Westview Village III

LEED for Homes
Operations and Maintenance
Resident Manual
2023

U.S. Green Building Council

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In the LEED for Homes program, the Project Team must educate the homeowner (and/or tenants) on the specific LEED for Homes-related equipment installed (per prerequisite AE 1.1 of the LEED for Homes Rating System). This training includes the unique operations and maintenance requirements for that equipment. USGBC developed this manual to complement the educational activities of the project team. However, the information in this manual is general in nature and may not address all of the features in a LEED-certified home. Further, this information is not intended to supersede the Project Team's instructions.

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A description of each of these tips is presented in Parts 2 and 3 of this manual.

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Quick Look-Up (cont'd)

Summary of Suggested Operations and Maintenance Tips

A description of each of these tips is presented in Parts 2 and 3 of this manual.

	Maintenance Task	Season				Every Few Years
		Winter	Spring	Summer	Fall	
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Part 1

Introduction to Your Green Home

- ✓ What are Green Homes?
- ✓ Your Role in Keeping Your Home Green
- ✓ Emergency Information and Safety Tips
- ✓ Purpose and Structure of this Manual

What are Green Homes?

Generally speaking, a green home is designed and built to be:

Healthy,
Comfortable,
Durable,
Energy efficient, and
Environmentally responsible.

A common misconception is that all new homes, built to the minimum building codes, are high quality and high performance homes. However, many new homes do not achieve several of the benefits listed above. Green homes are built to substantially exceed the performance levels offered by conventional, code-compliant new homes.

Also, while many new homes may claim to be green, they differ in how thoroughly they achieve the benefits above. In other words, they achieve different degrees of green, depending on the degree to which they deliver these benefits.

Why Green Homes?

Homes have a very significant environmental impact. According to the U.S. Department of Energy, all homes in the U.S. account for:

22% of the total energy consumed; and
21% of carbon dioxide emissions.

Also, certain indoor air pollutants can often be four to five times higher than outdoor levels. Construction and demolition waste (including both residential and commercial buildings) represents 40% of the solid waste in the U.S. Homes also have a significant impact on the amount of water consumed, on the amount of chemicals (e.g., fertilizer, pest control chemicals) that can damage nearby water bodies, and other consequences.

Shifting towards the design and construction of more sustainable homes can have enormous benefits for the environment, as well as for the occupants.

What is LEED for Homes?

LEED for Homes is a voluntary rating system administered by the U.S. Green Building Council (USGBC). USGBC is a non-profit organization that promotes the design and construction of high performance green buildings. To be certified under the LEED for Homes program, a home must:

- Include several required green measures ("prerequisites") (e.g., achieve energy efficiency at least 15%[1] better than conventional homes), and

[1] Homes must be 15% more efficient in mild & moderate climates and 20% more efficient in cold climates.

- Include many additional green measures. These are chosen by the builder from a variety of optional measures ("credits") to earn points. A project must earn a minimum number of points to achieve certification.

The program includes several additional requirements as well, such as verification by a LEED for Homes Green Rater. The LEED for Homes Green Rater is not associated with the project team (i.e., this person is a "third-party") and he or she has training in verifying green homes. In the verification process, the LEED for Homes Green Rater confirms that:

- All of the required green measures are installed in the home (by visual inspection), and
- The performance level of the home meets the program requirements (by physical testing of the home's air leakage, duct leakage, etc.).

For more information on the LEED for Homes program, go to:

www.usgbc.org/LEED/homes

Your Role in Keeping Your Home Green

Most people know that cars need regular maintenance, like periodic oil changes and keeping tires properly inflated. Regular maintenance helps to keep a car running longer, more safely, and more efficiently. Similarly, your home needs regular maintenance to prevent equipment malfunctions, minimize health risks, and keep it operating as efficiently as possible.

A green home may also have special features that you may be unfamiliar with. Some of these special features have operations and maintenance requirements that will help to ensure that your home remains environmentally responsible and resource efficient throughout its lifetime.

This manual provides operations and maintenance tips on how to keep your new LEED-certified home healthy, comfortable, durable, efficient, and environmentally responsible.

Emergency Information and Safety Tips

This section offers emergency and safety tips that are important for any home. These tips are meant to be a brief summary and not a complete list. For more detailed emergency and safety information, go to:

U.S. Fire Administration	www.usfa.dhs.gov/citizens
Home Safety Council	www.homesafetycouncil.org/index.asp

Emergency Information

Immediately after moving into your home, take a few minutes to do the following. Don't wait until you have an emergency!

- Locate central shut-off valves for each of the following:
  - ✓ Water supply;
  - ✓ Electricity supply; and
  - ✓ Heating fuel (e.g., gas, oil, propane).
- Find the number for your local poison control center, especially if you have small children.
- Locate the nearest hospital emergency room(s).
- Contact local authorities for emergency suggestions for local and regional natural disasters (e.g. flood, hurricane, tornado, earthquake). Identify fire escape routes, particularly in large homes or multifamily buildings.

Safety Tips

- Regularly replace batteries in smoke alarms and check that they are functioning.
- Periodically check electrical cords, plugs, outlets, and other equipment for damage, and replace as needed. Also, don't overload electrical circuits.
- Keep the area around furnaces, hot water heaters, and other combustion equipment clean and free of clutter to help prevent fires.
- Never use any unvented combustion equipment inside your home or garage, such as barbeque grills, camping stoves, kerosene heaters, etc. These can release large amounts of deadly carbon monoxide inside your home.
- Inspect your hot water equipment annually for rust, disconnected vents, or other signs of a problem. For example, the pipe carrying exhaust from a hot water heater may become cracked or disconnected over time, which can cause carbon monoxide to be released into the home, or a fire.
- Set your hot water heater at or below 120^{o} F. This is recommended by the Home Safety Council for safety[2], and it will also save energy.

[2] http://homesafetycouncil.org/SafetyGuide/sg_water_w003.asp

Purpose and Structure of this Manual

A list of all of the measures installed in your LEED-certified home is shown in the Project Checklist in Appendix A of this document. Further information on these measures can be found in the LEED for Homes Rating System[3]. Note that builders have some flexibility in which green measures (or LEED credits) they install in each LEED-certified home. Some of the features described in this manual may not be included in your LEED-certified home. Review the LEED for Homes checklist that was filled out specifically for your home to find out which features are installed.

The purpose of this document is to:

Part 2. Highlight the operation and maintenance procedures for the LEED for Homes measures that are installed in your home. Note that many of the LEED for Homes measures installed in your home should not require any operations or maintenance. For example, insulation that is more effective than what is required by code is installed behind the drywall. This and other measures installed behind the drywall should provide their intended benefits throughout the life of your home, without the need for maintenance. Features that do not require maintenance are not included in this manual.

Part 3. Describe operation and maintenance information for special LEED features that your builder has installed in your home. Your builder has included these special features to substantially improve the overall performance of your home.

Part 4. Suggest resources if you decide to do a renovation or addition to your home.

Part 5. Provide green lifestyle tips. Your LEED-certified home includes many measures for *efficiency* (i.e., getting more useful output, such as light, hot water, etc. for the amount of energy supplied). You can further reduce energy and water bills, and your environmental footprint, by following basic measures for *conservation* (i.e., using less energy, water, and other resources). In addition, the day to day behavioral choices that you make in other areas of your life, such as transportation, cleaning, and purchasing, can greatly affect your overall environmental footprint. The green lifestyle tips suggest behavioral choices that will help you live more sustainably, and that will often help save you money as well.

[3] The LEED for Homes Rating System can be downloaded at no charge from www.USGBC.org/LEED/homes.

Part 2

How to Maintain the Green Features in Your Home

Operations and Maintenance Tips for:

- ✓ Indoor Pollutants
- ✓ The Exterior Structure or Envelope
- ✓ Interior Durability and Finishes
- ✓ Lighting and Appliances
- ✓ Heating, Cooling, and Ventilation Systems
- ✓ Plumbing
- ✓ Your Garage
- ✓ Your Yard

How to Maintain the Green Features in Your Home

This section includes operation and maintenance tips for LEED for Homes features installed in your home that require some upkeep or user operation. Keep in mind:

- The maintenance requirements for your home are specific to the types of systems that are installed in your home. It is very important for you to be familiar with the product manufacturer's specific recommendations for each system (see Appendix B).
- Many of the features in your LEED-certified home will not require maintenance, so they are not described here. But many still require that you use them properly in order to fully reap their benefits. For example, if your LEED-certified home includes dual flush toilets, this feature will only conserve water if everyone in your home uses the partial flush feature when appropriate. Review the LEED for Homes checklist (Appendix A) that was customized for your home to familiarize yourself with which green measures are installed in your home.

This section is organized by the systems in your home. Each section includes information on:

- Why this system is important;
- Tips for operating and maintaining the system; and
- Websites that provide additional information and maintenance tips for the system.

2.1 Indoor Pollutants

There are many potential sources of pollution in any home. For example, combustion equipment (anything that burns fuel, such as a gas-fired water heater or wood stove) releases carbon monoxide. Fireplaces and cooking can release small airborne particles, which can cause breathing problems, especially for people with asthma.

In general, indoor pollution can be controlled by:

- Reducing the amount of pollutants that are generated (for example, by not having a fireplace, or by using a fireplace that is cleaner burning); and
- Diluting pollutants once they are created, by bringing in fresh air (ventilation) or removing polluted air with exhaust fans and vents.

Combinations of these pollution control methods are used in LEED-certified homes. But you can further reduce pollutants in your home through operation and maintenance.

This section includes suggestions to help to control the following indoor pollutants:

- Carbon monoxide;
- Radon; and
- Airborne particles.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is generally released during combustion (e.g., burning of a fuel in equipment like cars, gas-fired appliances, and fireplaces). At high levels, CO can cause health problems, such as headaches and nausea. At very high levels, CO will cause death. LEED-certified homes include CO monitors, which can help warn if there are dangerous levels in your home.

As mentioned in the Emergency Information and Safety Tips, **never bring an unvented combustion source, like a barbeque grill, into the home.** Vented combustion sources, such as hot water heaters, have a pipe that carries carbon monoxide and other combustion pollutants out of your home. Equipment, such as barbeque grills, camping stoves, kerosene heaters, etc., will create carbon monoxide and other dangerous pollutants. Because the equipment is unvented, the pollutants cannot escape the home. The carbon monoxide can quickly build up in the home and become dangerous.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Check/Replace batteries in smoke and carbon monoxide alarms.* Replace the batteries regularly in your carbon monoxide alarm. If the alarm goes off, contact a professional to find and fix the problem immediately.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credit:

- Indoor Environmental Quality (EQ) 2: Combustion Venting

Radon

Radon is a naturally occurring gas that is emitted from soil. Different soils emit radon at different rates. Exposure to radon is the #1 cause of lung cancer among non-smokers in the U.S.

Homes can be built with radon resistant construction techniques to reduce the amount of radon that enters your home from the soil below. This includes a radon vent pipe, which runs from below your home to the outside (generally through the roof). LEED-certified homes that are constructed in areas that have been found to have high levels of radon in the soil (in Radon Zone 1) are required to incorporate these radon-resistant construction techniques. LEED-certified homes in areas that have moderate or low levels of radon in the soil (in Radon Zones 2 and 3) are encouraged to be built with these techniques. In general, this system works without any maintenance on your part. However, periodically check that the radon vent pipe is not blocked (e.g., clear of leaves). In some homes, the pipe will vent out through the exterior wall, instead of through the roof.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Test your home for radon.* The best way to ensure that your home does not have a radon problem is to perform a simple test. Radon test kits are available at your local hardware store. The U.S. Environmental Protection Agency provides guidance on how to conduct the test. If the test shows high levels of radon (above 4 picoCuries per Liter of air [pCi/L]), you should hire a radon professional to install a radon mitigation system. If your home was built with radon resistant construction techniques, then it can be modified with an exhaust fan to make it more effective.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credit:

- Indoor Environmental Quality (EQ) 9: Radon Protection

Airborne Particles

Airborne particles are common pollutants in the home. Airborne particles eventually settle out of the air and become dust on a surface. But small particles take a long time to settle out, and they can easily be kicked up into the air again (i.e., re-suspended) with activity. Airborne particles can be inhaled, causing health problems such as asthma. Some particles contain allergens, lead, or other components that can cause additional health problems.

LEED-certified homes include several measures to reduce airborne particles:

- One way that particles are transported into homes is by people tracking them in on shoes. Many LEED-certified homes include walk-off mats and shoe storage areas at each entryway.
- Cooking – especially frying – generates particles[4]. All LEED-certified homes include kitchen exhaust systems that exhaust particles, humidity, and other pollutants from your home. Use this fan whenever you cook.
- Fireplaces are a common source of particles in the home. Many LEED-certified homes do not have fireplaces, or have a fireplace or woodstove with sealed combustion to reduce the amount of pollutants indoors.

Your use and maintenance of features installed in your home are important in keeping them working effectively.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Clean or replace walk-off mats at all entries.* Walk-off mats are designed to trap dirt and keep it out of the home, and by helping to remove dirt from shoes. However, if not cleaned and replaced regularly, walk-off mats can become a source of particles.

[4] Wallace, L.A., et al. Environmental Science & Technology. 2004 Apr 15;38(8):2304-11. "Source strengths of ultrafine and fine particles due to cooking with a gas stove."

2. *Vacuum all carpets at least weekly, clean annually*. While it is common knowledge that carpets should be vacuumed, most homeowners vacuum far less frequently than what manufacturers recommend (at least once per week, and more often in high traffic areas). The Carpet and Rug Institute also recommends that carpets be professionally deep cleaned every 12 to 18 months.

~~3. *Check/clean fireplace and chimney*. If your home has a fireplace, check the chimney to ensure it is not blocked by leaves, nests, or other debris. In general, the U.S. Environmental Protection Agency (U.S. EPA) recommends that wood-burning appliances and chimneys should be professionally inspected and cleaned each year.[1] This will remove the build-up of soot, and keep it in a safe operating condition. If your fireplace is not drafting effectively (i.e., smoke enters the room when your fireplace is being used), stop using it immediately. Have a professional inspect it, and if needed, clean or repair it.~~

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credits:

- Indoor Environmental Quality (IEQ) 2: Combustion Venting
- Indoor Environmental Quality (IEQ) 8: Contaminant Control

Additional Information

For more information, resources, and tools related to minimizing your exposure to indoor pollutants, visit:

US EPA's Indoor Environments Division (EPA IED)

www.epa.gov/iaq/combust.html

www.epa.gov/iaq/co.html

www.epa.gov/radon/pubs/citguide.html

The Carpet and Rug Institute (CRI)

www.carpet-rug.org/residential-customers/cleaning-and-maintenance/basic-cleaning/index.cfm

2.2 The Exterior Structure or Envelope

Your home is designed to protect you from conditions outside, including heat, cold, wind, and rain. LEED for Homes focuses on improving the performance of 3 aspects of the exterior structure (or exterior envelope) of your home:

- The thermal performance (heat flow resistance);
- The air-tightness (air flow resistance); and
- The water-proofing (moisture flow resistance).

This section includes operations and maintenance suggestions for the exterior structure of your home. Additional sources of information on exterior structures are listed at the end of this section.

Overall Durability of Exterior Structure

The exterior of your home, including the roof and siding, acts like your body's skin. It is the first line of defense in protecting your home from rain, cold air, pests, and other things best kept outside. It is important to keep the exterior in good condition.

If water penetrates into the structure of the building, it can cause damage (e.g., wood rot), which is a major safety concern. It can also reduce the effectiveness of materials such as insulation. In general, water should drain away from your home, and it should do so as quickly as possible. Water that pools on a surface can eventually leak through cracks in the surface, potentially causing damage to the structure.

Your LEED-certified home's builder is required to consider the durability risks at your home's site, and to design and build your home to mitigate these risks. (See the LEED for Homes durability forms in Appendix A.) All LEED-certified homes also have water resistant materials in wet areas, such as bathrooms, kitchens, and entryways.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Check / repair all exterior caulking, weather-stripping, and paint.* Check and repair the sealing of the exterior of your home, especially around joints, windows, doors, trim, and plumbing and utility openings. Re-seal with caulk, window putty, weather-stripping, and other air sealing materials. Materials such as caulk and weather-stripping are inexpensive and can save you considerable money in energy bills. By keeping your home well sealed, you will also help prevent pests from entering.

   Check the paint, siding, and other materials on the exterior of your home for damage every few years. Peeling paint should be sanded and repainted. Follow manufacturer's instructions when repainting to avoid more paint peeling in the future. If peeling continues, there may be a moisture problem. If so, contact a professional that specializes in fixing moisture problems.

