Norwich Public Utilities

Dear NPU Customer:

Norwich Public Utilities (NPU) has launched an exciting program called **Cooling & Heating Incentive Pilot Program (CHIPP)**, and we think you may be an ideal candidate to participate in this program.

What is CHIPP? An incentive program that aims to help our existing electric customers that heat primarily with oil, propane gas, natural gas, or electric resistance to convert to a more energy-efficient electric cold-climate air source heat pump system or geothermal heat pump system. A heat pump system not only heats your home efficiently during cold weather months, but also provides central air cooling during the heat of the summer.

Why should I participate? NPU will provide participants with a $1,200 per ton rebate (based on the size of the system) toward the purchase and installation of a heat pump or geothermal system. There is also a rebate of up to $2,000 available for integrating the heat pump into your current boiler or furnace (not available for geothermal systems). If you decide to integrate the heat pump into your current heating system, controls **are required** in order to receive the rebate. As an added bonus, NPU will also provide a rebate of up to $1,100 toward the purchase and installation of a heat pump water heater if installed at the same time. The rebate amount cannot exceed 80% of the total project cost, excluding tax, up to $20,000. The above stated rebate amounts are effective 1/01/24 – 6/30/24, or until program goals have been met.

All customers must submit a PART A application to receive PRE-APPROVAL from NPU before beginning their project. Installations must be completed within 120 days of receiving Part A approval. If the project is not completed, the estimated rebate will no longer be valid, and the customer will need to resubmit the Part A application for consideration. Requests for time limit extensions must be submitted in writing to NPU for review and are not guaranteed.

Depending on the size of the system required for your house or place of business, this rebate can contribute from 20-40% towards the cost of the new system.* You can also finance your new system through several financial institutions offering attractive rates for those who qualify.

How does the program work? Interested customers should reply by completing a short interest form online at rebrand.ly/CHIPP4NPU (mobile-friendly). You can also reach out to EfficiencyMatters@npumail.com with any questions. Applicants will be selected on a first come, first served basis until our participation goals have been met.

Below, you will find the steps explaining how to participate and the rebate forms which explain all the program details.

**System costs and rebates are dependent on many factors. Consult with your local HVAC contractor and submit a quote to NPU to get an actual rebate quote.*

Step 1 (Optional)

If you haven't had an energy audit at the installation location within the last two years, you can schedule a Home Energy Savings (HES) audit with Lantern Energy for a co-pay of $50.00. Contact Lantern Energy at 1-877-878-3006 or "Schedule an Assessment" at LanternEnergy.com. Be sure to mention it's part of CHIPP. If you are unsure if or when you had an energy audit, contact Lantern for assistance.

If you have had an energy audit in the last two years, you can skip to Step 2.

Step 2

Complete a short interest form online at rebrand.ly/CHIPP4NPU (mobile-friendly). Once you complete the form, you will receive an automated email with the program details, including a list of contractors who are familiar with the CHIPP program. NPU does not endorse any specific contractor for this program.

Step 3

Contact one or more licensed contractors to obtain quote(s) for the installation of a NEEP-certified Cold Climate Air Source Heat Pump with integrated controls[1] or a geothermal heat pump system.[2]

- Residential customers who require financing can contact any of the following lenders:
  - A) CorePlus Credit Union – 860-886-0576, ext. 3178
  - B) Eastern CT Savings Bank – 860-425-0123
  - C) Energize Connecticut - Find more information about Smart-E loans at www.energizect.com/your-home/solutions-list/smarte or ask your contractor[3] how to apply for a Smart-E Loan.
  - D) Your contractor may also have additional financing options available.
- Small business customers who require financing should contact NPU to determine financing options.

Integrated controls **are required** unless the old central heating system is being removed or a geothermal system is being installed. NPU is offering an additional rebate of up to $2,000 toward integrated controls that meet program specifications. Ask NPU or your contractor for a list of qualifying controls.

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[1] Heat pump must be from Northeast Energy Efficiency Partnerships ("NEEP") Cold Climate Air Source Heat Pumps list and must have a minimum SEER rating of 18.0 and HSPF of 9.0. Ducted heat pumps require integration controls, which must be specified in the invoice. Your contractor can recommend a heat pump from: neep.org/ASHP-Specification Heat pump units greater than 5 tons must have a COP rating of at least 2.3 at 17° F and a COP of at least 2.4 at 47° F.

[2] Geothermal heat pump must be Energy Star certified, certified by the Air Conditioning, Heating, and Refrigeration Institute ("AHRI"), and meet the program EER and coefficient of performance ("COP") requirements. See rebate application for system requirements.

[3] For residential customers applying for a Smart E-loan, the contractor must be approved by Energize CT to work with Smart-E loans. To find an authorized contractor, go to Energize CT's "Find a Contractor" tool at www.energizect.com/find-a-contractor/ and select "Ductless Split Heat Pump Service" from the Step 2 drop-down menu, and "Smart-E Loan" from the Step 3 drop-down menu.

Step 4
Compile your fuel use data for the last two years. If you don't have this information, your oil or propane gas supplier should be able to provide it to you. If your heating is supplied by natural gas or electric resistance heating, you may skip this step. You can continue onto Step 5 while you work to compile this information.

Step 5
Once you decide on a contractor and new system, submit **Part A** of the rebate application form to NPU with the installation quote attached. You can email this quote to efficiencymatters@npumail.com. The quote must specify the equipment make, model, and size. NPU will review and confirm that the proposed system qualifies for the rebate. Check your e-mail for a pre-approval notification from NPU. **Please do not begin installation until pre-approval is received.**

Step 6
After you receive approval and an estimated rebate quote from NPU, you can schedule the installation of the heat pump or geothermal system with your contractor.

Step 7
Following the installation, submit **Part B** of the rebate application to NPU with the following documentation attached:

- ❑ A dated and itemized invoice showing proof of purchase and installation. The invoice must detail the equipment type, size, make and model, serial number of the system, and date of purchase. The equipment installed must match the quote submitted with Part A.
- ❑ Manufacturer's specification sheets with equipment make, model, and size (from contractor).
- ❑ A Manual J or Manual D Report (from contractor).
- ❑ A Letter of Compliance and/or CO from the City of Norwich Building Department
- ❑ Two prior years of fuel use documentation
- ❑ Detailed photos of the installed units, including controls (if applicable)

There is also a rebate of up to $1,100 available from NPU toward the purchase and installation of a high efficiency Energy Star electric heat pump water heater if it replaces an oil, propane gas, natural gas, or electric resistance water heater. Please see Parts A and B of the CHIPP rebate application for more details and mention your interest to your licensed contractor in Step 3.

You will receive the rebate after we review and confirm that all required documents have been received. Incomplete applications will result in a delayed rebate. You'll receive a confirmation email once your package has been processed. Please allow 30 days from receipt of confirmation email for release of funds.

Again, please don't hesitate to contact efficiencymatters@npumail.com with any questions about CHIPP.

Sincerely,

NPU Efficiency Team
Attachments: Application Forms Part A & Part B

2024 Cooling & Heating Incentive Pilot Program (CHIPP) REBATE APPLICATION FORM - PART A

Once a proposal from your contractor has been received, please complete this form and submit to NPU. NPU will review and confirm the quoted system qualifies for the rebate. AFTER receiving pre-approval from NPU, schedule the installation of your new system with your contractor.

Date: _____

Name: _____ Business Name (if applicable): _____

Contact Name (for businesses): _____

Phone: _____ Email: _____

Mailing Address: _____

Installation Address (if different):_____

NPU Account Number (for installation address): _____

What is your primary heating fuel source? Select one: ☐ Oil ☐ Propane Gas ☐ Natural Gas ☐ Electric Resistance

Integrated controls are required if you keep your old furnace/boiler so that the heat pump can automatically switch to the furnace/boiler when the outside temperature drops below 20° F.

The following tables must be completed (as applicable):

COLD CLIMATE AIR SOURCE HEAT PUMP SYSTEM [1]				
Ducted or Ductless	Manufacturer and Outdoor Model Number	SEER (min 18.0)	Unit size (tons)*	Quantity

INTEGRATED CONTROLS FOR HEAT PUMP SYSTEM [3]	
Manufacturer and Model	Quantity

GEOTHERMAL HEAT PUMP SYSTEM (no integrated controls rebate available)					
Manufacturer and Model Number	Equipment Type (e.g. Water-to-Air, Water-to-Water, DGX)	EER**	COP**	Unit size (tons)*	Qty

ENERGY STAR® HEAT PUMP WATER HEATER (IF APPLICABLE)	
Manufacturer and Model	**Quantity**

***CHIPP rebate cannot exceed 80% of the total project cost, excluding tax, up to $20,000.**

***Location cap for all NPU rebates is $50,000 per location over a 3 year period.**

***Integrated controls are required if you keep your furnace/boiler. Integrated controls prioritize the heat pump and automatically switch to the furnace/boiler when the outside temperature falls below 20°F.**

*** To calculate tonnage of unit, divide the outdoor unit BTU's of cooling capacity by 12,000 (EX: 21,000 BTU/12,000 = 1.75 tons). Cooling capacity can be obtained from the unit's manufacturer's specification sheet.**

Geothermal heat pump systems must meet the following specifications:

Energy Star Certified Geothermal Heat Pump System			
Equipment Type	**Product Type**	**Minimum EER**	**Minimum Coefficient of Performance ("COP")**
Geothermal (Water-to-Air)	Closed Loop Water-to-Air	18.8	3.7
	Open Loop Water-to-Air	24.3	4.4
Geothermal (Water-to-Water)	Closed Loop Water-to-Water	18.5	3.6
	Open Loop Water-to-Water	20.1	3.8
Geothermal (DGX)	DGX	24.3	4.4

An installation quote for a NEEP-certified [1] Cold Climate Air Source Heat Pump or a Geothermal system[2] must be included with this rebate form Part A. The quote must specify the equipment make, model, and size. If integrated controls were installed, the quote must also specify the price, make, and model of such controls.[3]

Mail this Rebate Application Form (Part A) to: Energy Services, Norwich Public Utilities, 16 South Golden Street, Norwich, CT 06360 OR email to efficiencymatters@npumail.com

- Please do not schedule installation of heat pump or geothermal system until you have received written confirmation from NPU that the system qualifies for the rebate.
- Following receipt of NPU approval of PART A and after installation of the heat pump or geothermal system, submit PART B of the rebate application form to NPU.

