



GREEN WORKS ORLANDO RETRO-COMMISSIONING 101



Few measures are more important to the building energy improvement process than energy audits and retro-commissioning. Like routine service on an automobile, these measures can identify building energy performance issues, assess opportunities to improve performance and fine-tune systems to ensure maximum energy efficiency.

WHAT IS RETRO-COMMISSIONING?

Commercial building systems frequently undergo operational adjustments and occupancy changes that hinder optimal performance over time. However, in many cases, these systems require fine-tuning rather than replacement. On average, half of the potential savings in a building come from better equipment (identified by an audit) and half from better performance of existing systems (tuned up in retro-commissioning).

Retro-commissioning provides a study and re-tuning of mechanical, electrical and controls systems that identifies opportunities to reduce energy consumption through the repair of existing equipment in a building. Depending on the age of the building, retro-commissioning can often resolve problems that occurred during design or construction, or address problems that have developed throughout the years of a building's life. Following the assessment, building owners are presented with the results, identifying any defects or original design variances, and an itemized list of fine-tuning options with estimates of the investment required and payback, as well as documentation and staff training.

No matter how well building operators and service contractors maintain equipment, if it operates inefficiently, energy waste and reliability problems can occur. Retro-commissioning ensures that systems are functioning as originally designed and performance is optimized.

WHAT ARE THE BENEFITS?

BUILDING OWNERS AND MANAGERS gain improved system operation beyond preventive maintenance, extended life of the equipment, increased operations and maintenance staff capabilities and expertise and increased asset value, while experiencing fewer occupant complaints and reduced operational expenses.

BUYERS AND TENANTS are more comfortable, enjoy improved indoor environmental quality and see declines in operating and pass-through costs as energy efficiency measures are implemented.

THE LOCAL COMMUNITY benefits from reductions in energy use across buildings that, as with auditing, lead to reduced carbon pollution, improved outdoor air quality and increased resilience to extreme weather effects.

GREEN WORKS ORLANDO GOALS BY 2040



Reduce city-wide energy use intensity by 20%



Reduce greenhouse gas emissions by 90%



Ensure 100% new construction are green buildings



Ensure that 100% of electricity is from renewable energy (by 2050)



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HOW IS RETRO-COMMISSIONING PERFORMED?

Owners of buildings with benchmarking performance scores under the Orlando building performance average will have the option to either complete a free energy audit or, as an alternative path to compliance, submit a summary report that certifies retro-commissioning was completed by a certified agent and/or licensed professional. As with the audit option, lower performing buildings will need to conduct retro-commissioning once every 5 years so that buildings can achieve continual improvement as technologies advance.

WHAT ARE THE COST SAVINGS AND PAYBACK PERIOD FOR RETRO-COMMISSIONING?

Retro-commissioning can produce significant cost savings in existing buildings and a very fast payback period, averaging one year. Exact savings vary depending on the building type, its location and the scope of the retro-commissioning process, however, a comprehensive study by Lawrence Berkeley National Laboratory found average cost savings in the following ranges:

DESCRIPTION	RANGE OF VALUES
Value of Energy Savings	\$0.11 - \$0.72/sqft
Value of Non-Energy Savings	\$0.10 - \$0.45/sqft

HOW MUCH DOES RETRO-COMMISSIONING COST?

Retro-commissioning typically costs approximately \$0.30/sq. ft., which, like energy audits, varies based on the complexity of the building. Below are a few scenarios to illustrate the range of costs.

	BUILDING SIZE (SQ. FT.)	BUILDING COMPLEXITY	RETRO COST
1	40,000	Low	\$8,000
2	40,000	Medium	\$12,000
3	40,000	High	\$16,000
4	100,000	Low	\$20,000
5	100,000	Medium	\$30,000
6	100,000	High	\$40,000
7	1,000,000	Low	\$200,000
8	1,000,000	Medium	\$300,000
9	1,000,000	High	\$400,000

For more information about how you can participate in energy and water retro-commissioning, visit orlando.gov/greenworks.



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