

The Impact of Energy Costs on Multi-Family Residential Building Value



Case Study
Morrison Manor Apartments
1 and 2 Morrison Ave.
Troy, New York
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This case study describes the energy savings from retrofits and their impact on the value of Morrison Manor Apartments, an 83-unit market-rate student-housing apartment complex in Troy, NY. The complex is privately owned and primarily serves students of nearby Hudson Valley Community College.

Financial highlights: The retrofits improved tenant comfort, lowered tenant energy costs and produced at least \$85,000 in rent increases. Using the income approach to valuation, the retrofits increased the value of the property by at least \$687,300. The retrofits cost \$320,437 and generated at least a 20.4% cash-on-cash return.

The property was purchased for \$750,000 in 2000 and was sold for \$1.79 million in June 2005 less than two years after the retrofits. This value appreciation outpaced that of comparable local properties in the period. The seller saw a strong 31% annual return on his investment.

Property Description: The property consists of two apartment buildings on 3.4 acres of land with ample parking. The buildings are very similar. Each is two stories, with three wings and a common stairwell in the center core. Each wing features a central corridor flanked by identical small one-bedroom apartments on both sides. Building 1 has 41 apartments, a management office and a laundry room with five clothes washers and four dryers. Building 2 has 42 apartments. Each building has a gross building area of 22,683 square feet for a total combined area of 45,366 square feet.

Construction Detail: The buildings were constructed in the 1960's using concrete block with a brick veneer. They have aluminum sliding casement windows.

Case Study

Morrison Manor was owned by MRK Real Property, LLC. Michael Klimkewicz, MRK's owner, saw a television advertisement for NYSERDA-sponsored services to improve building efficiency and arranged for an energy audit of the property by a NYSERDA contractor. The audit uncovered several energy-saving retrofits that would deliver excellent returns on investment. Klimkewicz solicited bids from contractors to implement the recommended retrofits, secured financing and oversaw the work.

Prior to the renovations in 2003, space heating at Morrison Manor was provided by electric resistance baseboard heaters. In Building #1, domestic hot water was provided by a single electric domestic hot water heater located in the basement. In Building #2, domestic hot water was provided by 42 electric domestic hot water heaters, one inside each apartment.

Apartment electricity usage is metered at each unit and billed to the individual tenants. In addition, each building has a house meter for electricity usage in common areas, such as corridors, laundry room, the office, and outdoors. Usage on these two house meters is billed to the building owner. Prior to 2003, domestic hot water usage for Building #1 was

on the house electricity meter, and paid for by the owner, and domestic hot water usage in Building #2 was on the individual tenant electricity meters, and paid for by tenants. There was no natural gas service to Morrison Manor prior to 2003.

The following energy-efficiency improvements were installed at Morrison Manor in 2003:

1. Space heating and domestic hot-water heating were converted from electricity to natural gas. Electric baseboard heating was replaced with high-efficiency hot water baseboard heating.¹ Heat is controlled by a single central hall thermostat in each building. The thermostats are kept at 72 degrees. The boiler water temperature for space heating is controlled by outdoor temperature resets.² This work began in December 2002 and was completed in September 2003.
2. Four electric clothes dryers were replaced with four natural gas dryers.
3. Single-glazed windows were replaced with efficient low-e argon-filled double-glazed windows.³ This work was completed in June 2003.
4. R-19 fiberglass batt insulation was added to the existing 4-inch fiberglass batt roof insulation, for a total insulation value of about R-30. Openings for through-wall air conditioners in apartments units were air sealed with foam, plywood and caulk and were insulated with fiberglass batt.⁴
5. Weather-stripping was installed on exit doors.
6. Various lighting systems were replaced, including the replacement of T12 fluorescent lamps with T8 fluorescent lamps, magnetic ballasts with electronic ballasts, incandescent bulbs with compact fluorescent lamps, and fluorescent exit signs with LED exit signs. This work began in April 2003 and was completed in May 2003.

