New Homeowner Guide

Powered by

HOME BINDER

NEW HOMEOWNER'S GUIDE

TABLE OF CONTENTS

Chapter 9/ Home Repairs

Chapter 10/ Ways to Boost Home Value

BONUS INFORMATION

I. Seasonal Checklist

II. How Long Will It Last? Life Expectancy of Home Components

III. The Best Way to Choose Home Contractors

Acknowledgments

OVERVIEW

Congratulations on becoming a new homeowner! Whether or not this is your first home, taking ownership and moving in can be an exciting and stressful time. We're here to help. If you're a veteran homeowner who's been around the block a few times, we've included updated content to make this book useful to you as well. These days, the debate about whether a home is an asset or a liability persists. We at HomeBinder prefer to focus on the experience. We just want you to be successful in your ownership.

This book is your key to HomeBinder's tool chest, as well as a summary of the many aspects of home maintenance that preserve and enhance the value of your property. It is not a comprehensive fix-it guide; there are plenty of those out there. Instead, this book is meant to get you up to speed fast on the workings and condition of your home, and to make keeping track of them a breeze. If you start now, you'll spend less time being frustrated, and more time enjoying your new property.

QUICK START GUIDE

So, you're ready to move in. There's no need to read this book from cover to cover. It's arranged so you can hit the right sections when you're ready to learn and prepare, or to

troubleshoot as issues arise. Right now, though, here are a couple of crucial chapter links to get started:

Section (Click to follow links below)	**Why?**
CHAPTER 1/ MOVING IN: FIRST THINGS TO DO	Make sure to configure HomeBinder when you move in, to get the most value, identify any appliance recalls, and ensure that your maintenance schedule is "dialed in." Your inspector may have started this process for you.
CHAPTER 2/ PRIMARY SAFETY ITEMS TO MAINTAIN	Safety starts from day 1. Here are the most important steps to protecting yourself and your family in your new home.
CHAPTER 7/ ENERGY EFFICIENCY	Getting ahead of what powers your home will save you money. The sooner you do it, the better off you'll be.

WHY HOMEBINDER?

Many homeowners receive this book from home inspectors along with their report. That's because home inspectors care about their clients! The information they relay during an

inspection or in their report is critical to safety and getting the most out of a major investment. But the volume of facts can be overwhelming. Inspectors know that folks are already busy with moving plans, new jobs, new schools, and the myriad things that go into buying a new place. Yet, they need a way to remember inspection information and details, in order to prevent issues from arising in the future.

HomeBinder offers a way to break down and organize what you learn from your inspector, your real estate agent/broker, and from first-hand experience living in your new home—all in one place. You'll add to your binder, listing upkeep and upgrade information. Convenient? Yes. But, more important, from a property value standpoint, HomeBinder offers continuity. It's a record of your home's "life" from the day you purchase through the day you sell (more about that value below.)

Get to know HomeBinder like you would a helpful, new neighbor. We'll be there with tips and reminders, so that caring for your home—and its eventual sale—will run like clockwork.

HOW IT WORKS

We have designed HomeBinder to streamline home care and track all the efforts you make to improve your property. There's a place to record photos and need-to-know data—an inventory of furnishings, a schedule for upkeep, contacts for contractors, etc. If you received this book as a gift, a professional may have pre-loaded your home's basics into your account.

We'll offer prompts to make it easy to know what information to include for each additional item. Then, you'll automatically get maintenance reminders that either you or the home inspector have set up for you.

Take a few moments to set up your HomeBinder today, and it will pay dividends throughout your ownership. From giving you an alert if an appliance gets recalled, to having remote access to home information (such as filter sizes) and easy reference to a paint color or a home pro you used in the past, the more you put into your binder, the more you'll get out of it (as with a lot of things in life!). When you're ready to sell, you can share this wealth of information with brokers, appraisers, and prospective buyers to make your transaction as successful and valuable as it can be.

How HomeBinder Helps Today

- 24/7 access to all your home details, from wherever you are
- Email maintenance reminders, for a nudge when you need it
- Appliance recall alerts you might not otherwise know about
- Records of previous projects and pros, so you won't forget them
- Optional Annual Property Reviews to catch problems when they're small

Using our interactive application, you'll be able to access your home info from your computer or mobile device. HomeBinder takes preventive upkeep a step further by pairing with professionals in your area (typically, the person who first inspected your home) to

perform Annual Property Reviews at your request. You'll get a real-time assessment of your home and grounds that will show you how well things are holding up and point out trouble spots before they become disasters. Learn more about **Annual Property Reviews** in Chapter 10, Ways to Boost Home Value.

How HomeBinder Pays Off When You Sell

- Offers buyers a complete ownership history of your home
- Displays pictures and features that get your property noticed
- Gives appraisers accurate data to speed the transaction
- Provides full disclosure to help you get the best sale price
- Collects cost records that may reduce capital gains taxes

Although selling your home may be the furthest thing from your mind right now, you are putting money into something that will have real value, and it is important to maximize it. Given that a sale may be decades from now, how will you preserve all the records and data you'll need to disclose to appraisers and buyers? HomeBinder makes that part easy. Just enter information as you go. Even a few items a year will start to accumulate fast! When it's time to sell, you'll have a secret weapon: the **HomeBinder Seller Report**. It's free with your account.

Buyers today expect to see and know as much as possible about a home before considering viewing or purchase it. Having a HomeBinder Seller Report will put you at the

top of their list. You'll be able to share unique details about your property and neighborhood. A full record of inspections, maintenance, and upgrades will **move the transaction along faster.** And, since you probably loved your home, giving buyers the "playbook" on how to manage it will ensure that it is taken care of, going forward.

Appraisers, however, have little time for research and rely on public records these days. This limited data may result in insufficient "comp" (comparable home prices sold), especially in upward markets where homes are gaining value. A HomeBinder Seller Report passes along home details that appraisers can't get from public sources (such as a kitchen renovation, sunroom addition, new master bath, or all upgraded appliances). This increases their accuracy and **prevents an appraisal from holding up the deal.**

Sellers (that's you!) want the transaction to go smoothly and want to maximize home value. Your up-to-date Seller Report answers buyers' questions and shows them pictures of your home's features and improvements. This boosts their comfort level and confidence in the value that they see, making them more likely to meet your asking price. Additionally, the report helps you **avoid unnecessary taxes at the time of sale**. Your HomeBinder will contain evidence to help you reconcile capital gains that exceed federal limits. For instance, if you bought the home for $250K and can show that you put $100K into it, when sold for $400K, your capital gains were really just $50K. (Under today's tax law there is a generous allotment of "free" $250K capital gains for an individual and $500K for a married couple, but that may not always be the case. Tax laws change, so it's important to be prepared, given the significant financial implications.)

CHAPTER 1/ MOVING IN: FIRST THINGS TO DO

To get the most value, safety, and security out of your investment, start by safeguarding your loved ones and belongings by changing exterior door locks and various system filters. Then, move on to record keeping. It only takes a few minutes. Finally, move on to getting your water supply tested.

FIRST: CHANGE THE LOCKS AND FILTERS

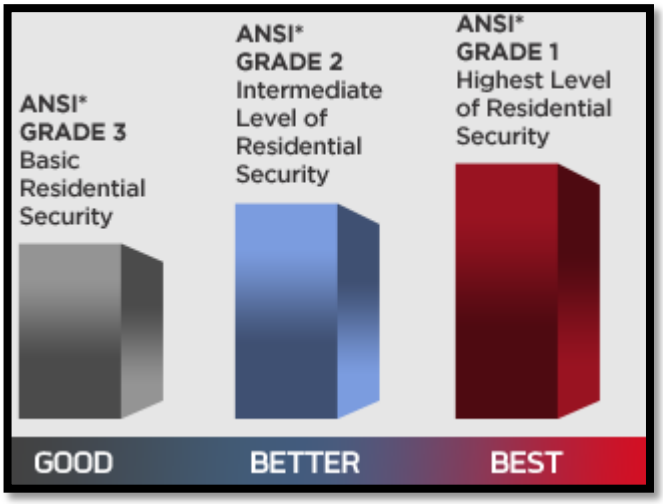
- ✓ Change exterior and garage door locks
- ✓ Change furnace and central air conditioning filters
- ✓ Change water system filters

Before you move into your new home, secure your property and protect indoor air and water quality. **New locks**—or, if using an electronic keyless system, new configurations—are a must. Replacing filters on your heating and cooling systems will optimize the quality of indoor air circulation, and **new filters** on your refrigerator or drinking water supply, if

applicable, will do the same for water that is fed through pipes. Filters should be replaced when you move in, immediately after you finish unpacking and vacuuming the floors. This way, you'll start with a fresh filter after the dust disturbed by boxes and furniture has settled.

What to Know Before Buying Locks

During a home purchase and any needed renovation, outside parties may have access to your keys and floor plan. New locks will prevent anyone from gaining entry and will protect your family and possessions. You can install locksets yourself or hire a locksmith to do it. NOTE: Most locks are mass-produced by reputable manufacturers but to very low standards and many that you will find at "big box" stores will not be the quality you might anticipate. Look for at least a grade 2 when buying a lock set (Grade 3 is the lowest – see image below).



TIP: Not every state requires locksmith licensing! Choose a licensed locksmith or get a referral from a trusted real estate professional.

If you've never purchased a lockset before, consider which level of security you need and which doors need to be outfitted.

Types of Locks

- **Cylinder**. These common keyed locks are self-contained cylinders typically combined with door knobs or handles.
- **Mortise.** Metal-plate locks are stronger than cylinder locks but require cutting a pocket out of the door where it meets the jamb.
- **Deadbolt.** Barrier locks operate with keys from both sides or by a sliding motion from only the inside.
- **Electronic.** Keyless locks use electronic current to allow or deny access, operated by a touchscreen, your mobile device, your fingerprint, or a digital keypad.

If you're handy with a drill and screwdriver, you may want to install your own cylinder or deadbolt locks to save some money. Be aware, though, that mistakes can ruin a

door—costing you more than you would have saved. If you hire a locksmith, you can also get professional advice on which type of locks will best suit your needs. You may want to consider a lock system that that has a "master key" for access to all entry points or you may want all individual keys. For a discussion of **new lock technology** in this book, see Chapter 4, Safety and Preventive Measures.

Whichever installation route you choose, first identify which doors need new security. Include any entryways from outside your house: front door, back door, patio door, exterior garage door, and—in some homes—interior doors that lead from the garage to the house. Make a list, get a ruler or measuring tape, and then jot down these specifications to use when buying locksets:

- Door thickness
- Door hinge placement
- Type of lock needed

Door thickness is pretty straightforward however even the accomplished handyman may need a reminder as to how to identify if a door is to be a "right-handed" or "left-handed" door.

REPLACING AN EXISTING DOOR: With the door open, stand with your back against the hinge jamb. If your left hand is nearer the doorknob, then the door is

LEFT-HANDED. If your right hand is nearer the doorknob, then the door is RIGHT-HANDED.

INSTALLING A NEW DOOR AND JAMB IN A ROUGH OPENING: Decide which side of the frame will have the door hinges. Stand with your back against the hinge-side of the frame and extend an arm in the direction you wish the door to open. If you extended the left arm, then you need to order a LEFT-HANDED door set. If you extended the right arm, then you need to order a RIGHT-HANDED door set.

TIP: Though exterior doors typically swing inward, outswinging exterior doors are available. So be sure to add "inswinging" or "outswinging" to your notes before ordering.

The thickness of your door will help you determine which locksets will fit it. Note, too, whether you need a special garage door lock, new door handles with cylinder locks, or a security deadbolt. Use this information to buy and install new exterior locks, or present it to a locksmith, who can help you with selection. You'll sleep well at night!

Change HVAC and Water Filters

Heating, venting, and air conditioning (HVAC) systems use filters to trap particulate and reduce its concentration in indoor air. Replacing filters periodically will not only improve

the quality of the air in your home but it will also improve energy efficiency AND the operating length of the unit by decreasing the stress on it. The filters in water purification systems remove sediment and contaminants. As a new homeowner, it is a good idea to make sure clean filters are in place when moving in. We'll discuss **periodic filter replacement** in Chapters 2 and 6.

System Filters Your Home May Have

- Oil furnace, oil filter
- Forced-air furnace, air filter
- Central air conditioning, return air filter
- Media Air filters at the unit in the attic
- Refrigerator with water lines, carbon water filter
- Tap water filtration, carbon water filter

Some filters need periodic replacement and may be purchased by size or part numbers; others are durable and reusable, and can be sprayed clean with water. Get to know your systems from the previous owners or property managers. Or, check manufacturers' online or print manuals for how many and what kind of reusable or replaceable filters each system has and how often to clean or replace them.

Sanitize All Working Surfaces

This step can easily be overlooked in the excitement of moving into a new home. It is important however to remember that in the process of construction, moving and the general transition, the surfaces in the home, especially the kitchen countertop, likely had people and things on them. Take the time to properly wipe down all surfaces and use a disinfectant. Even if you are moving into a newly built home it may seem like it is all clean however pros we talk to all brought this up as an important step ☺.

NEXT: SET UP YOUR HOMEBINDER ACCOUNT

✓ Confirm maintenance schedule

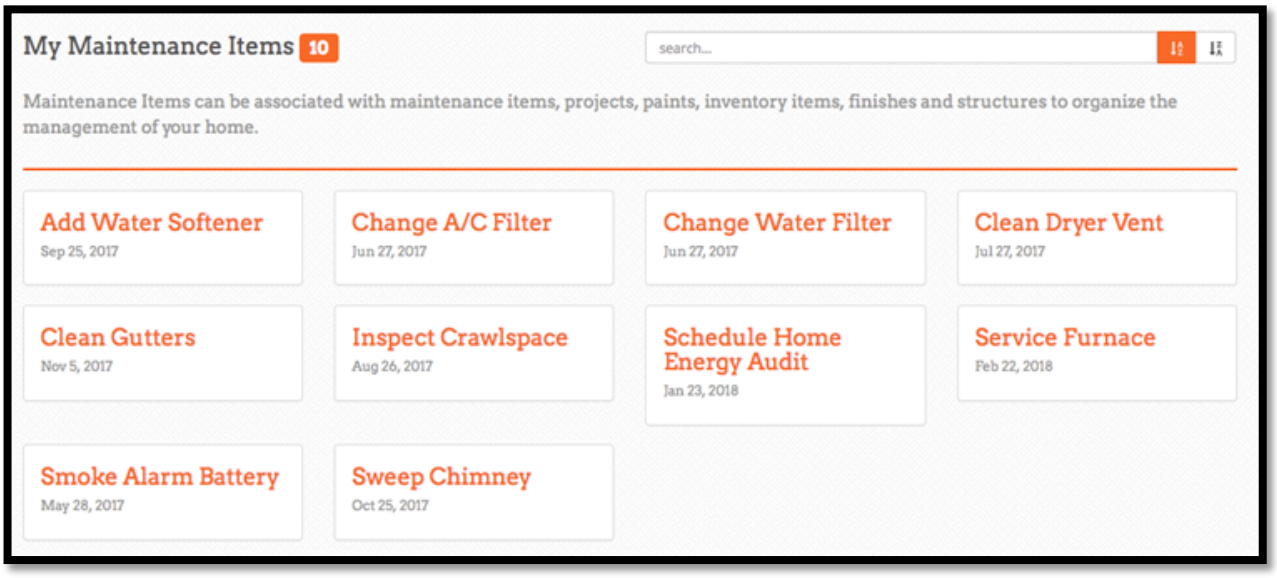
✓ Load appliance info

✓ Share your binder

Confirm the Maintenance Schedule

Start off right! Most accounts set up by inspectors or other third parties will show a default **maintenance schedule** in their binders. These are meant to apply to the widest variety of homes in a given geographic area—but it may include items that your particular home doesn't have. Or, it might be missing important items that your home might have, such as a

sprinkler system, a pad-mounted generator, a wood-burning fireplace or stove chimney, or even a koi pond—all of which need periodic maintenance.



Sample list of maintenance items in a HomeBinder account

So, begin by customizing your list according to your property's features. Look at the maintenance items currently in your HomeBinder and adjust it to accurately represent your property. This table shows examples of maintenance tasks that you may or may not need to keep in your schedule.

Sweep Chimney	No chimney exists, or fireplace is natural gas,) in which no actual wood is burned and creosote does not build up.

