



ENERGY EFFICIENCY AS A CAPITAL IMPROVEMENT PROJECT (CIP) CONSIDERATION IN THE BOROUGH'S SIX-YEAR BUDGET

Haines Borough Planning Commission

November 12, 2015

HAINES BOROUGH CHARTER - ARTICLE VIII

Section 8.01 Planning Commission

(A) Purpose. The Haines Borough Planning Commission shall be the sole planning body of the borough, guided by the comprehensive plan.

Section 8.03 Powers and Duties

The planning commission shall have such powers and duties as provided by this charter and subsequent borough code as prescribed by the assembly. The planning commission shall:

(E) **plan for borough capital improvements...**

Section 8.04 Comprehensive Plan

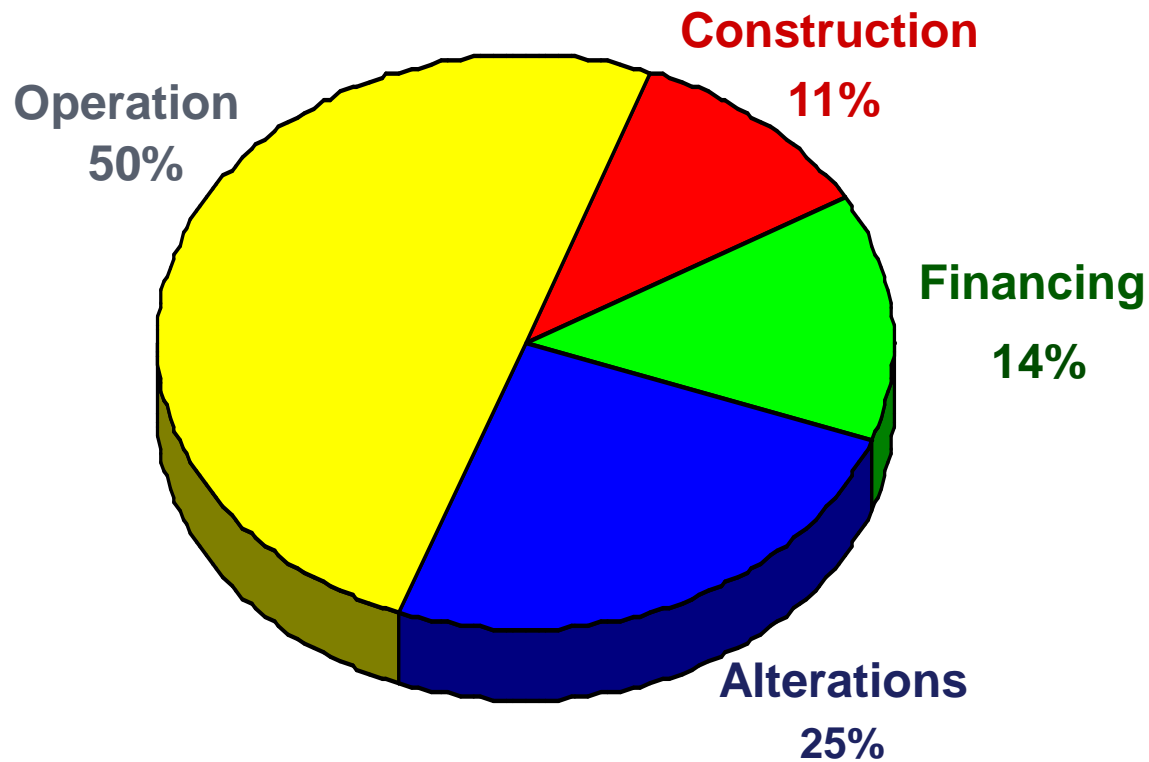
The plan shall serve as a guide for all planning commission recommendations and all assembly legislative action concerning land use and development issues. Among other prescriptions, it shall include the following:

- (1) **statements of policies, goals, and standards**
- (3) **community facilities plan**