In the winter, before the renovation, many apartments were drafty and unevenly heated. The retrofits significantly improved comfort.⁵

The total cost of these renovations was \$320,437. They were financed by a NYSERDA permanent demand reduction grant and NYSERDA-subsidized low interest loans from Community Preservation Corp. and Troy Savings Bank.

¹ Space heating for Building #1 is now provided by two Weil McLain EG-65 boilers (Series 4) with Annual Fuel Utilization Efficiency (AFUE) ratings of 82%; domestic hot water is provided by two high-efficiency (87% AFUE) Weil McLain Gold GV boilers (Series 4). Building #2 has three high-efficiency Weil McLain boilers (Series 4) that provide both space heating and domestic hot water. The Gold GV boilers are ENERGY STAR labeled. Efficiency data is from <http://www.weil-mclain.com>.

² Thermometers that improve system efficiency by sensing outdoor air temperature and lowering boiler water to the minimum temperature that will provide sufficient heat.

³ Syron Industries Slimline 7500 single-hung gliders low-e argon-filled double glazed vinyl windows per the supplier, Delanson Supply Inc.

⁴ Given the cool local weather in the fall and spring, there is little need for air conditioning since the building is occupied by students, most of whom move in at the end of the summer and leave in late spring. The 30-year cooling degree day average for May and September are only 15 and 33 respectively per http://www.nyserda.org/Energy_Information/nyepch.asp.

⁵ Personal communication with Mike Klimkewicz, July 19, 2005.

The retrofits lowered Morrison Manor's total energy costs – the sum of the costs paid by both the owner and tenants. But, because the owner assumed responsibility for all heating and hot water energy costs, the owner actually pays more for utilities after the renovations. The owner's increased energy costs were more than made up for by rent increases attributable to leases including heat and hot water.

IMT commissioned an analysis of Morrison Manor's energy bills by Taitem Engineering.⁶ As part of the analysis Taitem analyzed the utility bills for a sample of ten apartments and estimated energy usage by the remaining units based on the sample.⁷ Taitem normalized and equalized energy costs to estimate energy costs at current energy prices in a year with typical weather conditions. Unless otherwise noted, references to energy costs in this case study are all normalized and equalized.

The billing analysis estimated that in the academic year after the retrofit, Morrison Manor's total energy costs, including those billed directly to tenants, were \$69,427 (\$1.53 per square foot). Had the retrofits not been made, total energy costs would have been \$31,617 higher (46% higher). The portion of post-retrofit energy costs borne by the owner was \$45,701 or 17.2% of total operating expenses.⁸ This represents an energy cost increase of \$19,706 to the owner due entirely to the owner's assumption of the individual units' costs for heat and hot water.

Rental revenue, Net Operating Income and Property Value

Morrison Manor profit and loss statements for the 2002-2003 and 2003-2004 academic years are attached. In accordance with recommended appraisal practice, energy expenses have been normalized to eliminate the effects of abnormal weather.⁹

Key financial metrics for the property in 2002-2003 (prior to the renovation):

- revenue of \$343,354
- energy costs paid by owner of \$25,996
- total expenses not including finance costs of \$267,710
- net operating income (NOI) of \$75,645

Key financial metrics for the property in 2003-2004 (after the renovation):

- revenue of \$503,252
- energy costs paid by owner of \$45,701
- total expenses not including finance costs of \$349,674
- net operating income (NOI) of \$153,578

⁶ www.imt.org/Papers/MM-BillingStudy.pdf

⁷ Tenants' electricity bills were obtained from Niagara Mohawk with the tenants' written permission.

⁸ Operating expenses do not include fixed costs (property taxes and insurance). Morrison Manor's 2003-2004 operating expenses were \$266,354. $\$45,701/\$266,354 = 17.2\%$

⁹ To allow for an apples-to-apples comparison energy costs are also equalized to reflect current energy prices. Normalized and equalized energy costs are from the analysis by Taitem Engineering.

As can be seen above, revenue at Morrison Manor surged from \$343,354 in 2002-2003 to \$503,252 in 2003-2004 – an increase of \$159,897 or 32%. A small portion of that increase was offset by the increase in the property's total energy costs paid by the owner. The increase in revenue is due almost entirely to 11-36% increases in rents¹⁰, which occurred without increases in the property's vacancy rate.

