March 2017

Owner’s Manual

BUILT FOR:

Architect/Designer:

Name

Address

Town, State, Zip Code

Phone

Web Site

Builder:

Name

Address

Town, State, Zip Code

Phone

Web Site

Name

Address

Town, State, Zip Code

Template instructions

* Save a new copy of this document. For example, “Hanson – 123 Lincoln Ave – Williston”. This is so you don’t overwrite the template and can always have a blank version handy.
* Page through this entire document. Each time you see a section that’s highlighted in yellow, it means that you need to update it to match your building. Not everything in this manual will pertain to all of your projects.
* Once you’ve changed everything go to the Table of Contents page, click on the table, and click “Update Table” in the upper left corner. The page numbers will now match everywhere.
* When everything is ready, delete this instructions page and save the document.

Thank you to those who provided examples that were used in the creation of this template!

* Eco Homes of Vermont
* HELM Construction Solutions
* Unity Homes
* VERMOD Homes

Introduction

Welcome to your new home!

The home was designed to be comfortable, healthy, and efficient. This owner’s manual tells you how your home was built, what features it includes, and how to maintain it – in other words, it should help you get the most benefit from your home.

[Optional: Include this paragraph only if the home meets Efficiency Vermont’s High Performance Home tier]

Your home is certified as a High Performance Home (HPH). This means it was designed and built with superior insulation levels and airtightness. Other features, that far exceed current energy code, include triple-paned windows, a ventilation system with heat recovery to deliver fresh air to your home, and high efficiency heating equipment, appliances, and lighting. This home is expected to use a fraction of the energy of the average home in Vermont.

While the home incorporates many low-maintenance features, it is important to take steps to properly maintain your home – just as you’d bring your vehicle in for maintenance or visit your physician for an annual check-up. A maintenance schedule is included. We recommend that you keep a record of maintenance performed – not only to help keep everything in good condition, but also to help with resale value later on).

We’ve included the names of the main subcontractors, vendors, appliances, and other components of your home where possible.

To kick things off, here are some key pieces of information:

Year built: 2017

Builder: Bob Smith

Architect: Jane Smith

Square footage (total): 2100 sq ft

Square footage (by floor): Bsmt 800 sq ft, 1st floor 800 sq ft, 2nd floor 500 sq ft

Blower door number: 240 cfm50 [Tested by Efficiency Vermont on Feb 22, 2017]

*Note: Blower door number is a way to measure airtightness – the lower the better*

HERS index: 45

*Note: HERS index is a way to measure building energy use – the lower the better*

Please don’t hesitate to contact us if you have any questions or concerns.

The following companies and organizations contributed to this manual: Eco Homes of Vermont, HELM Construction Solutions, Unity Homes, VERMOD Homes, and Efficiency Vermont.

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# Making the most of your home

The ideal home is designed and built to help you stay comfortable and healthy while decreasing your energy and water usage. There is a lot that you, as a homeowner, can do to help out.

## Maintaining healthy air

Good indoor air quality results with ventilation that keeps pollutants like carbon dioxide, volatile organic compounds (VOCs), moisture, and other chemicals at low levels. You can improve air quality by:

* Avoiding scented candles, moth balls, and most air fresheners
* Avoiding smoking indoors – this includes “vaping”
* Choosing “zero VOC” paints, varnishes, and other finishes
* Using natural cleaning products without danger labels
* Selecting wood products/furniture with “no added urea-formaldehyde” (NAUF)
* Keep floors clean and dry

Much more information on air quality is available in the Ventilation, Green features, and Cleaning products sections of this manual.

