



OWNER'S MANUAL

Manufactured / Mobile Home

V.1 2024


NORTHLANDER
INDUSTRIES

Manual Contents

Thank you for
purchasing a
Northlander!

Your decision to own a Northlander enables you to experience the quality, durability and performance that have been synonymous with the Northlander name since 1964.

This manual is intended solely for the purpose of providing instructions regarding the operation and maintenance of your unit. While most features are common in all Northlander units, some features mentioned in this manual may not apply to your specific unit; this manual is not intended as a complete reference to all matters relating to your unit.

This manual does not represent any warranty, neither expressed nor implied; the only warranty by Northlander is set forth in the limited warranty applicable to your unit. Read and refer to all manufacturers' documents associated with your appliances.

The Limited Warranty and limited warranties issued by the component manufacturers stipulate periodic service and maintenance. Failure by the owner to provide such services and/or maintenance may result in loss of warranty coverage. The owner should review Northlander's limited warranty and those of component manufacturers associated with the product. Component manufacturers' literature should take precedence if information or instructions differ from this manual.

IMPORTANT!
COMPLETE THE WARRANTY
REGISTRATION CARD PROVIDED BY THE
DEALER · RETURN TO NORTHLANDER
WITHIN 10 DAYS OF DATE OF DELIVERY

This manual is based on the latest information available at the time of publication. Due to continuous product development and improvements, Northlander reserves the right to make changes in product specifications and components without prior notice. Some of the features shown in this manual may be optional and not included in your unit.

Your Northlander has been
crafted for lasting enjoyment.

Welcome to the
Northlander lifestyle!

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1. Warranty Information

Northlander takes great pride in its record for superior customer and dealer satisfaction. We build strong Owner confidence that leads to lasting relationships and repeat business.

Principal Warranty Statement

533438 ONTARIO LIMITED O/A NORTHLANDER INDUSTRIES warrants every unit to the original consumer owner ("Owner") for a period of:

One (1) Year Component – repair or replacement of appliances against defects and under normal (non-commercial) use/service.

Five (5) Year Structural - warrants the components and performance relating to the base structure: structural integrity, the building envelope (weather penetration), electrical distribution system, plumbing and heat/cool delivery systems and window/door performance, excluding fixtures.

Warranty Exclusions:

1. Any unit which has been modified, altered, damaged; by anyone outside the factory so that in the sole opinion of Northlander Industries, it has been affected with regard to safe use, material effectiveness and integrity or C.S.A. certification. Please contact Northlander or your Dealer for additional information should you be considering a modification.
2. The Northlander warranty excludes appliance and component manufacturers who have their own warranty coverage. Please refer to the manufacturer warranty coverage.
3. Minor imperfections which do not affect the suitability of the unit for its intended use.
4. Warranty claims arising from or being compounded by neglect, accident, misuse or fraud.
5. Compensation for loss of use and enjoyment, time, commercial loss, incidental charges, communication expense, alternate accommodation, rescheduling or any consequential damage resulting from matters of warranty.
6. Normal wear and tear and climatic exposure during reasonable use.
7. Soiling, fading and discolouration of fabric materials due to use and direct sunlight.
8. After the first 90 days of the warranty period, normal maintenance and minor adjustments to windows, doors, appliances, latches, moldings, seals, gas regulators and cleaning are not considered to be warranty matters.
9. Damage resulting from failure to do, or have done, regular maintenance.
10. This home is not intended for commercial use or rental. Such activity voids the warranty.
11. Warranty coverage is not a substitution for proper Owner's insurance coverage or common sense and appropriate use.
12. Any damage created by shipping, improper set-up or damage resulting from the movement in the foundation
13. Any damage caused by municipal services or other services.
14. Any damage caused by occupancy outside what the unit was designed for.
15. Any damage from insects, rodents or pets - not resulting from construction defects.
16. Any drywall cracks after initial set-up. Further cracking after initial set-up is the consumer's responsibility.
17. Any damage from an Act of God

There is no warranty of any nature beyond that contained in this warranty.

Failure by the owner to immediately provide notice or take action to mitigate the problem in a timely manner that results in additional damage, is in the opinion of most warranting parties an act of neglect, indifference or abuse that could result in the owner accepting the responsibility for the remedial action or replacement.

Warranty Registration:

A Northlander Warranty Registration Card is to be completed by the owner within 10 days of delivery and forwarded to Northlander. The owner must complete and forward warranty registration documents directly to any component suppliers offering additional Manufacturer's warranty coverage.

Important: The 5 year warranty will become effective ONLY if a warranty activation form is properly filled out and returned to Northlander Industries.

Obtaining Warranty Service

Owners should direct all questions and warranty claims directly to their Dealer, who will coordinate a resolution through the Service Manager at Northlander. The selling Dealer is responsible for performing minor touch-up and adjustments as part of their Dealer obligations.

The Dealer shall submit a "notice of claim" complete with purchaser's written details of all required action and the serial number of the unit. Also included should be the Owner's invoiced date of purchase and any supporting photographs when possible. Upon receipt of notice of a claim, Northlander will at their sole discretion repair or replace any parts or components which we determine are defective. Our obligation is limited to such repair or replacement. Warranty work must be pre-approved by the Service Manager. ***Northlander Industries maintains an in-house service department to support our warranty commitment.***

Claims arising from the coverage period must be submitted no later than 10 days after day 365.

Component Parts Warranty

Several component suppliers extend warranty privileges through to the original owner and in some cases subsequent Owner for periods which may be greater than the Northlander 1 year period. There are various time limitations and, in some cases, pro-rating of coverages for parts, parts and labour, labour and other considerations. Northlander is not responsible for the coverage or consequential matters relating to warranty by others. It is necessary that the Owner forward all other warranty cards to those manufacturers. Any service contract extensions purchased by the Owner from a parts manufacturer are outside of any agreement or obligation with Northlander and the Dealer. Your Dealer and Northlander are pleased to provide assistance to Owners to resolve warranty matters relating to component suppliers.

Pre-Delivery Responsibilities

Pre-delivery inspection, transportation, setup, initial appliance start-up and where applicable, zoning, building code and bylaw compliance:

The preceding matters must be performed by qualified persons under the authority and direction of the Owner as a condition and obligation to be eligible for warranty coverage. Select someone who is reputable, insured and guaranteed. The Owner shall satisfy their self of the competency of action and recommendations of such service providers and deem them on their behalf to be their qualified service provider, trade or installer capable of and familiar with matters of installation, repair, alteration and use.

Owner Maintenance Responsibility

It is incumbent upon the Owner to perform typically expected occupant maintenance and self inspections. The Owner is required to fulfill some basic responsibilities in order to receive full coverage when a warranty matter is confirmed.

The general expectations of the owner's responsibility are to:

- Immediately call your dealer with notice of problems or to ask if you are not sure about a condition.
- Use your good common sense when using the unit.
- Don't allow a situation to deteriorate into a worsening state.
- Maintain and care for the product following the manufacturer's instructions.
- Hire qualified service providers.
- Inspect the unit during the warranty period and subsequently.
- Use the fixtures and appliances for their intended purpose.
- Fill out all warranty registration cards. Keep records for reference.

Owners are responsible for proper maintenance and care of the unit which includes:

- Northlander warranty support is conditional (or dependant) that each unit has been transported without damage and set up on adequate lot conditions (by one of several acceptable and municipally approved methods) by a service provider qualified to carry out the administrative, construction and installation methods necessary. This expectation and responsibility are extended to include any maintenance, and utilities connections.
- Use appropriate measures to regulate water vapour and the undesirable effects of condensation. Do not circumvent or decommission any factory designed or installed features. Refer to the appendix "Controlling Condensation and Moisture".
- Clean furnace filters on models equipped with filters as necessary.
- Change filter on return air grills as necessary.
- Clean filter in the range hood exhaust fan as necessary if applicable.
- Make sure outside covered and screen vents to inlet or exhaust air are free from lint, debris, webs, nests or vegetation.
- After year one and thereafter periodically check the home is level. Depending on the method of foundation/ pad support, the necessity for re-leveling may become apparent due to sticking doors, cracking or separation of some components or connection and relationship of the unit to external connections or features. Resolving a leveling matter should be done by a qualified person and should not result in lasting problems if dealt with in a timely and professional manner
- Check service connections to fuel source if there is any reason to believe there has been damage or tampering.
- Trim branches from coming into contact with the any part of your unit.
- Ensure skirting is vented below unit.
- At least twice a year, check or have checked, the roof flashing, shingles which may have blown up, any penetrations through the roof (stacks, pipes etc.)
- Repair any rodent, pest, pet or insect damage.
- Wear and tear, damage, cleaning and stain removal from flooring material should be dealt with in the same way you would expect to use any quality residential flooring product. Read and follow the product care literature, restrictions and product warranties.



