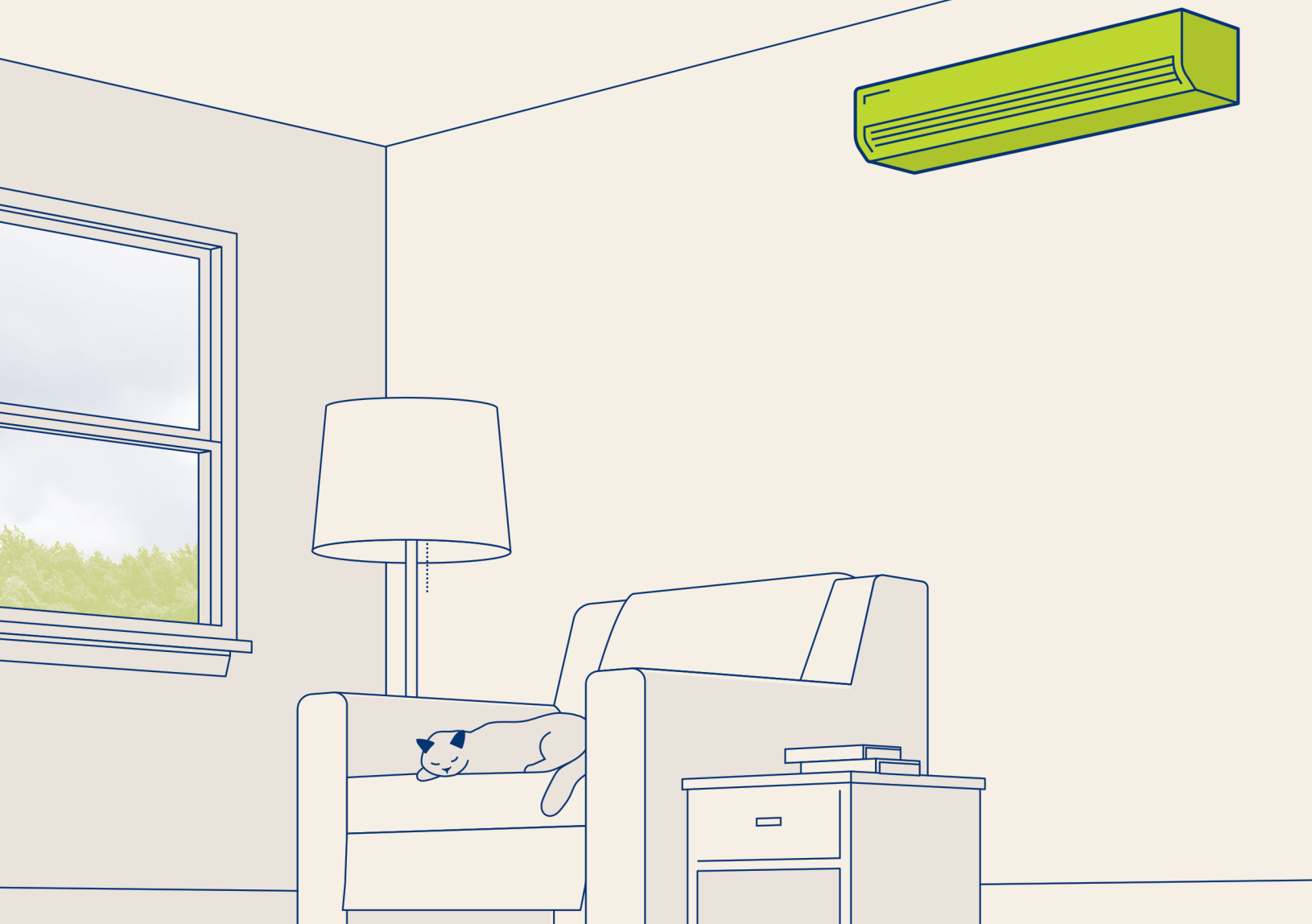


# Heat Pump Planner

Clean Heating, Cooling,  
and Water Heating Options  
for Homes



*developed with*



**NYS Clean Heat**



# Heat Pump Planner

---

## Table of Contents:

### Heating and Cooling

*jump to*

<b>Introduction to Heat Pumps for Heating and Cooling</b>	<b>1</b>
<b>One-Story Home</b>	
Ductless Heat Pump for a One-Story Home	3
Ducted Heat Pump for a One-Story Home	5
Multi-zone Heat Pump for a One-Story Home	7
Ground Source Heat Pump for a One-Story Home	9
Ground Source Hydronic Heat Pump for a One-Story Home	11
<b>Two-Story Home</b>	
Ductless Heat Pumps for a Two-Story Home	13
Ducted Heat Pumps for a Two-Story Home	15
Multi-zone Heat Pump for a Two-Story Home	17
Ground Source Heat Pump for a Two-Story Home	19
Ground Source Hydronic Heat Pump for a Two-Story Home	21
<b>Manufactured or Mobile Home</b>	
Ductless Heat Pump for a Manufactured or Mobile Home	23
Ducted Heat Pump for a Manufactured or Mobile Home	25
<b>Apartment</b>	
Ductless Heat Pump in an Apartment	27
<b>Townhome</b>	
Multi-zone Heat Pump for a Townhome	29

### Water Heating

Heat Pump Water Heater in an Unfinished Basement	31
--	----



# What Are Heat Pumps?

Heat pumps are a cleaner, proven technology that can help save on energy bills and provide up to 100 percent of your home's heating and cooling needs, depending on the system type. In the summer, they work like an air conditioner to move heat outdoors, cooling your home, more efficiently than central air conditioners or window units. In the winter, the process is reversed by using electricity to move heat into your home instead of burning fuel. These systems work all winter and can reduce your energy costs, decrease your carbon footprint, and increase comfort every day.

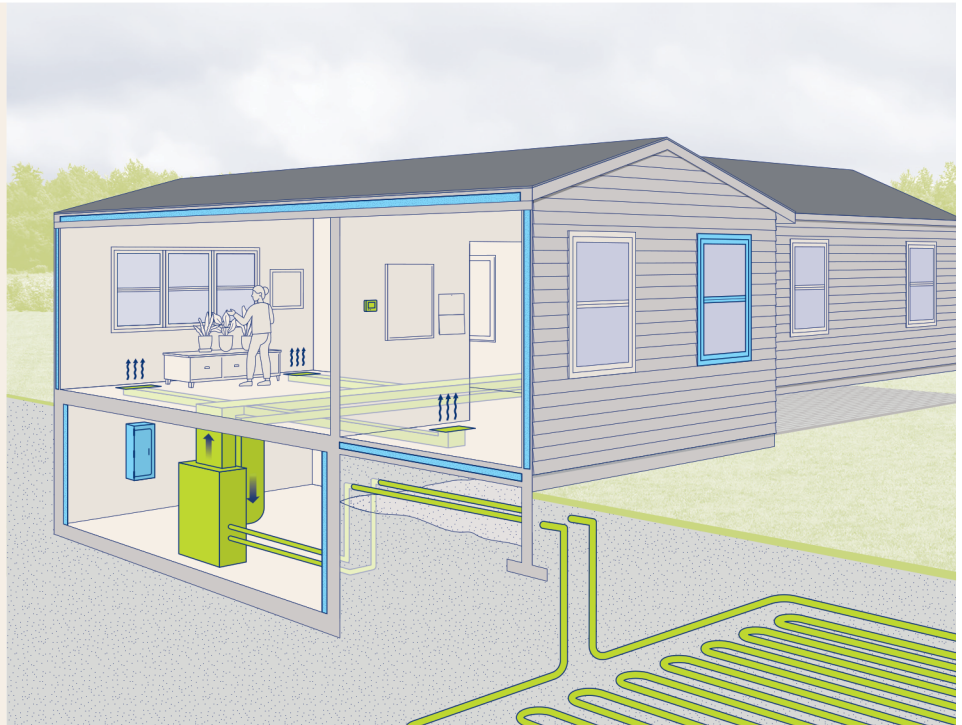
## Types of Heat Pumps for Heating and Cooling

### Ground source or Geothermal

heat pumps use buried pipes to extract heating or cooling from below ground.

Compared to air source heat pumps, ground source heat pumps are more efficient and do not require outdoor units (condensers).

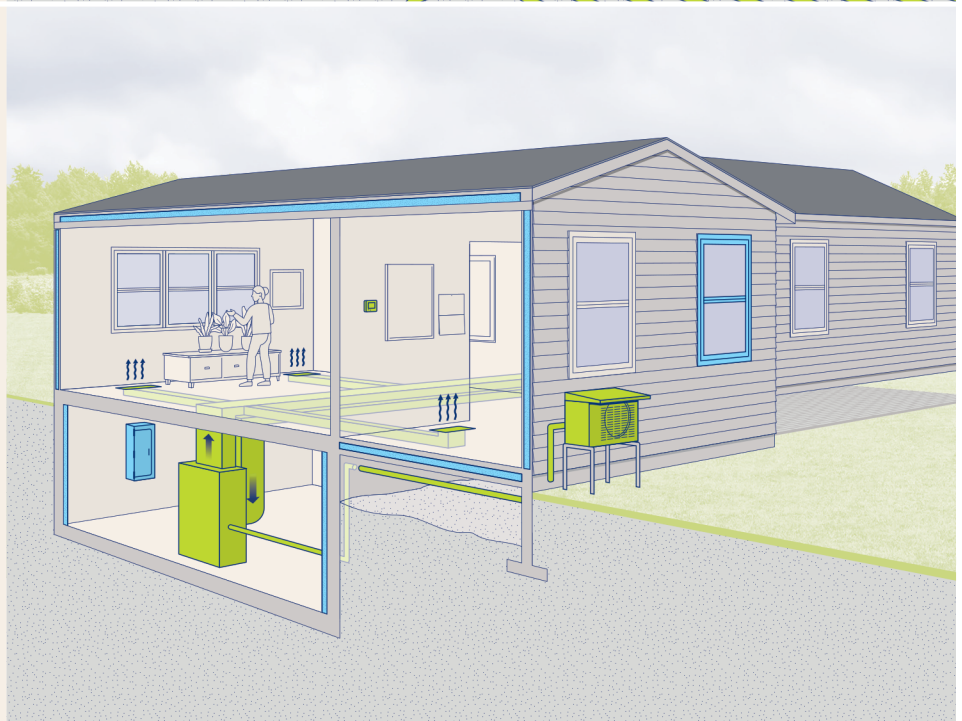
Ground source systems typically take longer and cost more to install.



**Air source** heat pumps extract heating or cooling from outdoor air. Technology designed for cold climates can efficiently heat homes all winter across New York State.

Air source systems are less costly to install and more versatile, but not as efficient as ground source heat pumps.

Outdoor units – similar to AC condensers – are necessary with air source heat pumps.



# Why Heat Pumps?

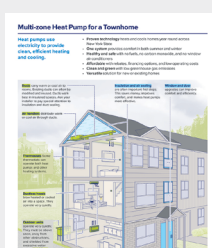
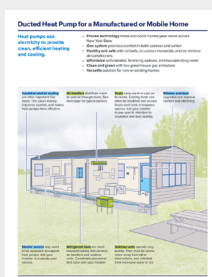
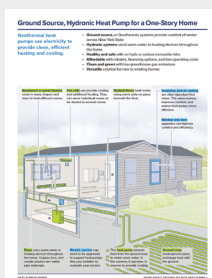
Heat pumps are **safer** and more **efficient**, **sustainable**, and **versatile**. Why?

- Heat pumps cost less to operate than oil, propane, or electric baseboard heating systems.
- Heat pumps are a safer option compared to gas or liquid fuels. There is no chimney, gas line, oil tank, or burning of fuels and no risk of generating carbon monoxide.
- Heat pumps can accommodate all of your heating and cooling needs, depending on the type of heat pump. Most forced-air systems use the same unit to deliver cool air to your house in the summer and provide heat in the winter. However, heat pumps with hydronic baseboards, panels, and radiant floors need to be paired with a fan coil to accommodate cooling needs.
- Heat pumps generate no greenhouse gas emissions when your electricity comes from clean sources. Heat pumps can also be powered by solar at your home.
- With current technology, heat pumps are efficient in all seasons and can provide most (if not ALL) of the heating needs in homes across New York State.

## Consider Heat Pumps for Heating and Cooling When:

- You want to save money compared to an oil, propane, or electric baseboard heating system
- You want to add air conditioning or replace an existing AC unit
- Your heating system is old and will soon need replacement
- You are planning a major renovation or building a new home
- You want to address comfort problems in certain areas of your home
- You need to provide heating and cooling to an addition
- You want to improve health and safety for your family
- You want to reduce your carbon footprint

## Using the Heat Pump Planner



### What kind of home do you have?

The guide shows a variety of systems in several types of homes.

### Do you have forced-air heating?

If your home currently has ducts for heating or cooling, these can often be reused for ducted heat pump systems.

### No ducts? No problem.

There are many ductless options for heat pumps.

**Whole home solution?** Heat pumps can efficiently heat and cool entire homes all across the State, but they can also be installed in additions or spaces with comfort problems.

### Interested in water heating strategies?

Depending on the system and home type, heat pumps can also be used for heating water for bathing, washing, and cooking.

### Know the right questions to ask.

Each system includes key questions for your heat pump installer. Work with installers to review options for your home type, price point, and other goals.

**Insulate the home.** Adding insulation and sealing air leaks will improve comfort, lower heating and cooling bills, and reduce the size (and cost) of the heat pumps needed. See resources for making your home more efficient at [www.nyserda.ny.gov/Residents-and-Homeowners/Seal-and-Insulate-Your-Home](http://www.nyserda.ny.gov/Residents-and-Homeowners/Seal-and-Insulate-Your-Home).

**Understand costs, financing, and incentives.** Heat pumps are less costly than oil, propane, or electric baseboards. Check with NYSEDA or your electric company for incentives and financing options.

