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POWER SMART GUIDE:
Energy saving solutions for home comfort

Energy saving tips

Manitoba Hydro
POWER SMART*

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For more information on Power Smart®:

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Or visit **hydro.mb.ca**

Publications in this series

1. Sealing, caulking & weatherstripping
2. Basement & crawlspace insulation
3. Attic insulation
4. Wall insulation
5. Doors & windows
6. Heating systems
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Manitoba Hydro
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BOOKLET #9

Energy Saving Tips

Important Notice

Care has been taken to ensure the accuracy of this booklet. Manitoba Hydro cannot assume responsibility for injury, loss or damage that results from relying solely on the information contained in this booklet.

Contents

What is Power Smart?

Power Smart is Manitoba Hydro's strategy to promote the wise use of energy. It is designed to help Manitobans use energy more efficiently. Power Smart programs promote low-cost, no-cost ways to reduce energy consumption and offer special incentives and services to encourage Manitobans to make energy efficient upgrades and adopt energy-wise habits.

Who should use this booklet?

Anyone who wants to enhance the comfort of their home, use less energy and save money can benefit from the information in this booklet.

Some of the most effective changes you can make in your home are also the least expensive. For example:

- Your furnace will work more efficiently and last longer if you regularly service it and change the air filter;
- You may not have to replace your windows if you can seal around them to prevent air leakage;
- If your attic temperature is much warmer than the temperature outside your home, heat from the rooms below may be entering the attic through gaps & holes in the attic floor. Seal gaps around light fixtures, pipes, ducts and exhaust fans in ceilings to reduce heat loss.

The following pages provide various low-cost, no-cost energy saving solutions for your entire home.

Top Five Tips

What should be done, for the greatest energy savings?

Here are the top five things you can do to make your home more energy efficient:

1. Follow low-cost and no-cost energy saving tips that you can do around your home to save money right away with little or no cash investment.

2. Reduce air leakage. Up to 40 per cent of your home's heat may be lost to uncontrolled air leakage from your home. Caulk and seal gaps around your windows, doors and openings in your attic floor to stop air leakage. If you feel a draft, then warm air is leaking out, and with it the money you spent heating it.

3. Insulate the uninsulated. Up to 25 per cent of your home's heat loss can occur through an uninsulated basement. Even if your basement is partially finished, small areas around the laundry room or furnace area that aren't insulated can still lose a significant amount of heat. This kind of heat loss is comparable to having a button undone on your winter coat.

4. Add insulation to poorly insulated areas. Topping up a poorly insulated attic can reduce energy costs by 10 per cent or more. Be sure to check where ducts, fans and light fixtures are installed in the attic floor and seal all gaps and holes to prevent warm air from escaping the main living areas.

5. Upgrade your heating system - an older natural gas furnace may be only 60 per cent efficient. New high efficiency natural gas furnaces are over 92 per cent efficient.

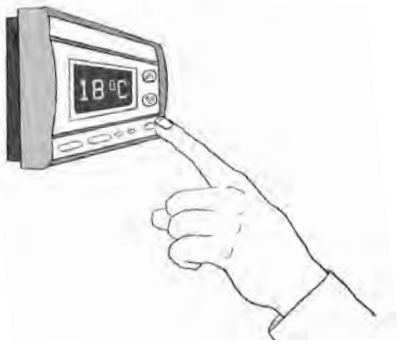
Replacing windows and doors is not on the top five list, however if you do replace your windows and doors be sure to choose energy efficient units for improved comfort, reduced condensation and less maintenance.

Low-Cost No-Cost Energy Saving Tips

Heating/cooling

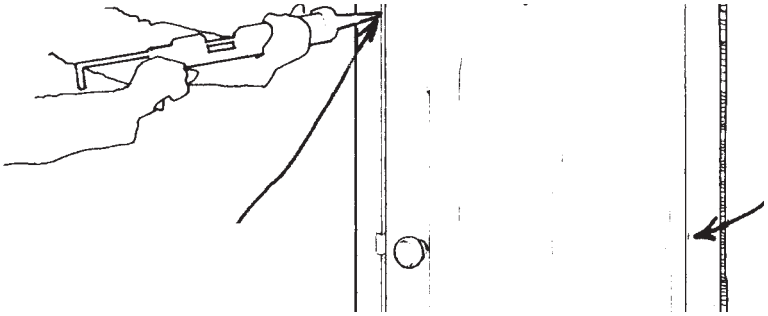
Your furnace is the biggest energy user in your home.
Proper maintenance is a great way to save money.