2. *Check roofing and flashing, and repair any damaged materials.* "Flashing" is sheet metal or other material laid over roof valleys, windows, or other areas where water often drains or collects. Many LEED-certified homes have flashing, because it helps prevent water from seeping into the building structure. Flashing and roof materials (e.g., shingles) become damaged over time. Check these materials at least once a year, particularly before the rainy season, to make sure that they are in good condition (e.g., not missing or damaged). Replace if needed. Materials such as flashing are inexpensive and can save money by reducing the need for costly repairs.

3. *Clean debris from gutters and downspouts.* Downspouts and gutters are important for draining water away from your home. They should be cleaned regularly (generally every spring and fall) to remove leaves, dirt, nests, and other debris.

4. ~~*Remove excess snow from roof to prevent ice dams.* Ice dams form when snow melts on the roof, and then re-freezes further down the roof before it can drain. Ice dams form when areas of your roof are colder than others, because some sections of the underside of the roof are better insulated than other sections. Ice dams cause water to pool on the roof, which can then leak into the home's structure.~~

   ~~The best solution for handling ice dams is to prevent them from forming. Soon after a snowfall, use a broom to remove snow from the edges of your roof. Doing this prevents snow from becoming ice. Avoid using rakes or sharp tools, because these can damage the roof surface. If your roof is frequently forming ice dams, consult an ice dam specialist to diagnose and fix the problem. For example, your home may need additional insulation in some sections of the attic.~~

5. *Inspect basement/crawl space for seepage/leakage*. Periodically inspect the lowest part of your home (e.g., the basement or the crawlspace) for pooling water and damp areas. These may indicate that water is not draining properly away from the home. Contact a basement water proofing specialist to identify and fix the problem.

Related LEED for Homes Measures

- Innovation and Design (ID) 2: Durability Management Process
- Energy and Atmosphere (EA) 3: Air Infiltration

Additional Information

For more information, resources, and tools related to the durability of your home, visit:

Home Energy Resource (formerly Home Smart), Basic Care
www.homeenergyresourcemn.org/

University of Massachusetts, Building and Construction Technology, Preventing Ice Dams
bct.nrc.umass.edu/index.php/publications/by-title/preventing-ice-dams/

US EPA's ENERGY STAR Programs, Home Improvement – Peeling Paint
www.energystar.gov/index.cfm?c=home_solutions.hm_improvement_peelingpaint

2.3 Interior Durability and Finishes

The previous section highlighted the importance of maintaining the exterior structure of your home. The interior of your LEED-certified home is carefully designed and constructed as well. This section includes operations and maintenance suggestions related to the interior features of your LEED-certified home, including:

- Interior Durability (control of moisture); and
- Paints and Coatings (control of chemical emissions).

Interior Durability

Just as rain can cause damage if it enters your home's exterior, leaks and moisture originating within the home can also damage the structure. Your LEED-certified home includes measures such as proper drainage and drain pans for appliances that help prevent water from pooling on surfaces in your home. You should check periodically that everything is in working order (e.g., draining freely), and that materials such as bathtub grout are in good condition. This will help keep water from damaging materials below, and help reduce mold and mildew.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Check /repair caulking/grout in and around showers/baths.* For example, check and repair caulk and grout in wet rooms, such as around bathtubs and sinks, between walls and vanities, countertops, or bathtubs.

2. *Check for water leakage around water heaters, clothes washers and dish washers.* A small drip or leak is a sign that the appliance needs repair. Usually small leaks quickly evolve into major leaks that can cause major damage. If there is evidence of a leak, contact the appropriate equipment repairman immediately.

3. *Run bathroom fan for 30 minutes after showering.* Always turn on your bathroom fan while showering or bathing, and allow it to run for 30 minutes after you stop. By using this fan, you help remove moisture that can lead to mold and mildew, and that can damage the structure of the building. You should also run your kitchen fan while cooking, to remove pollutants and odors.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credits:

Innovation and Design (ID) 2: Durability Management Process

Paints and Coatings (e.g., finishes, shellacs, stains)

Interior paints and finishes add to the beauty of homes, and help protect surfaces. However, many paints, coatings, and adhesives contain chemicals that slowly off-gas into the air. These chemicals are called Volatile Organic Compounds, or VOCs. Some of these VOCs (e.g., formaldehyde) can be harmful to your health. Most VOCs are released at the highest rate when they are applied – the "new paint smell". However, significant levels of VOCs will continue to off-gas long after application. Many LEED-certified homes include paint, adhesives, and other materials that are "low VOC". These have a lower content of these harmful, off-gassing chemicals than conventional products.

Furniture, cabinets, cleaning products, and other materials can also have high levels of VOCs. These are discussed in Part 5.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *If paint is needed for the interior of your home, use paint that is low emitting ("low VOC").* Several programs, such as the Green Seal Standard, will label products that have a low VOC content.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credits:

- Materials and Resources (MR) 2: Environmentally Preferable Products
- Indoor Environmental Quality (IEQ) 8.3 Preoccupancy Flush

Additional Information

For more information, resources, and tools related to maintaining your home's interior, visit:

GREENGUARD Environmental Institute, Consumers
www.greenguard.org

2.4 Lighting and Appliances

According to the US Department of Energy's Residential Energy Consumption Survey (2001), lighting and appliances use 34% of energy consumed in homes and account for 47% of the energy costs. Many LEED-certified homes include energy efficient lights, and ENERGY STAR-rated appliances. You can help to control your energy bills by replacing these products with similar energy-efficient products as needed. You can also conserve energy by turning off lights when they are not in use, and by reducing the energy used by home electronics in stand-by mode by unplugging appliances, or by using power strips.

This section includes operations and maintenance suggestions related to your home's:

- Lighting; and
- Appliances.

Additional sources of information on maintaining your lighting fixtures and appliances are listed at the end of this section.

Lighting

Collectively, interior and exterior lighting typically accounts for 5% to 15% of a new home's total energy use. Energy efficient bulbs and fixtures can use 50-75% less energy, and can emit the same amount of light. These also require less frequent replacement.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *If replacing lights, use only ENERGY STAR-labeled lighting.* Choose bulbs and fixtures with the ENERGY STAR label, such as ENERGY STAR-labeled compact fluorescent lights. These bulbs may have a first cost that is more expensive than traditional, incandescent bulbs, but you will recover any cost difference quickly because of the bulbs' longer life and lower energy use. ENERGY STAR-labeled bulbs also achieve high standards for comfort issues (e.g., less flicker than other bulbs).

2. *Periodically check if exterior automated lighting controls are working.* Many LEED-certified homes include exterior lighting that is motion controlled. If the motion control detector stops working, have the detector fixed or replaced so that you can continue to save energy when lighting is not needed. If you feel that some continuous lighting is needed for safety reasons, consider installing a low level of light, with a sensor to trigger a high level of light when motion is detected.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credits:

- Energy and Atmosphere (EA) 1: Optimize Energy Performance
- Energy and Atmosphere (EA 8): Lighting

Appliances

Household appliances typically use 20-30% of a home's total energy use and about 25% of a home's indoor water use. Many LEED-certified homes have ENERGY STAR-labeled appliances, which can use 10-50% less energy and water than standard models.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. ~~*Clean/adjust direction of ceiling fans seasonally.* In the summer, ceiling fans can be used to make people feel cool by blowing air on them. Remember to turn off the fan when used for cooling if no one is in a room. Fans do not cool rooms – they only cool people.~~

   ~~A ceiling fan can also be used to help warm a room when it is operated in reverse, by gently pushing warm air back to the floor. (Hot air rises.) Most ceiling fans have a switch that allows you to reverse its direction. Reverse the direction of fans each summer and winter. Use a very low speed for winter, and turn down your thermostat to capture the heating bill savings from using fans.~~

   ~~Clean the fan blades at least annually, to reduce particles in your home and to keep the fan in good condition.~~

2. *Connect appliances (e.g., televisions, chargers) to a power strip and switch it off when not in use.* "Phantom loads" refer to energy that appliances (e.g., televisions, cell phone, laptop chargers) continue to draw when they are turned off. The U.S. Environmental Protection Agency estimates that households spend $100 per year to power devices in this standby mode[1]. Unplug appliances when they are not in use, or connect them to a power strip and turn off multiple appliances when they are not in use. Some power strips also serve as surge protection for appliances.

   The U.S. EPA has also begun to identify some products, such as power adaptors, with the ENERGY STAR label. Look for this label to identify products that are more efficient than conventional models.

3. *Clean lint screen after every use. Periodically clean dryer vent.* For dryers, cleaning the lint screen after every use helps reduce energy use, and it reduces the risk of fire. Also, periodically check the exhaust vent for the dryer on the outside of your home. Make sure that the vent screen is clean and free of leaves, debris, etc., so that exhaust can freely escape to the outside.

4. *Choose ENERGY STAR-labeled appliances.* ENERGY STAR-labeled appliances use less energy and/or water than conventional models. While these often have a slightly higher cost, they will save money in the long-run because of lower energy or water bills. Also make sure that you buy the right sized appliance for your household's needs. For example, refrigerators that are too full, or that are almost empty, will not perform at the rated efficiency.[1]

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credit:

- Energy and Atmosphere (EA) 1: Optimize Energy Performance
- Energy and Atmosphere (EA) 9: Appliances

Additional Information

For more information, resources, and tools related to maintaining your home's lighting and appliances, visit:

U.S. Environmental Protection Agency (USEPA) Energy Star program, resources for lighting and appliances:

www.energystar.gov/index.cfm?c=lighting.pr_lighting

www.energystar.gov/index.cfm?c=appliances.pr_appliances

Alliance to Save Energy
www.ase.org/section/topic/lights

Federal Trade Commission's How to Buy an Energy-Efficient Home Appliance
www.ftc.gov/bcp/edu/pubs/consumer/homes/rea07.shtm

Department of Energy, Energy Efficient Appliances
www1.eere.energy.gov/buildings/appliance_standards/pdfs/26468.pdf

California Energy Commission's Consumer Energy Center
www.consumerenergycenter.org/home/appliances/

2.5 Heating, Cooling, and Ventilation Systems

Well designed heating cooling and ventilation systems are essential elements of a comfortable and healthy LEED-certified home. More importantly, they also provide for significant energy savings (at least 30% in most LEED-certified homes).

This section includes 2 related topics:

- Heating and Cooling Systems; and
- Ventilation Systems.

Additional sources of information on these systems are listed at the end of this section.

Heating and Cooling Systems

Heating and cooling systems are required to maintain comfortable temperatures within a home. They are also one of the major causes of excessive energy use in homes.

LEED-certified homes have heating and cooling equipment that is often 20 to 30% more efficient than equipment that meets the minimum efficiency standards. It is also correctly sized, based on the size of your home, how well your home is insulated, and other factors. This translates into lower energy bills.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Clean or replace filters in heating/cooling equipment*. Dirty filters are a common cause of equipment malfunction or damage. Clean filters will allow your equipment to run more efficiently. Filters are relatively inexpensive and easy to replace. According to the U.S. Department of Energy, keeping the filter clean on an air conditioner can lower the air conditioner's energy consumption by 5% to 15%.[1] How often you will need to replace your filter will vary depending on the product. Some units have an indicator light showing when the filter needs to be replaced. Generally, it is recommended that air filters should be replaced monthly during the heating or cooling season. Replace the filter with the same type of filter that was originally installed. This will keep the equipment operating as designed, and it will continue to remove particles for better indoor air quality.

2. *Adjust thermostat for season change*. Set your programmable thermostat to "reasonable" set-points to conserve energy. LEED-certified homes generally have programmable thermostats which allow you to set different set-point temperatures at different times of the day. Example settings are provided below.

Example Temperature Settings for Programmable Thermostat

Season	Time of Day		
	Night	Day	
		Occupied	Un-Occupied
Winter	60	70	60
Summer	75	75	85

3. *All components of the heating and cooling systems should be serviced by a qualified technician about every two years*. The technician should check settings, clean and lubricate parts inside the system, tighten electrical connections, and provide other services. This will help keep your equipment running in good order.

   One service that a technician can provide for an air conditioning system is recharging the refrigerant. All LEED-certified homes are required to have air conditioning systems tested at installation to ensure that it is correctly charged (i.e., has the right amount of refrigerant). The system should be tested periodically and recharged if needed. The American Council for an Energy Efficient Economy reports that fixing an incorrectly charged system can improve its efficiency by 20%.[1]

4. *Remove leaves and debris around the outdoor condenser of an air conditioner.* Conventional air conditioning systems include an outdoor condenser unit. Twice a year, make sure that the area around the condenser is clear of trash, plants, etc. The Department of Energy recommends trimming back any foliage so that it is at least 2 feet from the unit.[1] Clean any leaves or other debris from the "fins" – the metal slats through which air passes.

5. *Clean in and around grills and registers; vacuum inside of ducts.* For forced air systems (i.e., systems that blow hot or cold air through ducts), annually remove the heating registers and vacuum inside the ducts that are within reach.

~~6. *Clean in and around radiators, bleed air from radiators.* For hydronic systems (i.e., systems that circulate hot water through pipes and radiators), the U.S. Department of Energy reports that the most common problem is unwanted air in the system.[1] The problem occurs when a bubble of air becomes trapped in the system, which blocks the water from circulating. At the start of each heating season, a technician should check all of the radiators in your home, and bleed-out any trapped air. This will help improve the efficiency of and the comfort provided by your hydronic heating system.~~

7. *Check / adjust humidity levels.* As described in the section on Durability, wet building materials can lead to rot or other damage to the building's structure, and lead to mold or mildew growth. Monitor the relative humidity in your home. Relative humidity monitors are inexpensive and available at hardware stores. In general, the recommended relative humidity in the home should be between 30 to 60%. Use your home's systems (e.g., fans in wet rooms, and dehumidifiers, if present) to keep the relative humidity in this range. If the relative humidity is often well above 60%, or if your home shows other signs of high humidity (such as windows with condensation on the inside or a damp basement):
    - First check that everyone in the household is using local exhaust fans properly (e.g., turning on bathroom fans during bathing and kitchen fans when cooking); and
    - If your home still has high humidity, consider installing a dehumidifier (if your home does not already have one).

   If your home has low humidity levels, you may choose to install a humidifier. Continue to monitor the relative humidity closely. Do not operate a humidifier while the air conditioner is running.

8. *Check roof / soffit vents for flow and obstructions*. Many homes include vented attics. These vents allow hot air to escape during the hot summer months. In the winter, vented attics help to keep the attic cool, reducing the chance for ice dams to form.[1] If your home has vents in the attic, do not cover these with insulation or any other material. Periodically check that vents have not become covered or obstructed by items in the attic.

   Other homes are designed with unvented attics (i.e., the attic is conditioned). Your builder will have considered whether roof / soffit vents were beneficial for your particular home, as part of the program's durability requirements.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credits:

- Indoor Environmental Quality (IEQ) 3: Moisture Control
- Energy and Atmosphere (EA) 6: Space Heating and Cooling
- Energy and Atmosphere (EA) 11: Appropriate HVAC Refrigerants
- Indoor Environmental Quality (IEQ) 7: Air Filtering

Ventilation Systems

Ventilation systems exhaust airborne pollutants from your home and also replenish your home with fresh air. Generally there are 2 types of ventilation systems that are used in your home:

1. Local Exhaust Systems (i.e., bath and kitchen fans); and
2. Whole-house ventilation systems.

All LEED-certified homes are required to have whole-house air ventilation systems, which provide the right amount of fresh air into your home. (The rate is based on the size of your home and number of bedrooms.) Also, all LEED-certified homes must have exhaust fans in kitchens and bathrooms, which must be vented directly to the outdoors. These measures help provide better indoor air quality, and they protect the structure from moisture damage. Even moist air can become a problem if it is not exhausted from your home, because it can cause damage structures and lead to mold growth. (In contrast, many code homes do not have ventilation systems and/or do not exhaust moist air directly to the outdoors.)

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Check operation of mechanical ventilation systems (for example, an HRV/ERV) and regularly replace filters.* Ventilation is often provided in the same system as heating or cooling. Such systems require regular filter changes and bi-annual service check-ups.

   However, some homes have a separate or dedicated ventilation system installed. For example, many LEED-certified homes include a Heat Recovery Ventilator (HRV) or an Energy Recovery Ventilator (ERV). An HRV brings in fresh air for ventilation, but transfers the heat from the outgoing stale air to incoming air. An ERV performs similarly, but it removes heat from the incoming air, using the cold stale air that it exhausts. These systems reduce energy for heating and cooling, and provide fresh air.

