

RESILIENT BUILDINGS

— GROUP —

Superior energy performance

A Comprehensive Energy Improvement Plan

Maple Manor

44 Maple Street
Newport, NH 03878



Prepared by:

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WORK SCOPE

INSULATION/AIR SEALING

- From attic pull back insulation and air seal at party walls and penetrations
- Add cellulose to attic
- Door kits and window caulking
- Remove fresh air intake in hot water heater closets

ELECTRICAL UPGRADES

- Replace 32 qualified units with Utility supplied Energy Star unit
- Replace all interior incandescent bulbs with LED bulbs
- Change Community Room lighting to LED fixtures
- Change parking lot lighting and all exterior lighting to LED fixtures

MECHANICAL UPGRADES

- Remove all Rinnai propane heaters and propane hot water heaters
- Install Marathon hot water heaters
- Install mini split air source heat pumps on exterior of unit and single head distribution in unit for heating and cooling. (1.5 ton units with COP of 2.18 at 0 degrees)

PHOTOVOLTAIC SYSTEM ROOF INSTALLATION

- Install a 78kW roof mounted system on 5 (Blgs A-E) of the 7 buildings roof to produce renewable solar energy that will be fed into the meter system. System can be monitored through web base system to observe output and confirm efficiency of system. System will meet new "Net Metering" rules by the Public Utilities Commission. Maple Manor is eligible to sell Renewable Energy Credits on the market at the current estimated of \$5,000/yr.

Air Source Heat Pump System



Maple Manor Cascaded Financial Analysis of Packaged Recommendations Using Heat Pumps WITH POTENTIAL REBATES

EEM #	BUILDING ENVELOPE UPGRADES	CAPITAL INVESTMENT	POTENTIAL REBATES	ENERGY INVESTMENT	ANNUAL ENERGY COST SAVINGS	ANNUAL ENERGY SAVINGS (kBTU)	SIMPLE PAYBACK
B1,2,3	Air Sealing in Units	\$20,000	\$20,000	\$0	\$1,383	70,169	0.0
B4	Air Sealing in Community Room	\$500	\$0	\$500	\$210	11,576	2.4
B5,6	Insulate Attic in Community Room	\$2,288	\$0	\$2,288	\$180	7,177	12.7
EEM#	MECHANICAL SYSTEM UPGRADES	CAPITAL INVESTMENT	POTENTIAL REBATES	ENERGY INVESTMENT	ANNUAL ENERGY COST SAVINGS	ANNUAL ENERGY SAVINGS (kBTU)	SIMPLE PAYBACK
M3	Install Heat Pump Units (all)	\$165,000	\$31,600	\$133,500	\$0	668,919	#DIV/0!
M8	Install Hot Water Heaters (all)	\$66,000	\$0	\$66,000	\$0	123,696	#DIV/0!
M1	Install Low Flow Fixtures (in units)	\$1,200	\$1,200	\$0	\$870	14,260	0.0
EEM#	ELECTRICAL SYSTEM UPGRADES	CAPITAL INVESTMENT	POTENTIAL REBATES	ENERGY INVESTMENT	ANNUAL ENERGY COST SAVINGS	ANNUAL ENERGY SAVINGS (kBTU)	SIMPLE PAYBACK
E1	Replace Refrigerators in Units	\$24,000	\$24,000	\$0	\$3,163	59,498	0.0
E2	LED Replacements in Units	\$1,600	\$1,600	\$0	\$668	12,627	0.0
E5	LEDs in Community Room	\$4,200	\$1,400	\$2,800	\$992	18,761	2.8
E4	LEDs Exterior Floods	\$1,200	\$400	\$800	\$462	10,077	1.7
E4	LEDs Exterior Globe Fixtures	\$2,450	\$800	\$1,650	\$504	8,733	2.7
E4	LEDs Exterior Parking Lot Lights	\$3,600	\$1,200	\$2,400	\$711	11,421	3.4
EEM#	RENEWABLE ENERGY SYSTEM UPGRADES	CAPITAL INVESTMENT	POTENTIAL REBATES	ENERGY INVESTMENT	ANNUAL ENERGY COST SAVINGS	ANNUAL ENERGY SAVINGS (kBTU)	SIMPLE PAYBACK
R1	Install a Photovoltaic System	\$274,487	\$58,600	\$215,887	\$25,944	490,416	8.3
Total Project:		\$566,525	\$140,700	\$425,825	\$34,987	1503310	12.17

*IPR and IPRV assume a 5% inflation rate and a 5% Cost of Capital. Utility rebates and tax credits are not included.