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[1] Heat pump must be from Northeast Energy Efficiency Partnerships ("NEEP") Cold Climate Air Source Heat Pumps list and must have a minimum SEER rating of 18.0 and HSPF of 9.0. Ducted heat pumps require integration controls, which must be specified in the quote and on final invoice. Your contractor can recommend a heat pump from: neep.org/ASHP-Specification
Heat pump units greater than 5 tons must have a COP rating of at least 2.3 at 17° F and a COP of at least 3.4 at 47° F.

[2] Geothermal heat pump must be Energy Star certified, certified by the Air Conditioning, Heating, and Refrigeration Institute ("AHRI"), and meet the program EER and COP requirements.

[3] Integrated controls **must be installed** with the heat pump system unless the old central heating system is removed. Integrated controls will qualify for up to $2,000 of additional rebate if they prioritize the new heat pump system over the old central heating system. Controls do not apply to geothermal systems as the installation needs to be a whole home change.

PROGRAM REQUIREMENTS

Rebate Offer: This program will cover products purchased on or after March 15, 2023. Details of this Program, including Rebate levels, are subject to change or cancellation without prior notice. This application form must be received by June 30, 2024. If capacity for the Pilot Program participation is met before this date, NPU reserves the right to no longer accept participants before this date. Call (860) 823-4514 for additional information.

The Rebate Application Form Part A and Part B and all other required documentation must be completed and submitted (postmarked) to NPU and the heat pump or geothermal system **must be installed within 120 days of notification from NPU** that Applicant has been approved to participate in the Pilot Program.

Applicants who participate in the Pilot Program agree to take part in a satisfaction survey if requested.

Eligibility: The Pilot Program is available to residential and small commercial electric service customers of Norwich Public Utilities that have used oil, propane gas, natural gas, or electric resistance as their primary heating fuel for two or more years. Equipment must be installed in the service territory of Norwich Public Utilities. Eligible systems are cold climate electric heat pumps or geothermal heat pump systems. **Customers must be pre-approved by NPU into the Pilot Program to be eligible to receive a Rebate**.

Approval and Verification: Pre-approval from Norwich Public Utilities will be required to participate in the Pilot Program and to receive the Rebate. Once accepted, Norwich Public Utilities reserves the right to verify sales transactions and to have reasonable access to your facility to inspect the cold climate heat pump or geothermal system installed under this Program, prior to issuing rebates or at a later time.

Rebate Form: The Rebate Application Form Part A and Part B must be filled out completely, truthfully and accurately.

Proof of Purchase: An itemized installation invoice must be submitted to NPU with Part B of the Rebate Application Form. The invoice must indicate the equipment type, size, make, model, serial number of the system, and date of purchase. Manufacturer specification sheets and two prior years of fuel use documentation must also be submitted to NPU. Photos must be submitted of the installed indoor and outdoor units, the units' labels, and integrated controls (if applicable) set at 20º F for the secondary heating supply. Additional requirements may be defined by NPU at a later date.

Payment: Please allow 30 days from submission of required documentation for payment. Payment process may take longer if information is missing. Call (860) 823-4514 for details. Norwich Public Utilities reserves the right to provide Rebate in the form of a credit adjustment on your electric account.

Endorsement: Norwich Public Utilities does not endorse any particular manufacturer, product, or system design in promoting this Program.

Tax Liability: Norwich Public Utilities will not be responsible for any tax liability that may be imposed on the customer as a result of the payment of Rebates.

Warranties: NORWICH PUBLIC UTILITIES DOES NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, EXPRESSLY OR IMPLICITY. Norwich Public Utilities makes no warranties or representation of any kind, whether statutory, expressed or implied, including, without limitations, warranties of merchantability or fitness for particular purpose regarding the cold climate heat pump system or services provided by a manufacturer or vendor. Contact your contractor for details regarding equipment performance and warranties.

Limitations of Liability: The liability of Norwich Public Utilities is limited to paying the Rebate specified. Norwich Public Utilities is not liable for any consequential or incidental damages or for any damages in tort connected with or resulting from participation in this Program.

Assignment: The rebate check can only be payable to the utility customer.

Specific Requirements: These include, but are not limited to: payment options, Rebate restrictions for facilities using self-generation for non-emergency purposes. Please call (860) 823-4514 for more details.

Incentive amounts are subject to change. NPU reserves the right to provide the rebate in the form of a credit adjustment on your electric account if the past due balance exceeds $100.00.

Norwich Public Utilities

2024 Cooling & Heating Incentive Pilot Program (CHIPP)

REBATE APPLICATION FORM - PART B

Please submit this form to NPU after your cold climate heat pump or geothermal system has been installed.

Date: _____

Name: _____ Business Name (if applicable): _____

Installation Address: _____

Mailing Address: _____

NPU Account Number (for installation address): _____

Contractor Name: _____ License # _____

Select upgrade type:

☐ Replaced boiler/furnace/electric resistance with electric heat pump

☐ Integrated heat pump into furnace/boiler with controls

(**Note: integrated controls are required if you keep your furnace/boiler. Integrated controls prioritize the heat pump and automatically switch to the furnace/boiler when the outside temperature drops below 20°F**)

☐ Replaced boiler/furnace/electric resistance with geothermal heat pump system

Did you also replace an oil, propane gas, natural gas, or electric resistance water heater with an Energy Star® electric heat pump water heater?

Select one: ☐ Yes ☐ No

What was your primary heating fuel source before installing a heat pump or geothermal system?

Select one: ☐ Oil ☐ Propane Gas ☐ Natural Gas ☐ Electric Resistance

The following documentation must be included with this form to complete the rebate:

- ☐ A dated and itemized invoice, **paid in full,** showing proof of purchase and installation of the system. The invoice must detail the equipment type, size, make and model, serial number of the system, and date of purchase. The equipment installed must match the quote submitted with Part A and approved by NPU.
- ☐ A Manual J or Manual D Report from your contractor
- ☐ Detailed photos of the installed units, including the following:
  - Clear pictures of the inside unit(s) in each room
  - Clear pictures of the outside unit(s) to show the position against the house
  - Clear pictures of the outside unit(s) label so that the model number is legible
  - If you are keeping your furnace or boiler, a photo of the integrated controller **set at 20° F** for secondary heating supply is required.
- ☐ Manufacturer's specification sheets with equipment make, model, and size (from contractor)
- ☐ A Letter of Compliance and/or CO from the City of Norwich Building Department
- ☐ Two prior years of fuel use documentation. This information can be provided in the table on the reverse side of application, or emailed in an Excel spreadsheet or other electronic format.
- ☐ If you installed an Energy Star® heat pump water heater: a dated and itemized invoice, **paid in full**, including all the detail described above. The equipment installed must match the quote submitted with Part A and approved by NPU.

Please complete these tables (as applicable):

INSTALLED COLD CLIMATE AIR SOURCE HEAT PUMP SYSTEM				
Heat Pump Manufacturer/Model	**Quantity**	**Unit size (tons)***	**Rebate $/Ton**	**Rebate ($)****
			$1,200/ton	
			$1,200/ton	
Integrated Controls Manufacturer/Model***	**Quantity**	**Price**		**Rebate $ (Lesser of Price or $2,000)**

*** To calculate tonnage of unit, divide the outdoor unit BTU's of cooling capacity by 12,000 (EX: 21,000 BTU/12,000 = 1.75 tons). Cooling capacity can be obtained from the unit's manufacturer specification sheet.**

****CHIPP rebate cannot exceed 80% of the total project cost, excluding tax, up to $20,000.**

****Location cap for all NPU rebates is $50,000 per location over a 3 year period.**

*****Integrated controls are <u>required</u> if you keep your furnace/boiler. Integrated controls prioritize the heat pump and automatically switch to the furnace/boiler when the outside temperature falls below 20°F.**

GEOTHERMAL HEAT PUMP SYSTEM (*no integrated controls rebate available*)				
Manufacturer and Model Number	**Quantity**	**Unit size (tons)****	**Rebate $/Ton**	**Rebate ($)**
			$1,200/ton	
			$1,200/ton	

Heat pump units greater than 5 tons must have a COP rating of at least 2.3 at 17° F and a COP of at least 3.4 at 47° F.