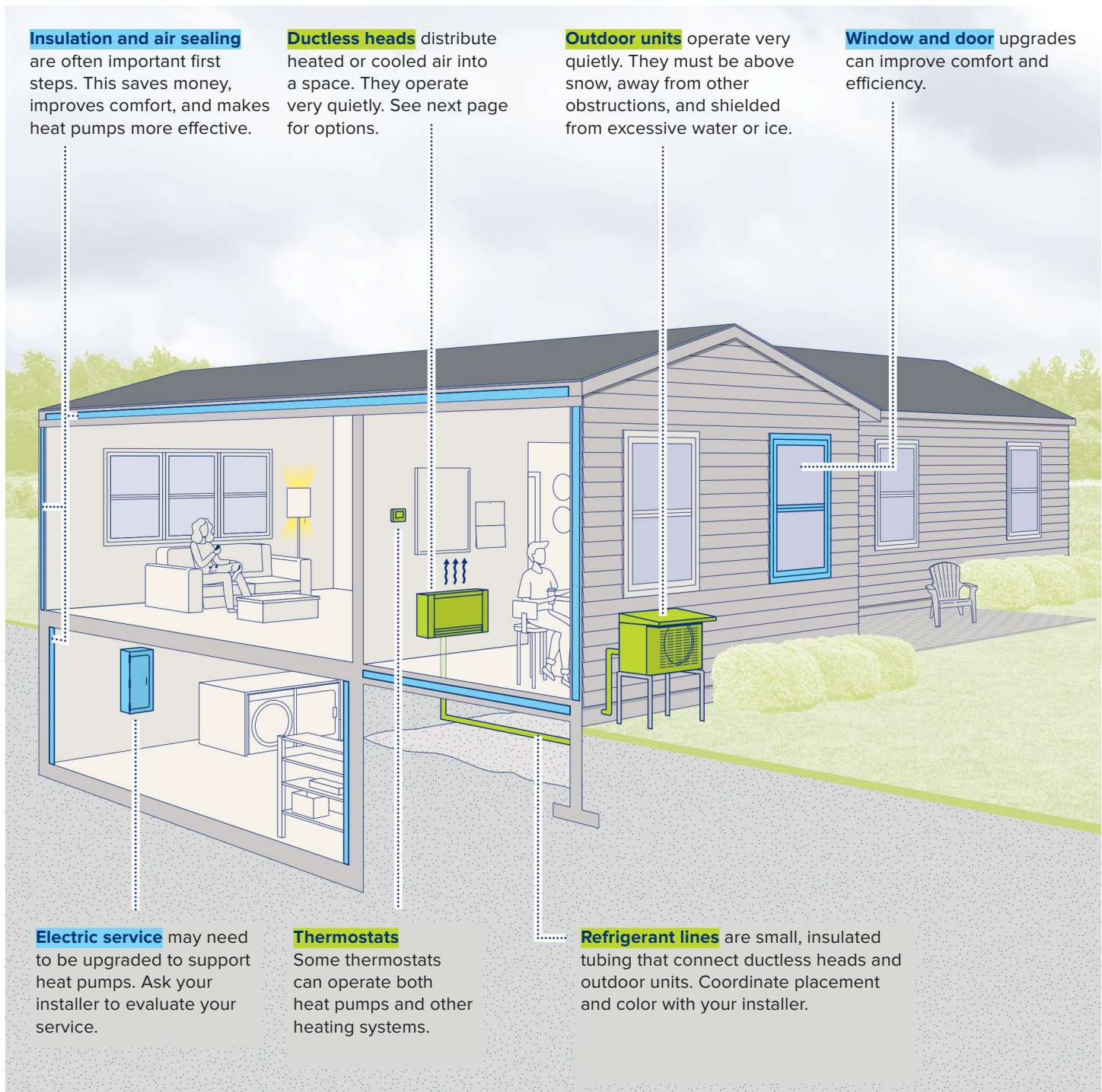


**NYS Clean Heat**

# Ductless Heat Pump for a One-Story Home

Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes



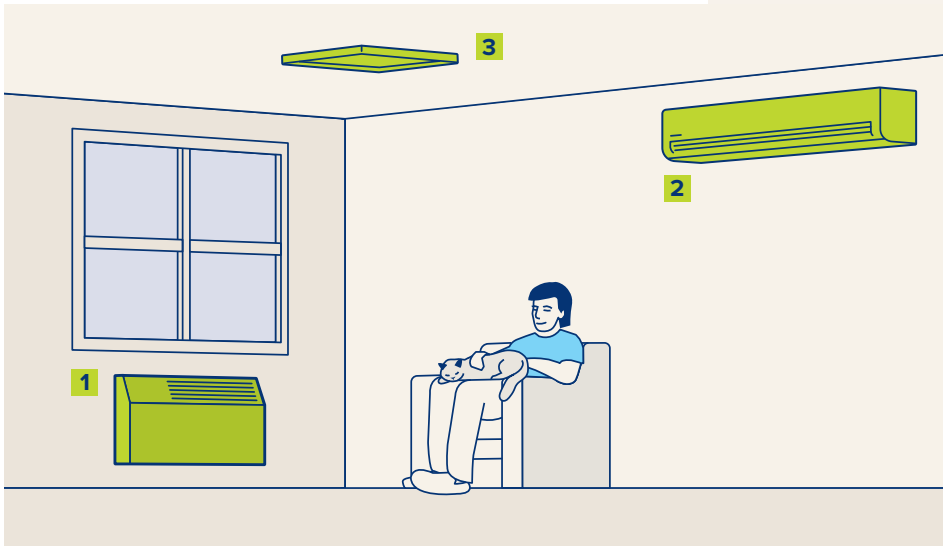


## Features

- Among simplest and least expensive heat pump system to install
- Control temperature in different areas of the home
- Quiet and efficient operation
- Eliminate window air conditioners

## Types of Ductless Heads

Many options for indoor fan coils or “heads” are available. For optimal comfort and efficiency, each head should be sized to meet specific heating and cooling needs. Your heat pump installer can suggest the best options based on size and configuration of the space.



**1 Low-wall or floor mount** units may be installed where radiators once were. Do not block them with furniture.

**2 High-wall** are the most common and versatile.

**3 Recessed** can be flush with ceilings or walls. Ask your installer about installation and maintenance.

## Ask Your Installer

- What size units do I need? **Ask for room-by-room heating and cooling calculations.**
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What is the best location for each head? Can we avoid heads directly above where people sit or sleep?
- What are my options for locating each outdoor unit?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options; as larger incentives may be available for eligible customers
- Ductless heat pumps are among the simplest and least expensive to install
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, your gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs

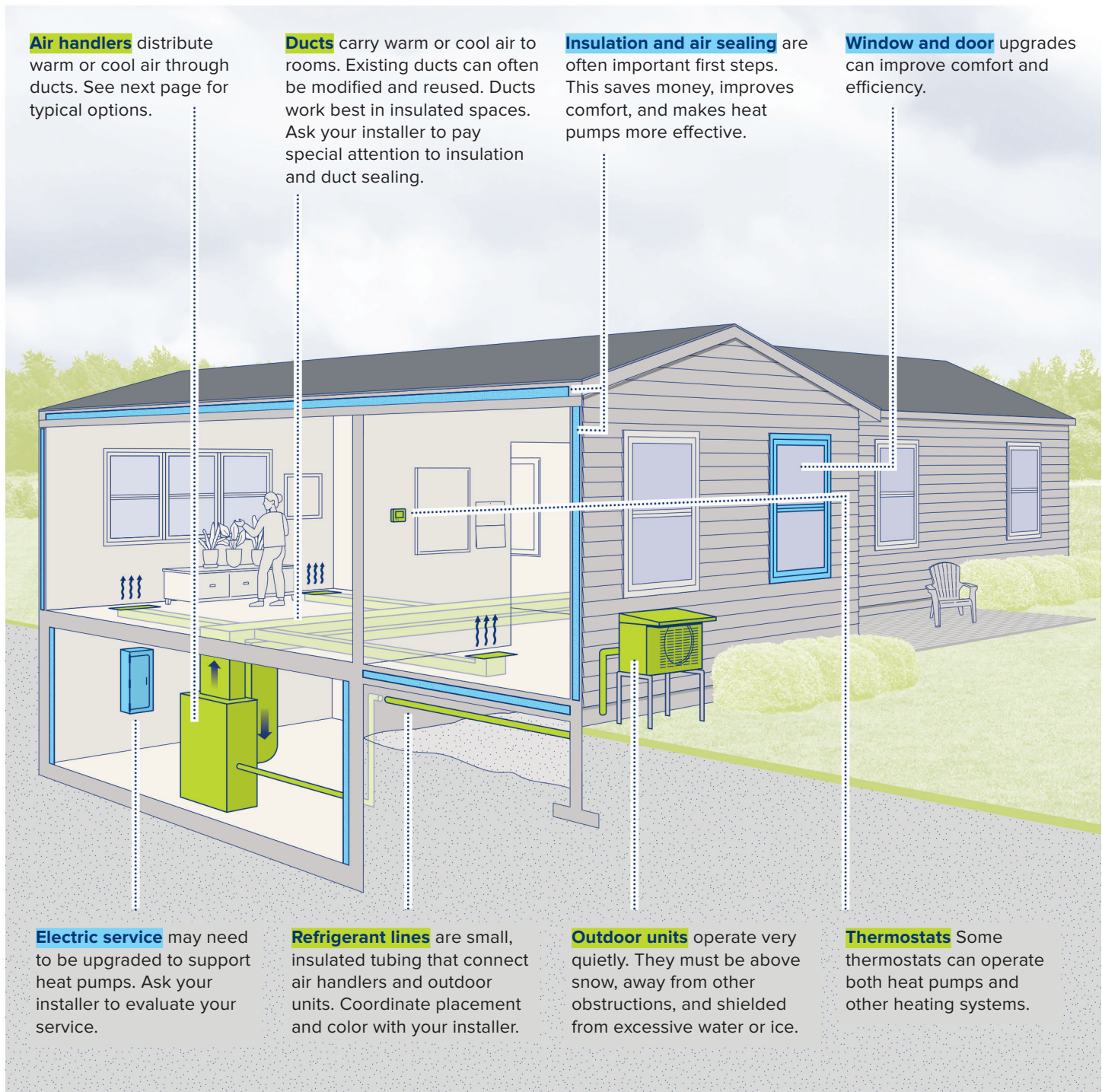


**NYS Clean Heat**

# Ducted Heat Pump for a One-Story Home

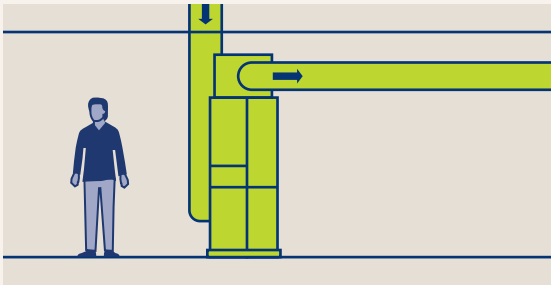
Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes



## Features

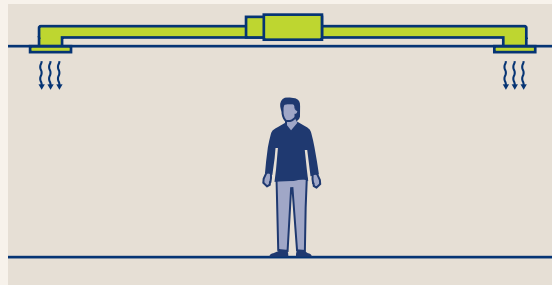
- Heating and cooling distributed throughout the home with new or existing ducts
- No wall-mounted indoor units
- Quiet and efficient operation
- Eliminate window air conditioners



**Conventional air handlers** distribute air through larger ducts. They are often located in basements, attics, or utility closets. They can be installed to blow air upwards, downwards, or sideways to fit within your home.

## Air Handler Options

Air handler equipment moves warm or cool air through ducts. Your installer can guide you to the best options based on heating and cooling needs, existing systems, and home configuration.



**Compact ducted air handlers** usually serve smaller areas such as one to three rooms. Their slim profile means they often fit in dropped ceilings, but leaving access for maintenance is important.

## Ask Your Installer

- Will proper heating and cooling get to each space? **Ask for room-by-room heating and cooling calculations.**
- Are my ducts big enough for a heat pump? What modifications are needed?
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What are my options for locating each outdoor unit?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSEDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- If your home has ducts that can be reused, installation costs will be lower
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs



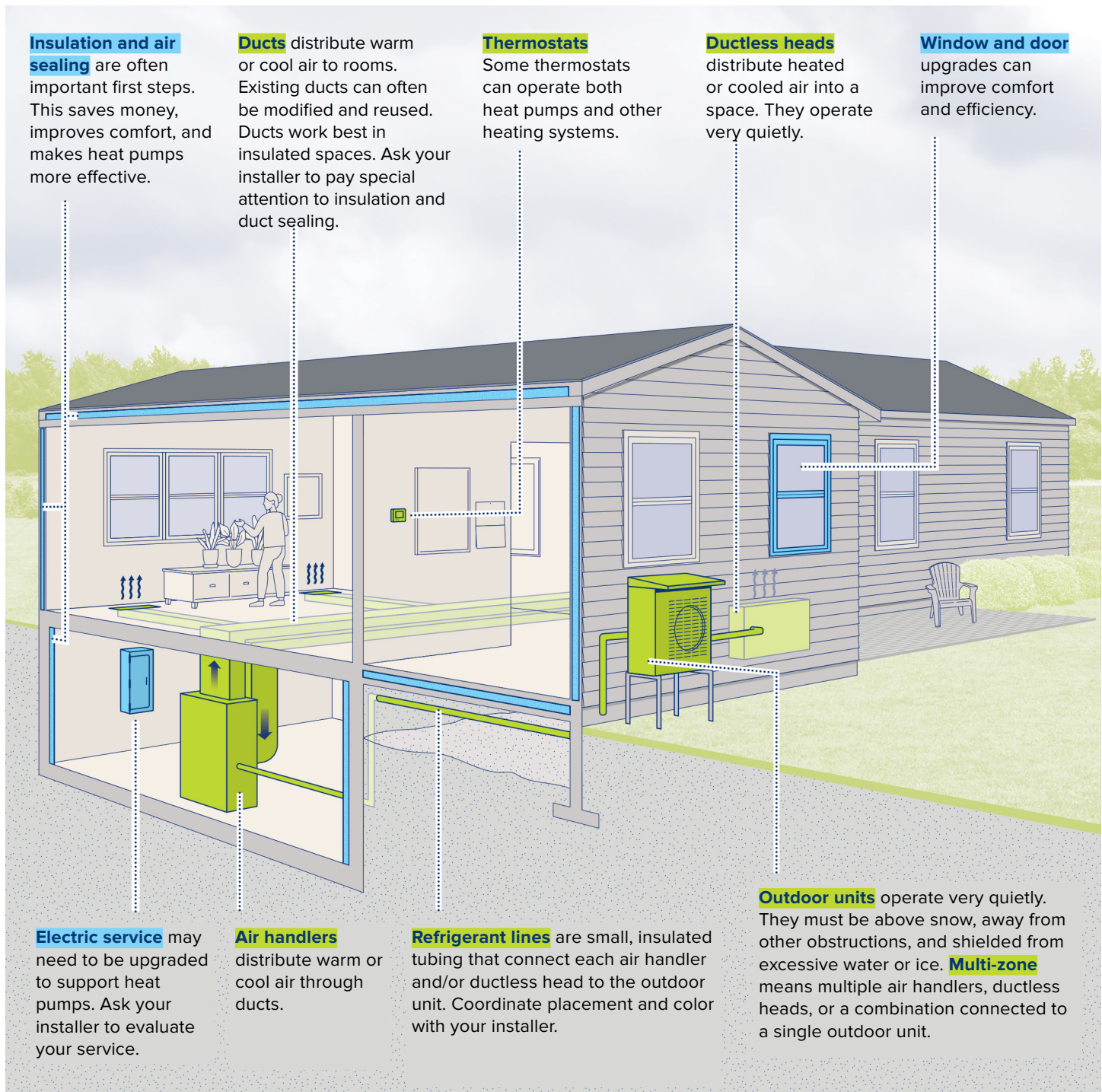
**NYS Clean Heat**



# Multi-Zone Heat Pump for a One-Story Home

Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes

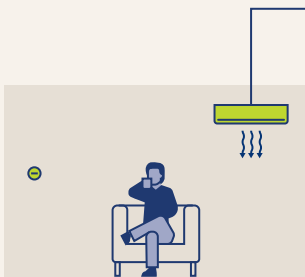


## Features

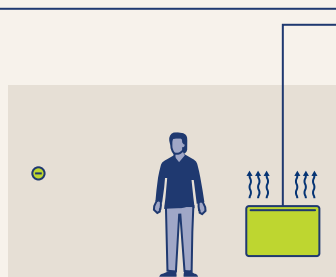
- Save space outdoors with multiple indoor units connected to one outdoor unit
- Control temperature in different areas of the home
- Options for both ducted and ductless heating and cooling
- Quiet and efficient operation
- Eliminate window air conditioners

## Types of Indoor Units

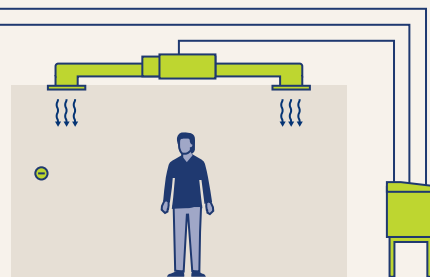
Multi-zone heat pumps allow you to “mix and match” ducted air handlers and ductless “heads.” Each should be sized to meet specific heating and cooling needs of the space it serves. Your installer can suggest the best options based on those needs, configuration of the home, and location of ducts (if present). Options include:



**High-wall ductless heads** are among the most common and versatile.



**Low-wall ductless heads** may be installed where radiators once were. Do not block them with furniture.



**Ducted air handlers** come in a wide range of configurations. Some serve a single room; others can serve most of a home.



Each indoor unit can have its own thermostat, but all indoor units connect to a **single outdoor unit**.

## Ask Your Installer

- What size units do I need? **Ask for room-by-room heating and cooling calculations.**
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What is the best location for each indoor unit? Can we avoid heads directly above where people sit or sleep?
- What are my options for locating the outdoor unit(s)?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- Each zone adds cost, so use fewer zones when practical
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs



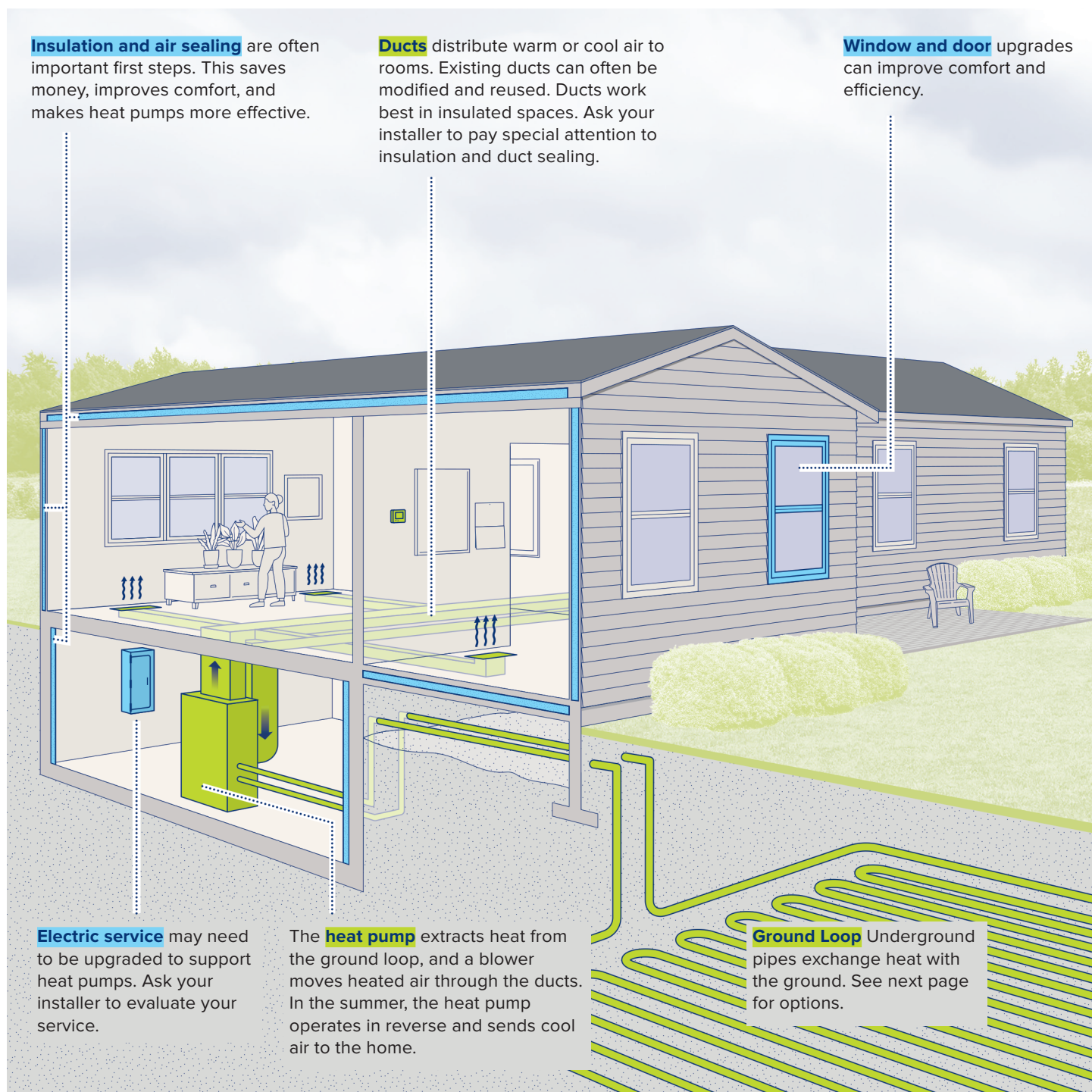
**NYS Clean Heat**



# Ground Source Heat Pump for a One-Story Home

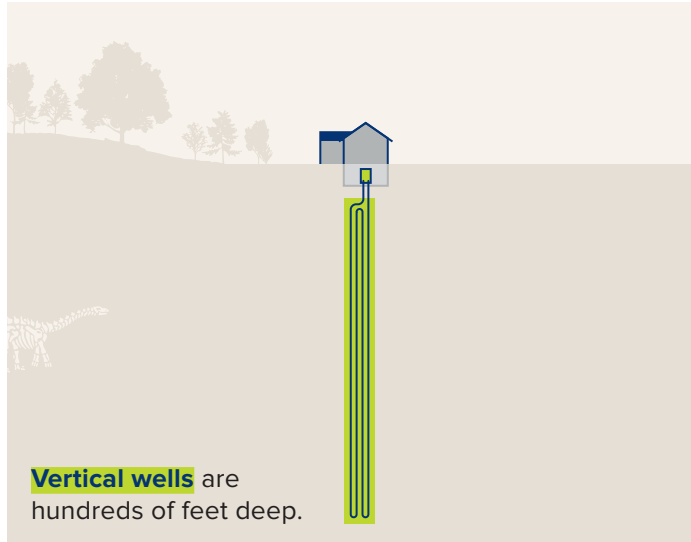
**Geothermal Heat pumps use electricity to provide clean, efficient heating and cooling.**

- **Ground source**, or Geothermal, systems heat and cool homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes



## Features

- Highest efficiency with lowest operating costs
- Quiet with no outdoor condensers or window air conditioners
- Heating and cooling distributed throughout the home with new or existing ducts
- Can also provide water heating



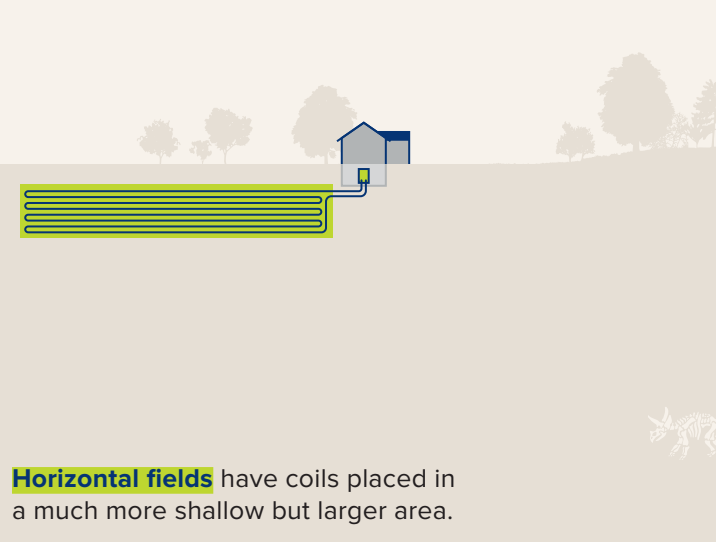
**Vertical wells** are hundreds of feet deep.

## Ground Loop Types

Underground pipes exchange heat between the heat pump and the ground. Your installer will determine the proper type and size of ground loop based on:

- Land area available
- Type of rock or soil
- Heating and cooling needs of the home

There are two main types of loops.



**Horizontal fields** have coils placed in a much more shallow but larger area.

## Ask Your Installer

- Will proper heating and cooling get to each space?  
**Ask for room-by-room heating and cooling calculations.**
- Are my ducts big enough for a heat pump? What modifications are needed?
- How long will installation take? Where and when will you need access?
- Who is responsible for landscaping after the ground loop is installed?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- While ground source heat pumps are the most efficient, they are also more expensive to install
- Cost varies with region, installation complexity, installer experience, system size, and manufacturer

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs

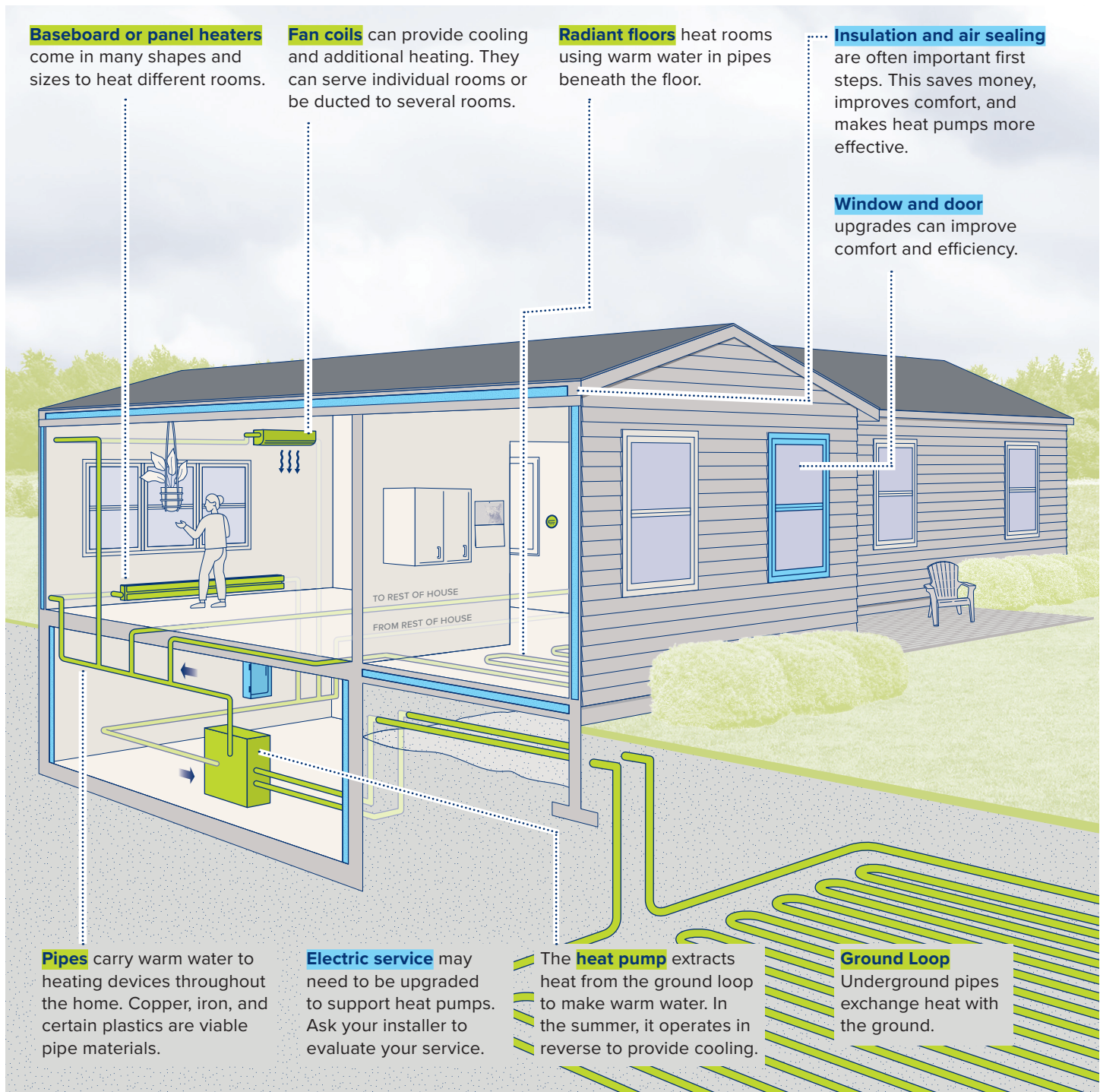


**NYS Clean Heat**

# Ground Source, Hydronic Heat Pump for a One-Story Home

**Geothermal heat pumps use electricity to provide clean, efficient heating and cooling.**

- **Ground source**, or Geothermal, systems provide comfort all winter across New York State
- **Hydronic systems** send warm water to heating devices throughout the home
- **Healthy and safe** with no fuels or carbon monoxide risks
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with low greenhouse gas emissions
- **Versatile** solution for new or existing homes

