ONE HUNDRED AND EIGHTH LEGISLATURE

Legislative Document **No. 666**

H. P. 549 House of Representatives, March 1, 1977

Referred to Committee on Energy. Sent up for concurrence and ordered printed.

EDWIN H. PERT, Clerk

Presented by Mr. Carter of Winslow.
Cosponsor: Mrs. Huber of Falmouth.

STATE OF MAINE

IN THE YEAR OF OUR LORD NINETEEN HUNDRED SEVENTY-SEVEN

AN ACT to Establish Procedures to Evaluate the Efficiency of Energy Utilization in State-financed and Licensed Facilities.

Be it enacted by the People of the State of Maine, as follows:

5 MRSA c. 153, sub-c. I-A is enacted to read:

SUBCHAPTER I-A

ENERGY CONSERVATION IN BUILDINGS ACT

§ 1761. Short title

This subchapter may be cited as the "Energy Conservation in Buildings Act."

§ 1762. No facility constructed without life-cycle costs

No public improvement, as defined in this chapter, or public school facility, with an area in excess of 5,000 square feet, shall be constructed without having secured from the designer a proper evaluation of life-cycle costs, as computed by a qualified architect and engineer. Construction shall proceed only upon disclosing, for the design chosen, the life-cycle costs as determined in section 1764 and the capitalization of the initial construction costs of the facility or building. The life-cycle costs shall be a primary consideration in the selection of the design.

§ 1763. No facility leased without life-cycle costs

No public improvement, as defined in this chapter, or public school facility, with an area in excess of 10,000 square feet within a given building boundary,

shall be leased until a life-cycle costs analysis has been performed and a lease shall only be approved where the life-cycle costs analysis compare favorably to available like facilities.

§ 1764. Life-cycle costs

The Bureau of Public Improvements shall promulgate rules and procedures, including energy conservation guidelines, for conducting an energy-related life-cycle costs analysis of alternative architectural and engineering designs and shall evaluate the efficiency of energy utilization for designs in the construction and lease of public improvements and public school facilities. Such rules and procedures shall take effect 90 days after the enactment of this subchapter.

Such life-cycle costs shall include:

1. Energy costs. The reasonably expected energy costs over the life of the building, as determined by the designer, that are required to maintain illumination, power, temperature, humidity and ventilation and all other energy-consuming equipment in a facility; and

2. Energy-related costs. The reasonable energy-related costs of probable maintenance, including labor and materials and operation of the building.

To determine the life-cycle costs, the Bureau of Public Improvements shall promulgate rules that shall include but are not limited to:

3. Site. The orientation and integration of the facility with respect to its physical site;

4. Glass; exposure. The amount and type of glass employed in the facility and the directions of exposure;

5. Insulation; solar utilization. The effect of insulation incorporated into the facility design and the effect on solar utilization to the properties of external surfaces;

6. Occupancy and operating conditions. The variable occupancy and operating conditions of the facility and subportions of the facility;

7. Energy consumption analysis. An energy consumption analysis of the major equipment of the facility's heating, ventilating and cooling system, lighting system, hot water system and all other major energy-consuming equipment and systems as appropriate. This analysis shall include:

A. The comparison of alternative systems;

B. A projection of the annual energy consumption of major energy-consuming equipment and systems for a range of operations of the facility over the life of the facility; and

C. The evaluation of the energy consumption of component equipment in each system, considering operation of such components at other than full or rated outputs.

Such rules shall be based on the best currently available methods of analysis and provisions shall be made for an annual updating of rules and standards as required.

STATEMENT OF FACT

Operating and maintenance expenditures associated with energy equipment and with energy consumed in state-financed and leased buildings represent a significant cost over the life of a building. Energy conserved by appropriate building design not only reduces the demand for energy but also reduces costs for building operation. For example, commercial buildings are estimated to use from 20% to 80% more energy than would be required if energy-conserving designs were used. The size, design, orientation and operability of windows, the ratio of ventilating air to air heated or cooled, the level of lighting consonant with space-use requirements, the handling of occupancy loads and the ability to zone off areas not requiring equivalent levels of heating or cooling are a few of the considerations necessary to conserving energy.

Significant efforts are underway by the General Services Administration, the National Bureau of Standards and others to detail the considerations and practices for energy conservation in buildings. Most important is that energy-efficient designs provide energy savings over the life of the building structure. Conversely, energy-inefficient designs cause excess and wasteful energy use and high costs over that life. With buildings lasting many decades and with energy costs escalating rapidly, it is essential that the costs of operation and maintenance for energy-using equipment be included in all design proposals for state buildings.

In order that such energy efficiency considerations become a function of building design and also a model for future application in the private sector, it shall be the policy of the State that buildings constructed and financed by the State be designed and constructed in a manner which will minimize the consumption of energy used in the operation and maintenance of such buildings.