- Maintain your heating system through regular servicing to ensure that it will run at peak efficiency throughout the winter.
- Clean or replace furnace filters frequently during the heating season, and clean or replace your filter prior to the cooling season.
- Keep supply and return air registers clear and unobstructed.
- Install a programmable thermostat. Thermostat timers or setback thermostats can replace regular furnace thermostats. They can be programmed to automatically adjust the temperature to conserve energy at night or when no one is home.
- Where possible, turn down the heat in rooms you seldom use.



Sealing, caulking, and weather-stripping is used for more than just your windows and doors:

- 30-50 per cent of air leakage occurs under the baseboards, through the basement header area, and through uninsulated electrical outlets.
- 20 per cent of air leakage occurs through gaps around the openings in your home's exterior walls for pipes, cables, wiring, dryer vents and fans.

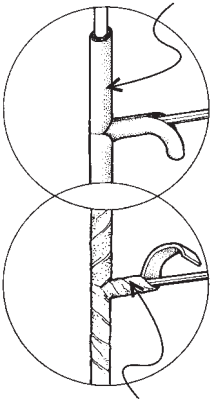


- Install timers on your exhaust fans or turn them off once they have done their job, so they don't draw too much heat out of your home in winter or too much cooled air in the summer.
- If you have a wood fireplace, you could be losing heat from your chimney. Consult with a Chimney Sweep on how you can reduce heat loss when the fireplace is not in use.
- If you use air conditioning, you can save energy by keeping your windows and shades closed on the sunny side of your house. In winter, save energy by opening your shades in the morning on the eastern and southern sides of your house, and closing them late in the day.
- Maintain your cooling system with regular servicing to ensure it runs at peak efficiency throughout the summer. The outside condensing unit should be cleaned at least once a year.
- The shades on the north windows should be kept closed whenever convenient during the winter.
- A well-placed tree or shrub on the sunny side of your home, will provide shade in summer, and act as a windbreak in chilly months.

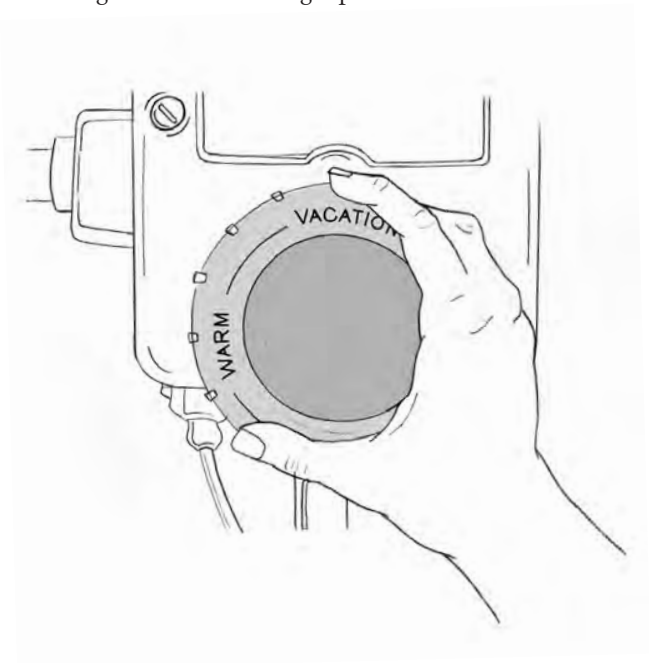
Water

Your water heater is the second biggest energy user in your home.

- Install an energy efficient showerhead and a kitchen faucet aerator with a flow rate of 1.5 gallons per minute or less.



- Apply pipe insulation on the hot and cold water lines of your water heater.
- Use cold water for the wash and rinse cycles. Do full loads and if possible hang your clothes outside to dry.
- Planning a vacation? Turn your water heater to vacation mode.
- Run a full load when using a dishwasher.
- Use the energy saver cycle on your dishwasher, or open the door after the final rinse to let the dishes air dry.
- Repair leaking toilets and leaking taps.



