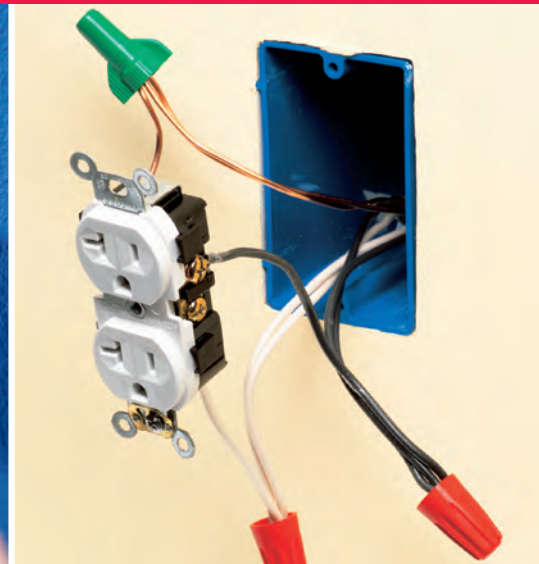




AMERISPEC[®] home repair M A N U A L



An essential guide
to the repair
and maintenance
of your new home

Let us be among the first to congratulate you on the purchase of your new home. AmeriSpec is proud to have been able to advise on the condition of the house and its various systems.

Over the years our highly trained, certified inspectors have examined more houses than any other home inspection company in North America. In the process, we've come to know a great deal about the benefits of conscientious house maintenance and about the kinds of problems that tend to crop up in even the best-maintained homes. We've now combined all our experience and now present what we've learned in the pages of this book.

Use this book in conjunction with your AmeriSpec report. The report clearly indicates any areas of the house that need immediate attention, and the book can help you decide whether to make the necessary fixes yourself or hire a professional. In the years to come, keep the book nearby for year-round advice on seasonal maintenance and for quick instructions on everything from freeing clogged drains to replacing damaged exterior siding.

We hope you'll take great pleasure in your new home.



AMERISPEC®
HOME INSPECTION SERVICE



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Note to readers: Almost any do-it-yourself project involves risk of some sort. Your tools, materials, and skills will vary, as will conditions at your project site. Sunset Publishing Corporation and the editors of this book have made every effort to be complete and accurate in the instructions. We will, however, assume no responsibility or liability for injuries, damages, or losses incurred in the course of your home improvement or repair projects. Always follow the manufacturer's operating instructions in the use of tools, check and follow your local building codes including applicable electrical code, and observe all standard safety precautions.

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taking care of your new home

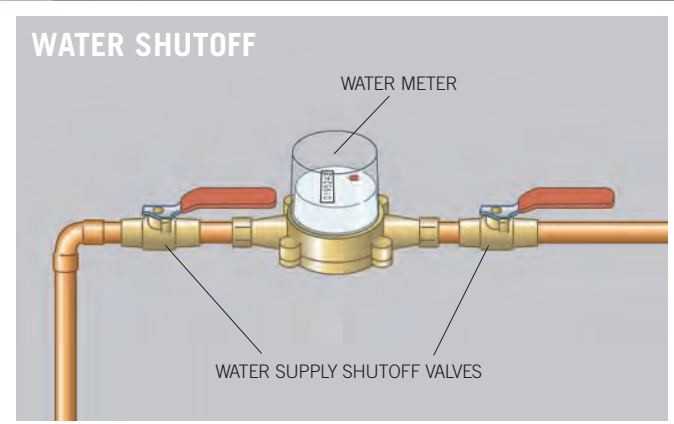
This book will help you diagnose and solve many common household ailments that can be repaired by a determined homeowner. You may not be able to work as quickly as a professional carpenter, plumber, or electrician on some projects, but many minor repairs are just as quick to perform yourself. Even if you do decide to hire a pro, understanding the causes of problems and knowing your repair options will enable you to save money by avoiding unnecessary work and to ensure an effective job.

You may face an emergency that requires you to shut off the supply of water, gas, or electricity to all or part of your home. The illustrations at right give a quick overview of these shutoffs. See pages 8–9 for more specific information on how to locate and use them. In this chapter you'll also find tips for making your home safer, as well as effective methods for handling specific emergencies, from a sudden grease fire to an overflowing toilet. Finally, a seasonal maintenance chart will help you keep track of routine measures that can prevent major repairs later on.

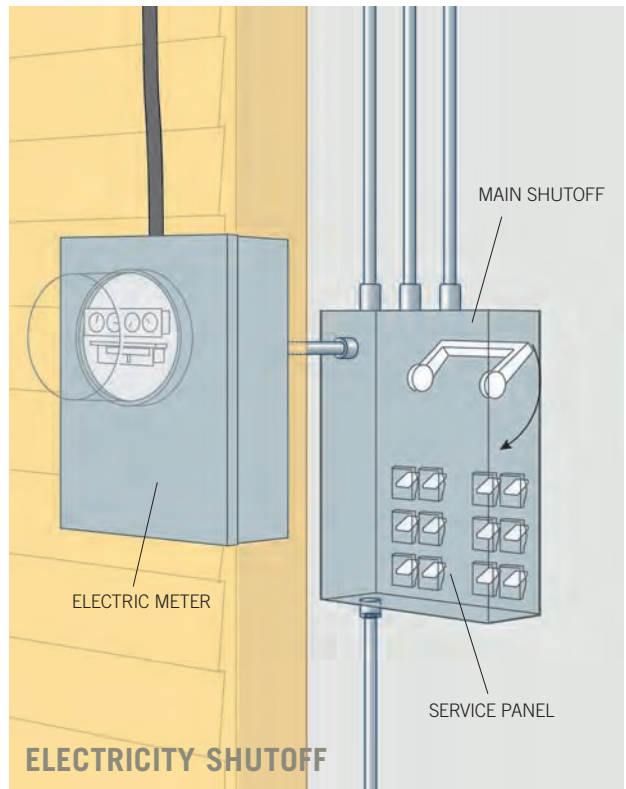
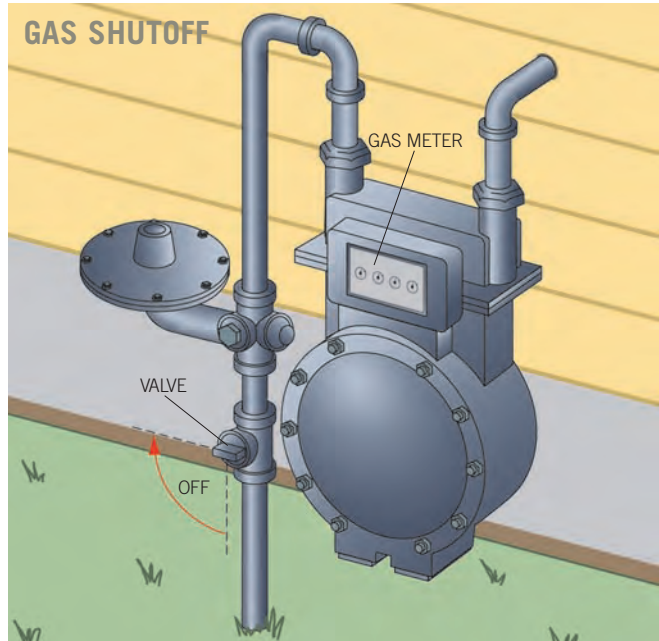
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HOME UTILITY SHUTOFFS