INSTALLED ENERGY STAR® HEAT PUMP WATER HEATER			
Manufacturer/Model	**Quantity**	**Price**	**Rebate ($1,100 per unit)**

Total rebate $_____

Incentive amounts are subject to change. NPU reserves the right to provide the rebate in the form of a credit adjustment on your electric account if the past due balance exceeds $100.

Mail this Rebate Application Form (Part B) and required documentation to: Energy Services, Norwich Public Utilities, 16 South Golden Street, Norwich, CT 06360 OR email to efficiencymatters@npumail.com.

Customer Signature: _____ Date: _____

By signing above, the customer agrees to the conditions as stated in this application and in Program Requirements herein.

Fuel Usage: Please provide this information. If you heated your home or business with natural gas or electric resistance for the last two or more years, please check natural gas or electric resistance below and leave the table blank. NPU can gather this information.

Check one (or more if applicable***): Oil ☐ Propane ☐ Natural Gas ☐ Electric Resistance ☐			
Delivery Date	**Quantity (Gallons)**	**Price Per Gallon ($)**	**Total Cost ($)**
Example: 11/1/2016	18.9	$4.689	$88.62

Note: If you heated with more than one fuel type, please provide a separate information table for each.

PROGRAM REQUIREMENTS

Rebate Offer: Any rebate cannot exceed 80% of the total project cost, excluding tax, up to $20,000 and all customers must submit a PART A application to receive PRE-APPROVAL from NPU before beginning their project. This program will cover products purchased on or after March 15, 2023. Details of this Program, including Rebate levels, are subject to change or cancellation without prior notice. This application form must be received by June 30, 2024. If capacity for the Pilot Program participation is met before this date, NPU reserves the right to no longer accept participants before this date. The Rebate Application (Part A and Part B plus all other required documentation) must be completed and submitted (postmarked) to NPU **and** the system must be installed **within 120 days of notification** from NPU that Applicant has been approved to participate in the Pilot Program. Applicants who participate in the Pilot Program agree to take part in a satisfaction survey if requested. Call (860) 823-4514 for additional information.

Eligibility: The Pilot Program is available to residential and small commercial electric service customers of Norwich Public Utilities that have used oil, propane gas, natural gas, or electric resistance as their primary heating fuel for two or more years. Equipment must be installed in the service territory of Norwich Public Utilities. Eligible systems are cold climate electric heat pumps or Energy Star certified geothermal heat pump systems. **Customers must be pre-approved by NPU into the Pilot Program to be eligible to receive a Rebate**.

Approval and Verification: Pre-approval from Norwich Public Utilities will be required to participate in the Pilot Program and to receive the Rebate. Once accepted, Norwich Public Utilities reserves the right to verify sales transactions and to have reasonable access to your facility to inspect the cold climate heat pump system installed under this Program, prior to issuing rebates or at a later time.

Rebate Form: The Rebate Application Form Part A and Part B must be filled out completely, truthfully and accurately.

Proof of Purchase: An itemized installation invoice must be submitted to NPU with Part B of the Rebate Application Form. The invoice must indicate the equipment type, size, make, model, serial number of the system, and date of purchase. Manufacturer specification sheets and two prior years of fuel use documentation must also be submitted to NPU. Photos must be submitted of the installed indoor and outdoor units, the units' labels, and integrated controls (if applicable) set at 20° F for the secondary heating supply. Additional requirements may be defined by NPU at a later date.

Payment: Please allow 30 days from submission of required documentation for payment. Payment process may take longer if information is missing. Call (860) 823-4514 for details. Norwich Public Utilities reserves the right to provide Rebate in the form of a credit adjustment on your electric account.

Endorsement: Norwich Public Utilities does not endorse any particular manufacturer, product, or system design in promoting this Program.

Tax Liability: Norwich Public Utilities will not be responsible for any tax liability that may be imposed on the customer as a result of the payment of Rebates.

Warranties: NORWICH PUBLIC UTILITIES DOES NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, EXPRESSLY OR IMPLICITY. Norwich Public Utilities makes no warranties or representation of any kind, whether statutory, expressed or implied, including, without limitations, warranties of merchantability or fitness for particular purpose regarding the cold climate heat pump or geothermal system or services provided by a manufacturer or vendor. Contact your contractor for details regarding equipment performance and warranties.

Limitations of Liability: The liability of Norwich Public Utilities is limited to paying the Rebate specified. Norwich Public Utilities is not liable for any consequential or incidental damages or for any damages in tort connected with or resulting from participation in this Program.

Assignment: The rebate check can only be payable to the utility customer.

Specific Requirements: These include, but are not limited to: payment options, Rebate restrictions for facilities using self-generation for non-emergency purposes. Please call (860) 823-4514 for more details.

Customer's Certification: Customer signs certifying that he/she has purchased and installed the equipment at the defined location. Customer agrees that all information herein is true and that he/she conformed to all Program guidelines and eligibility requirements listed herein. Owner will need to verify that the units listed in the Rebate application have been installed correctly and that there are no unusual noises or vibrations and all controls have been calibrated. The owner must also certify that he/she has been instructed on how to operate and maintain the equipment and has received all the necessary operation and maintenance manuals.

Integrated Controls Package

Manufacturer	Model Name	Model #	24v (Y/N)	Communicating (Y/N)	WiFi Enabled (Y/N)	Notes
Universal	Emerson	16E09-101	**Y**	**Y**	**N**	This unit is the preferred method. It prioritizes the heat pump by shutting down the current furnace/boiler until the outside temperature dips below 20°F. At 20°F, it will automatically switch from the heat pump to the existing furnace/boiler for the most efficient heating.
Universal	Ranco	ETC-111000	**Y**	**Y**	**N**	Similar to the Emerson, this unit prioritizes the heat pump by shutting down the current furnace/boiler until the outside temperature dips below 20°F. At 20°F, it will automatically switch from the heat pump to the existing furnace/boiler for the most efficient heating.
Daikin	ENVI	DACA-TSI-1	Y	N	Y	Thermostat Kit including auxilary heat relay, balance point or droop operation. Can act as Integrated Control for entire hot water zone if connectrd to largest indoor unit of Multihead MSHP system.
Fujitsu	Wired Remote Controller (Touch Panel)	UTY-RNRUZ2	N	Y	N	J Series & RGLX only - The existing heat source is energized is to be operated through a 3rd party control circuit, via a 12 VDC external output signal from the indoor unit PC board. Primary Heat lockout or secondary heat lockout based on outdoor temperature is available.
Fujitsu	Thermostat Converter	UTY-TTRX	Y	N	N	Required installation includes a Thermostat Converter and 24 volt transformer (one UTY-TTRX can connect up to 16 indoor units), plus a dual fuel thermostat from QPL. Best as IC solution for single head, multihead, or air handler installations. Dual Fuel thermostat replaces existing central heat thermostat. Indoor units connected to each adapter (plus dual fuel themostat) acts as Single Zone.
Gree	Honeywell T6 Pro Smart	TH6320WF 2003	Y	N	Y	Requires Honeywell T6 Pro Smart (TH6320WF 2003) WiFi thermostat that turns on the secondary heat source at 40° and "Set Point" Programmable Flair Gateway (115v) WiFi 2.4Ghz Puck that will ensure the Gree mini split heat pump will be on when thermostat turns off the secondary heat. Appropriate WiFi accessibiliy is provided by the homeowner and not included in this package.
	Flair Puck	ICS001P	N	N	Y	
Mitsubishi Electric	Kumo Station	PAC-WHS01HC-E	N	N	Y	Requires an outdoor temperature sensor and each unit needs a Kumo Cloud interface
	Outdoor Temperature Sensor	C7089U1006/U				
	Kumo Cloud	PAC-USWHS002-WF-1				
Mitsubishi Electric	T-Stat Interface	PAC-US444CN-1	Y	Y*	Y*	Requires a T-Stat Interface and transformer for each indoor unit, and a 2 stage thermostat by any manufacturer. ACTS AS IC WITH QPL LISTED THERMOSTAT. To operate the indoor unit via Thermostat Interface (PAC-US444CN-1) using a 24VAC thermostat in the heat pump configuration (using O/B with Y1 & Y2 output) requires a double pole-double throw relay, see Application Note 3044. *Depends on Thermostat Selected.
	Transformer	VPL24-210				
Mitsubishi Electric	Kumo Cloud with IFTTT compatible Thermostat	PAC-USWHS002-WF-1 PAC- USWHS002-WF-2	N	Y	Y	IFTTT App connects Mitsubishi Electric Kumo Cloud with any IFTTT compatible thermostat. Current IFTTT compatible thermostats include Ecobee, and Honeywell as of 11/1/19. For list of devices, go to www.ifttt/services (Environment Control & Monitoring). Integration is capable by logging compatible thermostat and Kumo Cloud into IFTTT, then creating applet allowing IFTTT to adjust primary and secondary heating systems, based on outdoor temerature.

