

**272 North Front Street
Wilmington, North Carolina**

Summary

The historic 44,000-square-foot, mixed-use office building at 272 North Front Street in Wilmington, N.C., is an outstanding example of how continuous capital improvements and targeted retrofits can substantially improve energy efficiency and property performance. Punctuated with the installation of a building management system in 2012 and a new central chiller in 2013, the property achieved a 21 percent reduction in annual energy costs in 2013 that generated \$11,100 in annual energy savings to the owner. The retrofits yielded an unleveraged internal rate of return (IRR) of 29.6 percent, an annual return on investment (ROI) of 22 percent, and net present value (NPV) of \$138,666. The improvement was so significant that the building’s rated performance climbed from the market average to qualifying for ENERGY STAR certification. The improve-



Figure 1: 272 North Front Street in Wilmington, NC

“With energy, you can either pay now (in improvements) or pay later (in higher energy use). We seek out good investments that let us secure future savings.”

—Melissa Malkin-Weber, Sustainability Director, Self-Help Credit Union

ments also contributed to a more comfortable environment for tenants, which helps with tenant retention and net operating income, making the building a more valuable asset for its owners. The building’s increased performance can be reflected in numerous adjustments to its appraised value—possibly as much as a \$217,504 increase as a result of a cap rate adjustment.

Lessons Learned

- Energy efficiency improves property operations, and in the case of Self-Help helps preserve an affordable rent structure for local and civic-minded businesses.
- Capital improvement plans and operating budgets can be used to achieve measurable efficiency improvements.
- When available, utility rebates can offset a significant fraction of the cost of retrofit projects and are worth using strategically within the context of a capital improvement plan.
- With market rents below \$15 per square foot, savings on energy efficiency can contribute meaningfully to property cash flow.
- Building management systems can yield returns on investment through savings while facilitating responsiveness to tenant comfort concerns.

- Major capital improvements may initially appear to require long paybacks. However, they can lead to lower capital reserve requirements and a more competitive asset in their local market—which may earn an adjustment to a lower cap rate that can cause the project to pay off immediately and be highly profitably to the owner’s balance sheet.

Background

A long-time home for a local department store, the building on North Front Street was originally built as a dry goods store in 1906. Owned and operated by the non-profit organization Self-Help since 2000, the property is located in the city’s redeveloping downtown. It now houses offices above ground-level retail space. The offices are occupied by 17 tenants that include small businesses and non-profit organizations, while the ground-floor retail space is occupied by an outdoor supply retailer.

Self-Help provides financial services and community-centered investment throughout North Carolina. The organization has significant real estate holdings, with a portfolio value of approximately \$100 million across 18 properties and 750,000 square feet of space.

As part of its commitment to reduce energy use and improve building performance, Self-Help employs Sustainability Director Melissa Malkin-Weber to lead Self-Help’s sustainability efforts, including building upgrades. Her work includes utilizing capital reserves, sourcing other

company funds, and taking advantage of rebates from North Carolina’s two ratepayer-funded utilities. “With energy, you can either pay now (in improvements) or pay later (in higher energy use),” says Malkin-Weber. “We seek out good investments that let us secure future savings.”

Self-Help’s long-term strategy for investing in efficiency measures is a best practice for locally owned buildings and investors holding small- and medium-sized portfolios—real estate holdings that constitute a large share of U.S. commercial building stock outside of “24 hour” markets.

When it comes to efficiency, Self-Help’s portfolio benefits from a few factors. Unlike many institutional investors, Self-Help’s longer hold periods allow the company to make investments with longer investment horizons or ROI.¹ Additionally, Self-Help structures many leases so that all energy and water bills are included in the rent, which eliminates the split-incentive that often hampers landlord investment in efficiency.² In this lease structure, efficiency gains translate into avoided utility costs, which accrue directly to the landlord’s net operating income (NOI), where they contribute to property value. As a developer and owner revitalizing North Carolina’s mid-sized cities, Self-Help is able to use these savings to make money and preserve an affordable rent structure for local and civic-minded businesses. The success of its model has allowed

1 Because of its commitment to long-term holds, Self-Help targets can include investments with longer (simple payback) ROIs. For many institutional owners, even short paybacks (less than two to three years) can be disqualifying for property and asset managers who might place capital elsewhere in the building or portfolio. With the use of third-party capital or consideration of the leveraged payback of these investments, off-balance sheet impacts and corresponding valuation improvements can shift calculations considerably.