## Keeping utility bills low

Here are some tips and tricks to further lower your utility bills:

* Use less hot water – shorter showers and setting washing machine to use cold water
* Run the dishwasher and/or washing machine only with full loads
* Consider line drying your laundry some of the time
* Keep windows closed in winter – your ventilation system will supply fresh air
* Replace filters in heating/cooling/ventilation equipment regularly
* Choose ENERGY STAR rated models when purchasing new appliances
* Use “Advanced” power strips for electronics and appliances that have standby losses

# Warranty

Note that normal expansion and contraction occurs with the change in seasons and can result in small cracks in paint, drywall, and the foundation – especially where tile grout meets the tub or sink, at mitered corners, and where moldings meet drywall. Wood inevitably shrinks and expands with humidity. These effects are usually most noticeable in the first year.

[Insert warranty here, if there is one.]

# Subcontractors

The following subcontractors worked on your home during its construction.

[Delete any sections that don’t apply or you don’t want to include – or add more if needed.]

|  |  |
| --- | --- |
| Trade | Name and contact information |
| Foundation | Andreas Whitaker123 Ash LaneBurlington, VT 05401555-123-4567[www.example.com](http://www.example.com) |
| Framing |  |
| Insulation |  |
| Roofing/sidewall |  |
| HVAC |  |
| Electrical |  |
| Plumbing |  |
| Septic |  |
| Water/well |  |
| Landscaping |  |
| Drywall/plaster |  |
| Painting |  |
| Tile installation |  |

# Primary material suppliers and services

The following suppliers, equipment, etc. was/were used during your home’s construction.

[Delete any sections that don’t apply or you don’t want to include – or add more if needed.]

|  |  |
| --- | --- |
| Trade | Name and contact information |
| Appliances | Andreas Whitaker123 Ash LaneBurlington, VT 05401555-123-4567[www.example.com](http://www.example.com) |
| Siding/exterior trim |  |
| Flooring |  |
| Windows |  |
| Doors |  |
| Kitchen cabinets |  |
| Countertops |  |

# Heating and cooling

[The purpose of this section is to briefly explain the home’s heating and cooling system(s), followed by some basic instructions and maintenance requirements. Three examples are provided: furnace (forced hot air), boiler, and heat pumps. Delete any sections that don’t apply for the home, then update highlighted areas.]

*All heating and cooling systems need maintenance, such as filter changes or annual tune-ups, to keep performance at optimal levels – which also positively impacts comfort, utility bills, and your air quality in your home.*

Your equipment is listed in the table below.

|  |  |
| --- | --- |
| Equipment type | Make and model |
| Boiler/furnace/heat pump | York MG2000 |
| Second unit (if applicable) |  |

[Hydronic/boiler system]

Your home is equipped with a hydronic (water-based) heating system. There is a boiler located in the basement, and the heat is distributed by radiant floor and/or baseboard and/or radiant panels. The system is made up of \_\_ zones, each controlled by a separate thermostat. The boiler uses propane/fuel oil/gas/wood pellets and has an AFUE (annual fuel utilization rating) of \_\_ (which is an efficiency measure that means \_\_% of the fuel is converted to heat for your home).

Hydronic heat has several advantages over forced hot air heating. For one, water has much greater heat capacity than air, so small water lines are used instead of large ducts, and heat can be transferred to your living area more efficiently. It also does not affect air pressure in the home, so you avoid impacts of an imbalanced hot air system (e.g. heat loss via forced air movement through gaps/cracks) and there is lower likelihood of stirring up allergens and dust and carrying them throughout the house. Overall, hydronic heat has a solid reputation for comfortable living conditions at lower cost than traditional heat systems.

You will find programmable thermostat(s) located in \_\_\_\_\_\_\_\_ location(s). Each controls the temperature in its designated area *and* can be set to automatically lower your home's temperature settings while you're away or sleeping to reduce your utility bills. Follow the manufacturer’s instructions to program your thermostat. Many homeowners who work outside the home during the day set thermostats to 68° when people are home, 60° when away or sleeping, and 55° or lower during vacations.

