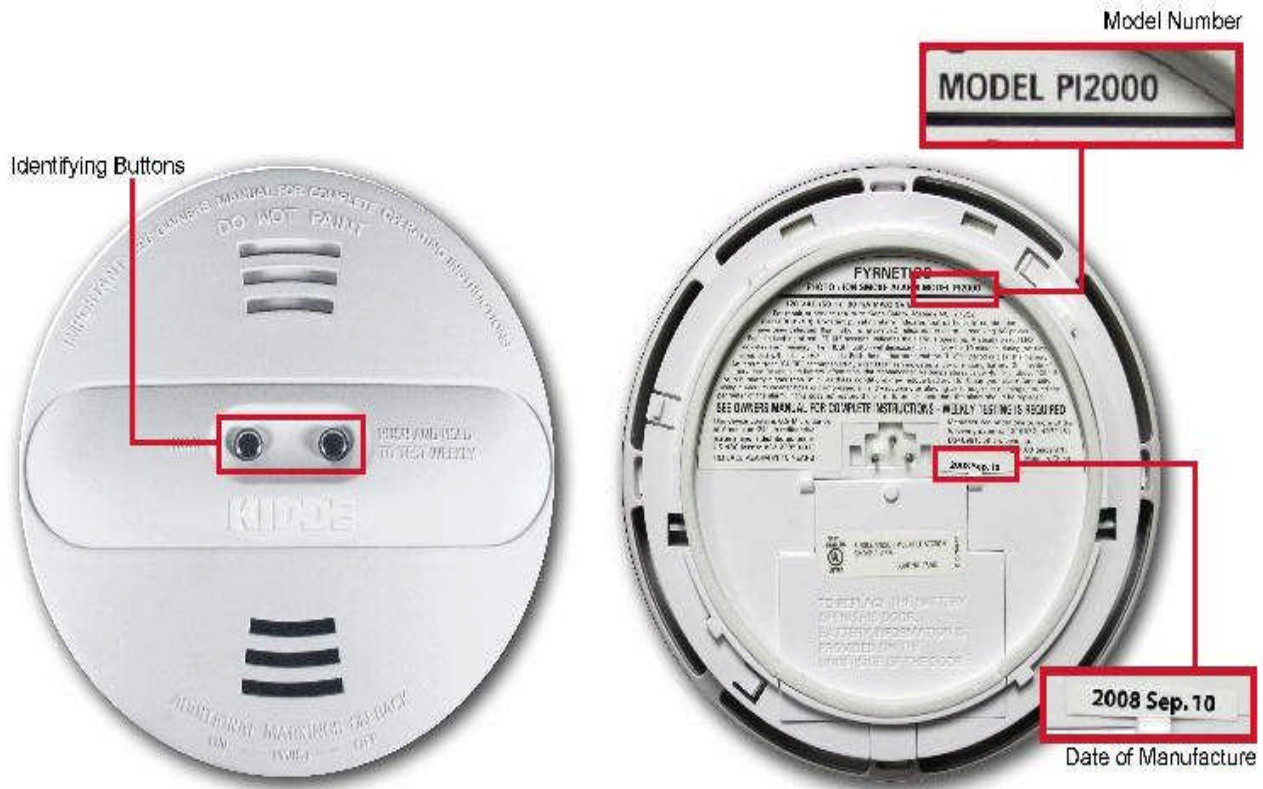
Description: This recall involves Kidde dual sensor smoke alarms model PI2000. The alarms can be identified by two buttons, “HUSH” and “PUSH AND HOLD TO TEST WEEKLY,” which are located on the front/center of the alarm. The model number and date code are on the back of the smoke alarm. Only date codes 2008 Aug.01 through 2009 May 04 are included in this recall.

Sold at: Retail, department, and hardware stores and through electrical distributors nationwide from August 2008 through May 2009 for between \$30 and \$40.

Manufactured in: China

Remedy: Consumers should contact Kidde immediately to receive a free replacement smoke alarm.

Consumer Contact: For additional information, contact Kidde toll-free at (877) 524-2086 between 8 a.m. and 5 p.m. ET Monday through Friday, or visit the firm’s Web site at www.kidde.com



CPSC is still interested in receiving incident or injury reports that are either directly related to this product recall or involve a different hazard with the same product. Please tell us about it by visiting

<https://www.cpsc.gov/cgibin/incident.aspx>

NEWS from CPSC

U.S. Consumer Product Safety Commission

Office of Information and Public Affairs

Washington, DC 20207

FOR IMMEDIATE RELEASE

July 14, 2009

Release # 09-272

Firm's Recall Hotline: (800) 782-2013

CPSC Recall Hotline: (800) 638-2772

CPSC Media Contact: (301) 504-7908

Energizer Wall plate Nightlights Recalled Due to Fire Hazard

WASHINGTON, D.C. - The U.S. Consumer Product Safety Commission, in cooperation with the firm named below, today announced a voluntary recall of the following consumer product. Consumers should stop using recalled products immediately unless otherwise instructed.

Name of Product: Energizer Light On Demand Wallplate Nightlights

Units: About 3,000

Importer: Energizer, of St. Louis, Mo.

Manufacturer: Sonco Product Co., of China

Hazard: The nightlight can overheat, especially if additional devices are plugged into its outlets, posing a fire hazard.

Incidents/Injuries: None reported.

Description: The recalled wall light is white, plugs into the wall, has a plug in base into which additional devices can be plugged, and has a removable/rechargeable light/flashlight. Model LODNLWP is stamped on the back of the unit. The wall light measures about 6 inches high, 5 inches wide, and 3 inches deep. No other Light on Demand products are included in this recall.

Sold at: Mass merchandisers, office supply stores, and various other retailers nationwide and on the Web from August 2008 through July 2009 for about \$26.

Manufactured in: China

Remedy: Consumers should immediately stop using this recalled nightlight, unplug it, and contact Energizer for information on returning the light to receive a full refund.

Consumer Contact: For additional information, contact Energizer at (800) 782-2013 between 8 a.m. and 6 p.m. CT Monday through Friday, or visit the firm's Web site at www.energizer.com



CPSC is still interested in receiving incident or injury reports that are either directly related to this product recall or involve a different hazard with the same product. Please tell us about it by visiting <https://www.cpsc.gov/cgibin/incident.aspx>

NH Couple May Sue Former Homeowner Over Mold and Other Problems

Web Editor: [Vivien Leigh](#), Reporter ■

WAKEFIELD, N.H. (NEWS CENTER) -- A New Hampshire couple may take the former owners of their home to court after they discovered mold, [water](#) leaks and a faulty [foundation](#).

Tasha and Chad Bennett moved into their rural home in May. During all the recent rain, water began leaking into the basement. Bennett then found rotting sideboards and support beams under layers of plastic and new insulation. Outside he found layers of mold under his vinyl siding.

The town building inspector says some of the plumbing, electrical work and the porches on the home are not up to code. Bennett says he didn't notice anything when he first looked at the home, thanks to a fresh coat of paint in the basement.

"This is all just mold, it started to grow back up the wall. He didn't take [care](#) of the problem, he just painted it and covered it up," said Bennett.

Bennett says a home inspection by HouseMaster in Rochester, New Hampshire didn't uncover any of the problems. The company says their inspectors do not check for mold, code violations or any hidden problems.

The couple is considering suing the former homeowner to help them pay for more than \$80,000 in repairs that are needed to make their home liveable.

Link:<http://www.wcsh6.com/news/local/story.aspx?storyid=106414>

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