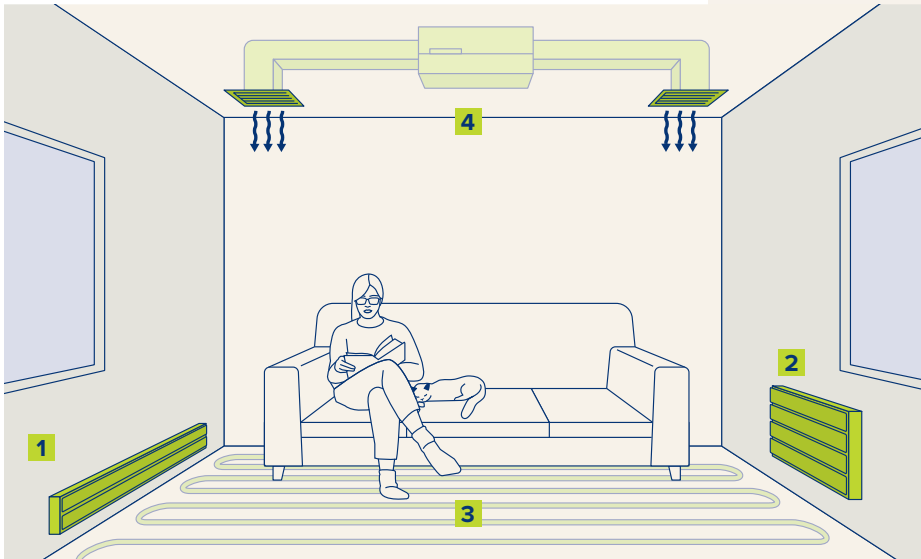


## Features

- Quiet with no outdoor condensers
- Can also provide hot water for bathing, washing, cooking, etc.
- Comfort from warm water heat throughout the home
- Air ducts are not necessary

## Heat Delivery Options

Heat pumps provide warm water rather than hot water, and conventional baseboards and radiators are often not sufficient. Heating devices designed for warm water are needed to provide comfort. Your installer can suggest the best heat delivery options based on your heating needs.



### Heating Only

- 1 Baseboards** designed for warm water can comfortably heat rooms.
- 2 Panels** are available in many shapes and sizes and can be mounted in various positions.
- 3 Radiant floors** provide uniform comfort.

### Heating and Cooling

- 4 Fan coils** provide cooling and can supplement other heating devices. These can serve single spaces or be ducted to several rooms.

## Ask Your Installer

- Will proper heating and cooling get to each space?  
**Ask for room-by-room heating and cooling calculations.**
- Do I need to upgrade radiators or baseboards?
- Will the system use “outdoor reset” control to optimize efficiency and comfort?
- How long will installation take? Where and when will you need access?
- Who is responsible for landscaping after the ground loop is installed?
- How do I operate my system for optimal comfort and efficiency?
- What annual maintenance is required?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options. Larger incentives may be available for eligible customers
- Ground source heat pumps may have a high upfront cost but will operate efficiently over a long lifetime
- Cost varies with region, installer experience, heat delivery options, system size and manufacturer

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise. Your gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs



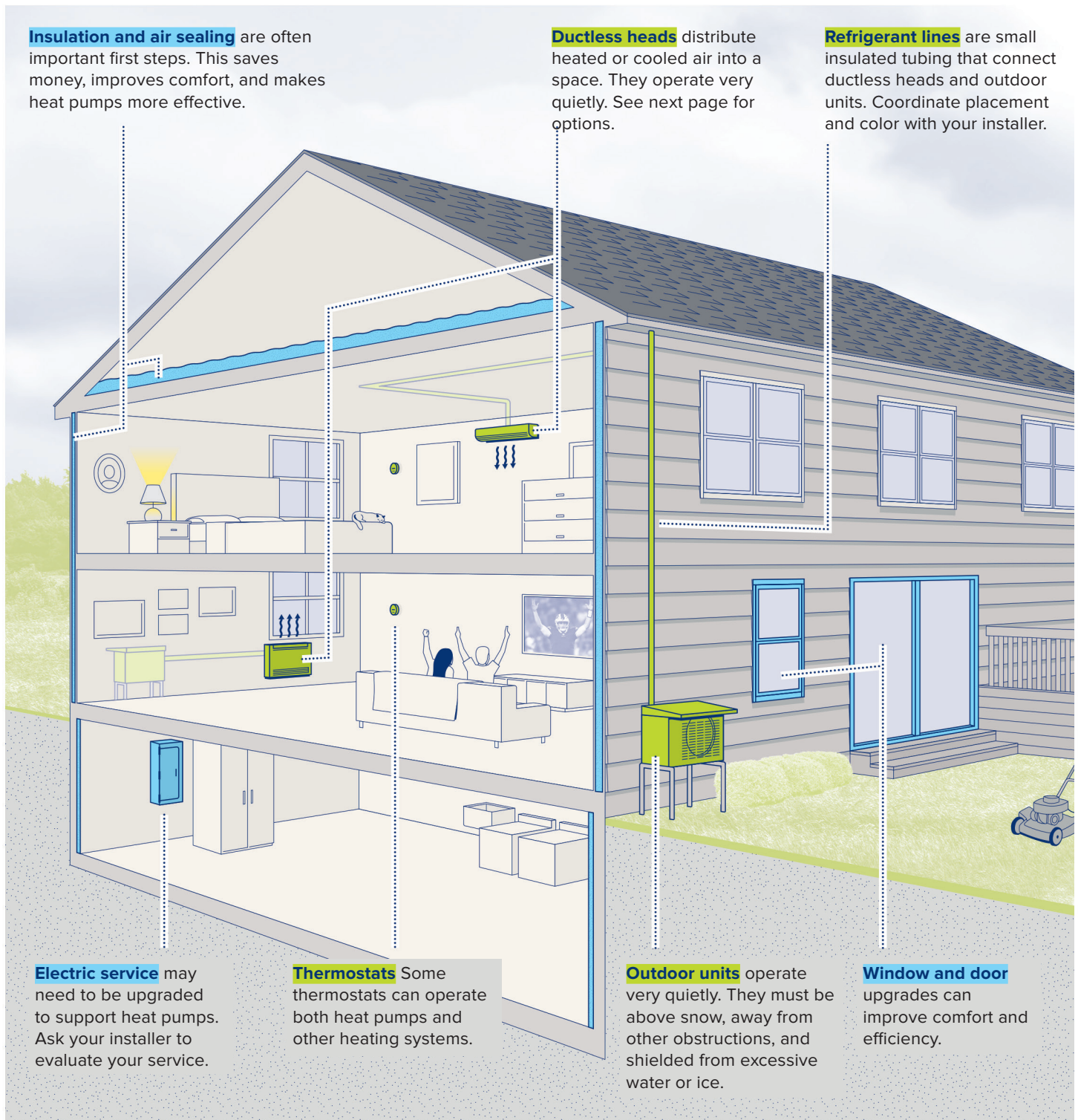
**NYS Clean Heat**



# Ductless Heat Pumps for a Two-Story Home

Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes

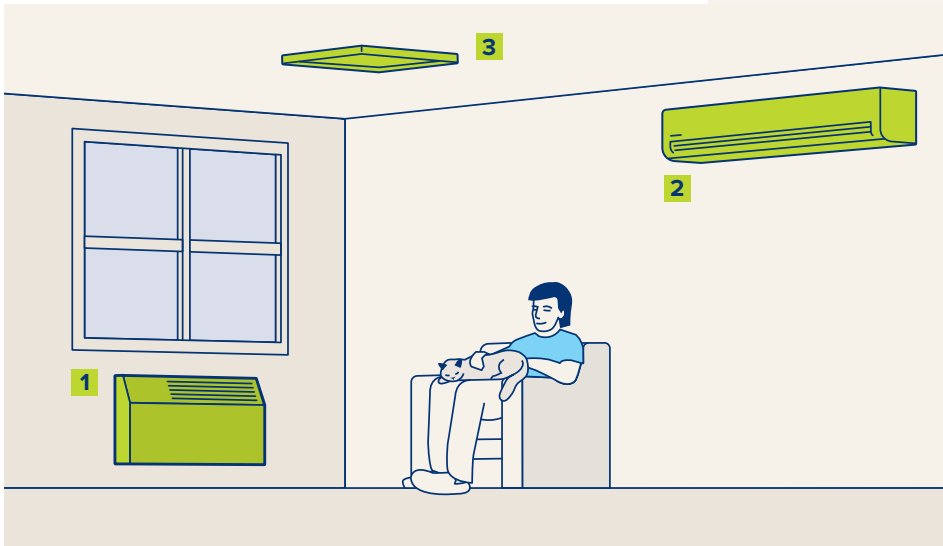


## Features

- Among simplest and least expensive heat pump system to install
- Control temperature in different areas of the home
- Quiet and efficient operation
- Eliminate window air conditioners

## Types of Ductless Heads

Many options for indoor fan coils or “heads” are available. For optimal comfort and efficiency, each head should be sized to meet specific heating and cooling needs. Your heat pump installer can suggest the best options based on those needs plus size and configuration of the space.



**1 Low-wall or floor mount** units may be installed where radiators once were. Do not block them with furniture.

**2 High-wall** are the most common and versatile.

**3 Recessed** can be flush with ceilings or walls. Ask your installer about installation and maintenance.

## Ask Your Installer

- What size units do I need? **Ask for room-by-room heating and cooling calculations.**
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What is the best location for each head? Can we avoid heads directly above where people sit or sleep?
- What are my options for locating each outdoor unit?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- Ductless heat pumps are among the simplest and least expensive to install
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs

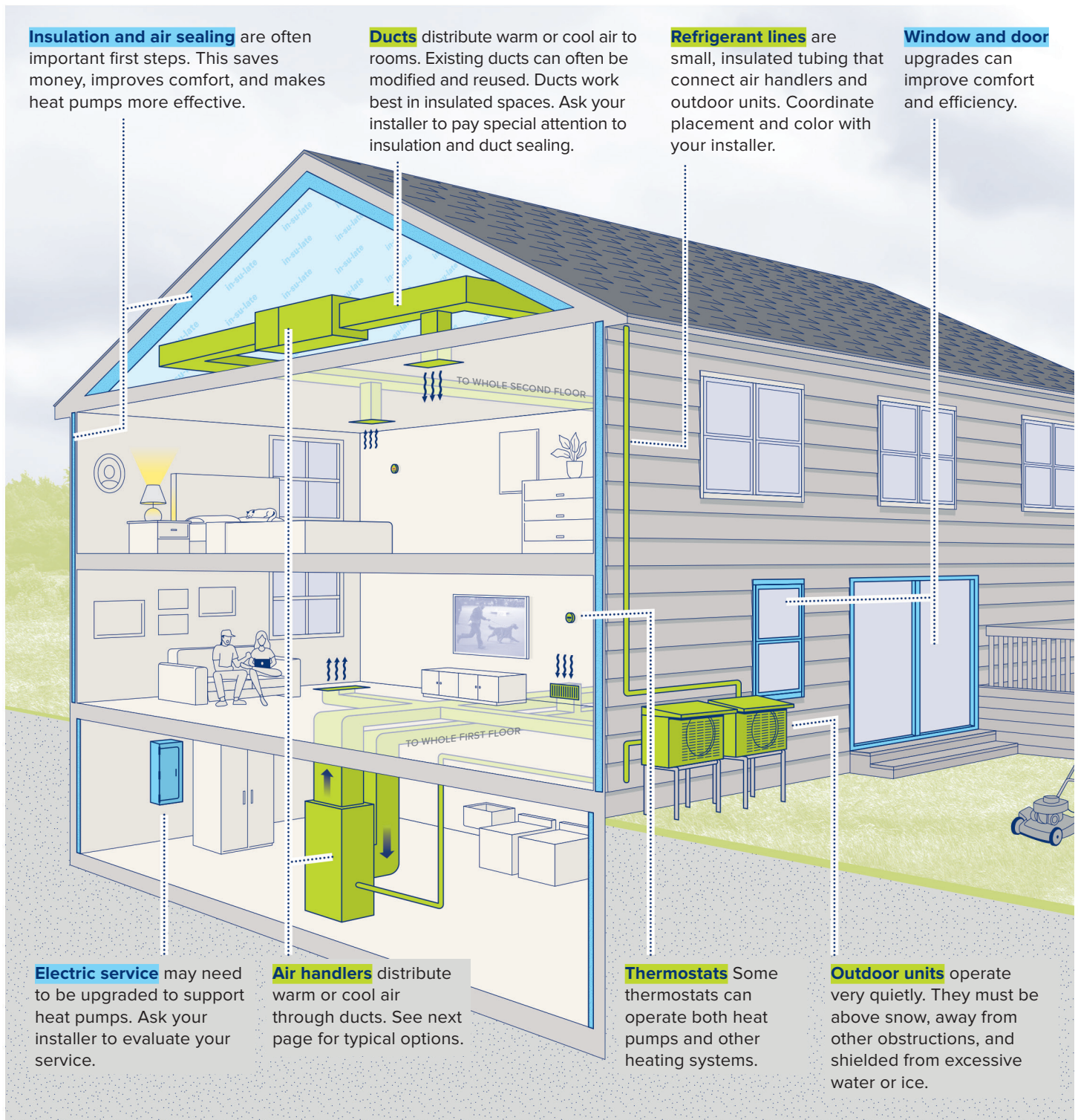


**NYS Clean Heat**

# Ducted Heat Pumps for a Two-Story Home

Heat pumps use electricity to provide clean, efficient heating and cooling.