What a boiler does:

* Heats your home

Care and maintenance:

* Keep the area around the boiler clear of combustible materials
* Keep the outdoor air intake and exterior vents free of obstructions
* If you have baseboards, dust or vacuum fins every 3 months and replaced any damaged ones
* Have a professional tune-up once a year

[Forced air/furnace system]

Your home is equipped with a centralized—or furnace—forced air heating system. There is an integrated furnace and air handler located in the basement, and the heat is distributed by ductwork throughout the house. The rooms and open areas of your home have both supply and return grilles/registers, designed to allow for good air circulation. The system is made up of \_\_ zones, each controlled by a separate thermostat. The furnace uses propane/fuel oil/gas and has an AFUE (annual fuel utilization rating) of \_\_ (which is an efficiency measure that means \_\_% of the fuel is converted to heat for your home).

Your furnace has an electrically commutated motor (ECM), which is efficient and capable of moderating blower speed (and energy usage) during shoulder seasons (spring/fall).

You will find programmable thermostat(s) located in \_\_\_\_\_\_\_\_ location(s). Each controls the temperature in its designated area *and* can be set to automatically lower your home's temperature settings while you're away or sleeping to reduce your utility bills. Follow the manufacturer’s instructions to program your thermostat. Many homeowners who work outside the home during the day set thermostats to 68° when people are home, 60° when away or sleeping, and 55° or lower during vacations.

What a furnace does:

* Heats your home

Care and maintenance:

* Keep the area around the furnace/air handler clear of combustible materials
* Keep the outdoor air intake and exterior vents free of obstructions
* Avoid placing furniture on top of heating grilles/registers
* Replace filter every 3 months
* Have a professional tune-up once a year

[Heat pump system]

Your home is equipped with a cold-climate-tested heat pump system. A heat pump is a device that transfers heat energy from a source of heat to a destination. In heating mode, it will absorb heat from outdoors—even when it is cold out—and release it to the inside of your home. Since it is using heat from the external environment (the inverse of what a refrigerator does), it requires a relatively small amount of electricity to operate (typically 1/4 to 1/3 the amount of what a heating element would require).

Your system consists of:

\_\_ Compressor/condensing unit(s) located outside

\_\_ Wall-mounted unit(s) (called heads) – these are separately controlled and located in \_\_\_, \_\_\_, and \_\_\_ locations

\_\_ Distribution unit(s), which is connected to short duct runs that supply air to \_\_\_, \_\_\_, and \_\_\_ locations

What a heat pump does:

* Heats, cools, and dehumidifies your home

Care and maintenance:

* Keep the outdoor compressor/condensing unit(s) free of ice, snow, and debris
* Hand wash and dry filters once every 3 months, or as needed

Note that different heat pumps have different “optimum” settings for maximum efficiency and comfort, and there is typically no advantage to nighttime “setbacks.” For tips, check out one of these guides:

* Efficiency Vermont and the Neighborworks Heat Squad: “Getting the most out of your Cold-Climate Heat Pump Heating and Cooling System” available online at <https://contractors.efficiencyvermont.com/Media/Default/docs/programs/efficiency-vermont-cold-climate-heat-pump-homeowner-guide.pdf>
* Efficiency Maine: “Heat Pump User Tips” available online at

<http://www.efficiencymaine.com/docs/Heat-Pump-User-Tips.pdf>

# Ventilation

For good ventilation, your home relies on windows, bathroom fans, a range hood fan, and a ducted heat/energy recovery ventilation (HRV or ERV) system.

This home was built to a high level of airtightness, which translates to lower energy use, increased durability, and a more comfortable, draft-free home. Vermont homes often have windows open for much of the summer (especially at night) and in the warmer seasons. During the cooler seasons, when your windows are generally closed, your mechanical ventilation system helps control the build-up of “stale” air, odors, carbon dioxide, and excess humidity and other pollutants.

**Exhaust fans**

Your home is equipped with bathroom and range hood exhaust fans. These fans are important for removing excess humidity—due to activities such as showers or boiling water in the kitchen—which can cause condensation, mold growth, and other problems. They also help with other pollutants that affect your air quality and, potentially, your health. Your exhaust fans are equipped with timers so they will shut themselves off automatically which can save on electricity and minimize the amount of heated air you lose to the outdoors.