- Monitor for leaks or drips in plumbing fixtures or any unexplained wet spots, stains or discoloration on ceiling, wall, floor or any areas by a window, door or skylight. Report any observations immediately. Water problems are infrequent but can be troublesome and cause ongoing issues if not addressed. Allow your Dealer the best opportunity possible to have this type of problem fixed. The repair may be quite simple whereas the results of neglect could be severe and possibly unwarranted if you ignore the problem.
- Make sure window drains are free of debris these items should be cleaned at least twice a year.
- Wind damage or damage from an outside force or occurrence should be repaired as soon as possible. Some matters may be covered by your property insurance policy, but may, with prior approval from your insurance agent, be repaired by your Dealer.
- Keep the roof free of excess winter snow, wet snow, ice or leaves. Use care to prevent damage to roof or vents.
- Understand the proper positions and functions of electrical switches, and plumbing valves.
- Report any aspect of the unit's materials or workmanship which your observations indicate a change of function or appearance etc.
- Replace bulbs or lamps with equally rated bulbs. Over sizing may lead to harmful damage which would not be covered by warranty.
- Your unit is constructed from wood products. Even kiln dried lumber, trim, flooring and miscellaneous wood products will dry to lower moisture content which may result in a degree of shrinkage. Minor cracks, splits and separation can result and are of no cause for alarm. Minor squeaks may also result.
- Use only cleaners and methods suitable for the surface or material being cleaned. It is your responsibility to purchase the appropriate products and use them in the prescribed manner as labeled.
- Do not overload electrical circuits. Repeated tripping of a circuit breaker indicates a need to make a change in use. Have a qualified professional investigate for a system fault.
- Some water service supplies will result in long term and recurring build-ups, staining or problems. Problems may occur in lines, sinks, tubs/showers, taps, fixtures and water heating tanks. Water quality related issues would be non-warranty matters.
- As assistance, a schedule of General Maintenance Guidelines is provided in the appendix.

2. Appliances and Equipment

General Information

The following instructions are general in nature and may vary from the appliance in your unit. Each appliance should have an individual owner's manual and operating instructions supplied with the unit or available online. Please refer to these manuals for more detailed instructions and information on the operation of your particular appliance.

Each appliance is warranted by their respective manufacturer. It is extremely important that you review all of the literature provided in the manufacturer's information package provided. Be sure to have your dealer go over the operation of the appliances with you, and report any shortages of literature that you have at that time.

You must complete and mail any warranty registration cards required by the appliance manufacturer at the time of your purchase.

It is important to carefully read all the manufacturers literature provided regarding both the operation and maintenance of the appliance. If the instructions for the operation and maintenance of the appliance differ from instructions outlined in this manual, please rely on the information provided with the appliance.

Be sure to keep all literature, including this manual, in your unit for easy reference. If service of the appliance is required, contact your dealer or the authorized service representative of the appliance manufacturer. Most appliance manufacturers have toll free service telephone numbers or website access for your convenience.

This manual provides general maintenance tips that are not specific to an appliance.

IMPORTANT!


MAKE SURE TO READ THE APPLIANCE OWNER'S MANUAL FOR COMPLETE INSTRUCTIONS REGARDING THE OPERATION, SAFETY PRECAUTIONS AND MAINTENANCE OF YOUR APPLIANCE.

Important Appliance Warranty Information

Thank you for your purchase of a brand new Northlander!

Below is a warranty card for your GE Appliances. The warranty card is just for reference to show all information required for registering each of your GE appliances and requesting service for your appliances. The registration of your appliances are to be filled out within seven days of your purchase date.

When making service requests it is important to note that submitting a request via phone has the fastest response time. Submitting a request by E-mail or through their website can include a wait time of seven business days.

 GE APPLIANCES	
Appliance Product Registration	
Name	
Phone	
Address	
Email	
Model	
Serial	
Place of Purchase	
Purchase Date	
*In the event of a service call, the technician may require proof for Date of Purchase	
Please use the information above to register your product either by phone, email or online, see below:	
Website	https://geappliances.ca/en_CA/Register-Your-Appliance
Email	cservice@mabe.ca
Phone	1-800-561-3344
PLEASE REGISTER WITHIN THE FIRST 7 DAYS	

Refrigerator

The refrigerator and freezer controls should be set at 5 degrees during start up and initial operation. After the unit has run for 12-24 hours allowing the refrigerator to cool, the thermostat should be adjusted to the desired temperature range. Allow 12 hours after each adjustment for temperature to be reached.

Refer to the manufacturer's manual for recommended cleaning and maintenance procedures.

Stainless steel or clean steel appliances should be cleaned using a manufacturer recommended cleaner.

Range

Never leave the range unattended when on.

Lighting of Natural Gas or Propane Range Burners:

Natural Gas and propane ranges are equipped with either an electric or a spark ignition system. It is necessary to ensure that the natural gas or propane supply is turned on.

The initial hookup of natural gas or propane to the range **MUST BE DONE** by a licensed installer. As part of the installation the installer should start the range to verify its safe operation.

Range Hood/Microwave

Range hoods remove cooking odors from the kitchen area, as well as provide light for cooking and countertop activities. The exhaust fan filter screen should be replaced annually. Be sure the fan is turned off when replacing filters. External exhaust vents will automatically open when the exhaust fan is operated and should be checked regularly to be sure the damper at vent terminal is operating properly.

Microwave Oven

Make sure that the turntable (where applicable) is in place before operating, and that the movement is not restricted. It is important that you select the proper power level for the various foods and operations you will be using. The microwave should not be adjusted or repaired by anyone except properly qualified personnel.

Dishwasher

The filter combination must be emptied and cleaned regularly.

If wash results deteriorate noticeably, the spray arm jets should be checked and cleaned.

Provided the correct type of detergent is used and the unit is operated correctly, dishwashers do not need any special care as the wash baskets and cabinet are self-cleaning during normal everyday use.

The rubber seals around the door should be cleaned regularly with damp cloth to remove food residue.

Refer to the manufacturer's manual for recommended cleaning and maintenance procedures.

Washer

Water-fill hoses should be checked periodically for any sign of wear or weakness. Most manufacturers recommend replacement every 5 years.

If your washing machine is not level, it may vibrate strongly and even “walk” across the room, during the spin cycle. The adjustable legs should be used to level the unit.

Use a damp rag to clean its surfaces.

Most washing machines collect lint during the wash cycle and send it down the drain during the drain cycle. Some machines however have lint filters. If your machine is equipped with a lint filter, it should be cleaned regularly.

Refer to the manufacturer’s manual for recommended cleaning and maintenance procedures.

Dryer

The lint produced by your clothes tumbling in the dryer is usually trapped in the lint filter. However, some lint invariably escapes and accumulates in the vent or the interior of the cabinet. The lint filter should be cleaned after each use. If the filter has any rips or tears, it should be replaced.

At least once a year, check the entire length of your vent and your cabinet for lint build-up. Remove the lint from the duct.

Fireplace

Gas fireplaces are clean burning and require little maintenance. An annual inspection by a qualified professional who can inspect the burner, fan, venting, pilot light and thermostat and even clean the glass is recommended. Alternately, check with your owner’s manual for instructions for cleaning glass doors. Typical glass cleaners are not as effective as products specifically made to clean the stains on the inside of fireplace glass.

Electric fireplaces are virtually care free and allow “flames” in the summer by turning off the heating element.

Water Heaters

The water heater is automatically filled when the unit is connected to an outside water supply and interior valves are turned on.

Make sure that the water heater is filled before attempting to light or heat by electricity, otherwise the heating element will be damaged and would not be a warrantable item.

Read all the literature on the water heater before using it. Pay particular attention to any precautions or warnings associated with its use.

Rinnai Water Heater Maintenance

This water heater must be inspected annually by a trained and qualified professional. Repairs and maintenance shall be performed by a trained and qualified professional. The trained and qualified professional must verify proper operation after servicing.