A few factors account for the fact that the vacancy rate did not increase in response to increased rents.¹¹ The primary factors were the energy-efficiency retrofits and the related provision of free heat and hot water as well as improved occupant comfort resulting from the retrofits. Secondary factors were the introduction of free cable and local phone service, as well as changes in the property's marketing agreement with Hudson Valley Community College and the designation of an all-female wing of one building. There were no other significant property improvements during the case study period. It is impossible to determine the exact weight of each factor in making possible the rent increases. Klimkewicz attributes at least \$85,000 of the increase to the retrofits and possibly much more.

Deducting the \$19,706 increase in energy costs born by the owner from the \$85,000 revenue increase yields a net operating income (NOI) increase of \$65,294. The NOI increase amounts to 20.4% of the \$320,437 retrofit cost – that is, the retrofits produced a 20.4% cash-on-cash return.

Appraisers use three different methods to value properties: the comparables, replacement cost and income approaches. The income approach is the dominant method for valuing income property like Morrison Manor. The income approach values properties based on their cash flow or net operating income. In particular, the income capitalization approach values properties by capitalizing their net operating income, by dividing properties' net operating income by the appropriate capitalization rate. A property's capitalization rate is the rate of return on their investment that buyers implicitly demand before they will buy the property. Capitalization rates vary with location, property type and condition of the property. Appraisers derive capitalization rates based on analysis of the implied capitalization rates of recent sales of comparable properties.

Three leading local commercial appraisers agreed that the appropriate capitalization rate for Morrison Manor is 9.5%.¹² Capitalizing the property's 2003-2004 NOI of \$153,578 at 9.5% yields a property value of \$1.617 million. By capitalizing the \$65,294 increase in NOI attributable to the retrofits, we can estimate the contribution of the retrofits to the value of the property. Capitalizing \$65,294 at 9.5% yields an incremental property value

¹⁰ Morrison Manor rents are assessed on individual occupants (not on apartments). Each individual's rent depends on the number of people (one or two) occupying his or her apartment. (All apartments are about the same size and layout.) Each renter with an apartment to himself or herself paid \$4,250 for the 2002-2003 academic year. The single occupant rent rose to \$4,800 for the 2003-2004 academic year – an 11% increase. Double-occupancy renters paid \$2,800 in 2002-2003 and \$3,800 in 2003-2004 – a 36% increase.

¹¹ Like most student housing, Morrison Manor has extremely high tenant turnover since most students move out of the area for the summer and find new housing when they return.

¹² The three appraisers were Len Berdan MAI of CB Richard Ellis, Walter Kresge MAI of Albright-Kresge Inc. and Bruce Bauer MAI SRA of Bauer Appraisal Group. Bauer appraised Morrison Manor in 2001.

attributable to the retrofits of \$687,305 or 42.5% of the total value of the property. The incremental value was produced by a \$320,437 investment in the retrofits – thus, the return on investment for the retrofits was 214.5%.

The above analysis is summarized in the Table 1 below. For illustration purposes only, in addition to Klimkewicz’s estimate of the minimum possible revenue contribution attributable to the retrofits a second less conservative scenario of \$100,000 is included.

Table 1: Two Scenarios Modeling Financial Impact of the Efficiency Retrofits

	Conservative	Mid-case
Additional rent from energy retrofits	\$85,000	\$100,000
Additional energy costs to owner	\$19,706	\$19,706
NOI due to retrofits	\$65,294	\$80,294
Cash-on-cash for retrofits	20.4%	25.1%
Incremental property value of retrofits	\$687,305	\$845,200
Incremental value per square foot	\$15.2	\$18.6
Retrofits' ROI in property value	214.5%	263.8%

Property Sale

MRK sold Morrison Manor for \$1.79 million in a transaction that closed in June 2005, less than two years after beginning the efficiency retrofits. The buyer was Merlon Associates, a real estate investment firm based in New York City.¹³ Klimkewicz bought the property in 2000 for \$750,000. He invested about \$100,000 of his own money in July 1999 and another \$50,000 in the summer of 2000, financing the balance. He cleared \$669,000 at the sale after all financing and closing costs – an annual return on his investment of 31%.