Dual Fuel Thermostats

Qualify as Integrated Controls with eligible Heat Pump/Furnace combinations

Manufacturer	Model Name	Model #	24v (Y/N)	Communicating (Y/N)	WiFi Enabled (Y/N)	Notes
Bosch	Bosch Connected Control BCC100 Thermostat	BCC100	Y	N	Y	Uses local weather for outdoor temperature and balance point
Ecobee	Ecobee 3 Lite	EB-STATE3LT***, EB-STATE3-01	Y	N	Y	Not a current model, but still available
Ecobee	Ecobee 4	EB-STATE4***	Y		Y	Ecobee 4 is now Ecobee Smart Thermostat, but Ecobee 4 is still available
Ecobee	Ecobee Smart Thermostat with Voice Control	EB-STATE5***	Y	N	Y	Model numbers may be slightly different due to color or vendor
Honeywell Home	Smart Round	TH8732WFH 5002	Y	Y	Y	Use with C7089U Wired Outdoor Sensor
Honeywell Home	T6 Pro	TH6320U 2008	Y	N	N	Use with C7089U Wired Outdoor Sensor
Honeywell Home	T6 Pro Smart	TH6320WF 2003	Y	Y	Y	Two options: 1) Use with C7089U Wired Outdoor Sensor or 2) Use local weather thru WiFi for outdoor temp and changeover.
Honeywell Home	VisionPro 8000 Smart	TH8320R 1003	Y	Y	N/Y	Use with C7089R Wireless Outdoor Sensor. Needs HW Thm6000R 7001 Gateway For Wi-Fi
Honeywell Home	VisionPro 8000 Smart	TH8321R 1001	Y	Y	N/Y	Use with C7089R Wireless Outdoor Sensor. Needs HW Thm6000R 7001 Gateway For Wi-Fi
Honeywell Home	WiFi 8000	TH8321WF 1001	Y		Y	
Nest	Nest Third Gen	T3007ES, T3008US, T3016US, T3017US, T3021US	Y		Y	Nest Learning Thermostat Pro - 3rd Generation (Stainless Steel, Carbon Blk, White, Copper)

EXAMPLE

Norwich Public Utilities

2024 Cooling & Heating Incentive Pilot Program (CHIPP) REBATE APPLICATION FORM - PART A

Once a proposal from your contractor has been received, please complete this form and submit to NPU. NPU will review and confirm the quoted system qualifies for the rebate. AFTER receiving pre-approval from NPU, schedule the installation of your new system with your contractor.

Date: January 1, 2024

Name: John Doe Business Name (if applicable): _____

Contact Name (for businesses): _____

Phone: 860.555.5555 Email: John.Doe@gmail.com

Mailing Address: 15 Main Street, Norwich CT 06360

Installation Address (if different): Same

NPU Account Number (for installation address): 123456-123456

What is your primary heating fuel source? Select one: ☐ Oil ☒ Propane Gas ☐ Natural Gas ☐ Electric Resistance

Integrated controls are required if you keep your old furnace/boiler so that the heat pump can automatically switch to the furnace/boiler when the outside temperature drops below 20° F.

The following tables must be completed (as applicable):

COLD CLIMATE AIR SOURCE HEAT PUMP SYSTEM [1]				
Ducted or Ductless	Manufacturer and Outdoor Model Number	SEER (min 18.0)	Unit size (tons)*	Quantity
Ducted	Mitsubishi MXZ-5C42NAHZ2U1 42K outdoor	18.0	3.5	1

INTEGRATED CONTROLS FOR HEAT PUMP SYSTEM [3]	
Manufacturer and Model	Quantity
Mitsubishi PAC-USWHS002-WF-2, Mitsubishi C7089U1006/U	1,1
Mitsubishi PACUS444CN1	1

GEOTHERMAL HEAT PUMP SYSTEM (no integrated controls rebate available)					
Manufacturer and Model Number	Equipment Type (e.g. Water-to-Air, Water-to-Water, DGX)	EER**	COP**	Unit size (tons)*	Qty

EXAMPLE

ENERGY STAR® HEAT PUMP WATER HEATER (IF APPLICABLE)	
Manufacturer and Model	**Quantity**
AP Smith HPTU-50N	1

***CHIPP rebate cannot exceed 80% of the total project cost, excluding tax, up to $20,000.**

***Location cap for all NPU rebates is $50,000 per location over a 3 year period.**

***Integrated controls are required if you keep your furnace/boiler. Integrated controls prioritize the heat pump and automatically switch to the furnace/boiler when the outside temperature falls below 20°F.**

*** To calculate tonnage of unit, divide the outdoor unit BTU's of cooling capacity by 12,000 (EX: 21,000 BTU/12,000 = 1.75 tons). Cooling capacity can be obtained from the unit's manufacturer's specification sheet.**

Geothermal heat pump systems must meet the following specifications:

Energy Star Certified Geothermal Heat Pump System			
Equipment Type	**Product Type**	**Minimum EER**	**Minimum Coefficient of Performance ("COP")**
Geothermal (Water-to-Air)	Closed Loop Water-to-Air	18.8	3.7
	Open Loop Water-to-Air	24.3	4.4
Geothermal (Water-to-Water)	Closed Loop Water-to-Water	18.5	3.6
	Open Loop Water-to-Water	20.1	3.8
Geothermal (DGX)	DGX	24.3	4.4

An installation quote for a NEEP-certified [1] Cold Climate Air Source Heat Pump or a Geothermal system[2] must be included with this rebate form Part A. The quote must specify the equipment make, model, and size. If integrated controls were installed, the quote must also specify the price, make, and model of such controls.[3]

Mail this Rebate Application Form (Part A) to: Energy Services, Norwich Public Utilities, 16 South Golden Street, Norwich, CT 06360 OR email to efficiencymatters@npumail.com

- Please do not schedule installation of heat pump or geothermal system until you have received written confirmation from NPU that the system qualifies for the rebate.
- Following receipt of NPU approval of PART A and after installation of the heat pump or geothermal system, submit PART B of the rebate application form to NPU.

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[1] Heat pump must be from Northeast Energy Efficiency Partnerships ("NEEP") Cold Climate Air Source Heat Pumps list and must have a minimum SEER rating of 18.0 and HSPF of 9.0. Ducted heat pumps require integration controls, which must be specified in the quote and on final invoice. Your contractor can recommend a heat pump from: neep.org/ASHP-Specification
Heat pump units greater than 5 tons must have a COP rating of at least 2.3 at 17° F and a COP of at least 3.4 at 47° F.

[2] Geothermal heat pump must be Energy Star certified, certified by the Air Conditioning, Heating, and Refrigeration Institute ("AHRI"), and meet the program EER and COP requirements.

[3] Integrated controls **must be installed** with the heat pump system unless the old central heating system is removed. Integrated controls will qualify for up to $2,000 of additional rebate if they prioritize the new heat pump system over the old central heating system. Controls do not apply to geothermal systems as the installation needs to be a whole home change.

EXAMPLE

PROGRAM REQUIREMENTS

Rebate Offer: This program will cover products purchased on or after March 15, 2023. Details of this Program, including Rebate levels, are subject to change or cancellation without prior notice. This application form must be received by June 30, 2024. If capacity for the Pilot Program participation is met before this date, NPU reserves the right to no longer accept participants before this date. Call (860) 823-4514 for additional information.

The Rebate Application Form Part A and Part B and all other required documentation must be completed and submitted (postmarked) to NPU and the heat pump or geothermal system **must be installed within 120 days of notification from NPU** that Applicant has been approved to participate in the Pilot Program.

Applicants who participate in the Pilot Program agree to take part in a satisfaction survey if requested.

Eligibility: The Pilot Program is available to residential and small commercial electric service customers of Norwich Public Utilities that have used oil, propane gas, natural gas, or electric resistance as their primary heating fuel for two or more years. Equipment must be installed in the service territory of Norwich Public Utilities. Eligible systems are cold climate electric heat pumps or geothermal heat pump systems. **Customers must be pre-approved by NPU into the Pilot Program to be eligible to receive a Rebate**.

Approval and Verification: Pre-approval from Norwich Public Utilities will be required to participate in the Pilot Program and to receive the Rebate. Once accepted, Norwich Public Utilities reserves the right to verify sales transactions and to have reasonable access to your facility to inspect the cold climate heat pump or geothermal system installed under this Program, prior to issuing rebates or at a later time.

Rebate Form: The Rebate Application Form Part A and Part B must be filled out completely, truthfully and accurately.

Proof of Purchase: An itemized installation invoice must be submitted to NPU with Part B of the Rebate Application Form. The invoice must indicate the equipment type, size, make, model, serial number of the system, and date of purchase. Manufacturer specification sheets and two prior years of fuel use documentation must also be submitted to NPU. Photos must be submitted of the installed indoor and outdoor units, the units' labels, and integrated controls (if applicable) set at 20º F for the secondary heating supply. Additional requirements may be defined by NPU at a later date.

Payment: Please allow 30 days from submission of required documentation for payment. Payment process may take longer if information is missing. Call (860) 823-4514 for details. Norwich Public Utilities reserves the right to provide Rebate in the form of a credit adjustment on your electric account.

Endorsement: Norwich Public Utilities does not endorse any particular manufacturer, product, or system design in promoting this Program.

Tax Liability: Norwich Public Utilities will not be responsible for any tax liability that may be imposed on the customer as a result of the payment of Rebates.

Warranties: NORWICH PUBLIC UTILITIES DOES NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, EXPRESSLY OR IMPLICITY. Norwich Public Utilities makes no warranties or representation of any kind, whether statutory, expressed or implied, including, without limitations, warranties of merchantability or fitness for particular purpose regarding the cold climate heat pump system or services provided by a manufacturer or vendor. Contact your contractor for details regarding equipment performance and warranties.