- To maintain optimum performance, periodically inspect the air filter.
- If the air filter appears to have lint and/or dust build up, follow the cleaning procedure described below.
- If the air filter appears damaged, contact a trained and qualified professional for a replacement air filter assembly

CLEANING

1. **Power OFF the Water Heater**
 - Push the "On/Off" button located on the right-hand side of the controller.
 - The display will go blank when the power is off.
2. **Remove the Front Panel**
 - Remove the four screws securing the front panel.
 - Remove the front panel and locate the filter at the upper right-hand corner of the water heater.
 - Remove the air filter by pulling out the "FILTER Pull to Clean" tab
3. **Clean the Air Filter**
 - With mild dish soap and a soft bristle brush, scrub the filter area of the air filter door.
 - With clean water, rinse the soap off the filter.
4. **Dry the Air Filter**
 - With a lint free towel, dry the air filter.
5. **Inspect and Replace the Air Filter**
 - Inspect the air filter for any debris that may restrict air flow to the water heater.
 - If the filter still appears dirty repeat the cleaning steps.
 - Replace the air filter.
6. **Power ON the Water Heater**

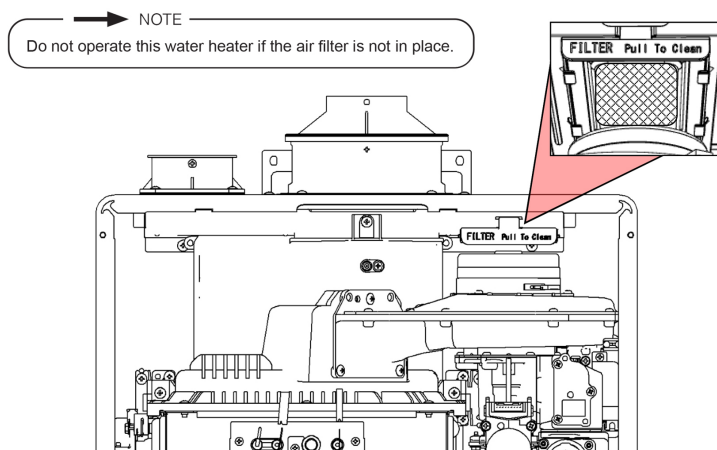


Figure 75

Air Conditioner

The unit is factory equipped with the wiring necessary to install an air conditioner on site.

Air conditioning consumes a large portion of the electric power available to the unit, so efficient operation is an important consideration. Efficiency can be increased by closing all windows, blinds and curtains.

Furnace

Your unit is equipped with a central heating system that is made up of a furnace, thermostat, and ducting to carry the heat throughout the unit. The furnace is vented to the outside by an exhaust vent. Never store anything in the furnace compartment or block the outside exhaust vents. Have the entire heating system inspected annually by a qualified service agency to ensure the safe and efficient operation. If you suspect a problem at any time with the system, immediately arrange for service. Power to the furnace can be turned off by a switch that is often located near an entrance door and mounted higher than a light switch and marked as furnace switch.

Tips on Balancing the Temperatures in Your Home

Simple yet effective. You have the ability to move the register louvre. It will restrict air flow in the room. But, don't completely close the vents, it could cause other issues to your HVAC system.

Step 1: Set your thermostat to 76-78 degrees. (ideal range to start testing)

Step 2: Leave the temperature alone for at least 24 hours.

Step 3: In areas that are too cool, adjust the registers to allow for less air flow.

Step 4: Adjust in small increments to feel what works for your comfort.

Step 5: Re-check your adjustments (24 hours later) to feel if you reached the desired temperature.

Step 6: Continue until you reach your ideal temperature.

Maintenance

Proper maintenance is most important to achieve the best performance from a furnace. Follow these instructions for years of safe, trouble-free operation.

- These maintenance instructions are primarily intended to assist qualified technicians experienced in the proper maintenance and operation of this appliance.
- Always close the door on the furnace after servicing or cleaning/changing the filters. Do not operate the furnace without the door closed.
- Verify the thermostat is properly installed and will not be affected by drafts or heat from lamps or other appliances.

To achieve the best performance and minimize equipment failure it is recommended that a yearly maintenance checkup be performed. At a minimum, this check should include the following items:

Air Filter(s) - An air filter is supplied with the BW series furnace as shipped from the factory the filter is located on the removable panel of the furnace. Filters should be changed or cleaned monthly during the heating season. Newly built or renovated homes may require more frequent changing until the construction dust has minimized. Filters designed to remove smaller particles such as pollen, may require additional maintenance.

Blower Compartment - Dirt and lint can create excessive loads on the motor resulting in higher-than-normal operating temperatures and shortened service life. It is recommended that the blower compartment be cleaned of dirt or lint that may have accumulated in the compartment or on the blower and motor as part of the annual inspection.

TROUBLESHOOTING

Check the inlet pipe(If applicable) and outlet pipe to ensure they are not blocked by debris. Any damaged section of vent pipe must be replaced, and any obstruction or blockage must be removed prior to operating the furnace.

Heat Exchanger & Burner Maintenance - The furnace should operate for many years without soot buildup in the flue passageways, however, the flue, vent system, and burners should be inspected and cleaned (if required) by a qualified service technician annually to ensure continued safe operation. Pay attention to any deterioration from corrosion or other sources.

Lubrication – The bearings in the blower motor and inducer blower used in these furnaces are pre-lubricated and sealed by the manufacturer. No further oiling of the bearings is required for the life of the motor.

If the furnace fails to operate check the following:

- Is the thermostat operating properly?
- Are the blower compartment door(s) in place?
- Is the furnace disconnect closed?
- Has the circuit breaker tripped or the control board fuse burned open?
- Is the gas turned on?
- Are any manual reset switches open?
- Is the filter dirty or plugged?
- Is the flame sensor coated? (Remove and clean with steel wool. (Do not use emery cloth or sandpaper!)
- Is there blockage in the condensate drain switch? Also verify that there is no double trapping of condensate.
- Is the secondary heat exchanger free of debris and clogs?
- Is evaporator coil clean and free of debris (If applicable).

IMPORTANT NOTE: The furnace will lock out after 5 failed attempts for ignition and will try again every hour if the call for heat remains.



- If the inducer blower is operating, and items above have been verified, check the blower limit switch and reset if necessary
- If the furnace operates when the Blower Limit Switch is reset, contact a qualified service technician to identify and repair the problem.
- If the furnace still doesn't operate, check the flame roll-out switch and reset if necessary.
- If the furnace operates when the flame rollout switch is reset, contact a qualified service technician to identify and repair the problem.

Furnace Extended Warranty Information

Air Conditioning, Heating and Ventilating Equipment Designed For Manufactured Housing THIS WARRANTY IS EFFECTIVE ON equipment MANUFACTURED AFTER APRIL 1, 2019.

STANDARD ONE YEAR LIMITED PARTS WARRANTY AND FIVE YEAR LIMITED COMPRESSOR WARRANTY:

Nortek Global HVAC extends a Standard Limited Warranty on the parts of manufactured housing equipment for a period of one year (five years on compressors) from the original purchase date by the original purchasing homeowner only. All coverage terminates to any other subsequent owner. If any part fails due to defects in materials or workmanship under normal use within one year (five years on compressors) from the date of original purchase, a replacement part will be provided free of charge except for the freight costs which are the owner's responsibility. Nortek Global HVAC will not pay for parts purchased in the field from other than a Nortek Global HVAC distributor. Replacement parts are warranted only for the balance of the original warranty period. Parts purchased for equipment outside of the warranty period have a 1 year limited parts warranty.

Furnace Warranty

Coverage includes the standard one year limited parts warranty. Replacement M7 furnaces provide 5 year limited parts if registered within 60 days of installation.

Furnaces already installed in an aftermarket home at the time of purchase are not eligible for registration.

Fixed amount 1-year limited labor coverage is paid directly to the distributor or servicing contractor. Any expenses charged by the servicing contractor above the amounts provided by Nortek Global HVAC are the homeowner's responsibility.

Additional Heat Exchanger · Parts Coverage for Gas/Oil Furnaces and Gas Package Units:

Gas Package Units and M1, M4, M5 furnaces: 10 year limited heat exchanger warranty

M7, CMF: 20 year limited heat exchanger warranty

Consumer Registration:

Register online at www.nortekhvacwarranty.com or, for assistance, please call your installer. For extended registered warranty terms to apply, registration must be completed within 60 days of installation. And, for split systems, a complete Nortek Global HVAC AHAI matched system must be installed. For equipment not registered or matched (for split systems), the unregistered base warranty applies.

Before you Register:

What do I need to get started?

- The serial number and model number for each piece of equipment you purchased.
- The name and address for the dealer or contractor who installed your purchased equipment.
- The date of installation

Safety Equipment

The best way to reduce the risk of fire is through prevention. Follow the manufacturer's instructions on the use of all appliances and observe all safety warnings and instructions included.

CO / Smoke Detector

All units are equipped with CO / smoke detectors in the bedroom and in hall areas. CO / Smoke detectors should be tested regularly.

