YOUR CERTIFIED ENERGY EFFICIENT

NEW HOME MANUAL

EFFICIENCY MANITOBA

Thank you for choosing a Certified Energy Efficient new home.

This home is part of a select group of new homes in Manitoba which are Certified Energy Efficient by Efficiency Manitoba.

This home was inspected for compliance with program requirements and subject to a blower door test to measure air tightness of the building envelope.

As a result of these requirements, your new home is at least 20% more efficient than a comparable new home in Manitoba built to minimum code levels.

Your new home features many energy-saving technologies, which work together as a system to make it a healthier, more comfortable, and energy efficient living space.



Over a 20 year period, a typical Certified Energy Efficient new home will have helped reduce greenhouse gas emissions by 37 tonnes or more. That's the equivalent of taking eight cars off the road and saving 3,980 from harvesting.

Along with having a lesser environmental impact than a conventional home, your new home will have lower energy and operating costs for as long as you live in it.

This New Home Manual is intended to provide you with useful information on how to properly maintain your new home and keep your energy bills low. The maintenance schedule at the back of this manual provides a seasonal and annual to-do list to help keep your home working as efficiently as possible.

It's important for your builder to provide you with the appropriate instructions for your heat recovery ventilator (HRV), heating system, hot water tank and air conditioner. If there are warranty forms, complete the information and return the forms to the manufacturer(s) for warranty registration.

Review and retain all equipment manuals, in the event you or future occupants need to refer to them.

NOTE: Before starting work on electrical or gas equipment, always ensure the energy source is disconnected. Second, work only within your technical knowledge and abilities. Always consult a certified trade professional for any major work.

Increased insulation



A well-insulated home uses less energy. That means lower heating and cooling costs and less environmental impact.

Your home's building envelope includes the exterior walls, foundation, roof, windows and doors.

An energy efficient home is built with higher levels of insulation to reduce heat loss, create a more comfortable living space, and lower your energy bills by making it more difficult for heat to travel through the building envelope. Increased insulation also benefits the environment by reducing greenhouse gas emissions.

In order for insulation to be effective, air must not blow through it. In the next section, read about the importance of air sealing in maximizing your home's energy efficiency.



Air sealing



Long, cold winters make air tightness a particularly important issue for Manitoba homeowners. A leaky home increases your energy bills, reduces comfort and durability, and can negatively affect indoor air quality.

In order to be Certified Energy Efficient, your new home met or exceeded a stringent air tightness requirement. Air tightness testing was performed on your home using a single fan blower door test.

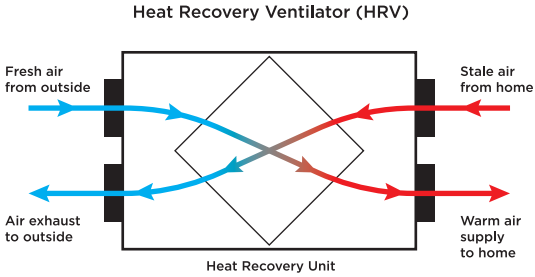
For the specific result of your home's air tightness test, see your New Homes Program Certificate of Energy Efficiency.

Because the building envelope is made up of many components, it is impossible for any one material to surround the house completely and form the air barrier. The air barrier is actually a continuous system made up of many parts that are sealed together with tapes, gaskets, caulking and weather stripping.

A mechanical ventilation system is also necessary in order to provide air for ventilation and control humidity levels inside the home. Read on to find out more about your home's advanced heat recovery ventilation (HRV) system.



Your heat recovery ventilator, explained



Heat recovery ventilators (HRVs) are a key component of healthy, comfortable and energy efficient new homes. Often, these devices are widely misunderstood and operated incorrectly.

An HRV system uses fans to exhaust humidity, odours and carbon dioxide from the home while drawing in fresh air from the outside. In winter, the HRV uses heat from the stale air it exhausts to warm up incoming cold air. That transfer of heat saves you energy and money. The air exchange also improves indoor air quality and reduces condensation problems by replacing stale, humid air with fresh, dry air from outside.

Don't turn it to "off", use a control instead

Because the HRV is integral in maintaining safe and comfortable humidity levels in your home, it is important to allow it to run.

Humidity and condensation

Your home's humidity level affects the comfort and quality of your indoor air. This chart provides some guidance, but each home operates differently. Use your HRV to control humidity and improve air quality in your home.