Limitations of Liability: The liability of Norwich Public Utilities is limited to paying the Rebate specified. Norwich Public Utilities is not liable for any consequential or incidental damages or for any damages in tort connected with or resulting from participation in this Program.

Assignment: The rebate check can only be payable to the utility customer.

Specific Requirements: These include, but are not limited to: payment options, Rebate restrictions for facilities using self-generation for non-emergency purposes. Please call (860) 823-4514 for more details.

Incentive amounts are subject to change. NPU reserves the right to provide the rebate in the form of a credit adjustment on your electric account if the past due balance exceeds $100.00.

EXAMPLE

QUOTE
#1230

DATE
Dec 10, 2021

ABC Heating and Cooling Co.

CT Lic#123-456S-7
Business Number 860-555-5050
1000 Main St.
Norwich, CT 06360
abcheating@gmail.com

TO

John Doe

15 Main St
Norwich, CT 06360
860-555-5555
John.Doe@gmail.com

DESCRIPTION

Furnish and install:
-Qty (1) Mitsubishi M/N MXZ5C42NAHZ2U1 42K Outdoor Unit
-Qty (1) Mitsubishi M/N MSZGL09NAU 9K Indoor Unit

Total Price: $XX

-Qty (1) Mitsubishi PAC-USWHS002-WF-2 Kuomo Cloud
-Qty (1) Mitsubishi C7089U1006/U Outdoor Temperature Sensor
-Qty (1) Mitsubishi PACUS444CN1 Thermostat Interface

Total Price: $XX

-Qty (1) A.O. Smith hybrid water heater HPTU-50N **Total Price: $XX**

Quote includes:
-All necessary pipping, wiring, and accessories
-Outdoor Unit Pad & Stand
-Includes all labor for installation, test, and start-up

Total Quoted Price: $XX

EXAMPLE

Norwich Public Utilities

2024 Cooling & Heating Incentive Pilot Program (CHIPP) REBATE APPLICATION FORM - PART B

Please submit this form to NPU after your cold climate heat pump or geothermal system has been installed.

Date: January 1, 2024

Name: John Doe Business Name (if applicable): _____

Installation Address: 15 Main Street, Norwich CT 06360

Mailing Address: Same

NPU Account Number (for installation address): 123456-123456

Contractor Name: ABC Heating & Cooling Company License # #123-4565-7

Select upgrade type:

☐ Replaced boiler/furnace/electric resistance with electric heat pump

☒ Integrated heat pump into furnace/boiler with controls

(**Note: integrated controls are required if you keep your furnace/boiler. Integrated controls prioritize the heat pump and automatically switch to the furnace/boiler when the outside temperature drops below 20°F**)

☐ Replaced boiler/furnace/electric resistance with geothermal heat pump system

Did you also replace an oil, propane gas, natural gas, or electric resistance water heater with an Energy Star® electric heat pump water heater?

Select one: ☐ Yes ☐ No

What was your primary heating fuel source before installing a heat pump or geothermal system?

Select one: ☐ Oil ☒ Propane Gas ☐ Natural Gas ☐ Electric Resistance

The following documentation must be included with this form to complete the rebate:

- ☐ A dated and itemized invoice, **paid in full,** showing proof of purchase and installation of the system. The invoice must detail the equipment type, size, make and model, serial number of the system, and date of purchase. The equipment installed must match the quote submitted with Part A and approved by NPU.
- ☐ A Manual J or Manual D Report from your contractor
- ☐ Detailed photos of the installed units, including the following:
  - Clear pictures of the inside unit(s) in each room
  - Clear pictures of the outside unit(s) to show the position against the house
  - Clear pictures of the outside unit(s) label so that the model number is legible
  - If you are keeping your furnace or boiler, a photo of the integrated controller **set at 20° F** for secondary heating supply is required.
- ☐ Manufacturer's specification sheets with equipment make, model, and size (from contractor)
- ☐ A Letter of Compliance and/or CO from the City of Norwich Building Department
- ☐ Two prior years of fuel use documentation. This information can be provided in the table on the reverse side of application, or emailed in an Excel spreadsheet or other electronic format.
- ☐ If you installed an Energy Star® heat pump water heater: a dated and itemized invoice, **paid in full**, including all the detail described above. The equipment installed must match the quote submitted with Part A and approved by NPU.

EXAMPLE

Please complete these tables (as applicable):

INSTALLED COLD CLIMATE AIR SOURCE HEAT PUMP SYSTEM				
Heat Pump Manufacturer/Model	**Quantity**	**Unit size (tons)***	**Rebate $/Ton**	**Rebate ($)****
Mitsubishi MXZ-5C42NAHZ2U1 42K Outdoor	1	3.5	**$1,200/ton**	$4,200.00
			$1,200/ton	
Integrated Controls Manufacturer/Model***	**Quantity**	**Price**		**Rebate $ (Lesser of Price or $2,000)**
PAC-USWHS002-WF2, PACUS444CN1	1	$2,800.00		$2,000.00

*** To calculate tonnage of unit, divide the outdoor unit BTU's of cooling capacity by 12,000 (EX: 21,000 BTU/12,000 = 1.75 tons). Cooling capacity can be obtained from the unit's manufacturer specification sheet.**

****CHIPP rebate cannot exceed 80% of the total project cost, excluding tax, up to $20,000.**

****Location cap for all NPU rebates is $50,000 per location over a 3 year period.**

*****Integrated controls are <u>required</u> if you keep your furnace/boiler. Integrated controls prioritize the heat pump and automatically switch to the furnace/boiler when the outside temperature falls below 20°F.**

GEOTHERMAL HEAT PUMP SYSTEM (*no integrated controls rebate available*)				
Manufacturer and Model Number	**Quantity**	**Unit size (tons)****	**Rebate $/Ton**	**Rebate ($)**
			$1,200/ton	
			$1,200/ton	

Heat pump units greater than 5 tons must have a COP rating of at least 2.3 at 17° F and a COP of at least 3.4 at 47° F.

INSTALLED ENERGY STAR® HEAT PUMP WATER HEATER			
Manufacturer/Model	**Quantity**	**Price**	**Rebate ($1,100 per unit)**
AO Smith HPTU-50N	1	$1,300	$1,100.00

Total rebate $7,300.00_____

Incentive amounts are subject to change. NPU reserves the right to provide the rebate in the form of a credit adjustment on your electric account if the past due balance exceeds $100.

Mail this Rebate Application Form (Part B) and required documentation to: Energy Services, Norwich Public Utilities, 16 South Golden Street, Norwich, CT 06360 OR email to efficiencymatters@npumail.com.

Customer Signature: _____ Date: _____

By signing above, the customer agrees to the conditions as stated in this application and in Program Requirements herein.

Fuel Usage: Please provide this information. If you heated your home or business with natural gas or electric resistance for the last two or more years, please check natural gas or electric resistance below and leave the table blank. NPU can gather this information.

EXAMPLE

Check one (or more if applicable***): Oil ☐ Propane ☐ Natural Gas ☐ Electric Resistance ☐			
Delivery Date	**Quantity (Gallons)**	**Price Per Gallon ($)**	**Total Cost ($)**
Example: 11/1/2016	18.9	$4.689	$88.62
2/22/2022	172.7	1.99	$343.67
7/19/2022	138.0	1.99	$274.63
1/15/23	146.0	1.99	$290.54
2/21/23	348.4	1.99	$693.32

Note: If you heated with more than one fuel type, please provide a separate information table for each.

PROGRAM REQUIREMENTS

Rebate Offer: Any rebate cannot exceed 80% of the total project cost, excluding tax, up to $20,000 and all customers must submit a PART A application to receive PRE-APPROVAL from NPU before beginning their project. This program will cover products purchased on or after March 15, 2023. Details of this Program, including Rebate levels, are subject to change or cancellation without prior notice. This application form must be received by June 30, 2024. If capacity for the Pilot Program participation is met before this date, NPU reserves the right to no longer accept participants before this date. The Rebate Application (Part A and Part B plus all other required documentation) must be completed and submitted (postmarked) to NPU **and** the system must be installed **within 120 days of notification** from NPU that Applicant has been approved to participate in the Pilot Program. Applicants who participate in the Pilot Program agree to take part in a satisfaction survey if requested. Call (860) 823-4514 for additional information.

Eligibility: The Pilot Program is available to residential and small commercial electric service customers of Norwich Public Utilities that have used oil, propane gas, natural gas, or electric resistance as their primary heating fuel for two or more years. Equipment must be installed in the service territory of Norwich Public Utilities. Eligible systems are cold climate electric heat pumps or Energy Star certified geothermal heat pump systems. **Customers must be pre-approved by NPU into the Pilot Program to be eligible to receive a Rebate**.

Approval and Verification: Pre-approval from Norwich Public Utilities will be required to participate in the Pilot Program and to receive the Rebate. Once accepted, Norwich Public Utilities reserves the right to verify sales transactions and to have reasonable access to your facility to inspect the cold climate heat pump system installed under this Program, prior to issuing rebates or at a later time.

Rebate Form: The Rebate Application Form Part A and Part B must be filled out completely, truthfully and accurately.

