WISHROCK INVESTMENT GROUP CONDUCTS ON-SITE ENERGY AUDITS UTILIZING THE EZ RETROFIT TOOL

SOLUTION OVERVIEW
Wishrock Investment Group’s goal was to assess the energy and water savings potential of its five properties in Mississippi, and create a utility efficiency action plan for them. All five properties faced aging infrastructure and deferred maintenance issues, as well as recurring resident and staff complaints regarding building performance problems. Lacking access to qualified building performance assessment professionals in the state, Wishrock took advantage of the U.S. Department of Housing and Urban Development’s Better Buildings Challenge technical assistance program. The company engaged a consultant to identify cost-effective energy and water efficiency upgrades using the free online EZ Retrofit Assessment Tool. Wishrock then contracted with an energy services company (ESCO) to create scopes of work and implement the recommended upgrades.

Wishrock develops and invests in affordable housing properties nationwide. Collectively, its principals have developed or redeveloped more than 11,000 units of affordable multifamily housing since the early 1970s. Wishrock’s primary focus is on preserving quality affordable housing for low-income residents, while also conserving energy and water, lowering utility costs, and improving indoor air quality and resident comfort. The company joined the Better Buildings Challenge in 2014 and is actively working to reduce its energy consumption by 20 percent within a decade.

ORGANIZATION TYPE
Affordable Housing

BARRIER
Wishrock wanted to create a state-wide energy efficiency plan with scopes of work for its properties in Mississippi but faced a shortage of energy efficiency assessment professionals to conduct energy audits.

SOLUTION
Build upon the collected utility data that had been gathered from a companywide benchmarking effort while leveraging the EZ Retrofit energy audit tool.

OUTCOME
Wishrock collected sufficient utility and building-level data to create working EZ Retrofit Tool

https://betterbuildingssolutioncenter.energy.gov/implementation-models/wishrock-investment-group-conducts-site-energy-audits-utilizing-ez-retrofit

For more information, visit https://betterbuildingssolutioncenter.energy.gov
energy models, and used them to generate a statewide efficiency plan and energy performance contract (EPC) scopes of work.

**PROCESS**

Having begun the benchmarking process for its entire portfolio, in 2016 Wishrock was looking for an in-depth analysis of the energy savings potential of each area of the country where it has property holdings. Staff were aware that the five properties in Mississippi had a mix of efficient but dated mechanical systems, fixtures, and building elements. Wishrock wanted to create a utility efficiency investment strategy for its Mississippi portfolio, and needed to develop scopes of work for its properties there. Upon investigation, the organization found that there were no qualified contractors in the state to conduct multifamily building energy audits. As a Better Buildings Challenge (BBB) partner, Wishrock was able to access HUD’s BBB technical assistance funding to engage a third party consultant, ICF, to collect all available utility data on the properties and conduct on-site energy and water audits using Stewards of Affordable Housing for the Future’s EZ Retrofit Tool.

The consulting team worked with Wishrock’s property management firm and benchmarking provider to collect the properties' basic building characteristics, e.g. square footage, number of units, primary fuel types. The team also collected all available utility consumption and cost data from Wishrock’s benchmarking provider, Wegowise, and from data in Portfolio Manager. All data was entered into the EZ Retrofit Tool’s checklist.

Once on site, the consulting team interviewed property managers and maintenance staff and conducted tours of the facilities, to learn about challenges faced with the building envelope, equipment and mechanical systems. The team documented existing conditions with notes and photographs, and completed the EZ Retrofit checklist to run the tool’s calculations of all inputted data. The EZ Retrofit Tool used the data to assess energy and water savings potential for the buildings, comparing their site energy use intensity and water use intensity with similar buildings nationwide.

The EZ Retrofit Tool generated an audit report with recommendations for system improvements to help Wishrock maximize savings. Each recommendation contained a detailed analysis that included potential consumption and cost savings, installation cost estimates, expected useful life, and payback period. The tool created a series of graphics and charts to easily visualize retrofit savings.

Wishrock contracted with ICAST, a non-profit ESCO, to develop an energy performance contract (EPC) and implement the energy and water efficiency improvements. To complete the EZ Retrofit reports, the ESCO adjusted several of EZ Retrofit’s default metrics, such as baseline equipment and system assumptions, to reflect actual building conditions. Three of the five properties also had gaps in resident utility data, so the team filled in the missing data with engineered estimates.

The assessments showed that the buildings’ HVAC and domestic hot water systems had a range of aged components that needed to be updated or made more uniform. Split system AC units with...
integrated heating coils in apartment units could be replaced by air source heat pumps to realize significant energy savings. Lighting in both residential spaces and common areas needed to be updated with LED lamps. Finally, conductive and air leakage energy losses in both the building envelope and the HVAC duct systems could be reduced by installing a hot-roof (unvented roof) insulation assembly.

FINANCING
Wishrock used Replacement Reserve Funds, operating funds, and utility incentive funds to finance improvements. Replacement Reserve Funds are amounts set aside each month for capital improvements, providing for the replacement of building components that wear out more rapidly than the building itself. Because the properties are HUD-assisted, Wishrock obtained permission from HUD to access these funds.