GAS SHUTOFF



ELECTRICITY SHUTOFF



BUILDING CODES AND INSPECTORS

Your local building department has codes covering every aspect of your home, including wiring, plumbing, structural elements, insulation, and safety. Inspectors enforce those rules. Building codes may seem confusing and heavy-handed at times, but they exist to ensure your safety and the continued stability of your house.

In general, codes and inspectors come into play whenever you install something new and substantial. If you are replacing an existing fixture or appliance—such as an overhead light, a toilet or sink, a water heater, or a window or door—you most likely do not need to go through the inspection process. The same is true if you are building a structure that is not permanent and/or attached to the house, such as a playhouse without a foundation. However, anytime you install a fixture where there was none before, or anytime you build a substantial structure that is attached to the house, you will need to pull a permit and schedule inspections. You will certainly need an inspection when you run new electrical cable or plumbing pipes. A patio laid in sand may or may not need an inspection; a concrete slab probably will.

Codes change over time, and they generally become more strict. In most cases, existing structures are not required to meet contemporary code, though any additions must meet the new requirements. However, if an inspector sees an unsafe existing installation, he or she may demand that it be fixed.

Local codes are based on national standards, but they can vary greatly from town to town. Even adjacent towns may have very different requirements. For some jobs, codes

the responsibilities of homeownership

A home inspection report will give you plenty of essential information about the structural integrity and safety of your home. It's important to spend some time studying the report both to get to know your home and to learn ways to minimize problems in the future. Ask your AmeriSpec home inspector questions if you are unsure of any part of the report. Be aware, however, that an inspection does not guarantee that everything in your home will work for years. You may have problems inside your walls that are not visible to the inspector, and new problems can always arise after the inspection. This book will help you deal with most of them.

REPAIR COSTS

While many repairs can be accomplished by a homeowner for a small cost, others need to be done by a professional and can be very expensive. To avoid home repair sticker

shock, it's a good idea to set up a savings account for future repairs. To prepare for a new roof or another major project, some experts suggest that homeowners deposit 1 to 2 percent of the house's value every year into such an account. An older or run-down home may need more than 2 percent. If your inspection report indicates that you will need, for instance, a new roof or exterior painting in the next five years, start saving now.

SHUTTING OFF UTILITIES

Every adult family member and older child should know how to:

- Shut off water to individual faucets and fixtures, and to the entire house.
- Shut off the gas to the house.
- Turn off electricity to individual circuits and to the entire house.

The following pages show you how, and subsequent chapters on plumbing and wiring provide additional information.

may require that a licensed contractor do the work or at least supervise it.

By law, it is your responsibility to learn and follow codes, and it is definitely contrary to your interests to violate codes. Not only is out-of-code work potentially dangerous to you and your family, but an inspector who sees such work can make you re-do it. And you may not be allowed to sell your home until you have fixed a violation.

So find out ahead of time what your town's requirements are, get your plans approved, and schedule inspections. Be sure that all of the required work is done before the inspector shows up, and don't cover up anything that the inspector needs to see (for example, by drywalling over wiring or plumbing that has not been inspected).

ZONING AND SETBACK REQUIREMENTS

You may have a survey or official property map that shows your property lines. Take the time to locate them as precisely as possible. Local regulations likely have setback requirements, which state that certain structures must not be too close to the boundaries.

Your town may also have requirements for the exterior appearance of your home. Many towns are lax

PREVENTING DAMAGE TO UTILITY LINES

Know where your utility lines run and how they connect to your home. Never dig a hole in your yard unless you are sure you will not damage a water, gas, or electrical line. If you are at all unsure, contact the appropriate utility company, which should send out a service person for free.

about this, while others get surprisingly specific. Make sure any changes in siding, windows, doors, roofing, and even paint color will not violate these rules.

WHEN TO HIRE A PRO

Before you plunge into a project yourself, make an honest assessment of your abilities and your time. If you do need to hire a pro, choose carefully and take the time to write a good contract.

DO YOU HAVE THE TIME? If a repair must be made immediately to protect people or property, such as fixing a broken step or unclogging a backed-up toilet, call a professional if you can't do it right away.

When timing is not critical, consider the size and scope of the work. A project that might take a professional a day or two could take you weeks of working in your spare time—if you can find it. Weigh the inconvenience of living with a repair in progress against the cost of having the work finished quickly.

TOOLS AND EQUIPMENT Consider the cost of buying or renting any special tools required for a job, particularly if you don't expect to use them again. To repair your roof, for example, you must have safety equipment. Clearing a clogged main drain calls for a power auger. A pro has already invested in special tools and calculates the expense in his fee.

YOUR SKILLS Be realistic about your knowledge and abilities. If you aren't sure how to make a particular repair after reading about it, or if you feel unsafe tackling the job, it probably makes sense to have it done professionally. When appear-

ance counts, such as with finish carpentry or repointing bricks, it may also pay to call in an expert if you have no woodworking or masonry experience.

CHOOSING A PROFESSIONAL The best way to find a competent professional is to ask friends or neighbors for recommendations. You can also seek referrals from a hardware store, a home center, or a community college. The phone book lists professional repair services under specific categories, such as "Electrical Contractors," "Glass," or "Roofing Contractors." Be sure that a plumber or electrician is licensed and insured.

THE CONTRACT You can arrange for a small job by hiring a handyman on an hourly basis, but for a substantial job—especially one that calls for wiring, plumbing, structural work, or roofing—it's a good idea to write a contract. It should be very specific about which materials will be used. Drawings may be attached showing the shape and dimensions of a project. Installation methods should be described in detail. There should be assurances that your property will not be damaged while work is in progress. The contractor should have insurance to cover any accidents that may occur; make sure you will not be responsible for such an incident. The timetable for the work should be laid out clearly. It is often reasonable to pay a deposit before work begins, especially if the contractor must buy materials. However, structure the remaining payments so that the contractor has plenty of incentive to do a good job and do it on time.

plumbing, gas, and electrical emergencies

Here are some tips for dealing quickly with sudden problems. For more solutions, see the plumbing and wiring chapters.