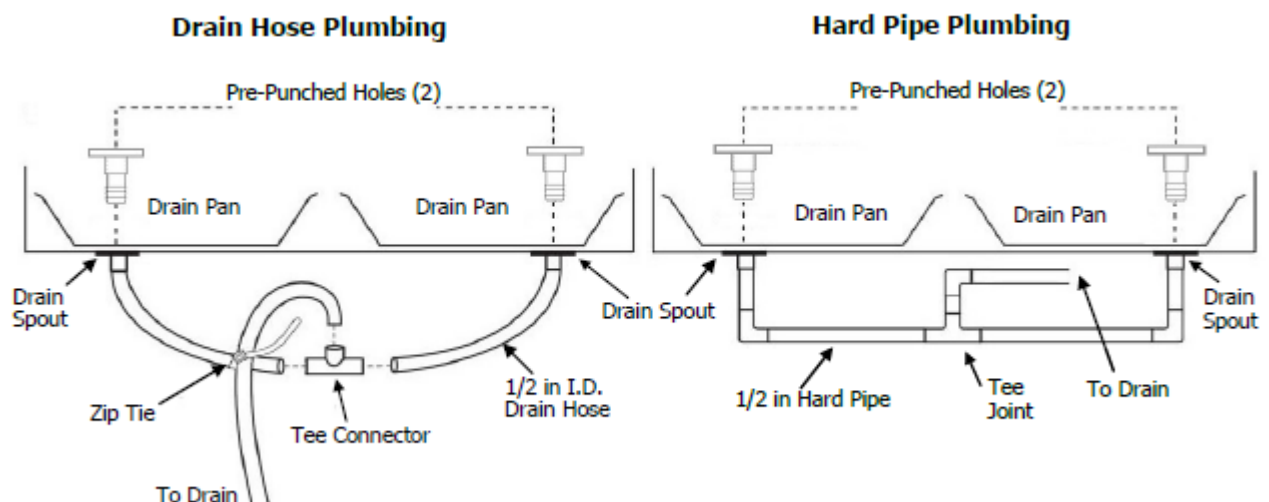
Air Exchanger - Life Breath

It is important for the customers to know how all appliances work including the Air Exchanger - LifeBreath system. Please see image below and instructions for important set up details. It is extremely important to add water as mentioned in step seven (7) to eliminate odours within the unit. Failure to add water to the Air Exchanger - LifeBreath system may result in odours coming from the drain and is not an actionable warranty claim.

Air Exchanger - LifeBreath Set up steps

1. Insert the drain spout through the hole in the drain pan.
2. Tighten the nut which holds the drain spout in place.
3. Construct a P-trap using the plastic tee connector. (see below)
4. Cut two lengths of 1/2 in drain hose (not included) and connect the other ends to the two drain spouts.
5. Position the tee connector to point upward and connect the drain line.
6. Tape or fasten base to avoid any kinks.
7. Pour a cup of water into the drain pan of the Air Exchanger after the drain connection is complete. This creates a water seal which will prevent odours from being drawn up the hose and into the fresh air supply of the Air Exchanger.

The Air Exchanger cabinet has pre-punched holes for the drain (see below).



3. Electrical Systems

General Information

The electrical power supply is designed as a 120/240V system..

Circuit Breakers

The electrical system is protected by circuit breakers which automatically shuts off the circuit if the circuit load is too heavy, or a short circuit occurs. If a circuit breaker is tripped, do not reset the breaker until the cause of the problem has been identified and corrected by a qualified electrician.

Power Supply and Voltage Awareness

Voltage too Low (Incoming Electrical Service to your Northlander)

Periodic Low Voltage or fluctuations from your power source may affect performance or be the reason for some unexplained difficulties or failures. Items under warranty will not be covered if the problem resulted from "low voltage" damage.

Equipment affected by low voltage:

Microwave ovens, televisions, computers, any appliances with motors, air conditioners and built in motor driven units such as furnace and fans.

An obvious sign of low power or high Amperage draw is a sudden visible change in the lights. Signs of low voltage are not always as apparent. A reading may be taken by an electrician. This represents the voltage at the specific time of reading. If you know of or suspect a persistent problem that exists, you may wish to install a volt meter to constantly monitor the voltage in your system. You may then regulate your demands for power accordingly.

Voltage too High (Spikes and Surges)

We are all familiar with the use of surge protectors on computers and satellite dishes: These same devices are of use to all electrical devices. Utility suppliers and some insurance policies deny damage claims resulting from power surges, lightning, spikes or even low power "brown outs". Buy good/sensitive surge protectors. You can protect individual appliances or the entire incoming electrical source.

To protect against spikes, you could acquire aftermarket devices that provide low voltage "brown out" protection, GFCI safety, as well as surge protection.

4. Gas System

General Information

Your unit is equipped with either a liquid propane or natural gas system designed for clean, efficient and safe operation when properly maintained and safety precautions are observed. Both systems are historically safe but can be hazardous so they must be treated with respect. Most individuals are familiar with natural gas since it is the primary fuel used to heat homes. Gas installations and appliance hookups should be completed by properly licensed individuals and safety precautions observed.

CAUTION

- Natural gas is lighter than air and is potentially lethal and highly flammable.
- LP Gas is heavier than air and will settle into low areas and flow on a surface like water.
- Both give off a noxious odour due to an additive.
- In a confined space, both are highly explosive.
- An improper combustion setting burns more oxygen content from the interior air available for occupants.
- Never use a range/stove to provide space heating.
- The use of additional (non-electric) space heating devices is not recommended and may be an unsafe practice.

Gas Leaks

If the smell of gas is present inside your unit, no matter how faint;

- Open the doors and windows to air out the room.
- Check to see if any appliances have been left on accidentally or if the pilot light has been extinguished.
- Most appliances have safety shut-offs to control the escape of natural gas if the pilot goes out.
- All appliances have a shut-off from the gas supply. Close the shut-off valve.
- If the leak is appliance specific, have a specialist look at the appliance.
- If the smell gets stronger or if you hear a hissing sound, leave the unit immediately.
- Upon evacuation, leave the door open.
- Call your gas provider immediately from a neighbour's phone.

DO NOT:

- Smoke or strike a match
- Operate any electrical switches or appliance controls. If a switch is on, leave it on; if it's off leave it off.
- Pull any plugs from outlets.
- Use a telephone or cell phone from the unit.
- Use a flashlight or lighter

10 Natural Gas Safety Tips: Signs, Symptoms and What to Do When a Gas Leak Occurs

Pipes or appliances powered by natural gas can develop leaks, which can have potentially negative effects. It's important to be able to identify natural gas leak symptoms and to know what to do if you have a gas leak. If you detect any of the following signs of a natural gas leak in your house or think you have been exposed, contact 911 immediately.

1. The smell of rotten eggs. In its natural state, natural gas is odorless and colorless. To make gas leaks easier to detect, gas companies add chemicals called odorants to create a natural gas smell similar to sulphur or rotting eggs. The stronger this smell, the more likely it is that you have a gas leak. You may get a slight whiff of this smell when turning on an older gas grill, but most energy-efficient grills made in the last 15 years should not produce an odor..

2. Hissing sounds. Large gas leaks in pipes or appliances may produce hissing noises, even if the appliance is turned off. Check pipes and appliances regularly, listening for any hissing noises.
3. Air bubbles outside your home. Natural gas leaks can also occur in underground piping outside the home. If you see bubbles in standing water—including puddles and mud—it may be a sign of natural gas dispersing through the soil and into the surrounding air.
4. Dead or dying plants. Dead, dying or stunted plants inside or outside your home can be a potential sign of a natural gas leak in your home, especially if you've been taking proper care of your plants. The presence of natural gas prevents a plant's roots from absorbing oxygen and can lead to wilting. Natural gas leaks can also cause smaller-than-normal leaves on trees, wilted plants and yellowish patches of grass.
5. Physical symptoms of natural gas poisoning. Symptoms of exposure to low levels of natural gas include headaches, dizziness, fatigue, nausea and irregular breathing. High levels of natural gas exposure can cause natural gas poisoning, which is characterized by fatigue, severe headaches, memory problems, loss of concentration, nausea, loss of consciousness, and suffocation. If you believe you're experiencing natural gas leak symptoms, contact a healthcare professional as soon as possible.
6. Higher-than-normal gas usage. An increase in the amount of natural gas your home uses can indicate a natural gas leak. Seasonal increases in natural gas use is to be expected when using a gas furnace, but unexplained increases might suggest a leak somewhere in or around your home.
7. Inspect devices and appliances that use natural gas on a regular basis. Regularly inspecting all devices and appliances that use gas helps prevent and identify possible gas leaks in your house. Read the manufacturer's instructions for each appliance to understand what to check and how often for safe use. Common gas-powered appliances include furnaces, clothes dryers, water heaters, stoves and generators. Most of these appliances have a pilot light, and that's something for you to check as well. If the appliance has a pilot light, the flame should be small and blue with a yellow tip. Please contact the appliance's manufacturer if you suspect something is wrong with an appliance that has an abnormal or missing pilot light.
8. Keep small children away from sources of natural gas, including stoves, heaters and other potential exposure sources of natural gas. Teach children how to spot and identify the distinctive natural gas smell, recognize symptoms of natural gas exposure and make sure they know what to do if they think there's a natural gas leak in the house.
9. Install natural gas and carbon monoxide detectors in your home. Slow gas leaks may not produce enough natural gas smell to be detectable, and even large leaks may not be detected by people with a diminished sense of smell. For these reasons, it is recommended that homeowners use a natural gas detector to alert them to the presence of natural gas. Carbon monoxide detectors do not detect natural gas leaks in your home but can alert you when appliances improperly burn natural gas, kerosene or other fossil fuels. For extra safety, consider installing a carbon monoxide alarm like the plug-in Kidde carbon monoxide alarm or the battery-powered Kidde carbon monoxide alarm.
10. Know how to shut off natural gas in your home. Every home that uses natural gas has a gas shutoff valve, usually outside the house. When making a list of what to do in a gas leak, make sure everyone knows where the shutoff valve is and how to use it. Cutting off the supply of gas prevents additional gas from escaping can prevent exposure to natural gas.