Lights

Compact Fluorescent Light Bulbs (CFLs)

- Compact Fluorescent lights use less electricity compared to incandescent bulbs and last up to 8 times longer. They are good choices in areas where lights are on continuously more than 3 hours a day. Since they don't need to be replaced often, they are handy for hard-to-reach areas like stairwells.
- Use task lighting to save energy – concentrate bright light only where it is needed instead of lighting the entire room.
- Use low-wattage bulbs where possible.
- Look for appropriate light fixtures when building or renovating your home. ENERGY STAR® qualified light fixtures use less electricity than standard fixtures and provide just as much light.
- Maximize the light output by regularly dusting bulbs and shades.
- One of the most cost effective ways to save energy is to turn off lights when they are not required.

Timers

- In areas where you can't use compact fluorescent light bulbs, consider installing a motion activated light or timer.

Compact Fluorescent Torchiere (CFT)

- ENERGY STAR qualified compact fluorescent torchiere lamps use approximately 70 per cent less electricity than halogen lamps.

Light Emitting Diode (LEDs)

- When buying holiday decorations, consider LED lights. They use 90 per cent less energy and can last up to 10 times longer than traditional incandescent light strings.
- When decorating with lights, use only lighting sets that have been approved by the Canadian Standards Association (CSA). Use indoor lights inside and outdoor lights outside.

Night Lights

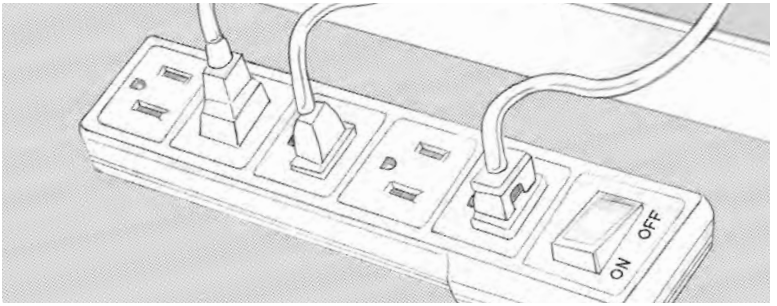
- Consider a low-wattage night light rather than leaving the hall light on.
- If full lighting is required at nighttime, use a compact fluorescent bulb for energy savings.
- Consider a LED night light.

Dimmers

- Try dimmer switches on all frequently used lights (only compact fluorescent lights designed for dimmers will work on dimmer switches).

Standby power

- Shut down electronic equipment when it's not in use.
- Plug your electronics into a single power bar so when you're done using them, switch off the bar. TVs and DVDs in standby mode still draw energy.

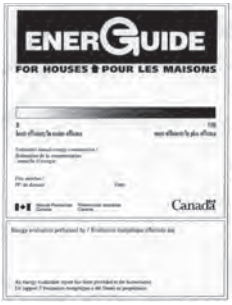


- An older computer monitor (not the new flat panel type) uses up to 50 per cent of your computer's total energy, so turn it off or let it "sleep" whenever you can.
- When buying new home entertainment equipment, look for ENERGY STAR qualified products as they use up to 50 per cent less electricity in standby mode.
- An ENERGY STAR qualified computer uses 70 per cent less electricity than a model that does not have power management capabilities.
- Screensavers use the same amount of electricity as when the monitor is active.
- Unplug the battery charger as soon as the device is fully charged or when the charger is not in use.

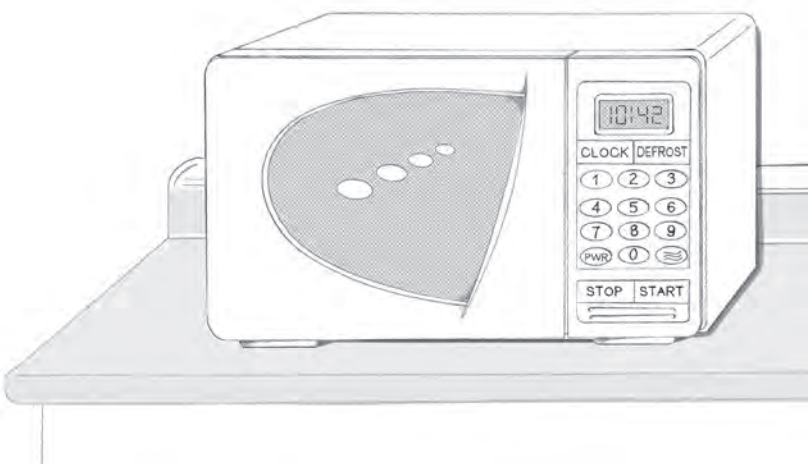
Appliances

- Look for the ENERGY STAR symbol when purchasing new appliances. They are 30 to 50 per cent more efficient than conventional models.