Pump Septic Tank	Typically found in rural areas without city water/sewer service. Clean tank every 1 to 10 years, to prevent backup into the house. The frequency will depend on the **age and size** of your system relative to the use in the house.
Blow Out Sprinkler Lines	For Northern tier climates only, it's important to rid the lines of any water prior to freezing temperatures.
Water Softener	Homes on well water or municipal water may have a softening system. Typically needs a bag or two every 3 to 4 months.

Load Your Appliance Information

- ✓ Value 1: Automatic recall notification
- ✓ Value 2: Quick warranty benefits reference
- ✓ Value 3: Remote access in emergencies

HomeBinder gives you instant and remote access to model numbers, serial numbers, warranties, and manufacturer's recalls. You'll also know when you bought your range or

the lifespan of your brand of washer and dryer, for remodeling or comparison shopping purposes.

In your HomeBinder, you can type in numbers and details, attach warranty documents, or store photos of this information under the listing of each appliance in your home. Your home inspector may have already loaded models and serial numbers for appliances that came with the house. Start or add to your list, and be sure to include these:

Key Appliances in Order of Importance/Recall Issues

- Furnace
- Water Heater
- Dishwasher*
- Range/oven
- Air Conditioning Units
- Refrigerator
- Washer/Dryer

***Critical fire-related recalls have occurred with certain models.**

Appliance recalls can be easily overlooked and slip through the cracks for years. The previous owner may never registered an item, or the manufacturer may have contacted

them instead of you, the current owner. As part of your HomeBinder service, we'll notify you by email if an appliance that you've listed is recalled for safety or quality concerns.

To learn more about recalls, visit the United States Consumer Product Safety Commission website.

When your fridge or washer is on the fritz, you'll want to know whether a warranty will cover repair or replacement. We find that many homeowners forget or lose track of **warranty documentation,** which may void your rights. By storing a document, reference numbers, or length of warranty and type of coverage, you'll have those details when you need them. Don't forget to include manufacturer's guarantees and any extended warranties that you purchased.

HomeBinder's **remote access** can save you time and headaches. At some point, you'll likely find yourself at a store or another location where it would be helpful to have your appliance details. You might need a model number or size (such as gallons in your water heater tank) if you're looking to replace a part or compare your appliance to a newer showroom model. When you're away and need to schedule home service, you can relay your appliance info to the technician in advance.

To update your appliance information:

1. Locate the make and model plate. You'll find the plate for most household appliances made in the last ten to fifteen years on the side front, top, or just inside the door (as in many dishwashers). It looks something like this:

If you can't find the plate, there might be enough identification on the front of the appliance to do an Internet search and get some general information. Enter as much as you know in your binder, especially the make, model, and serial number for each appliance—plus anything else, like the manufacturing date, that you'd like to save.

TIP: Avoid errors! Take a photo of this plate and load it into HomeBinder instead of typing in numbers.

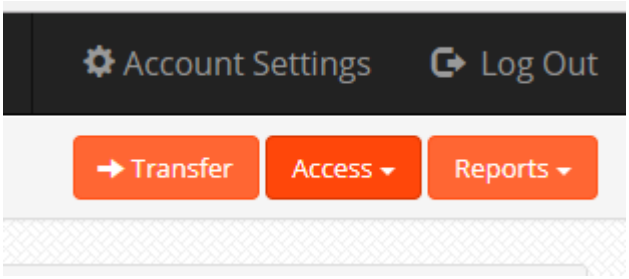
2. Enter warranty information. Before you store paperwork on transferred or new appliances, copy those details into HomeBinder. Record your date and place of purchase, purchase price, length of coverage, and expiration dates. Type in the specifics, attach warranty documents or pictures, and you're done!

Share Your Binder

You may want to **share access** to your binder with a family member, friend, or home professional. You can do that any time you like. Choose from two forms of access:

- **Co-Owner.** Can read and write to the binder, but cannot share with anyone else. Only the HomeBinder account holder can grant "share" access.
- **Viewer** . Can view and read the binder, but cannot add, edit, or delete any information.

You'll find the Share option under Access on the menu at the top right of your screen when logged into your binder:



TIP: When sharing, users will have full access to all parts of your binder. Make sure you are comfortable with outside eyes reading all of your information!

FINALLY: TEST YOUR WATER

Some home sales contracts require sellers to provide a water quality report. Others make testing water quality the buyers' option. You will discuss your home's water supply during the purchase process, so you'll know whether you receive water from an on-site well or through a city pumping service.

Why Should You Test Water?

The importance of water testing depends on your supply system, your personal health conditions, and environmental concerns in your area. Or, you may notice an unpleasant

taste, color, or smell in household tap water that suggests your water quality has been compromised. **Even if your municipality provides an annual water quality report, this won't factor in conditions on your property that may affect water piped in through your faucets.** In other words, you can't just take someone's word for how safe your water supply is. You need to get the facts yourself from a laboratory assessment.

Some Reasons to Test Your Water Supply

- Your property has a new well or new plumbing
- There have been recent floods or contaminated water runoff
- A chemical spill has occurred in your area
- A family member is pregnant or newborn
- Residents have frequent gastrointestinal illness

How to Test Water

Call your county or state health department to find out about certified water testing where you live. Then, follow their directions to fill sterile containers with samples, which will be sent to a laboratory for analysis.

Learn more about water testing and links to local services from the U.S. Environmental Protection Agency website.

CHAPTER 2/ PRIMARY SAFETY ITEMS TO MAINTAIN

PREVENT FIRES

- ✓ Chimney
- ✓ Dryer Vents
- ✓ Smoke Alarms

If your home has a fireplace or wood-burning stove, chimney fires are a potentially fatal hazard. Buildup and obstructions in the **chimney** lining which vents smoke and gas—called a **flue**—may cause combustion and a deadly blaze. Smoke backs up into the house, flames shoot through masonry cracks or up the chimney, and the rest of the structure can ignite and spread. Perhaps more insidious are slow-burning events. Your chimney may be on fire—and you might not even know it!

Another common source of fire are clothes **dryer vents**. These gather debris over time, and a spark from a hot dryer can cause dangerous flare-ups. Working **smoke alarms** are a must, for adequate warning before disaster strikes.

Why Chimney Maintenance Is Critical

Burning wood in a fireplace or heating stove gives off heat, visible smoke, and invisible gases—up the chimney they go. In this process, the flue that lines your chimney collects sticky residue called **creosote**. This tar-like stuff is highly flammable. If the amount is significant enough or if storm debris or nesting critters block the chimney vent to the outdoors, burning particles of tinder or wood can be trapped, with no exit. This may set creosote on fire, turning your chimney into a torch. You might not see black smoke or orange flames. **The truth is, most chimney fires go undetected for some time.** There might be enough air and fuel (or creosote) for fire to smolder and cause damage, and yet not produce obvious signs.

Failing to operate your fireplace or stove properly can also cause problems. Using unseasoned wood or overloading the firebox hastens creosote buildup. Not opening the damper wide enough pulls smoke and other byproducts into the house. To find out whether there are blockages, breakages, or more creosote residue than there should be, **have your chimney inspected and cleaned each year** by a professional.

Between check-ups, watch out for signs that something isn't right with your fireplace or stove. If suspicions arise, it is a good idea to call a professional to check the chimney's rain cap, flue, and the surrounding area.

Call a professional if you see:

- Cracks in exterior masonry
- Damaged or debris-clogged rain cap
- Creosote flakes on the roof or ground
- Heat damage to roofing or rooftop structures
- Smoke escaping through masonry or mortar

Another way to reduce fire risk is to avoid water damage to your chimney. Cap/crown (the top part of the chimney) replacement and **"repointing"**—in which mortar between the bricks is ground out and replaced—will prevent water seepage. Even if you don't have a wood-burning fireplace, your chimney must still safely vent vapors from appliances powered by gas and oil. See Chapter 6 for more chimney maintenance tips.

TIP: Spot chimney problems that you can't see! See details about how to get an optional Annual Property Review in Chapter 10.

How Dryer Vents Host Fires

Clothes dryer vents act like chimneys on a smaller scale. Your clothes dryer expels heat through a duct and vent to the outdoors. Bits of lint and debris from clothing travel with the hot air, and condensation causes some of the residue to cling to the duct and vent. Like creosote, lint is highly flammable. One spark can set it off.

The further your laundry room is from an outside wall and exterior vent, the more space there is along the duct for lint to build up. If your system is working well, the majority of this material winds up on your lint screen for removal. But, over time, lint inevitably accumulates in the duct and vent. The shortest, straightest hose possible between the machine and outside vent will be the easiest to keep clean and pose the least fire risk.

Keeping your dryer parts free of visible lint and cleaning them regularly improves appliance efficiency and reduces the possibility of fire. You can clean uncomplicated ducts and vent hoses by disconnecting the power source and sucking away debris with a heavy-duty vacuum. For more complex venting systems or more thorough maintenance, use a professional duct and vent cleaning service. Enter service dates and contacts in your HomeBinder for future reference. The length of the duct and how much you use the dryer will dictate how often you should clean the hose and vent.

According to the Consumer Product Safety Commission (CPSC), dryers are a major source of home fires. Lack of maintenance is the leading cause of dryer fires, and LINT is the leading material to ignite. These fires can be caused by failure of mechanical and/or electrical parts within the dryer itself, improper materials being put into the dryer, and insufficient airflow as a result of improper installation or maintenance.

Dryer Maintenance

1. Follow manufacturer's recommendations 2. Clean lint trap before or after each load 3. Clean vent & pipe periodically 4. Clean behind and around the dryer 5. Use special care when	

Take these additional steps to prevent dryer-related fires:

- Use only solid metallic duct material.
- Do not kink or crush freestanding ducts.
- Don't use foil, vinyl, or plastic duct extenders.
- Manually clear lint screen after every use.
- Leave space between dryer and wall to preserve air flow in duct.

Maintain and Replace Smoke Detectors

This should be a no-brainer, but most of us have probably let a smoke alarm battery go dead for a while before replacing it. In fact, the National Fire Protection Association found

that, in all fires in which smoke alarms failed, 24 percent had dead batteries and 43 percent had missing or disconnected batteries. If you moved into a home with existing alarms, you might not know how old they are or whether batteries have juice. If they are wired into a home electric matrix, you'll want to find out how to test them to make sure they're working. Your home inspector can get you started, and will know which state building codes apply to the number and placement of units.

Smoke Alarm Types

- **Ionization** responds best to high-flame situations
- **Photoelectric** responds best to smoldering, smoky situations
- **Dual alarms** incorporate both types of detector
- **Interconnected** household alarms in various locations will all sound at once
- **Wired** alarms with backup batteries connect to household electrical systems
- **Wireless** alarms run solely on battery power

Follow manufacturer's directions when installing new units to properly place and maintain them. How long will a smoke detector last? Answer: 10 years. How long will batteries last? It depends.

Batteries in basic wireless alarms and in wired machines with backup batteries (in case your power goes out) will need to be replaced annually. Some units operate on batteries that hold a charge for 10 years (and, therefore, for the life of the machine). **Use**

only the recommended battery type for your detector, or your lifesaver may not work!

PREVENT AIR CONTAMINATION

- ✓ Air Ducts
- ✓ HVAC Filters
- ✓ Carbon Monoxide Alarms

Good indoor air quality is important to health, especially if you have respiratory conditions or very young or old family members living at home. Fans and air ducts in your heating, ventilation, and cooling (HVAC) systems circulate pollen, dust, and other contaminants through indoor atmosphere. Fireplaces add to air quality issues. You'll need to **clean ducts and filters** periodically to freshen indoor air.

Another threat comes from your fireplace and any appliance that runs on fuel. Furnaces and other machines powered by natural gas, propane, oil, gasoline, or wood produce **carbon monoxide (CO)**, a poison gas. Excessive CO levels of in the air you breathe can make you sick or even kill you; the Consumer Product Safety Commission reports that 150 people die each year from CO poisoning. Although fireplaces and fuel-

driven appliances are designed to minimize or vent this dangerous gas, if they are damaged, CO may build up indoors. A **carbon monoxide alarm** can catch the problem before it harms your health.

Clean HVAC Ducts and Filters

Your home inspector will ensure that heating, venting, and cooling systems are working safely when you move in. If you followed the first steps listed in Chapter 1, you installed new filters right away and entered their specifications in your HomeBinder. Note the date and set up an automatic, annual schedule for replacing HVAC and any other filters.

TIP: Oil filters are frequently overlooked! If you have an oil-burning furnace, include the oil filter in your replacement routine annually.

In addition to protecting air quality, unobstructed ducts and filters maximize the energy efficiency and length of service of your heating and cooling systems. Follow the manufacturer's directions to **install new filters** based on system usage. This will vary in different climates. For some regions, like the Southwestern United States, where A/C usage is almost constant, this might mean changing a filter every 4 to 6 weeks. In the Northeast, where the A/C might only run for a couple of months in the summer, the filter might need to be changed annually.

A quick visual inspection will tell you: Does the filter look dirty? It's time to put in a new one. Make this easy by buying them in bulk or having your filter models delivered to your door by a **filter subscription service**, such as FilterEasy.

You can clear out air ducts yourself by turning off the power to your HVAC systems, brushing away dirt from vent grates, and then using a heavy-duty vacuum to extract debris. Or, enlist a professional duct-cleaning service to thoroughly clean these conduits and improve air flow. Pros recommend clearing out ducts **every 2 to 5 years,** depending on HVAC use and your local environment. Many people let 10 years or more go by without cleaning the ducts, so if you are buying a home, it is always a good idea to have a professional address them early in your ownership.

Keep Carbon Monoxide Alarms Working

Like the canary in a coal mine, carbon monoxide detectors are your early warning system to prevent CO poisoning. These alarms measure CO levels in the air and are often installed alongside smoke detectors. Again, this invisible, odorless gas is a byproduct of fireplaces and fuel-burning appliances. High air concentrations can cause sickness or death.

Range of Carbon Monoxide Poisoning Symptoms:

- Headaches, nausea, and vomiting
- Drowsiness and disorientation

- Elevated heart rate, convulsions, loss of consciousness

Prevent the preventable by keeping your CO alarms in working order. Add yearly battery checks and periodic replacement of these devices to your smoke alarm maintenance schedule. **When should CO alarms be replaced? Answer: every 5 to 10 years.** Machine life varies by model, though, so check manufacturer information.

TIP: Not all states require carbon monoxide alarms to be in place for home sales. Be sure to find out if your new home has one, and if not, purchase one. Carbon monoxide gas is odorless and invisible, and the alarm on a CO detector may save your life.

PREVENT BASEMENT FLOODING

- ✓ Sump Pumps
- ✓ Battery Backup
- ✓ Leak and Flood Alarms

Homes with basements have more room for fun and recreation—and greater vulnerability to leaks and flooding. From condensation to flash floods, water flows downward, making your basement a prime target. Even small amounts of water allow mold, mildew, and odor to grow. Almost everyone who has owned a home with a basement has experienced flooding at some point in time.

Your basement can collect water:

- through doors and windows
- through wall and floor cracks
- from below, through a flooded sump pit
- from outside, through backed-up sewer pipes
- from broken household plumbing or appliances

Gutters that are clear and drain a sufficient distance from the house help prevent structural cracking and leaks. Keeping **window and door** seals in good shape will thwart water entry there. See Chapter 5 for recommendations on how and when to maintain those areas. If heavy rains cause flooding, advance warning from a water alarm plus a sump pump and battery backup pump may save your basement from damage. These will need a little ongoing care, but it's well worth the effort.

Maintain Your Sump Pump

In damp climates, most modern homes with basements have sump pumps that move water away from a low point under your house before it can enter. Sump pumps run on electricity and turn on automatically when water levels rise in the sump, to keep your basement dry. But even region can experience flash flooding. If your home doesn't have a sump pump in the basement, consider installing one!

TIP: Most general homeowner's insurance policies DO NOT cover flooding conditions. Caring for sump pumps and accessories can save you money by preventing flood damage.

Set a schedule to **maintain your sump pump 2 to 4 times per year**—at minimum in early spring and fall, before heavy rains come. Check off these tasks to keep your pump running when you need it:

1. Disconnect power and pull pump unit out of sump pit. Clean out the pump with water to dislodge mud, rocks, and other debris. Do this once a year.

2. Ensure the pump unit is seated upright and plugged into a safety outlet. Pump and ground vibrations can tilt units and block the float arm that activates operation. Inspect the power cord. If it is worn or damaged, you'll need to replace it. Do these and the following things every time you check on your sump pump.