LP Gas Safety Precautions

The liquid petroleum (LP) gas system in your unit is a clean, efficient, safe form of energy when properly handled and safety precautions are observed. The gas is stored under extreme pressure in a tank and reduced in pressure as it passes through the regulator to your appliance.

The regulator has been pre-set by the manufacturer of the regulator and adjustment should not be necessary. If adjustment should be required **DO NOT** attempt to adjust it yourself. Adjustments must be made with special equipment by a qualified LP gas service technician. If you believe the regulator has been damaged or is not functioning, have it replaced by an authorized LP service technician.

Have the regulator checked annually. Because air is required for operation of the regulator, it is important that the regulator vent is kept clean and free of dirt and debris. A toothbrush may be used to clean the regulator should it become blocked in any manner. Your LP system is designed to accept propane.

Because LP gas can be dangerous to use if not handled properly, some basic practices for safe usage of your LPG system are recommended:

1. Have your tanks filled by an authorized propane provider. Proper purging of an empty tank will ensure correct fuel consistency and purity. Tanks are designed for maximum fill levels, typically 80% max. with 20% vapour space. There are aspects of filling or refilling which should be done only by qualified persons.
2. Propane hoses have counter-clockwise rotating threads to tighten to tank.
3. Under no circumstances should the LPG regulator be adjusted, except by an authorized or licensed LPG service person.
4. Never install a lock or device requiring a key or impedence to the opening of the storage location of the LPG tank or the operation of the valve should emergency access and shut-down be required.
5. If an odour of gas is present, do not light any of the appliances until the leak has been professionally repaired.
6. Practice safety at all times. If you have any questions about the operation of your appliances or the LP system, contact your dealer or your local gas service provider or licensed technician.
7. Your LPG system has been designed and tested under factory control conditions and the applicable codes and regulations. Do not modify the system. Do not replace or add appliances unless certified by an approved certification company such as CSA, Warnock Hersey, CUL or ULC. Maintain or service with qualified service people, parts and methods.
8. Do not use rusted supply tanks or fill tanks which are beyond their regulated term of service life.
9. Always have adult supervision when children are involved with any matter dealing with the LPG system.

Read and refer to all manufacturers' literature associated with your LP-Gas fuelled appliances. The manufacture's literature should take precedence if information or instructions differ from this manual. This information is not intended to be a complete reference to all matters relating to LP-Gas and appliances.

Propane gas system start-up, use and refilling should be done with care and caution, respecting the characteristics of the fuel, appliances and procedures required.

Repair or Replacement

It is the responsibility of all service representatives to ensure the appliance is not reconnected unless:

- The work is performed by the holder of a **G1 or G2 CERTIFICATE**
- In the case of natural gas, the holder of a **G1 or G2 CERTIFICATE** has the right / obligation to review the gas installation from the meter to appliance, including other gas appliances and heating equipment not directly associated with the appliance being connected.

Upon Completion of the service work or appliance replacement:

It may be necessary to re-light other appliances and ensure the whole system is functioning.

The service representative shall ensure and coordinate all that is required to ensure the unit has been made safe by a gas certificate holder. In the event the qualified gas certificate holder has not yet arrived on site, the service representative shall make the area safe by preparing a written note and posting the sign in a prominent location to state the gas to the unit has been shut off and must remain off until turned on by a qualified gas certificate holder or the note should state the fuel has been shut off at the appliance only. State that no one shall tamper with the fuel source. Provide a telephone contact number for the service staff and the gas certificate holder who has been contacted to complete the re-connection.

In all cases where any valve has been turned to the "off position" and there is an open supply pipe or hose, the fitting end or flared fitting must be capped with a threaded plug to prevent fuel escaping in case the valve is accidentally turned on.

There is no such thing as a simple gas hook up. The work is governed by regulations not by personal opinions. All work must be done by qualified certificate holders. The person doing work such as appliance install or appliance replacement is responsible to the customer and general safety principles. Always ensure you know how and when the job will be totally and safely completed, and let all parties know as well.

5. Plumbing System

Water Heater

Dependent upon the model installed, the water heater may be gas, gas / electric or electric. For specific water heater instructions, please consult the Owner's Manual provided by the manufacturer. Make sure that the water heater is filled before attempting to light gas or turn on the electricity, otherwise the heating element may be damaged.



Care and Maintenance

Proper maintenance of the water heater relies on inspection and awareness. (Full maintenance requirements are listed within the manufacturer's user's manual.)

A qualified technician should do any repairs that are required. On gas water heaters, if soot is present anywhere, immediately shut down the unit and contact a qualified service technician. Soot is a sign of incomplete combustion and must be corrected before operating the water heater.

Pressure Relief Valve – Weeping or Dripping

The water heater is equipped with a relief valve designed to open when the water temperature is too high or excessive pressure has built up. In these circumstances the relief valve will open and water will drip from the valve. The valve will close automatically once the situation corrects itself. If dripping is continuous, it would indicate a malfunctioning or defective valve.

Draining for Non-Use or Winterization

When not using the water heater for long periods of time, or storing for the winter months, it must be drained to avoid deterioration from mineral content in the water supply or freezing. To drain the tank, please follow the manufacturer's owner manual.

6. Care and Maintenance

The instructions and recommendations located within this manual and the accompanying manufacturer's component literature should be read. Failure to perform necessary and preventive maintenance may limit or void all or part of a specific warranty.

If uncertain or unfamiliar with any of the preventive maintenance items appearing in this manual, please contact your Dealer.

General

Proper care and maintenance are an essential step to maintaining the safety, dependability and appearance of both the interior and exterior of the unit. Preventive maintenance is important to the long-term continued enjoyment of your unit since many problems can be detected and remedied before they occur. The care and maintenance of appliances are discussed within the Appliance chapter. Always refer to the manufacturer's recommendations provided with the appliance.

Facts About Mould

Moulds are microscopic organisms that naturally occur in virtually every environment. Mould growth inside your unit can result in a break down of the natural materials such as wood products and fabrics. It is important that the Owner is aware of the risks of mould and protect their investment from damage.

For mould to grow the temperature must be between 5 and 38 degrees Celsius and also have a source of moisture such as humidity, standing water, damp materials, etc. Rapid growth occurs under warm and humid conditions.

For additional information on controlling moisture, please read "Controlling Condensation and Moisture" located in the Appendix of this manual.



Exterior Care and Maintenance

Vinyl:

How do I wash vinyl siding?

Wash vinyl siding with a soft cloth or ordinary long-handled, soft bristle brush. For textured surfaces, use only a soft bristle brush to keep the grooves in the texture stain-free. For best results, start at the bottom of the house and work up and rinse the cleaning solution completely before it dries. If your house has brick facing, cover the brick so that it is not affected by the runoff.

Can I use a power washer?

Yes, though you should read the washer instructions carefully before use. When cleaning, hold the power washer straight at eye level to keep the water on top of the siding where it can clean most effectively. Do not aim the power washer upward as water may be driven behind the siding. You should also follow the siding manufacturer's recommendations. Some manufacturers don't want pressure washers used on their products at all. Others allow them, but have limitations on the amount of pressure and the cleaners that can be used. Most will caution against the use of pressure washers around any opening in the wall, such as windows, doors, electrical wiring, and plumbing.

How do I remove mold and mildew?

Small spots of mold and mildew can be handled with cleaners such as Fantastik® or Windex®. For larger sections, a solution of vinegar (30%) and water (70%) has proven successful. Alternatively, you also could try the following solution: 1/3 cup (2 2/3 ounces) powdered laundry detergent (e.g., Tide®, Fab®, or equivalent), 2/3 cup (5 1/3 ounces) powdered household cleaner (e.g., Spic & Span®, Soilax®, or equivalent), 1 quart (32 fluid ounces) liquid laundry bleach, and 1 gallon (128 fluid ounces) of water.

How do I remove mulch residue?

The spots could be residue from artillery spores. If this is the case, we do not know of any cleaner that will remove it from the siding. Artillery spores come from a particular fungus that lives in shredded wood mulch or other organic material around the house. The only way to correct the issue is to replace the shredded wood mulch with bark mulch and then replace the siding.

What types of cleaners should I use?

A list of commonly accepted cleaners is provided below. Be sure to spot check any general or stain specific cleaner before using it on a large section of siding. After removing the stain, rinse thoroughly with water. Do not use cleaners containing organic solvents, undiluted chlorine bleach, liquid grease remover, nail polish remover, or furniture polish or cleaners. They can affect the surface of the siding. Cleaning Materials are listed in alphabetical order. VSI does not endorse products or processes and makes no warranties for the products referenced herein. Reference to proprietary names is for illustrative purposes only and is not intended to imply that there are not equally effective alternatives. Vinyl siding cleaners.