Proof of Purchase: An itemized installation invoice must be submitted to NPU with Part B of the Rebate Application Form. The invoice must indicate the equipment type, size, make, model, serial number of the system, and date of purchase. Manufacturer specification sheets and two prior years of fuel use documentation must also be submitted to NPU. Photos must be submitted of the installed indoor and outdoor units, the units' labels, and integrated controls (if applicable) set at 20° F for the secondary heating supply. Additional requirements may be defined by NPU at a later date.

Payment: Please allow 30 days from submission of required documentation for payment. Payment process may take longer if information is missing. Call (860) 823-4514 for details. Norwich Public Utilities reserves the right to provide Rebate in the form of a credit adjustment on your electric account.

Endorsement: Norwich Public Utilities does not endorse any particular manufacturer, product, or system design in promoting this Program.

Tax Liability: Norwich Public Utilities will not be responsible for any tax liability that may be imposed on the customer as a result of the payment of Rebates.

Warranties: NORWICH PUBLIC UTILITIES DOES NOT WARRANT THE PERFORMANCE OF INSTALLED EQUIPMENT, EXPRESSLY OR IMPLICITY. Norwich Public Utilities makes no warranties or representation of any kind, whether statutory, expressed or implied, including, without limitations, warranties of merchantability or fitness for particular purpose regarding the cold climate heat pump or geothermal system or services provided by a manufacturer or vendor. Contact your contractor for details regarding equipment performance and warranties.

Limitations of Liability: The liability of Norwich Public Utilities is limited to paying the Rebate specified. Norwich Public Utilities is not liable for any consequential or incidental damages or for any damages in tort connected with or resulting from participation in this Program.

Assignment: The rebate check can only be payable to the utility customer.

Specific Requirements: These include, but are not limited to: payment options, Rebate restrictions for facilities using self-generation for non-emergency purposes. Please call (860) 823-4514 for more details.

Customer's Certification: Customer signs certifying that he/she has purchased and installed the equipment at the defined location. Customer agrees that all information herein is true and that he/she conformed to all Program guidelines and eligibility requirements listed herein. Owner will need to verify that the units listed in the Rebate application have been installed correctly and that there are no unusual noises or vibrations and all controls have been calibrated. The owner must also certify that he/she has been instructed on how to operate and maintain the equipment and has received all the necessary operation and maintenance manuals.

EXAMPLE

INVOICE
#1233

DATE
Jan 4, 2022

TOTAL
USD $XX

ABC Heating and Cooling Co.

CT Lic#123-456S-7
Business Number 860-555-5050
1000 Main St.
Norwich, CT 06360
abcheating@gmail.com

TO

John Doe

15 Main St
Norwich, CT 06360
860-555-5555
John.Doe@gmail.com

DESCRIPTION	RATE	QTY	AMOUNT
Mitsubishi M/N MXZ5C42NAHZ2U1 42K Outdoor Unit Serial: 23934039838292	$XX	1	$XX
Mitsubishi M/N MSZGL09NAU 9K Indoor Unit Serial: 20938489302033	$XX	1	$XX
Electrical, Wires, Copper Line Set	$XX	1	$XX
Labor	$XX	1	$XX

SUBTOTAL	$XX
TAX (6.35%)	$XX
TOTAL	USD $XX
PAID	Cash $XX
REMAINING DUE	USD $0

EXAMPLE

INVOICE
#1234

DATE
Jan 4, 2022

TOTAL
USD $XX

ABC Heating and Cooling Co.

CT Lic#123-456S-7
Business Number 860-555-5050
1000 Main St.
Norwich, CT 06360
abcheating@gmail.com

TO

John Doe

15 Main St
Norwich, CT 06360
860-555-5555
John.Doe@gmail.com

DESCRIPTION	RATE	QTY	AMOUNT
Mitsubishi PAC-USWHS002-WF-2 Wireless Interface	$XX	1	$XX
Wireless Controller	$XX	6	$XX
Accessories	$XX	1	$XX
Labor	$XX	1	$XX

SUBTOTAL	$XX
TAX (6.35%)	$XX
TOTAL	USD $XX
PAID	Cash $XX
REMAINING DUE	USD $0

EXAMPLE

INVOICE
#1235

DATE
Jan 4, 2022

TOTAL
USD $XX

ABC Heating and Cooling Co.

CT Lic#123-456S-7
Business Number 860-555-5050
1000 Main St.
Norwich, CT 06360
abcheating@gmail.com

TO

John Doe

15 Main St
Norwich, CT 06360
860-555-5555
John.Doe@gmail.com

DESCRIPTION	RATE	QTY	AMOUNT
50 gal. A.O. Smith hybrid water heater w/heat pump model HPTU-50N Serial: 65235522356552	$XX	1	$XX
Fittings to retrofit	$XX	1	$XX
Electrical to panel. breaker, romex	$XX	1	$XX
Labor	$XX	1	$XX

SUBTOTAL	$XX
TAX (6.35%)	$XX
TOTAL	USD $XX
PAID	Cash $XX
REMAINING DUE	USD $0

M-SERIES

SUBMITTAL DATA: MXZ-5C42NAHZ

MULTI-INDOOR INVERTER HEAT PUMP SYSTEM

MITSUBISHI ELECTRIC

Job Name:	EXAMPLE	
System Reference:		Date:

Outdoor Unit: MXZ-5C42NAHZ

ACCESSORIES

- ☐ Three-port Branch Box (PAC-MKA30BC)
- ☐ Five-port Branch Box (PAC-MKA50BC)
- ☐ Distribution Pipe for Flare Connection (MSDD-50AR; necessary for installing two branch boxes)
- ☐ Distribution Pipe for Brazed Connection (MSDD-50BR; necessary for installing two branch boxes)
- ☐ 3/8" x 1/2" Port Adapter (MAC-A454JP)
- ☐ 1/2" x 3/8" Port Adapter (MAC-A455JP)
- ☐ 1/2" x 5/8" Port Adapter (MAC-A456JP)
- ☐ 1/4" x 3/8" Port Adapter (PAC-493PI)
- ☐ 3/8" x 5/8" Port Adapter (PAC-SG76RJ)
- ☐ Airflow Guide (PAC-SH96SG-E)

(For data on specific indoor units, see the MXZ-C Technical and Service Manual.)

Specifications			Model Name
Unit Type			MXZ-5C42NAHZ
Cooling* (Non-ducted / Ducted)	Rated Capacity	Btu/h	42,000 / 42,000
	Capacity Range	Btu/h	6,000 - 42,000
	Rated Total Input	W	3,130 / 3,890
Heating at 47°F* (Non-ducted / Ducted)	Rated Capacity	Btu/h	48,000 / 48,000
	Capacity Range	Btu/h	7,200 - 48,000
	Rated Total Input	W	3,430 / 4,350
Heating at 17°F* (Non-ducted/Ducted)	Rated Capacity	Btu/h	35,800 / 36,600
	Maximum Capacity		48,000 / 48,000
	Rated Total Input	W	3,650 / 4,290
Heating at 5°F*	Maximum Capacity	Btu/h	48,000
Energy Star® (ENERGY STAR products are third-party certified by an EPA-recognized Certification Body.)			Yes
Electrical Requirements	Power Supply	Voltage, Phase, Hertz	208 / 230V, 1-Phase, 60 Hz
	Recommended Fuse/Breaker Size	A	50
	MCA	A	42
Voltage	Indoor - Outdoor S1-S2	V	AC 208 / 230
	Indoor - Outdoor S2-S3	V	DC ±24
Compressor			Hermetic
Fan Motor (ECM)		F.L.A.	0.4+0.4
Sound Pressure Level	Cooling	dB(A)	50
	Heating		54
External Dimensions (H x W x D)		In / mm	52-11/16 x 41-11/32 x 13+1 1338 x 1050 x 330+25
Net Weight		Lbs / kg	276 / 125
External Finish			Munsell No. 3Y 7.8/11
Refrigerant Pipe Size O.D. — Eight Ports	Liquid (High Pressure)	In / mm	3/8 / 9.52
	Gas (Low Pressure)		5/8 / 15.88
Max. Refrigerant Line Length		Ft / m	492 (150)
Max. Piping Length between outdoor unit and branch boxes		Ft / m	180 (55)
Max. Piping Length after branch box		Ft / m	82 (25)
Max. Total Piping Length between branch boxes and indoor units		Ft / m	311 (95)
Max. Refrigerant Pipe Height Difference	If IDU is Above ODU	Ft / m	131 (40)
	If IDU is Below ODU		164 (50)
Connection Method			Flared/Flared
Refrigerant			R410A

*** Rating Conditions per AHRI Standard:**

Cooling | Indoor: 80° F (27° C) DB / 67° F (19° C) WB
Cooling | Outdoor: 95° F (35° C) DB / 75° F (24° C) WB

Heating at 47°F | Indoor: 70° F (21° C) DB
Heating at 47°F | Outdoor: 47° F (8° C) DB / 43° F (6° C) WB

Heating at 17° F | Indoor: 70° F (21° C) DB
Heating at 17° F | Outdoor: 17° F (-8° C) DB / 15° F (-9° C) WB

Specifications are subject to change without notice.

EXAMPLE

SPECIFICATIONS : MXZ-5C42NAHZ, contd.

OPERATING RANGE:

	Outdoor
Cooling	D.B 23 to 115°F [D.B.−5 to 46°C]*1
Heating	W.B. −13 to 59° F [W.B. −25 to 15° C]

*1. D.B. 5 to 115° F [D.B. −15 to 46° C], when an optional Air Outlet Guide is installed.

