

WINTERIZATION SERVICE REQUIREMENTS

In jurisdictions where winterization is required, all properties must be winterized between October 1 and March 31. Generally, properties should not be winterized between April 1 and September 30. Properties should be winterized only once. The property may be re-winterized only if the initial winterization is deemed to be no longer effective and the mortgagee obtains prior approval from the M&M contractor. The winterization process must include a thorough and complete draining of all plumbing and heating systems unless otherwise directed by the City/State variation.

M&M contractors should be contacted for directions on maintaining water services to houses where a community water service is involved and utility services to townhouses, duplexes, attached dwellings in PUDS, and condominiums where such services must be left on due to homeowners association or party wall requirements. In condominiums and attached dwellings in PUDS, water services and utilities should remain on if the systems are shared with other units.

DRY HEAT SYSTEMS – The water supply to the property should be shut off at the curb. If curb shut off is not possible, the main interior water supply must be shut off. In either case, the water meter must be disconnected and left in the property unless the City or County ordinance requires return of the meter to the water company to eliminate further water charges. The disconnected feed pipe leading from the main water valve must be plugged. Tags, labels, or warning signs must be affixed to all items winterized and must include the date of winterization and the name, address, and telephone number of the firm that performed the work. For properties with wells, the pump (if not submersible) and tank must be drained. The hot water heater and all domestic supply and distribution piping must be thoroughly drained. All faucet and valves must be opened in the process and then closed after draining is completed. Toilets must be cleaned before winterization materials are used. Use of air pressure to clear the system or, in some cases, adding anti-freeze to the systems are both acceptable provided that the effect is prevention of freeze-ups. Adequate amounts of anti-freeze are to be placed in all fixture traps including toilet tanks and bowls. All winterization must be performed in accordance with state and local codes, ordinances and regulations.

WET HEAT, RADIANT, HYDRONIC OR HOT WATER BASEBOARD SYSTEMS – The winterization requirements outlined above for domestic water apply except that water should not be shut off to or in the property. Test for system security. Pressurize the system with an air compressor to 35 pounds and inspect for leakage. System must hold air pressure with no leakage for a minimum of one-half hour.

Drain the boiler and all heating loops. Repair, replace, or install (as necessary to comply with state health department requirements) a Reduced Pressure Zone (RPZ) valve. Such a valve shall be installed between the furnace and the main feed water supply, adjacent to the furnace.

Fill the boiler and all heating loops with a non-toxic anti-freeze (propylene-glycol) solution designated for hot water heating systems (with anti-rust ingredient) tested to a freeze point of – 40 degrees Fahrenheit, or lower. Isolate loops or bleed in sequence to ensure proper flushing through the lines. Bleed all vents in the system to ensure that all air has been voided from the system.

Return the heating system to normal operating temperature and pressure. Check the entire system for proper operation. Leave heat on. Tape the furnace electrical switch to the “on” position. Tape card above the switch stating, “Do Not Remove Tape. Do Not Turn Off.”

Set the thermostat at 55-degrees. In the event major repair or replacement would be necessary in order to make the heating system operational, contact the M&M contractor for instructions.

STEAM HEAT SYSTEMS – The winterization requirements outlined above for domestic water apply. Determine if the system is operable and if there are any leaks. Report this information to the M&M contractor. In addition, the house boiler system must be thoroughly drained. All radiator vents are to be opened in the process and bleeder pins must not be removed from the radiators.

HOT WATER BASEBOARD HEAT SYSTEMS – As a point of clarity HUD considers that hot water baseboard heat is separate and distinct from heating derived from steam heat systems and dry heat systems. For the point of this discussion, hot water baseboard heating systems derive heat from hot water carried through copper tubing (normally 3/8 inches to 3/4 inch diameter, however tubing can be as wide as 1 1/2 inches in diameter).

SUMP PUMPS – Where there is an existing sump pump used to keep basements or crawl space dry, the electricity must remain on to assure that flooding does not damage the property. Check to make sure the sump pump is operating. Contact the M&M contractor for guidance if the existing pump does not work.

WINTERIZATION PHOTOS- HUD regulations specify before and after photographs along with any other supporting documentation. Photos are required of all fixtures and appliances winterized and all posted notices. It is essential to take before, during, and after photographs of every aspect of the winterization process. It is a requirement to take action photos such as a picture of non-toxic anti-freeze pouring from a bottle into a wash basin, drain, or trap.