General Cleaners:

(e.g., Simple Green®, Nice & Easy®, Armor All®, etc.) can be used to clean dirt, bird droppings, and spider webs. Stain-specific cleaners are listed below. Rinse all cleaners with water before they dry

Bubble Gum Cleaner:

Fantastik. Murphy Oil Soap®, solution of vinegar (30%), water (70%) and Windex®

Crayon Cleaners:

Lestoil, DAP (oil-based caulk) cleaners.Fantastik.

Felt-tip Pen Cleaners:

Fantastik, water-based cleaners

Lithium (car) Grease Cleaners:

Fantastik®, Lestoil, Murphy Oil Soap, Windex

Motor oil Cleaners:

Fantastik, Lysol, Murphy Oil Soap, Windex,

Paint Cleaners:

Brillo Pad, Soft Scrub

Pencil Cleaners:

Soft Scrub

Rust Cleaners:

Fantastik, Murphy Oil Soap, Windex.

Tar Cleaners:

Soft Scrub

Top Soil Cleaners

Fantastik, Lestoil, Murphy Oil Soap

Shingled Roof:

The roof shingles are covered under the manufacture's warranty. Maintenance is limited to ensuring that it is free from debris. Inspect the roof every six months especially around vents or skylights where sealants may become ineffective. Exposure to the elements may cause sealants to deteriorate over time. Inspection and periodic resealing is essential to preventive maintenance.

Steel Roof:

In areas where heavy dirt deposits dull the surface, a solution of water and detergent may be used (100ml. of typical laundry detergent per 4 litres of water). A soft bristle brush may be used for scrubbing followed by a clear water rinse.

Mildew may occur in areas subject to high humidity. To remove mildew along with dirt a general suggestion is 100 ml. of typical laundry detergent, 200 ml. of TSP, 1 litre of 5% sodium hydrochloric solution (laundry bleach) and 3 litres of water. Follow with a clear water rinse.

Solvent and abrasive cleaners should be avoided.

Seals and Adhesives:

Sealants and adhesives are important to ensuring that water, moisture and mould damage does not occur. Close inspection and routine maintenance are critical to the longevity of the unit. Exposure to the elements as well as regional variances in climate can vary the lifetime of the seals and adhesives. Therefore, an inspection of all seals is recommended every six months.

Vinyl Windows - Exterior:

If an interior leak is noticed it is recommended that you contact an authorized dealer immediately. Periodically, use a vacuum attachment to clean any debris out of the weep holes, which are necessary to drain any condensation or moisture that may collect. Screens should be cleaned with a damp cloth or soft flat brush designed for that purpose.

Use a liquid solution of mild household soap applied with a sponge to wipe down the sash and frame components. Never use abrasive cleaning agents, paint removers or solvents to clean vinyl components. If stubborn stains still exist, refer to the window manufacturers recommended procedures specific to that stain.

Vents, Doors and Screens:

Lubricate all hinges, locks, window mechanisms and springs periodically. In the event of damaged vents it is a good practice to replace at your earliest convenience.



INTERIOR CARE AND MAINTENANCE

Countertops:

Most countertops are made of high-pressure plastic laminates and are highly resistant to normal spills and scuffs. Soap and lukewarm water or a mild non-abrasive cleaner are recommended. Avoid the use of abrasive pads and scouring powders, which can dull the surface and make it more stain prone. Always use a cutting board or chopping block when using knives. Pots and pans straight from the burner or oven should be placed on lined hot pads and not directly on the counter surface. Do not use products containing bleach since it could cause discolouration of the countertop. For quartz countertops follow care & cleaning instructions in the Owners Package.

Daily Cleaning:

For Daily Care, we recommend using mild, non-abrasive soaps and water. Dawn or 50/50 mix of vinegar and water are great for daily cleanup.

- Use Paper Towels or a clean, cotton cloth for wiping down surfaces. Dish rags or sponges can carry over the dirt/oils contained to the surface.
- Avoid cleaners with plant oils, as they may leave a film build-up on the surface.
- No Sealer of any kind should ever be used, as they leave a topical film on the surface that makes cleaning harder over time.

Disinfecting Counters:

Lysol Wipes, disinfectant spray, and rubbing alcohol 60% or greater can be used for disinfecting. Bleach must be diluted before using.

Other Stains:

For harder to remove stains, we recommend using vim cream or Bar Keepers Friend cleaner. Includes stains such as food colouring, herbs and spices, red wine, mustard, coffee/tea, fruits, inks, markers, paint, print from supermarket bags, hair shampoo, medical creams, make-up, olive oil, canola oil, machine oils. Because of the abrasive nature of this cleaner, place a small amount on a damp paper towel or clean cloth. Using light pressure, wipe the area in a circular motion where the marks are, rinsing thoroughly with warm water and dry with a soft cloth or paper towel. For more Stubborn Stains, allow the cleaner to sit on the surface no more than a minute and do not allow to dry. This is special for spot cleaning only. Do not use a scouring pad.

Draperies:

Draperies and upholstery fabric should always be cleaned by a competent dry cleaning establishment. Spots and stains should be removed with a non-water based stain remover manufactured for this purpose.

Faucets and Fixtures:

To protect the finish on your kitchen and bathroom faucets and fixtures, only use a damp soft cloth or sponge. Do not use abrasive cleaners or material that can damage the finish.

Glass and Mirrors:

Clean glass and mirrors as you would at home. To reduce "spotting" on outside windows, use a squeegee promptly after rinsing with water.

Flooring – Carpet:

Frequent vacuuming will quickly remove loose dirt and sand. Should the carpet become more soiled, consult a flooring professional.

Flooring - Vinyl:

Like any other flooring type, from time to time, vinyl floors need cleaning. Cleaning a vinyl floor is easy: use a soft broom or vacuum cleaner and a mop.

1. How often your floor needs to be cleaned, depends on the traffic and use of the room. A kitchen may need to be cleaned more often than a hallway.
2. Sweep the floor with a soft broom first to clear off dust. You can also use a vacuum cleaner, but do not use vacuum cleaners with beater bars to avoid scratching.
3. Clean the floor with a clean damp mop or cloth. Make sure to rinse the mop with warm water regularly. Use a mild detergent or general cleaning product.
4. If necessary, soak up any residual water. Make sure there are no puddles of water on the floor

Polish:

Cushion vinyl floors with an additional protective coating like our PU lacquer do not normally require polish. Some of our floors may require polishing to protect the surface from staining agents and to give a surface shine. For more information, see the installation manual.

Do not use:

1. Furniture polish
2. Spirit-based polish
3. Bleach or strong detergents
4. Wire or nylon wool scouring pads
5. Powder or liquid abrasive cleaners

Tip: always follow the manufacturer's instructions. Check if the cleaner or polish is suitable for use with cushion vinyl floors.

Avoid the following:

- Rubber backing on doormats may result in yellow discoloration of the floor. Choose a natural fiber mat instead.
- Rubber feet on furniture may cause staining. Remove them altogether or place coasters or felt pads in between.
- Exercise caution with spirit-based products such as shoe polish, solvents, hair dye and permanent marker pens. Wipe up stains and spills as quickly as possible. These recommendations also apply to turmeric, mustard and bright-colored food
- Corrosive substances such as acid and alkaline solutions can damage the surface of the floor. Clean up any spills quickly and carefully, avoiding direct contact with the substance. Wear protective clothing and gloves when doing so.
- Bitumen or tar from freshly resurfaced or melted roads and pathways cause severe stains, so be careful. Some inexpensive rubber shoe soles can also cause stains.

Note: This list is indicative of materials likely to cause damage but is not to be considered restrictive.

DO NOT USE FURNITURE WITH WHEELS or CASTORS WITHOUT USING PROPER FLOOR PROTECTION.

Flooring - Laminate:

Ordinarily vacuuming or sweeping is usually sufficient to keep the floor clean. If needed, occasionally clean with a cloth or mop (micro-fiber or terrycloth hooded) slightly moistened with a manufacturer recommended cleaning product.

IMPORTANT TIPS

- Never flood the floor with water.
- Do not use soap-based detergents, as these may leave a dull finish on your floor.
- Do not use abrasive cleaners, steel wool or scouring powder, as these may scratch your floor.
- Never wax, polish, sand or lacquer the floor.
- In very sandy areas sweep or vacuum more frequently.
- Use doormats outside each entrance to your home to prevent dirt, sand, grit and other substances such as oil, asphalt and driveway sealer from being tracked onto your floor.
- For furnishings, use wide-bearing, non-staining floor protectors, such as clear, hard plastic or non-staining felt protectors, for heavy furnishings.
- Promptly remove all liquid spills, including pet urine.
- Remove tough spots like shoe polish, tar and asphalt driveway sealer with a rag dampened with alcohol or nail polish remover containing acetone and spot clean. Then wipe with a damp cloth.