Recommended maximum humidity levels:

Outdoor temperature	Practical humidity level
–35°C	20%
–30°C	25%
–25°C	30%
–18°C	35%
–10°C	40%
–5°C	45%
0°C	50%
Summer	100% or off

Too much humidity can cause window condensation, icing issues, and mould. If your home is too humid:

- Turn humidifiers down or off.
- Don’t hang wet clothes indoors to dry.

Run the exhaust fan during a shower or bath, plus an extra 10 to 15 minutes afterwards. Install a timer switch so you don’t forget to turn it off.

Another way to keep the air fresh in your home is to keep outdoor pollutants away from the HRV’s intake vent.

Garbage bins and idling cars should be at least three metres away from the intake vent. During the fall and winter months, monitor the intake and exhaust vents to make sure they’re not blocked by leaves or snow.

Advanced HRV controls

Your new home includes upgraded HRV controls that have the ability to operate in standby mode (no low speed fan) or intermittent operation (20 minutes on per hour). Your HRV has an adjustable dehumidistat which activates the HRV according to relative humidity. This allows you to maximize your savings by matching your home's ventilation needs with your lifestyle.



Electric hot water tanks

Most new homes in Manitoba have electric hot water tanks. These tanks keep water hot, regardless of whether the occupants are using hot water. The tank's thermostat controls the internal water temperature and activates the heating element.

It's important to maintain a temperature that's not too high or too low. Excessively hot water results in higher energy bills, a shorter lifespan for your water heater, and potential danger for those using the hot water. Temperature that's too low can lead to a shortage of hot water during periods of heavy usage and poor performance from a clothes washer or dishwasher. The National Building Code of Canada requires an electric water heater to be set at 60°C.

Hot water tanks have a temperature/pressure release valve at the top of the tank, which acts as a safety valve for steam or scalding water to escape if the thermostat malfunctions. If the valve is working correctly, water should flow from the overflow pipe when the valve is opened slowly.



YOUR HOME'S MAINTENANCE SCHEDULE

The systems in your home require ongoing and annual maintenance to keep them in top working order. Here's a breakdown of helpful maintenance tips.

- ☐ Keep maintenance records for the systems in your home. These may be useful if you ever need to make warranty claims.
- ☐ Have your forced-air heating system professionally cleaned before you move into your home. Although the system is new, a surprising amount of dust and debris could have entered the ducts during construction.
- ☐ In addition to checking your sump pump in the spring and fall, you should always check it before you leave for an extended vacation.
- ☐ If you have a geothermal heating system, you should check it monthly. Clean and/or replace the air filter, and ensure the supply and return air vents are clear. Also, have the system checked once a year by a qualified service professional.

ANNUAL

- ☐ Have your forced-air furnace cleaned and inspected by a licensed heating contractor.
- ☐ Clean your HRV's core and check fans. Vacuum if needed, and use soap and water to clean.
- ☐ Check your HRV's drain. Pour two litres of warm water through the drain.
- ☐ Have all indoor combustible appliances inspected by a licensed professional.

YOUR HOME'S MAINTENANCE SCHEDULE

WINTER

- ☐ Vacuum bathroom fan grilles, if needed.
- ☐ Vacuum dust and lint from your refrigerator's condenser.
- ☐ Check fire extinguisher and replace or recharge if necessary.
- ☐ Review fire escape plan and test all associated window and door locks.
- ☐ Clean excessive snow loads off roof.
- ☐ Check water heater.
- ☐ If your furnace has a humidifier, it should be cleaned once a month during the heating season. This is to avoid bacteria and fungi growth, which can lead to serious health problems. Follow the maintenance instructions in your owners' manual, or check the humidifier itself for instructions.
- ☐ Monitor your HRV's intake and exhaust vents to make sure they're not blocked by leaves or snow.

SPRING

- ☐ Turn the HRV's dehumidistat to the "high" setting or "off."
- ☐ Check fresh air intake at exterior of house.
- ☐ Examine the interior and exterior of the house for cracks, leaks or moisture/dampness, and repair if needed.
- ☐ Check that the sump pump is working properly before the onset of the spring thaw. Make sure the discharge pipe is connected and allows water to drain away from the foundation. Remove the sump pit cover and use a flashlight to see if debris has accumulated within the sump pit.
- ☐ Remove debris from eavestroughs and downspouts, and make sure water can flow away from the foundation.
- ☐ Check your furnace's dehumidifier and clean once again before turning it off for the summer season.
- ☐ Check weather stripping for damage around windows and doors.
- ☐ Recheck smoke and security alarms, and carbon monoxide detectors. Replace batteries if needed.
- ☐ Vacuum dust and lint from your refrigerator's condenser.