EXAMPLE OF A PROPER WINTERIZATION

In This Document:

- The water supply is shut off.
- Water heater is drained while faucets are opened.
- Fixtures and appliances are drained.
- Using **compressed air** may be necessary.
- **RV antifreeze** is added to all drain traps to prevent damage from freezing.
- The **furnace** can hold water too.
- Special requirements for **well systems**.



Introduction:

In cold weather, all vacant houses and properties should be prepared to ensure sub-freezing temperatures. The primary means of preserving these properties is draining the pipes, traps, and toilets to prevent the water from freezing.

If the temperature inside a house drops below 32 degrees Fahrenheit (0° Celsius), it's likely that the water supply pipes and the drain traps will freeze.

When water freezes it expands roughly 9 percent, and if there is no room for expansion it's possible that the pipes and other reservoirs will burst. When the ice thaws the pipe will leak, and in the supply system this leak could occur *anywhere*. Fixing a burst pipe can be expensive, but the damage from uncontrolled water leakage can easily reach into the thousands of dollars.

A properly-insulated house built to current building codes will probably never experience this problem under normal conditions (i.e., the heating system runs properly, the electricity stays on, and the furnace fuel supply is maintained).

Basic Procedure For Draining Supply Pipes:

1. Shut off the water supply.
2. Open one or more faucets at the **highest** point in the system.
3. Open a faucet or drain valve at the **lowest** point in the system.



Since the house depicted here had municipal water service, there was a pipe entering the basement with a water meter just above the entry point.

Note that there are red handles (ball valves) above and below the water meter. This is done so the water meter can be removed for service and the pipes do not need to be drained.

Step 1: Shut Off The Water

Turn off **both** valves. These are **ball valves**, which only require a **quarter turn**.



This picture shows a **"Stop and Waste"** ball valve.

This is different from a regular ball valve because it has a cap that covers a **small opening**. When the water is shut off, this cap can be unscrewed so the water downstream of the valve can be drained.

This valve is supposed to be installed with the bleeder downstream of the ball valve, otherwise it's useless.



Step 2: Let Air Into The System

Proceed to the highest faucet in property and open it - no water should exit the faucet.

Step 3: Open A Valve At The Lowest Point



In this particular property, the water heater (in the basement) was the lowest point in the water supply system, so the water heater drain was the logical point to drain the water out.

This was a 38 gallon water heater, which is typical for a smaller house like this that has only one bathroom.

You may find it more convenient to drain most of the house from an outdoor garden spigot and then drain the lower extremities of the plumbing system from the water heater (see below). You may also use your compressor to operate a sandpiper pump if you have the correct fittings.

SHUT THE GAS OFF TO THE WATER HEATER

The off position is reached when the OFF marking is aligned with the metal tab in molded into the front of the valve body (green arrow). That large red button to the left of the valve dial may need to be pressed down or lifted up in order for the dial to be turned past the PILOT position. This button is designed to prevent the dial from turning directly from OFF to ON without first stopping at the PILOT position.



Water Heater Drain Valve:

This water heater drain valve depicted doesn't have a normal handle... it had a short stem with a screwdriver slot (red arrow).

Many water heaters have a plastic drain valve with a normal handle.

If you do not have a pump, using a bucket for the remaining water may be your only option.

Opening a faucet is important (the highest in the property as noted above). If there was no opening to let air into the supply pipes, the water will drain slowly or flow out in surges followed by moments of trickling flow. The phenomena is very similar to watching a soda can “chugging” when you turn it upside down. Puncture the bottom, and the beverage exits the vessel freely.



Note About Electric Water Heaters:

Since **gas** water heaters have a burner beneath the water tank, the bottom of the tank (and therefore the drain valve) is usually about a foot above the floor. **Electric** water heaters often have a drain valve that is **very close to the bottom** of the tank, and since most plumbers install a water heater directly on the floor, the drain valve on an electric heater may be very close to the floor. This is very difficult to drain because of the proximity to the floor.

Walk Out Basements: If a house had a "walk-out" basement, then a garden hose could be connected to the water heater drain valve. The hose can be run out the door and the system will drain itself with minimal effort.

Pumping: I have used a cheap drill-powered pump (that connects to a couple of garden hoses) to push the water up and out of a basement window. It worked okay, but the pump leaked and sprayed a couple of gallons of water all over the basement.

Gravity Makes It Easy:

In some houses you will be lucky enough to have only horizontal and ascending plumbing. However, often the pipes will turn down and then up, leaving a "trap" or "valley" that won't drain by gravity. To fully drain those pipes **compressed air** is the logical solution.