   If your home has a separate ventilation system, clean or replace the filter regularly. Check your manufacturer's information for your product's specific requirements, but a general rule of thumb is every one to three months.[1] Periodically check the intake and exhaust vents to ensure that they are clear from leaves, debris, etc.

2. *Check operation of local exhaust fans.* At least once a year, check all of the exterior vents (e.g., kitchen, bathroom) where air exits from your home. These are located on the roof, or may be located on exterior walls. Make sure that they are clear of leaves, debris, etc., and that the damper (the flap covering the opening) can move freely.

   Also, periodically check that your exhaust fans are operating: Hold a piece of toilet paper up to the exhaust fan in the bathroom while the fan is running. The paper should be held firmly against that fan grille, after you let it go. If you find a problem, contact a ventilation specialist.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credits:

- Indoor Environmental Quality (IEQ) 4: Outdoor Air Ventilation
- Indoor Environmental Quality (IEQ) 5: Local Exhaust

Additional Information

Manual (English)

https://fccid.io/HS9-TH6000R01/User-Manual/Manual-1-1418527

Manual (Spanish)

https://fccid.io/HS9-TH6000R01/User-Manual/Manual-2-1418528

For more information, resources, and tools related to maintaining your home's heating, cooling, and ventilation systems, visit:

Green Home Guide by the U.S. Green Building Council (USGBC)
www.GreenHomeGuide.com

U.S. Department of Energy (DOE), Energy Saver's
www.energysavers.gov

U.S. Government, Home Owner Resources
http://www.usa.gov//Citizen//Topics//Family//Homeowners.shtml

U.S. Environmental Protection Agency (USEPA), Energy Star program
www.energystar.gov/homes
www.energystar.gov/index.cfm?c=dehumid.pr_basics_dehumidifiers

California Energy Commission, Consumer Energy Center
www.consumerenergycenter.org/home/heating_cooling/index.html

Natural Resources Canada, Routine maintenance for HRV's
http://oee.nrcan.gc.ca/Publications/infosource/Pub/hrv/maintenance.cfm?attr=4#schedule

2.6 Plumbing

Water is an important resource, and it takes considerable energy to move, treat, and heat water. The average family of four can use 400 gallons of water every day, and, on average, approximately 70% of that water is used indoors[5].

Leaky pipes and fixtures can result in large amounts of wasted water, and cause damage to structures below. Plumbing can also serious damage it not maintained during the winter.

This section includes operations and maintenance suggestions related to your plumbing equipment. Note that tips on maintaining the efficient use of water outdoors are included in the "Your Yard" section below. Tips on conserving water both indoors are outdoors are provided in the Part 5.

Indoor Plumbing Fixtures and Fittings

All LEED-certified homes include measures that should reduce water use, relative to conventional homes that are built to the minimum building code. Measures that reduce hot water use will save both energy and water. Many of these measures will not require any special maintenance. For example, many LEED-certified homes include low flow fixtures (e.g., low-flow faucets or showers, dual-flush toilets), or the plumbing has been designed so that the hot water tank is close to the fixtures that require hot water.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Check / fix leaks immediately in pipes, fixtures, and appliances.* Immediately fix any leaks in pipes, equipment (e.g., water heaters, clothes washers), and plumbing fixtures (e.g., toilets, sinks). According to the U.S. EPA's WaterSense program, leaky faucets that drip at the rate of one drip per second waste more than 3,000 gallons of water each year.[1] Over time, water leaks may lead to structural problems.

   If your hot water tank is leaking, shut off the water supply to the tank, and shut off the fuel input (or electricity) until a plumber can repair or replace the system. The pressure relief valve may be clogged or not working, or there may be some other problem that should be addressed.

[5] http://www.epa.gov/watersense/pubs/indoor.html

2. *Prevent pipes from freezing: turn on/off outdoor faucets.* When water pipes run through the exterior walls of your home (e.g., to your irrigation system, outdoor faucets, or garden hoses), they are susceptible to freezing in the winter. As the water in the pipes freezes, it expands and can potentially cause the pipe to burst. To prevent this, in late fall, turn off the water supply to the outdoors. Then drain these fixtures to the outdoors to remove any water that remains in the pipes or hoses. Most homes have a separate shut-off valve for each outdoor faucet.

   If you go on vacation in the winter, turn the heat down, but not off, in your home. The home must be warm enough to keep the pipes inside from freezing.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credits:

- Water Efficiency (WE) 3: Indoor Water Use
- Energy and Atmosphere (EA) 7: Water Heating
- Energy and Atmosphere (EA) 9: Appliances

Additional Information

For more information, resources, and tools related to maintaining your home's plumbing fixtures and fittings, visit:

H_2O Use, Household Water Efficiency Resources
http://www.h2ouse.org/resources/links/index.cfm

Urban Water Resources Management, Water Conservation Tips

http://www.gdrc.org/uem/water/conservation.html

National Association of Home Builders, TOOLBASE, Low flow fixtures

http://www.toolbase.org/Techinventory/TechDetails.aspx?ContentDetailID=868&BucketID=6&CategoryID=9

Flex Your Power, Low Flow Showerheads

http://www.fypower.org/res/tools/products_results.html?id=100160

Montana Weatherization Training Center, Water Heater Maintenance Tips

http://www.weatherization.org/waterheatermaintenance.htm

2.7 Your Garage

Garages often act as a storage area for:

- Automobiles;
- Gas-powered appliances (lawn mowers, edging tools, chain saws, generators);
- Chemicals (fertilizers, pesticides, and herbicides); and
- Paints and cleaning solvents.

All of the above equipment and products can release different types of air pollution. While it is generally wise to store these items in the garage, instead of in your home, pollutants emitted in the garage can still find their way into your home. This is because the garage is often connected to the home by a doorway, and because pollutants can move through cracks in the garage walls or ceiling.

This section includes operations and maintenance suggestions related to your garage.

Additional sources of information on controlling pollutants in garages are listed at the end of this section.

Garage Pollutants

Garages are a useful place to store equipment and materials that are potential pollution sources. Cars release harmful pollutants, including carbon monoxide and volatile organic compounds (VOCs), particularly when they are started. Fuel (including fuel in equipment such as lawnmowers), paints and chemicals, and other equipment can release VOCs. These pollutants can cause health problems. Many LEED-certified homes are well sealed, have detached garages, or have no garages, to help prevent these pollutants from entering the living space of your home.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Check seal between garage and home, and exhaust fan.* A good seal between the garage and the living space of your home will help keep pollution out of the living space. It will also save energy, by keeping conditioned air from leaking out of the home. LEED-certified home are required to be carefully sealed during construction. Many LEED-certified homes have an additional check for sealing between the garage and living areas, or a fan in the garage. But most homes develop cracks as they age due to settling, so they will periodically need to be resealed.

   If your garage is attached to your home, annually inspect the walls and ceiling that are adjacent to the home for cracks. Seal any cracks in the garage with caulk. If there is a door between the garage and the living space, keep it closed as much as possible. Check that it closes tightly every few years, and replace weather stripping around the door if needed.

2. *Remove unneeded chemicals.* Minimize the storage of these materials by getting rid of old paints, fuels, or other chemicals that you no longer need. Dispose of these properly – most should be disposed of as hazardous waste. (See Part 5.)

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credit:

- Indoor Environmental Quality (IEQ) 10: Garage Pollutant Protection

Additional Information

For more information, resources, and tools related to minimizing your exposure to pollutants from your garage, visit:

U.S. Environmental Protection Agency (EPA), Green Buildings, Garages

http://www.epa.gov/greenhomes/Garage.htm

Ohio Recycling, Eight Ways to Green Your Garage

http://ohiorecycling.org/garage.html

American Gardener, Welcome to the Green Garage

http://www.ahs.org/publications/the_american_gardener/pdf/0601/Green_Garage_54-55.pdf

2.8 Your Yard

Your yard can provide useful environmental benefits, such as providing shade, erosion control, and managing storm water run-off. However, a poorly managed yard (e.g., one that is over-watered and treated with harmful chemicals) can be a drain on resources like water supplies, and cause damage to the local environment and to your home.

This section includes information on ways that you can minimize the environmental impact of your yard. Three general aspects of your yard are addressed:

- Landscaping;
- Irrigation; and
- Pest Control.

Additional sources of information on maintaining your yard are listed at the end of this section.

Landscaping

Landscaping can be a major use of water for your home, and it can have significant impacts on the local ecology. Every LEED-certified home is required to incorporate good landscaping practices during construction, such as conserving topsoil, controlling erosion, and not planting invasive species. Many LEED-certified homes also have less turf grass and more drought-tolerant plant species than conventional homes. These practices reduce the amount of silt that enters local bodies of water and reduce the amount of water that is needed to keep a yard looking attractive.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Replace and repair landscaping - mulch, permeability features.* Many LEED-certified homes include mulched areas. Mulch provides nutrients to plants, helps to retain moisture in the soil, and helps prevent weeds from growing. Replace or add mulch to planted areas when needed. A few inches of mulch to cover the ground is generally sufficient.

   Many LEED-certified homes include permeable features that capture water and allow it to infiltrate the ground below. These may include rain gardens, dry wells, swales, cisterns, permeable paving, and other features. Check these features periodically after a rainstorm to ensure that water is properly draining. For example, the porous layer below permeable hardscapes may clog with debris, and could need to be vacuumed. Rain gardens need to be regularly weeded.

   If plants die or need to be replaced for other reasons, consider replacing them with native or drought tolerant species. Check with your local university agricultural extension office, botanical garden, or other resource for guidance.

2. *Check for pooling of rain water on property*. Many LEED-certified homes have sloped areas on the property that are graded away from the home or include erosion control measures (e.g., swales, terracing or retaining walls). These features will help prevent water from flowing towards the foundation of the home, helping to keep it dry.

   If you notice pooling of rainwater, you may need to hire a landscape professional to re-grade the area to guide rain water away from your home. If your landscaping includes erosion control such as swales, terracing or retaining walls, inspect these features annually to make sure they are in good condition.

~~3. *Avoid damaging de-icers on hardscapes.* In winter months, shovel or plow sidewalks, driveways, and other hardscapes soon after a snow-fall. This will prevent ice build-up. If you must add chemical de-icers, use magnesium chloride or calcium chloride products instead of sodium chloride or potassium chloride products. All chloride products damage vegetation, but magnesium chloride and calcium chloride are less damaging to concrete and other man-made surfaces. Sand can also be used. Sand does not help melt ice, but it will provide traction.~~

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credits:

- Sustainable Sites (SS) 2: Landscaping
- Sustainable Sites (SS) 3: Local Heat Island Effects
- Sustainable Sites (SS) 4: Surface Water Management

Irrigation

Water used to irrigate plants can have a major impact on total water use. For example, in California, 50% to 70% of household water is used outdoors[6]. By delivering water only when it is needed, and only to the plants that need it, you can help conserve water and reduce your water bills.

Collecting rainwater and using it to water plants or flush toilets provides several environmental benefits, such as reducing the demand for public water supply (and related electricity used for pumping).

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Check that sprinklers operate properly and that the spray doesn't hit your home.* At the beginning of every spring, briefly test your irrigation system. Turn it on, and check that all spray heads are operating, that the water is only hitting softscapes (not on hardscapes), and that the spray doesn't hit your home. Fix any problems. This will both save water and help prevent water damage to your home.

   Many LEED-certified homes have irrigation systems that include controls, timers, or sensors so that the system operates only when water is needed and conditions are optimal for watering. (For example, they sense moisture in the air or provide water in the cooler parts of the day.) Review the product literature to learn how the system functions and how you can maximize the benefits of these features.

2. *Winterize your irrigation system: turn off water, drain*. If your irrigation system freezes, the underground pipes may burst. Locating and repairing such leaks can be very difficult and expensive. Turn your irrigation system off, usually with a central shut-off valve that is located in your home, and drain the system of any water.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credit:

- Water Efficiency (WE) 1: Water Reuse
- Water Efficiency (WE) 2: Irrigation System

[6] http://www.cpuc.ca.gov/PUC/Water/waterconservationInfo.htm

Pest Control

Pests such as termites, ants, and rodents can damage the structure and cause health problems. These can be controlled through strategies other than the use of toxic chemicals. Long term exosure to such chemicals can be harmful to your family and pets. Preventing pests from entering, or nesting in, your home is the best strategy. LEED-certified homes are often designed with physical barriers that block some of the common entry points for pests.

You can also follow pest prevention measures. In general, pests are drawn to shelter, water, and food. Keeping your home and yard dry and tidy will discourage pests.

Operations and Maintenance Tips

The following general maintenance strategies are highly recommended.

1. *Keep plantings at least 24" away from home.* Don't plant any vegetation within this area, and trim landscaping so that all branches are further than this from the home. Also maintain at least 12" of exposed concrete on all exterior walls between the ground and the beginning of the wood siding. This enables the visual checking for termite pathways from the soil to the wood siding.

2. ~~*Store fire wood off the ground, away from home*. Store all fire wood at least 20 feet away from your home and several inches off the ground.~~

3. *Avoid overwatering your yard*. Standing water can attract insects, as can excessive nutrients.

4. *Avoid use of toxic chemicals for pest control and chemical fertilizer.* Insecticides and chemical fertilizers kill pests and weeds, but they can also harm people and pets. If you live in an area with a high risk for termites, consider getting a termite inspection annually. If your home does develop a pest infestation, select low toxicity insect and pest control systems.

Related LEED for Homes Measures

For more information on this LEED measure, please look-up the following credit:

- Sustainable Sites (SS) 5: Non-Toxic Pest Control

Additional Information

For more information, resources, and tools related to maintaining the sustainability of your yard, visit:

U.S. Environmental Protection Agency (US EPA), "*Sustainable Landscaping: The Hidden Impact of Gardens"* presentation

www.epa.gov/greenacres/smithsonian.pdf

U.S. EPA's "GreenScapes"

www.epa.gov/greenscapes/index.htm

http://www.epa.gov/WaterSense/docs/water-efficient_landscaping_508.pdf

The H_2ouse Garden Guide

www.h2ouse.org/gardensoft/index.aspx

The USDA's National Resource Conservation Service

http://www.nrcs.usda.gov/feature/backyard/

The Irrigation Association

www.irrigation.org/

Statewide Integrated Pest Management Program, University of California

www.ipm.ucdavis.edu/WATER/U/alternative.html

Part 3

Special Features

Operations and Maintenance Tips for:

- ✓ Sense Home Energy Monitor and Smart Phone App
- ✓ SmartStrand Carpet
- ✓ Graywater System
- ✓ Solar (Photovoltaic) System
- ✓ Solar (Photovoltaic) Battery System

Sense Home Energy Monitor and Smart Phone App

Description

Sense is an electrical home energy monitoring device that allows your electrical panel to send energy usage data to your smartphone. It can distinguish one appliance from another and provides real-time readings.

Benefit

Sense calculates energy usage, can identify areas of improvement, and finds patterns in energy use so that you can be more efficient, informed, and secure.

Operation and Maintenance Tips

The following general maintenance strategies are highly recommended.

Tip 1. Although there is no maintenance needed for the actual Sense device, you should track your energy consumption through your Sense App in your smartphone.

You can find instructions on how to set up the Sense App on your phone below.

Related LEED for Homes Measures

Energy and Atmosphere (EA) 1.2 Exceptional Energy Performance

Additional Information

For more information, resources, and tools, visit:

Sense Website

https://sense.com/

Sense App Demo YouTube series

https://youtu.be/9B19zg92a3I

SmartStrand Carpet

Description

SmartStrand Forever Clean Ultra carpet combines built-in stain and soil resistance. SmartStrand carpet includes SmartCushion, a deep foam construction that's engineered to give you the softest step possible.

Benefit

SmartStrand Forever Clean Ultra is CRI Green Label Plus rated. A Green Label Plus rating ensures the lowest chemical emissions in carpets, cushions, and adhesives. Very low chemical emissions make for better indoor air quality and a healthier home.

SmartCushion improves SmartStrand carpet's insulating qualities for quieter, more energy-efficient rooms.

Operation and Maintenance Tips

The following general maintenance strategies are highly recommended.

Tip 1. Stain Removal

Most household spills can be easily removed using the steps below. Treatment of the affected area should begin immediately upon discovery as stain removal becomes more difficult with time.