SUMMER

- ☐ If basement humidity levels exceed 60%, use a dehumidifier to maintain a humidity level close to 40%.
- ☐ Disconnect the duct connection to the dryer, vacuum lint from within the duct and surrounding areas, and reconnect. Only use metallic tape to secure dryer duct fittings. Do not use screws to fasten the connector.
- ☐ Examine the exterior of your home for any penetrations that could allow entry of insects or rodents.

FALL

- ☐ Set your HRV's dehumidistat to 40–50%.
- ☐ Monitor your HRV's intake and exhaust vents to make sure they're not blocked by leaves or snow.
- ☐ Test and clean smoke and carbon monoxide detectors. Replace batteries if needed.
- ☐ If you have an attached garage, make sure the inside door is weather-stripped to prevent harmful gases from entering your living space.
- ☐ Cover your air conditioner with a winter cover.
- ☐ Ensure eavestroughs and downspouts are clear of debris, to ensure proper water drainage.
- ☐ Check roof shingles for any visible wear.
- ☐ Drain your exterior faucet while draining and storing your outdoor garden hose.
- ☐ Check caulking around sinks, showers and bathtubs.
- ☐ Check your sump pump. Remove the sump pit cover and use a flashlight to see if debris has accumulated within the sump pit.

SEASONAL

These tips can be followed with each seasonal maintenance check:

- ☐ Inspect, clean or replace filters for your furnace and HRV. If family members have allergies or are sensitive to poor air quality, filters may need to be replaced or cleaned more frequently.
- ☐ Remove and vacuum the grilles on your forced-air heating system. Also, vacuum inside the ducts to reduce the likelihood of mould and dust mites accumulating in the ventilation system.
- ☐ Ensure supply and return air registers aren't obstructed by furniture, rugs or other objects.
- ☐ In spring, summer and fall, perform maintenance on your air conditioner. Turn off the power and remove any winter cover, and preferably turn off its power. Check the surrounding area to make sure there are no shrubs, leaves, sticks, grass or debris that could interfere with the unit's operation. If you notice dust or a dirty buildup in the fan blades or inside the unit, contact a heating and ventilation contractor to have it cleaned. If you are not using the air conditioner in the current season, protect it with its winter cover.

Sump pumps



In most of Manitoba, it's necessary to drain ground water away from a house to prevent damp basements or flooding. Drain tiles are located around the outer perimeter of the foundation walls and under the floor. They're designed to collect ground water and divert it to a sump pit. When water rises in the sump pit, a sump pump turns on and pumps the excess ground water into the house's main water drainage system or outdoors, away from the foundation.

Since most sump pumps are wired into a home's electrical system, it's worth considering a backup generator that can keep your sump pump running if the power goes out during a heavy downpour.



Heating systems

Central forced-air systems are the most common in new homes in Manitoba. These systems use a central air handler (furnace or heat exchanger) to deliver heated air throughout the house via supply ducts. Cold air drawn back through the return ducts passes through a filter, reducing dust and other pollutants in the air before it returns to the central air handler.

Typically, most central forced-air heating systems use natural gas or electricity as the primary heat source and a heat exchanger for geothermal systems.

High efficiency natural gas furnaces produce heat through the process of combustion. These furnaces have an Annual Fuel Utilization Efficiency (AFUE) of 96% or better. Because they're so efficient, they can reduce annual heating costs by up to 26% compared to older technology.

Electric furnaces use electric heating elements to heat the air. They're usually considered 100% energy efficient because the electricity turns entirely into heat.



Thermostats

Thermostats are used to maintain the desired temperature in the house.

If you have a natural gas or electric heating system, you can save energy by setting your thermostat back at night or when your home is unoccupied. Setting your thermostat back just 3 °C for eight hours a day can save three per cent on your annual heating bill.

Programmable thermostats allow you to program a heating schedule for winter, a cooling schedule for summer, and individual settings for each day of the week.