2 These leases are full-service gross leases. They incent efficiency investments by landlords, but don’t address the portion of the split incentive problem relating to tenant behavior. In larger buildings where owners are responsible for utility bills, owners may additionally benefit from installing separate or sub meters for the tenants to pay for the costs of the electricity to power equipment in their tenant spaces. See www.greenleaselibrary.com for more.

Building Information

Owner: Self-Help

Location: Wilmington, North Carolina

Building Type: Mixed-Use Retail and Office

Size: Five stories; 44,000 square feet

Year Built: 1906

the company to contribute to the renaissance of central business districts from coastal Wilmington to the mountain city of Asheville, N.C.

Building Improvements

As part of its overall effort to improve the performance of its properties, Self-Help consistently undertakes energy efficiency improvements within its portfolio. The company's efforts rely on a capital improvement budget and other available funds such as rebates from North Carolina's two investor-owned utilities. At 272 North Front Street, Self-Help undertook two significant retrofits: the installation of a building management system and a new chiller.

Building Management System. In September 2012, Self-Help installed a building management system that includes controls for the rooftop chiller plant, 59 fan coils monitors over five floors, and HVAC controls for the elevator bay. Previously, these mechanical components were controlled with a pneumatic system. The new system allows the property manager to create setpoints for heating and cooling levels to optimize system operation based on building use throughout the day, overnight, and when the building is unoccupied.

In addition, the Trend Controls IQ system allows Self-Help's property management team in Durham to monitor building performance remotely via the Internet. This remote-access capability benefits Self-Help's portfolio as a whole, as it allows the company to bring a sophisticated,



Figure 2: A screenshot from the building management system's online monitoring platform.



Figure 3: The building's chiller was replaced in 2013.

Efficiency Measures

- **Building Management System** including start-up, status, override, other sensors for central chilled water plant, fan coil units (59 total) and elevator bay (2012)
- **New Chiller Plant**, installed as part of capital improvement program (2013)

hands-on management strategy for energy-use and occupant comfort to buildings too small to justify the expense of a dedicated full-time property manager.

For buildings that have dedicated property managers, the real-time monitoring enables the manager to react immediately to both diagnostic and maintenance issues on site. At smaller facilities such as 272 North Front Street, the larger property management team can deploy a local property management company that works part-time on a contract basis. Self-Help's Building Maintenance Manager Howard Brown explains this

makes it easier to sort out tenant comfort issues, noting that “if a tenant calls and says their suite is cold, we can look at the monitor and know if it’s an issue or a red herring. We know they can’t be cold when it’s 76 degrees.”

Project costs were \$49,875, with Progress Energy, the local utility, providing a rebate of \$8,248, thereby lowering Self-Help’s effective cost to \$41,627 (excluding staff time).

Chiller Replacement. In July 2013, the company replaced the building’s chiller plant as part of the property’s capital improvement program. The new 77.4-ton, energy-efficient unit, with an Integrated Part Load Value (IPLV)³ Energy Efficiency Ratio (EER) of 15.5, was installed at a cost of \$89,089. A Progress Energy Utility rebate offset \$2,709 of the cost, lowering the effective cost to \$86,380.

The new unit improved indoor comfort and reduced maintenance needs. According to the Property Manager Chip Forsythe, prior to the retrofit, the previous chiller required frequent service calls for the unit and additional maintenance for the building. “Even when the unit worked well, it didn’t do the best job dehumidifying the air, which also meant condensation on chiller lines above the dropped ceilings,” Forsythe noted. “We were constantly replacing ceiling tiles, five to six a month. Now we may only do five a year.”

Additional Building Improvements. In addition to the larger system retrofits described above, Self-Help requires that above-code energy efficiency measures be incorporated into tenant build-outs as part of tenant turnover. With 17 tenants over five floors, small tenant retrofits in the North Front Street building are

³ IPLV is a measure of the performance of a chiller capable of capacity modulation, instead of one which runs only at peak capacity. At full load, the unit’s EER is 10.3. Compared to conventional units, this feature allows the unit to achieve higher performance.



Figure 4: An office suite on the building’s fourth floor will be built out to include energy-efficient lighting and other features.

commonplace and lead to steady improvements in energy use. Typical features, as seen in a fourth floor accounting office currently under construction (shown above), include new perimeter heating units, high-efficiency fluorescent lamps, and LED exit signs. The incremental costs of these measures are not tracked in detail; rather, they are considered part of good practice and in some cases are borne by the tenants and charged against tenant improvement budgets. In addition, common space improvements are ongoing, particularly in circulation cores on each floor. As major tenants depart, the team seeks cost-effective upgrades, including the replacement of obsolete T12 lighting and the addition of motion sensors. Additionally, the company plans to convert existing stairwell lighting to LED lights in 2015.