3. Check the discharge pipe. Make sure the vent hole is clear and that the pipe drains 20 feet from your home's foundation.

4. Pour a bucket of water into the sump pit. If the pump turns on and begins working, your test is over. If not, make sure the float arm is free and clear. If it is clear and the unit doesn't switch on and remove your water, call for professional service.

How common are floods? According to the Federal Emergency Management Agency (FEMA), floods are **the most frequent and costly natural disaster** in the United States. And, almost anywhere you live, your property carries some flood risk.

Battery Backups and Water Alarms

Maintaining your sump pump is a priority. But, what happens when the power goes out? Or when water seeps in from an area that's out of sump pump range? Your basement structure, furnishing, and storage items may take a hit. You can use battery power to keep your sump pump pumping and to get advance warning when water threatens your basement.

Sump pumps with all the bells and whistles may have multiple pumps in one—the main unit; an auxiliary that kicks in when water volume overwhelms the main capacity; and a battery-operated pump that works when electrical power is interrupted. A **battery-**

powered pump is a great backup for your main sump pump, especially if your house is supplied by a well. But if you're on a municipal water system, a **water-powered** backup pump may be a better option (a well pump won't work if the power's out). The price you'll pay for water consumption during a power outage will be a fraction compared with the cost of a flooded basement. And, a water-powered pump never needs new batteries! If you have a battery backup, be sure to check the battery regularly and replace every few years.

But, what if all that is not enough and the water is rising? When pumps fail and you're not right there to check on them, an audio **water alarm** will let you know. These can be wireless and battery-operated or hardwired into your home electrical system. Similar to smoke alarms, basement water alarms detect water intrusion and activate loud beepers that you can hear from anywhere in the house. High-tech models will notify your home security service or your cell phone, so you'll learn of water threats even if you are not at home.

See the manufacturer's recommendations on unit and battery life for both backup pumps and water alarms. Enter this information in your binder, as well as the make, model, and any warranty associated with it.

CHAPTER 3/ THE MAIN PARTS OF YOUR HOUSE

All homes are not created equal. It's time to break down the different kinds of systems and materials available, so you can know how your house compares to others. This chapter will help you understand the major structural components discussed in your home inspection report:

- ✓ The roof
- ✓ Wall framing
- ✓ Foundation
- ✓ Electrical system
- ✓ The plumbing
- ✓ Heating and cooling

Given what you've got, how long will these and other household items last? In many cases, the construction style and materials will determine how well they hold up over time. You'll find a handy table that lists expected life spans of these and other fixtures and appliances at the end of this book ("How Long Will It Last?").

ROOF MATERIALS AND CONSTRUCTION

Parts of a Roof

- Wood framing
- Sheathing
- Underlayment
- Flashing
- Shingles or other surface material

The roof over your head is supported by a frame, usually made of wood. The shape of your roof may be pitched, rounded, or flat. Most homes add gutters to finished roofs. Let's start from the frame and work up.

Roof sheathing is typically nailed to a timber frame. The most common types of sheathing are **plywood** and **oriented strand board** (OSB), a type of wood-fiber board. What's the difference? Plywood is made of thin slices of lumber that are sandwiched together with glue, while OSB uses similar technology to bind long strands of wood. Both offer strong support and are sized in standard 4x8-foot panels.

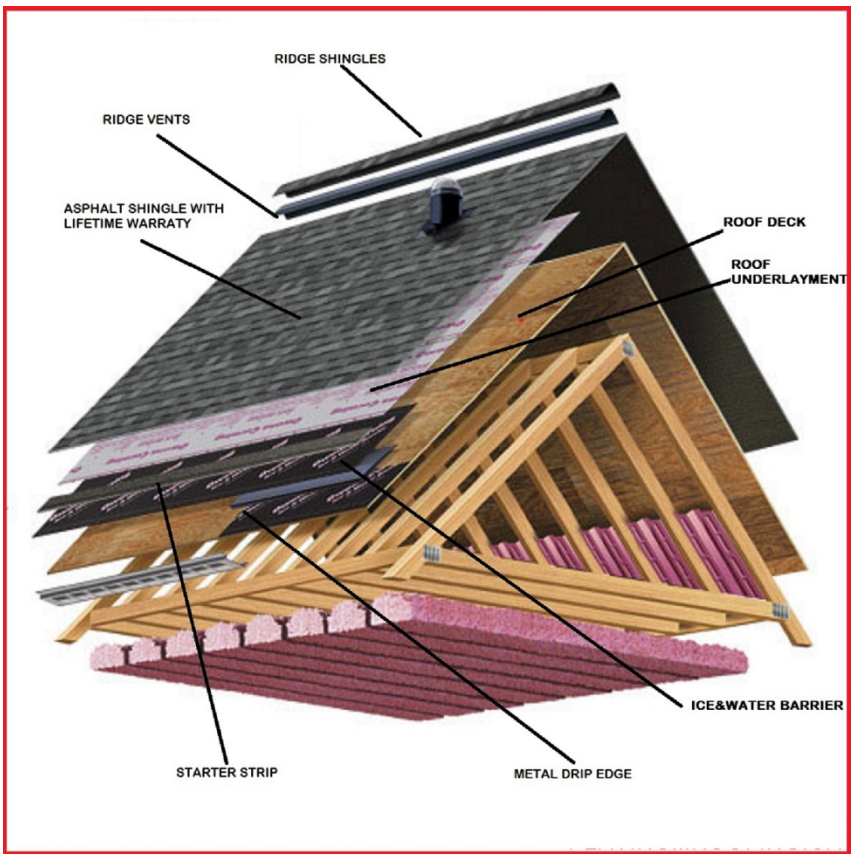


Image courtesy of www.commons.wikimedia.org.

Underlayment, also called **roofing felt**, lies between the sheathing and the topmost part of your roof that is exposed to the weather (usually shingles or other finishing material). Underlayment is a heavy black paper treated with asphalt to repel water. Together, roof sheathing and underlayment form your **roof deck**.

TIP: Premier products such as Grace Ice & Water Shield® are highly recommended as they truly provide the best protection in case of shingle failure.

Flashing made of metal or vinyl and acts to join and protect protruding sections of the roof and its edges. Narrow strips of flashing are attached at gable seams and around chimneys, skylights, vents, and other vulnerable points. This keeps construction tight and prevents rainwater from leaking in. Flashing can be overlooked during repairs or remodeling. Make sure your professional installs it properly if any part of your roof is replaced.

Your roof is also the place where plumbing vents exit the home. Plumbing vent jacks, which are usually a polyvinyl material, will last about 8 to 10 years before starting to crack and deteriorate from UV light exposure. These should be periodically checked and sealed to help prolong their life expectancy.

If you have gas-fired mechanical equipment, you will want to ensure that the rain skirts around the flues are periodically re-sealed as well.

Finally, shingles or another exterior covering provide a weatherproof surface on roofs. The most common, with life spans of 20 years to home life, include:

- Shingles, asphalt, wood shake, or ceramic tile
- Corrugated steel panels
- Concrete, slate, or stone

FOUNDATION

All homes need a structurally stable foundation. Depending on your property characteristics or your geographic location this could come in the form of a basement/crawlspace, “concrete slab” or raised (block or pier and beam). A description of each is below:

Basement/Crawlspace: A full basement foundation is the deepest of the three major foundation types. An advantage of building a full basement is that it allows the possibility of doubling your floor space if you eventually finish the basement. Some basements are above grade (generally in the back of the home) where it can be a “walk out” basement. The walls of a basement can be made of stone, concrete block or poured concrete. If you have a basement it is generally a good idea to have a sump pump (See Chapter 2).

Concrete Slab: This is a common structural element of modern buildings. As the name suggests, a slab is a single layer of concrete, several inches thick. The slab is poured thicker at the edges, to form an integral footing and has reinforcing rods (rebar) to strengthen the slab. It normally rests on a bed of crushed gravel to improve drainage. The wire mesh rebar in the concrete also reduces the chance of cracking. A slab is suitable in areas where the ground doesn't freeze, but it can also be adapted with insulation to prevent it from being

affected by the frost heaves. Most slabs are between 4 and 20 inches (100 and 500 millimeters) thick.

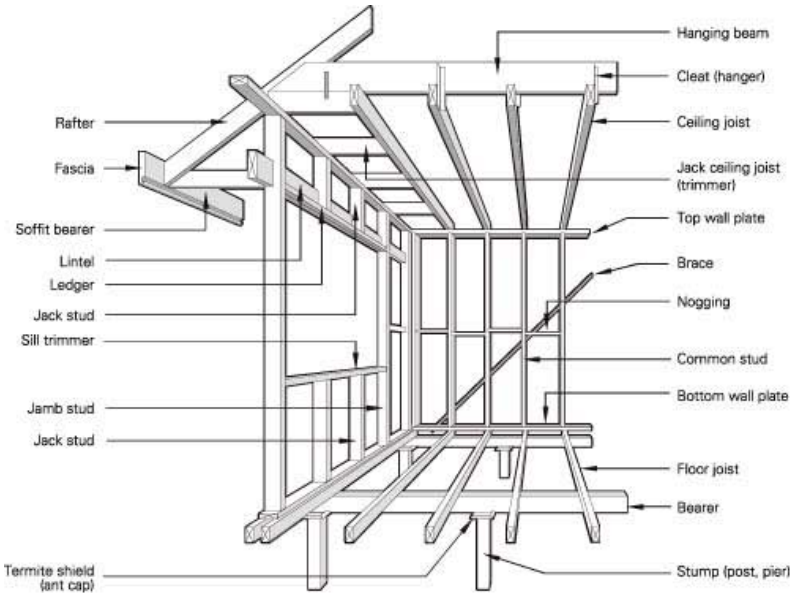
Raised or Pier: Raised or pier foundations are commonly constructed of reinforced masonry (brick or concrete block) supported by individual, reinforced-concrete pad footings or by continuous, reinforced-concrete spread footings. For pier-and-beam foundations, pier spacing will also depend upon arrangement of floor framing, particularly the location of bearing walls and partitions. Typical pacing of piers is in the range of 8′ to 12′ as common practice. These types of foundations are usually used in areas where flooding might occur such as beachfront communities.

STRUCTURAL FRAMING

Most home frames begin with timber joists and plywood or OSB subflooring that form a platform for the rest of the structure. Next, studs for the outer loadbearing walls are erected at 90-degree angles to the subfloor. These are then crisscrossed with timber ceiling joists. This so-called **platform framing** goes up one story at a time, repeating the process in multistory dwellings.

Studs and joists cut to approximately 2x4 or 2x6 inches are spaced 16 to 24 inches apart to create strong outer walls that will support the weight of the structure above. This layout allows builders to easily make additions and alterations to homes without danger of collapse. These timber “skeletons” are covered on the outside with plywood or OSB

sheathing panels, and then finished with a surface material such as wood siding, stucco, or brick.



Alternatively, stronger and more durable concrete or steel framing forms the outer, loadbearing walls. The greater cost may be offset by greater quality, but these homes will also be more difficult to reconfigure during a remodel.

In all cases, fasteners and spacers allow builders to form a cavity to hold insulation and an interior framework that will be covered and finished, typically with **gypsum** wallboard or wood paneling.

Gypsum is a mineral that is made into wallboard, also called **drywall** or **sheetrock**, by forming a plaster and combining it with wood pulp. You know this as the smooth, paintable surface used to finish walls on the inside of your house.

The interior walls that divide a house into rooms are generally non-loadbearing, meaning they do not support the overall structure. You'll need to take into account which are which if you engage in a remodel that changes your existing floor plan.

MODERN ELECTRICAL SYSTEMS

Modern electrical systems accommodate appliances that draw a lot of electricity, such as air conditioners and clothes dryers. They typically feature two 110-volt wires (for a total of **220 volts**, today's standard), plus a neutral wire, which transmit power from outdoor underground cables or overhead poles. Older homes may have only one live wire, or just **110-volt** capacity.

If you are buying home that is wired for 110 volts, consider upgrading to 220-volt service. To do so, the electric company will run a new line into your home, and an electrician will need to replace your circuit box. Internal wiring may need to be upgraded as well, particularly if outdated technology like aluminum or knob-and-tube wiring is still in place. The process might cost a few thousand dollars at the low end. But, greater electrical

capacity will improve the safety of your home and may help you qualify for lower homeowner's insurance rates.

Today's homes use **conduit or Romex wiring**, which encloses the individual wires that conduct electricity in a protective metal or plastic sheath. By contrast, many vintage homes use **knob-and-tube wiring**, identified by electrical wires coated with fabric and rubber. These coatings degrade over time and may become dangerous. Copper wire is preferable to aluminum wire, which was popular in 1970s-era homes due to the high cost of copper at the time, but carries greater fire risk than more heat-resistant copper. It is expensive to change out aluminum wiring for copper wiring in a home, but from a safety perspective, it is highly recommended.

Electrical systems that we call "modern" are primarily differentiated from their predecessors by the level of voltage and the use of **circuit breakers** instead of **fuses**. These gadgets keep you safe by shutting electricity off when there is a power surge or you use more power than the system is designed to handle. Circuit breakers look like thick on/off switches; they can trip automatically or manually and cancel power transmission. Fuses are usually round devices with thin metal strips inside that melt when overloaded and stop electrical transmission. You can remove fuses to cut off power, and you must replace or rewire them once they have been used. This is why circuit breakers are much more convenient.

Electrical Circuit Breaker	Electrical Fuse
	

The “brains” of this operation are housed in the **electrical panel**, also called a service panel, breaker box, or fuse box. It may be located on an exterior or interior wall near your outside electric meter. The panel is the nexus for wiring from the outside power source to certain parts of your home, usually labeled for easy identification (main, kitchen, west bedroom, etc.). This is important when making repairs that require cutting off the power to the whole house (main) or to specific areas.

If your circuits are not all labeled, get an assistant and perform a test by flicking lights off and on to determine which circuit breakers are associated with the various outlets and areas of your home. When an emergency comes up and you need to shut off the electricity, you don’t want to play guessing games to find out which is the correct switch.

TIP: Home configurations change with remodeling. When mapping circuits or fuses in your electrical box, use pencil instead of ink.

PIPES AND PLUMBING

Plumbing material is another class of product that has evolved over the years to modern-day standards. While the concept of "water in, waste out" hasn't changed since ancient times, how water is channeled in homes has. The Romans first used lead, a heavy metal with toxic properties, in water aqueducts and pipes. In the twentieth century, many houses were fitted with zinc-coated steel pipes, which carry similar health risks.

Today, copper or plastic pipes most commonly deliver water to faucets and remove waste for disposal, without the risk associated with their predecessors. Plumbing systems use a combination of air flow and pump pressure to move water. They do this through **two main pipelines: the water supply line and the drain-waste-vent line (DWV).** Water comes in; dirty water and solid waste go out.

Your home inspector or the previous owner may let you know what type of pipes your house has, but it is important to know how your house is plumbed. If pipes are lead or galvanized (zinc-coated) steel, consider replacing them. Zinc contains lead, which seeps into water through pipes. Even if your municipal water supply provides good-quality water to your home, the elements in piping can degrade your water. When you then drink from the tap, you absorb any toxins through your bloodstream. Over time, poisoning can occur that

shuts down vital organs, among other ill effects, and can be fatal. Children are especially susceptible to lead poisoning.

TIP: Federal and municipal programs in some areas assist homeowners with removal of unhealthy lead water pipes, which may run to $3,000 out of pocket. Check with your city water department for details.

Incoming water to Hot taps takes a detour through your **water heater** (not a "hot water" heater, as some people call it!). Outgoing water passes through a U-shaped **section of pipe**, (called a "P trap") usually under your sink, which traps water so gases produced in the sewer or septic lines do not enter the home. Gravity pulls this outbound material through the drain to connect with your sewer or septic tank for treatment.

Tip: P traps can also catch jewelry or other items that inadvertently fall down a drain! You can check for lost items by shutting off the water valve and using an adjustable wrench to open the pipe at the trap.

Keeping sink drains clear of debris is usually all you need to do to prevent water from backing up or being obstructed within your plumbing system. Copper, CPVC (chlorinated polyvinyl chloride pipes), and the less-expensive polyethylene flexible tubing,

called **PEX,** are long-wearing and should last 40 years or more. Pipe fittings around joints, and sink faucets and fixtures, will be the weak links in the plumbing chain. You'll need to refit or replace them according to wear.