Forcing Out Water With Compressed Air:

If the plumbing can't be drained by gravity, then an air compressor can be used to blow the water from the supply pipes. The trick is getting air *into* the pipes.

Washing machine connections and outdoor faucets are the easiest because a garden hose can be adapted to an air hose.

A kitchen or bath faucet isn't as easy. Perhaps the simplest way to force compressed air into these faucets is to remove the aerator and insert a simple blow gun, wrapping a rag around the nozzle to seal the connection.

Letting More Air Into The System:



When the water flow had slows to a trickle, opening an outdoor faucet is the next logical solution.

Testing the plumbing system with the clothes washer is usually a good check. Turn on the washer and listen for water entering. You should only hear the solenoid opening to let water in – no water rushing in. Shut it off after a few minutes.



There was one minor problem area: the vertical pipe just above the water meter. With no opening to drain this short section of pipe, I used a large wrench to loosen one of the threaded fittings on the water meter.

Other Details:



Since the washing machine water supply hoses ran down behind the appliance, they formed a **trap**. Unless forced out or drained out by gravity, water will stay in these hoses.

Remove the washing machine supply hoses and **drain each hose** into a cup.

Even though the toilet may have already been flushed once (when you cleaned it, the tank may still be partially full).

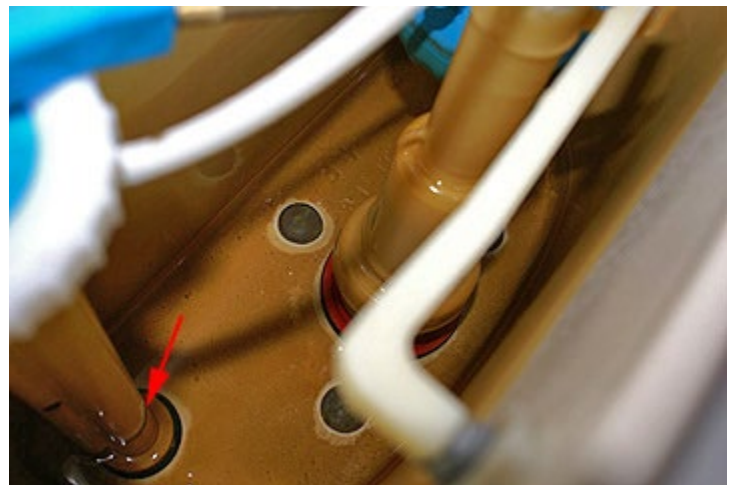
Most newer 1.6 gallon per flush toilets have the same size tanks as older units; the only change is that the flush valve closes sooner, thereby letting less water into the bowl.





To drain the remaining water from the toilet tank, flush it again and **hold the flush lever down** until the water level reaches its lowest possible point.

There may be a very small amount of water left in the tank. A sponge, towels, turkey baster, etc., may be used to remove the remaining water.



Adding Non-Toxic Antifreeze:



OR, to prevent this small amount of water from freezing, a small amount of non-toxic antifreeze can be poured into the toilet tank.

A plunger can be used to pump most of the water out of the toilet bowl.





Depending on how much water you left in the toilet bowl, using about a quart of nontoxic antifreeze should be enough to keep the toilet from freezing and cracking.

Use approximately two cups of nontoxic antifreeze in each sink to preserve the trap beneath.





Approximately two cups into each bath tub drain is also necessary.

*** Wiping excess antifreeze from around the drains, etc. (and preventing the ensuing pink stain), will promote a favorable rating from both your QC inspector and broker.

Approximately two cups of nontoxic antifreeze poured into the kitchen sink.



To summarize, the nontoxic antifreeze won't displace all of the water in the traps, but it will mix and displace a lot of it. The only way to ensure that the antifreeze has its maximum protection (i.e. -50 degree freezing point) is to remove all of the water before adding antifreeze. It is very unlikely that the house depicted above, or any house in the lower 48 States will reach that temperature.

Appliances Hold Water Too:



You may not be able to see any water, but normally a dishwasher holds some water below its drain.

Underneath this point there is (normally) a pump that has water in it all the time. Pour approximately one quart of water into the dishwasher drain.