PLUMBING PROBLEMS

In a plumbing emergency, you'll need to stop the flow of water quickly before it seeps into floors and walls. To do this, you and your family need to know the location of the shutoff valve for every fixture and appliance, as well as the main valve for the house. Practice using them so you know how they operate.

If the emergency involves a specific fixture or appliance, look for its shutoff (often called a stop valve) and turn it clockwise to close it. The valve is usually underneath a fixture such as a sink or toilet, or behind an appliance such as a clothes washer, at the point where water supply pipes connect to it. For a tub or shower, the shutoff may be behind an access panel on the opposite side of the wall in an adjacent room or closet.

If the problem is not with a particular fixture or appliance, or if there is no shutoff valve for the

appliance or fixture, there may be a pair of intermediate shutoff valves (for hot and cold water) that control flow to one or more rooms. Turn them clockwise to test which water outlets they control.

If there are no intermediate shutoffs, you will need to turn off water to the entire house. You'll find the main valve on either the inside or the outside of your house where the main supply pipe enters.



Often there is a main shutoff or two near the water meter. Turn the valve clockwise to close it. If the valve requires a wrench, keep one nearby so it's always handy.

Often there is another way to shut off water to your house, with an underground valve located outside. The valve is likely encased inside a housing that is sometimes called a Buffalo box. The cover may be obscured by plants. Once you remove the cover, you may find a valve that can be turned by hand, or you may need a special tool, often called a key.



PLUMBING EMERGENCIES

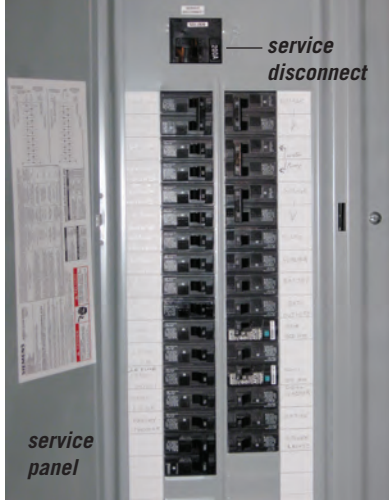
LEAKING OR BURST PIPE If a pipe leaks, turn off the intermediate or main shutoff valve and open a nearby faucet to drain the pipe. Make temporary repairs to stop the leak (see page 154).

OVERFLOWING TOILET If your toilet bowl is overflowing, don't panic. Lift off the cover of the tank, reach inside (this water is clean), and push the tank stopper down into the valve seat. Turn off the water at the fixture shutoff valve. If there is no valve there, turn off an intermediate valve or the main shutoff. Unclog the toilet using a plunger or an auger (see page 148).

STOPPED-UP SINK Shut off any faucet or appliance that's draining into the sink. Unclog the sink using a plunger or auger (see pages 144–145). Do not use a chemical drain cleaner if the blockage is total.

A FAUCET WON'T SHUT OFF Immediately turn off the water at the shutoff valve under the sink, at an intermediate valve, or at the main shutoff. Repair or replace the faucet (see pages 134–141).





ELECTRICAL EMERGENCIES

You and other adult family members should learn how to turn off the house's electrical power during an emergency, as well as when you need to make electrical repairs. The main breaker should be labeled "MAIN" or "SERVICE DISCONNECT." Never work on a live circuit of any fixture, appliance, receptacle, or switch. Shut off power to the circuit or to the house first and test the circuit carefully with a voltage tester to be sure it's not live. See pages 174–175 for more information.

Keep the area around the service panel clear so that it can be reached easily at all times. Keep the door closed. If the panel is in a place where children can reach it, you may choose to padlock the door. Have a flashlight with extra batteries as well as candles and matches handy in case of an electrical emergency or an outage.

POWER FAILURE If the electricity fails suddenly, first determine whether it's just in your house or throughout the neighborhood. If the outage affects the neighborhood, notify the utility company. To prevent food spoilage, avoid opening the refrigerator or freezer during the outage. If the problem is just in your home, check for tripped circuit breakers or blown fuses. (If your service panel does not have an index indicating which electrical users are

controlled by which circuit, see page 177 for instructions on making such an index.) Replace any blown fuses or reset any tripped breakers and test for a short circuit or overload (see page 175). Once the problem has been corrected, restore the power.

A SMOKING OR SPARKING APPLIANCE

Immediately unplug the appliance or shut off the wall switch that controls it. Do not touch the appliance itself. Turn off the power to the circuit if you can't unplug the appliance. When the appliance cools off, take it to a repair shop or arrange for a service representative to come to your home and make any needed repairs. If the appliance catches fire, get everyone out of the house and call the fire department from a neighbor's house or a cell phone. Do not use water on an electrical fire. If the fire is small, you may attempt to put it out using an extinguisher with a Type C rating.

A SMOKING OR SPARKING APPLIANCE

PLUG At the service panel, cut off the power to the receptacle. Unplug the appliance by the cord and allow the plug to cool off. Check the plug and cord for signs of damage and replace them if they're defective (see pages 180–181). Once the plug is repaired, check for and replace any blown fuse or reset a tripped circuit breaker. If the cord



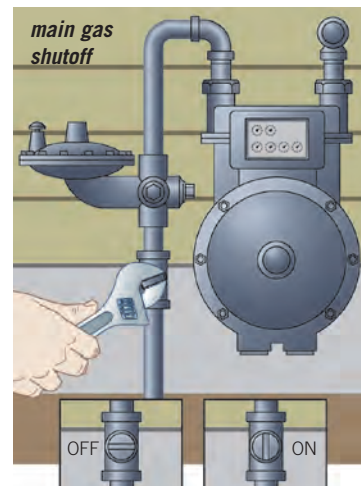
and plug are in good condition, the receptacle may be faulty. See pages 184–185 if you need to replace it.

GAS LEAKS

If you ever smell gas anywhere in your house, take the following precautions:

- Get everyone outside the house immediately.
- Use a neighbor's phone or a cell phone to call your gas company or the fire department.
- Do not light a match and do not turn any electrical switch on or off. The danger of fire or explosion is severe. Leave as many windows and doors open as possible to help clear the gas from the house.

Once everyone is safely out of the house, turn off the gas supply at the main valve, or wait for the utility company to do it. The shutoff is usually on the inlet pipe next to the gas meter. To close the valve, use an adjustable wrench or a large pair of pliers to turn it 90 degrees in either direction so that the valve head is perpendicular to the pipe, as shown in the illustration at right.