- First, use a spoon, dull knife or a carpet cleaning key to remove as much solid material as possible.
- Always work from the outside of stain to the center to prevent spreading, especially with large stains.
- Blot up liquid spills with a white towel or paper towel.
- For best results try to remove the remaining stain with warm water.

Tip 2. Regular Vacuuming

Most dirt, and even dust, takes the form of hard, dry particles, which can be removed with a vacuum cleaner. When left in the carpet, these gritty, sharp particles abrade the pile of the carpet.

Regular vacuuming literally extends your carpet's life as well as enhancing its appearance. Vacuum high-traffic areas daily, medium-to-high traffic areas twice weekly and the entire house at least once a week

Related LEED for Homes Measures

MR credit 2.2

Additional Information

For more information, resources, and tools, visit:

The Carpet and Rug Institute

https://carpet-rug.org/testing/green-label-plus/

Graywater system

Description

Graywater is untreated household waste water which has not come into contact with toilet waste. Graywater includes used water from clothes-washers and laundry tubs. It must not include waste water from kitchen sinks or dishwashers.

Benefit

Graywater systems reduce the need for fresh water which can significantly reduce household water bills, but also has a broader community benefit in reducing demands on public water supply. Graywater systems also reduce the amount of wastewater entering sewers or on-site treatment systems.

Operation and Maintenance Tips

Tip 1.	Regular maintenance of a greywater system typically involves cleaning and replacing filters and making sure the system continues to function as designed. Frequently check your plants that are greywater irrigated for signs of over watering or stress from high organic content in the water.

Tip 2.	Infiltrate greywater into the ground, don't allow it to pool up or run off. Knowing how well water drains into your soil will help with proper design. Keep your system as simple as possible, avoid pumps, filters that need upkeep. Simple systems last longer, require less maintenance, and cost less money.

Related LEED for Homes Measures

- Water Efficiency (WE) 1: Water Reuse
- Water Efficiency (WE) 2: Irrigation System

Additional Information

For more information, resources, and tools, visit:

Greywater Action

https://greywateraction.org/greywater-resources/

Greywater in the City of Ventura
https://www.cityofventura.ca.gov/DocumentCenter/View/947/Greywater-PDF

MyGreenFills website

https://mygreenfills.com/

Solar (Photovoltaic) System

Description

A photovoltaic system collects the energy in sunlight and converts it into electricity. A photovoltaic system is often called PV for short, or referred to as solar panels. The main components of a PV system are the collection panels (sometimes called "the array"), and an inverter. The panels collect the sunlight and convert it into direct current electricity. The inverter converts the direct current electricity into alternating current, so that it can be used by household products.

Benefit

Most homes get their electricity by buying it from their utility company. Because your PV system generates electricity, it reduces the amount of electricity that you need to buy. This will lower your electricity bills. In addition, the sun is a clean, renewable source of energy. The electricity generated by a PV system is more sustainable than electricity generated by dirty fuels (e.g., coal, natural gas).

Operation and Maintenance Tips

The following general maintenance strategies are highly recommended.

Tip 1.	Inform Maintenance of excess dust or debris on the panels. Dust reduces the effectiveness of the system, by blocking sunlight. A good rule of thumb is to rinse them off once per year.

Tip 3.	Inform Maintenance of any vegetation blocking the panels. Keeping vegetation trimmed maximizes direct sunlight for panels. While it is common for trees, surrounding homes, and other obstacles to block some direct sunlight, branches should be trimmed back every few years so that as much direct sunlight as possible falls on the panels.

Related LEED for Homes Measures

- Energy and Atmosphere (EA) 1: Overall Energy Performance
- Energy and Atmosphere (EA) 10: Renewable Energy

Additional Information

For more information, resources, and tools, visit:
American Solar Energy Society

www.ases.org

Battery System

Description

A photovoltaic (PV) solar battery system is an energy storage solution that ensures maximum value of your home's solar investment. Energy drawn from the sun during the day is stored for later use (at night).

Benefit

A solar battery system allows your home to maintain its power during grid outages, or blackouts.

Operation and Maintenance Tips

General maintenance will be completed by Operations Staff.

Related LEED for Homes Measures

Energy and Atmosphere (EA) 10 Renewable Energy System

Additional Information

For more information, resources, and tools, visit:

Evolve solar battery storage:

http://www.eguanatech.com/products/evolve/#content

Part 4
Resources for Sustainable Additions and Retrofits

The REGREEN Program

If you decide to add-on to your home or retrofit part of it, it is important to do so in a thoughtful, sustainable way. This is to ensure that any remodel does not affect any of the green features or systems installed in your LEED-certified home. Ideally, the remodel itself should also be green, to continue in the direction of sustainability set by the original LEED for Homes builder.

The REGREEN residential remodeling program provides a valuable starting point for green remodels. This resource was designed by the U.S. Green Building Council (USGBC) and the American Society for Interior Designers (ASID). It provides:

- Information;
- Case studies;
- A strategy generator; and
- Guidelines.

The program is designed to serve both homeowners and building professionals.

Information on the REGREEN program is available at:

www.regreenprogram.org

Green Home Guide

The people that you hire to do a retrofit or remodel play a critical role in the quality and overall sustainability of the project. It is important to select professionals carefully, especially because different professionals have varying experience with remodeling green homes.

The USGBC created the Green Home Guide resource for sustainability-related consumer resources. This website includes the "Find a Pro" feature which helps you find a qualified green professional in your area.

Green Home Guide is also a valuable resource for learning about, and maintaining, your green home. The website includes:

Know How: Articles, insights and tips from experienced green professionals.

Ask a Pro: Have a green home question? Ask our team of experts.

Residential Programs: Learn about programs that offer green home education and certification

Information on the Green Home Guide is available at:

www.greenhomeguide.com

Part 5
Suggestions on How to Live More Sustainably

This section includes a summary of suggestions for living more sustainably, such as conserving water and energy, reducing waste, and protecting local bodies of water. Many of these suggestions will also save you money. These lifestyle suggestions can be adopted by residents of any home, whether LEED-certified or not. However, several of the lifestyle suggestions overlap the information provided in other sections of this manual.

While the list provided here is a good start, there are countless other opportunities. There are additional resources listed after the table with websites that can provide further discussion of some of the tips in the table, and offer new tips.

Green Lifestyle Tips

Suggestions
Energy Efficiency
Purchase green power (generated by renewable energy)
Use ENERGY STAR programmable thermostat
Keep unoccupied rooms closed (doors and heating / cooling vents)
Keep radiators and vents clear of furniture, rugs, etc.
Use occupant sensors for lighting in areas that are used infrequently
Use insulated draperies
Use energy-saving mode for electronics when not in use, or powerstrips
Turn off lights in rooms when not in use
Use cold/warm settings for laundry
Water Efficiency
Take shorter showers
Use dish- and clothes-washers only when full
Turn water off while teeth brushing
Adjust programmable irrigation settings for rainfall
Avoid watering landscaping at mid-day
Install an automatic shut-off nozzle on garden hose
Waste Management
Properly recycle gas, kerosene, paint, and other hazardous waste
Donate items instead of throwing them away
Buy second-hand products, or products with recycled content
Use re-usable shopping bags
Reduce paper waste (e.g., use cloth napkins)
Use unbleached coffee filters, paper towels, etc.
Opt-out of junk mailings if possible
Find out what can be recycled in your area and recycle these products
Indoors and Cleaning
Use nontoxic, biodegradable detergents and cleaners
Have home tested for radon
Buy furniture and furnishings with low VOC content.
Food Purchases
Grow your own food or participate in community garden
Purchase locally grown, and organic food
Participate in a Community Supported Agriculture (CSA) program
Eat less meat
Purchase seafood from sustainable seafood programs

Green Lifestyle Tips (cont'd)

Suggestions
Transportation
Bike or walk for short trips
Use public transportation
Carpool and/or run errands in fewer trips
Avoid idling cars unnecessarily
Regularly maintain cars, other vehicles
Purchase carbon offsets from flying or commuting
Your Yard
Refrain from use of toxic chemicals, insecticides, fertilizers, etc.
Plant natives trees and plants
Place hardwood mulch around trees and gardens
Use composting from kitchen on gardens and landscapes
Leave grass clippings on yard to provide nutrients back to soil
Add rain barrel for rainwater harvesting
Home Office and Study
Use electronic format instead of paper as much as possible
Recycle paper, used print cartridges, and old electronics
Use recycled paper, and recycled print cartridges

Additional Resources

The following resources can provide further information on some of the green lifestyle tips listed in the table.

Energy Efficiency

The Energy Star program from the U.S. EPA and U.S. Department of Energy:
www.energystar.gov

The Consumer Energy Center from the California Energy Commission:
www.consumerenergycenter.org

Water Efficiency

The WaterSense program from the U.S. EPA
www.epa.gov/watersense/

Waste Management

The National Resources Defense Council
www.nrdc.org/cities/recycling/gelectronicsrecycling.asp

Indoors & Cleaning

The GREENGUARD Environmental Institute
www.greenguard.org/

Food Purchases

The National Resources Defense Council
www.nrdc.org/health/food/default.asp

The Monterey Bay Aquarium
www.montereybayaquarium.org/

The City of Annapolis
www.ci.annapolis.md.us/sustainability.asp?page=13694

Transportation

The Best Workplaces for Commuters program from the U.S. EPA
http://www.epa.gov/omswww/bwc.htm

The Pennsylvania American Automobile Association's Gas Watcher's Guide
www.aaapa.org/pdfs/Gas_Watchers_Guide.pdf

Your Yard

The Lady Bird Johnson Wildflower Center
www.wildflower.org

The Plant Native Organization
www.plantnative.org

Home Office & Study

The National Resources Defense Council
www.nrdc.org/land/forests/gtissue.asp

The Forest Stewardship Council
http://fscus.org/

The following resources provide additional green living tips:

http://www.nrdc.org/greenliving/

http://www.ci.annapolis.md.us/sustainability.asp?page=13694

Appendix A
LEED for Homes Documentation

The green measures installed in every LEED-certified home must be verified by a third-party verification organization (other than the project team that designed and built your home). This organization is called a LEED for Homes Provider, which includes or oversees the LEED for Homes Green Rater. At the completion of the verification process, these verifiers prepare the following three documents:

- ✓ Project Checklist;
- ✓ Durability Forms; and
- ✓ Accountability Forms.

Copies of these verification documents are included in this appendix.

LEED for Homes Project Checklist

for Homes

Builder Name:	***Bridge Housing***
Project Team Leader:	***Veronica Garcia , The Housing Authority of San Buenaventura***
Home Address (Street/City/State):	***995 Riverside Street, Ventura, California***

Project Description

Building Type: ***Multi-family*** Project type: ***Multi-family Developer***

# of Units: ***131*** Avg. Home Size Adjustment: ***-7***

Adjusted Certification Thresholds

Certified: ***38.5*** Gold: ***68.5***

Silver: ***53.5*** Platinum: ***83.5***

Project Point Total

Prelim: ***78.5 + 0 maybe pts*** **Final:** ***50.5***

Certification Level

Prelim: ***Gold*** **Final:** ***Not Certified***

Final Credit Category Point Totals

ID: 0 ***SS: 10*** ***EA: 34*** ***EQ: 0***

LL: 0 ***WE: 4*** ***MR: 2.5*** ***AE: 0***

Minimum Point Thresholds Not Met for Prelim. OR Final Rating

Date Most Recently Updated: *Updated by:*

Indicates that an Accountability Form is required.

	Max Pts. Available	Preliminary Rating Y / Pts	Maybe	No		Project Points
Innovation & Design Process (ID) (Minimum 0 ID Points Required)	***Max: 11***	***Y:4***	***M:0***		***Notes***	***Final: 0***
1. Integrated Project Planning						
1.1 Preliminary Rating	***Prereq.***					
Target performance tier: ***Platinum***						
1.2 Integrated Project Team *(meet all of the following)*	***1***	***0***	***0***			***0***
☑ a) Individuals or organizations with necessary capabilities		☑ c) Regular meetings held with project team				
☑ b) All team members involved in various project phases						
1.3 Professional Credentialed with Respect to LEED for Homes	***1***	***0***	***0***		*please see ID 01-06 for details*	***0***
1.4 Design Charrette	***1***	***1***	***0***			***0***
1.5 Building Orientation for Solar Design *(meet all of the following)*	***1***	***0***	***0***			***0***
☐ a) Glazing area on north/south walls 50% greater than on east/west walls		☐ c) At least 450 sq. ft. of south-facing roof area, oriented for solar applications				
☐ b) East-west axis is within 15 degrees of due east-west		☐ d) 90% of south-facing glazing is shaded in summer, unshaded in winter				
2. Quality Management for Durability						
2.1 Durability Planning *(meet all of the following)*	***Prereq.***					
☑ a) Durability evaluation completed		☑ c-v) Install drain and drain pans for clothes washers in/over living spaces; OR				
☑ b) Strategies developed to address durability issues		☐ no clothes washers in/over living spaces				
☑ c-i) Nonpaper-faced backer board in tub, shower, spa areas		☑ c-vi) Exhaust conventional clothes dryers directly to outdoors				
☑ c-ii) No carpet in kitchen, bathroom, laundry, and spa areas		☑ c-vii) Install drain and drain pan for condensing clothes dryers				
☐ c-iii) No carpet within 3 ft of each entryway		☐ d) Durability strategies incorporated into project documentation				
☐ c-iv) Install drain and drain pans in tank water heaters in/over living spaces; OR		☐ e) Durability measures listed in durability inspection checklist				
☐ no tank water heaters in/over living spaces						

2.2	Durability Management *(meet one of the following)*	*Prereq.*				
	☐ Builder has a quality management process in place	☑ Builder conducted inspection using durability inspection checklist				
2.3	Third-Party Durability Management Verification	*3*	*3*	*0*		*0*

3. Innovative or Regional Design

3.1	✍ Innovation 1 (ruling #):	*1*	*0*	*0*		*0*
3.2	✍ Innovation 2 (ruling #):	*1*	*0*	*0*		*0*
3.3	✍ Innovation 3 (ruling #):	*1*	*0*	*0*		*0*
3.4	✍ Innovation 4 (ruling #):	*1*	*0*	*0*		*0*

Location & Linkages (LL) (Minimum 0 LL Points Required)

Max: 10 *Y:10* *M:0* *Notes* *Final: 0*

1. LEED for Neighborhood Development

1	LEED for Neighborhood Development	*10*	*10*	*0*		*0*

2. Site Selection

2	✍ Site Selection *(meet all of the following)*	*2*	*2*	*0*		*0*

☐ a) Built above 100-year floodplain defined by FEMA
☑ b) Not built on habitat for threatened or endangered species
☐ c) Not built within 100 ft of water, including wetlands
☑ d) Not built on land that was public parkland prior to acquisition
☑ e) Not built on land with prime soils, unique soils, or soils of state significance

3. Preferred Locations

3.1	Edge Development	*1*	*0*	*0*		*0*
OR 3.2	Infill	*2*	*0*	*0*		*0*
AND/OR 3.3	Previously Developed	*1*	*0*	*0*		*0*

4. Infrastructure

4	Existing Infrastructure	*1*	*1*	*0*		*0*

5. Community Resources / Transit

5.1	Basic Community Resources / Transit *(meet one of the following)*	*1*	*0*	*0*		*0*

☐ a) Within 1/4 mile of 4 basic community resources
☐ b) Within 1/2 mile of 7 basic community resources
☑ c) Within 1/2 mile of transit services providing 30 rides per weekday

OR 5.2	Extensive Community Resources / Transit *(meet one of the following)*	*2*	*0*	*0*		*0*

☐ a) Within 1/4 mile of 7 basic community resources
☐ b) Within 1/2 mile of 11 basic community resources
☐ c) Within 1/2 mile of transit services providing 60 rides per weekday

OR 5.3	Outstanding Community Resources / Transit *(meet one of the following)*	*3*	*0*	*0*		*0*

☐ a) Within 1/4 mile of 11 basic community resources
☐ b) Within 1/2 mile of 14 basic community resources
☐ c) Within 1/2 mile of transit services providing 125 rides per weekday

6. Access to Open Space

6	Access to Open Space	*1*	*1*	*0*		*0*

Sustainable Sites (SS) (Minimum 5 SS Points Required)

Max: 22 Y:14.5 M:0 | ***Notes*** | ***Final: 10***

1. Site Stewardship

1.1 Erosion Controls During Construction *(meet all of the following)* — ***Prereq.***

- [x] a) Stockpile and protect disturbed topsoil from erosion.
- [x] b) Control the path and velocity of runoff with silt fencing or equivalent.
- [ ] c) Protect sewer inlets, streams, and lakes with straw bales, silt fencing, etc.
- [x] d) Provide swales to divert surface water from hillsides
- [ ] e) Use tiers, erosion blankets, compost blankets, etc. on sloped areas.

