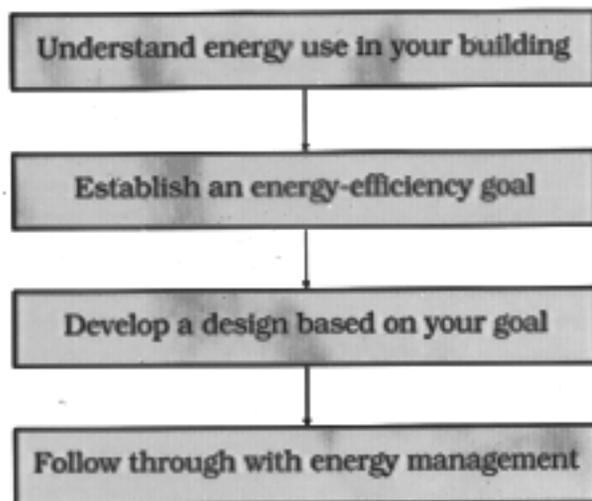


Section I

A Strategy for Energy Efficiency

If you are about to embark on a major renovation, one of the first questions to ask yourself is "How can I make this building energy efficient?" The best way is to consider energy a priority right from the start by following this four-step strategy:



a small shelter in a cold climate uses energy much like a small apartment building. Approximately 75% of the energy used goes to providing space heating and hot water. Lighting, cooling, ventilation, appliances, and other elements make up the balance.

Your building may have unique energy requirements worth considering. As part of the design process, you need to determine what kinds of programs and services you intend to provide. A design professional, preferably one with solid experience in energy-efficient design, can help you sort out your special requirements by looking at issues such as these:

- Will you need to accommodate large water-heating requirements for laundry, food preparation, and bathing?

Step One: Understand Energy Use in Your Building

Before you begin designing a major renovation, you need to determine the pattern of energy use in your building. In many ways, energy use in homeless housing isn't that different from energy use in single-family or multifamily buildings. For example,



- What ventilation rates are necessary to remove odors?
- How many meals per day will be served, and how does that affect the need for appliances for preparing and storing food?
- Will residents be in the building during the daytime or only in the evening and nighttime?
- Will residents be able to control the heating, cooling, and lighting levels?

Assisted by your design professional, you can identify your building's biggest energy uses and figure out the expected energy-use cost. If you have access to previous energy bills, consult them for an indication of the building's energy track record.

Once you have characterized the expected energy use, work closely with your design professional to determine the energy impact of various design decisions. For example, you can compare the effects of replacing single-pane with double-pane windows in a renovation or adding an activity room with many windows on the south side rather than the north side of the building.

Step Two: Establish an Energy-Efficiency Goal

Armed with an understanding of the energy requirements of your building and information on various design options, you are ready to establish an energy-efficiency goal for your renovated building. A common way to express an energy-efficiency goal is the annual cost of energy

Calling All Resources

Tap into your local utility and your county weatherization agency for the useful services they provide, often at no cost. These organizations offer energy audit services and diagnostic tools to help you evaluate the most cost-effective energy-saving measures for your building.

They may be able to provide you with referrals to local design professionals—architects, engineers, and consultants with expertise in energy efficiency—to work with you through your renovation process.

for your building measured in dollars per square foot of floor area. Annual energy costs range from a low of \$0.30 per square foot for an energy-efficient building to a high of \$1.25 per square foot or more for a building in which energy efficiency has a low priority or is not important. The goal you select, with the help of your design professional, should fall in the low end of this range.

A review of energy costs in three large, newly designed buildings for the homeless shows that these costs ranged from \$1.00 to \$1.25 per square foot. If the operators of these shelters had considered energy efficiency in the design of their buildings, they could have each reduced their energy costs by one-half to two-thirds and saved \$30,000 per year.