Do not turn the gas back on until you've discovered the source of the problem and have corrected it.

In a natural disaster, you may have to turn off the gas supply yourself. Make sure all family members know the location of the shutoff valve and how to operate it. To identify the valve, attach a tie-on tag and label it. Leave a wrench in an accessible location so it will be close at hand in an emergency.

home safety

The following pages help you minimize hazards in your home and show you how to deal with common emergencies. Every family member should know the steps to take in a fire, and everyone should be familiar with the switches and valves that control the flow of water, electricity, and gas. If a special wrench is required to turn a valve, keep one close by.

In a natural disaster, you may need to shut off the gas, electricity, and possibly the water. It's an excellent idea to have some basic emergency supplies on hand at all times. Your kit should include bottled water, nonperishable food, a portable radio, a flashlight with extra batteries, and a first-aid kit with instructions.

FIRE SAFETY

There are three elements to a fire safety strategy:

- Plan an exit strategy in case of a house fire.
- Install smoke detectors and fire extinguishers.
- Learn how to extinguish minor fires yourself.



AN EXIT STRATEGY In the event of a large fire in your home, immediately take the following steps:

- Get everyone out of the house.
- Call the fire department from a neighbor's house or from a cell phone.

Develop a household fire exit plan. It's even a good idea to have a fire drill now and then. With your family, map escape routes from the house, particularly from bedrooms, and designate a central meeting area outside the home so that



smoke detector

everyone can be accounted for quickly. If your home is more than one story high, make sure you have safety ladders near windows. If any windows are barred, ensure that the emergency releases are fully functional. If you have a double-keyed lock on any exterior doors, be sure a key is nearby so anyone can open the door quickly.

SMOKE DETECTORS These provide excellent early warning of fire. They are your first line of defense against fires that break out at night. Install one or more detectors on every floor of your house, near exits, and adjacent to bedrooms. Install them near the center of a room or hallway.

A photoelectric smoke detector sounds when its internal light beam senses smoke or steam.



An ionization detector can sense the presence of fire even when there is little smoke. Both types work well. Battery-operated smoke detectors can be screwed to the ceiling, so you can mount them yourself. A hardwired detector should be installed by a professional electrician. It should have a battery backup so it can work when a fire damages wiring.

Check your detectors every month by pushing the test buttons. Replace batteries yearly, even if they test OK.

FIRE EXTINGUISHERS Keep a fire extinguisher handy in a kitchen, garage, workshop, and any other location where a small fire may occur. Extinguishers are labeled according to the type of fire they can put out. Type A can extinguish ordinary fires involving wood, cloth, and paper. Type B is for fires fueled by gasoline, oil, kitchen grease, solvents, and other combustible liquids. Type C can handle electrical fires. The higher the UL number, the larger the fire the unit can put out. An extinguisher with a rating of 1 for A fires and 10 for B and C fires will take care of most minor blazes.

HOW TO PUT OUT A FIRE

First, get everyone else out of the house. Then grab a fire extinguisher and follow the **PASS** method:

- P** Pull the safety pin.
- A** Aim the extinguisher at the base of the flame.
- S** Squeeze the handle.
- S** Sweep the nozzle from side to side to cover the entire base of the fire.

In addition to following these general instructions, be aware of the peculiarities of various types of fires:

KITCHEN GREASE If the fire is in a pan, turn off the heat and cover the pan with a lid. Pouring water on a grease or oil fire will cause the fire to spread.

OVEN Turn off the heat and let the fire burn itself out. Do not open the oven door. This will let in more air, feeding the fire and causing it to grow.

CHIMNEY A chimney fire occurs when soot and creosote deposits inside the flue ignite, making a loud roaring noise and causing flames and sparks to shoot out of the chimney. The sparks may ignite the roof as well. Get everyone out of the house and call the fire department. Do not try to put it out. To prevent a chimney fire, keep the chimney clean and install a spark arrester at the top (see pages 98–99).

ELECTRICAL If a fire is caused by a light or appliance cord, pull out the plug or shut off the power at the wall switch or the service panel. Use a C or ABC extinguisher. Never use water, which can cause the fire to spread and can also cause electrical shock. If you don't have an extinguisher, cover the fire with a nonflammable cloth. If the fire continues, get out of the house and call the fire department immediately.

DRYER If a fire occurs inside a clothes dryer, keep the dryer door closed. Shut off the gas or electricity. If the fire continues, get out of the house and call the fire department immediately.

Check an extinguisher's gauge monthly to be sure the unit is fully charged. Some models can be recharged, while others should be replaced.

SECURITY AGAINST INTRUDERS

Certain precautions can greatly reduce the chances that a burglar will break into your home.

- Exterior doors should be solid

wood or metal. Install high-quality deadbolts with 1-inch throws. The strike plate (the socket where the throw inserts) should be installed with 3-inch or longer screws that penetrate the house's framing, not just the jamb. See page 76 for more information.

- Windows should be locked. See page 58 for locking options. If you have jalousie windows

(with open horizontal glass slats), replace them with windows that can be locked.

- Provide ample lighting with motion sensors outside your home. Intruders will be surprised by bright light that comes on when they approach the house.
- A dog—the louder, the better—is an excellent deterrent against most intrusions.
- An alarm system is the ultimate measure of protection. Most systems have a network of sensors that sound an alarm when a door or window is opened, controlled by a keypad that allows you to turn the system on and off. The alarm may sound a siren and/or alert the local police. If you choose this option, shop for a reputable dealer. There will probably be an installation charge, plus a monthly fee if you want the system monitored.

CHILDPROOFING

Here are some simple ways to make a home safer for small children:

- Keep hazardous materials—such as cleaning products, paints, and solvents—locked away, tightly sealed, and on high shelves.
- Move small appliances to where children cannot get at them, and keep them unplugged when they are not in use. Keep sharp knives out of reach as well.

*childproof
receptacle
covers*



- n Cook on back burners when possible and keep children well away.
- n Make sure large pieces of furniture and appliances—especially televisions—are placed so they will not tip. Hang mirrors and large pictures securely.

Childproofing products address other potential hazards. Here are just a few:

- n Cabinet door safety latches install quickly and keep children out.
- n Sharp table corners can be dangerous. Cushioned protectors take the edge off.
- n Children like to turn knobs. Install safety covers on your stove's burner controls.
- n Safety gates keep small children from falling down stairs or entering unsafe rooms. Accordion-style gates work only if you install them tightly. Gates with parts that screw to stair railings or walls work better.
- n If a child licks an electrical receptacle or pokes it with a wet hand, a dangerous shock could result. Cover unused receptacles with safety plugs. Also install covers so kids can't get at cord plugs.