Wishrock chose ICAST to administer the EPC due primarily to the company’s inclusion of utility incentives in its proposal, which reduced the projects’ overall costs. These included rebates from the local gas company for tuning HVAC systems. The terms of the EPC placed responsibility for applying for and receiving the rebates on the ESCO, which reduced the time and paperwork burden on Wishrock.

POLICIES
As part of the company’s nationwide benchmarking initiative, Wishrock’s policy is to have tenants sign utility data privacy release forms at move-in, allowing the company to collect tenants’ energy and water consumption data from the utilities directly. Wishrock also obtains release forms as properties are added as “whole building” data properties in the benchmarking portal.

Utility data is maintained in the benchmarking portal and is available to every Asset Manager within the company. Asset Managers discuss any relevant data during regularly-scheduled meetings and share information to the executive committee as needed. Quarterly reports are obtained through the portal and provided to the property management company. Additionally, some property management personnel have access to the portal.

OUTREACH
Wishrock’s consultants reached out to the property management firm of the buildings to get all properties’ basic building characteristics. They also coordinated the collection of utility energy and water data with the benchmarking provider and interviewed Wishrock management regarding each property’s energy efficiency history, concerns, and future plans. Finally, the team interviewed property managers and maintenance staff prior to touring the facilities.

TOOLS AND RESOURCES
The EZ Retro Fit Tool is a free Excel-based audit tool that gives multifamily property owners and managers an easy way to identify cost-effective energy and water efficiency upgrades. EZ Retrofit can be used for small-to-medium multifamily properties in any climate zone. The tool was created by Stewards of Affordable Housing for the Future, together with ICF International and Bright Power, Inc. under a grant from the U.S. Department of Housing and Urban Development’s Energy
Innovation Fund.

**Example:** EZ Retrofit Report for *Madonna Manor*, Jackson, Mississippi

**Example:** North Hill Place Apartments Cover Report

**MEASURING SUCCESS**
To gauge success, Wishrock used ICAST’s energy models to measure savings against a baseline year, as shown in the charts below. Wishrock also benchmark’s its energy consumption and posts results annually on its profile page of the Better Buildings Solutions Center. Wishrock is not presently able to collect tenant utility data at its Mississippi properties, so cannot provide actual utility savings figures.

For more information, visit [https://betterbuildingssolutioncenter.energy.gov](https://betterbuildingssolutioncenter.energy.gov)
North Hill Place – ICAST & Earth Water Retrofit Scopes –
Electricity


Actual Savings

<table>
<thead>
<tr>
<th></th>
<th>kWh per year</th>
<th>kWh after 7 months</th>
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<tbody>
<tr>
<td>27.59% per year</td>
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Cost Avoidance

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<th>per year</th>
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<tr>
<td>$4,735</td>
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<td>$2,762</td>
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Actual vs. estimated monthly usage in kWh

The baseline model is an estimate of the building's expected usage in the absence of the upgrade. Both the actual usage and baseline model use the same historical weather data, allowing a direct comparison of performance.

![Chart showing actual vs. estimated monthly usage in kWh]

For more information, visit [https://betterbuildingssolutioncenter.energy.gov](https://betterbuildingssolutioncenter.energy.gov)
Wishrock Investment Group Conducts On-Site Energy Audits Utilizing the EZ Retrofit Tool - Better Buildings Solution Center

**North Hill Place – ICAST & Earth Water Retrofit Scopes – Water**


### Actual Savings

<table>
<thead>
<tr>
<th></th>
<th>Gallons per year</th>
<th>Gallons after 6 months</th>
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<tbody>
<tr>
<td>45.18% per year</td>
<td>1.13M</td>
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### Cost Avoidance

<table>
<thead>
<tr>
<th></th>
<th>per year</th>
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<tr>
<td>$11,535</td>
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**Actual vs. estimated monthly usage in Gallons**

The baseline model is an estimate of the building’s expected usage in the absence of the upgrade. Both the actual usage and baseline model use the same historical weather data, allowing a direct comparison of performance.

OUTCOMES

The ESCO hired local contractors to complete retrofits of four of the five properties in 2017/18. Wishrock installed LED lighting in all tenant units and common areas, provided tuning and maintenance of HVAC systems within Commonwealth Village and Lincoln Gardens, installed sink and showerhead aerators and replaced toilets at Overlook Apartments. Upgrades at the fifth property, Madonna Manor were postponed due to possible plans to redevelop or refinance the property.

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After gathering nearly one year of data, Wishrock is very satisfied with the results that provide healthy, comfortable and affordable homes to over 500 residents in Mississippi. Below are selected reports demonstrating consumption and cost savings in key areas.

According to ICAST’s models of whole building energy consumption, the following improvements have been realized:

- Overlook Apartments has realized 36 percent electricity savings compared to the baseline year;
- North Hill Place has seen 28 percent;
- Lincoln Gardens has achieved 36 percent; and
- Commonwealth Apartments’ gas consumption has dropped by 44 percent.

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Cost</th>
<th>Rebates &amp; Grants</th>
<th>Net Cost</th>
<th>~Annual Savings</th>
<th>Simple Payback</th>
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<tbody>
<tr>
<td>Overlook Apartments</td>
<td>$65,757</td>
<td>0</td>
<td>$65,757</td>
<td>$32,552</td>
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<td>North Hill Place</td>
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<td>Lincoln Gardens</td>
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<td>$15,524</td>
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<td>Total</td>
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