ENERGY EFFICIENCIES:

Indoor Unit Type	SEER	EER	HSPF	COP @ 47°F	COP @ 17°F
Non-ducted	19.0	13.40	11.0	4.10	2.85
Ducted and Non-ducted	18.00	12.11	10.55	3.67	2.68
Ducted	15.0	10.80	10.1	3.23	2.50

NOTES:
- Minimum of two Indoor Units must be connected to the MXZ-5C42NAHZ.
- Minimum installed capacity cannot be less than 12,000 Btu/h.
- Total connected capacity must not exceed 130% of outdoor unit capacity.
- System can operate with only one Indoor Unit turned on.
- Information provided at 208/230V.
- For Reference:
  - MXZ-C Technical & Service Manual for detailed specifications and additional information per Indoor Unit Combination.
  - MXZ Series Multi-Zone Indoor/Outdoor Combination Table for allowed unit combinations.

MVZ CONNECTION RULES:
- Up to 2 MVZ's may be connected to this system*.
- When 2 MVZ's are connected, no additional indoor units can be used*.
- When 1 MVZ is connected, additional indoor units can be connected.
- When 1 MVZ is connected, total connected capacity must not exceed 130%.

*No limitation to the number of units connected when the SPTB1 accessory is used, total connected capacity must not exceed 130% (refer to SPTB1 documentation for more information).

Notes:

EXAMPLE

COMMERCIAL-GRADE
RESIDENTIAL ELECTRIC WATER HEATERS

VOLTEX® HYBRID ELECTRIC HEAT PUMP WATER HEATER

The Voltex Hybrid Electric heat pump water heater from A. O. Smith is the most cost effective energy-efficient option available for consumers who want to save money on their utility bills. Voltex can reduce water heating costs up to 73% and provide payback in 2-3 years. With annual savings of $306 or more, there is no better way to go green than Voltex.

HOW DO THEY WORK?

Absorb ambient heat from the surrounding air to heat water using a compressor and "Environmentally-Friendly" R134a refrigerant

- Self-contained heat pump unit is integrated into the top of the tank
- Multiple operating modes to maximize efficiency and performance

QUALIFIES FOR MANY STATE AND LOCAL UTILITY REBATES - CHECK WWW.DSIREUSA.ORG

INCREASED ENERGY EFFICIENCY

- Improved efficiency designed in, to ensure available hot water at the lowest possible cost. Up to a 3.45 Uniform Energy Factor (UEF) Rating conserves energy and meets ENERGY STAR® qualifications

CHOICE OF OPERATING MODES

- Select from Efficiency, Hybrid, or Electric modes to match heating requirements to environmental conditions.
- Hybrid mode automatically adjusts between compressor and element, depending upon heat requirements.
- Vacation mode reduces operating costs and provides freeze protection during extended absence

BACKUP ELECTRIC ELEMENTS

- Long-lasting backup heating elements help heat water according to environmental conditions, demand, and the chosen operating mode

COREGARD™ ANODE ROD

- Our anode rods have a stainless steel core that extends the life of the anode rod allowing superior tank protection far longer than standard anode rods
- 66 and 80 gallon models have dual anodes for added protection.

DRY FIRE PROTECTION

- Control system checks to ensure the tank is full of water during start up to prevent dry firing the heating elements

ELECTRONIC USER INTERFACE

- User-friendly electronic interface allows easy control of temperature setting, operating mode, and communicates diagnostics
- Easy to read temperature display (see back) shows temperature in °F or °C
- Advanced diagnostics convey error messages for service purposes. The last four error messages are saved in the control system memory.

OTHER FEATURES

- Ideal for basements or garage installations; the compressor transfers heat to the water while dehumidifying and cooling the ambient air
- Washable air filter is easily removed for routine cleaning

OPTIONAL AIR DUCT ADAPTER KIT

- Permits installation in confined spaces

TEN YEAR LIMITED WARRANTY

- For complete information, consult written warranty or go to hotwater.com

Low Lead Content

ENERGY STAR

LISTED

AHRI CERTIFIED®
www.ahridirectory.org

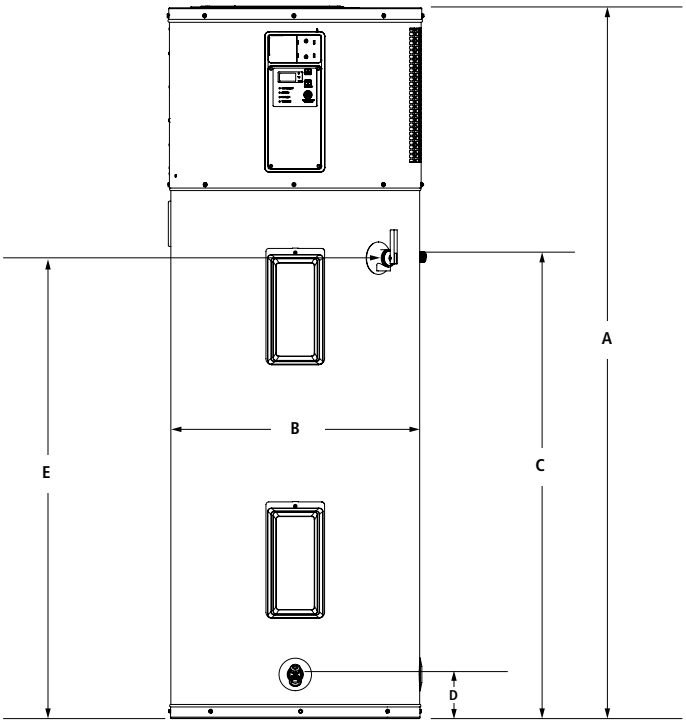
www.hotwater.com | 800-527-1953 Toll-Free USA | A. O. Smith Corporation | 500 Tennessee Waltz Parkway | Ashland City, TN 37015

EXAMPLE

COMMERCIAL-GRADE
RESIDENTIAL ELECTRIC WATER HEATERS

Model Number	Nominal Capacity	Rated Storage Volume	UEF	First Hour Rating (Gallons)	Dimensions in Inches					Approx. Shipping Weight (lbs)	Warranty Term
					A	B	C	D	E		
HPTU-50N	50	46	3.45	66	63	22	40-5/8	3-3/4	40-1/2	196	10
HPTU-66N	66	67	3.45	79	61	27	38	4	38	289	10
HPTU-80N	80	82	3.45	86	69	27	46	4	46	307	10

Requires 30 amp breaker.
Top T&P option not available.



ELECTRONIC USER INTERFACE

- User friendly, easy to read display.
- LEDs clearly indicate the current operating mode.
- Easily select operating mode:
  - Efficiency
  - Hybrid
  - Electric
  - Vacation
- Display communicates current status, mode and set point, and displays error messages when applicable.

EFFICIENCY MODE

- Utilizes the heat pump for all water heating.
- Automatically reverts to heating element if ambient air or water temperatures are outside optimal operating range for heat pump.

HYBRID MODE

- Utilizes the heat pump or heating element, depending on demand.

ELECTRIC MODE

- Standard electric water heater operation.

VACATION MODE

- One touch operation maintains tank temperature of 60°F (15.6°C) during vacation or extended absence to reduce operating costs and provide freeze protection.
- Programmable up to 99 days.

OTHER FEATURES:

- Sacrificial anode to protect against tank corrosion.
- Environmentally-friendly non-CFC foam insulation.
- Durable, enhanced-flow brass drain valve.
- CSA certified and ASME rated temperature & pressure relief valve.

OPERATING REQUIREMENTS:

- Requires provision for condensate draining; if a suitable drain is not available, a condensate pump is required.
- 208/240 VAC 60Hz single phase 30 amp power supply.

For Technical Information, call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.

wrightsoft®

Load Short Form
Entire House

Job:
Date: May 18, 2023
By:

Project Information

For: Mr.G Heating & Cooling
[redacted]

Design Information

	Htg	Clg
Outside db (°F)	***0***	96
Inside db (°F)	72	68
Design TD (°F)	72	28
Daily range	-	M
Inside humidity (%)	30	50
Moisture difference (gr/lb)	31	61

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

HEATING EQUIPMENT

Make		
Trade		
Model		
AHRI ref		
Efficiency	80 AFUE	
Heating input	0	Btuh
Heating output	0	Btuh
Temperature rise	0	°F
Actual air flow	2119	cfm
Air flow factor	0.037	cfm/Btuh
Static pressure	0	in H2O
Space thermostat		

COOLING EQUIPMENT

Make		
Trade		
Cond		
Coil		
AHRI ref		
Efficiency	0 SEER	
Sensible cooling	0	Btuh
Latent cooling	0	Btuh
Total cooling	0	Btuh
Actual air flow	2119	cfm
Air flow factor	0.070	cfm/Btuh
Static pressure	0	in H2O
Load sensible heat ratio	0.92	

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Master Bedroom	432	7792	3901	286	273
Bath	108	1827	1001	67	70
Bedroom	216	4956	2447	182	171
Kitchen	360	7255	4496	266	315
Living Room	396	8020	4562	294	319
Room7	720	10785	5407	396	378
Room8	144	3821	1882	140	132
Room9	216	3815	1968	140	138
Room10	144	3821	1882	140	132
Room11	288	5683	2737	208	192