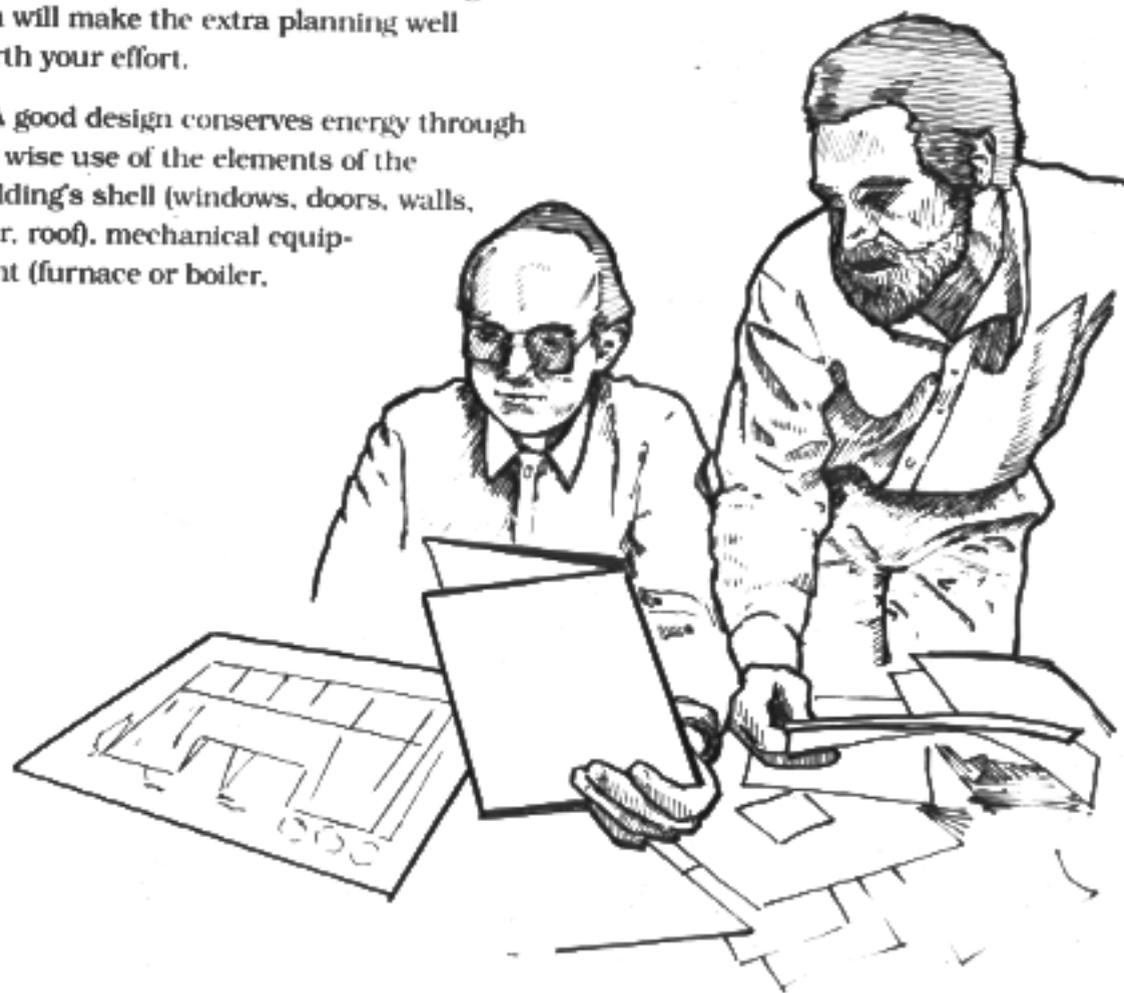
Step Three: Develop a Design Based on Your Goal

At this point, you can work with your design professional to design your renovation. Integrate your "wish list" of energy-efficient measures and options with your other design goals, such as overall cost and schedule. Some trade-offs will be necessary, but chances are you will be surprised at how many energy-saving measures you can incorporate while achieving your other goals. And the savings in operational costs in the long run will make the extra planning well worth your effort.

A good design conserves energy through the wise use of the elements of the building's shell (windows, doors, walls, floor, roof), mechanical equipment (furnace or boiler,

water heater, ventilation, air conditioning), and lighting. As you design your renovation, be aware of how each element affects others. For example, single-pane windows are an energy drain on a building and will force you to install a larger and more expensive heating system. Making the shell more efficient can reduce the capacity and cost of the furnace or boiler and reduce the need for air conditioning.

Maintain the same attention to detail throughout the construction stage of a building project. A well-planned design must be carefully executed, or its energy-saving potential might be compromised.



Step Four: Follow Through with Energy Management

Less dramatic but equally as important as incorporating energy-saving measures is following through with sound energy-management practices. The amount you pay for energy depends to a large extent on your utility rate structure and how you operate your building (see Section IV). If your bills are paid by a corporation and your building is managed by on-site operators, be sure the on-site manager sees the energy bills and tracks the bills on a monthly basis. By monitoring bills for changes, you and your manager are aware of degradation in equipment or operational problems.

Daily operation and maintenance procedures range from having your heating and cooling system checked on a regular basis to measures such as closing windows when the furnace is running and drawing the blinds on hot days to keep interior spaces cool. Operation and maintenance tips are included in Section IV.

Working with Staff and Residents

Research shows that the way occupants use energy can affect a utility bill for a given residence by 30% or more. Getting your staff and residents to "buy into" the idea of saving energy and involving them in the process may help keep your bills under control.

Many state and local weatherization agencies have developed innovative programs to foster greater energy self-sufficiency for low-income households. Various educational strategies have been employed, including making home visits, explaining the hows and whys of weatherization, giving residents low-cost materials and showing them how to install these materials, discussing actions they can take to save energy and money, and even giving them a small cash reward for achieving energy-reduction goals. Consider encouraging your staff and residents to use energy wisely by using strategies such as these.

Your Utility				
MY ORGANIZATION		January 22, 1991		
Energy Used				
Meter Readings		Use	Demand	
Previous	Current			
GAS				
ELECT.				
Demand				
CHARGES				
Rate	Base	Fee	Tax	CHARGE
EXPLANATION OF CHARGES				
				You Owe: \$