[Leave this paragraph below in if the house has an exhaust only ventilation system]

This home has an exhaust-only ventilation system, which is a code requirement and requires the fans to run for a certain amount of time each day to provide a minimum amount of ventilation. In your home, these fans and timers are located in the \_\_, \_\_, and \_\_. The timers have been set to run for \_\_ hours each day in \_\_ minute/hour increments. These settings should only be changed if you experience condensation on windows (try increasing run time) or uncomfortably dry conditions (try decreasing run time). Because exhaust-only systems generally will slightly depressurize your home, it’s a good idea in the case of attached garages to ensure that the garage-house door is well-sealed and to avoid idling a vehicle in the garage.

 [Leave the section below in if the house has an H/ERV system]

**Heat/energy recovery ventilator**

Your home has a “balanced” ventilation system, meaning that you are not only getting rid of moisture and other pollutants, but you are also getting fresh outdoor air delivered to your living spaces. This represents a best practice in building design and construction.

A heat-recovery ventilator (HRV) or energy-recovery ventilator (ERV) is important in a tight, well-insulated, and energy-efficient home, as it provides a constant supply of fresh air without losing much heat. It does this (in winter) by using heat in the outgoing stale air to warm up the fresh air coming in. HRVs allow heat transfer only, while ERVs allow heat *and* moisture transfer, but often at the cost of a slight reduction in efficiency. An efficient HRV or ERV can recover up to 85% of the heat in the outgoing airstream, which can also help to reduce your utility bills – especially in comparison to opening windows or running an exhaust system. These systems can also be effective in keeping particulates such as pollen or dust out of your home, as many have an option for a special pre-filter. You will notice grilles/registers throughout your home. Fresh air is *delivered* to your bedrooms and \_\_\_ while stale air is exhausted from bathrooms and \_\_\_.

The controller for your HRV/ERV is located in \_\_\_. The bathroom has a boost timer switch to provide high-speed exhaust for a short period of time.

|  |  |
| --- | --- |
| Equipment type | Make and model |
| ERV or HRV | Zehnder ABC2000 |
| Second unit (if applicable) |  |

What an HRV or ERV:

* Provides ventilation for your home

Operating your HRV/ERV:

* Turn the system OFF when the home is unoccupied
* Turn the system OFF when the home is occupied and windows are open – the bathroom boost timers will still operate the unit as a bathroom exhaust
* Use the push button boost timers in the bathrooms for high-speed ventilation of shower moisture or bathroom odors

Care and maintenance:

* *Exhaust fans*: Dust as needed
* *Kitchen range hood*: Clean the grease filters and blower wheel in a sink of warm soapy water, and let soak for a few minutes. Wash with a sponge or dishcloth, rinse, and let drain before reinstalling. Alternatively, they may be placed into a dishwasher. The cleaning process will depend on the how frequently the fan is used. Every 12 months for a home that is occupied all year (vs. a vacation home or seasonal camp) is a typical rule of thumb.
* *HRV or ERV*: Filters should be changed/cleaned (depending on the filter type) every 3-6 months, and the heat/energy exchanger core should be cleaned once a year. The additional pre-filter, if installed, may need to be changed more frequently.

# Hot water

[Include this section if the home has a heat pump water heater]

Your home is equipped with an electric heat pump water heater. These water heaters are 2-3 times more efficient than a standard water heater, taking heat from the surrounding air and transferring it to water in the tank. They cool and dehumidify the air in the room where the unit is located.

