best practices

REPORT # 6

Energy Efficiency

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—From a Declaration of Principles, jointly adopted by a Committee of the American Bar Association and a Committee of Publishers.

best practices

Community Associations Institute (CAI) and the Foundation for Community Association Research are dedicated to conducting research and acting as a clearinghouse for information on innovations and best practices in community association creation and management. As part of the Best Practices project, operations related to various functional areas of community associations—community harmony and spirit; financial operations; governance, resident involvement and conflict resolution; reserve studies/management; and, strategic planning—have been presented during various CAI national conferences since 2001.

What Are Best Practices?

Developing function-specific best practices in the community association industry has been a goal of CAI and the Foundation for Community Association Research for several years. The Foundation is currently developing best practices in select topic areas using a variety of sources, including, but not limited to, recommendations from industry experts, past winners of CAI's National Community Association of the Year Award, and various industry-related publications.

The anticipated outcomes of the Best Practices project include:

- documented criteria for function-specific best practices,
- case studies of community associations that have demonstrated successes in specific areas, and
- a showcase for community excellence.

The benefits of benchmarking and best practices include: improving quality; setting high performance targets; helping to overcome the disbelief that stretched goals are possible; strengthening cost positions; developing innovative approaches to operating and managing practices; accelerating culture change by making an organization look outward rather than focusing inward; and bringing accountability to the organization because it is an ongoing process for measuring performance and ensuring improvement relative to the leaders in the field.

Accordingly, this project represents an ongoing exploration of best practices used in community associations. The initial series of best practice reports will set the bar, which applied research will then continue to raise.

Introduction

As of 2002, there are 240,000 community associations—condominium associations, cooperatives, and homeowners associations—in the United States, representing nearly 20 million homes and 45 million people. Currently, the average U.S. family spends nearly $1,300 a year on energy bills, with much of that energy being wasted due to air leaks, inefficient appliances and a general lack of attention on this important issue.

CAI and the Department of Energy (DOE) are dedicated to educating the community association industry—and the significant portion of the U.S. population it represents—on the many ways to increase the energy efficiency of their homes and thereby reduce both energy consumption and costs.

In this report, you will find information on the following areas:

- Retrofitting both existing homes and community structures such as clubhouses. In this section, you will find tips for energy efficiency related to appliances, insulation and weatherization, heating and cooling, landscaping, lighting, and windows.
- Utilizing the increasing support of the "Building Green" movement. In particular, this section focuses on the success of the Department of Energy's Building America Program and highlights Civano, Arizona—one of the first communities built to be energy efficient through the use of construction improvements and solar energy.
- Gaining ideas from case studies of community associations across the country that have demonstrated success in reducing energy consumption and costs.

A good deal of the material in this report is taken from the DOE publication titled *Energy Savers: Tips on Saving Energy & Money at Home*. To download a free copy of this booklet, visit the DOE website at *www.eren.doe.gov/energy_savers/*. Have additional energy questions? Call 1-800-DOE-EREC.

SECTION ONE

Retrofitting Existing Homes

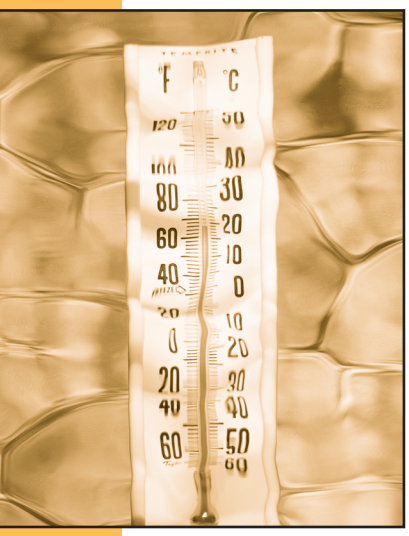
Given that nearly a quarter of a million community associations have already been built, it's becoming increasingly common for both communities and individual homeowners to outfit older homes and clubhouses with new hardware in order to save on energy costs. There are numerous ways to increase the energy efficiency of homes and reduce energy bills. By making just a few of the energy-efficiency improvements included in this report, homeowners can save up to 50 percent on their energy bills and increase the resale value of their homes.

Appliances

Appliances account for about 20 percent of your household's energy consumption, with refrigerators, clothes washers and clothes dryers at the top of the consumption list. Every appliance has two price tags—a purchase price and the operating cost. Depending on the appliance, you'll be paying on that second price tag every month with your utility bill for the next 10 – 20 years.

To help you figure out if an appliance is energy efficient, the federal government requires most appliances to display the yellow and black EnergyGuide label. These labels will not tell you which appliance is most efficient, but they will tell you the annual energy consumption in kilowatt-hours (kWh) and operating cost of each appliance so you can compare products.