Flooring - Hardwood:

Only use cleaners approved by the floor manufacturer. Use of an unapproved cleaner will void the warranty. The use of protective coasters and casters will protect the floor covering.

DO NOT

- Mop the floor.
- Let sand or grit build up on the surface.
- Use wax, oil soaps or household cleaners.

Paneling and Cabinets:

Your wall board and cabinets contain a vinyl-covered finish for durability and easy maintenance. Clean these surfaces with a mild detergent and warm water using a soft cloth or sponge. Under no circumstance use abrasive cleaners or solvents containing bleach, alcohol, citrus oils, harsh chemicals, oil based spray cleaners or similar products. Direct sunlight can result in fading and discoloration so closing blinds and reducing harsh sunlight is advisable. Avoid exposing thermoformed or polyester products to sources of extreme heat. Precautions must be taken when using certain electric counter top appliances. Move toasters, kettles, portable ovens and all other appliances creating heat or steam away from under upper cabinets when in use..

Fabric and Upholstery:

Blot up stains promptly and use an upholstery cleaner or mild solvent depending on the stain. Do not laundry upholstery fabric. Never soak the fabric and always use as little water as possible. Blot rather than rub. Towel dry or have professionally cleaned. Upholstery can be vacuumed regularly with a soft brush attachment.

Duvet Covers:

Remove duvet before cleaning. Dry cleaning is recommended. If washing do so by hand or gentle cycle with cold water and no fabric softener. Do not iron. Hang cover until completely dry (8-10) hours.

Sinks and Toilets:

Many of these products are made of acrylics, plastics or composite materials and the use of non-abrasive cleaners is recommended. The use of harsh cleaning products can result in deterioration and/or yellowing of the surface finish.

Bathroom Tubs and Showers:

Major bathroom components on most models are made of durable fiberglass. To clean, use a mild detergent solution. For stubborn stains, an automotive liquid cleaner is ideal. Never use abrasive or solvent cleaners, steel wool, ammonia or similar cleaners as these can scratch and dull the finish. To retain the original shine, apply automotive wax and buff with a soft, dry cloth.

Windows - Interior:

Moving parts on windows and latches should be maintained and adjusted. Lubricate the windows with a light oil or powder graphite at least once a year. The screws holding the windows should be periodically checked and tightened.

Locksets and Latches:

Annual lubrication of locksets and latches with a suitable lubricant is recommended.

Stainless Steel Surfaces:

Cleaning with a household liquid detergent and water followed by a thorough rinsing is all that is required. After cleaning, wipe dry to prevent water spotting. For persistent stains, use a cleaner that is recommended by the manufacturer. Never use scouring powder, scouring pads, or steel wool. Also avoid leaving salt, mustard, ketchup or mayonnaise spills in contact with stainless steel since they may cause pitting of the surface.

Wooden Furniture Care:

The beauty of furniture care is that it helps to protect your investment. Fine furniture is an important purchase. Proper care will help maintain your furniture's finish and ensure that it looks great year after year. Caring for furniture is easy. Following a few simple guidelines will help extend the life of your furniture.

- Always dust with a polish moistened cloth. Do not wipe with a dry cloth. Polish cushions the cloth eliminating the scratching that occurs with dry dusting. Dust will scratch the furniture surface if not removed quickly. Use a soft, clean cloth that won't scratch the surface.
- Avoid using soap and water on furniture. Water can penetrate the finish and raise the grain of the wood, causing damage.

The Enemies of Furniture

Many common problems in furniture care are caused by the elements. If you are aware of these troublemakers, the resulting damage can easily be avoided.

- Sunlight's ultraviolet rays can damage wood finishes.
- Arrange furniture out of direct sunlight.
- Use sun screening drapes or blinds during intense sunlight hours.
- Rotate furniture in place and in room arrangements.
- Liquid spills will damage furniture if not removed promptly. Use coasters under beverage glasses, saucers under cups & flowerpots. If a spill occurs, immediately blot it gently without rubbing the surface.
- Heat creates a chemical change in the furniture finish, which can result in a white spot. Use protective pads under hot dishes, utensils or cooking appliances.
- Cyclic changes in temperature can damage furniture. Hot blasts of air such as those found from central heating, should be avoided because they cause extreme localized drying of wood.



Tips for Better Dusting

- Be sure to use the same type of polish consistently. Your furniture will appear cloudy or streaky if oil-based and wax-based polishes are interchanged.
- Always use a fine furniture polish when dusting. Never dry dust, as it could cause microscopic scratches on your furniture surface.
- Spray your furniture surface evenly, but not too generously. Wipe in a circular motion with a soft, clean cloth to clean and loosen the old polish then buff until completely dry for a beautiful shine and a smudge-resistant finish. For wood trim, spray polish on the cloth first and then dust.

7. Appendix

For your convenience, additional information and checklists have been included that many owners have found to be of assistance. In this Appendix you will find:

1. Condensation and Moisture
2. Hard Roofs, Awnings, Florida Rooms & Decks
3. Winterization Checklist
4. General Maintenance Guidelines / Chart
5. Personal Records & Component Parts Listing
6. Contact List of Major Component Suppliers
7. Notes



Condensation and Moisture

Moisture is present in all homes, but when it becomes excessive, homeowners need to take an active role in protecting their investment. The air tight construction of the units means that normal living activities of even a few occupants could lead to rapid saturation of the air volume resulting in visible moisture condensation, especially in cold weather. Humidity is a measure of the amount of water vapour in the air. When interior humidity levels are too high relative to cooler outdoor temperatures, condensation can form on the coldest surface in a room – often the glass in a window or door. While windows and doors do not cause condensation, they may be one of the first places it shows up because the surface condenses more easily. There are many sources for moisture in a home: showers, dishwashers, clothes washers and dryers, house plants, humans and pets, among others. In newly built homes, additional moisture may escape from building materials for up to three heating seasons, even with proper airflow and temperature management. Initial heating months of the winter and / or a rapid change in the temperature over a short period of time can lead to condensation from stored humidity in the unit.

During the heating season, the average person is comfortable between 30% and 50% relative humidity. The chart below will help you with the moisture level of your home; reducing humidity while maintaining comfort. The chart is based on the inside relative humidity of a 70 degree (F) indoor temperature (21 C). You can measure indoor humidity by purchasing a humidity sensor (hygrometer) or another way to monitor the indoor humidity level is to watch your windows. When interior condensation begins to form, reduce humidity in the unit.

Outdoor Temperature		Recommended Humidity Levels
+20 F & Warmer	-7C	35-40 %
+10 F	-12C	30-35%
0 F	-17C	25-30%
-10 F	-23C	20-25 %
-20 F	-29C	15-20 %

Moisture

Average daily living activities can contribute more than 18 gallons (79 litres) of water per week for an average family of four. Normal activities that you take for granted can greatly contribute to the humidity levels in your home.

Normal Breathing	1/2 pints per hour	.25 litres
Cooking (3 meals a day)	4- 5 pints per day	1.9 -2.4 litres
Showering bathing	1/2 pint each	.25 litres
Plants	1 pint per day/per plant	.50 litres

Tips for Controlling Condensation and Moisture

You can reduce or eliminate interior moisture to varying degrees by doing the following:

- Operate the air exchanger according to the manufacturer's instructions
- Use a dehumidifier
- Ventilate with outdoor air by partially opening one or more windows for several minutes each day. This will help to decrease or eliminate condensation as well as provide fresh air which helps reduce any potential air quality issues.
- Run the rangehood when cooking
- Run the bath fan when bathing or showering for longer periods after normal use
- Avoid making steam from excessive boiling for cooking, tea kettle, vaporizers and humidifiers
- Avoid drying clothes by hanging outside
- Use ceiling fans to circulate the air
- During very cold weather open closets and enclosed spaces to promote air circulation to the interior surfaces of cold walls. Do not leave closets and storage areas tightly packed during close-up.
- Be sure louvers and vents for the attic, basement and / or crawl space are open, adequately sized and allow for cross ventilation.



Air Exchanger

Only the DXPL02, BC02 and BC03 controls are equipped with an adjustable Dehumidistat.

High indoor humidity levels, during the heating season, have become a problem in many well insulated, tight homes, excessive condensation on the window is a visual sign of high indoor humidity levels. High indoor humidity levels can result in mold and mildew and the eventual degradation of the building structure itself.

Your air exchanger reduces indoor humidity levels when the outdoor air is drier than the indoor air. These conditions usually occur during the heating season when outdoor temperatures are less than 15C (59F). During the heating season, the operation of the air exchanger may reduce indoor humidity levels sufficiently to eliminate the need for further dehumidification. If your home requires further dehumidification, use the Dehumidistat feature if available located on the main control. This feature aggressively addresses high indoor humidity levels by initiating high speed ventilation when the indoor humidity levels rise above the adjustable set point on the control. Refer to the "Setting the Dehumidistat" section of either the DXPL02, BC02 or BC03 control instructions on how to set the Dehumidistat, depending on which control you have installed. The Dehumidistat function should be set to off for all seasons except the heating season because a dehumidifying effect occurs only when the outdoor air is dryer than the indoor air.