1.2 Minimize Disturbed Area of Site *(meet the appropriate requirements)* — ***1 1 0 0***

Where the site is not previously developed, meet all the following:

- [ ] a) Develop tree / plant preservation plan with "no-disturbance" zones
- [ ] b) Leave 40% of buildable lot area, not including area under roof, undisturbed

OR Where the site is previously developed, meet all the following:

- [ ] c) Develop tree / plant preservation plan with "no-disturbance" zones AND
- [ ] Rehabilitate lot; undo soil compaction and remove invasive plants AND
- [ ] Meet the requirements of SS 2.2

OR [x] d) Build on a lot of 1/7 acre or less, or 7 units per acre.

2. Landscaping

2.1 ✍ No Invasive Plants — ***Prereq.***

2.2 ✍ Basic Landscaping Design *(meet all of the following)* — ***2 0 0 0***

- [ ] a) Any turf must be drought-tolerant.
- [ ] b) Do not use turf in densely shaded areas.
- [ ] c) Do not use turf in areas with slope of 25%
- [ ] d) Add mulch or soil amendments as appropriate.
- [ ] e) All compacted soil must be tilled to at least 6 inches.

AND/OR **2.3 ✍ Limit Conventional Turf** — ***3 0 0 0***

[ ] Percentage of designed landscape softscape area that is turf

AND/OR **2.4 ✍ Drought-Tolerant Plants** — ***2 1 0 1***

45% Percentage of installed plants that are drought-tolerant

OR **2.5 ✍ Reduce Overall Irrigation Demand by at Least 20%** — ***6 6 0 6***

60% Percentage reduction in estimated irrigation water demand *(calculate)*

3. Reduce Local Heat Island Effects

3 ✍ Reduce Local Heat Island Effects *(meet one of the following)* — ***1 1 0 0***

- [x] a) Locate trees / plantings to provide shade for 50% of hardscapes
- [ ] b) Install light-colored, high-albedo materials for 50% of sidewalks, patios, and driveways

4. Surface Water Management

4.1	✍ Permeable Lot	4	0	0	0

[ ] vegetative landscape

0% permeable paving

0% impermeable surfaces directed to infiltration features

100% other impermeable surfaces (areas not counted towards credit)

4.2	Permanent Erosion Controls *(meet one of the following)*	1	0	0	0

[ ] a) For portions of lot on steep slope, use terracing and retaining walls

[ ] b) Plant trees, shrubs, or groundcover

4.3	✍ Management of Runoff from Roof *(meet any, see Rating System for pts)*	2	2	0	0

[ ] a) Install permanent stormwater controls to manage runoff from the home

[ ] b) Install vegetated roof to cover 50% of roof area

[ ] c) Install vegetated roof to cover 100% of roof area

[ ] d) Have lot designed by professional to manage runoff from home on-site

5. Nontoxic Pest Control

5	Pest Control Alternatives *(meet any of the following, 1/2 pt each)*	2	0.5	0	0

[ ] a) Keep all exterior wood at least 12" above soil

[✓] b) Seal external cracks, joints, etc. with caulking and install pest-proof screens

[ ] c) Include no wood-to-concrete connections, or separate connections with dividers

[ ] d) Install landscaping so mature plants are 24" from home

e) In 'moderate' to 'very heavy' termite risk areas:

[ ] i) Treat all cellulosic material with borate product to 3' above foundation

[ ] ii) Install sand or diatomaceous earth barrier

[ ] iii) Install steel mesh barrier termite control system

[ ] iv) Install non-toxic termite bait system

[ ] v) Use noncellulosic wall structure

[ ] vi) Use solid concrete foundation walls or pest-proof masonry wall design

6. Compact Development

6.1	Moderate Density	2	0	0	0

131 # of total units on the lot | 6.0 lot size (acres) | 21.8 density (units/acre)

OR	6.2	High Density	3	0	0	0
OR	6.3	Very High Density	4	4	0	4

Water Efficiency (WE) (Minimum 3 WE Points Required)

Max: 15 Y:9 M:0 Notes Final: 4

1. Water Reuse

1.1	Rainwater Harvesting System	4	0	0	0

0% Percentage of roof area used for harvesting

[ ] Application

AND/OR	1.2	Graywater Reuse System	1	0	0	0
OR	1.3	Use of Municipal Recycled Water System	3	0	0	0

2. Irrigation System

2.1	✍ High-Efficiency Irrigation System *(meet any of the following, 1 pt each)*	3	2	0	0

- ☐ a) Irrigation system designed by EPA Water Sense certified professional
- ☐ b) Irrigation system with head-to-head coverage
- ☐ c) Install central shut-off valve
- ☐ d) Install submeter for the irrigation system
- ☐ e) Use drip irrigation for 50% of planting beds
- ☐ f) Create separate zones for each type of bedding
- ☐ g) Install timer or controller for each watering zone
- ☐ h) Install pressure-regulating devices
- ☐ i) High-efficiency nozzles with distribution uniformity of at least 0.70.
- ☐ j) Install check valves in heads
- ☐ k) Install moisture sensor or rain delay controller

AND/OR	2.2	Third-party Inspection	1	1	0	0
OR	2.3	✍ Reduce Overall Irrigation Demand by at Least 45%	4	4	0	4

60% Percentage reduction in estimated irrigation water demand *(calculate)*

3. Indoor Water Use

3.1	High-Efficiency Fixtures and Fittings *(meet any of the following, 1 pt each)*	3	1	0	0

- ☐ a) Average flow rate of lavatory faucets is ≤ 2.00 gpm
- ☐ b) Average flow rate for all showers is ≤ 2.00 gpm per stall
- ☑ c) Average flow rate for all toilets is ≤ 1.30 gpf; OR
  - ☐ Toilets are dual-flush; OR
  - ☐ Toilets meet the EPA Water Sense specification

3.2	Very High-Efficiency Fixtures and Fittings *(meet any, 2 pts each)*	6	4	0	0

- ☑ a) Average flow rate of lavatory faucets is ≤ 1.50 gpm; OR
  - ☐ Lavatory faucets meet the EPA Water Sense specification
- ☑ b) Average flow rate for all showers ≤ 1.75 gpm per stall
- ☐ c) Average flow rate for all toilets is ≤ 1.10 gpf

Energy & Atmosphere (EA) (Minimum 0 EA Points Required) — Max: 38 Y:34 M:0 — Notes — Final: 34

Important note: projects registered after October 1st, 2014 that use the performance path must achieve a HERS Index of 70 or lower.

1. Optimize Energy Performance

1.1	Performance of ENERGY STAR for Homes	Prereq.			
1.2	Exceptional Energy Performance	34	34	0	34

3 IECC climate zone 0 HERS Index

7. Water Heating

7.1	✍ Efficient Hot Water Distribution System *(meet one of the following)*	2	0	0	0

- ☐ a) Structured plumbing system
- ☐ b) Central manifold distribution system
- ☐ c) Compact design of conventional system

7.2	Pipe Insulation	1	0	0	0

11. Residential Refrigerant Management

11.1	Refrigerant Charge Test	Prereq.			
11.2	Appropriate HVAC Refrigerants *(meet one of the following)*	1	0	0	0

- ☐ a) Use no refrigerants
- ☐ b) Use non-HCFC refrigerants
- ☐ c) Use refrigerants that complies with global warming potential equation

Materials & Resources (MR) (Minimum 2 MR Points Required)

Max: 16 Y:0 M:0 Notes Final: 2.5

1. Material-Efficient Framing

	1.1 Framing Order Waste Factor	*Prereq.*				
	1.2 Detailed Framing Documents	1	0	0		0
AND/OR	1.3 Detailed Cut List and Lumber Order	1	0	0		0

- ☑ Requirements of MR 1.2 have been met
- ☑ Detailed cut list and lumber order corresponding to framing plans or scopes

AND/OR	1.4 Framing Efficiencies *(meet any of the following, see Rating System for pts)*	3	0	0	0

- ☑ Precut framing packages
- ☐ Open-web floor trusses
- ☐ Structural insulated panel walls
- ☐ Structural insulated panel roof
- ☐ Structural insulated panel floors
- ☐ Stud spacing greater than 16" on center
- ☐ Ceiling joist spacing greater than 16" on center
- ☐ Floor joist spacing greater than 16" on center
- ☐ Roof rafter spacing greater than 16" on center
- ☐ Two of the following: Size headers for loads; ladder blocking; drywall clips; 2-stud corners

OR	1.5 Off-site Fabrication *(meet one of the following)*	4	0	0	0

- ☐ a) Panelized construction
- ☐ b) Modular, prefabricated construction

2. Environmentally Preferable Products

	2.1 ✍ FSC Certified Tropical Wood *(meet all of the following)*	*Prereq.*			

- ☑ a) Provide suppliers with a notice of preference for FSC products; AND
- ☐ Request country of manufacture for each wood product
- ☑ b) No tropical wood installed (exceptions for FSC-certified or reclaimed wood)

	2.2 ✍ Environmentally Preferable Products *(meet any, 1/2 pt each)*	8	0	0	0

Assembly : component	*(a) EPP*			*(b) Low emission*		*(c) Local production*	
Exterior wall: framing	☐		type:			☐	
Exterior wall: siding or masonry	☐		type:			☐	
Floor: flooring	☐	(45%)	type:	☐	90% hard flooring	☐	(45%)
Floor: flooring	☐	(90%)	type:	☑	SCS FloorScore	☐	(90%)
Floor: flooring				☑	Green Label Plus		
Floor: framing	☐		type:			☐	
Foundation: aggregate	☐		type:			☑	
Foundation: cement	☐		type:			☑	
Interior wall: framing	☐		type:			☐	
Interior wall, ceiling: gypsum board	☐		type:			☐	
Interior wall, ceiling, millwork: paint	☐		type:	☑	type: Low VOC		
Landscape: decking and patio	☐		type:			☐	
Other: cabinet	☐		type:			☐	
Other: counter	☐		type:			☐	
Other: door	☐		type:			☐	
Other : interior trim	☐		type:			☐	
Other : adhesive, sealant				☑	type: Low VOC		
Other : window frame	☐		type:			☐	
Roof: framing	☐		type:			☐	
Roof: roofing	☐		type:			☐	
Roof, floor, wall: cavity insulation	☑		type:	☑	type: Low VOC	☐	
Roof, floor, wall (2 of 3): sheathing	☐		type:			☐	
Other: water supply piping	☐		type:				
Other: driveway	☐		type:				

3. Waste Management

3.1	Construction Waste Management Planning *(meet both of the following)*	*Prereq.*			

☑ a) Investigate local options for waste diversion ☑ b) Document diversion rate for construction waste

3.2	Construction Waste Reduction *(use one of the following methods)*	*3*	*0*	*0*	*2.5*

☐ a) pounds waste / square foot

☐ cubic yards waste / 1,000 square feet

75% b) percentage of waste diverted

Indoor Environmental Quality (EQ) (Minimum 6 EQ Points Required)

Max: 21 ***Y:7*** ***M:0*** ***Notes*** ***Final: 0***

1. ENERGY STAR with Indoor Air Package

1	ENERGY STAR with Indoor Air Package	*13*	*0*	*0*	*0*

2. Combustion Venting

2.1	Basic Combustion Venting Measures (meet all of the following)	*Prereq.*			

☑ a) no unvented combustion appliances

☑ b) carbon monoxide monitors on each floor (of each unit, if applicable)

☑ c) no fireplace installed, OR

☐ all fireplaces and woodstoves have doors

☐ d) space, water heating equipment designed with closed combustion; OR

☑ space and water heating equipment has power-vented exhaust; OR

☐ space and water heating equipment located in detached or open-air facility; OR

☐ no space- or water-heating equipment with combustion

2.2	Enhanced Combustion Venting Measures (meet one of the following)	*2*	*0*	*0*	*0*

Type of Fireplace or stove	*Better practice (1 pt)*	*Best practice (2 pts) (must also meet Better Practice)*
None		☑ granted automatically
Masonry wood-burning fireplace	☐ masonry heater	☐ back-draft potential test
Factory-built wood-burning fireplace	☐ listed by testing lab and meets EPA standards	☐ back-draft potential test
Woodstove and fireplace insert	☐ listed by testing lab and meets EPA standards	☐ back-draft potential test
Natural gas, propane, or alcohol stove	☐ listed, power- or direct-vented, fixed doors	☐ electronic pilot
Pellet stove	☐ EPA certified or meets safety requirements	☐ power- or direct-venting

3. Moisture Control

3	Moisture Load Control (meet one of the following)	*1*	*0*	*0*	*0*

☐ a) Additional dehumidification system ☐ b) Central HVAC system equipped with additional dehumidification mode

4. Outdoor Air Ventilation

4.1	Basic Outdoor Air Ventilation (meet one of the following)	*Prereq.*			

☑ a) Qualifies under ASHRAE Std. 62.2-2007 climate exemption.

☐ b) Continuous ventilation

☐ c) Intermittent ventilation

☐ d) Passive ventilation

4.2	Enhanced Outdoor Air Ventilation *(meet one of the following)*	*2*	*0*	*0*	*0*

☑ a) Meets EQ 4.1 part (a), active ventilation system installed ☐ b) Install heat recovery system

4.3	Third-Party Performance Testing	*1*	*0*	*0*	*0*

5. Local Exhaust

5.1	Basic Local Exhaust (meet all of the following)	*Prereq.*				
	☑ a) Bathroom and kitchen exhaust meets ASHRAE Std. 62.2 air flow requirement	☑ c) Air exhausted to outdoors				
	☑ b) Fans and ducts designed and installed to ASHRAE Std. 62.2	☑ d) ENERGY STAR labeled bathroom exhaust fans				
5.2	Enhanced Local Exhaust *(meet one of the following)*	*1*	*1*	*0*		*0*
	☐ a) Occupancy sensor	☐ c) Automatic timer tied to switch to operate fan for 20+ minutes post-occupancy				
	☐ b) Automatic humidistat controller	☑ d) Continuously operating exhaust fan				
5.3	Third-Party Performance Testing	*1*	*1*	*0*		*0*

6. Distribution of Space Heating and Cooling

6.1	Room-by-Room Load Calculations	*Prereq.*				
6.2	Return Air Flow / Room-by-Room Controls (meet one of the following)	*1*	*0*	*0*		*0*
	A. Forced-Air Systems	B. Nonducted HVAC Systems				
	☐ a) Return air opening of 1 sq. inch per cfm of supply	☐ Flow control valves on every radiator; OR				
	☐ b) Limited pressure differential between closed room and adjacent spaces	☐ Radiant floor system with thermostatic controls in every room				
6.3	Third-Party Performance Test / Multiple Zones (meet one of the following)	*2*	*0*	*0*		*0*
	A. Forced-Air Systems	B. Nonducted HVAC Systems				
	☐ Have supply air flow rates in each room tested and confirmed	☐ Install at least two distinct zones with independent thermostat control				

7. Air Filtering

7.1	Good Filters	*Prereq.*				
7.2	Better Filters	*1*	*0*	*0*		*0*
OR 7.3	Best Filters	*2*	*0*	*0*		*0*

8. Contaminant Control

8.1	Indoor Contaminant Control during Construction	*1*	*1*	*0*		*0*
8.2	Indoor Contaminant Control *(meet any of the following, 1 pt each)*	*2*	*0*	*0*		*0*
	☐ a) Design and install permanent walk-off mats at each entry	☐ c) Install central vacuum system with exhaust to outdoors				
	☐ b) Design shoe removal and storage space near primary entryway					
8.3	Preoccupancy Flush	*1*	*1*	*0*		*0*

9. Radon Protection

9.1	Radon-Resistant Construction in High-Risk Areas	*Prereq.*	*Y*			
9.2	Radon-Resistant Construction in Moderate-Risk Areas	*1*	*0*	*0*		*0*

10. Garage Pollutant Protection

10.1	No HVAC in Garage	*Prereq.*	*Y*		
10.2	Minimize Pollutants from Garage (meet all of the following)	*2*	*0*	*0*	*0*

a) In conditioned spaces above garage:
- ☐ Seal all penetrations and connecting floor and ceiling joist bays

b) In conditioned spaces next to garage
- ☐ Weather-strip all doors
- ☐ Carbon monoxide detectors in rooms that share a door with garage
- ☐ Seal all penetrations and cracks at the base of walls

AND/OR 10.3	Exhaust Fan in Garage (meet one of the following)	*1*	*0*	*0*	*0*

- ☐ a) Fan runs continuously
- ☐ b) Fan designed with automatic timer control

OR 10.4	Detached Garage or No Garage	*3*	*3*	*0*	*0*

Awareness & Education (AE) (Minimum 0 AE Points Required)

Max: 3 *Y:0* *M:0* **Notes** *Final: 0*

1. Education of the Homeowner or Tenant

1.1	✍ Basic Operations Training *(meet both of the following)*	*Prereq.*			

- ☐ a) Operations and training manual
- ☐ b) One-hour walkthrough with occupant(s)

1.2	✍ Enhanced Training	*1*	*0*	*0*	*0*
1.3	Public Awareness *(meet three of the following)*	*1*	*0*	*0*	*0*

- ☐ a) Open house on at least four weekends
- ☐ b) Website about features and benefits of LEED homes
- ☐ c) Newspaper article on the project
- ☐ d) Display LEED signage on the exterior of the home

2. Education of the Building Manager

2	✍ Education of the Building Manager *(meet both of the following)*	*1*	*0*	*0*	*0*

- ☐ a) Operations and training manual
- ☐ b) One-hour walkthrough with building manager

USGBC LEGAL DISCLAIMER

USGBC makes no warranty with respect to any LEED certified project, including any warranty of habitability, merchantability, or fitness for a particular purpose. There are no warranties, express or implied, written or oral, statutory or otherwise, with respect to the certifications provided by USGBC. By way of example only, and without limiting the broad scope of the foregoing, it is understood that LEED certification, whether at the Certified level or any other level, does not mean that the project is structurally sound or safe, constructed in accordance with applicable laws, regulations or codes, free of mold or mildew, free of volatile organic compounds or allegens, or free of soil gases including radon.