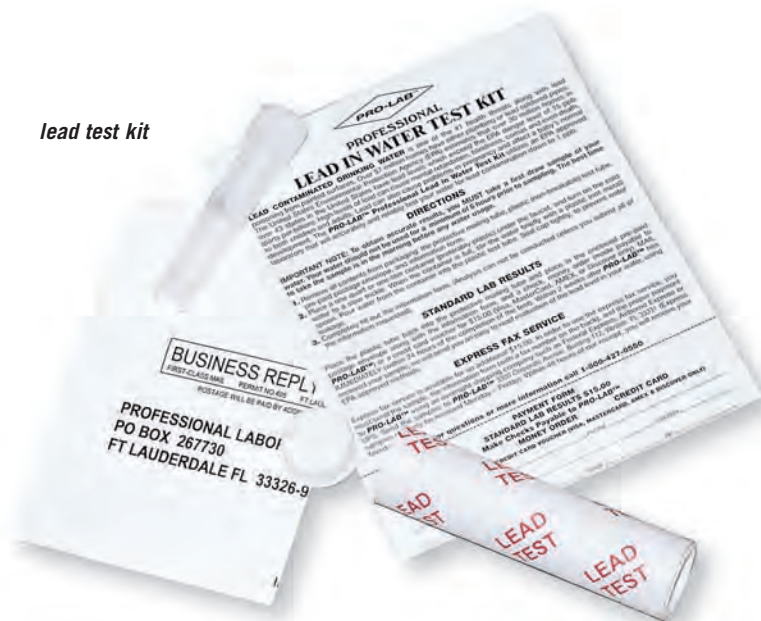
AIR AND WATER QUALITY

You may decide to hire another company to test whether the water and air in your house are safe. If they are not, find out how serious the problem is and how much it will cost to fix it. The major issues are carbon monoxide, lead in water and paint, radon, asbestos, and mold.

CO detector



lead test kit



CARBON MONOXIDE This gas, often referred to as CO, results from the incomplete burning of gas or other combustibles. In a home, it is usually caused by the improper ventilation of a gas water heater, heat system burner, or stove, or by a wood-burning stove or fireplace.

CO is colorless and odorless, but it's very dangerous. Low levels cause headaches, drowsiness, and nausea. Higher levels can lead to an oxygen deficiency that causes respiratory problems and even death. Very young and old people are most at risk.

Install a CO detector in the same room as a gas burner or water heater—the likeliest culprits. Also install at least one near sleeping areas. A good detector will have a peak level memory, which tells you the highest readings attained over a given period. Keep the detector equipped with a battery, as you would a smoke detector.

If you get a high CO reading, call your gas company for a free inspection. In many cases, the solution will be to mend or reconfigure a flue so that all fumes are sucked out of the house.

LEAD The two main sources of lead are drinking water and old paint. Lead paint was commonly used prior to 1950, and was sometimes used up to the 1970s. If you suspect it, especially in an area where children may come into contact with paint chips, you can use a home testing kit to find out for sure. Lead paint on walls is usually not a danger as long as it does not chip or peel off. But paint on windows and doors, where two surfaces rub against each other, will cause a dust that can be harmful. If you have lead paint, covering it with a good primer and new paint will certainly help. To get rid of it completely, contact a certified lead paint removal contractor.

Some older municipalities and homes have lead pipes. Your building department can tell you if the pipe leading from the street to your house is lead. Prior to 1986, many copper water supply pipes were joined with a solder that contained lead. To deal with these sources of lead, many municipalities add a tiny amount of phosphate to the water to coat the pipes and keep lead from leaching into the water supply. If a test reveals that you have lead in

your water, you may want to install a purifier for your drinking water. Contact your local health department or water supplier for more information.

RADON This is another odorless gas, caused by natural radioactivity in many soils. It is harmless outdoors, but it can create a hazard indoors. Breathing high levels of radon for 10 to 15 years increases the risk of lung cancer and other serious ailments.

Test for radon when windows have been kept closed. This is when levels are highest. A long-term test is best, since radon levels can vary greatly from week to week. In addition to having a test performed during your house inspection, you can purchase a home testing kit or hire a company to test for you. If you get your water from a well, test the water for radon.

Solutions to high radon levels are often low tech. Seal all the places where radon enters your house, including water pipes, cracks in basement floors, gaps in siding, and around a sump pump. Also increase your home's ventilation. If these measures do not solve the problem, call in a professional who specializes in radon abatement.

ASBESTOS Asbestos was often used in home construction—especially for pipe insulation—before the late 1960s. Inhaled asbestos fibers, even if microscopic, can cause various types of cancer and respiratory problems.

If you have old pipes or a furnace wrapped in insulation that is covered in cloth, it may be asbestos. Asbestos is light gray and looks like corrugated cardboard. Loose insulation in an attic may contain asbestos. It will appear fluffy and light gray in color. Textured “cottage cheese” ceilings

installed before 1970 may contain asbestos. Older acoustic ceiling tiles also may contain asbestos.

What to do about it? Opinions vary and have changed over the years. Many experts feel that most asbestos should be tightly wrapped in tape or otherwise encapsulated. Others believe that the best solution is to hire an asbestos removal company. The latter option will cost quite a bit. Contact your local health department to learn the method it recommends.

MOLD Mold is not a problem in small quantities; in fact, it is all around us. However, there is increasing evidence that large quantities of mold in homes may

protective clothing, scrape away as much mold as you can. Often mold can be effectively removed by washing with a solution of bleach, vinegar, or Borax and water. You can also try aiming a hair dryer at the mold until it dries out. If those strategies don't work, remove and replace surfaces (such as drywall) where mold has attached itself.

Then ensure that the area will remain dry. You may need to remove nearby shrubs, seal exterior holes with caulk, or repair a roof leak, for instance. Wait a week or so before finishing the area to make sure the mold does not regrow.

If you suspect that mold may be present in your heating or air-conditioning system, do not run the



cause asthma attacks in some people. Mold can also irritate the eyes, skin, nose, throat, and lungs.

In most cases, mold is an isolated problem that you can solve by cleaning the area and then keeping it dry. If a moldy area is less than 10 square feet, you can handle it yourself. Consult the health department or hire a contractor if you have larger areas of mold. Wearing gloves, an N-95 respirator (available in many hardware stores or over the Internet), goggles, and

heater or air conditioner. Consult a professional, who may recommend cleaning the ducts.