It can be operated in two modes – Efficiency or Hybrid:

* Efficiency (or heat pump only) mode relies purely on the heat pump. It uses the least electricity, but takes longer to heat water, and will cool the surrounding room more.
* Hybrid uses an electric coil to heat more quickly, but it is far less efficient—only use this mode if you frequently run out of hot water or if the water heater room is getting too cool for comfort.

|  |  |
| --- | --- |
| Equipment type | Make and model |
| Heat pump water heater | Rheem ABC2000 |
|  |  |

What a heat pump water heater does:

* Heats water for your home

Care and maintenance:

* Keep the area around the water heater clear of any objects that may obstruct air flow
* Hand wash and dry filters once every 3 months, or as needed
* Insulate water pipes to increase heating efficiency and reduce water consumption

# Electrical, lighting, and other systems

[Remove any sections here that are not applicable to this home. Few homes will have all of these items.]

**Outlets**

If anything electrical in your home is not working, there are two places to check first: GFCI outlets and the circuit breaker. Your home has GFCI outlets in key locations. These have a built-in circuit breaker which can trip if the circuit is overloaded or there is a short circuit. They are installed in potentially wet locations (kitchen, laundry, bathrooms, outside, etc.), so if an outlet is not working in one of these locations, look for a GFCI outlet in the vicinity. They can be recognized by the two small buttons in between the two plug-ins. Look for a small light to be lit up if the GFCI has tripped, and press the button labeled “Reset.”

If this doesn’t work, the second thing to check is to open the circuit breaker panel, looking for a breaker in the “Off” position. Consulting an electrician is recommended if you’re uncertain.

**Lighting**

Your home has LED-type light bulbs that are ENERGY STAR certified. This designation ensures low energy consumption, long life span, and versatility. They last 25 times as long as the incandescent bulbs that many of us grew up with! However, we recommend only installing ENERGY STAR-labeled bulbs, as other options may not last very long, flicker, or cannot be dimmed. When you need to replace bulbs, note that you can purchase “Warm” or “Cool” versions depending on your light preference.

If you have CFL-style bulbs, please note that they contain a small amount of mercury sealed within the glass tubing. If a CFL bulb breaks, some of this mercury may be released as mercury vapor and should be cleaned up and disposed of based upon EPA guidelines.

**Smoke Detectors**

Your smoke detectors are “hardwired”—that is, they get their current from the building’s wiring. In case of a power failure, they have a backup battery.

* Check detectors periodically by pushing the button on the bottom
* Replace the back-up battery according to the manufacturer’s suggestion (some people schedule battery replacement by doing it when they are also changing clocks to reflect daylight savings time changes).

**Solar electric**

Your photovoltaic (PV) system converts sunlight into electricity. When the sun shines on the PV panels, which are located on your roof/ground mount system, direct current (DC) electricity is sent to the inverter, located in your utility room/basement. The inverter converts DC electricity to alternating current (AC), which goes back to the utility or to your main circuit panel. Your system produces much more electricity in summer due to longer days and the sun being higher in the sky.

The PV system lowers your energy usage (which also helps to reduce pollution) and, therefore, your electricity bills. This is a grid-tied system, which means the utility still provides electricity to your home so you don’t need as large a system to be “net zero.” Grid-tied systems do not require batteries for storage (and they do not operate during system-wide power outages).

What your PV system does:

* Produces electricity for your home use. Excess electricity is sent to your electric utility and you are provided with credit for use when generation is insufficient to meet household needs.

Care and maintenance:

* You can clear snow from the panels in the winter; however, it is not necessary and should be done infrequently to avoid damaging the anti-reflective coatings.
* If there is a problem with the system, an “Error code” may be displayed on the inverter. Contact your installer for maintenance as soon as possible to minimize production losses.

**Monitoring system**

Your house is equipped with monitoring equipment that is capable of tracking electricity usage, temperature, air quality, etc. These sensors can check “vital signs” of your house in much the same way a patient is monitored at a hospital. They can be used to check indoor air quality, temperature variations between rooms, and provide feedback on the efficiencies of heating, ventilation, and appliances.

What it does:

* Monitor mechanical systems and indoor conditions

Care and maintenance:

* If you have web access to your system, check the website periodically. If you see any errors or problems, contact the installer or provider.
* Services may require a regularly-paid subscription.