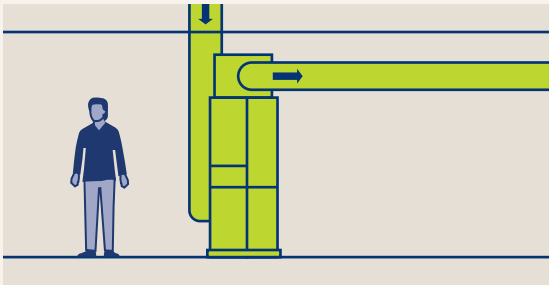
- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes





## Features

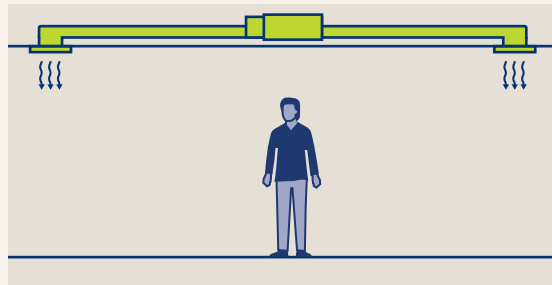
- Heating and cooling distributed throughout the home with new or existing ducts
- No wall-mounted indoor units
- Quiet and efficient operation
- Eliminate window air conditioners



**Conventional air handlers** move air through larger ducts. They are often located in basements, attics, or utility closets. They can be installed to blow air upwards, downwards, or sideways to fit within your home.

## Air Handler Options

Air handler equipment moves warm or cool air through ducts. Your installer can guide you to the best options based on heating and cooling needs, existing systems, and home configuration.



**Compact ducted air handlers** usually serve smaller areas such as one to three rooms. Their slim profile means they often fit in dropped ceilings, but leaving access for maintenance is important.

## Ask Your Installer

- Will proper heating and cooling get to each space? **Ask for room-by-room heating and cooling calculations.**
- Are my ducts big enough for a heat pump? What modifications are needed?
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What are my options for locating each outdoor unit?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- If your home has ducts that can be reused, installation costs will be lower
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs



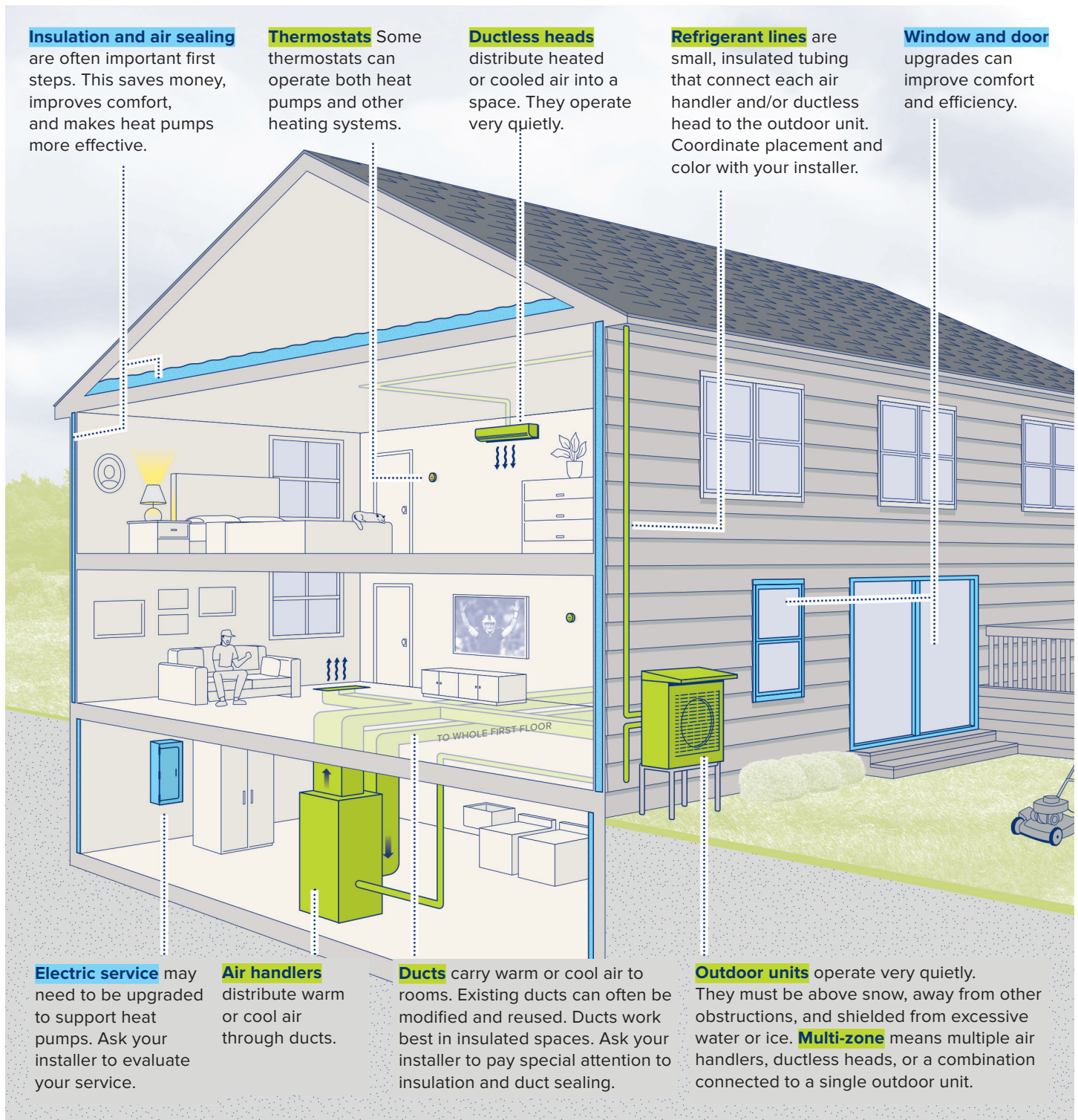
**NYS Clean Heat**



# Multi-Zone Heat Pump for a Two-Story Home

Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes

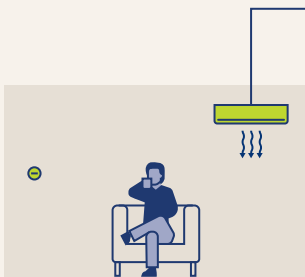


## Features

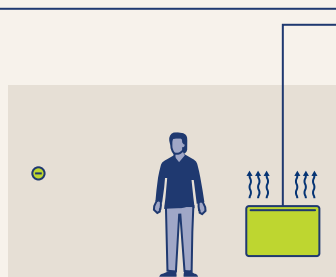
- Save space outdoors with multiple indoor units connected to one outdoor unit
- Control temperature in different areas of the home
- Options for both ducted and ductless heating and cooling
- Quiet and efficient operation
- Eliminate window air conditioners

## Types of Indoor Units

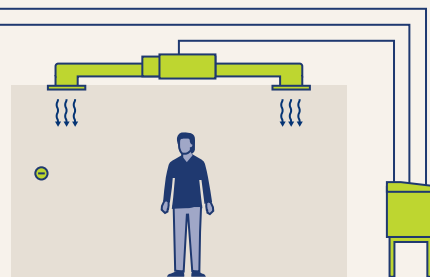
Multi-zone heat pumps allow you to “mix and match” ducted air handlers and ductless “heads.” Each should be sized to meet specific heating and cooling needs of the space it serves. Your installer can suggest the best options based on those needs, configuration of the home, and location of ducts (if present). Options include:



**High-wall ductless heads** are among the most common and versatile.



**Low-wall ductless heads** may be installed where radiators once were. Do not block them with furniture.



**Ducted air handlers** come in a wide range of configurations. Some serve a single room; others can serve most of a home.



Each indoor unit can have its own thermostat, but all indoor units connect to a **single outdoor unit**.

## Ask Your Installer

- What size units do I need? **Ask for room-by-room heating and cooling calculations.**
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What is the best location for each indoor unit? Can we avoid heads directly above where people sit or sleep?
- What are my options for locating the outdoor unit(s)?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- Each zone adds cost, so use fewer zones when practical
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs

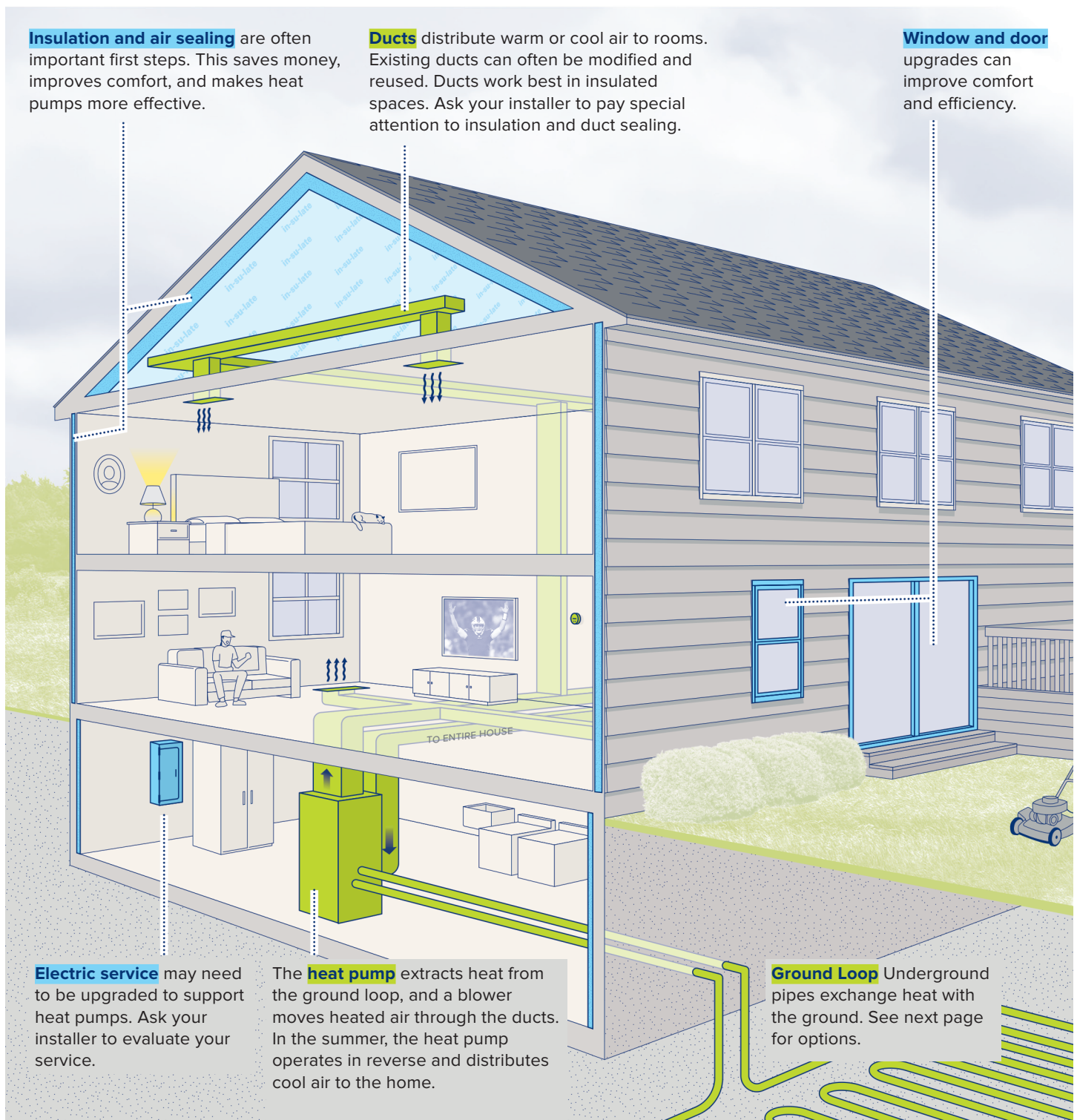


**NYS Clean Heat**

# Ground Source Heat Pump for a Two-Story Home

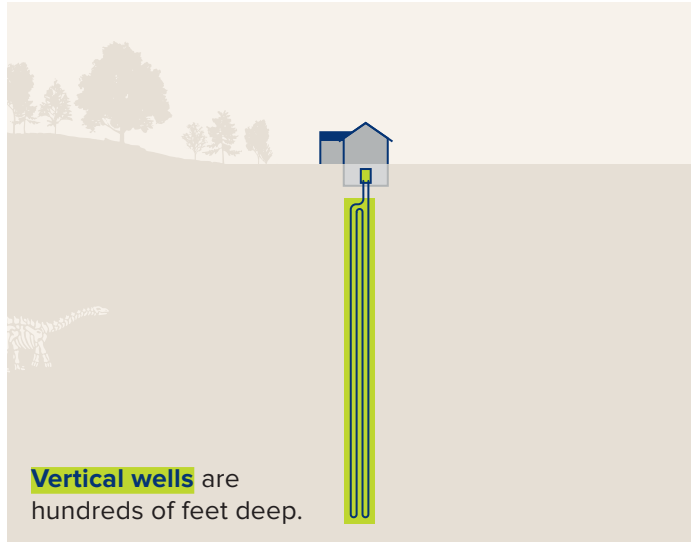
**Geothermal Heat pumps use electricity to provide clean, efficient heating and cooling.**

- **Ground source**, or Geothermal, systems heat and cool homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, and no window air conditioners
- **Affordable** with rebates, financing options, or operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes



## Features

- Highest efficiency with lowest operating costs
- Quiet with no outdoor condensers or window air conditioners
- Heating and cooling distributed throughout the home with new or existing ducts
- Can also provide water heating



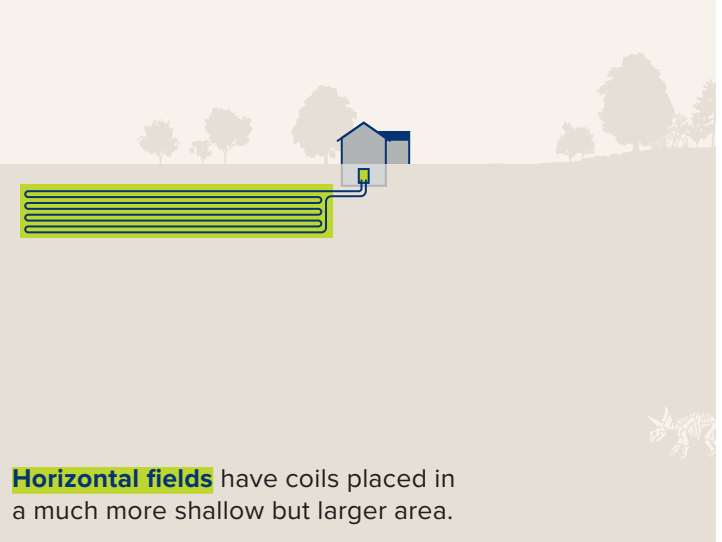
**Vertical wells** are hundreds of feet deep.