Bold/italic values have been manually overridden

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Entire House Other equip loads Equip. @ 1.01 RSM Latent cooling	3024	57774 0	30285 0 30648 2801	2119	2119
TOTALS	3024	57774	33449	2119	2119

Bold/italic values have been manually overridden

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

wrightsoft

Project Summary
Entire House

Job:
Date: May 18, 2023
By:

Project Information

For: Mr.G Heating & Cooling
[redacted]

Notes:

Design Information

Weather: Hartford-Brainard AP, CT, US

Winter Design Conditions

Outside db	***0***	°F
Inside db	72	°F
Design TD	72	°F

Summer Design Conditions

Outside db	96	°F
Inside db	68	°F
Design TD	28	°F
Daily range	M	
Relative humidity	50	%
Moisture difference	61	gr/lb

Heating Summary

Structure	57774	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	57774	Btuh

Sensible Cooling Equipment Load Sizing

Structure	30285	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	1.01	
Equipment sensible load	30648	Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft²)	3024	3024
Volume (ft³)	27216	27216
Air changes/hour	0.28	0.15
Equiv. AVF (cfm)	127	68

Latent Cooling Equipment Load Sizing

Structure	2801	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Equipment latent load	2801	Btuh
Equipment Total Load (Sen+Lat)	33449	Btuh
Req. total capacity at 0.70 SHR	3.6	ton

Heating Equipment Summary

Make		
Trade		
Model		
AHRI ref		
Efficiency	80	AFUE
Heating input	0	Btuh
Heating output	0	Btuh
Temperature rise	0	°F
Actual air flow	2119	cfm
Air flow factor	0.037	cfm/Btuh
Static pressure	0	in H2O
Space thermostat		

Cooling Equipment Summary

Make		
Trade		
Cond		
Coil		
AHRI ref		
Efficiency	0	SEER
Sensible cooling	0	Btuh
Latent cooling	0	Btuh
Total cooling	0	Btuh
Actual air flow	2119	cfm
Air flow factor	0.070	cfm/Btuh
Static pressure	0	in H2O
Load sensible heat ratio	0.92	

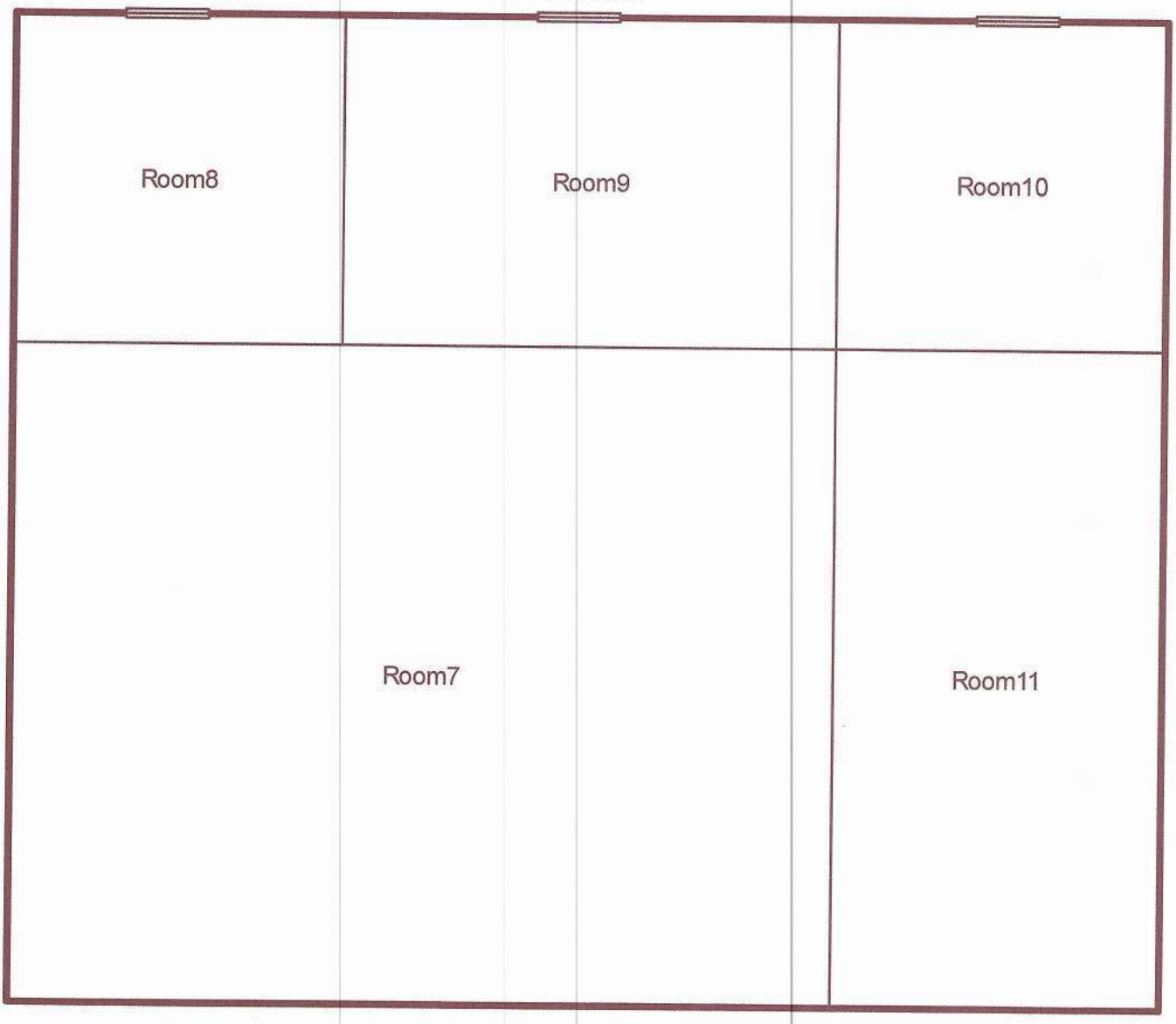
Bold/italic values have been manually overridden

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

Level 1

Job #: **Performed for:** Mr. G Heating & Cooling [redacted] Norwich		Scale: 1 : 73 Page 1 Right-Suite® Universal 2022 22.0.01 RSU 16063 2023-May-18 13:18:01 ...dCalc\302 washington st (Mr.G)

Level 2



Job #: **Performed for:** Mr G Heating & Cooling [redacted] Norwich		Scale: 1 : 73 Page 2 Right-Suite® Universal 2022 22.0.01 R SU 16063 2023-May-18 13:18:01 ..d Calc\302 washington st (Mr.G)

City of Norwich, Connecticut

DEPARTMENT OF PLANNING AND DEVELOPMENT

Building Department

23 Union Street, Norwich, CT 06360

Phone (860) 823-3745 Fax (860) 823-3741

Certicate of Approval

NORWICH CT 06360
RE:

Building Permit Number: M-23-

Dear Property Owner(s):

Inspection(s) at the above-referenced property for work performed under the above-referenced building permits reveal substantial compliance with the 2018 State Building Code, State of Connecticut 2018 Amendments Inclusive for the continuation of the existing use and occupancy, specifically of the following installation:

Permit Type:
Permit Use: Residential
Description of Work:

Respectfully,

Dan Coley, CBO
Building Official
860-823-3762
DCOLEY@CITYOFNORWICH.ORG

EXAMPLE


DES BLESSURES ET MEME ENTRAINER LA MORT.
COUPER LES SOURCES D' ALIMENTATION
A DISTANCE AVANT LE DEPANNAGE.
DWG NO. SG79G422H02
MITSUBISHI ELECTRIC
SPLIT-SYSTEM HEAT PUMP
<H>
AHRI CERTIFIED
Intertek 33223
CONFORMS TO ANSI/UL STD. 1995 CERTIFIED TO CAN/CSA STD. C22.2 NO.236
MODEL MXZ-5C42NAHZ
SERVICE REF. MXZ-5C42NAHZ-U1
UNIT SUPPLY 208/230 1 60
MAX.VOLTAGE 253
MIN.VOLTAGE 198
APPROVED FOR HACR BREAKERS OR TIME DELAY FUSES.
BREAKER 50 AMPS
MAX.FUSE 50 AMPS
MIN.CIRCUIT AMPACITY 42
FAN MOTOR 0.5+0.5 74+74
COMPRESSOR 19 22
REFRIGERANT R410A
FACTORY CHARGED 4.8 kg/ 10 LBS. 9 OZ.(0 m/ 0 FT.)
INSTALLER TO MARK : TOTAL CHARGE LBS. OZ.
DESIGN PRESSURES 4.15 MPa / 601 PSIG HI SIDE
2.21 MPa / 320 PSIG LO SIDE
WEIGHT 125 kg/ 276 LBS.
SERIAL NO.
YEAR OF MANUFACTURE 2019.12
MITSUBISHI ELECTRIC CORPORATION


MITSUBISHI ELECTRIC
12 hi


2:50 PM
61
Mode
Fan
Cool
69
Vane
Mode
Menu
Fan

EXAMPLE


Smith
ENERGYGUIDE


SPLIT- SYSTEM HEAT PUMP
(G)
PCA-A36KA6. TH
2015 12
SZM00347
MITSUBISH ELECTRIC CORPORATION


20°