- The EnerGuide label is not a seal of energy efficiency. What matters is the EnerGuide rating (the number on the label). This label shows how much electricity the appliance consumes compared to other similar size units. The lower the number, the more efficient the appliance.

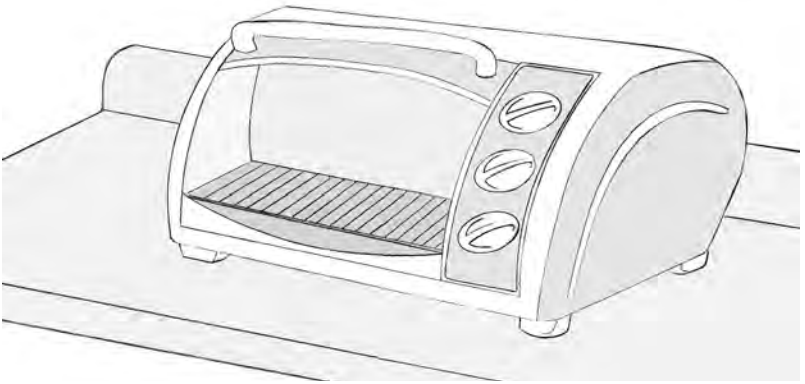


- Microwave ovens are one of the most energy-efficient cooking appliances. They are faster for most cooking jobs because the energy heats the food and not the oven or container. As an added bonus, microwaves don't heat up the kitchen in summertime.



For energy-efficient cooking with microwave ovens:

- Use the microwave for foods it does best - poultry, fish, tender cuts of meat, vegetables, sauces, soups and puddings.
- Reheat food in the microwave rather than in your range oven.
- Food cooks fastest in the microwave in small quantities. The cooking time increases as the volume of food increases.
- Take advantage of "standing time" (after the microwave shuts off). Food will continue to cook without any additional microwave energy.
- Convection ovens save time and energy on large dense items like roasts and turkeys, and you can cook your side dishes at the same time. The energy savings are not as great for baking in a convection oven because the oven is not operating as long. However, you can still save energy by baking several items simultaneously.
- Thaw food before cooking so less energy is used to cook partially frozen food.
- Preheating your oven is only necessary for baking.
- To use the heat in your oven efficiently, bake several dishes at one time. Your oven consumes just as much energy to bake one dish as it does to bake four.



- Use the smallest appliance possible to do the job. Use an electric frying pan or toaster oven for small meals rather than the oven or range. A toaster oven uses a third to half as much energy as a full-sized oven. Slow cookers are another energy saving alternative to a conventional oven.
- An electric kettle uses about 40 per cent less energy to boil water than a kettle on an electric range element.
- Match the size of pots to the correct sized element or burner when cooking. Pots and pans should have clean flat bottoms, straight sides, and tight fitting lids. Cook with the lid on whenever possible.

Help your refrigerator keep cool:

- Place refrigerator away from direct sunlight or other heat sources.
- Door seals should be clean and in good condition to prevent warm air from entering.
- Clean condenser coils once or twice a year.
- Air circulation around the coils of the refrigerator is important for energy efficiency.
- Constantly opening and closing the refrigerator door and spending time searching for items lets in a lot of warm air. Close the door for energy savings.
- Chest freezers are more energy efficient than upright models.

Laundry Room

- Use the shortest drying cycle or the automatic dry cycle. Overloading and over drying increases drying time and energy consumption.
- Clean lint filters after each load to allow free air flow and efficient drying.
- Shake out damp crumpled laundry before placing in dryer to increase air flow and decrease drying time.

- Reduce household heat loss by ensuring that the outside dryer vent has a working hinged cover.

- Use a clothes line in the summer months. When replacing your washer, purchase a front loading model. Not only will you save energy from the reduced hot water required to wash clothes, you will benefit from less energy required to dry them as well.

Car Plugs

- Use an automatic car timer to save energy and money. A timer on your block heater can reduce energy. A block heater only needs to be turned on a maximum of three hours before starting your car - even on the coldest nights.

Tips for Hiring a Renovation Contractor

You may be thinking of hiring a contractor to do some work on your house to make it more energy efficient. Here are some suggestions for finding a contractor who will meet your needs.

Ask Around

Ask friends, relatives, work colleagues, and neighbours for the names of contractors they recommend. You can also request membership lists from contractor or trade associations that have Codes of Ethics and membership criteria. Try to get the names of two to four contractors.