Klimkewicz was satisfied with the sales price, which was somewhat higher than the property’s capitalized value based on 2003-2004 net operating income (above). The appreciation of Morrison Manor’s property value outpaced that of comparable local properties in the 2000-2005 time period.¹⁴

¹³ After the sale, the property name was changed to “College Hill Apartments, Student Housing.”

¹⁴ See for example <http://www.fdic.gov/bank/analytical/stateprofile/NewYork/NY/NY.pdf>.

Conclusion

As the largest single operating expense in many apartment buildings, energy costs are usually an important factor in building value. Energy costs therefore merit great attention from appraisers, lenders, building owners and managers. Investments in energy efficiency can produce excellent returns in the value of a building. This is especially true in buildings such as Morrison Manor, where investing in energy improvements can significantly increase revenue and net operating income.

Efficiency retrofits can immediately improve cash flow and property value, which can quickly be realized through sale of the building. The Morrison Manor efficiency retrofits resulted in an increase of at least \$687,305 or \$15.20 per square foot in the in the property's value – a 42.5% increase. Every dollar invested yielded \$2.14 in increased property value.

Acknowledgments

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This case study is based on review of financial statements and documents as well as interviews with individuals directly connected with the events and decisions described.

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MRK Real Property, LLC
Profit & Loss
August 2002 through July 2004

	<u>Aug '03 - Jul 04</u>	<u>Aug '02 - Jul 03</u>
Ordinary Income/Expense		
Income		
Fee Income		
Laundry	2,204	2,443
Vending Commissions	2,564	145
Total Fee Income	4,768	2,588
Rental	498,484	340,767
Total Income	503,252	343,355
Expense		
Advertising	3,441	1,398
Automobile Expense	1,680	634
Bank Service Charges	5	396
Cable Television	7,855	6,390
Contributions	700	
Court fees	1,600	2,298
Dues and Subscriptions	30	32
Insurance		
Property Insurance	49,696	25,012
Total Insurance	49,696	25,012
Licenses, Permits, etc.	33	419
Maintenance		
Cleaning	8,505	4,846
Grounds Maintenance	4,987	2,009
Pest Control	626	691
Sewer	278	702
Maintenance - Other	137	114
Total Maintenance	14,532	8,362
Payroll expense	1,225	2,091
Printing and Reproduction		385
Professional Fees		
Book keeping	92	
Commission	472	
Consulting	610	322
Legal	2,000	2,000
Management	26,000	18,000
Total Professional Fees	29,174	20,322
Refund		8,512

Repairs		
Building Repairs	11,271	9,313
Equipment Repairs	411	139
Total Repairs	11,682	9,452
Security		
Fire Safety	844	1,121
Locks & Alarms	2,300	1,959
Security - Other	5,247	4,920
Total Security	8,390	8,000
Supplies		
Building supplies	15,253	15,167
Building supplies - HD	3,883	
Office Supplies	4,740	6,562
Paint supplies	748	527
Supplies - Other	746	
Total Supplies	25,371	22,256
Taxes		
Payroll taxes	18,745	16,837
Property	33,624	40,578
Total Taxes	52,369	57,415
Telephone	13,574	3,267
Trash Removal	6,914	4,406
Travel & Entertainment	110	733
Utilities		
Gas (normalized)*	37,132	
Electric (normalized)*	8,569	25,996
Water	13,773	13,351
Total Utilities	59,474	39,347
Wages		
Maintenance Salaries	20,724	15,570
Manager Salaries	26,412	22,667
Onsite Employee Salaries	14,683	2,666
Wages - Other		5,678
Total Wages	61,818	46,581
Total Expense	349,674	267,710
Net Operating Income	153,578	75,645

* Normalized and equalized energy costs are from September 2004 Taitem Engineering case study