Very rarely, large amounts of mold develop inside walls. (This may happen in a home that is tightly sealed with insulation and house wrap but is not properly ventilated.) If family members suffer from persistent asthma-like symptoms, or if you see or smell mold in places that are not wet, contact your building department or a mold abatement specialist.

seasonal maintenance

Preventive maintenance is the best way to keep your home in good repair and to avoid expensive problems in years to come. The chart below lists common procedures, but they are merely a starting point. If you notice a problem developing, take care of it immediately.

The repairs indicated are discussed throughout the book. Appliances vary in design, so the final authority should be the owner's manual.

CAUTION Before inspecting or working on the electrical system or on any device connected to it, shut off the power and use a voltage tester to make sure power is off, or unplug the appliance. For maintenance of or repairs to plumbing fixtures or water-using appliances, you may need to shut off the water (see page 8). To turn off the gas, see page 9.

When	Where to Check	What to Do
Every Month	Fire extinguisher	Check that it's fully charged; recharge or replace if needed.
	Smoke detector	Test batteries and replace if needed.
	Sink and tub stoppers and drain holes	Clean out debris.
	Garbage disposer	Flush with hot water and baking soda.
	Water-heating system	Check pressure gauge and drain expansion tank if needed.
	Forced-air heating system	Clean or replace air filter; vacuum registers.
	Heat pump	Clean or replace air filter; clean condenser or evaporator coils and condensate drain; remove snow and/or debris from outdoor portion of unit.
	Air conditioner	Clean or replace filter; clean condenser and evaporator coils and condensate drain.
Every 2 Months	Oil burner	Inspect and clean.
	Wall furnace	Clean grills.
	Range hood	Clean grease filter.
Every 3 Months	Faucet	Clean aerator.
	Tub drain assembly	Clean out debris; inspect rubber seal and replace if needed.
	Floor and outdoor drain grates	Clean out debris.
Every 6 Months	Basement and foundation	Check for cracks and moisture and repair as needed.
	Toilet	Check for leaks and water run-on.
	Interior caulking	Inspect caulking around tubs, showers, and sinks; replace any if it is deteriorating.
	Water heater	Drain water until it is clear of sediment; inspect flue assembly (gas heater).
	Garbage disposer	Tighten drain connections and fasteners.
	Clothes washer	Clean water inlet filters; check hoses and replace them if they are leaking.
	Clothes dryer	Vacuum lint from ducts and surrounding areas.
	Wiring	Check for frayed cords and wires; repair or replace them as needed.
	Range hood	Wash fan blades and housing.

When	Where to Check	What to Do
Every Spring	Roof	Inspect roof surface, flashing, eaves, and soffits; repair as needed.
	Gutters and downspouts	Clean them out or install no-clean versions. Inspect and repair weak areas; check for proper drainage and make repairs if needed.
	Siding	Inspect and clean siding and repair if needed.
	Exterior caulking	Inspect caulking and replace any that is deteriorating.
	Windowsills, door sills, thresholds	Fill cracks, caulk edges, repaint; replace if needed.
	Window and door screens	Clean screening and repair or replace if needed; tighten or repair any loose or damaged frames and repaint if needed; replace broken, worn, or missing hardware; tighten and lubricate door hinges and closers.
	Water-heating system	Lubricate circulating pump and motor.
	Heat pump	Lubricate blower motor.
	Air conditioner	Lubricate blower motor.
Every Fall	Whole-house or attic fan	Clean unit; check belt tension and adjust if needed; replace a cracked or worn belt; tighten screws and bolts; lubricate motor.
	Roof	Inspect roof surface, flashing, eaves, and soffits; repair if needed.
	Gutters and downspouts	Clean out; inspect and repair weak points; check for proper drainage and repair if needed.
	Chimney or stovepipe	Clean flue (more frequently if needed); repair any cracks in flue or any loose or crumbling mortar.
	Siding	Inspect and clean siding and repair if needed.
	Exterior caulking	Inspect caulking and replace any that is deteriorating.
	Storm windows and doors	Replace any cracked or broken glass; tighten or repair any loose or damaged frames and repaint if needed; replace damaged hardware; tighten and lubricate door hinges and closers.
	Window and door weather stripping	Inspect and repair or replace if it is deteriorating or if it does not seal.
	Water-heating system	Lubricate pump and motor; bleed air from radiators or convectors.
	Forced-air heating system	Vacuum heat exchanger surfaces; clean and lubricate blower blades and motor; check fan belt tension and adjust if needed; replace cracked or worn belt; check for duct leaks and repair if needed.
	Gas burner	Clean burners and ports.
	Oil burner	Have it professionally serviced.
Thermostat	Clean heat sensor, contact points, and contacts; check accuracy and replace the thermostat if it is not functioning properly.	
Annually	Septic tank	Have a professional check the tank (watch for back-up throughout the year). In many areas, it is recommended that the tank be pumped every year.
	Water heater	Test temperature pressure relief valve and replace if needed; clean burner and ports (gas heater). Replace the thermocouple.