Wi-Fi connected smart thermostats go a step further by sensing occupancy and even learning your preferred settings. Smart thermostats often have the ability to make suggestions that can help you save energy, improve comfort, remind you of required maintenance, or notify you of potential problems with your heating system.

Choosing an air filter

Your furnace will likely come with a standard disposable or permanent washable filter.

If you choose to upgrade to a higher quality filter, check with the furnace manufacturer first for upgrade instructions. Filters made with higher quality materials and greater surface area trap smaller particles that would otherwise pass through a standard filter. They're especially beneficial for occupants with allergies, asthma or respiratory problems.

A furnace with an electronic air cleaner uses washable pre-filters to trap larger particles, and electrically charged plates to collect smaller particles. These cleaners are 20 to 40 times more effective at cleaning the air than standard disposable fibreglass furnace filters.

High efficiency particulate air (HEPA) filters are another premium option. These filters have a large surface area of ultra-fine filter material.

INSIDE YOUR NEW HOME

High performance windows

Controlling air flow and humidity works best in partnership with better-performing windows.

Your new home has triple pane windows with a low-emission coating and gas fill, along with an insulating spacer which reduces heat loss through the glass and other window components. This way, you can enjoy the view — and lower monthly bills.





Energy efficient LED lighting



LED is the lighting of the future, with a wide variety of lighting options and controls to customize your home. LEDs can deliver more light while using up to 80% less energy. Some LED bulbs last up to 25 years and cost considerably less to operate, when compared to an incandescent bulb.

With any luck, you won't need to change a bulb in your new home for some time. But when you do, choose LED bulbs and keep your energy costs low.



TROUBLESHOOTING COMMON PROBLEMS

My furnace is making noise. What should I do?

Ensure your supply or return registers aren't blocked and your furnace filter and ductwork are clean.

Other causes may be improper duct sizing, an unbalanced furnace fan or excessive vibrations, which will need to be serviced by a heating and ventilation contractor.

I tripped an electric breaker OR there's a power outage.

Always have a flashlight with extra batteries available in case of a power outage. Check the circuit breaker panel and if you find a tripped breaker, flip its toggle switch to the "on" position. If the breaker still continues to trip, call an electrician.

If the power is out in your neighbourhood, you can report it online at hydro.mb.ca/outage, or by calling **204-480-5900** in Winnipeg (**1-888-624-9376 toll free**). It's helpful to have your account number with you (it's on your bill) so Manitoba Hydro can pinpoint exactly where you are and provide assistance faster.

I smell natural gas.

Natural gas is odourless, but it has an additive called mercaptan that makes it smell like rotten eggs. This is a safety precaution that makes it easy to detect natural gas.

If there's a strong smell, act immediately:

- Turn down your thermostat and/or turn off other fuel-burning equipment.
- Do not touch light switches or anything else that may cause a spark, such as the telephone or electrical appliances/equipment.
- Leave the house and call for assistance from your mobile phone. Call Manitoba Hydro's 24-hour emergency number at **204-480-5900** in Winnipeg (**1-888-624-9376 toll free**).

Dig safe

Contact with a buried natural gas or electrical line can cause serious injury or even death.

If you're building a fence, planting trees or shrubs, or planning any project that involves digging, send a line locate request at least three working days before you plan to start. Manitoba Hydro's underground lines will be marked free of charge.

Visit **clickbeforeyoudig.com** or call **1-800-940-3447**.

My carbon monoxide alarm is going off.

Never ignore an alarm from your carbon monoxide detector. If the detector sounds, immediately move to fresh air, either outdoors or by an open window, and call emergency personnel (fire department or 911).

My hot water tank is leaking.

If the hot water tank develops a leak, it's best to have it replaced since a leaky hot water tank is not cost effective to repair.

Always shut off the power to the hot water tank before you shut off the water supply.

To turn off the fuel supply for a natural gas, propane or oil water heater, locate the gas valve on the lower front of the tank and turn it to the "off" position. To turn off the electrical supply to an electric, oil water heater or power-vented natural gas model, flip or press the circuit breaker toggle to the "off" position.

My sump pit is full of water OR my sump pump won't turn on.

If stale water has collected in the sump pit, plug the pump back in and flush the sump pit with clean water to get rid of the stale water. Flushing the system is also a good way to ensure the pump is working properly. Quite often, a blocked sump pump is the reason a pump won't turn on.

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Available in accessible formats upon request.