Results

Property performance improved following the retrofit efforts. In 2013, energy costs declined 21 percent from the prior year, equating to more than \$11,100 in annual energy costs. These savings were tracked using the Environmental Protection Agency’s Portfolio Manager, a free tool that property and portfolio owners can use

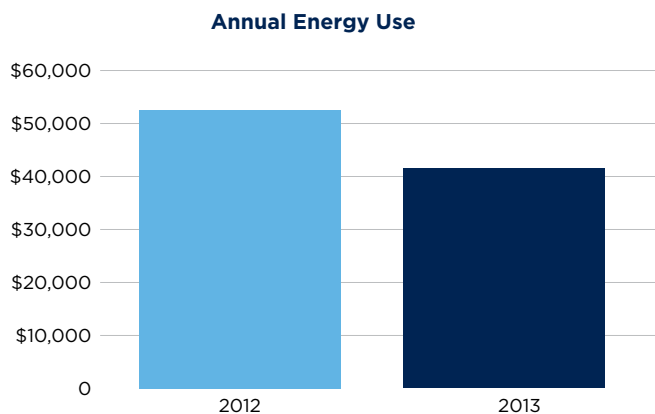
to monitor energy use within their portfolios. The tool provides energy use intensities (EUI, or building site energy use per gross square foot of building area) and annual utility costs. The tool can also provide an EPA ENERGY STAR Score that benchmarks a building's energy use against its peers (whereby offices are benchmarked against offices, schools against schools, etc.). The retrofit efforts undertaken improved the building's ENERGY STAR score from 62 to 84—a significant jump that could qualify the building for ENERGY STAR certification and potential property value adjustment due to competitiveness in market.

Because the chiller was replaced in July 2013, the energy savings shown from 2012 to 2013 do not reflect a full year of savings. Additional savings from this retrofit are expected to be seen in 2014 data.

Financial Performance and Property Value

Office properties in Wilmington's downtown core trade for capitalization (or "cap") rates from 8 percent to 10 percent. Local experts suggest that 272 North Front Street's cap rate would fall into the middle of this range. Using a 9.86 percent cap rate, the value creation via the income capitalization approach to value due to avoided energy costs

Figure 5: Annual energy use of 272 North Front Street has declined.



Property Improvements	2012	2013	Improvement (%)
Normalized Site EUI	61.3	44.2	28%
ENERGY STAR Score	62	84	35%
Annual Energy Cost	\$52,618.32	\$41,511.87	21%
Annual Water Cost	\$3,499.87	\$3,040.86	13%

Figure 6: Four metrics highlighting property improvements from 2012-2013

is \$112,576 ($\$11,100 / .0986$).⁴ Comparison of the value creation to capital invested can be presented in two scenarios, one where the planned chiller replacement is included and another where this expense is considered non-discretionary. Between the two significant retrofits, Self-Help invested a total of \$128,007 after utility rebates. Comparing this investment to the capitalized value of avoided energy costs suggests that Self-Help realized an immediate return on its investment through income capitalization alone. Discounting the planned chiller replacement (over \$86,000) would lead to an even stronger argument for value creation. The replacement of the property's most expensive piece of HVAC equipment (the chiller) can also be expected to create value by lowering the required reserves—capital set aside to maintain the property and pay for both modest and significant repairs. This will have the impact on the building's operating statement of eliminating the need to reserve funds for repair, increasing bottom line results. The durability of these savings is predicted to be strong considering the 30-year expected life of the chiller and the building management system.

Income capitalization of added NOI achieved via utility bill savings and lower reserve amounts

4 The income capitalization, one of three appraisal methodologies for commercial buildings, is a straightforward calculation, where net operating income is divided by a market capitalization rate (cap rate) to determine value. Under this methodology, avoided energy costs accrue directly to NOI, which translates into value. Income capitalization is often more appropriate than discounted cash flow (DCF) analysis when the lifetime of the improvement measures are long, as is the case for this property. This direct capitalization of energy savings assumes "all other factors being equal."