## Ground Loop Types

Underground pipes exchange heat between the heat pump and the ground. Your installer will determine the proper type and size of ground loop based on:

- Land area available
- Type of rock or soil
- Heating and cooling needs of the home

There are two main types of loops.



**Horizontal fields** have coils placed in a much more shallow but larger area.

## Ask Your Installer

- Will proper heating and cooling get to each space?  
**Ask for room-by-room heating and cooling calculations.**
- Are my ducts big enough for a heat pump? What modifications are needed?
- How long will installation take? Where and when will you need access?
- Who is responsible for landscaping after the ground loop is installed?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- While ground source heat pumps are the most efficient, they are also more expensive to install
- Cost varies with region, installation complexity, installer experience, system size, and manufacturer

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs



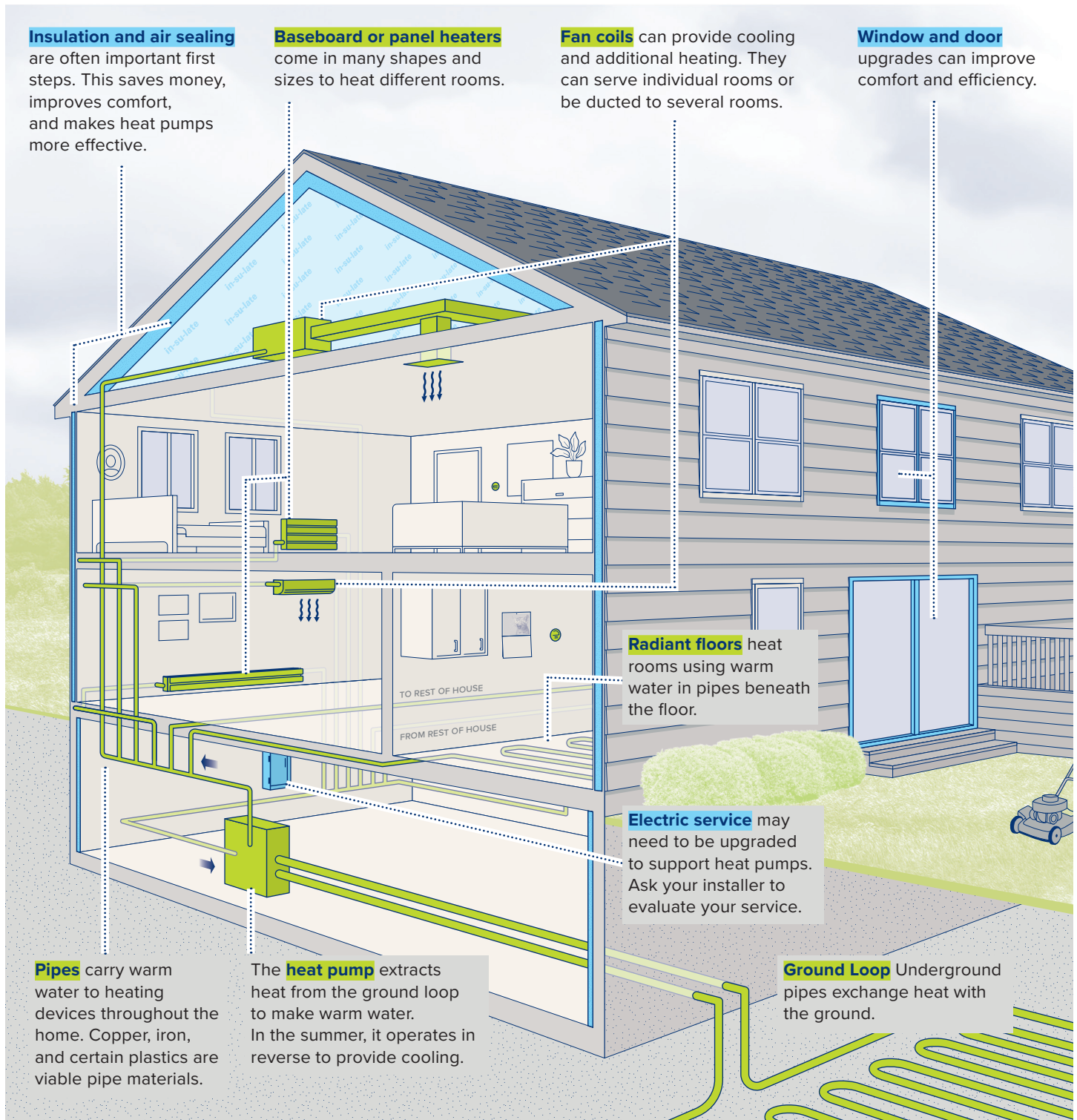
**NYS Clean Heat**



# Ground Source, Hydronic Heat Pump for a Two-Story Home

**Geothermal heat pumps use electricity to provide clean, efficient heating and cooling.**

- **Ground source**, or Geothermal, systems provide comfort all winter across New York State
- **Hydronic systems** send warm water to heating devices throughout the home
- **Healthy and safe** with no fuels or carbon monoxide risks
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with low greenhouse gas emissions
- **Versatile** solution for new or existing homes

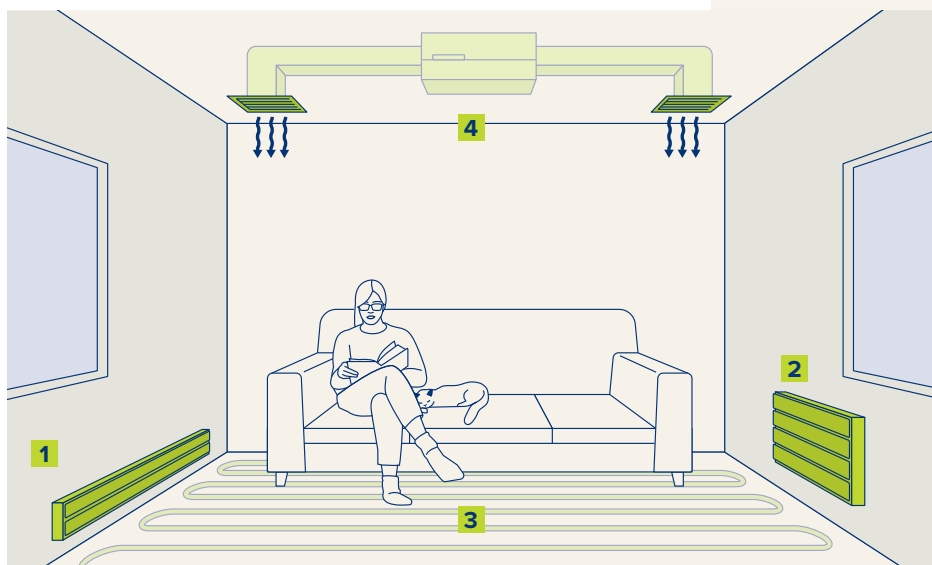


## Features

- Quiet with no outdoor condensers
- Can also provide hot water for bathing, washing, cooking, etc.
- Comfort from warm water heat throughout the home
- Air ducts are not necessary

## Heat Delivery Options

Heat pumps provide warm water rather than hot water, and conventional baseboards and radiators are often not sufficient. Heating devices designed for warm water are needed to provide comfort. Your installer can suggest the best heat delivery options based on your heating needs.



### Heating Only

- 1 Baseboards** designed for warm water can comfortably heat rooms.
- 2 Panels** are available in many shapes and sizes and can be mounted in various positions.
- 3 Radiant floors** provide uniform comfort.

### Heating and Cooling

- 4 Fan coils** provide cooling and can supplement other heating devices. These can serve single spaces or be ducted to several rooms.

## Ask Your Installer

- Will proper heating and cooling get to each space?  
**Ask for room-by-room heating and cooling calculations.**
- Do I need to upgrade radiators or baseboards?
- Will the system use “outdoor reset” control to optimize efficiency and comfort?
- How long will installation take? Where and when will you need access?
- Who is responsible for landscaping after the ground loop is installed?
- How do I operate my system for optimal comfort and efficiency?
- What annual maintenance is required?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options. Larger incentives may be available for eligible customers
- Ground source heat pumps may have a high upfront cost but will operate efficiently over a long lifetime
- Cost varies with region, installer experience, heat delivery options, system size and manufacturer

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise. Your gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs

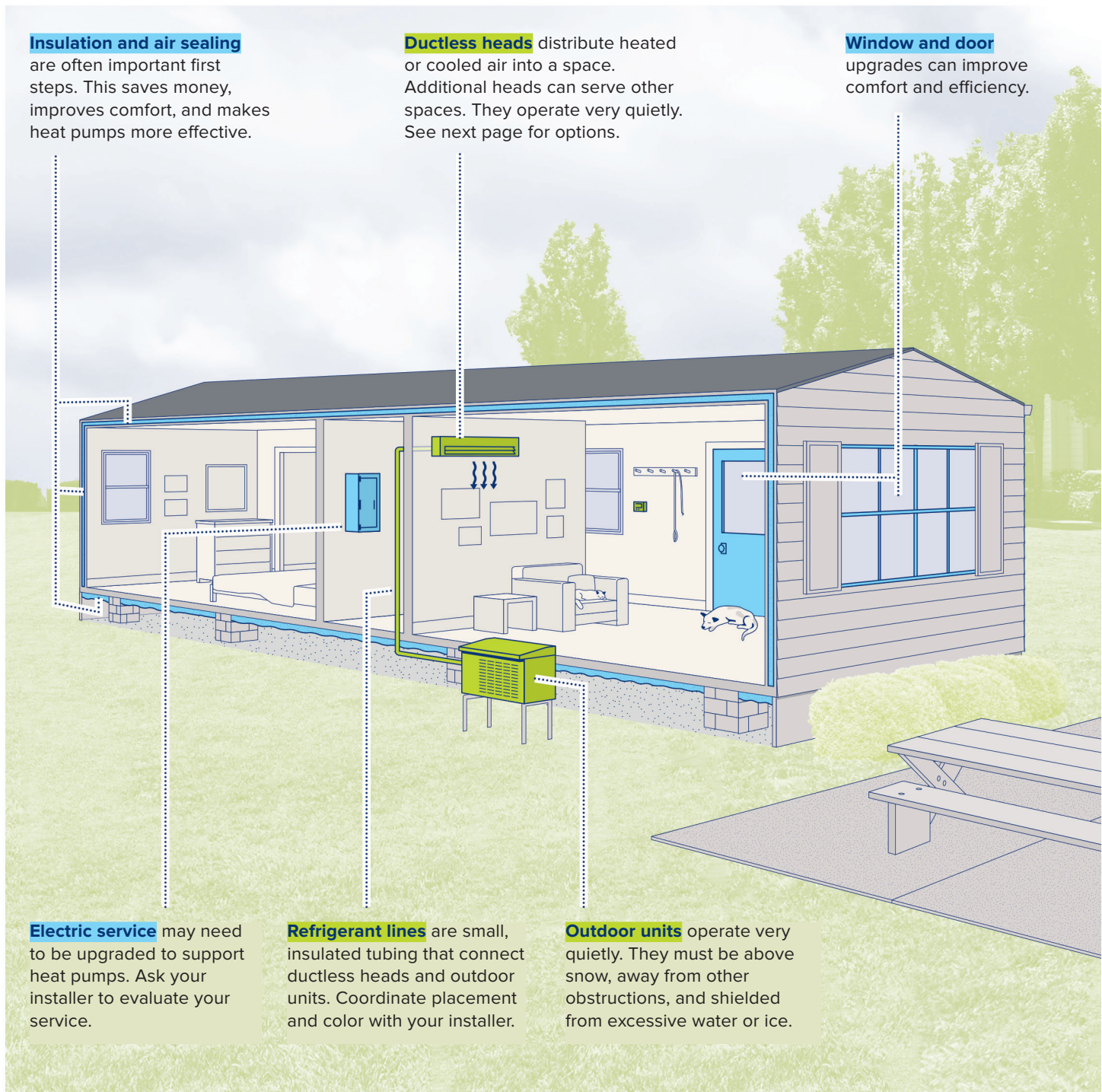


**NYS Clean Heat**

# Ductless Heat Pump for a Manufactured or Mobile Home

Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes



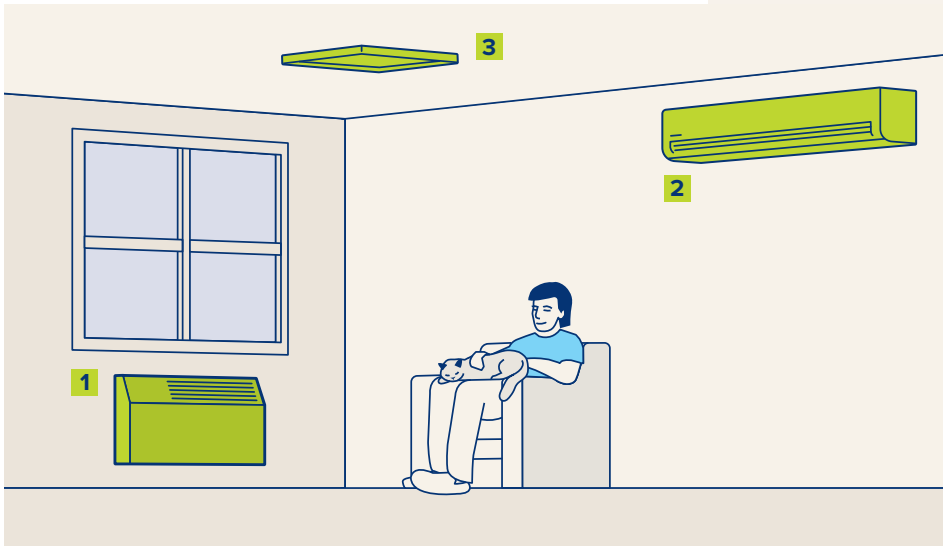


## Features

- Among simplest and least expensive heat pump system to install
- Control temperature in different areas of the home
- Quiet and efficient operation
- Eliminate window air conditioners

## Types of Ductless Heads

Many options for indoor fan coils or “heads” are available. For optimal comfort and efficiency, each head should be sized to meet specific heating and cooling needs. Your heat pump installer can suggest the best options based on those needs plus size and configuration of the space.



