

ReVision Heat

Sustainable Heating Solutions



Innovative design, installation and service



Practical solutions for every home and every budget



Renewable, sustainable, smarter alternatives

Heating System Proposal

CLIENT INFORMATION

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Date of Proposal: 5/10/2016
Project Name: Mitsubishi Air Source Heat Pump Installation

CONTRACTOR INFORMATION

Company Name: ReVision Heat
Contact: Ryan Hamilton
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Components and Similar Projects



Lower Your Heating Costs and Decrease Your Carbon Footprint Today

COMPONENTS LIST

Quantity	Make/Model	Performance:	Features:
1	Mitsubishi MUZFH15NA outdr	HSPF 12	Hyper Heating down to -13
1	Mitsubishi SLZ-KA15NA indoor	SEER 22	Triple-Action Filtration
	Fully Installed	ENERGY STAR Qualified R410a Refrigerant	Flush Ceiling Cassette with Four-Way Air Delivery Dry Mode: up to 4.0 pints/hr.

COST

Proposed Solution:	Mitsubishi Air Source Heat Pump
Total Cost to Revision Heat:	\$5,765.05
Rebates Available:*	\$500.00
Final Cost:	\$5,265.05
Estimated Date of Install:	4-6 weeks form date of deposit

* This Mitsubishi Air Source Heat Pump qualifies for a rebate through Efficiency Maine's Home Energy Savings Program. The program is subject to change without notice. The rebate will be made available after project completion. Please see Efficiency Maine's Home Energy Savings Program Manual for details (<http://www.energymaine.com/docs/HESP-Program-Manual.pdf>).

SYSTEM DESCRIPTION

ReVision Heat proposes to install one Mitsubishi M-Series Hyper Heat MSZ-FH15NA single-zone air source heat pump system for your home. The cooling capacity of this unit is 19,000 BTU's and will provide excellent cooling during even the hottest months. The heating capacity of the unit is 18,000 BTU's at 5F. The unit will provide exceptional heating output for much of the season as well. This proposal is priced to include locating the outdoor condensing unit on the flat roof just beyond the fire exit. If this is not possible due to code restrictions, an alternative location would be sought. Carpentry or roof modifications are not priced into this proposal if it must be mounted to the mansard roof. The refrigerant lineset will run from the outdoor unit vertically on the mansard roof and will penetrate the soffit. ReVision Heat will thoughtfully construct a custom mounting that will follow the mansard roof line as close as possible. The intent is to get the refrigerant lines directly into the attic by penetrating the wood trim at the top edge of the roof line. As an alternative, the lines could penetrate directly into the shingled surface and into the closet before turning up to go into the attic if there are unforeseen challenges to direct access to the attic. The refrigerant piping and control wiring on the exterior of the roof will be hidden within grey line-hide that is designed to accept paint. An external disconnect will be installed beside the outdoor unit which will be wired back to the load center with a two pole 20 amp breaker. The service wire will run on the exterior of the building and will be as inconspicuous as possible. Two openings in the electrical panel must be available. Condensate produced from the unit will be routed outside with condensate drain lines.

WARRANTY

As a Mitsubishi Diamond Contractor this installation qualifies for a twelve (12) year warranty on the compressor and parts. ReVision Heat warranties our work for a period of one (1) year. After one year ReVision Heat offers the option of a bi-annual heat pump maintenance agreement.

PAYMENT TERMS

- 30% due upon acceptance of this proposal
- 40% due upon delivery of heat pump system
- 30% due upon substantial completion of installation



PERFORMANCE

Your Mitsubishi Heat Pump is among the best in class, achieving the highest efficiency with the quietest operation. Assuming current average electricity costs of \$0.145/kWh:

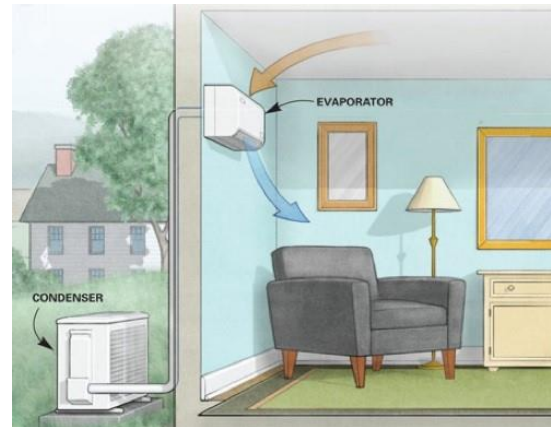
At 47 degrees, the system will run at 310% efficiency, which equates to oil at \$1.39 a gallon

At 5 degrees, the system will run at 242% efficiency, which equates to oil at \$1.79 a gallon

Maine's average low temperature is 37 degrees, so the average operating efficiency is 285% or oil at \$1.47/gallon!

SYSTEM OPERATION

The indoor unit is thermostatically controlled to provide both heating and cooling. When there is a call for heat, the outdoor unit will turn on the fan, blowing air throughout the outdoor unit. Latent heat in the ambient air is absorbed by the refrigerant, which is then compressed and pumped to the indoor unit, which in turn transfers heat to the room air via a fan located in the indoor unit. In cooling mode the process is reversed, making the indoor unit the evaporator and the outdoor unit the condenser (pictured). This moves hot air from inside to out, allowing cool refrigerant to return inside to produce a stream of cool air as the fan blows across the coils.



The compressor is driven by a state of the art microprocessor, which varies the speed of the pump to match the heating or cooling load exactly. The unit is rated to work down to -13 degrees. In the heating mode, the colder it gets outside, the less efficient the heat pump is. It has a Heating Seasonal Performance Factor (HSPF) of 11.3, which makes it eligible for rebates from Efficiency Maine. This number indicates the ratio of BTU output to watt-hours of electricity used for heating. The Seasonal Energy Efficiency Ratio (SEER) is 19.1, which indicates the efficiency of the system during cooling, and means that the heat pump is 30-50% more efficient than modern window AC units.

It is important to note that these units begin to derate in performance in sub-zero temps and will completely stop working at temps lower than -13F. It is Revision Heat's policy to recommend a back-up source of heat for any home wanting to fully heat a home with air-sourced haet pumps.

SCOPE OF WORK

Price to include the following:

- Provide and install indoor and outdoor unit
- Provide and install all refrigerant and condensate piping.
- All necessary wiring from load center to external disconnect and from outdoor unit to indoor unit
- Thorough pressure testing and commissioning by factory trained and EPA certified refrigeration technicians
- All necessary licenses for code-compliant installation exceeding manufacturer's recommendations

Price does not include the following:

- Any work not listed in the scope of work above
- Painting
- Breaker location in the electrical panel.
- Clearing and ensuring access to workspaces

NEXT STEP

If you wish to move forward with this project, we will send you a contract and invoice for deposit. Once we receive the signed contract and deposit, your project will be placed in the queue for installation. This fixed price quote is valid for 30 days.

IMPORTANT NOTES

If the client specifies design changes which result in the need for materials or labor beyond the scope of this proposal, these should be discussed as early as possible. A change order will be negotiated and drawn up in writing after the details are agreed upon by the client and ReVision Heat. Non-contract labor is billed at \$85 per hour; this rate applies to additional travel time and additional office time (design changes, preparation of a change order, etc.).

Estimates of equipment or system efficiency, performance or expected energy savings are for informational purposes only. Due to the large number of variables affecting efficiency and performance that are beyond ReVision Heat's control, ReVision Heat makes no warranty or guarantee that the equipment or system installed in accordance with this proposal shall perform in accordance with such estimates.

ReVision Heat requires that all necessary areas be accessible to perform the scope of work. This includes but is not limited to removal of belongings or debris from the basement, crawlspaces, closets, storage areas or other areas in the living space, clearing of snow from pathways and access doors. Areas of access will be clarified before work begins. Any required removal of belongings, debris, or snow will be billed at the non-contract labor rate of \$85 per hour.