Qualify the Contractors

Ask the contractors the following questions. Compare their answers, then select two to four contractors. One of the most important parts of this questionnaire is to ask contractors for references and check them. Any contractor you are considering to do work in your home should be happy and willing to supply this information. Do not hire a contractor who is unwilling to provide you with references from past customers.

Check the references by calling the homeowners and asking them if the work was done properly, on time, and on budget? Was follow-up warranty work required/done promptly and properly? Would they hire the contractor again?

Contractor Name: _____

Address: _____

Phone , Fax , E-Mail: _____

Business License No.: _____

How many years have you been in business?

- ☐ less than 6 months
- ☐ 6 months to 1 year
- ☐ 1-3 years
- ☐ 3-5 years
- ☐ 5-10 years
- ☐ more than 10 years

How do you think your customers would describe the quality of you or your company's work? _____

_____

_____

What are the names and phone numbers of two customers you have done work for in the last year and whom I could call as references?

Name: _____

Phone: _____

Name: _____

Phone: _____

What is the name and phone number of the building supply store you usually deal with?

Name: _____

Phone: _____

What form, of agreement do you require before undertaking work in a home?

- ☐ verbal agreement
- ☐ written quotation signed by the homeowner
- ☐ contract specifying the work to be done, the start and
- ☐ completion dates.

Do you carry property damage and public liability insurance?

☐ Yes ☐ No

If yes, with which insurance company? _____

_____

How much liability insurance coverage do you have? _____

_____

Are you bonded?

☐ Yes ☐ No

What is the value of your bonding? _____

_____

Are you a member of a trade association or organization?

☐ Yes ☐ No
☐ Heating, Refrigerating and Air Conditioning Institute (HRAI)
☐ Contractors Association of Rural Manitoba (CARM)
☐ Siding and Window Dealers Association of Canada (SAWDAC)
☐ Manitoba (Canadian) Home Builders Association (MHBA)
☐ Local Chamber of Commerce
☐ Better Business Bureau
☐ Other?

How much of the total cost of the job do you require as a down payment?

☐ 10% (typical)
☐ 30%
☐ 50% (typical if material custom ordered)
☐ Other?

Who will actually do the work?

- ☐ the contractor
- ☐ contractor's employees
- ☐ sub-trades
- ☐ other?

Obtain Estimates / Proposals

To be fair to contractors, ask for more than two but not more than four estimates/proposals. The estimate/proposal should be in writing and contain at least the following information:

- cost and details of equipment or materials to be used (names, models, size, etc.)
- cost of labour
- total cost, including taxes and permit fees
- expected payment schedule
- estimated start and completion dates for the work
- a statement that the contractor carries liability insurance and Worker's Compensation coverage
- details of warranties or guarantees
- details of contractor cleanup during the work and on completion
- details of the homeowner's responsibilities
- a statement that the contractor will instruct the homeowner on the operation and maintenance of any equipment, and provide any required operation manuals.

Evaluate the proposals to make sure they cover the same work and use equivalent materials.

Protect Yourself with a Written Contract

After selecting a contractor, ask them to prepare a contract based on their estimate/proposal. Read the contract carefully and do not sign an incomplete contract.

Make sure that all of the items covered in the estimate/proposal are covered in the contract.

Check all terms and conditions. Read the fine print. Any changes to the work or standard conditions in the contract must be initialed by both you and the contractor.

Without a contract you have very little chance of resolving disputes if the work is of poor quality, incomplete, or otherwise unsatisfactory.

Never consider entering into any "verbal" agreements. Always get things in writing.

Contact your local Manitoba Hydro representative for Power Smart* ideas and information on comfort and energy saving improvements to your home.

Frequently Asked Questions:

QUESTION:

We have to re-shingle our roof and it has been recommended that we insulate under the roof with Spray Polyurethane Foam Insulation. Can you tell me if this is a good way to go?

Also, I have a Power Smart Residential Loan and am wondering if I can apply some of the insulation costs to that loan.

A: Upgrading insulation when re-shingling or re-siding is a great opportunity to choose from even more insulation options. Using spray foam insulation is certainly one excellent way to do this. If you have a conventional attic space, flat attic floor, and sloped roof above, you can insulate this type of space using batt, blown-in, or loose fill insulations, such as cellulose or the various fiber insulations.