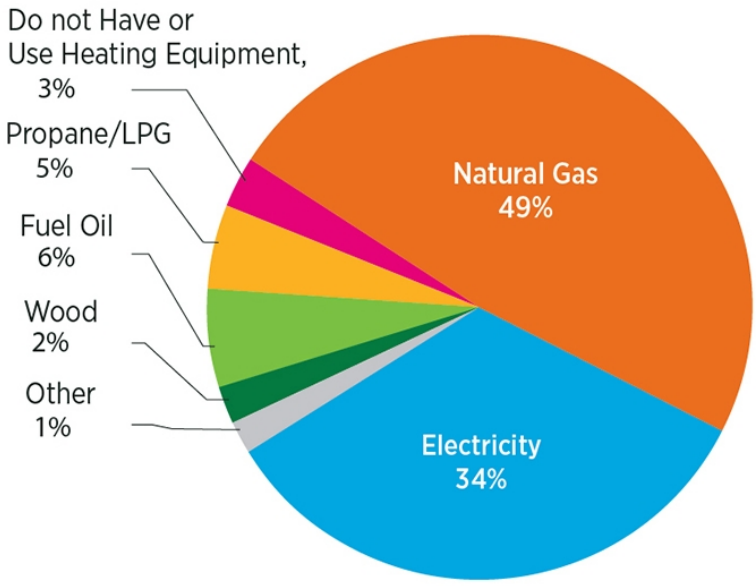
If your home is serviced by a city sewer, then you may want to have your lines **scoped** (a service that many home inspectors offer directly or indirectly through a partner). If you have a septic tank, then be sure to get regular service to pump out the tank and clean the filter, to prevent very unpleasant backups into your home. Aerobic septic systems may be subject to federal, state, or county requirements for yearly service agreements with a licensed sanitarian company in the area.

HEATING AND COOLING OPTIONS

Both heating and cooling systems (or HVAC, which stands for heating, venting, and air conditioning) operate from either integrated central units—which affect your whole house—or independent space units that heat or cool smaller areas. They require electric power, or fuel such as natural gas, oil, or wood. In Northern areas of the country, heating represents the bulk of home energy use. The opposite is true in the Southern tier, with air conditioning using the most power. So, choosing or maintaining an efficient heating or cooling system should be a priority for homeowners.

Here are the most common heating systems used in homes today:

Type of Heating System	Power Source	Distribution
Forced-air	Natural gas, electricity/ solar, fuel oil, wood	Furnace or stove, fan, and duct system
Radiant, fluid driven	Natural gas or electricity/solar power to heat liquid	Hot liquid is pumped to radiators or baseboard piping in each room, or circulated through floor piping
Radiant, electricity driven	Electricity	Ceiling or floor wiring to baseboard or wall-mount units that produce infrared (heat) waves



Department of Energy, 2011.

Central units rely on mechanical thermostats to regulate heat throughout the house. Some houses use a series of wall, baseboard, or freestanding units to warm more limited spaces, room by room. How effective are they? All types of heating systems have merits and drawbacks, both in terms of use and energy efficiency/cost. Duct-base systems, for instance, push warm into a room immediately, but they may reduce indoor air quality if not properly maintained, and the heat from them can be "uneven" (warmer on one side of the room and cooler on another). Radiant flooring systems provide the most even heat, but they can be very expensive to install in an existing home, and the heat they generate takes hours to travel into rooms; so this makes turning thermostats up and down very inefficient. Wood- and oil-burning appliances require you to constantly monitor your fuel supply.

How do they work? Here's the breakdown.

Forced-air systems generally burn fuel in a furnace and use a fan to blow warmed air through a duct system throughout the house. They are some of the most popular heating systems used today, with natural gas being the cost-efficient fuel of choice. In many modern homes, central forced-air heaters conveniently pair with central air conditioners that use the same ducts for cool air flow. Some wood-burning or pellet stoves skip the ducts and use fans to warm only the surrounding area, usually one room, venting smoke through a simple wall or ceiling pipe.

Radiant systems come in three main forms:

1. Radiator or baseboard: Hot water is pumped from a furnace or boiler to radiators or baseboard units (think small radiators along the base of certain walls in the house). That hot water transfers heat into the rooms it affects.

2. Radiant Flooring: In more modern homes or in parts of modern homes (mudrooms or bathrooms, for example) radiant flooring is installed under floor boards to allow heat to rise into the room. Heat is generated either from electricity (think electric blanket!) or from a fluid (typically not water) that is pumped through flexible pipe that goes back and forth under the floor. These systems are highly desired due to the "even" heat they provide, as well as the warm floors to walk on.

3. Woodstove: The most primitive form of radiant heat—fire—is produced by a woodstove, which has the power to heat large areas of a home, if properly managed. Wood-burning stoves can be dangerous, particularly to young children, because the outside of the device gets very hot. Yet, they can effectively augment another type of heating system, such

as one that runs on oil or gas. Using a woodstove to heat certain parts of a home may save hundreds to thousands of dollars a year in utility costs.

Modern heater efficiency is measured to calculate an **annual fuel use efficiency rating (AFUE).** For example, a system rated 80 percent efficient turns 80 percent of energy power used directly into heat units, while it loses 20 percent of that power. New furnaces are required to disclose this information. Your home inspector or the manufacturer may have your system's AFUE rating, if it's not printed directly on the unit. Obviously, the more efficient the machine and the lower the fuel cost, the less it will cost to run your heating system.

What about **heat pumps**? These run on the same principle as air conditioners, only in reverse—they capture heat from outdoor air or underground (geothermal energy) and bring it into the house, instead of sending it away, as your A/C would do. They're considered energy efficient because they don't have to generate thermal energy, just move it. And, in hot weather, they function as central air conditioning systems, saving on home infrastructure.

Most heat pumps as well as **central air conditioners** work via forced-air and ducts. Both appliances have an outdoor compressor that transfers heat in one direction or the other. Air conditioners use refrigerant fluid to attract heat and the furnace fan to send hot air outside and replace it with cooled air through your home's duct system.

Window air conditioners run on similar principles, without the duct distribution. They need to be set in windows so their compressors are outside and their fans are inside. They cool limited areas, with various power grades covering small to large rooms. Many are

rated by BTUs (British Thermal Units). All of these system compressors run on electric power and can also be gauged by energy efficiency ratings that apply to the type of appliance. You can choose an air conditioner based on the BTU ratio to the size of the room, as shown in the table below. Note that based on your geography, these numbers may need to be adjusted and as such are simply representative.

Area to Be Cooled	Capacity Needed
100 to 250 sq. ft.	6,000 BTUs
250 to 350 sq. ft.	8,000 BTUs
350 to 450 sq. ft.	10,000 BTUs
450 to 550 sq. ft.	12,000 BTUs
550 to 700 sq. ft.	14,000 BTUs
700 to 1,000 sq. ft.	18,000 BTUs
1,000 to 1,200 sq. ft.	21,000 BTUs
1,200 to 1,400 sq. ft.	23,000 BTUs

CHAPTER 4/ SAFETY AND PREVENTIVE MEASURES

Safety issues on your property might be disclosed at purchase time, or you might discover them later, by trial and error. If you have young children at home, hazard-proofing your property should be a priority in your safety program. Fire and toxic gas detection are ongoing tasks made simple with devices that alert you to indoor smoke and carbon monoxide. And, periodically, pursue any environmental concerns that are specific to your property—such as radon, lead, mold, or asbestos—or water-quality issues that may originate in your pipes or the local environment.

CHILDPROOFING BASICS

- ✓ Swimming Pools and Spas
- ✓ Childproof Locks
- ✓ Electrical Safety

Like adults, kids moving into a new home are exposed to unfamiliar threats. There are new cabinets and cubbyholes to explore, and a whole new world outdoors. A swimming pool or hot tub is especially attractive—and dangerous. Take action right away to anticipate potential hazards and place barriers between them and your children, until they grow old enough to take care of themselves.

Pool and Spa Safety

Thousands of children in the U.S. suffer brain damage, injury, or death each year from water-related accidents associated with swimming pools and hot tubs. Drowning can occur in as little as two inches of water! So, restricting unsupervised access to your pool and spa is a top safety priority. Prevention and education are powerful tools. Two of the best steps to take are erecting multiple barriers around pools and hot tubs, and enrolling kids in swimming lessons.

There are many effective pool safety products on the market today. Some can even be integrated with a "smart" security system. Take some time to research your options online, or join a local parent group to trade safety tips.

More Pool and Spa Safeguards

- Remove and secure ladders from above-ground pools when not in use.
- Combine a pool (or spa) perimeter fence with a motorized pool cover.

- Install an underwater motion-sensor pool alarm.
- Have children wear immersion-detector wristbands that sound an alarm when they get wet.
- Have small children fitted with Coastguard-approved life vests and wear them when near the water.
- Use “smart” door and window locks connected to a home security system (see below) to keep toddlers from wandering out to the pool area.

Child Safety Locks

Even parents who supervise kids around the house must turn their backs sometime, and that’s when disasters happen. Decorative stair railings, for instance, may be climbing hazards for young children. Baby gates and playpens are time-honored ways to contain curious youngsters. When they roam, though, you can rely on an array child-specific locks that are on the market to keep them out of household danger spots.

Again, take some time online or in stores to research the childproof latches and other solutions that are out there. Here is a sample to choose from:

- Specially designed drawer and cabinet locks with “catches” that can’t be operated by young children
- Keyed cabinet locks activated by a magnetic card swipe, ideal for securing toxic products

- Child “safes,” plastic childproof boxes designed to fit inside cabinets where toxics or other dangerous items are stored
- Oven and dishwasher devices that prevent kids from opening appliance doors
- Door monitors that sound an alarm, which only adults can deactivate

Simple Electrical Safety

Home electronics these days require lots of outlets, which are usually situated at kid-level and are appealing to little fingers. Survey your home and identify where and how many electrical outlets you need to childproof.

You can buy simple plastic covers that deny children access to live electrical sockets and power strips. Some can be fitted to existing outlets, and some replace the current face plates to include a sliding cover that deploys when you unplug an appliance. Others cover plugs and cords, as well, to let you leave items connected that kids cannot unplug.

ENVIRONMENTAL PROTECTION

- ✓ Fire and Carbon Monoxide
- ✓ Radon, Lead, Mold, and Asbestos
- ✓ Water Contamination

Every homeowner dreads that fire or unseen gases or toxins can overtake a house and destroy health and property. Fortunately, alarm and chemical testing technology allows detection and advance warning to avert disasters. Whether it's smoke inhalation or the spread of flames, deadly carbon monoxide, or radon, there's a detection device for it.

Additional environmental risks to look out for may be specific to your property—such as lead, toxic mold, or asbestos—or may arise in the greater local surroundings, such as a tainted water supply. Cleanup and removal or periodic testing can neutralize these hazards. Note that the Environmental Protection Agency and some other jurisdictions require state-licensed inspectors ONLY to examine for these issues.

Detect Fire and Carbon Monoxide

It is critical that every home, of course, have working smoke detectors, and many states require that they are present for home transactions to take place. Less-so is the awareness and prevalence of carbon monoxide (CO) detectors, but they should not be overlooked. As mentioned, carbon monoxide poisoning causes illness and many tragic deaths each year.

Carbon monoxide is a toxic gas that can accumulate to dangerous levels in closed environments, such as homes. It is invisible and odorless. It is a byproduct of fuel combustion, and is produced by household items such as fireplaces, charcoal grills, and kerosene space heaters. Inhalation can lead to poisoning or death.

You may not think you need a carbon monoxide detector. But if there is a possibility of CO buildup in your house—from a car warming up in the attached garage, a stuck

fireplace damper, or the ill-advised indoor use of camping equipment such as fuel-burning stoves or heaters—a CO alarm could save lives. Even if you know better than to put such equipment in a closed space, others may not. A CO alarm could save them.

If your home lacks fire or CO alarms—or if yours need replacement—here's how to remedy the situation. If cost is a concern, contact your local fire department. Some jurisdictions provide smoke detectors or purchase vouchers free of charge.

Simple **smoke detector** units affix to a wall or ceiling and operate on battery power or can be wired into your home's electrical system. Hard-wired units contain a battery backup for power interruptions, so you'll need to maintain batteries in either type of alarm.

The least-expensive types use regular 9-volt carbon batteries that need switching out once a year. If you spend a bit more, though, you can buy models that incorporate batteries with a guaranteed 10-year life—which is the life span of the alarm unit. Use only the type of battery suggested by the machine manufacturer. **Replace all smoke detectors after 10 years of use.**

Different smoke alarm models test indoor air for smoke, heat, or both. Experts recommend placing them in every bedroom, at the top of every staircase (including basement stairs), and at the end of long hallways. To avoid false alarms, don't install units near fireplaces or wood-burning stoves.

Carbon monoxide detectors sound an alarm when air concentrations of CO become unhealthy. These devices run on batteries or electricity, much like smoke alarms.

Some models contain dual smoke alarm protections. They can also be synced to smart security systems and provide alerts by phone, to let you protect your family when you are away.

Manufacturers advise placing one unit on every level of your home, especially near bedrooms. Keep an eye on battery life! Like smoke detectors, various models have batteries that need to be changed once a year or that will last as long as the device itself. **CO detectors should be replaced, on average, every 5 years.**

Detect Radon, Lead, Mold, and Asbestos

Does your property have special concerns related to its construction or local environmental problems? Many older homes, for instance, were insulated with **asbestos** products, outfitted with **lead** pipes, or used lead-based paints. These compounds all negatively affect human health.

Radon is a radioactive gas that is believed to cause over twenty thousand deaths a year, mostly from lung cancer, according to the U.S. Environmental Protection Agency. You can't see, smell, or taste radon, but if it is present in the water your drink or air you breathe, it can invade your body. Radon generally comes from bedrock or fill material at a property where thorium or uranium exist. Since site conditions can be vastly different over even short distances, what might not be an issue for a neighbor, could be an issue for you—especially if certain fill material was brought in during your home's construction. It is also important to note that granite countertops can give off radon!

Radon gas present in the soil can infiltrate drinking water and make people sick. Radon also poses an air-quality threat. Commercial do-it-yourself test kits can reveal whether you have radon concerns in your home that should be monitored. These kits walk you through the process of collecting samples and mailing them in to a lab for analysis. Although they are an easy way to test, it is a good idea to you run more than one test at the same time to corroborate results. Turnaround time is quick, and some brands provide an action plan if your results show unsafe radon levels. If you'd rather turn it over to someone else, ask the home inspector that first tested your property to come back and do it again.

TIP: Radon levels fluctuate over time and can vary from room to room. It is important to test at the lowest point of the house, in different areas of the property, AND to retest every 3 to 5 years.

If an initial test shows that there is the potential for radon in your home, then it is important to both install a system to mitigate the concern as well as periodically check how it is performing. This may entail simply observing that the fans are blowing air out from under the foundation and that "negative pressure" is achieved.

Generally, the best way to rid a home of radon is to use a negative-pressure vent pipe system to pull the gas from under your foundation or basement, and vent it above your

roofline via PVC pipes. If radon is an issue in the groundwater, other actions may be necessary. It is best to speak with a local professional about the available options.

For people on well water, a final point about radon is to remember that water can also be an entry point to the home. Testing if radon is present in water is a bit more difficult to do and it is recommended that you have a professional perform the test. If high radon levels are found there are solutions to reduce/remove the radon from the water before it gets to living spaces. The short of it is, if you are concerned about radon, don't forget about testing your water as well.

Lead. If you know your home has lead pipes, consider replacing them with copper pipes or CPVC or PEX plastic plumbing. You can test paint samples and water for lead, and even adults and kids for blood levels of lead if you fear it's been ingested. Look for a licensed inspector, or online and in stores for do-it-yourself test kits, or see your doctor to get a simple finger-prick blood test.

Mold. Your home's history may indicate whether mold growth conditions have occurred in the past. If you aren't sure whether your house was ever flooded or had a leaky roof or pipes, use an eye-nose inspection to hunt for mold. It thrives in dark, damp conditions on substances that absorb water, like wood and wallboard.

Houses in damp climates or that were subjected to water damage from flooding may harbor **mold**, which can cause breathing problems, especially to people with allergies or asthma or with weak immune systems. **No home is entirely mold free**, as some amounts of mold exist in every home. The type and amount will affect different people in

different ways. Some people are very sensitive to particular types of mold. All of these factors make assessing mold and defining the risk for mold very challenging.