We suggest operating the air exchanger for the first few days without use of the Dehumidistat function to observe if a further dehumidification effect will be required. The Dehumidistat operates in % of RH (relative humidity) with 60 being high and 20 being low. If after a few days, further dehumidification is required (the house is still too humid), set the humidity level to a lower amount.

The average person is comfortable between 30% and 50% RH. The Dehumidistat should be set to off for all seasons except the heating season.



Hard Roof, Awnings, Florida Rooms and Decks

The Northlander warranty does not cover modifications and alterations that affect the safe use, material effectiveness and integrity of the unit. Therefore, it is the responsibility of the Owner, in conjunction with the Dealer, to perform a comprehensive analysis of the effects an added structural element will have on the Northlander prior to constructing or modifying.

It is the sole responsibility of the person engaging in any work to be done, to ensure that full design considerations have been undertaken prior to authorizing or beginning construction. Each project must be addressed independently and separately for its own merits and unique circumstances. Northlander Industries has no blanket process or approval available for such undertaking.

There are no universal answers relating to the construction of a modification. The factors and considerations are too numerous and variable by location to provide a comprehensive list. Below however are some of the common factors for consideration.

- In all circumstances a deck, roof or added room shall be supported on its own foundation and not bear additional loads on the original structure.
- An addition or awning roof installed at a lower pitch or rise than the Northlander roof can result in a snow build up or drift line. This can add considerable weight in winter resulting in potentially dangerous conditions for structural failure.

You may have seen promotional pictures showing various forms of aftermarket packaged systems and contractor constructed structural elements associated with a Northlander. This does not mean Northlander endorses or promotes the use or construction of any method or class of structural element beyond that which has been constructed by Northlander. We assume that a full review of the structural effects and construction solution has been done in a competent manner. We also assume that any applicable permits and approvals have been obtained prior to construction where required by authorities. We encourage all work to be done by fully insured trades or contractors.

Please contact your Dealer for additional information should you be considering a modification.



Winterization Checklist

The Checklist below provides some information in the event that you vacate your home for an extended period of time in cold weather.

- | | |
|--|---|
| <p><input type="checkbox"/> Water Filter (if equipped):
Remove filter and discard.
Replace it with a new one in the spring.</p> | <p><input type="checkbox"/> Water Heater (see Plumbing Systems)
Drain and By-pass
Cover exterior vents.</p> |
| <p><input type="checkbox"/> Countertops and Cabinets
Clean. Remove any bottles or cans that could be damaged by freezing
Leave cabinet doors open.</p> | <p><input type="checkbox"/> Windows
Clean and inspect for damage.
Cover windows on inside that do not have blinds to prevent sun fade on interior fabrics.</p> |
| <p><input type="checkbox"/> Toilet
Drain tank and bowl.</p> | <p><input type="checkbox"/> Curtains and Blinds
Clean and close</p> |
| <p><input type="checkbox"/> Drain Traps
Add anti-freeze.</p> | <p><input type="checkbox"/> Exterior Walls
Wash as recommended.</p> |
| <p><input type="checkbox"/> Sinks
Clean the sinks, be sure nothing is left in them.</p> | <p><input type="checkbox"/> Vents
Remove any debris. Cover and secure.</p> |
| <p><input type="checkbox"/> Refrigerator
Clean and defrost. Prop door(s) open.
Automatic ice maker and/or water dispenser-
Disconnect water supply and drain.</p> | <p><input type="checkbox"/> Stored Items
Remove all liquids.
Freezing could cause eventual spillage that can damage cabinets, countertops and flooring.</p> |
| <p><input type="checkbox"/> Air Conditioner
Clean or replace all filters.</p> | <p><input type="checkbox"/> Vents
Remove any debris. Cover and secure.</p> |
| <p><input type="checkbox"/> Washing Machine and Dishwasher
Disconnect water supply and drain.</p> | <p><input type="checkbox"/> Roof
Remove any debris.
Keep clear of heavy snow loads. Use care to prevent damage.</p> |

Note : The above checklist represents general winterization procedures. Please check with the local dealer or qualified contractor for additional requirements that are specific to your geographic location as well as the manufacturer's manual.

General Maintenance Guidelines/Chart

EXTERIOR	Monthly	Every 90 Days	Every 6 months	Every 12 months	As Necessary
General					
Check home for level					X
Ensure skirting is vented					X
Repair any damage by pests & insects					X
Aluminium Siding					
Wash		X			
Wax			X		
Vinyl Siding					
Wash with warm water & mild detergent		X			
Roof					
Clean debris					X
Inspect flashing, shingles & roof stacks			X		
Trim branches from contact					X
Clear off snow					X
Seals & Adhesive					
Inspect			X		
Replace					X
Windows					
Inspect			X		
Clean out debris in Weep Holes					X
Lubricate moving parts					X
Replace Sealant					X
Repair Leaks					X
Doors					
Lubricate door hinges.					X
Lubricate door locks & strike pocket					X

ELECTRICAL	Monthly	Every 90 Days	Every 6 months	Every 12 months	As Necessary
Breakers & Connections					
Inspect				X	
Replace					X

GAS SYSTEM	Monthly	Every 90 Days	Every 6 months	Every 12 months	As Necessary
System Pressure					
Set System pressure at 11" WC				X	
Lines & Fitting					
Leak test system			X		
Check holes & fittings				X	
LP Regulator					
Clear Vent Screen of Debris				X	

PLUMBING SYSTEM	Monthly	Every 90 Days	Every 6 months	Every 12 months	As Necessary
Lines & Fittings					
Inspect & Tighten					X
Winterize system					X
Water heater					
Manufacturer Maintenance Instructions					X
Inspect & Clean Exterior Vent Screen	X				
Check for soot			X		
Replenish Air Pocket					X

APPLIANCES & EQUIPMENT	Monthly	Every 90 Days	Every 6 months	Every 12 months	As Necessary
Air Conditioner					
Manufacturer Maintenance Instructions					X
Clean return air filter					X
Furnace					
Manufacturer Maintenance Instructions					X
Range					
Manufacturer Maintenance Instructions					X
Inspect & Clean Burner Assembly					X
Refrigerator					
Manufacturer Maintenance Instructions					X
Inspect & Clean Exterior Vent Screen					X
Soft Brush Clean Off Coils		X			
Defrost			X		



Personal Records - Unit Information

Unit Information

Serial # _____

Year _____

Date of Purchase ____/____/____

Selling Dealer _____

Phone # _____

Appliance information

	Manufacturer	Model #	Serial #
Air Conditioner	_____	_____	_____
Furnace	_____	_____	_____
Hot Water Heater	_____	_____	_____
Range	_____	_____	_____
Refrigerator	_____	_____	_____
Microwave	_____	_____	_____
Stereo	_____	_____	_____
Television	_____	_____	_____
DVD Player	_____	_____	_____
Washer	_____	_____	_____
Dryer	_____	_____	_____
Dishwasher	_____	_____	_____
Central Vac	_____	_____	_____
Range Hood	_____	_____	_____
Fire Extinguisher	_____	_____	_____
Fireplace	_____	_____	_____
Air Exchanger	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Insurance Information

Company/Agent _____

Policy Number _____

Renewal Dates _____

Phone # _____

Claims Phone # _____

Contact List of Major Component Suppliers				
Company	Products	Contact Name	Phone Number	Website
General Electric (Mabe)	Appliances		1-800-361-3400	www.geappliances.ca
GL Products	Intertherm Furnace and A/C	John Dollar	905-845-7558 Ext. 2	www.glpcanada.com
AIRIA Brands Inc.	Fresh Vent Air Exchanger		519-457-1904	www.lifebreath.com
Rinnai	Tankless Water Heater		1-800-621-9419	www.rinnai.ca/support/warranty
Dimplex North America	Electric Fireplace		1-800-668-6663	www.dimplex.com
Whirlpool	Appliances		1-800-807-6777	www.whirlpool.ca
Owens Corning	Shingles Insulation		1-800-438-7465	www.owenscorning.com
Royal Building Solutions	Vinyl Siding		1-855-769-2585	www.royalbuildingproducts.com
North Star Windows and Doors	Windows and Patio Doors		1-800-265-5701	www.northstarwindows.com
Doorway	Doors		519-773-3333	www.doorwaycanada.com
ONbord	Cabinet Doors		1-289-866-2673	www.onbordinc.com
Superstyle - Trendline Furniture	Furniture		1-905-850-6060	www.superstylefurniture.com
Ashley Furniture	Furniture		1-800-737-3233	www.ashleyhomestore.ca
Continental Fireplaces	Gas Fireplace		1-866-820-8686	www.continentalfireplaces.com



SINCE 1944

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