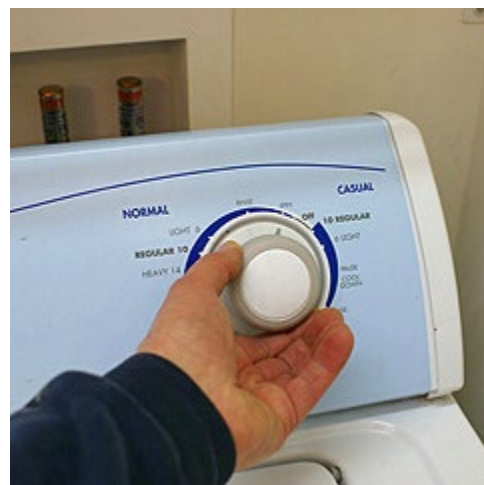
If electricity is available, run the dishwasher until you can hear the pump run. If possible advance the dishwasher to the rinse cycle, turn the dishwasher on, and continue advancing until you hear the pump activate. With electronically controlled dishwashers (depicted), select the short cycle (rinse only), listen for the fill valves opening (sounds like a faint hum), and then cancel. The pump runs for a short period of time.





Pour about one quart of antifreeze into the dishwasher.

Select “spin cycle” on the machines controls, and start the washer. Usually letting the washer run for about 30 seconds until you can no longer hear any water going down the drain is sufficient.





Although some nontoxic antifreeze was probably conveyed into the washing machine's drain, the only way to be sure is to pour approximately one cup into the drain to preserve it.

The Refrigerator and Icemaker:

Refrigerators with icemakers, of course, have water inside them as well. It's a best practice to pull the fridge away from the wall without damaging the floor and disconnect the water line to the icemaker and drain it into a pail. Residual water left over in the icemaker will be fine (because it was designed to freeze water).

Furnace-Mounted Humidifier: It may be necessary to manually open the humidifier float valve to let the water drain out. Many humidifiers have a basin of water that may need to be drained. **Do not** put antifreeze in a humidifier, it'll ruin it.

The Furnace:

You wouldn't think that a furnace would contain water, but some do. High-efficiency furnaces (also called **condensing** furnaces) generate a significant amount of condensation from the water vapor in the flue gases (byproducts of combustion). These furnaces always have a condensate drain line. Sometimes the condensate drains into a floor drain, but if there's no drain available the condensate drains into a small pump which pumps the fluid uphill into the plumbing drain.

You can tell this is a high-efficiency furnace because the chimney is the white plastic pipe visible in the upper right of the picture.



The condensate pump (1) was located just above the floor. This unit contains a small electric pump, a plastic basin for the water, a float device that turns the pump on and off.

Arrow 2 points to a gray plastic trap device on the side of the furnace. Two small white plastic tubes lead into this trap, and a larger plastic tube drains the trap into the condensate pump.

Arrow 3 points to the flexible plastic discharge tube that leads from the pump to the drain pipe.

Pour some nontoxic antifreeze into the trap. You should notice the pump kicking on. Continue pouring until you notice a pink color in the discharge tube.



Note that this discharge tube is always **filled with water**... at least up to the level where the tube turns downhill and goes into the drain. **If** this flexible vinyl tubing were to freeze it might not rupture. If it **did** rupture, it wouldn't be too difficult or expensive to replace it. The biggest concern is the pump itself, which could be damaged if water froze inside.



When you're putting nontoxic antifreeze into the condensate drain system, turn the power to the furnace off.

Hot Water Heating Systems:

A hot water (or hydronic) heating system will also need to be drained if the heat is going to be shut off during the winter. Draining a hydronic heating system is slightly more complicated than draining the potable water system.

1. Shut off the power to the boiler.
2. The "make up" water supply needs to be shut off. All hydronic heating systems have a connection to the cold water supply, and there is always a shutoff valve on this line.
3. Open the system drain. There will be a drain valve at the lowest point in the system.
4. Air needs to be allowed in. Every radiator should have a bleeder valve, which is typically a small cap on the elbow at the end of a baseboard radiator. Old cast iron radiators have a bleeder valve near the top, which can be opened with a special key (available at a plumbing supply or hardware store). Needle-nose pliers work too.

All of the bleeder valves need to be opened while the water drains out. This can take a while, perhaps an hour.

Refilling/De-winterizing: All of the bleeder valves need to be opened. The system drain needs to be closed, of course. The make-up water supply valve is opened. When water spurts out of a bleeder, close it. When all of the bleeders have been closed the system can be run. Odds are you will hear occasional gurgling sounds as air bubbles circulate through the system. Many systems have an automatic bleeder valve above the boiler that lets these bubbles escape. Otherwise it may be necessary to open a bleeder to let the air out. First try the highest bleeder in the system, because air will often accumulate at the highest point.

Well Water:

If a house has a well instead of municipal water, then the well pump needs to be shut off and the pressure tank drained.