SIGNATURES BY RESPONSIBLE PARTIES

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents.

Project Team Leader	***Veronica Garcia***	Company	***The Housing Authority of San Buenaventura***
Signature		Date	

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed. I have evaluated this project's documentation package and conducted the necessary QA/QC procedures with the Green Rater, and I hereby declare and affirm to USGBC that the homes included in this submittal are ready to earn LEED for Homes certification, as per the attached checklist.

Provider QAD	***Kyle Brumfitt***	Company	***Partner Energy***
Signature		Date	

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed.

I also hereby confirm that all verification services were performed in accordance with the LEED for Homes Verification & Submittal Guidelines and Addendum.

Green Rater	***Greg Switzer***	Company	***Partner Energy***
Signature		Date	

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed.

I also hereby confirm that all verification services were performed in accordance with the LEED for Homes Verification & Submittal Guidelines and Addendum.

Green Rater	***N/A***	Company	
Signature		Date	

LEED for Homes Project Checklist

Addendum: Prescriptive Approach for Energy and Atmosphere (EA) Credits

Points cannot be earned in both the Prescriptive (below) and the Performance paths of the EA section.

	Max Pts. Available	Preliminary Rating Y / Pts	Maybe	No	Notes	Project Points
Energy & Atmosphere (EA) (Must earn points equal to HERS 70)	**Max: 38**	**Y:34**	**M:0**		**Notes**	**Final: 34**

Important note: projects registered after October 1st, 2014 that use the prescriptive path must achieve at least the following: 13 points (projects in climate zone 1-5), or 9.5 points (projects in climate zone 6-8)

2. Insulation

2.1	Basic Insulation *(meet both of the following)*	Prereq.				
	☐ a) Insulation meets R-value requirements of IECC	☐ b) Insulation meets HERS Grade II specifications for installation				
2.2	Enhanced Insulation *(meet both of the following)*	2	0	0		0
	☐ a) Insulation exceeds R-value requirements of IECC by 5%	☐ b) Insulation meets HERS Grade I specifications for installation				

3. Air Infiltration

3.1	Reduced Envelope Leakage	Prereq.				
	☐ Air leakage rate in ACH50					
3.2	Greatly Reduced Envelope Leakage	2	0	0		0
OR 3.3	Minimal Envelope Leakage	3	0	0		0

4. Windows

4.1	Good Windows *(meet all of the following)*	Prereq.				
	☐ a) Windows and glass doors meet ENERGY STAR BOP window specifications	☐ b) Skylight glazing area is ≤ 3% of floor area AND ☐ Skylights meet ENERGY STAR requirements for skylights				
4.2	Enhanced Windows	2	0	0		0
OR 4.3	Exceptional Windows	3	0	0		0

5. Heating and Cooling Distribution System

5.1	Reduced Distribution Losses *(meet all of the following, as appropriate)*	Prereq.				
	A. Forced-Air Systems ☐ a) Duct leakage of ≤ 4.0 CFM at 25 Pascals per 100 sq.ft. ☐ b) No ducts in exterior walls unless extra insulation is added ☐ c) At least R-6 insulation around ducts in unconditioned spaces	B. Nonducted HVAC Systems ☐ At least R-3 insulation around pipes in unconditioned spaces				
5.2	Greatly Reduced Distribution Losses *(meet the following, as appropriate)*	2	0	0		0
	A. Forced-Air Systems ☐ Duct leakage of ≤ 3.0 CFM at 25 Pascals per 100 sq.ft.	B. Nonducted HVAC Systems ☐ Keep the boiler and pipes entirely within conditioned envelope				
OR 5.3	Minimal Distribution Losses *(meet one of the following, as appropriate)*	3	0	0		0
	A. Forced-Air Systems ☐ a) Duct leakage of ≤ 1.0 CFM at 25 Pascals per 100 sq.ft. ☐ b) Air-handler and all ductwork is within conditioned envelope and EA 3.3 is met ☐ c) Air-handler and all ductwork visibly within conditioned spaces (not in walls, etc.)	B. Nonducted HVAC Systems ☐ Outdoor reset control to set distribution temp. based on outdoor temp.				

6. Space Heating and Cooling Equipment

6.1	✍ Good HVAC Design and Installation *(meet all of the following)*	*Prereq.*				

☐ a) Design and size HVAC equipment using ACCA Manual J or equivalent
☐ b) Install efficient heating AND cooling equipment (see Table)
☐ c) Install ENERGY STAR programmable thermostat OR
☐ Heat pump or hydronic installed and exempted from part (c)

_____ Type of cooling system
_____ Cooling efficiency (SEER / EER)
_____ Type of heating system
_____ Heating Efficiency (AFUE / HSPF / COP)

6.2	High-Efficiency HVAC	*2*	*0*	*0*		*0*
OR 6.3	Very High Efficiency HVAC	*4*	*0*	*0*		*0*

7. Water Heating

7.1	✍ Efficient Hot Water Distribution System *(meet one of the following)*	*2*	*0*	*0*		*0*

☐ a) Structured plumbing system
☐ b) Central manifold distribution system
☐ c) Compact design of conventional system

7.2	Pipe Insulation	*1*	*0*	*0*		*0*
7.3	Efficient Domestic Hot Water Equipment	*3*	*0*	*0*		*0*

_____ Type of DHW system
_____ Efficiency
_____ Solar: Percentage of annual DHW load

8. Lighting

8.1	ENERGY STAR Lights	*Prereq.*				
8.2	Improved Lighting *(meet one of the following, see Rating System for pts)*	*1.5*	*0*	*0*		*0*

☐ a) Indoor lighting - 3 additional ENERGY STAR lights in high-use rooms
☐ b) Exterior lighting - motion sensor controls or integrated PV

OR 8.3	Advanced Lighting Package *(meet one of the following)*	*3*	*0*	*0*		*0*

☐ a) 60% of fixtures are ENERGY STAR fixtures
☐ b) 80% of lamps are ENERGY STAR CFLs

9. Appliances

9.1	High-Efficiency Appliances *(meet any, see Rating System for pts)*	*2*	*0*	*0*		*0*

☐ a) ENERGY STAR labeled refrigerator
☐ b) ENERGY STAR labeled ceiling fans in living/family room and all bedrooms
☐ c) ENERGY STAR labeled dishwasher using 6.0 gallons per cycle or less
☐ d) ENERGY STAR clothes washer

9.2	Water-Efficiency Clothes Washer	*1*	*0*	*0*		*0*

10. Renewable Energy

10	✍ Renewable Energy System	*10*	*0*	*0*		*0.0*

_____ Reference electric load, kWh/yr (based on HERS model)
_____ Electricity supplied by renewable system, kWh/yr
0.0% Percentage of annual reference electric load met by renewable system

11. Residential Refrigerant Management

11.1	Refrigerant Charge Test	*Prereq.*				
11.2	Appropriate HVAC Refrigerants *(meet one of the following)*	*1*	*0*	*0*		*0*

☐ a) Use no refrigerants
☐ b) Use non-HCFC refrigerants
☐ c) Use refrigerants that complies with global warming potential equation

Durability Inspection Checklist Template

(for prerequisite ID 2.1 & 2.2 and credit ID 2.3)

Builder Name:	***Bridge Housing***
Project Team Leader:	***Veronica Garcia***
Home Address:	***995 Riverside Street, Ventura, California***

For each section below, list durability strategies used to help mitigate the durability risks. Where necessary, add additional rows or remove strategies that are not relevant. Refer to the Example Durability Strategies page for sample strategies that may be applicable.

The project team must indicate where the strategy is included in the drawings, specification, or scopes of work, and the responsible project team member must sign-off that the durability strategies were incorporated into the home.

For ID 2.3, the Green Rater must initial that the strategies were verified in the home. A minimum of 18 total strategies, not including those already included as LEED for Homes prerequisites, must be included and verified for the credit to be awarded. These strategies should be focused on medium or high-risk areas.

Durability Strategies by Issue Type	Location in Drawings, Specs, and/or Scopes of Work	Sign-off by Responsible Party (initial below)	
		Prerequisite ID 2.2 (Builder/trade)	Credit ID 2.3 (Green Rater)
Exterior Water / Moisture			
Window Flashing	AD2, AD12		GS
Seal all plumbing, electrical, and other penetrations of walls and floors, and seal joints	P0.2, E0.0, A02.01		GS
Vapor retarder (poly or rigid insulation) directly under slab	AD1		GS
Capillary break at all concrete slabs (poly not reqd if <20" rainfall; gravel not reqd for free draining soils = IRC Group 1)	NA , <20"of rainfall https://www.vcwatershed.net/fws/reports/rain-season-		GS
Grade is sloped away from building to drains	Civil, Fine Grading Plan		GS
Gutters, downstpouts and roof drains are connected to infiltration units	elevations		GS
At least R-30 attic/roof-slope insulation R-value extending over outside of exterior walls	Insulation Submittal		GS
Interior Water / Moisture			
LEED for Homes Prerequisites (remove if not applicable)			
Nonpaper-faced backer board used in all tubs, showers, and spa areas. (see ID 2.1)	include in specs		GS
Water-resistant flooring in the kitchen, bathroom, laundry rooms, and spa areas. (see ID 2.1)	A11.01 gyp board interiors/finish schedule		GS
Water-resistant flooring within 3 feet of all exterior doors. (see ID 2.1)	architecture finish schedule		GS
Drain and drain pan installed for any tank water heaters in or over living spaces. (see ID 2.1)	P0.1		GS
Drain and drain pan OR single-throw supply valve installed for any clothes washers in or over living spaces. (see ID 2.1)			GS
Conventional clothes dryers exhausted directly to outdoors; Condensing clothes dryer has drain and drain pan. (see ID 2.1)	M3.0		GS
Whole house ventilation and local kitchen and bathroom exhaust systems that comply with ASHRAE Std. 62.2 (see EQ 4.1 / 5.1)	M0.4		GS
Provide mold and moisture resistant gypsum board in bathroom areas			GS
Use highly durable materials in wet areas	submittals		GS
Air Infiltration			
LEED for Homes Prerequisites (remove if not applicable)			
Thermal bypass inspection checklist passed (see EA 1.1 / 2.1)	title 24, CF-6R		GS
Insulate and seal all wall and floor penetrations	general notes		GS
IC Airtight rated recessed lights in insulated ceilings	include on lighting schedule		GS
Complete air barrier between attic and conditioned space and all penetrations sealed	AD6		GS
Air seal ventilation ductwork	A02.01 (Unit plans)		GS
Interstitial Condensation			
LEED for Homes Prerequisites (remove if not applicable)			
All local exhaust systems vented directly to the outdoors. (see EQ 5.1)			GS
Interstitial spaces are never used to supply or return forced air. (see EA 5.1)			GS
Duct leakage to the outdoors limited to 6 cfm / 100 sq.ft. (see EA 1.1 / 5.1)	title 24		GS
Interior humididty reduced by continuous mechanical ventilation	E0.1		GS
Pests			
Rodent and corrosion proof screens	A02.04 (Building Elevations)		GS
Earth Barrier			GS
Heat Loss			
LEED for Homes Prerequisites (remove if not applicable)			
Climate zone 4-8: Exposed concrete slab edge insulated. (see EA 1.1 / 2.1)	climate zone 3		GS
Insulate exterior walls per Title 24	Title 24		GS
Insulate Roof per Title 24	Title 24		GS
Ultraviolet Radiation			
Install materials with proper detailing to control degradation form sun, including minimum 10" overhang size at eaves with a sloped	elevations		GS
Low E Windows	A16.00		GS
Cool Roof	A16.01		GS
Natural Disasters			
Gas Shut Off Valve			GS
Structural Design per CA Code			GS

Other			
LEED for Homes Prerequisites (remove if not applicable)			
Refrigerant charge test conducted. (see EA 11.1)	Title 24	2	GS
Define "proper refrigerant charge" to be within 10% of manufacturer recommendations	mechanical schedule	2	GS
Mechnical equipment must be accessible for service, including AC condensate drain pan and trap	M12.0 Buidling Mecanical Plans	2	GS
20 year roof warranty	Submittal	2	GS

Builder Declaration for ID prerequisite 2.1 & 2.2

I hereby declare and affirm to USGBC that I have evaluated this project's durability risks, completed the Durability Risk Evaluation Form, and incorporated appropriate durability measures into the design to adequately address the moderate and high risks. The construction drawings and/or specifications have been updated accordingly, and the the measures were verified to be completed appropriately.

Name: William Edwards

Title: Director of Construction

Signature:

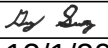
Date: July 5, 2022

Green Rater Declaration for ID credit 2.3

I hereby declare and affirm to USGBC that all of the above durability measures were verified as having been installed and/or incorporated into the home and home site. This signature is not an endorsement of the choice of durability measures or strategies installed, nor is it a validation of the quality or workmanship of the construction or installation.

Name: Gregory Switzer

Title: Consultant

Signature: 

Date: 12/1/2022

LEED for Homes
Accountability Form

All declarations and affirmations made in this Accountability Form are made to USGBC solely for the purpose of assisting USGBC in determining whether LEED Certification is merited. No such declaration or affirmation can be construed as a warranty or guarantee of the performance of the building.

I**NSTRUCTIONS**: This form is to be completed by the person / organization responsible for the design and/or implementation of one or more of the LEED for Homes credits below.

Step 1. Review the requirements in the LEED for Homes Rating System for each prereq. or credit below.

Step 2. Initial each measure below to indicate that the requirements have been met.

Step 3. Complete the Accountability Sign-off section, including your signature, at the bottom of the form.

Step 4. Return a signed copy to the Provider and/or project team leader.

Project Information

Home Address: ***995 Riverside Street*** **Return to:**

Builder:

Areas of Accountability

Sustainable Sites (SS)	*Responsible Party*	*initial*
SS 4.3 Management of Runoff from Roof, part (d): The site is designed by a licensed or certified landscape design or engineering professional such that all water runoff from the home is managed through on-site design elements.	Civil ~~- Frederick Giroux~~ James Kelly	JK

Accountability Sign-off (to be completed by party responsible for the prerequisites and credits above)

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents (drawings, calculations, etc.).