If your roof is a cathedral ceiling, (no attic space) you can use spray foam or other sprayed/poured insulations, batts, blown in cellulose, or rigid foam insulation above or below. The options vary by how much of the ceiling or the roof above is disturbed or changed to install the insulation.

Details on insulating an attic can be found on our website at: **hydro.mb.ca/hip**

Insulation can be added to a loan as long as your project meets Power Smart levels and is preapproved. Loan details can be found at the following link: **hydro.mb.ca/your_home/home_comfort**

Manitoba Hydro offers incentives to insulate to Power Smart levels. Before you begin your insulation project, visit www.hydro.mb.ca for more information.

Remember to have your project pre-approved before you begin.

QUESTION:

I do not have a high efficiency furnace. I was told to run the fan on my furnace continuously for improved air circulation in my house. How does this affect my energy bill?

A: Setting your furnace fan to "continuous" will increase your energy use. Generally, having your furnace fan run continuously keeps the temperature of your home consistent and comfortable. The estimated overall net increase to your monthly energy bill is $5 to $10, depending on your fan motor.

QUESTION:

Does Manitoba Hydro offer a grant to help me rewire my house?

A: Manitoba Hydro does not offer a grant to upgrade the wiring in your home. We do offer the Energy Finance Plan which will provide convenient financing to improve your electrical or natural gas service. Visit the Rebates, Savings, and Loans page on our website for more information.

QUESTION:

My home has drafty windows. We have even propped cushions in front of them to try and stop the drafts. I would like to do something about this before winter, and I am considering either caulking the windows and frames, and taping the storm windows on the exterior, or replacing the windows altogether. What do you suggest?

A: If your only concern is energy efficiency, it is more cost effective to improve rather than replace. Use the plastic window insulation kits on the inside of the windows. They are easy to install, are relatively inexpensive, and can reduce drafts and improve the thermal performance of the window. Caulk the joint between the window trim and the wall as well and use either a clear caulking (if the wood trim is stained) or paintable product (if the wood trim is painted).

QUESTION:

We will be away this winter and would like to know what temperature to set our thermostat to.

A: If you already set the temperature of your home back when you sleep, use that temperature "setback" as your guide for a longer time away. If you plan to turn the heat down lower than your usual setback temperature, try the lower temperature for a few cold nights before you go away to if there any problems. If you feel confident that the lower temperature will be okay, then use that setting as your guide. Setback recommendations are generally 3 to 5° C from your usual temperature. Always experiment with a cooler setting. Some homes experience problems such as water pipes that burst even when the temperature is left at a comfortable setting.

QUESTION:

Where can I find estimated annual heating costs for an average home in Manitoba?

A: There is a Home Heating Cost Comparison chart on our website. This chart is updated every three months - check the following link for details:

hydro.mb.ca/your_home

QUESTION:

I read that Manitoba Hydro is charging more for electricity above a certain number of kilowatt hours. Will this apply to those home owners with electric heat? What will the extra charge be?

A: Manitoba Hydro's rate is applicable to all residential customers including those who use electricity as their primary heat source.

Please visit our website for more information on our rates.

Notes

Metric Conversion Factors

A. Converting Imperial Units into Metric Units

Unit	Conversion	Multiply By
Thermal Resistance	R values to RSI values	0.1761
Length	inches to millimetres inches to centimetres feet to metres	25.40 2.540 0.3048
Area	square feet to square metres	0.09290
Volume	gallons to litres cubic feet to cubic metres	4.546 0.02832
Mass	pounds to kilograms	0.4536
Density	pounds/cubic feet to kilograms/cubic metre	16.02

B. Converting Metric Units into Imperial Units

Unit	Conversion	Multiply By
Thermal Resistance	RSI values to R values	5.678
Length	millimetres to inches centimetres to inches metres to feet	0.03937 0.3937 3.281
Area	square metres to square feet	10.76
Volume	litres to gallons cubic metres to cubic feet	0.2200 35.31
Mass	kilograms to pounds	2.205
Density	kilograms/cubic metre to pounds/cubic foot	0.06243

If you are uncertain of, or have any question or concern regarding, any subject matter herein or the safety and/or proper handling of any material(s) and/or product(s) that you may encounter in your undertaking, please consult resources such as Health Canada (Health Links) @ 1-888-315-9257, the Manitoba Department of Labour @ 1-800-282-8069, or (Canada Mortgage & Housing Corp.) @ 1-800-668-2642.

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PSG9-0714