To turn off the well pump, the breaker can be turned off, or look for a disconnect switch near the well tank.

A well system can be emptied at the **pressure tank drain valve** (red arrow).

This valve is often close to the floor, so a short garden hose is helpful. The last few gallons will need to be drained into a shallow container, such as a dishpan or cake pan.



If the entire system is drained through this valve, **REMEMBER**: the water heater will still need to be drained.

TOOLS/ EQUIPMENT REQUIERED TO PERFORM PROPER WINTERIZATION

- Air Compressor- Minimum 4CFM
- 5250 Watt Generator
- Pressure Test Kit
- Straight Slot Screwdriver
- Adjustable Wrench
- Channel Lock Pliers
- Toilet Plunger
- 2 Gallons Non- Toxic Anti-Freeze
- Winterization covers ordered through MFS Supply

Photos for Winterization

- Provide photos showing:
 - Hot water tank draining
 - Anti-freeze in commode(s)
 - Pouring anti-freeze into all fixtures (i.e. sink and floor drains)
 - Blowing water lines with compressed air, including visible pressure gauge reading
 - Winterization stickers posted, including the breaker box
 - Water meter removal with a plug installed on the supply side line (on all dry winterizations)
 - Boiler draining (on all steam/hot water winterizations)
 - Installation of RPZ valve (if applicable)

24 Asset Winterization/Securing Sticker

| <u>ATTENTION</u> | | |
|---|--------------------------|----------------------|
| ___ Lock change completed on | _____ | (DATE) |
| ___ Property Winterized on | _____ | (DATE) |
| Initial Utility Assessment Completed on | _____ | (DATE) |
| | <u>Shut off location</u> | <u>Meter Reading</u> |
| Electricity | ___ ON ___ OFF _____ | _____ |
| Gas | ___ ON ___ OFF _____ | _____ |
| Water | ___ ON ___ OFF _____ | _____ |

If the winterization box is checked, your mortgage company authorized a winterization to minimize the possibility of freeze damage; this procedure is not a guarantee or warranty with respect to the HVAC, Plumbing, or other mechanical systems. The property should be de-winterized by a licensed contractor or plumber to assure that all systems are operational.

QUALITY CHECKPOINT – Winterization

- Do not leave anti-freeze bottles at property. It is not acceptable to leave bottles turned upside down in sink/toilets.
- Turn off the pilot light to the hot water tank, if necessary
- Shut off utility services at the breakers during dry winterization, unless sump pump is present
- Pick up your trash. Do not leave empty/blank sticker sheets or bottles at property
- Use the correct 24 Asset winterization stickers on all areas! (please see image above)
- Toilets, sinks, bathtubs, dishwashers and Jacuzzis must be cleaned prior to winterization
- Water meter should be disconnected with the supply line plugged (unless required to maintain heat system)
- Close all valves and faucets upon completion, including hot water tanks
- If using non-toxic anti-freeze that is not pink in color, please include a picture of the bottle on all work orders
- Winterize all areas including dishwashers and wash basins, including the addition of anti-freeze

- Make sure to shut off water at curb whenever possible
- Be very thorough in your description of the condition of the system

Photo Examples

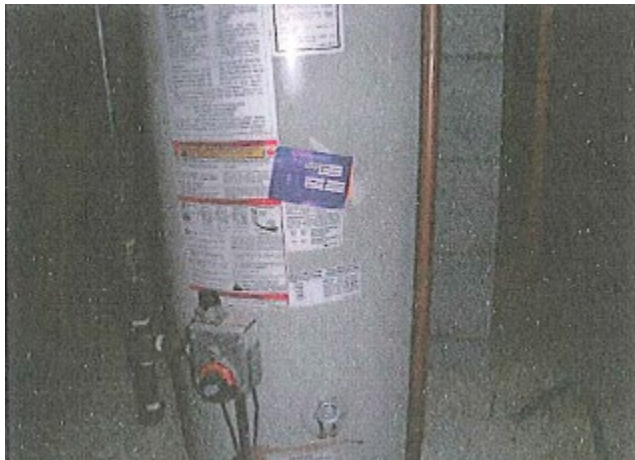
After water meter dropped & water line capped



Water Meter on Exterior of Property



Water Heater



Pressure Testing both Hot & Cold Lines



Adding Anti-Freeze to All Traps & Fixtures



Boiler During Pressure Test



Draining Water heater



Pressure Testing Both Hot & Cold Lines



Draining of Boiler During Wet Winterization



Example of Incorrect Anti-Freeze



Incorrectly Winterizing a Dirty Commode