**1 Low-wall or floor mount** units may be installed where radiators once were. Do not block them with furniture.

**2 High-wall** are the most common and versatile.

**3 Recessed** can be flush with ceilings or walls. Ask your installer about installation and maintenance.

## Ask Your Installer

- What size units do I need? **Ask for room-by-room heating and cooling calculations.**
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What is the best location for each head? Can we avoid heads directly above where people sit or sleep?
- What are my options for locating each outdoor unit?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- Ductless heat pumps are among the simplest and least expensive to install
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs



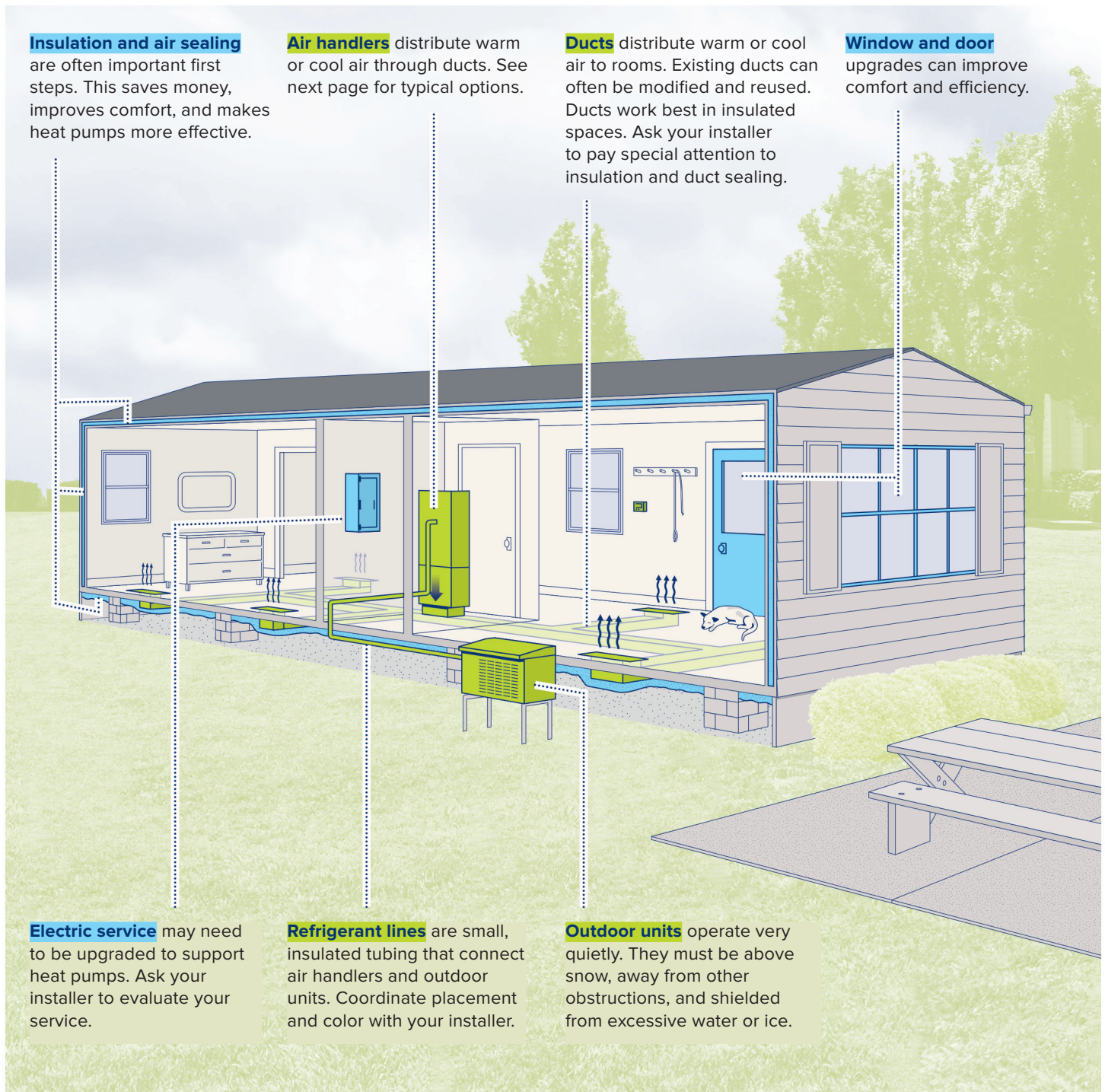
**NYS Clean Heat**



# Ducted Heat Pump for a Manufactured or Mobile Home

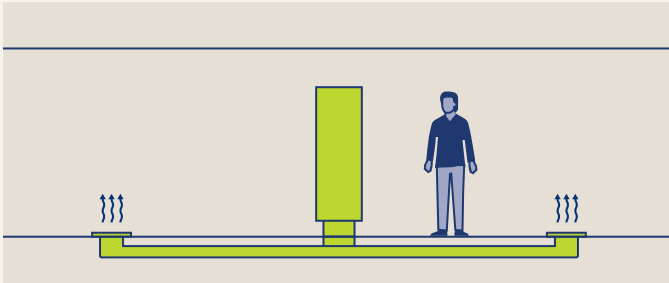
Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes



## Features

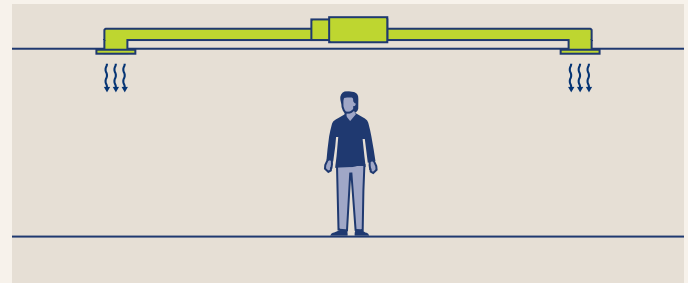
- Heating and cooling distributed throughout the home with new or existing ducts
- No wall-mounted indoor units
- Quiet and efficient operation
- Eliminate window air conditioners



**Conventional air handlers** move air through larger ducts. They are often located in basements, attics, or utility closets. They can be installed to distribute air upwards, downwards, or sideways to fit within your home.

## Air Handler Options

Air handler equipment moves warm or cool air through ducts. Your installer can guide you to the best options based on heating and cooling needs, existing systems, and home configuration.



**Compact ducted air handlers** usually serve smaller areas such as one to three rooms. Their slim profile means they often fit in dropped ceilings, but leaving access for maintenance is important.

## Ask Your Installer

- Will proper heating and cooling get to each space?  
**Ask for room-by-room heating and cooling calculations.**
- Are my ducts big enough for a heat pump? What modifications are needed?
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What are my options for locating each outdoor unit?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSEDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- If your home has ducts that can be reused, installation costs will be lower
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs



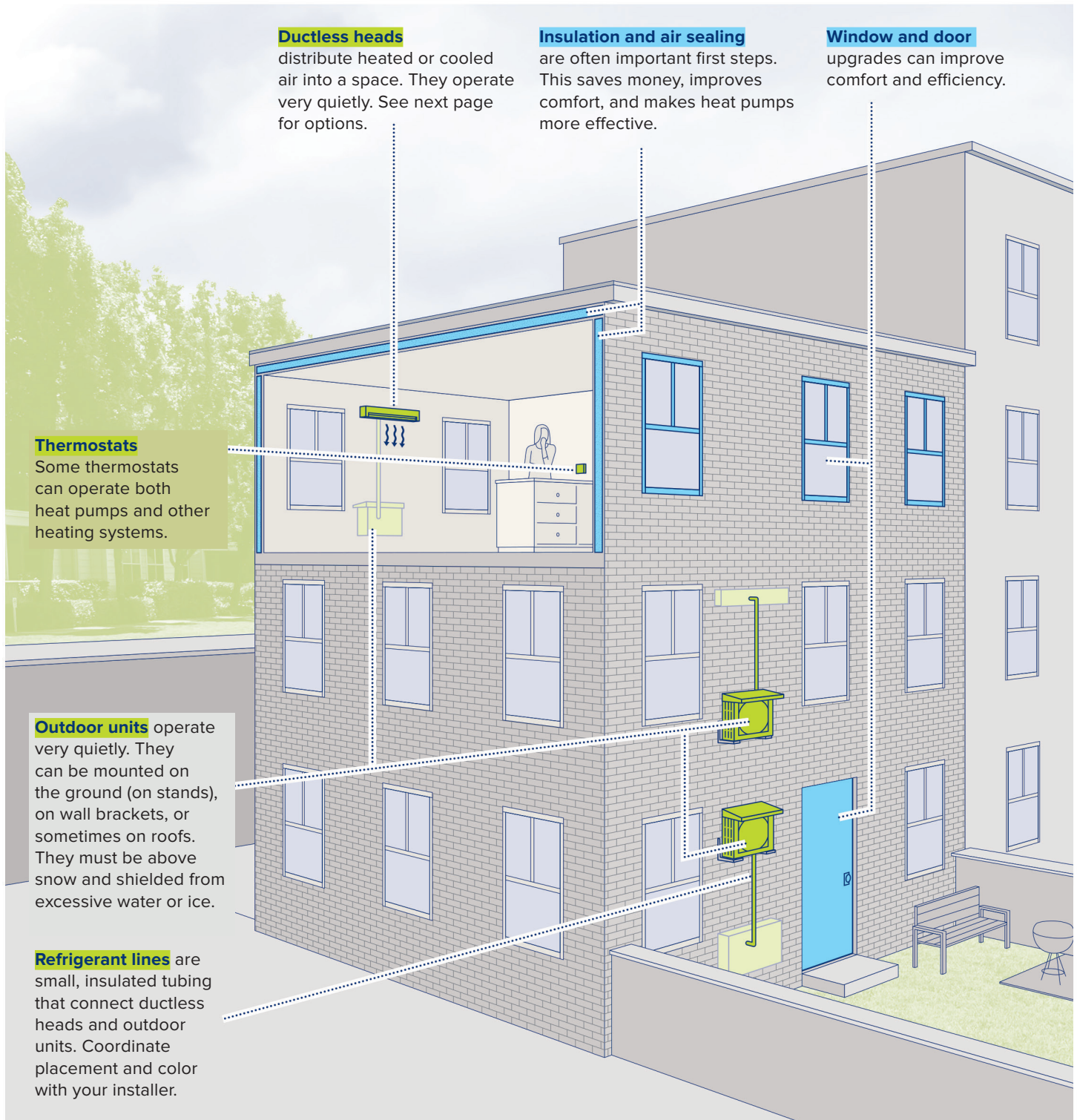
**NYS Clean Heat**



# Ductless Heat Pump for an Apartment

Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes

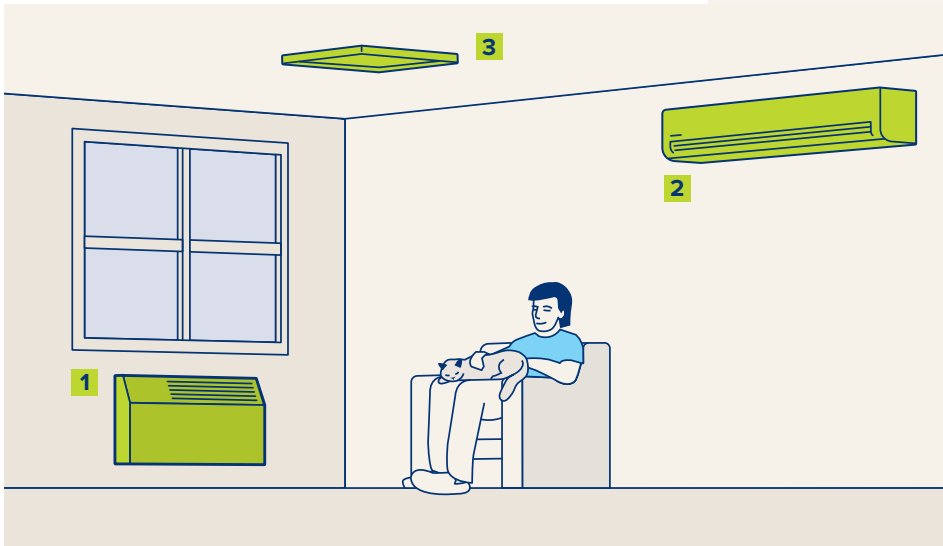


## Features

- Among simplest and least expensive heat pump system to install
- Control temperature in different areas of the home
- Quiet and efficient operation
- Eliminate window air conditioners

## Types of Ductless Heads

Many options for indoor fan coils or “heads” are available. For optimal comfort and efficiency, each head should be sized to meet specific heating and cooling needs. Your heat pump installer can suggest the best options based on those needs plus size and configuration of the space.