Look for brown or black spots or rings on floors, walls, or ceilings. Check unlit corners or poorly ventilated areas for a musty smell. Take steps to remove not just the mold but the source of water or moisture that is causing it, or the problem will persist. While mold itself is not toxic, some strains can produce toxins, and all mold is harmful to respiratory systems. Make it part of your safety mission to find out whether your property is at risk for any of these environmental threats: always contact a licensed mold assessment consultant or company for a proper examination of the property.

Asbestos. Particles of this fibrous insulating and building material can become airborne and contribute to lung cancer and heart disease. Flooring, ceiling panels, and construction adhesives may contain asbestos. Have your home inspected before you renovate. You can buy do-it-yourself test kits or hire a local service to test for and address asbestos issues. Never try to remove asbestos yourself, as disturbing it only sends it into the immediate atmosphere. **There are federal and may be state requirements for the inspection and removal of asbestos material in your area.**

Address Water Contamination

Water. Contaminated water can make your family sick. The municipal water supply in Flint, Michigan, was found to have high levels of heavy metals after the city switched sources. If you're on a well and septic system that is damaged, or if folks at home

experience gastrointestinal systems, test your tap water. Bacteria, lead, and other contaminants will show up in a test to help you determine health hazards or to see how well a home water purification system is working. You can get free water tests in many counties or from commercial water services, or you can buy do-it-yourself test kits online.

CHAPTER 5/ TODAY'S HOME SECURITY

- ✓ Doors and Windows
- ✓ Lights and Cameras
- ✓ Types of Security Systems

Moving into a new home increases your vulnerability. You may not yet know the ins and outs of your local community—what area-specific threats and crime trends there might be, even in places that seem super safe. Consider this: **People you don't know have had access to your house and your personal information. They may see which valuables you've brought with you, from cars to sought-after electronics.**

Securing the property perimeter and access points will help protect you and your family and give you peace of mind. There's plenty of help out there. Technology and access to information make safeguarding your family's lives and belongings easier than ever. Acquaint yourself with new lock and alarm choices, internet resources, and paid security systems, to stay a step ahead of trouble.

DOORS AND WINDOWS

- ✓ Clear sightlines
- ✓ Upgrade locks and barriers
- ✓ Integrate security

Can you see out? Privacy is great, but it also provides cover for home invaders. You might think what's out of sight is out of mind, but thieves who do their homework know better. Perform a survey of your home's doors and windows. Are they blocked by shrubbery, porticoes, or other obstructions?

If you can't see beyond a window pane or open door, crooks can take advantage of *not* being seen breaking in at those points. They look for locations that will offer quick entry and exit, unseen from the street or neighboring properties. It may seem counterintuitive, but clear sightlines at entry points discourage break-ins.

Keep foliage next to the house trimmed, or replace overgrown trees and shrubbery with low-growing varieties. This has the added benefit of increasing the lifespan of your siding or windows, since vegetation increases moisture and rot concerns. Keep your front and garage doors visible, but not open! An open garage door, especially, puts your valuables on display. Consider replacing privacy fencing with semi-solid panels that afford some seclusion yet enough visibility for anyone approaching your doors or windows to be spotted.

Do locks need upgrading? In Chapter 1, we discussed the need to change door locks upon move-in, so that only your family now has access. Attending to every single doorway may not have been in your playbook. Or, you may have underestimated the amount of protection various entry points need.

Most outside doors have cylinder locks that use a key for entry. These are okay for low-crime areas or for use when folks are at home, but they are not serious deterrents to those who really want to get in. Locksmiths will recommend adding top-quality deadbolts on every exterior door.

You can upgrade for convenience and greater security by purchasing keyless-entry cylinder or deadbolt locks. These work by numerical code, and some can be paired with smartphones or other devices. The vast range of anti-theft window locks will take some comparison shopping to fit your window styles and locations. Browse lock manufacturer websites, or call a locksmith for advice. Here are some suggestions from experts.

Additional Window Security

- **Sliding screw locks.** Turn a thumbscrew to keep sliders from opening.
- **Wedge locks.** Adjust barrier wedges to restrict sash windows operation past a certain height.
- **Window frame locks.** Secure your sash window to the frame with this keyed lock.

- **Bar locks.** Swing the barrier bar up or down to allow or deny access to sash or sliding windows.

Your locks might well be adequate. Even if you don't need an upgrade, your family may need a refresher course in which locks to use, and when. Be sure to include locking windows and patio doors. Get everyone on the same page with when to lock screen doors, garage doors, car doors, and main exterior doors. Is it when nobody is home? When a child is home alone? Only at night? All the time?

Go over when to use secondary locks, such as deadbolts and security chains. And, one more thing to remember: locks only work when activated! Be sure to lock the ones you need every single time.

Link to a security system. When is a lock not just a lock? When it's linked to a smart security system. Suppose someone tries and fails—or succeeds—in getting in through a door or window. Smart locks paired through Bluetooth or another wireless technology can alert you by cellphone, trip a burglar alarm, or dial your paid home security network, which can inform authorities.

We'll get to comprehensive systems in a moment. But, not every home needs all the bells and whistles, and not every homeowner has the budget for them. Putting together your own "system" piece by piece is an option. After you start with a clear perimeter and beefed-up door and window locks, you can move on to the next level—greater visibility.

LIGHTS AND CAMERAS

If this chapter has sent you to home stores or security specialists to comparison shop, you probably saw this category coming. Outdoor lighting makes your property more visible—and remote security cameras make your home's exterior more visible to you and those you trust to monitor it. Experts recommend illuminating and/or creating video surveillance of your home's entryways.

Again, light and camera technology is ever evolving and making products more affordable all the time. If you can't spring for a full-blown security system yet, these items are the next-best things. Depending on your location, they might even be all you need.

A few lighting basics: Bulb types include traditional incandescent, LED, and fluorescent. Power sources include electricity, and solar plus a lithium battery to hold the charge. Finally, lights rated for more watts *do not* equal more brightness. Wattage tells you how much power it takes to run your light. The **lumen** output is what determines how much visible light your unit produces. Incandescent bulbs cost less but will need changing **20 times** before an LED bulb will burn out. Fluorescent life lies somewhere in between.

TIP: Focus on lumens, not watts, when shopping for lighting. LED lights, in particular, tend to have brightness issues. Lumen ratings will tell you which bulbs give off more light, not which ones use more power.

Manufacturers list this information on the products they sell. You'll need to survey the changing market to see which devices will work best for your circumstances and budget. Here's an overview of desirable features.

Features to Consider in Security Lighting

- Manual-switch, continuous operation
- Motion-sensor operation
- Variable range of positioning
- Porch light converter
- Waterproof shell
- Integrated timer

TIP: For the longest life and least maintenance, choose LED over incandescent bulbs. The average 25 percent higher cost of LEDs is offset by their longevity and the amount of electricity they consume (typically 10 to 15 percent of what incandescent lights use).

A few camera basics: Manufacturers divide security cameras into indoor and outdoor classes, based on construction and needs. Your home's configuration will help determine what you need, where. A front-door camera can keep family safely behind doors

until visitors are identified. Indoor cameras can provide valuable evidence in the event of theft.

Features to Consider in Security Cameras

- Field of view
- Level of night vision
- Variable range of positioning
- Motion-sensor operation
- Microphone and speaker
- Wi-Fi and integration/app capability for remote viewing
- Local vs. cloud storage for recent (48 to 72 hours) video footage

Tip: If you're buying one component at a time to build a security network, look into commercial integrated systems by makers such as Nest, Amazon, and Google. Keep in mind, though that some Wi-Fi enabled cameras may cause interference with your wireless devices on the same wavelength.

INTEGRATED SECURITY SYTEMS

Homeowners today have the excellent choice between subscribing to a **traditional remote security service**, such as ADT, or installing a **smart security system** that enables self-monitoring from your mobile devices and/or professional oversight. (Note that ADT, founded in 1874, now offers both traditional and self-monitoring alternatives.)

The traditional option generally includes an alarm and surveillance package that takes responsibility for notifying first responders in the event of trouble, leaving you with peace of mind. The "smart" option cuts out the middleman and lets you configure the way you want your system to work and whom to notify. This is the focus of the rest of our chapter.

Smart security systems will run from about $99 to $500 and up. A monthly fee covers a variety of services, from video footage storage to professional supervision. The governing applications allow plenty of choices in functionality and connectivity. Here are some of things that most basic systems do or that may be optional, depending on the plan you choose.

Main Features of Smart Systems

- Simple DIY equipment installation
- Onsite touch screen control panels
- Mobile applications for remote
- Break-in sensors
- Video cameras

- Fire, carbon monoxide, and flood detection
- Professional alarm center monitoring
- Immediate security alerts
- Home automation of locks, lights, and thermostats

You can remove or add to default functions and customize alerts by text, phone call, e-mail, or in-app alert on your mobile device. You can set the system to unlock doors when fire sensors go off or to activate cameras when motion is detected. A very popular feature is the ability to view video footage from a mobile device, wherever you are.

The list of benefits seems endless, but manufacturers are always exploring new ways to add value and convenience. Perhaps one attribute that goes unnoticed is the sense of empowerment that homeowners get from being in control of their family's safety and security.

CHAPTER 6/ COMPREHENSIVE MAINTENANCE GUIDE

Homes structure seems more permanent than it really is. The many different materials and systems need continual upkeep, in order to preserve your original investment and allow it to appreciate over time. Homeowners quickly discover that it is important to stay on top of regular maintenance before they get way behind or get distracted by emergencies.

Small glitches, if not addressed early, can become big problems. And hidden developments—such as pipe leaks or chimney combustion—can remain invisible until huge damage is done. Sticking to a schedule of inspection, repairs, and general upkeep will help you avoid everything from annoyances to major catastrophes. And spending a little now will likely save you money in the long run.

Use these tables to choose and schedule maintenance tasks, with the help of your HomeBinder.

EXTERIOR

ITEM	TASK	FREQUENCY	STEPS	TIPS/WARNINGS
Chimney	Inspect and clean	1 year; sooner if visible damage	Professionally service or: 1) Seal off fireplace with plastic sheeting; 2) With chimney brush from roof, brush out debris from top downward; 3) Let dust settle 1 hour before unsealing fireplace; use shop vacuum to clean fireplace and chimney smoke shelf.	Failing to clear out creosote raises risk of chimney fires.
Driveway	Pressure wash	1 year; sooner if	1) Pressure wash	Products will vary

	and repair surface	visible damage	to remove moss, etc.; 2) Apply commercial patch/sealer as needed; 3) Resurface as needed.	for concrete, asphalt, and natural stone driveway materials.
Garage door	Inspect and lubricate; change remote opener batteries	6 months	1) Clean debris from rails and hinges; 2) Use spray silicone oil or grease to lubricate rails, rollers, and hinges; 3) Ensure freedom of motion; 4) Replace batteries.	DO NOT USE WD-40; heavy garage doors need a heavier lubricating substance.
Gutters	Clean and inspect	6 months; sooner if greater tree debris accumulation	1) From a sturdy ladder, manually remove large sticks, etc.; 2) Use a garden trowel, leaf blower, or pressurized hose to remove	Failure to clean gutters increases the risk of mold and leaks at the roof line.

			remaining obstructions; 3) Inspect for holes or other damage.	
Septic tank	Pump out waste	Anywhere between 2 to 10 years;, depending on tank size, age, and rate of household use. NOTE: Effluent filters may need annual cleaning.	Professionally service.	A functioning septic tank (if you have one) is crucial when selling your home. Failure to pump tank periodically risks odor and waste backup.
Sewer lines	Scope inspection and maintenance	Average 20 months, although many homeowners go for years without checking. The risk increases over time.	Professional service company performs video-camera inspection to assess maintenance needs.	Homeowners in some municipalities are responsible for maintaining sewer lines to house. Intact and clear sewer lines (if on city water distribution) are crucial when selling your home. Clogged lines risk

				waste backup and property damage.

INTERIOR

ITEM	TASK	FREQUENCY	STEPS	TIPS/WARNINGS
Bathroom	Caulk tiles and tub, sink, and other seams	Average 5 years; sooner if caulk is dried out, damaged, or missing in spots. Also consider sealing tiles and grouting to prolong life.	1) Remove old caulk with razor blade or commercial remover; 2) Clean surface with rubbing alcohol or household cleaner; 3) Use a commercial caulk and apply according to manufacturer's directions.	Most new caulk cures to water resistance in about 30 minutes, but keeping it dry overnight will improve seals. You can buy bulk caulk for use in a caulking gun or purchase ready-to-use tube caulk. Failure to reseal tiles and seams increases risk of mold and water damage.
HVAC belts, fans,	Inspect and clean;	1 year	1) Turn off power	Use this

motors	replace parts if worn or damaged		to furnace or A/C at electrical panel; 2) Remove equipment cover and gently clean away debris with a cloth; 3) If fan belt is worn, release from motor mount with wrench and replace.	opportunity to record equipment part numbers in HomeBinder for future reference. Replace belts according to manufacturer's directions.
HVAC ducts	Remove debris	Average 3.5 years	1) Shut off power to HVAC systems at electrical panel; 2) Brush dirt off vent grates; 3) Use shop vac to remove debris inside ducts.	Failure to clean air ducts can reduce air flow and cause unhealthy levels of particulate and other contaminants to circulate through your home. In many cases, it is better to hire a professional. Most homeowners don't

				clean ducts regularly, so be sure to do it in a new home.
Sump pump	Clean unit	Every 3 to 6 months	See Chapter 2.	Basement flooding can damage home structure and personal belongings.
Water treatment system	Clean water softener tank, replace filters	Per manufacturer's recommendations, typically, no more than once per year.	Specific to filtration system; follow manufacturer's directions.	The type of treatment system used in your house will depend on environmental water quality in your area.
Windows and doors	Inspect seals and caulk glass seams	1 year, before winter or storm season	1) Check window and door weather-stripping and replace if worn; 2) Inspect caulk around windows and replace if worn (see Bathroom, above);	Failure to maintain window and door seals leads to heat/cooled air loss and reduces energy efficiency. It may also allow water intrusion,

			3) Inspect multi-pane windows for fogginess or condensation and have professionally serviced, if needed	which encourages deterioration/rot around the window frame.

FILTERS AND BATTERIES

To streamline the filter replacement process—and to make sure you remember to do it on time—consider either purchasing in bulk or signing up for a subscription service. Companies such as FilterEasy will record your filter part numbers and automatically send the right filter at the right interval.

For battery replacement, use the guide below to enter your battery needs into your HomeBinder. Check manufacturer's instructions for exact replacement models and proper disposal!

Filter Replacement

Item	Filter Type	When to Replace

Air conditioner	Return air filter and media filter	Return air filter: 6 to 12 weeks of use (this could mean annually in Northern-tier states). Media filter: 6 months
Forced-air furnace	Air filter	1 to 3 months
Oil-burning furnace	Oil filter	1 year, end of winter; be sure to shut off power switch and oil flow valve, and place a spill pan beneath filter unit
Refrigerator, with water/ice service	Carbon water filter	6 months
Water filtration system, whole house or single tap	Carbon water filter	Varies by treatment system and model; typically, every 6 months or annually.

Battery Maintenance

Item	Battery Type	What to Do
Carbon monoxide (CO) alarm	Regular alkaline, long-life alkaline or lithium (10-yr)	Match the battery type to your machine type: Replace regular batteries after 1

		year; replace entire unit and battery after 5 years.
Garage door remote control	Regular alkaline, long-life alkaline or lithium (10-yr)	Match the battery type to your machine type: Replace regular batteries after 1 year; replace long-life battery after 10 years.
Home security components w/battery backup	Regular alkaline, long-life alkaline or lithium (10-yr)	Match the battery type to your machine type: Replace regular batteries after 1 year; replace long-life battery after 10 years.
Radon monitor	Regular alkaline, long-life alkaline or lithium (10-yr)	Match the battery type to your machine type: Replace regular batteries after 1 year; replace entire unit and battery after 5 to 10 years.
Smoke alarm	Regular alkaline, long-life alkaline or lithium (10-yr)	Match the battery type to your machine type: Replace regular batteries after 1 year; replace entire unit and battery after 10 years.
Solar lights and appliances	Lithium	Depends on model/use

Sump pump backup pump	Wet-cell 12-volt	According to manufacturer's directions, add battery fluid and/or distilled water; replace when suggested, typically 3 to 5 years.