walls and ceilings

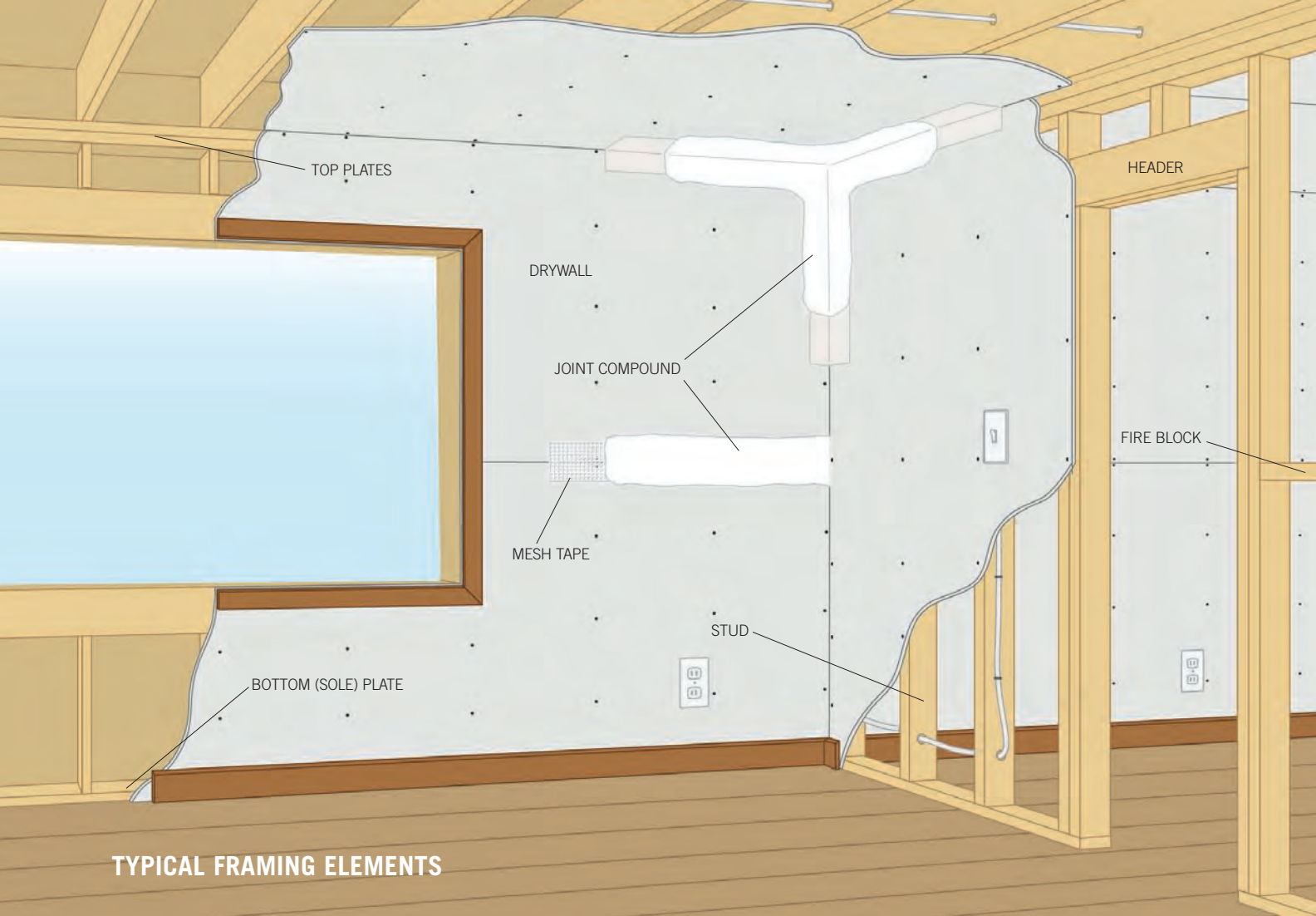
Most homes built before 1940 have plaster walls. The plaster is usually attached to horizontal strips of wood lath that have gaps between them. The rough coat of plaster seeps into the gaps to create a strong attachment, and a smooth finish coat is applied over the rough coat. Often there are three coats, including a middle coat for extra strength. Lath is generally $\frac{3}{8}$ inch thick, while the plaster itself may be anywhere from $\frac{3}{8}$ to $\frac{1}{4}$ inch thick. Sometimes a thick wire mesh, called metal lath, is used instead of wood.

Since the 1940s, most homes have been finished with sheets of drywall, also called wallboard (brand name Sheetrock®). Drywall has a gypsum core that is covered with paper on both sides. It is usually $\frac{1}{2}$ inch thick, but thinner and thicker versions are not uncommon. Drywall is attached to wall studs and ceiling joists with nails or screws. The joints between sheets are sealed with a paper or fiberglass mesh tape and covered with several layers of joint compound, which can be textured or sanded smooth. In some areas, it is common for drywall ceilings to be coated with a texture that looks like popcorn or cottage cheese.

<i>Repairs to Plaster</i>	18
<i>Repairs to Drywall</i>	20
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<i>Repairing and Removing Wallpaper and Paint</i>	24
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<i>Repairs to Textured Ceilings and Walls</i>	30
<i>Repairs to Wood Paneling</i>	32

AMERISPEC® TIP WATCH FOR CABLES, PIPES, AND DUCTS

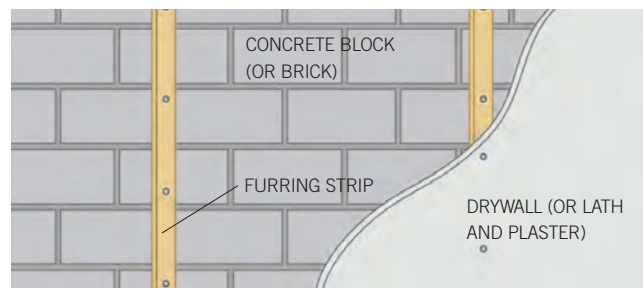
Most walls have electrical cables running through them, and many have plumbing pipes or metal ducts as well. Always be cautious when cutting into a wall, because cutting into these lines can be dangerous and can cause serious damage to your home. Unless you are certain the cavity is empty, use a small hand saw rather than a power saw. Open a small area and peer inside with a flashlight or explore with a thin board before making a larger cut.



TYPICAL FRAMING ELEMENTS



PLASTER WALL



FINISHED MASONRY WALL

The large illustration above shows typical framing elements that underlie a drywall or plaster wall. Walls are built of studs, which are typically 2 by 4s or 2 by 6s. Ceilings are framed with joists, which are 2-by-6 or wider boards. Framing members are usually spaced 16 inches apart,

but in some homes (especially those with plaster) the spacing may not be regular. You'll likely find fairly wide headers above every door and window. Most walls have top and bottom plates, and often the top plate is a double thickness of 2-by-4 wood. In some prewar homes

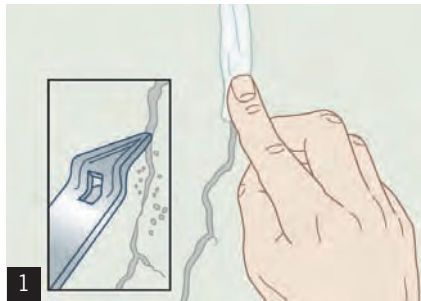
with "balloon framing," however, there are no top and bottom plates. A masonry wall is likely framed with vertical 1-by-2 boards called furring strips, which are nailed or screwed to the bricks or blocks. Lath and plaster or drywall is nailed or screwed to the 1-by-2s.

repairs to plaster

Plaster is commonly applied over wood lath (see page 17), but it may also be applied over metal lath, over a special wallboard similar to drywall, or directly onto a masonry surface. These pages show repairs to small areas. Fine cracks, nail holes, and small gouges in plaster can be repaired with spackling compound. Larger areas can be finished with setting-type joint compound (which comes in bags of dry mix) or with patching plaster, as shown on these pages. If you use joint compound, you'll need to apply fiberglass mesh tape to the joints between the patch and the surrounding wall.