ECONOMIC BENEFITS

THE BIG PICTURE: LIFECYCLE COSTING A BUILDINGS' COSTS OVER 40 YEARS



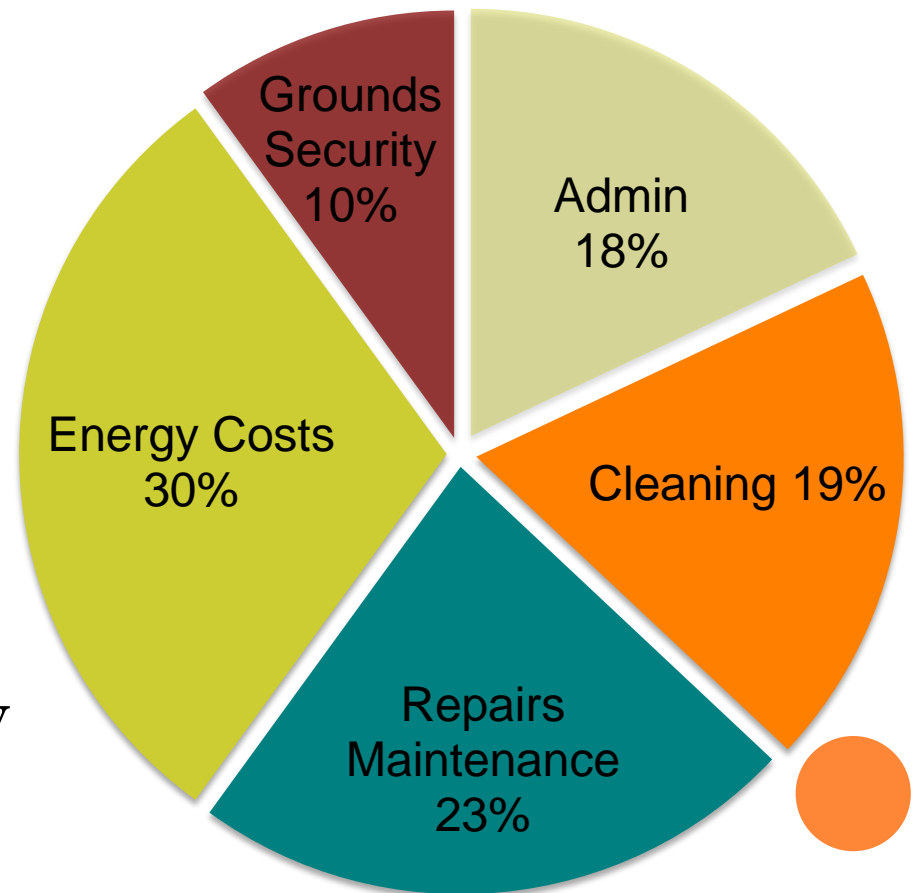
ECONOMIC BENEFITS

ENERGY EFFICIENCY

Typical Operating Costs for U.S. Office Buildings

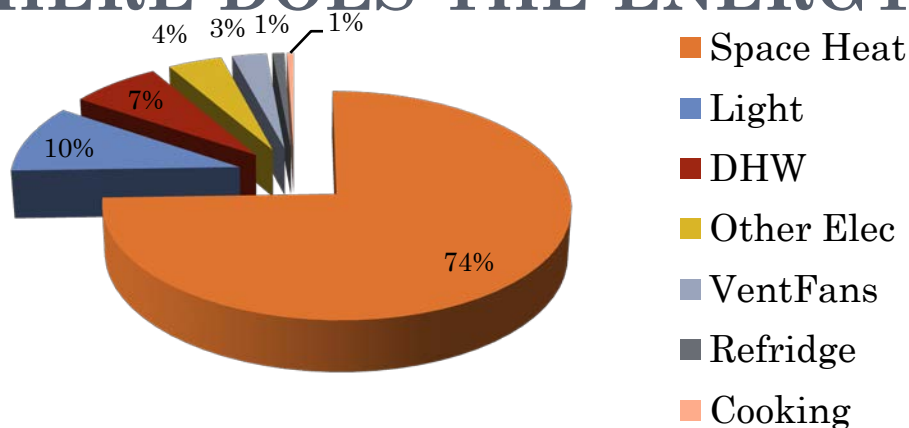
Reduced Operating Costs

- Energy costs are typically the largest portion of a building's operating budget
- EPA estimates that a comprehensive energy management strategy can reduce energy use by 30%