CHAPTER 7/ ENERGY EFFICIENCY

- ✓ Smart thermostats
- ✓ Energy-saving appliances
- ✓ Insulation and air-sealing
- ✓ Energy audits

Simply maintaining your home's operating systems will maximize their functionality and reduce the risk of damage and the frequency of repairs. But, you can do more. Harness smart thermostat technology to use only as much "juice" as you need. Scale down existing appliances or replace them with those that will cost you less to run. Properly insulate and air-seal your home to minimize energy waste. Learn about more options from government agencies and utility companies whose mission and best interest is to help homeowners streamline energy use. It seems counterintuitive that the utility industry would want to sell *less* power, but it is true! Conserving resources keeps costs down for everyone.

These strategies can pay immediate and long-term dividends. Taking steps to cut power usage saves you money, supports green energy research, and helps the planet. In addition, greater household energy efficiency will look good when you decide to sell your

property. For today's buyers—especially millennials—energy use is among their top three concerns. What's not to like?

SMART THERMOSTAT BENEFITS

Because heating and cooling represent your home's greatest energy use, we suggest starting with a thermostat upgrade, to up your systems' efficiency. The payback period of the device will be months, not years, plus they come with lots of convenient features. Say good-bye to the old dial and time-program models—smart thermostats blow them out of the water. While midrange programmables do save on energy use and perform well, evidence shows that inadequate or improper use negates those pluses. Most homeowners tend to program them once and then forget about them, even when conditions change. Some never take advantage of the adjustable functions. That's where smart thermostats take over.

Smart models from makers such as Nest, Ecobee, and Honeywell give you multiple ways to control temperature room by room and hour by hour. No more excuses! You can program them remotely via computer or from your mobile devices. Tweak the temperature from any room in the house the same way, including by voice activation using devices such as Google Home or Amazon Echo. This means you don't have to leave the heat or air conditioning on all day when you're away to enjoy comfort when you get home. If you are on vacation, you can wait until you're on your way home to adjust the temperature to your liking for when you get back. When you're at home, you won't even have to get up and cross the room to turn the heat up or the A/C off.

If that weren't enough, the latest technology will override your program if it senses motion in a room, adjusting the temperature per occupancy. Some models even include geofencing capability, which works off your smartphone's locator to kick in when you are anywhere on the property. The more advanced thermostats can sync with other smart devices, such as security cameras, lights, and smoke alarms. These use security alerts as on-off triggers, such as shutting down HVAC fans when fire is detected, to keep smoke and heat from circulating throughout the duct system.

Most smart thermostats are Energy Star certified (see below), meaning they are guaranteed to conserve more energy than those that do not meet strict credentials. They do this, in part, by collecting more data (indoor and outdoor temperature and humidity, household schedules) and by operating more accurately than the old analog thermostats. A wall-mount display or voice query reveals the actual current temperature, and even informs you of the local weather forecast so you know when you'll want to be warmer or colder. This lets you make better energy-management decisions. Simply not running a heater or air conditioner all day so that the house will be ready for you when you return from work represents a huge jump in efficiency.

Expect to spend between $100 and $300 on a smart thermostat system that you can install yourself. But there real question is, how much money can you save? Energy prices vary by geographic area and provider, of course, but energy saved will translate accordingly. A study released by Nest but replicated by two independent research bodies relates that smart thermostats can save on energy usage of up to 12 percent on heating and up to 15 percent on cooling. Clearly, the savings over time will offset your initial investment.

ENERGY-SAVING APPLIANCES

If you've shopped for electrical or fuel-burning appliances in the few decades, you've probably seen this blue-and-white Energy Star label on some of them:

This means the product bearing the label has tested to use significantly less energy the minimum standard, to earn the program's rating. For instance, refrigerators must show a 20 percent savings, and dishwashers more than 40 percent savings. Most certified appliances also have a yellow EnergyGuide label with the numbers to back up the efficiency claim.

Comparison shopping is much more revealing when operating with this information from the Environmental Protection Agency (EPA) and Federal Trade Commission. If you're looking to replace an aging or broken appliance, use these labels to help you understand the tradeoff between product features, energy consumption, and operation costs. Recently,

Energy Star began issuing “Most Efficient” awards to products among the upper tier of power savers.

In general, your largest appliances—heating and cooling components, washing machines, refrigerators, etc.—will be the biggest energy hogs. Moving to newer, more efficient models could save you hundreds of dollars per year. For example, an old refrigerator in the basement that you are using as second unit could be costing you $40 to $50 per month in electricity.

The EPA estimates that the Energy Star program, which encourages consumers to voluntarily purchase more energy-efficient products, has saved home and business owners $430 billion since its inception in 1992. Some of the appliances covered by Energy Star include:

- Air conditioners
- Air cleaners and dehumidifiers
- Ceiling fans
- Clothes washers and dryers
- Freezers
- Furnaces
- Light fixtures and bulbs
- Refrigerators
- Smart thermostats
- Water heaters

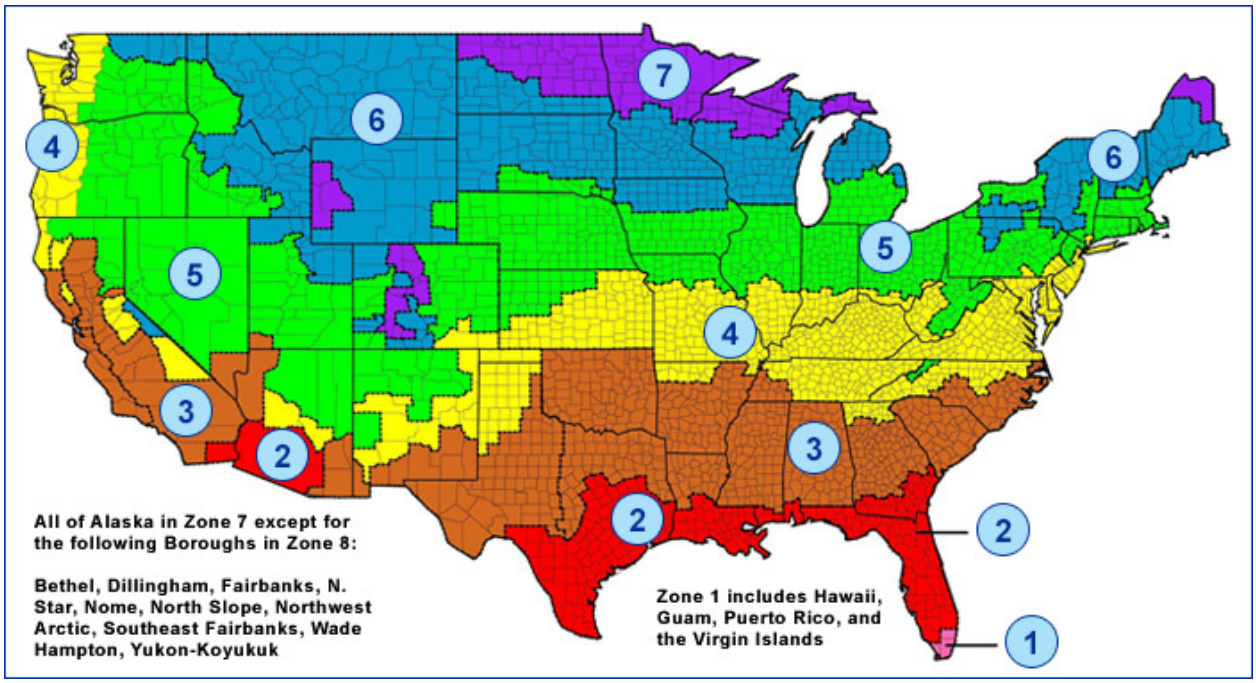
INSULATION AND AIR SEALING

The most positive impact on energy use for most homes will result from proper insulation and air sealing however don't forget to make sure that your heating and cooling systems are operating efficiently! Insulation and air sealing can be costly projects up front, but they pay off in utility savings and in the future value of your home. If you're interested in checking or improving your home's insulation, start with a professional audit that may include a "blower test." This assesses the "tightness" of the home (how much air escapes from the house interior). Although infrared cameras can indicate where a home is losing heat (or cooled air), a blower test is really the best technique to understand how much heat or cooling is lost.

Where to Start with Insulation?

Think of your attic as a "hat." Just like your body loses much of your heat at your head, so does a building. So, focusing on attic insulation is the key to minimizing energy loss and overall use. Walls and exterior crawl spaces come next.

Insulation is rated as a standard "R" Value. All structural components and insulation products have an R value, from wood to drywall, foam, and fiber insulation. In your attic, you will want an R value that corresponds to your zone, as per U.S. government guidance in your state. If you are in Canada, you are effectively in zones 4 to 7. Use the map below:



Courtesy EnergyStar.gov

Zone	Attic Insulation	Floor Insulation
1	R25 to R30	R13
2	R25 to R38	R13 to R19
3	R25 to R38	R19 to R25
4	R38	R25 to R30
5 to 8	R38 to R49	R25 to R30

Achieving an "R" Value

To get the ideal R value for your zone, a professional will assess the wood, foam insulation, blown insulation, or whatever other insulating components are present. Blown insulation is the most efficient and cost-effective way of insulating attics these days; it is measurably more effective than loose-fill fiberglass. Achieving the desired R-value depends on the type, depth, and density of insulation. Check with a professional about the best way to achieve the R value desired for your home's location.

Additionally, new home construction, especially, tends to include Energy Star-certified building materials. These items conserve energy by providing superior insulating and temperature regulating properties. Some certified building components include:

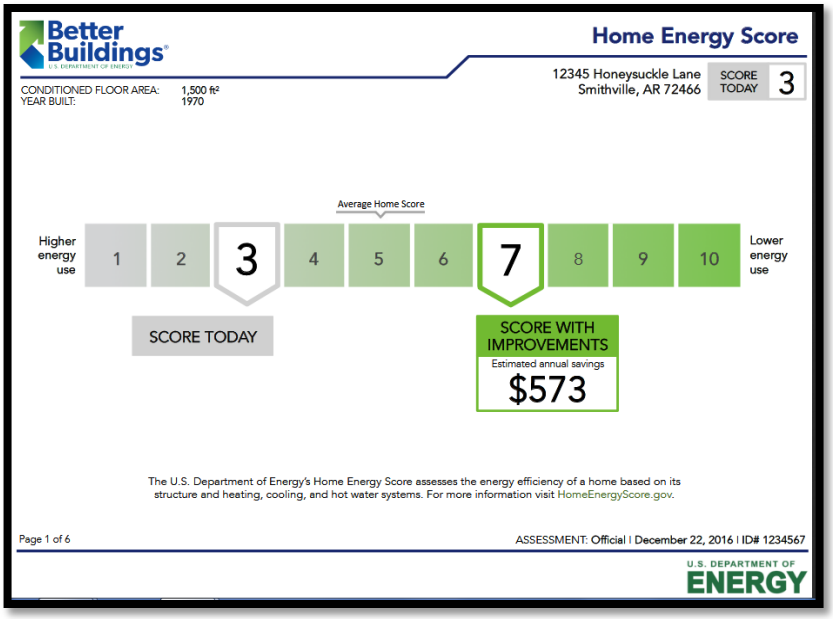
- Doors
- Foam board
- Reflective roofing
- Skylights
- Ventilation fans
- Windows

Weather stripping around doors and windows can dramatically improve the energy efficiency. These kits are relatively inexpensive and are an easy-to-do project for a homeowner. In other words it is important to consider not just the walls, but entry points such as skylights, windows, and doors.

ENERGY AUDITS

Not sure where to save on energy use in your home? Looking for help in replacing major systems that can save you money down the road? An energy audit and other programs offered by federal, state, and municipal governments could be your ticket to better energy management.

The U.S. Department of Energy pairs with state energy programs to offer in-home energy assessments that offers several benefits to homeowners. Many local utility providers support similar programs, as well. These voluntary audits involve targeted home inspections that evaluate a property's energy use and potential areas of improvement and may not cost you a dime. The result is a home energy report that provides documentation of findings plus a projection of future energy-saving opportunities. The report varies by program and state, but some provide a score and/or summary data similar to an Energy Star product label; it looks like this:



The report goes on to detail:

- Basic home details (year built, square footage, etc.)
- Annual energy used
- Specifics about structural construction (roof, foundation, walls, etc.)
- Specifics about HVAC and water systems
- Recommendations for energy-related home improvements
- Estimated future score and estimated cost savings

Some state and city programs offer even greater detail regarding the true cost of household power consumption, because they can factor in actual regional pricing of electricity, natural gas, and other fuel sources. All of this information helps homeowners know how well their home appliances and systems are performing and where efficiency can be increased.

In particular, these reports break down suggested improvements by priority. They offer a "to-do now" list for effective repairs and an "it-can-wait" list for things to replace when current systems wear out. This gives you a reliable action plan that will show clear economic benefits now and over time.

Also significant are tax credits, rebates, and other incentives linked to these reports, which may be provided by your local government or utility company when you take steps to improve energy use your home. Some programs even offer cash payments to help out with big jobs, such as more efficient oil furnaces, weatherproof windows, or attic insulation. Check with your state's department of energy. You might be surprised by what is available.

If your energy assessment provides a certified home score to your property, the future value could also be significant when you sell your home. Initial studies project that buyers will consider a good score an incentive over homes with lower or no ratings. If you can show you saved money over time, even better.

CHAPTER 8/ LANDSCAPING MAINTENANCE

- ✓ Fencing and Decks
- ✓ Lawn and Plantings
- ✓ Trees and Shrubs

Landscaping is, in many cases, the most significant aspect of a property's curb appeal. It also can be costly to install in the first place. Caring for the area that surrounds your house is also one of the more variable responsibilities on your maintenance roster. Whether you inherited a great garden from previous owners or started a beautiful lawn from scratch, you've become the caretaker of a living ecosystem. Things can quickly deteriorate or become overgrown if not properly managed.

In a sense, landscape maintenance may have to be perfected by trial and error. Every property is different; every region of the country holds different environmental challenges. And your experience may or may not have prepared you for what you need to do to preserve the value of your home's yard, fencing, and individual embellishments. While you'll have to accept the uncertainty that nature can bring, a regular maintenance plan will put your home's landscape on the right track.

FENCING AND DECKS

Not every home has a fence, but every property does have a fence line. Creating a visual boundary for your property helps to define and separate it from neighboring sites. This can be important when adjacent areas are not well kept; it marks you as a responsible and caring homeowner. If your place does not have a fence, consider which of these tasks will aid in the upkeep of your property line:

- Keep your traffic strip mowed and weeds removed.
- Keep low-growing shrubbery or ground cover pruned.
- Rake graveled areas and remove weeds.
- Maintain entry pergolas or trellises.
- Keep street side lighting in good repair.

Fence Upkeep

Fence maintenance is far less expensive than fence replacement! If you do have perimeter fencing, get to know its construction materials and their maintenance requirements. Here's an overview:

Wood. Check for loose nails and refasten any loose boards. Refinish stained wood every 3 years or repaint every 5 years.

Iron. Clean with soap and water twice a year. Brush away rust or remove with a rust converter. Apply spray primer and oil-based paint designed for use on metal, as needed.

Chain link. Clean with soap and water, as needed. Brush away rust or remove with a rust converter.

Polyvinyl. Pressure wash to remove moss and dirt to extend life and preserve aesthetics.

In addition to caring for your fence itself, be alert to keeping its foundation solid. Ground conditions can change over time. For instance, water runoff that settles along a fence line will eventually cause cement footing to pull away from the soil beneath it or rot out exposed wooden posts. You may need to divert or increase drainage, or add gravel or another fill to strengthen the fence foundation.

Deck Schedule

Deck upkeep represents another opportunity to minimize repairs or replacement. Even "no-maintenance" decks need cleaning to look their best. If you spread deck care out over the course of the year, you won't fall behind. Here's a seasonal guide:

Spring. After the worst weather has passed: 1) Remove debris between deck boards with a tool that fits crevices to limit rot. 2) Sweep and/or use a shop vac on the deck surface. 3) Use a deck cleaner formulated for wood or composite materials, whichever yours requires, and follow manufacturer's directions for cleaning. If you have access to a pressure washer (or want to hire someone or rent one) it can be an effective and efficient way to clean a deck. Let dry thoroughly for 2 days before sealing. 4) Purchase an appropriate sealer, toner, or stain for your deck materials and follow manufacturer's instructions for applying. Some heavier stains can be reapplied every other year.