# Major appliances

All of your appliances are ENERGY STAR-labeled, which means they’ve passed certain requirements for energy efficiency and durability.

See individual instruction manuals for details on operation and maintenance. A few basic guidelines are listed below.

|  |  |
| --- | --- |
| Appliance | Make and model |
| Dishwasher | KitchenAid MG2000 |
| Range/oven |  |
| Range hood |  |
| Microwave |  |
| Refrigerator |  |
| Washing machine |  |
| Dryer |  |

Care and maintenance:

* Regularly clean your appliances
* Clean the dryer lint trap after use and periodically check pipe to ensure there is not build up

(Please note that high-efficiency condensing or heat pump dryers may have different requirements)

* Maintain seals on refrigerator and washing machine, wiping down if dirty/moldy and replacing as needed
* Vacuum/dust the coils on the back of the refrigerator once a year to increase efficiency
* Clean grease traps and filters on your range hood
* An easy, toxic-free way to clean the interior of the oven is to avoid the self-cleaning function of the oven – instead cleaning spills by covering with baking soda, spraying it with water until damp, leaving on overnight, and wiping away the next day

# Maintenance

Maintaining the various systems in your home helps to keep utility bills low, reduce likelihood of damage, improve safety, provide good air quality, and keep up resale value. The list below is a suggestion of maintenance items. It may be useful to print out as a checklist to help keep track of items.

[Add/remove items from the list below as needed, making sure to update the Frequencies to align with manufacturer recommendations – what’s listed below is only general.]

**Upkeep, appliances, safety**

|  |  |  |  |
| --- | --- | --- | --- |
| Category | Task/notes | Who? | Frequency |
| Appliances | Clean dryer lint filter | Owner | Every time |
|  | Clean range hood filter and grease traps | Owner | Every month |
|  | Clean dryer vent | Owner | Fall & Spring |
|  | Dust or vacuum refrigerator coil | Owner | As needed |
|  | Check seals on appliances and replace as needed | Owner | Every year |
| Electrical | Check smoke detector operation | Owner | Every month |
|  | Replace smoke detector back-up battery | Owner | 2x/year |
|  | Replace carbon monoxide detector back-up battery  | Owner | 2x/year |
| Water & septic | Pump septic tank | Contractor | Depends |
|  | Maintain water filtration system | Owner/contractor | Depends |
| Outdoors | Clean rain gutters | Owner/contractor | Fall & Spring |
|  | Mulch or cover plants/trees for winter protection | Owner/contractor | Fall |
|  | Check for signs of rodents, birds/bats, insects around penetrations | Owner | Spring |
|  | Cut back plant growth within 24” of home | Owner | As needed |
| Miscellaneous | Seal cracks and holes with caulking | Owner | As needed |
|  | Seal/re-treat countertops | Owner | Every year |
|  | Look for signs of leaks around windows and doors | Owner | Spring |
|  | Install window screens | Owner | Spring |
|  | Inspect and adjust door weather stripping | Owner | Fall & Spring |
|  | Remove and store window screens | Owner | Fall |
|  | Drain outdoor faucets and hoses | Owner | Fall |

**Heating, ventilation, hot water, and cooling**

|  |  |  |  |
| --- | --- | --- | --- |
| System | Task/notes | Who? | Frequency |
| Heating-furnace | Clean or replace furnace filters (in heating season) | Owner | Every month |
|  | Clean snow & debris from air intakes and exhausts | Owner | As needed |
|  | Furnace (and A/C) maintenance / tune-up | Contractor | Every year |
| Heating-boiler | Dust or vacuum baseboard fins | Owner | As needed |
|  | Clean snow & debris from air intakes and exhausts | Owner | As needed |
|  | Change condensate drain marble cartridge | Contractor | Every year |
| Heating-heat pump | Clean heat pump filters | Owner | Every month |
|  | Check to make sure there is no snow build-up around the exterior heat pump compressor (in winter) | Owner | Every week |
| Wood stove | Clean chimney | Contractor | Every year |
| Hot water | Drain water from bottom of tank to remove sediment | Owner/contractor | Fall & Spring |
|  | Check hot water storage tank piping, pressure relief valve, and drain  | Owner/contractor | Every year |
| Ventilation | Clean HRV or ERV filters | Owner | Fall & Spring |
|  | Check outdoor fresh air intake and exhaust hoods | Owner | Every month |
|  | Check control settings – update if necessary | Owner | Every month |
|  | Clean heat exchanger core | Owner | Once a year |
|  | Clean ductwork | Contractor | As needed |