REPAIRS TO LARGE SECTIONS If a very large area is damaged, you may choose to remove the plaster between studs or joists and then install drywall, as shown on page 21. Purchase drywall that is the same thickness as your plaster and lath, attach it, and tape the joints between the new drywall and the old plaster, as shown on page 23.

FINISHING THE PATCH The patch should match the texture of the surrounding wall. For a smooth surface, apply several coats of joint compound, sanding each, until you achieve a finish that looks and feels smooth. To match a textured surface, use a paint brush, stippling brush, sponge, whisk broom, or trowel—whatever will give you the desired finish. Daub or swirl the joint compound to create the desired pattern.



Patching fine cracks

1 Widen the crack to about $\frac{1}{4}$ inch with the tip of a lever-type can opener (inset). Blow out dust and debris. With your finger or a putty knife, fill the crack with spackle.



2 Sand the spackle once it's dry. Use a block wrapped with fine-grade sandpaper and work in a circular motion. Prime the patch, then paint it.

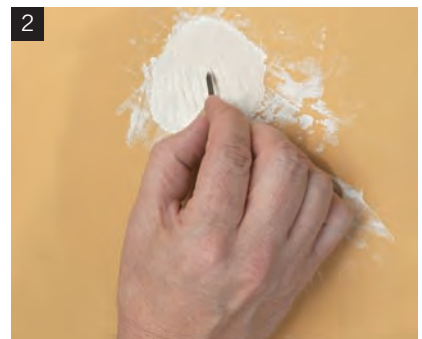
Repairing a small hole

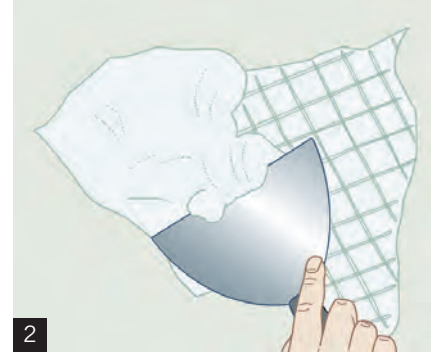
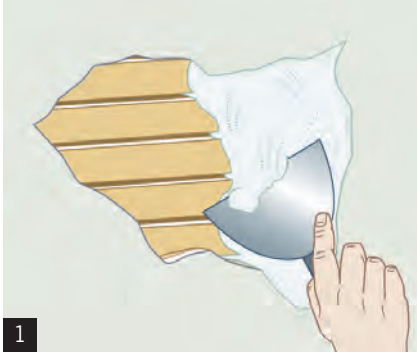
1 Gently tap out any loose plaster with a cold chisel. Clean out the plaster from the lath to create a surface that the patching plaster can adhere to. Brush the area clean and dampen with a sponge.

If the hole is smaller than 2 inches across (but larger than a fine crack, nail hole, or small gouge), fill it with patching plaster and finish. For larger holes, apply a first layer using a 6-inch taping knife.

2 Score the patch with a nail, then allow the surface to dry. Moisten the patch and then apply a second layer of patching plaster, coming to within $\frac{1}{8}$ to $\frac{1}{16}$ inch of the surface. Score the patch and let it dry.

3 Apply the final coat, feathering the edges an inch or so beyond the edges of the hole. Scrape a wide taping knife across the wet finish coat to remove any excess material. When the patch is dry, sand smooth.





Patching a larger hole

1 Chisel the edges, tap out loose plaster, and dampen the lath with a sponge. Using a 6-inch tapping knife, fill a little more than half the hole's depth with patching plaster. Force it through the gaps in the lath. When the plaster is firm, score it with a nail and let it dry.

2 Dampen the patch again and apply a second layer of plaster to within $\frac{1}{8}$ to $\frac{1}{16}$ inch of the surface.

Score the plaster, let it dry, and apply a third coat. Feather the edges of the plaster an inch or more beyond the edges of the patch.

3 Use a wide tapping knife to remove excess plaster. For a smooth finish, dip a metal float in water and, holding the float nearly flat against the wall, draw it down from top to bottom. When the plaster is dry, sand and prime it.

AMERISPEC® TIP

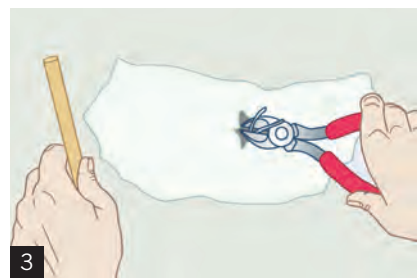
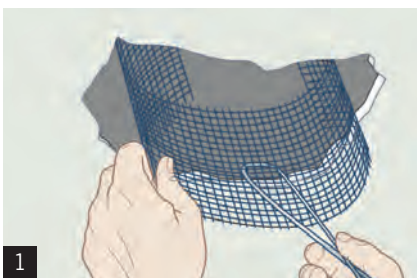
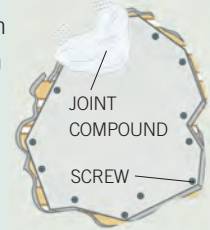
PLASTER THAT'S COMING LOOSE

If a wall or ceiling feels spongy when you press on it, the plaster has come loose from the lath. You can fix a small area of loose plaster by driving plaster screws, available at some hardware stores. On a ceiling, where this problem is most common, you can attach sheets of drywall directly onto the plaster, driving long screws into the joists. This will save you the trouble and mess of removing the old plaster. You can do the same on a wall, but because the drywall increases the wall's thickness, you'll have to remove moldings and build out window and door jambs before reinstalling them.

PATCHING WITH DRYWALL AND JOINT COMPOUND

For a large patch, this method is usually easier than filling the entire area with compound or patching plaster. Chip away the edges of the hole and remove all debris. Cut a piece of drywall the same thickness as the plaster to roughly fit in the hole. Then

attach it with $1\frac{1}{4}$ -inch drywall screws driven into the lath and 2-inch screws driven into studs or joists. Fill gaps between the patch and the wall with joint compound, apply fiberglass mesh tape, and spread joint compound over the tape. Allow the compound to dry and then sand it. Repeat until you achieve a smooth patch.



Patching a hole without a base

1 After removing loose plaster from around the hole with a chisel, loop a wire through a piece of metal mesh. Roll the edges of the mesh, insert it into the hole, and flatten the mesh by pulling the wire.

2 Attach the wire to a stick so it holds tight against the wall. Dampen the hole's edges with a sponge. Using a putty knife, fill just over half the hole's depth with patching plaster, forcing it through the mesh.

3 Unwind the wire, then remove it and the stick. When the plaster is firm, score it with a nail. Apply two additional coats of patching plaster and finish the patch.