Summer. In dry weather: 1) With a flat-blade screwdriver, probe wood stairs and support posts for rot. If you can push the tool in a quarter-inch, remove the rotted wood with a chisel and fill with wood preservative. Call a professional to inspect any large rotten areas if you are unsure. 2) Perform the same task underneath your deck. Use a flashlight to inspect the wood frame and metal flashing of the ledger, the section that joins your deck to the house. Remove any rot or rust. 3) Repair or replace any cracked or loose railing or floor boards.

Fall. Remove downed leaves and debris so they don't discolor the deck or contribute to rotting. This is an important and usually quick task that is often overlooked by homeowners.

Winter. Remove snow and ice accumulation so frozen water doesn't warp deck boards.

TIP: Choose an overcast day to clean decks so that cleanser does not evaporate in the sun. DO NOT use a pressure washer on composite decking (such as Trex), which can cause permanent damage, as noted by the manufacturer.

LAWN AND PLANTINGS

Yard plantings look very different in residential properties across the country. Choices that were once driven solely by climate and then by artificial irrigation are now subject to the reality of dwindling resources and rising costs. Yet, one staple of an American yard prevails: the green, green grass of home. While water conservation issues have brought awareness to the real price tag of keeping a green lawn, technology has kept pace by making it easier to waste less water.

Water-saving landscaping techniques and grass varieties have evolved with the times. Many yards now blend smaller grass sections with larger borders of drought-tolerant plantings or decorative rock and wood products. Some practical homeowners go with Mother Nature and accept lawn die-off in late summer, rather than continue to irrigate during a season when evaporation is at its greatest. Whichever route you choose, follow a seasonal maintenance schedule to cultivate one of your home's greatest assets: its surrounding landscape.

Lawn Maintenance

If you have a grass lawn, the bulk of your yard work will involve mowing, fertilizing, and watering. You'll want to create a mowing and turf-building schedule that fits with your geographic needs. Ask your neighbors or a local lawn care company for their suggestions.

When it comes to watering your lawn and garden, sprinkler systems are great time savers. Some can save on water and cost you less to operate than a garden hose and oscillator. If you've got an above-ground pipe matrix or underground sprinkling system, a little maintenance will go a long way toward extending its life.

Winterizing in cold climates is imperative to keep your pipes intact. Above-ground systems need only be drained, dismantled, and put away. Fixed systems, however, must be safeguarded from the weather. Here are three things to do to keep your underground sprinkler system operating well and ready to go for next year:

1. Get an annual inspection to detect leaks. If you lose just one cup of water per minute to leaking, that's about 57,000 gallons of water over a three-month period!
2. If your system is more than five years old, consider replacing your outdated controller with a new smart controller. These sophisticated devices can measure rainfall and in-ground moisture to deliver the optimal level of water through your sprinklers.
3. In northern climates, in the fall, blow out the sprinkler lines to prevent freezing, cracking, and leaks. You'll need rent or buy a small air compressor, or hire a firm to

do the work. Start by shutting off the main water valve at the house. Attach the compressor hose to the sprinkler supply line. Zone by zone, turn your system on and let it spray until the compressor blows the water through and it stops spraying. Leave drain ports open, use a bucket to catch drips, and allow the system to drain thoroughly.

TREES AND SHRUBS

You'll want to care for plants and trees to preserve your home's visual appeal. But maintaining these living elements of your yard is also important to fire, pest, and damage control. Invest in the future value of your landscape by performing regular upkeep as well as addressing any specific environmental threats.

If you have established trees on your property, consider their influence on your home's market price. For instance, a 2010 U.S. Forest Service study estimated that the presence of street trees added nearly nine thousand dollars to home sale prices and reduced their time on the market by nearly two days, compared to other properties. So, it's well worth spending a little time and effort to care for your trees. Conversely, overgrown trees and shrubs can limit a home's brightness in the daylight, restrict lawn growth, and diminish a home's curb appeal if not maintained.

Consult a local professional to learn about the needs of specific species. Some ornamental varieties need special annual pruning to keep their shapes. Very large trees will need branches pruned that may threaten your roof or other structures on your property. Be aware of any regional threats, as well, such as invasive gypsy moths, whose

caterpillar larvae can decimate a wide variety of trees. Take special care during severe weather cycles, such as drought years, when normally hardy trees can succumb to pests, scorching, or death.

TIP: Keep tree limbs and foliage away from your roof to prevent: mold growth (which limits shingle life); rodent or animal intrusion into the attic; and structural damage in storms. The number-one source of roof damage is trees!

Pruning helps prevent termite, ant, or other pest invasions. Branches that brush up against the house may offer an entryway to insects or small animals. Typical tree and shrub maintenance that affects your home's integrity includes pruning away leafy branches that can stain siding or cause mold in wet weather, and dead wood that may break off and cause exterior damage.

Mature tree roots near the ground surface can cause patio and driveway paving to buckle. Trees that seem healthy to you may have internal damage caused by insects or lightning strikes. These might topple when weakened further by rain or wind. Make a circuit of your yard once a year to identify trouble spots, and hire a tree service to address them before damage is done.

CHAPTER 9/ HOME REPAIRS

- ✓ Electrical
- ✓ Plumbing
- ✓ Walls and Ceilings

Like death and taxes, the need for household repairs is something you can count on. And, the variety of what can break and to what degree ensures that you will never get bored! It would take an encyclopedia to guide you through every possible repairs situation. So, here are a few introductory fixes, patch-ups, and paint-overs to get you started.

ELECTRICAL REPAIRS

Safety is the top priority when working with electricity. If you've ever been zapped by static electricity from pulling charged fabric out of a tumble dryer, you can imagine the force generated by touching a "hot" live wire. **The most dangerous aspect of working with**

electricity is seen at the electrical panel, where the power enters your home—although it is important to use care in all aspects of dealing with home wiring.

Your appliances, big and small, operate on different amounts of electricity. The power that comes into your home, channeled through the electrical service panel, moves in a loop to form a circuit. The wiring in your house is color coded so that you can rewire things safely and effectively.

TIP: Never touch your home's electrical line coming off the street! Use care when placing ladders nearby. Do not try to remove limbs or branches that are in contact with power lines. Every year people get injured by doing so.

How Wires Form an Electrical Circuit

INPUT: Electricity runs in through a hot wire (usually colored black) to an outlet.

OUTPUT: Any unused current is cycled back to the service panel through a neutral wire (usually colored white).

PROTECTION: A third "ground" wire (colored green or left as bare copper) shoots some of that current through the service panel and outside into the

ground, to break the cycle and prevent electricity from running through you, the repair person.

Before you start, make sure that the circuit you are working on is OFF by flipping the circuit breaker or fuse. If you are not sure what circuit you are working with/on, it may be safest to flip the breaker for the entire home. When working with electricity, remember not to handle wiring with wet fingers or stand on a wet floor. If you're dealing with damaged wiring, wear rubber-soled shoes and do not touch anything made of metal. If you're using or moving a metal ladder, be aware of overhead wires and steer clear of them.

Connecting Two Wires

1. With power OFF, expose old and new wires that you want to join.
2. Use a wire stripper to remove about 1 inch of plastic sheathing from both wires; you will join the exposed parts. A wire stripper looks like this:

3. Place exposed wires side by side, and "screw" the wires together using an appropriate sized electrical wire connector cap, which looks like this:

How to Replace an Overhead Light Fixture

At some point you are probably going to want to replace an overhead fixture in your home. They get dated, or the stop working for some reason, and this is one of the more doable jobs for a homeowner, as you need minimal tools and minimal knowledge. Work on lighting projects during the daytime is best.

1. Enlist an assistant, if possible. This is a simple job, but one that benefits from three hands. A helper may prevent an accidental fall or dropping and breaking the glass dome on the fixture.

2. Shut off power to the bathroom at the service panel, or shut off power to the whole house if you really aren't sure. Get another light source to help you see the wiring. (Battery-operated headlamps are handy.) Get a stepladder so you can easily reach the fixture.

3. Remove the bulb cover and unscrew any light bulbs from the fixture.

4. With a screwdriver, unscrew the fixture from the ceiling junction box.

5. You'll see three wires with caps on them; remove the caps and release the old wires.

6. Splice the white, black, and green (or copper) wires from the ceiling in to the matching wires of the new light fixture. Cover with the caps. Splicing technique is described above.

7. Screw the fixture into the ceiling junction box.

8. Replace your light bulbs and their cover.

9. Restore power, flick the walls switch, and test your new light fixture.

You can use this same know-how to replace or install ceiling fans, wall timers as replacements for switches, and other basic electrical repairs or installations. If you are at all uncomfortable, find someone who has done it before to guide you during your first project, or contact a licensed electrician.

PLUMBING REPAIRS

Working with water is less dangerous than electricity but can be messy. Avert the biggest mistake by shutting off the water at the undersink valve or at your home's main water

valve. Hopefully, your inspectors showed you where the water main is, but in many homes it will be somewhat evident (generally in the basement, garage, or in closets for condo units). If you are not sure, then definitely search online for some tips and tricks, as there are a lot of resources and videos to help you with this.

A few special items you might need are basin and Allen wrenches and plumber's putty. The basin wrench is fashioned to work on standard nuts in tight spaces, such as on the undersink nuts that hold some faucet systems to the sink. It can fit and operate in places that a regular straight wrench would get hung up. These cost about $20 to $30 and look like this:

Basin Wrench

An Allen wrench fits into the tiny hexagonal holes of specialty nuts, such as those used in single-handle faucet mechanisms. Finally, plumber's putty makes a good substitute for silicone caulk when sealing items that might need to be removed later, such as that good, old faucet. More pliable and forgiving than caulk, plumber's putty is the Post-It Note of sealant: it sticks when you want it to and lifts when you don't.

TIP: Always clean surfaces before seating or sealing new fixtures. Use rubbing alcohol or a light cleanser that fully rinses off.

You'll probably leave major pipe repairs to a professional. But the odd leaky faucet or malfunctioning toilet are yours to conquer. Grab some old towels and catch bucket for drips, and—pardon the pun—dive in.

How to Fix a Leaky Faucet

Faucets leak when their internal components wear out from use, either stripping screw threads or failing to seal, depending on the part. You'll need an Allen wrench, adjustable pliers, and, perhaps, a small screwdriver. Again, a battery-operated headlamp and an assistant can save you a lot of trouble.

One of the most common types of faucets is a cartridge faucet, which has one handle that swivels left and right to turn water on and select between hot and cold. Here's how to fix it:

1. Turn off the water supply to the faucet, typically at the valve beneath the sink.

2. Remove the one-piece faucet handle using an Allen wrench. (Most single-handle faucets use hexagonal screws that only an Allen wrench can loosen.)

3. The interior pieces are held together with a retainer nut or screw. You'll probably need to use adjustable pliers to loosen and remove it.

4. Remove the cartridge and O-rings. Take them to the hardware or plumbing store to get a matching replacement part.

5. Install the new O-rings and cartridge according to manufacturer's directions.

6. Replace the handle.

7. Turn on the water valve and test your newly repaired faucet.

How to Fix a Running Toilet

Because a toilet's mechanical parts are submerged in water, they degrade over time. If your toilet tank isn't filling properly, or if you hear it running continuously, it's not working right. Either the cover that is supposed to seal off the valve when the tank is filled is not doing its job, or the float that tells the tank how far to fill is caught or broken.

The good news is, there aren't a lot of question marks to these repairs, and they are simple and inexpensive to fix. It's generally either one problem or the other. Here's how to tackle either one:

1. Remove the tank lid and visually inspect the contents. If the tank is full but you still hear it running, the float may need adjusting.

2. Sometimes the filler float gets jostled on its mechanism. Gently move it to and fro to see if it pops back into its normal place. If the water stops running, you've solved your problem. If not, you may need a plumber's help to repair the filler valve.

3. If the tank appears to be filling continuously, you'll want to work with the rubber flapper that covers the flush valve. Shut off the water valve at the base of the toilet, then FLUSH THE TOILET to remove all water from the bowl and tank.

4. Again, your flapper may have been jostled from its normal seat on the hinged tabs that hold it in place. If these parts do not appear damaged, try adjusting them until the flapper returns to its proper position over the flush valve hole.

5. If the flapper is old and cracked, remove it from the hinged tabs and the chain that attaches it to the flushing mechanism. These are universal, in many cases, so a variety of manufactures make them—but be sure to still take your old part to the hardware store to match it.

6. Install the new rubber flapper, turn the water valve back on, and test flush once the tank fills.

WALLS AND CEILINGS

Scrapes, cracks, chipped paint ... your walls and ceilings may take a beating, or they may simply need to be refreshed every now and then. The protocol involves repairing holes,

prepping the area for paint, and covering it over with a fresh coating. Your advance work and clean up might take more time than the actual job itself!

Whether indoors or out, painting finished surfaces requires a similar chain of action. The variables—type of paint, how much product, application techniques, and all the little touches that make a paint job unique—are where you'll need to focus your future education.

Surface Repairs

Scrapes and dings on interior walls are simple to fill and then paint over. You'll need one of several commercial fill products. For small dents in paneling, buy a wood putty in a matching color. To fill nail holes and other small depressions in drywall, buy a ready-mixed spackling compound.

To repair larger scrapes or holes in drywall, there are a number of handy drywall patch kits available on the market to simplify the process. Patch kits are self-adhesive and ready to paint.

When preparing to paint your home's exterior, you may need to remove and patch rotten or damaged sections of wood siding. You may need to experiment a bit to fill the unique hole. A combination of wood putty and wood preservative might suffice for small indentations. You may need to cut a wood patch and nail or glue it in place, and then fill the edges with putty and/or caulking. Gently sand the finished patch job before painting.

Interior Painting

Most homeowners today use latex paint for indoor projects. It dries quickly and has little impact on indoor air quality. If you are concerned about the paint creating an indoor air quality issue, use low-VOC paints as they will be least impactful of your home's air quality. You'll want to **select paint** by the square footage of coverage you need and the job you want it to do.

Preparing to Paint

The most important part to painting, as most professionals will tell you, is the "prep." It should literally take twice as long as the actual painting, and includes all of these steps:

- Having all the materials you'll need on hand in advance
- Clearing the room so you have adequate workspace
- Removing lights, outlet covers, and anything else that can be taken away
- Patching, scraping, or sanding the wall so it is ready to receive the paint
- Covering the floor (and furniture) with a dropcloth
- Using painter's tape to edge off window panes, window frames, walls, chair-rails, or any part that you do not want to get paint on
- Applying a product like Kilz that prevents any discoloration from being seen through your paint, for areas that are stained or show excessive color

Once you've done all the prep, ONLY then are you ready to paint! It is true that most of the work with painting is the prep. If you do it right, the actual painting will be easier and faster, and the outcome will be better.

Start with one coat of **primer**, an undercoat with no color added. Primer protects the wall and lends a tacky surface to which paint can easily adhere. Paints come in several **finishes** (flat, matte, satin, eggshell, semi-gloss, gloss, high-gloss), with "flat" being the least shiny and "high-gloss" the most shiny. Those toward the flat end of the scale naturally hide blemishes, while irregularities on the wall tend to show up, the glossier the paint is.

TIP: Some paints today come pre-mixed with primer, which saves you TIME and MONEY. Ask a store professional for help in comparing paints.

If you're painting over drywall or plywood, select a flat or matte finish. Ask a professional to guide you if you need specialty paints, such as water-resistant for bathrooms or heat-resistant near fireplaces. Experts suggest painting wood trim in a slightly glossier finish, such as satin, to provide a nice contrast.

How many coats of paint will you need?

1 coat primer

2 coats light-colored wall paint

OR 3 to 4 coats dark-colored wall paint

Get help at the hardware store in choosing brushes and rollers by width. Be sure to buy a long-handled roller so you can paint overhead without having to use a ladder. If you buy new paint and primer just before the job, it will be mixed and ready to go. Otherwise, you will need to strain it through a paint strainer into a bucket, and back into the original can. Then you can pour out what you need to use in a paint tray.

Paint is expensive, so safeguard your investment with adequate preparation. You'll want to learn more about the finer points of painting before you begin. But here is the basic range of steps:

To Paint Over a Painted Wall:

1. Measure your space. Width plus height will give you the surface area you need to cover.
2. Select and purchase primer and paint by color, sheen, and style.
3. Buy brushes, rollers, paint tray, painter's tape, sandpaper, paint scraper, plastic sheeting, and a new sponge mop.
4. Cover the floor with plastic sheeting or a dropcloths.
5. Scrape away any paint that is loose, chipped, or not flush with the wall.