# Green features

The following Green features were used in the construction of your home:

[The list below includes many design elements that we commonly see. Feel free to Add/Delete as necessary]

**Health-related items**

* Hardwood (non-laminate) flooring is installed
* No carpeting is used
* Foam-free wall insulation (or other insulation example)
* Zero-VOC paint on all interior surfaces
* Balanced ventilation system to supply fresh air and recover heat from exhaust air
* Countertops are quartz/granite/etc., certified to have no VOCs or formaldehyde
* Kitchen and bathroom cabinets are certified NAUF (no added urea-formaldehyde)

**Durability, environment, and water-related items**

* Trusses/studs/etc. are FSC/SFI certified
* Locally-milled wood used for \_\_\_\_\_
* Low-flow (WaterSense) toilets, showerheads, and faucets to save water
* Salvaged door / bathtub / \_\_\_\_ installed
* Exterior roof has 24” overhang to help protect and preserve siding/stain/windows/trim
* No landscaping plants are within 24” of the foundation to protect the home from moisture damage
* Decking has XX% recycled content
* During construction, waste was carefully separated and all wood/metal/etc. was sent to a recycling facility

# Cleaning products

Cleaning your home helps to remove harmful contaminants such as mold, bacteria, and chemicals. However, many conventional cleaning products can create problems – especially for young children, the elderly, and people with allergies or compromised immune systems. According to the EWG Guide to Healthy Cleaning, some household cleaning products can expose users to toxic substances linked to short- and long-term health problems, including asthma, allergic reactions and even cancer, and “quite a few cleaning products that line store shelves are packed with toxic chemicals.”[[1]](#footnote-1) Fortunately, it’s getting easier to find alternative / non-toxic cleaning products at many hardware and grocery stores. The guidelines below are not complete or set in stone, but can help point you in the right direction:

* Look for products that are labeled “Non-toxic,” “Low-VOC” or “Zero-VOC,” and/or “Biodegradable”
* Look for unscented or naturally scented products when possible
* Consider “DIY” cleaning products that can be made with common household products like dishsoap, vinegar, baking soda, etc.
* Avoid products labeled “Danger-Poison”—those labeled “Warning” and “Caution” are less dangerous but can still be hazardous
* Avoid products labeled “Corrosive,” “Severely Irritating,” “Highly Flammable,” or “Highly Combustible”
* Avoid aerosols when possible
* Avoid most “air fresheners,” as many have high VOC or other chemical content

For further guidance and to check on thousands of common products that have been tested for safety, check out the EWG guide to cleaning products at <http://www.ewg.org/guides/cleaners>.

# Appendix

The following additional information is provided with this manual.

[For items you will provide, insert them in a 3-ring binder with this printed manual.]

[For items you will not provide, delete them from the list below.]

* Home Energy Rating certificate
* RBES (Residential Building Energy Standard) certificate
* Plans for construction
* Warranty information
* Diagrams and photos (for example, showing shut-off valve locations and other important info)
* List of common hazardous materials
* Plumbing cut sheets
* Heating equipment manual
* Ventilation equipment manual
* How water equipment manual
* Window and door manual or warranty
* Overhead garage door manual or warranty
* Appliance manuals
1. http://www.ewg.org/news/news-releases/2012/09/10/ewg%E2%80%99s-online-guide-healthy-cleaning [↑](#footnote-ref-1)