Printed Name	James Kelly	**Company**	Jensen Design & Survey, Inc.
Project Role / Title	Civil Engineer	**Date**	06/02/22
Signature			

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Project Information

Home Address: ***995 Riverside Street***

Builder: Cannon Constructors South
13230 Evening Creek Dr. Ste 213
San Diego, CA 92128

Return to:

Areas of Accountability

Materials & Resources (MR)	*Responsible Party*	*initial*
MR 2.1 FSC Certified Tropical Wood: Both of the following requirements were met: a) All wood product suppliers were provided a notice containing the following elements: i.) a statement that the builder's preference is to purchase products containing tropical wood only if it is FSC-certified; ii.) request for the country of manufacture of each product supplied; and iii.) request for a list of FSC-certified tropical wood products the vendor can supply. b) Any tropical wood used on the project is FSC-certified, reused or reclaimed.	General Contractor-William Edwards	✓
MR 2.2 Environmentally Preferable Products: Qualifying assemblies and components meet the criteria for one or more of the following designations, and all information provided to the Green Rater and all measures listed on the project checklist are accurate:	*initial only appropriate choice(s) below*	
a) Environmentally Preferable Products, including FSC-certified wood products, recycled content, reclaimed content;	General Contractor-William Edwards	
b) low emissions, typically low-VOC content;		
c) Local production, indicating that the product was extracted, processed, and manufactured within 500 miles of the site.		✓

Indoor Environmental Quality (EQ)	*Responsible Party*	*initial*
EQ 8.1 Indoor Contaminant Control During Construction: Upon installation, all ducts and vents were permanently sealed to minimize contamination during construction. Any seals were removed after all phases of construction are completed.	General Contractor-William Edwards	✓
EQ 8.3 Pre-Occupancy Flush: The home was flushed with fresh air prior to occupancy but after all phases of construction are completed. The entire home was flushed for at least 48 total hours, keeping all interior doors open. During the flush, windows were kept open and fan (e.g., HVAC system fan) ran continuously OR the home was flushed with all HVAC fans and exhaust fans operating continuously at the highest flow rate. Additional fans were used to circulate air within the home. The HVAC air filter was replaced or cleaned afterward, as necessary.		✓
EQ 9 Radon Resistant Construction: The home was designed and built with radon-resistant construction techniques as prescribed by EPA, the International Residential Code, Washington State Ventilation and Indoor Air Quality Code or some equivalent code or standard.		✓

Accountability Sign-off (to be completed by party responsible for the prerequisites and credits above)

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents (drawings, calculations, etc.).

Printed Name William Edwards

Company Cannon Constructors South

Project Role / Title Director of Construction

Date June 30, 2022

Signature

LEED for Homes
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Step 1. Review the requirements in the LEED for Homes Rating System for each prereq. or credit below.

Step 2. Initial each measure below to indicate that the requirements have been met.

Step 3. Complete the Accountability Sign-off section, including your signature, at the bottom of the form.

Step 4. Return a signed copy to the Provider and/or project team leader.

Project Information

Home Address: ***995 Riverside Street*** **Return to:**

Builder:

Areas of Accountability

Sustainable Sites (SS)	*Responsible Party*	*initial*
SS 2.1 No Invasive Plants: No invasive plant species introduced into the landscape.	Landscape -- Mike Zielsdorf	MLZ
SS 2.5 Reduce Overall Irrigation Demand: Overall outdoor water use was reduced by at least 20% and demonstrated using the method prescribed in the Rating System. All information in the submitted calculations related to outdoor water use is accurate.	Landscape -- Mike Zielsdorf	MLZ

Water Efficiency (WE)	*Responsible Party*	*initial*
WE 2.3 Reduce Overall Irrigation Demand: Overall outdoor water use was reduced by at least 45% and demonstrated using the method prescribed in the Rating System. All information in the submitted calculations related to outdoor water use is accurate.	Landscape -- Mike Zielsdorf	MLZ

Accountability Sign-off (to be completed by party responsible for the prerequisites and credits above)

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents (drawings, calculations, etc.).

Printed Name Mike Zielsdorf **Company** Pacific Coast Land Design, Inc.

Project Role / Title Design Oversight / Principal **Date** May 04, 2020

Signature

LEED for Homes
Accountability Form

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Step 1. Review the requirements in the LEED for Homes Rating System for each prereq. or credit below.

Step 2. Initial each measure below to indicate that the requirements have been met.

Step 3. Complete the Accountability Sign-off section, including your signature, at the bottom of the form.

Step 4. Return a signed copy to the Provider and/or project team leader.

Project Information	
Home Address: *995 Riverside Street*	**Return to:**
Builder:	

Areas of Accountability

Indoor Environmental Quality (EQ)	*Responsible Party*	*initial*
EQ 4.1 Outdoor Air Ventilation: One of the following requirements was met:	*initial only appropriate choice(s) below*	
a) Home qualifies under ASHRAE Std. 62.2-2007 climate exemption.		
b) Whole-house continuous ventilation system designed and installed that complies with ASHRAE Standard 62.2 requirements;	Mech and Plumbing --Rich Adams	
c) Whole-house intermittent ventilation system designed and installed that complies with ASHRAE Standard 62.2 requirements;		
d) Whole-house passive ventilation system designed and installed that is approved and verified by licensed HVAC engineer to provide ventilation equivalent to that of a continuous system meeting ASHRAE Std. 62.2;		
EQ 4.2 Enhanced Outdoor Air Ventilation, part (a): The home is located in a mild climates (meets the exemption listed in ASHRAE Std. 62.2-2007), and a whole-building ventilation system was designed and installed that complies with ASHRAE Standard 62.2.	Mech and Plumbing --Rich Adams	
EQ 5.1 Basic Local Exhaust: All of the following requirements were met: a) Local exhaust systems designed and installed in all bathrooms (including half-baths) and the kitchen to meet the requirements of Section 5 of ASHRAE Standard 62.2. b) Fans and ducts designed and installed to meet the requirements of Section 7 of ASHRAE Standard 62.2. c) Exhaust air is sent to the outdoors (i.e. not to attics or interstitial spaces) d) All single-port bathroom exhaust fans are ENERGY STAR labeled.	Mech and Plumbing --Rich Adams	
EQ 6.1 Room by Room Load Calculations: Design calculations were completed (using ACCA Manuals J and D, the ASHRAE Handbook of Fundamentals, or an equivalent computation procedure) and ducts were installed accordingly.	Mech and Plumbing --Rich Adams	

Accountability Sign-off (to be completed by party responsible for the prerequisites and credits above)

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents (drawings, calculations, etc.).

Printed Name RICH ADAMS
Project Role / Title MECH / ENGINEER
Signature

Company CONSULTING WEST
Date 5-5-2022

LEED for Homes
Accountability Form

All declarations and affirmations made in this Accountability Form are made to USGBC solely for the purpose of assisting USGBC in determining whether LEED Certification is merited. No such declaration or affirmation can be construed as a warranty or guarantee of the performance of the building.

INSTRUCTIONS: This form is to be completed by the person / organization responsible for the design and/or implementation of one or more of the LEED for Homes credits below.

Step 1. Review the requirements in the LEED for Homes Rating System for each prereq. or credit below.

Step 2. Initial each measure below to indicate that the requirements have been met.

Step 3. Complete the Accountability Sign-off section, including your signature, at the bottom of the form.

Step 4. Return a signed copy to the Provider and/or project team leader.

Project Information

Home Address: ***995 Riverside Street***

Builder: ***Bridge Housing***

Return to: ***Sonja Flores, The Housing Authority of San Buenaventura***

Areas of Accountability

Awareness & Education (AE)	*Responsible Party*	*initial*
AE 1.1 Basic Operations Training: The home's occupant(s) has been or will be provided with an operations and maintenance manual / binder that includes all of items listed in the Rating System. A one-hour walkthrough of the home with the occupant(s), featuring the elements listed in the Rating System, has been or will be conducted.	Sonja Flores - Owner / Developer	S.F.
AE 2.1 Education of Building Manager: The building manager has been or will be provided with an operations and maintenance manual / binder that includes all of items listed in the Rating System. A one-hour walkthrough of the home with the building manager, featuring the elements listed in the Rating System, has been or will be conducted.	Sonja Flores - Owner / Developer	S.F.

Accountability Sign-off (to be completed by party responsible for the prerequisites and credits above)

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents (drawings, calculations, etc.).

Printed Name Sonja M. Flores

Project Role / Title Project Manager

Signature Sonja M. Flores

Company Westview Village III LP

Date 6/8/2022

[Appendix B
Detailed Manufacturer's Info about Products in Your Homes

This appendix includes manufacturers' product information, organized as follows:

- ✓ Heating, Cooling, and Ventilation Systems

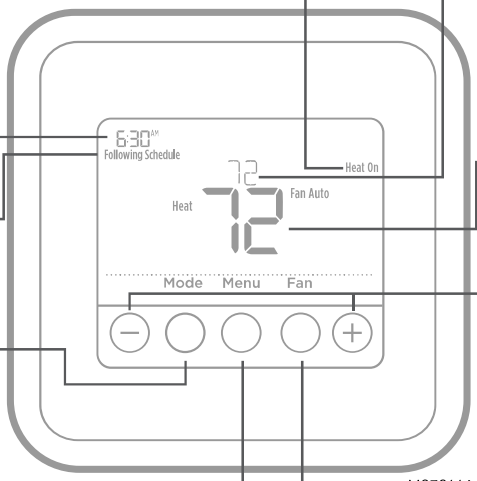
Honeywell Home

T4 Pro Programmable Thermostat

Product Information

TH4110U2005 & TH4210U2002,
Read before installing

Thermostat controls



System status information
Cool On/Heat On/Em Heat On, Recovery, Compressor Protection

Actual time

Schedule information
Following time based schedule

Mode
Select system mode Heat/Off/Cool/ Auto/EM Heat (emergency heat)

Menu
Press to display options. Start here to set a program schedule

Indoor temperature setpoint
Press + or – to change temperature setting

Actual indoor temperature

Temperature/ Navigation buttons
Press to increase or decrease temperature setpoint and to navigate menus and menu options

Fan
Select Fan mode Auto/On

You can search online for **Resideo 33-00188EFS** for the User Guide.

CAUTION
Equipment damage hazard
To prevent possible compressor damage, do not operate cooling system when outdoor temperature is below 50°F (10°C).

CAUTION
ELECTRONIC WASTE NOTICE
The product should not be disposed of with other household waste. Check for the nearest authorized collection centers or authorized recyclers. The correct disposal of end of life equipment will help prevent negative consequences for the environment and human health.

33-00613EFS-03

Program Schedule

You can program four time periods each day, with different settings for weekdays and weekends. We recommend the pre-sets (shown in the table below), since they can reduce your heating/ cooling expenses.

	Heat	Cool
Wake (6:00 am)	70°	78°
Away (8:00 am)	62°	85°
Home (6:00 pm)	70°	78°
Sleep (10:00 pm)	62°	82°

M38823

Wake – Set to the time you wake up and the temperature you want during the morning, until you leave for the day.

Away – Set to the time you leave home and the temperature you want while you are away (usually an energy-saving level).

Home – Set to the time you return home and the temperature you want during the evening, until bedtime.

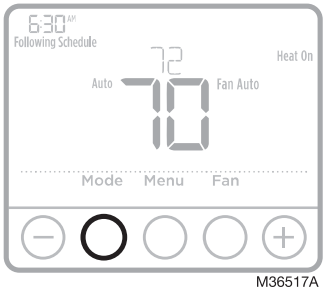
Sleep – Set to the time you go to bed and the temperature you want overnight (usually an energy-saving level).

System operation settings

1 Press the **Mode** button to cycle to the next available System mode.

2 Cycle through the modes until the required System mode is displayed and leave it to activate.

NOTE: Available System modes vary by model and system settings.



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System modes:

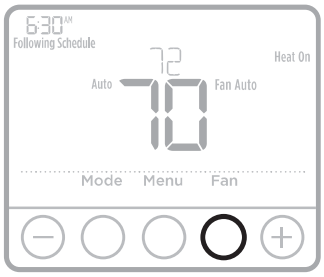
- **Auto**
- **Heat**
- **Cool**
- **Em Heat**
- **Off**

Fan operation settings

1 Press the **Fan** button to cycle to the next available Fan mode.

2 Cycle through the modes until the required Fan mode is displayed and leave it to activate.

NOTE: Available Fan modes vary with system settings.



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Fan modes:

- **Auto:** Fan runs only when the heating or cooling system is on.
- **On:** Fan is always on.

Set the time and date

1 Press **Menu** on your thermostat.

2 Press + or − to go to **TIME**. Press **Select.**

3 Press + or − to choose between 12 or 24 hour. Press **Select**.

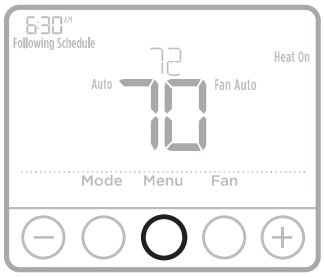
4 Use + or − to adjust the hour. Press **Select**.

5 Use + or − to adjust the minutes. Press **Select** to exit Time menu.

6 Press the + to go to **DATE**.

7 Press **Select** and use the + or − to change the flashing segment.

8 Press **Select** to advance to the next setting. Press **Home** when done.



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To adjust program schedules

1 Press **Menu** on your thermostat.

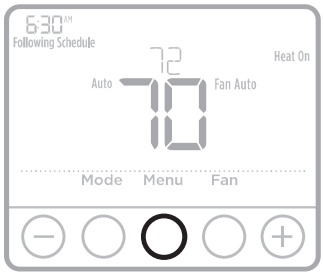
2 **PROG** is displayed. Press **Select**. Then **ON** is displayed. (If you do not want to use a schedule, press + or − to display **OFF**. Press **Select**.) Press **Select**.

3 Press + or − to select day or set of days to edit. Press **Select**.

4 Press + or − to select a schedule period to edit (Wake, Away, Home, and Sleep). Press **Select**.

5 For each program period you can adjust the time, temperature setting, or whether that program period is being used (on or off). Press + or − to change a setting. Or press **Select** to leave the setting as is and advance to the next setting.

6 Once you have set all the program time and temperature settings for each day, press **Home** to save the changes.



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Troubleshooting

If you have difficulty with your thermostat, please try the following suggestions. Most problems can be corrected quickly and easily.

Display is blank	• Check circuit breaker and reset if necessary. • Make sure power switch at heating and cooling system is on. • Make sure furnace door is closed securely.
“Wait” appears on the screen	• Compressor protection feature is engaged. Wait 5 minutes for the system to restart safely, without damage to the compressor.
Temperature settings do not change	• If display says “unlock”, thermostat owner has set a lockout setting. If not, verify you are in the correct mode (heat, cool, em heat or auto); see page 1. • If you are in the correct mode, but you cannot set the heat from 40 °F to 90 °F (4.5 °C to 32 °C), or set the cool from 50 °F to 99 °F (10 °C to 37 °C), you may have range-stops restricting your setting. Check with the installer to see if they set range-stops.

https://customer.resideo.com/en US/support/residential/codes and standards/FCC15105/Pages/default.aspx

resideo

www.resideo.com

Resideo Technologies Inc.
1985 Douglas Drive North, Golden Valley, MN 55422
https://www.honeywellhome.com/support
33-00613EFS—03 M.S. Rev. 08-22 | Printed in United States

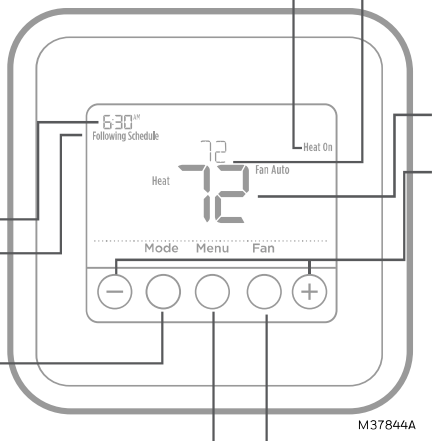
Honeywell Home

T4 Pro Thermostat Programmable

Information Produit

TH4110U2005 & TH4210U2002,
Lire avant l'installation

Commandes du thermostat



Informations d'état du système
Cool On (Refroidissement)/ Heat On (Chauffage), Recovery (Récupération)/Em Heat On (Urgence), Compressor Protection (Protection du compresseur)

Heure actuelle

Informations sur le programme
Programme horaire activé

Mode
Sélectionnez le mode du système Heat/Off/ Cool/Auto/EM Heat (Chauffage/Arrêt/ Refroidissement/ Auto/Chauffage d'urgence)

Menu
Appuyez pour afficher les options. Commencez ici pour configurer un programme.

Point de consigne de température intérieure
Appuyez sur les boutons + ou - pour modifier le réglage de la température

Température intérieure actuelle

Boutons de température/ navigation
Appuyez sur pour augmenter ou diminuer la température de consigne et pour naviguer dans les menus et options de menu

Ventilateur
Sélectionnez le mode ventilateur Auto/On (Marche)

Vous pouvez rechercher **Resideo 33-00188EFS** en ligne pour consulter le guide de l'utilisateur.