6. Wash the wall with a new sponge mop dipped in diluted household detergent, such as Simple Green. Let the wall dry.
7. Lightly sand the wall and brush away dust.
8. Use painter's tape to mask off any wood trim or sections that will painted different from the main color.
9. Apply one coat of primer and let dry.
10. Apply multiple coats of interior paint until covered to your satisfaction.

Tip: If you pause painting overnight, slip your brushes and rollers in individual plastic bags and freeze. If you continue with the same color paint, there's no need to clean; just thaw and use.

Exterior Painting

The question most homeowners have about exterior painting is, when to do it? Because climate and seasonal effects—and a home's orientation on the lot and its exposure—vary so wildly from property to property and across regions, a visual test is usually best. Simply eyeball your exterior siding. If the wood is damaged and in need of repair in many places, you'll want to repaint after you fix it. If the paint color has dulled, or if paint is peeling or shows a coating of powdery pigment, is it definitely time.

Paint is not just there to make your house look good; it protects the wood, so staying on top of painting preserves the longevity of your siding.

You'll use some of the techniques employed in interior painting on home siding and trim. Get some advice from a professional about what kind of paint will best suit your home material, and the steps you'll need to take to prep, primer, and paint it. Painting the outside of your house takes a bit more heavy-duty cleaning and surfacing. Don't skimp on the prep work! Protect plants next to the house, and any place that detergent and paint splatters may drift on the breeze. A power washer may be helpful in cleaning siding.

Next, fill and patch any rotten or damaged boards. Scrape away old, loose or peeling paint. Don't forget to sand the area you plan to and paint. You typically won't need primer on all areas, but it should be used on exposed wood. The more thorough you are with each step, the more lasting your result will be.

CHAPTER 10/ WAYS TO BOOST HOME VALUE

- ✓ Annual Property Reviews
- ✓ Value-Adding Upgrades

Your best insurance in getting as much sell value from your property is making it desirable to the next potential owners. There are two primary ways to do this: 1) Stay on top of maintenance and 2) Make improvements to your home. While you may spend decades lovingly caring for your home, maintaining its many systems and fixtures and keeping your lawn tidy, what matters at sale time is what's in demand then.

Making improvements (such as adding a mudroom or replacing the kitchen) can keep you in the sweet spot of having a desirable home when it comes time to sell. You can't see the future. But you can keep your finger on the pulse of the buyer's market and attempt to capitalize on your property's strong points.

A strong maintenance foundation will provide the jumping-off point for upgrade projects. For instance, putting in new automated controls for your HVAC or sprinkler system won't do much good if those systems aren't functioning smoothly and efficiently. Many homeowners, due to lack of time, interest, or knowledge, will not make the effort to

periodically summarize all that is going on around their home, prioritize what it needs, and make an action plan. We can all use help with this, just as we can use help with our health or finances. Getting an Annual Property Review through HomeBinder partners is an ideal way to stay up to date with what's working, what's not, and which repairs take the greatest priority. Don't leave your largest investment to chance!

These recommended annual reviews have the added benefit of pointing out your property's strengths and weaknesses. When you get ready to put money into remodeling and upgrades, you'll know which projects are likely to have the biggest payoffs. Will you eliminate a nagging problem that might hamper a sale? Or will you take one of your home's best features to the next level? We'll provide some suggestions for practical makeovers or add-ons to help you start brainstorming. Adding value to your home can make a successful sale as exciting as the day you closed the deal and looked forward to moving in.

ANNUAL PROPERTY REVIEWS

Consider this: we visit a doctor for an annual physical, a dentist for teeth cleaning, and a mechanic to keep our cars running. But most homeowners do not think about having a professional return periodically to let them know how their home—their single largest investment—is performing. Home professional who perform inspections have the knowledge to act not just as an inspectors, but also a coaches and consultants. They are able catch problems early and also help suggest items that you may not be thinking about to improve or optimize your home life.

Here are the top benefits of an Annual Property Review:

1. Catch problems when the fix is $100 instead of $1000 or more.
2. Help prioritize current projects so that you spend money in the right order.
3. Get a handle on maintenance that may be causing your home to operate inefficiently or that may reduce the life of a home component.
4. Get an independent, third-party review of any work you've had done since your last inspection.
5. Get suggestions about improvements you could make to your home to help make it more enjoyable.

Residents can become desensitized to things in their surroundings that they see on a daily basis and take for granted. It can be extremely valuable to see what a professional will identify when looking at a home with a trained eye.

8 VALUE-ADDING UPGRADE PROJECTS

Home remodeling trends come and go, but certain long-term trends should hold value into the foreseeable future. Every year, *Remodeling* magazine tracks strong performers nationwide and reveals their current effects on home sales prices. While actual dollar figures will fluctuate into the future, the percentage of project investments that have been recovered at the time of sale provides a good indicator of likely winners.

Note that most of these upgrades increase energy conservation, the home's visual aspect from the street, and indoor/outdoor living area comfort. These remodeling projects can be considered fairly "evergreen" into the future because: a) the need for energy efficiency will continue to grow; b) strong curb appeal always contributes to a good first impression; enhanced living areas are something that homeowners will always prize.

8 Upgrades That (Nearly) Pay for Themselves When You Sell

This selection was drawn from the top tier of *Remodeling* magazine's "Cost Vs. Value Report." All of the upgrades listed here recouped from 70 to 108 percent of homeowners' expenditures in 2017 dollar value, the most recent year of the magazine's test results. Here are eight projects that promise strong returns on your investment (ROI) when you sell:

1. Fiberglass attic insulation. If your home was built before energy costs skyrocketed, sealing every nook and cranny and laying down plenty of insulation may not have been a priority. This professional remodel brings standard attic insulation up to today's R-30 gold-standard value. **Job cost: $1,343. ROI: 108%.**

2. New steel front door. Energy savings, security enhancement, and greater curb appeal are all rolled into this front-door replacement. **Job cost: $1,413. ROI: 91%.**

3. Stone veneer siding. Talk about visual presence: today's manufactured veneers offer the look of European stonework at a fraction of the expense. A small decorative swathe dresses up existing vinyl siding to great effect. **Job cost: $7,851. ROI: 89%.**

4. Minor kitchen overhaul. Kitchen presentation suffers in a home's most heavily used room. Replace cabinet and drawer fronts, countertop, and range/oven and refrigerator for a fresh, clean look and a comfortable living area. **Job cost: $20,830. ROI: 80%.**

5. New decorative garage door. Facade wins again! Replacing a weathered, older door with a bright, new one. New steel tracks improve function while existing opener mechanism still works just fine. **Job cost: $1,749. ROI: 77%.**

6. New insulated windows. Ten vinyl-framed thermopane windows provide better energy management and a crisp visual. **Job cost: $15,282. ROI: 74%.**

7. Deck addition. Expand a backdoor porch/staircase into a square wooden deck, with built-in bench and planters. This instantly adds an outdoor living area to a home. **Job cost: $10,707. ROI: 72%.**

8. Grand entrance. The first thing buyers see should also be the most spectacular feature of a home. This project enlarges a front-door opening to include decorative sidelight and fanlight windows for an impressive entry point. **Job cost: $8,358. ROI: 70%.**

BONUS INFORMATION

I. SEASONAL MAINTENANCE CHECKLIST

SPRING

- Unwrap pipes and turn on outdoor water.
- Check exterior home structure for damage.
- Repair or replace window screens.
- Inspect and lubricate garage door.
- Clean gutters.
- Clear outdoor drains and grates.
- Clear spa jets and pool filters.
- Clean and seal deck.

- Clean HVAC ducts.

SUMMER

- Repair and seal driveway.
- Check deck for rot and loose boards and make repairs.
- Repair and paint fencing.
- Paint home exterior.

FALL

- Remove fallen leaves from deck and home foundation.
- Clean gutters.
- Clean chimney.
- Blow water out of lawn sprinkler system pipes.
- Wrap exposed pipes and turn off outdoor water.
- Caulk windows and weatherize doors.
- Service HVAC system.

WINTER

- Check and repair bathroom caulking.

- Clean up yard debris after storms.
- Clear snow and ice from deck.
- Repair any interior drywall damage.
- Paint home interior.

II. HOW LONG WILL IT LAST? LIFE EXPECTANCY OF HOME COMPONENTS

Average Life of Home Appliances, Components, and Furnishings

Actual component life may be slightly more or less than the average, depending upon climate, upkeep, and quality of materials. Note that some materials, such as wood and asphalt, require more care than others. Note that hard water reduces the life of some appliances, such as water heaters. Figures for these assume regular care and maintenance.

Appliance	Average Years
Air conditioner, central	15
Dishwasher	9
Dryer, clothes	13
Furnace, gas	18

Furnace, oil	20
Heat pump	16
Oven, microwave	9
Range, electric	13
Range, gas	15
Refrigerator	13
Smoke alarm	10
Water heater, electric	11
Water heater, gas	10

Component	
Door, exterior, wood or Fiberglas	Life*
Door, exterior, vinyl	20
Driveway, asphalt	17
Fence, polyvinyl	Life

Fence, wood		20
Floors, bamboo		Life
Floors, carpet	9	
Floors, ceramic tile		88
Floors, concrete		50
Floors, hardwood		Life
Floors, laminate		20
Garage Door Opener	13	
Patio/Deck, untreated wood	20	
Patio/Deck, composite or treated wood		30+
Patio/Deck, brick or poured concrete		75
Roof, asphalt shingles		20
Roof, metal		50+
Roof, wood shingles	30	
Siding, stucco	75	
Siding, all other materials		Life

Fixture	
Bathtub/shower, composite	50
Countertop, marble	20
Countertop, all other materials	Life
Toilet Fixture	Life

Source: National Association of Home Builders and manufacturer's claims.

*"Life" in this context equals the life of your home's structure, not the resident's life!

III. THE BEST WAY TO HIRE HOME SERVICES CONTRACTORS

With luck, a successful home repair or remodeling job will foster a relationship for the life of your residency in your new home. Take the time to screen away professionals whose style or services are *not* right for you and to build a good foundation with the right person or company.

It is a good idea to compile a list of critical pros (plumber, electrician, handyman) as soon as you move into an area. *Who should I hire?* should be one of the first questions you ask friends and neighbors. If your form this list early, you won't find yourself scrambling to fill an immediate need with a contractor you don't know. That is never a good time to start a search! Your home inspector or Realtor can help point you in the right direction as well.

Where Do I Start?

First, prioritize the pros that you both know you need (pool? septic service? lawn?) and the main categories of plumber, electrician and handyman. Then:

1. Before you make inquiries, make a list of things that are important to you, such as quality of work and materials, cost, timeliness, professionalism, etc. Write out your ideas, specifications, and questions. This shows that you respect the contractors' time and are serious about hiring and getting quality work when you speak with them.
2. Start with three possible contractors and go from there. Ask friends and family who have had similar jobs done for referrals. Ask at a professional paint or hardware store for job-specific referrals. Use a local contractor rating service or online company that specializes in contractor referrals for some names.
3. Note whether your potential contractors are licensed and insured. If not, don't go there. DO NOT skip this step. Many do not have the proper licensing or insurance, and it is NEVER safe to assume.
4. Put in the calls and set up appointments to talk in person. If you don't hear back from an office in a day or two, move on. Contractors who have the time and want to serve their clients will respond promptly. If it seems that you can't get someone to come just for an interview, then find a small project for them to start on that can give you an indication of how they will be to work with.

TIP: The number-one complaint about the market today is slow "call-backs." This is quite common, even from "good" and highly recommended pros. It can be frustrating and may require some extra patience.

More About Where to Find Contractors

Free digital referral services are another way to connect with local contractors. Here are four national services that break down searches by local area:

- HomeAdvisor.com is an online referral service that presents pre-screened contractors to homeowners via search-engine technology. The company provides background checks and cost estimate guidance.
- Porch.com is a partner with Lowe's Home Improvement Centers that matches homeowners with local professionals. They offer "Home Assistants" that will be a rep for your needs and ask you questions about your project requirements.
- Amazon Home Services (through Amazon.com) takes referral a step farther by offering a hiring and scheduling service and taking payment via the Amazon website.
- NextDoor.com is a private social media platform focused on neighborhood news, service exchanges, and business referrals. It is customer driven by rating and comments and sorted by geographic neighborhood.

How to Choose the Best Professionals for Your Project

When hiring contractors, your best bet in getting what you want is *knowing what you want.* This is worth repeating. Do your homework before you call anyone. Look around your

neighborhood for ideas of what you like and don't like in upgrades. Talk to your neighbors. Surf online for more ideas. Then: get specific.

Write out a tentative plan and budget. You can compare your results to the bids you get from potential hirees and see which comes closest or which gives you better, more workable ideas. Set up a few columns on a page to write out what you must have, what you'd like to have, and what you definitely don't want. Get realistic about your budget. How much can you pay for up front? Are you willing to finance a project via credit cards or a home equity loan?

Now, drill down on your idea list and write out the job parameters that you are willing to accommodate. Leave the budget figures out. This is the project description you will share with potential contractors.

Resist the urge to conduct the rest of this process remotely! Because it's easy to communicate by text and e-mail, many people stop there. This is where misunderstanding and misjudgment creep in and put homeowners at risk. The very best thing you can do with the pool of possible pros you've assembled is to *talk with them in person.* You may have to work with these folks intensely or over long periods of time. You'd better: a) like them; b) trust them; and c) know you can get valuable service from them.

Here are some questions you can ask:

1. Could you tell me a bit about the history of your business? How many people work for you, and how long they have been with you?

2. Could you provide proof of license and insurance? (Don't just ask if they are licensed and insured.)
3. Will you be doing the work, or will one of your employees be doing the work? If the latter, how long have they been with you?
4. How do you set up a payment schedule with milestones?
5. What is the breakdown of projects that you do? (If they do mostly interior renovations and you want an addition, it may be a red flag that they are not the best fit.)
6. Do you have a good relationship with the local building inspector? Do you know him or her by name? (This can be a VERY important question.)
7. If we make a change in the middle of the project or if a problem comes up, how will you dealt with that?
8. Could you provide a couple of local references?

Take Bids, Accept the Best

First impressions are great, but written bids tell the true story—or least the prequel. Your next job will be to read as though you are studying for a test. Take notes! Look for how well each contractor interprets your project vision. Will they meet or exceed your expectations? Does the price fit your budget ballpark?

> **Tip: DO NOT use the bid amount as the sole determining factor on who to hire. Getting a discount on the bottom line may cost you down the**

road—with a bad timetable or shoddy workmanship—which are not worth a few dollars in savings.

Ask for References

For each bid you get, ask for a couple of references of people locally, if you were not previously referred to them directly by a friend (or even if you were!). Don't be offended if they will only give you an email address for first contact. Some states have different confidentiality requirements. Send the email and ask if you can schedule a phone call. Then, ask these particular questions, and you'll be better informed and save yourself headaches down the road:

1. Did they finish the job on time?
2. Were you happy with the net result?
3. Were they easy to reach by phone or text and were they responsive?
4. Did they keep the work area clean and organized (this may or may not be important to you)?
5. If you requested a change mid project (as they inevitably will) how did they deal with that in terms of difficulty and pricing?
6. If a problem came mid project (as they inevitably will) how did they deal with it?
7. Would you hire them again?

When you're ready to make a decision, move on to contract terms. You can secure templates through your referral service or purchase them from legal form websites. Be sure to select a template that refers to your state of residence. If you are using one that is provided by the contractor or home pro, be sure to read through it in full.

NOTE: It is important to phase projects with defined milestones and payments and not pay until the entire milestone is met. This protects you and helps ensure that you have money to hire someone else to finish the project, if it is not done to your satisfaction. Many homeowners get into trouble by being convinced to pay in advance of a completed milestone.

Finally, contracts are binding, but loopholes exist. The best way to get what you pay for is to personally supervise each phase of your project. You don't have to be an expert to determine whether a job is progressing. If you learn something about your home and how remodeling takes shape in the process, you will have achieved more than just an upgrade.

Acknowledgements

The following individuals and businesses across the home professional community provided valuable information and feedback.

Rob Claus, BrickKicker, Chicago, Illinois

Chris Guido, Town and Country Home Inspection, Montgomery, Texas

Gary Smith, Safe Home Inspections, Jackson, Mississippi

Al Lepinsky, HomeProFiled, Fredericksburg, Virginia