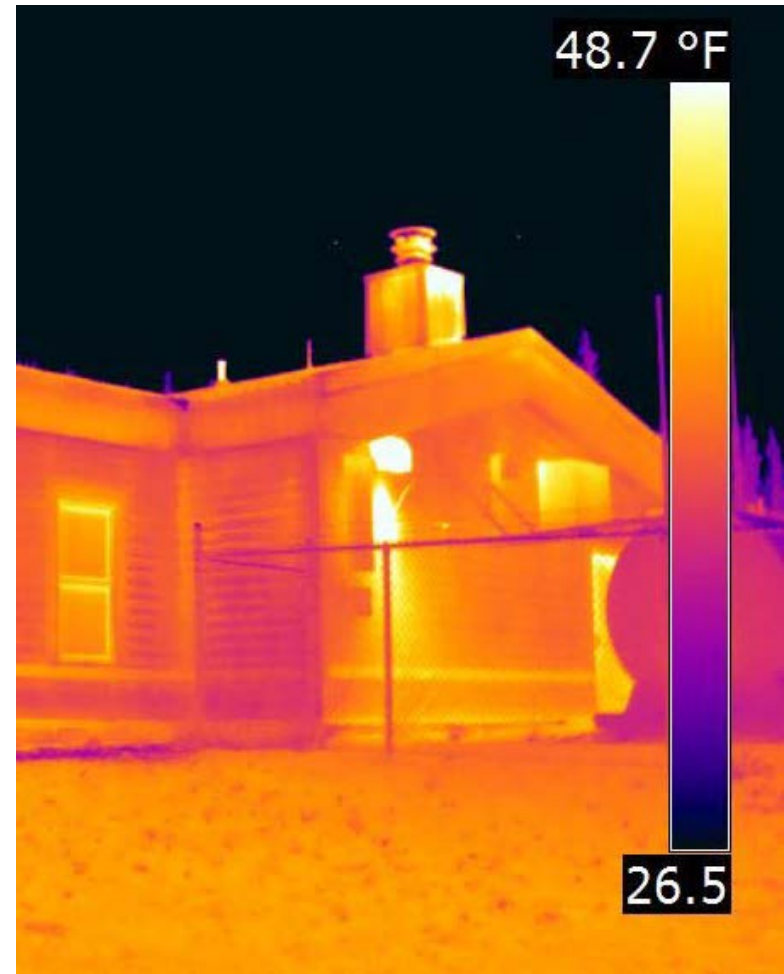
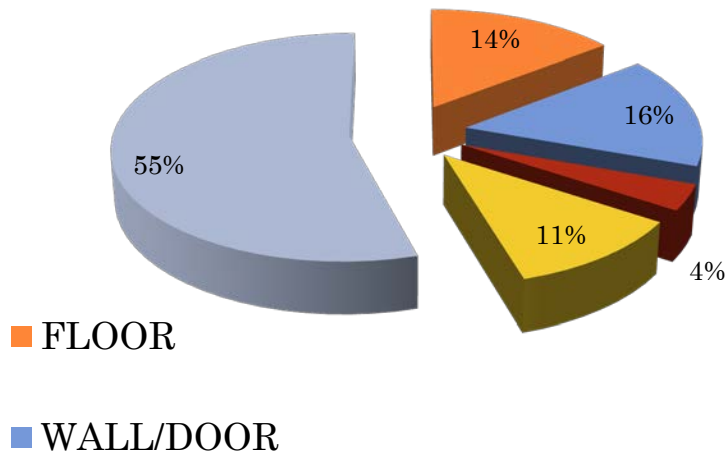


Source: BOMA Experience Exchange Report

WHERE DOES THE ENERGY GO?



SCHOOL SPACE HEATING LOSS BY COMPONENT



WHAT'S THE LOW HANGING FRUIT?



◦ Lighting

The T12 and incandescent bulbs once dominated for a lot of buildings, but those days are long gone. Lighting can be the highest energy cost – and the greatest opportunity for savings. Consider auto-switches for lights.

◦ Heating & cooling

Save as much as 30% on the total energy bill and extend equipment life. Electronic programmable thermostats automatically adjust your building's temperature at night and on weekends. They are very reliable and easy to install. Install hot water tank and pipe insulation. Plug leaks with weather stripping and caulking.

◦ Miscellaneous

Refrigeration systems are a great place to reduce energy bills (up to 24%), Computers, coffee pots, other electronics – put on timers and power strips, turn off at night.



GOLDBELT HOTEL



106 rooms, 7 stories,
over 71,000 sq.'



- Was paying over \$223,000 per year in utility costs
- Energy audit done - if you don't measure it – you can't manage it
- Audit identified potential savings over \$60,000 per year
- **Payback in under 2 years.**

Investing in EE is smart.

Energy efficiency has an almost unbeatable return on investment. Findings from AEA's Commercial Building Audit program suggest a 30% Rate of Return through the implementation of cost effective measures.