**1 Low-wall or floor mount** units may be installed where radiators once were. Do not block them with furniture.

**2 High-wall** are the most common and versatile.

**3 Recessed** can be flush with ceilings or walls. Ask your installer about installation and maintenance.

## Ask Your Installer

- What size units do I need? **Ask for room-by-room heating and cooling calculations.**
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What is the best location for each head? Can we avoid heads directly above where people sit or sleep?
- What are my options for locating each outdoor unit?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- Ductless heat pumps are among the simplest and least expensive to install
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, gas, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs

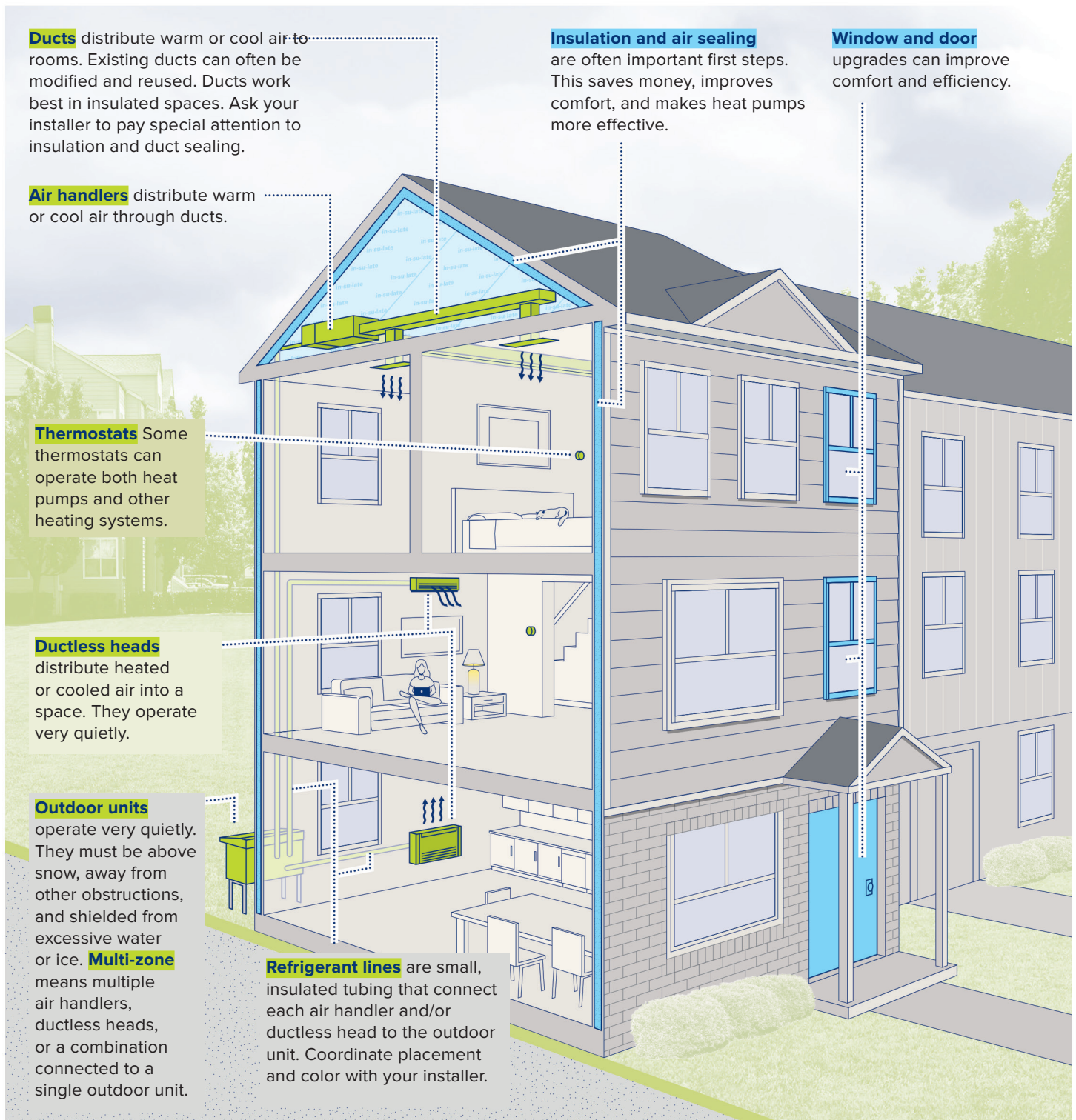


**NYS Clean Heat**

# Multi-Zone Heat Pump for a Townhome

Heat pumps use electricity to provide clean, efficient heating and cooling.

- **Proven technology** heats and cools homes year-round across New York State
- **One system** provides comfort in both summer and winter
- **Healthy and safe** with no fuels, carbon monoxide, or window air conditioners
- **Affordable** with rebates, financing options, and low operating costs
- **Clean and green** with reduced greenhouse gas emissions
- **Versatile** solution for new or existing homes



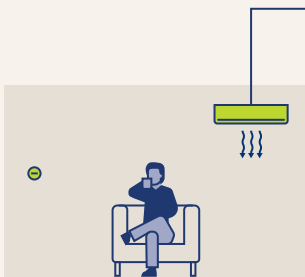


## Features

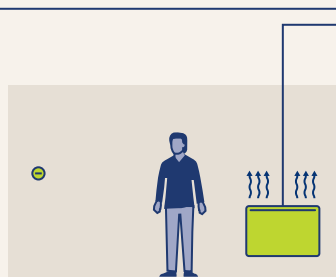
- Save space outdoors with multiple indoor units connected to one outdoor unit
- Control temperature in different areas of the home
- Options for both ducted and ductless heating and cooling
- Quiet and efficient operation
- Eliminate window air conditioners

## Types of Indoor Units

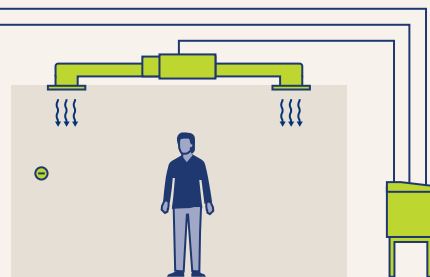
Multi-zone heat pumps allow you to “mix and match” ducted air handlers and ductless “heads.” Each should be sized to meet specific heating and cooling needs of the space it serves. Your installer can suggest the best options based on those needs, configuration of the home, and location of ducts (if present). Options include:



**High-wall ductless heads** are among the most common and versatile.



**Low-wall ductless heads** may be installed where radiators once were. Do not block them with furniture.



**Ducted air handlers** come in a wide range of configurations. Some serve a single room; others can serve most of a home.



Each indoor unit can have its own thermostat, but all indoor units connect to a **single outdoor unit**.

## Ask Your Installer

- What size units do I need? **Ask for room-by-room heating and cooling calculations.**
- Can heat pumps sufficiently heat my home or is an additional system needed?
- What is the best location for each indoor unit? Can we avoid heads directly above where people sit or sleep?
- What are my options for locating the outdoor unit(s)?
- How long will installation take? Where and when will you need access?
- How do I operate my system for optimal comfort and efficiency?
- What maintenance is required? How often should I clean or change air filters? Is annual service needed?
- What is the expected lifespan and warranty?

## Cost Considerations

### Installation Cost

- Check with NYSERDA, your electric company, and installer for incentives and financing options as larger incentives may be available for eligible customers
- Each zone adds cost, so use fewer zones when practical
- Cost varies with region, heat pump size, manufacturer, installation complexity, and installer experience

### Operating Cost

- Your overall heating costs will likely decrease if switching from oil, propane, or electric baseboard
- If you previously heated with fuel, don't be surprised to see electric bills rise; however, oil, or propane bills will drop or disappear
- Efficient homes (windows, doors, insulation, air sealing) have much lower operating costs

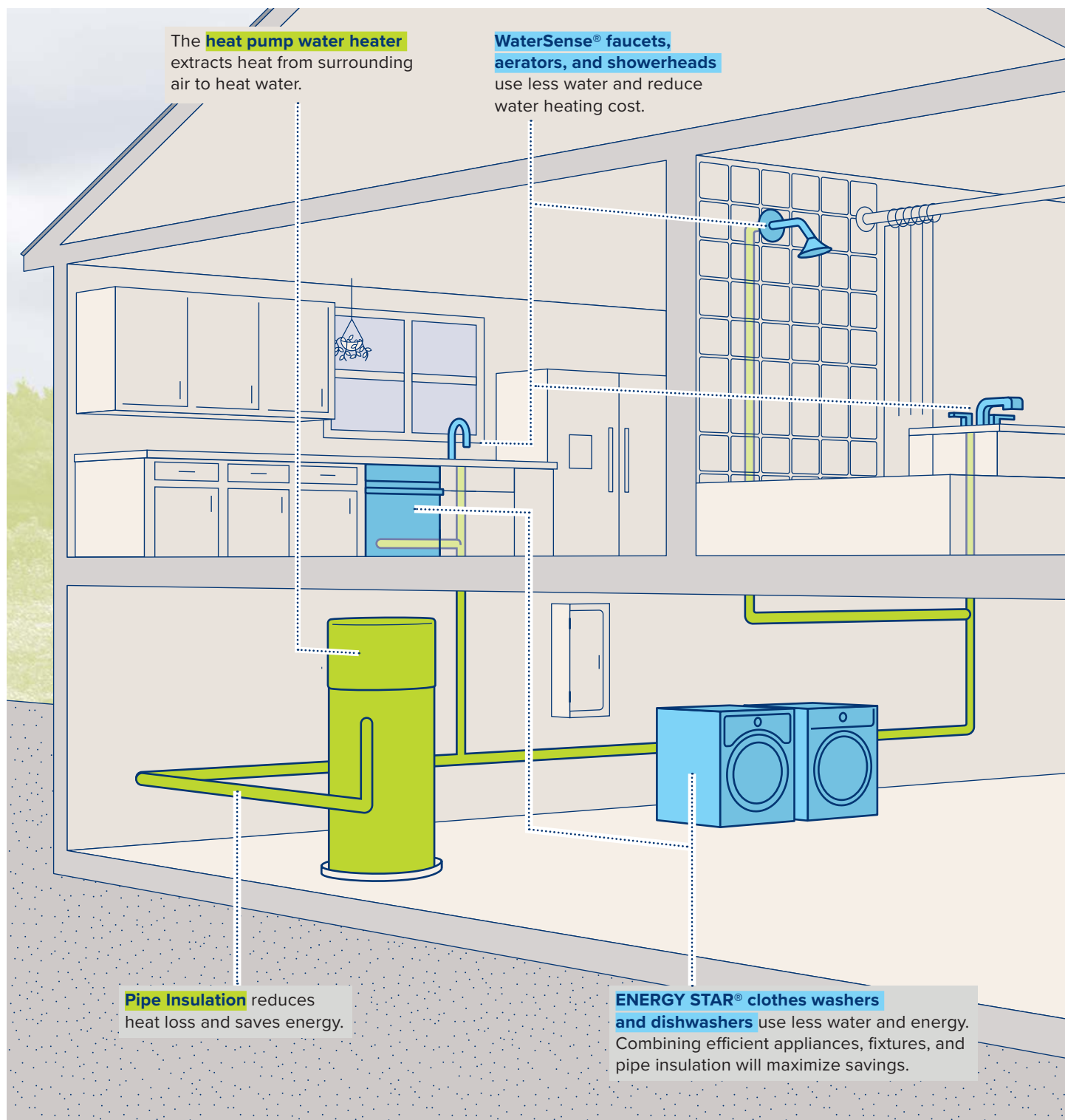


**NYS Clean Heat**

# Heat Pump Water Heater in an Unfinished Basement

Heat pump water heaters (HPWHs) use electricity to provide hot water efficiently and reliably.

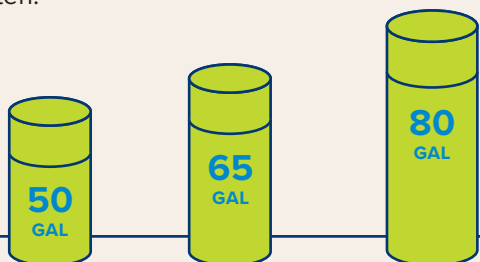
- **Efficient**, uses one third the energy of most other water heaters
- **Healthy and safe** with no fuels, no carbon monoxide risk
- **Affordable** with rebates and low operating costs
- **Sustainable** with low greenhouse gas emissions
- **Widely available** from plumbers and large retail stores
- **Long-lived** with warranties up to 10 years
- **Relatively simple** to install without major disruptions



# Heat Pump Water Heater in an Unfinished Basement

## Size and Location Considerations

**Tank Size** Consider a HPWH with a larger tank if you have space. Most HPWHs include a less efficient backup heater. With a larger tank, you'll need this backup much less often.

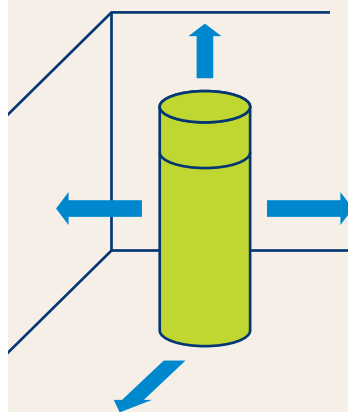


1–3 people

2–4 people

4+ people

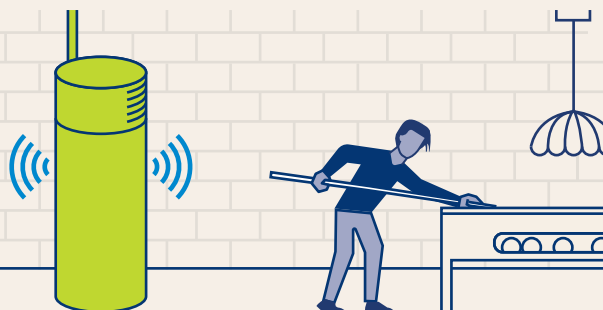
**Location** HPWHs are taller than many water heaters, and they often work well in open areas. Talk to your installer about space needed around your water heater.



**Temperature** HPWHs work best with warm intake air, but they cool and dehumidify the space around them. Locate HPWHs where cool air won't cause discomfort.



**Sound** HPWHs are louder than other water heaters – similar to some basement dehumidifiers. Be aware if locating them near living spaces.



## Ask Your Installer

- Is a HPWH with a larger tank appropriate for my home?
- Is my ceiling high enough for this water heater?
- What is the sound rating of the water heater? Will noise be disruptive where it's located?
- Do I need an anti-vibration pad?
- When the HPWH dehumidifies air, how will that water be drained? Do I need a condensate pump?
- Do I need any electrical upgrades to support a HPWH?
- Will you insulate all hot water pipes?
- Are there various operating modes? How are these adjusted? Which mode is most efficient?
- What maintenance is required? Are there filters that I need to clean or change?

## Cost Considerations

- Check with NYSERDA, your electric company, and installer for incentives and tax credits
- Installation costs vary with region, equipment, installation complexity, and installer experience
- Hot water costs will likely decrease – sometimes significantly – compared to conventional gas, propane, oil, and electric water heaters
- If you previously heated with fuel, don't be surprised to see electric bills rise. Your gas, oil, or propane bills will drop
- Efficient appliances, faucets, and showerheads will lower costs even more



**NYS Clean Heat**





## **NYS Clean Heat**

**New York State  
Energy Research and  
Development Authority**

17 Columbia Circle  
Albany, NY 12203-6399

**toll free:** 866-NYSERDA  
**local:** 518-862-1090  
**fax:** 518-862-1091

info@nyserda.ny.gov  
[nyserda.ny.gov](http://nyserda.ny.gov)