<p>do not capture the full value implications of this retrofit. Improved tenant comfort and measurable upgrades to the building might also earn a cap rate adjustment, reflecting the improved condition and competitiveness of the asset within the market. In several studies of U.S. markets,⁵ ENERGY STAR-labeled buildings on average have higher rents and occupancy premiums, and sell for higher prices even after controlling for age, location, and other factors. Higher sales prices likely reflect not only higher revenue, but also the fact that in many markets appraisers and investors perceive that third-party-certified high-performance buildings bear less risk and so merit lower cap rates. A full appraisal would consider recent comparable transactions and methodology, and might be able to make well-founded adjustments to the capitalization rate. Under this hypothetical scenario, a modest cap rate adjustment of a quarter point to 9.61 percent would yield a value increase of \$106,331. A half point cap rate improvement (9.36 percent) would lead to an even greater value increase of \$217,504.⁶ With a current appraised value of \$4.056 million (and a basis lower than \$1 million) the value adjustments attributable to high-performance features add considerable value to the company's asset. Under this scenario, a half point cap rate adjustment would increase building value by 5.4 percent.</p> <p>Further analysis of incremental asset value might be achieved by creating a simple present value calculation over a typical hold period, although this would not capture the improved terminal cap rate or the reduction in risk created by these upgrades. Additionally, a more detailed discounted cash flow (DCF) model offers one alternative for modeling the energy efficiency</p>	<div data-bbox="873 121 1062 159" data-label="Section-Header"> <h2>Key Results</h2> </div> <ul data-bbox="873 222 1479 810" style="list-style-type: none"> ■ Weather-normalized annual energy use decreased by 28 percent, achieving ENERGY STAR-level performance. ■ Reduced electricity, gas, and water use (21 percent energy cost savings, 13 percent water cost savings) ■ Unleveraged ROI of 22 percent assuming 20 year useful life and discounting the planned chiller replacement ■ Immediate return on capital invested with income capitalization of avoided energy cost alone; additional value adjustments possible ■ Annual utility savings of \$11,565 <p>improvements and long-term impacts of these and non-energy savings. These factors would include the durability of improvements, projected changes in utility prices, projected rent increases, lower reserves, and improved occupancy due to higher tenant satisfaction. A full DCF is omitted from this study for brevity but is frequently included in full appraisals.</p> <p>In lieu of a DCF, other property performance metrics demonstrate the strength of the investment. For an investment of only \$41,627 for the discretionary BMS system, the retrofits yielded an unleveraged annual ROI of 22 percent, an IRR of 29.6 percent, and an NPV of \$138,666. This IRR takes into account backing out the \$86,380 effective cost of the new chiller, which was necessitated by the age of the old chiller and paid out of replacement reserves. Additionally, these improvements would yield a higher IRR if the investments were leveraged.⁷</p>
<p>5 Studies on the value premium of ENERGY STAR buildings can be found on IMT's website. Cap rate adjustments associated with ENERGY STAR performance or other favorable attributes would need to be based on market observations to be integrated into an appraisal.</p> <p>6 These calculations assume a baseline NOI of \$400,000 per year.</p>	<p>7 The IRR assumes a 5 percent discount rate. This discount rate is considered conservative because Self-Help is a depository institution and has a low cost of capital. Energy prices are escalated by 3.2 percent annually, based on the average increase tracked by the Energy Information Administration (EIA) statewide over the prior five year period.</p>
<div data-bbox="110 1982 990 2011" data-label="Page-Footer"> <p>6 Valuing Energy Efficiency: 272 North Front Street, Wilmington, North Carolina</p> </div>	

Conclusion

The retrofits to Self-Help's 272 North Front Street are a big success, achieving 21 percent energy cost savings and earning a score in Portfolio Manager that would qualify for an ENERGY STAR designation. The annual energy savings of \$11,100 contributed significantly to asset value in excess of the cost of the retrofits, leading to a

more productive asset with an unleveraged IRR of 29.6 percent. A value increase attributable to a cap rate adjustment might also add a value increase of up to \$217,504. As a result of this successful project, Self-Help intends to replicate its success by continuing retrofit efforts at this building and elsewhere in the company's portfolio.

Written by John Miller, Institute for Market Transformation.

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The Institute for Market Transformation (IMT) is a Washington, DC-based nonprofit organization promoting energy efficiency, green building, and environmental protection in the United States and abroad. IMT's work addresses market failures that inhibit investment in energy efficiency and sustainability in the building sector. For more information, visit imt.org.

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