- Largest savings found in ventilation system – installed controls
- Replaced inefficient boilers, reduced hot water settings
- Just closing the drapes saved more than \$13K per year



QUESTIONS:

- Who is responsible for energy use at each facility?
- Borough Finance does a great job compiling energy use and costs. Is the info tracked?
- Who sees the energy bills?
- You can't manage what you don't measure.

The cheapest Btu (or kWh) is the one not being used. These solutions lower costs for electricity and heating.



*Be comfortable.
Save energy.
Have more money
for other
important things.*



The Planning Commission should assist the borough in energy planning. Consider whether the 6-year CIP should include energy efficiency projects as a priority that will lower the tax burden and operating costs of each facility.

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There's a high cost of delay associated with efficiency. **Invest today, save tomorrow.** Don't make those investments – it'll cost exponentially more tomorrow.



Potential Paybacks from Retrofitting Alaska's Public Buildings

Project Team: Dr. Kathryn Dodge, Nathan Wiltse, and Dustin Madden

November 21st, 2014

Prepared by: Cold Climate Housing Research Center

In 2010, Alaska's Legislature passed HB 306 establishing a statewide energy policy including the goal of "decreasing public building energy consumption through...energy-efficient technologies." That year they also passed SB 220 establishing a \$250 million Energy Efficiency Revolving Loan Fund to help fund these retrofits. In 2011, Alaska Housing Finance Corporation used American Recovery and Reinvestment funds to conduct energy audits on 327 public facilities throughout Alaska. At the same time Alaska Native Tribal Health Consortium conducted audits of over 65 health clinics, washaterias, and water treatment facilities. As a result, almost 400 public building owner/operators have received investment grade energy audits on their facilities which include a list of recommended improvements and their estimated paybacks. In 2013, the Cold Climate Housing Research Center (CCHRC) evaluated the potential payback public facility owners could realize from implementing the cost effective energy efficiency measures¹ recommended in the audits. These findings follow.

By implementing only cost effective measures, public building owners could save an average of \$21,800/year in energy savings per building, with an average simple payback of 4.5 years. Loan terms and interest rates are dependent on projected project savings, market rates, and the business decisions of the owner. Should public organizations choose to finance the auditor-estimated average improvement costs of \$82,000 through a 15 year loan² (at 3.75% interest³) from AHFC's Energy Efficiency Revolving Loan program (AEERLP) they would pay \$7,200 in annual loan payments. Since annual energy savings are estimated at \$21,800, after deducting loan payments the average public organization will save \$14,700 per year. Once the loan is paid off, assuming no change in energy costs or usage patterns, they will continue to save an average of \$21,800 per year. Alternatively, building owners could opt for a shorter loan period; annual payments on a 5 year loan for the average capital cost of improvements would be approximately equal to the average annual savings, and after 5 years organizations would reap the full benefits of reduced energy costs.

While there is variation between cost savings available per building, in general these audits have shown significant potential for public entities to reduce their energy costs by implementing energy efficiency measures. Table 1 in Appendix A shows the variation in building energy savings potential by building usage

¹ Improvements had a savings-to-investment ratio greater than 1.

² This is a conservative estimate for many recommended retrofits. Many loans could be effectively completed in a shorter time period.

³ Interest rate will vary based on market conditions and projected payback. Contact AHFC for current rates.

type; Table 2 in Appendix A demonstrates the variation by ANCSA region. Additionally, Appendix A lists the estimated potential energy savings and costs identified by the auditors for each of the buildings with adequate data by ANCSA region, community and building name along with the annual net savings the building owners would see if the retrofits were financed through AHFC's loan program.

On a state level, for an investment of \$29 million, Alaskans would save an estimated \$79 million in energy costs over the life of the energy efficiency investment, resulting in more sustainable communities. This report only addresses the approximately 400 public facilities, out of an estimated 5,000, public facilities in Alaska. While each building is unique and will vary from this average, these findings are illustrative of the savings potential available to the University of Alaska, REAAs, and Alaska municipal, tribal and state agencies. Finally, this suggests that the \$250 million Revolving Loan Fund is sufficient to finance the retrofit of most public buildings in Alaska.

In conclusion, almost 400 building owners have detailed lists of energy efficiency measures and payback information to guide their investment decisions and loan programs are available to finance the improvements. Investing in these retrofits would save building owners an average of \$21,000/year in energy costs for a cumulative savings of \$8.7 million per year. Similar savings can likely be found in the remaining public buildings that have not yet been audited. Altogether, these identified and potential savings represent a significant opportunity for Alaskans to save.