MISE EN GARDE
RISQUE DE DOMMAGES AU MATÉRIEL.
Pour prévenir des dommages potentiels au compresseur, ne pas faire fonctionner le système de climatisation lorsque la température extérieure est inférieure à 10 °C (50 °F).

MISE EN GARDE
AVIS SUR LES DÉCHETS ÉLECTRONIQUES
Le produit ne devrait pas être jeté aux ordures ménagères. Adressez-vous au centre de collecte ou de récupération autorisé le plus près. L'élimination appropriée de l'équipement en fin de vie aidera à prévenir les conséquences négatives potentielles sur l'environnement et la santé.

Programmation

Vous pouvez programmer quatre périodes de temps par jour, avec des réglages différents pour les jours de la semaine et les fins de semaine. Nous recommandons les paramètres prédéfinis (illustrés dans le tableau ci-dessous), car ils permettent de réduire vos frais de chauffage/refroidissement.

Wake (Réveil) – Réglez à l'heure du lever et à la température voulue le matin, jusqu'à votre départ.

Away (Absent) – Réglez à l'heure de départ et à la température voulue durant l'absence (en règle générale à un niveau permettant d'économiser de l'énergie).

Home (À la maison) – Réglez à l'heure du retour et à la température voulue durant la soirée, jusqu'au coucher.

Sleep (Sommeil) – Réglez à l'heure du coucher et à la température voulue durant le sommeil (en règle générale à un niveau d'économie d'énergie).

	Heat Chauffage	**Cool** Refroidissement
Wake (Réveil) (6 h)	70°	78°
Away (Absent) (8 h)	62°	85°
Home (À la maison) (18 h)	70°	78°
Sleep (Coucher) (22 h)	62°	82°

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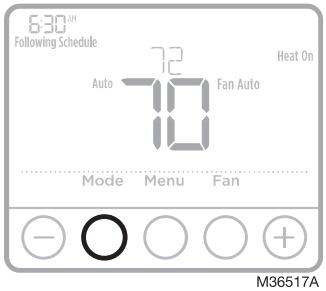
Réglages pour le fonctionnement du système

1 Appuyez sur le bouton **Mode** pour passer au prochain mode de système disponible.

2 Faites défiler les modes jusqu'à ce que le mode de système requis soit affiché, et laissez-le s'activer

REMARQUE : Les modes de système disponibles varient en fonction du modèle et des paramètres du système.



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Modes de **système :**

- **Auto** (Automatique)
- **Heat** (Chauffage)
- **Cool** (Refroidissement)
- **Em Heat** (Chauffage d'urgence)
- **Off** (Arrêt)

Réglages pour le fonctionnement du ventilateur

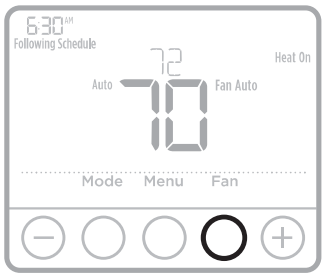
1 Appuyez sur le bouton **Fan** (Ventilateur) pour passer au prochain mode de ventilateur disponible.

2 Faites défiler les modes jusqu'à ce que le mode de ventilateur requis soit affiché, et laissez-le s'activer.

REMARQUE : Les modes de ventilateur varient en fonction des paramètres du système

Modes du ventilateur :

- **Auto (Automatique) :** Le ventilateur fonctionne uniquement lorsque le système de chauffage ou de refroidissement est en marche.
- **On (Marche) :** Le ventilateur est toujours activé.



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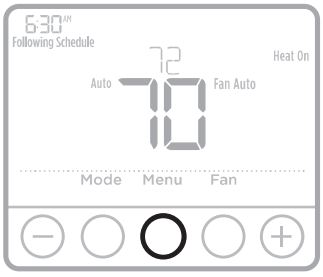
Réglage de l’heure et de la date



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1 Appuyez sur le bouton **Menu** de votre thermostat.

2 Appuyez sur + ou − pour aller à **TIME** (Heure). Appuyez sur **Select** (Sélectionner).

3 Appuyez sur + ou − pour choisir entre 12 ou 24 heures. Appuyez sur **Select** (Sélectionner).

4 Appuyez sur + ou − pour régler l’heure. Appuyez sur **Select** (Sélectionner).

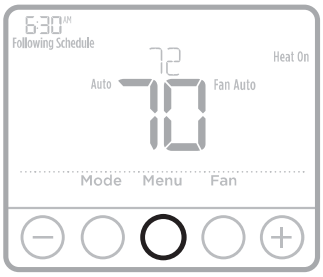
5 Appuyez sur + ou − pour régler les minutes. Appuyez sur **Select** (Sélectionner) pour quitter le menu **Time** (Heure).

6 Appuyez sur + pour aller à **DATE**.

7 Appuyez sur **Select** (sélectionner) et utilisez le + ou le − pour modifier le segment clignotant.

8 Appuyez sur **Select** (sélectionner) pour passer au réglage suivant. Appuyez sur **Home** (accueil) lorsque terminé.

Pour régler le programme



M36519A

1 Appuyez sur Menu sur le thermostat.

2 **PROG** s’affiche. Appuyez sur **Select** (Sélectionner). **ON** s’affiche. (Si vous ne voulez pas utiliser un programme, appuyez sur + ou − pour afficher **OFF**. Appuyez sur **Select**.) Appuyez sur **Select**.

3 Appuyez sur + ou − pour sélectionner le jour ou le groupe de jours à modifier. Appuyez sur **Select** (Sélectionner).

4 Appuyez sur + ou − pour sélectionner un programme à modifier (Réveil, Absent, À la maison et Coucher). Appuyez sur **Select** (Sélectionner).

5 Pour chaque période de programme, vous pouvez régler l’heure, la température ou l’utilisation de la période de programme (activée ou désactivée). Appuyez sur + ou sur − pour modifier un réglage. Ou appuyez sur **Select** (sélectionner) pour laisser le réglage tel quel et passer au réglage suivant.

6 Lorsque vous avez défini tous les paramètres d’heure et de température du programme pour chaque jour, appuyez sur **Home** (accueil) pour enregistrer les changements.

Dépannage

En cas de difficultés avec le thermostat, essayez les suggestions suivantes. La plupart des problèmes peuvent être réglés rapidement et facilement.

Rien n'apparaît à l'écran	• Vérifiez le disjoncteur et réinitialisez-le si nécessaire. • Assurez-vous que l'interrupteur de marche-arrêt du système de chauffage et de refroidissement est sur marche. • Assurez-vous que la porte de l'appareil de chauffage est bien fermée.
« Patientez » apparaît à l'écran	• La fonction de protection du compresseur est activée. Attendez 5 minutes que le système se remette en marche en toute sécurité sans endommager le compresseur.
Les réglages de température ne changent pas	• Si l'affichage indique « Unlock » (déverrouillage), le propriétaire du thermostat a défini un paramètre de verrouillage. Autrement, assurez-vous d'être dans le mode approprié (chauffage, climatisation, chauffage d'urgence ou automatique); voir la page 2 • Si vous êtes dans le mode approprié, mais que vous ne pouvez pas régler le chauffage de 4,5 °C à 32 °C (40 °F à 90 °F), ou régler la climatisation de 10 °C à 37 °C (50 °F à 99 °F), il se pourrait que des butées de plage de température limitent vos réglages. Informez-vous auprès de l'installateur pour savoir si des butées de plage ont été mises en place.

https://customer.resideo.com/en US/support/residential/codes and standards/FCC15105/Pages/default.aspx

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Honeywell Home

T4 Pro Termostato Programable

Información de producto

TH4110U2005 & TH4210U2002,
Leer antes de instalar

Controles del termostato

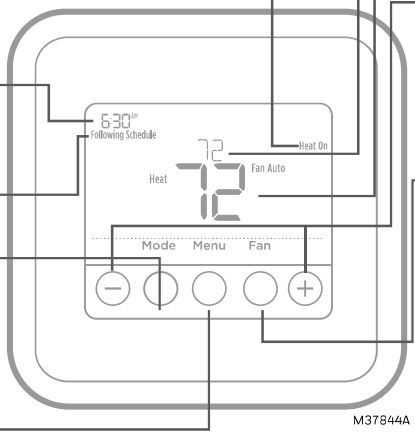
Información del estado del sistema
Cool On (refrigeración activada)/Heat On (calefacción activada)/Em Heat On (emergencia), Recovery (recuperación), Compressor Protection (protección del compresor)

Hora real

Información de la programación
Sigue la programación en función del cronograma

Modo
Seleccione el modo del sistema: Heat (calefacción)/Off (apagado)/Cool (refrigeración)/ Auto (automático)/EM Heat (calefacción de emergencia)

Menú
Presione para mostrar las opciones. Comience aquí para configurar un cronograma del programa.



Punto de referencia de la temperatura interior
Presione + o – para cambiar la configuración de temperatura

Temperatura real en interiores

Botones de regulación de la temperatura/Navegación
Presione para aumentar o disminuir el punto de referencia de la temperatura y para navegar por los menúes y sus opciones

Ventilador
Selección el modo del ventilador Auto (automático)/On (activado)

Puede buscar **“Resideo 33-00188EFS”** en línea para encontrar la Guía de usuario.

PRECAUCIÓN
PELIGRO DE DAÑO EN EL EQUIPO.
Para evitar posibles daños en el compresor, no haga que el termostato funcione cuando la temperatura exterior sea inferior a 50 ºF (10 ºC).

PRECAUCIÓN
AVISO ELECTRÓNICA DE RESIDUOS
El producto no debe desecharse junto con otros residuos domésticos. Busque el centro de recolección autorizado más cercano o empresas de reciclaje autorizadas. Desechar correctamente los equipos cuya vida útil terminó ayudará a prevenir las posibles consecuencias negativas en el medioambiente y en la salud de las personas.

Cronograma del programa

Puede programar cuatro períodos de tiempo por día, con diferentes configuraciones para los días de semana y los fines de semana. Recomendamos las configuraciones preestablecidas (que se muestran en el cuadro a continuación), debido a que estas reducen los gastos de calefacción y refrigeración.

Wake (Despertar) - Programe la hora en que se despierta y la temperatura que desea durante la mañana, hasta que se marche de su casa.
Away (Fuera) - Programe la hora en que se marcha de su casa y la temperatura que desea mientras no está en su casa (por lo general, un nivel de ahorro de energía).
Home (En casa) - Programe la hora en que regresa a su casa y la temperatura que desea durante la tarde hasta que se va a dormir.
Sleep (Dormir) - Programe la hora en que se va a dormir y la temperatura que desea durante toda la noche (por lo general, un nivel de ahorro de energía).

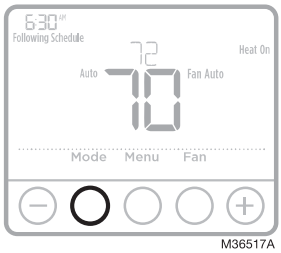
	Heat Calefacción	**Cool** Refrigeración
Wake (Despertar) (6:00 a.m.)	70°	78°
Away (Fuera) (8:00 a.m.)	62°	85°
Home (En casa) (6:00 p.m.)	70°	78°
Sleep (Dormir) (10:00 p.m.)	62°	82°

MS38823

Configuraciones de funcionamiento del sistema

1 Presione el botón **Mode** para pasar al siguiente modo disponible del sistema.
2 Avance a través de los modos hasta que se muestre el modo requerido del sistema y déjelo para activarlo.

NOTA: Los modos disponibles del sistema varían según el modelo y las configuraciones del sistema.



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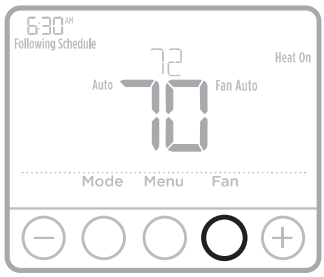
Modos del **sistema**:

- **Auto** (Automático)
- **Heat** (Calefacción)
- **Cool** (Refrigeración)
- **Em Heat** (Calef. emerg.)
- **Off** (Apagado)

Configuraciones de funcionamiento del ventilador

1 Presione el botón **Fan** (ventilador) para pasar al siguiente modo de ventilador disponible.
2 Avance a través de los modos hasta que se muestre el modo de ventilador requerido y déjelo para activarlo.

NOTA: Los modos disponibles del ventilador varían según las configuraciones del sistema.

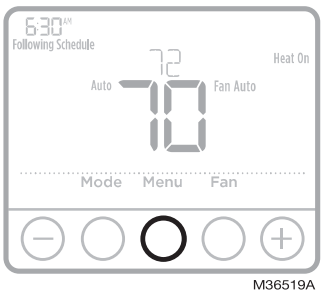


M36518A

Modos del **ventilador:**

- **Auto (Automático):** El ventilador funciona solo cuando el sistema de calefacción o refrigeración está encendido.
- **On (Encendido):** El ventilador está siempre encendido.

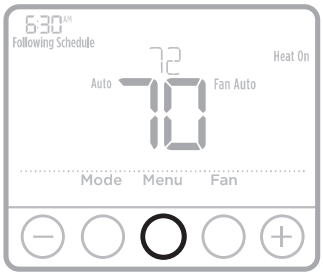
Configuración de hora y fecha



M36519A

1 Presione **Menu** en su termostato
2 Presione ⊕ o ⊖ para ir a **TIME** (hora) Presione **Select** (seleccionar).
3 Presione ⊕ o ⊖ para elegir entre 12 o 24 horas.
4 Use ⊕ o ⊖ para ajustar la hora. Presione **Select** (seleccionar).
5 Use ⊕ o ⊖ para ajustar los minutos. Presione **Select** (seleccionar).
6 Presione el botón ⊕ para ir a **DATE** (Hora).
7 Presione **Select** (Seleccionar) y use los botones ⊕ o ⊖ para cambiar el segmento intermitente.
8 Presione **Select** (Seleccionar) para avanzar hacia la siguiente configuración. Presione **Home** (Inicio) cuando finalice.

Para ajustar los cronogramas del programa



M36519A

1 Presione **Menu** (menú) en su termostato.
2 Aparecerá **PROG**. Presione Select (seleccionar). Aparece **ON** (encendido). (Si no desea utilizar la configuración del cronograma, presione ⊕ o ⊖ para mostrar **OFF** [apagado]. Presione **Select** [seleccionar].) Presione **Select** (seleccionar).
3 Presione ⊕ o ⊖ para seleccionar el día o grupo de días para editar. Presione **Select** (seleccionar).
4 Presione ⊕ o ⊖ para seleccionar un período de cronograma para editar (Wake [despertar], Away [fuera], Home [en casa] y Sleep [dormir]). Presione **Select** (seleccionar).
5 Para cada período de programa, puede ajustar el tiempo, la configuración de temperatura o determinar si ese período de programa está en uso (activado o desactivado). Presione ⊕ o ⊖ para cambiar una configuración. O presione **Select** (Seleccionar) para dejar la configuración como está y avanzar hacia la siguiente configuración.
6 Una vez que haya configurado todos los ajustes de tiempo y temperatura del programa para cada día, presione **Home** (Inicio) para guardar los cambios.

Localización y solución de problemas

Si tiene dificultades con el termostato, intente seguir las sugerencias que se indican a continuación. La mayoría de los problemas se pueden solucionar de manera fácil y rápida.

La pantalla está en blanco	• Revise el interruptor de circuito y, si es necesario, reinícielo. • Asegúrese de que el interruptor de energía del sistema de calefacción y refrigeración esté encendido. • Asegúrese de que la puerta del sistema de calefacción esté bien cerrada.
Aparece la advertencia "Wait" (Espere) en pantalla	• La función de protección del compresor está activada. Espere 5 minutos hasta que el sistema se reinicie de forma segura para evitar dañar el compresor.
Las configuraciones de la temperatura no cambian.	• Si la pantalla dice "unlock" ("desbloquear"), el propietario del termostato ha establecido una configuración de bloqueo. En caso contrario, compruebe que está utilizando el modo correcto (calefacción, refrigeración, calefacción de emergencia o automático). Consulte la página 3. • Si está utilizando el modo correcto, pero no puede configurar la calefacción entre 40 °F y 90 °F (4,5 °C y 32 °C) o la refrigeración entre 50 °F y 99 °F (10 °C y 37 °C), es posible que haya rangos de detención que restringen la configuración. Pregúntele al instalador si configuró rangos de detención.

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