When you shop for a new appliance, also look for the ENERGY STAR® label. The U.S. Department of Energy and the U.S. Environmental Protection Agency have identified ENERGY STAR appliances as the most energy efficient products in their classes. Appliances, computer equipment, and other products with the ENERGY STAR label usually exceed minimum federal efficiency standards by a substantial amount.



Refrigerators

When shopping for a new refrigerator, pay close attention to the EnergyGuide label, and don't forget to look for the ENERGY STAR label. A refrigerator with an ENERGY STAR label will save you between $35 and $70 a year compared to the refrigerators designed 15 years ago. Another tip is to look for a refrigerator with automatic moisture control. Models with this feature have been engineered to prevent moisture accumulation on the cabinet exterior without the addition of a heater. This is not the same thing as an anti-sweat heater. Models with an anti-sweat heater will consume five to 10 percent more energy than models without this feature.

To get the most efficient operation out of your refrigerator, don't keep the refrigerator or freezer too cold. Recommended temperatures are 37 to 40 degrees Fahrenheit for the fresh food compartment of the refrigerator and five degrees Fahrenheit for the freezer. If you have a separate freezer for long-term storage, it should be kept at zero degrees Fahrenheit. To check the refrigerator temperature, place an appliance thermometer in a

glass of water in the center of the refrigerator and read it after 24 hours. To check the freezer temperature, place a thermometer between frozen packages and read it after 24 hours.

Clothes Washers

Between 80 and 85 percent of the energy used for washing clothes is for heating the water. There are only two ways to reduce the amount of energy used for washing clothes—use less water and use cooler water. Switching your temperature setting from hot to warm can cut a load's energy use in half and unless you're dealing with oily stains, the warm or cold water setting will generally do a good job of cleaning your clothes. To get the maximum efficiency out of your clothes washer, wash only full loads. If you need to wash a small load, be sure to use the appropriate water-level setting.

Clothes Dryers

When shopping for a new clothes dryer, look for one with a moisture sensor that automatically shuts off the machine when the clothes are dry. Not only will this save energy, it will save on the wear and tear on your clothes caused by over-drying. Also keep in mind that gas dryers cost less to operate than electric dryers. Specifically, the cost of drying a typical load of laundry in an electric dryer is 30 to 40 cents compared to only 15 to 25 cents in a gas dryer.

To get the maximum efficiency out of your clothes dryer, dry towels and heavier cottons in a separate load, clean the lint filter after every load to improve air circulation and periodically check your dryer vent to ensure it is not blocked. Not only will checking the vent save energy, but it may prevent a fire.

fyi **For more information on energy-efficient appliances, contact:**
Association of Home Appliance Manufacturers, *www.aham.org*
ENERGY STAR, *www.energystar.gov*
DOE's Energy Efficiency and Renewable Energy Clearinghouse,
www.eren.doe.gov/erec/factsheets

refrigerator/freezer energy tips

- Always cover liquids and wrap foods stored in the refrigerator. Uncovered foods release moisture and make the compressor work harder.
- Make sure your refrigerator door seals are airtight. Test them by closing the door over a piece of paper or a dollar bill so that half is in and half is out of the refrigerator. If you can pull the paper or bill out easily, the latch may need adjustment or the seal may need replacing.
- Move your refrigerator away from the wall and vacuum the condenser coils once a year unless you have a no-clean condenser model. Your refrigerator will run for shorter periods with clean coils.
- Regularly defrost manual-defrost refrigerators and freezers. Frost build-up decreases the energy efficiency of the unit. Don't allow frost to build up more than one-quarter of an inch.

Insulation and Weatherization

Owners can increase the comfort of their home while reducing their heating and cooling needs by up to 30 percent by investing just a few hundred dollars in proper insulation and weatherization. Checking a home's insulation is one of the fastest and most cost-efficient ways to reduce energy waste and maximize energy dollars.

Start with the insulation. Check your attic, ceilings, exterior and basement walls, floors, and crawl spaces to determine if the insulation meets the levels recommended for your area. For customized insulation recommendations, visit *www.eren.doe.gov/buildings/wthr_insulating.html*. The easiest way to insulate a home is to add insulation to the attic. To determine if there is enough attic insulation, measure the thickness of the insulation. Insulation is measured in R-values. The higher the R-value, the better the walls and roof will resist the transfer of heat and cold. If there is less than R-22 (seven inches of fiber glass or rock wool or six inches of cellulose), it would be beneficial to add more. Most U.S. homes should have between R-22 and R-49 insulation in the attic.

When selecting the insulation R-value for your home, consider such factors as the climate, building design, and budget. Use rigid foam boards or other higher-density insulation in cathedral ceilings and on exterior walls. As specified on the product packaging, follow instructions for installation and wear proper protective gear.

weatherization tips

- When the fireplace is not in use, keep the flue damper tightly closed—otherwise air escapes 24 hours a day!
- Install rubber gaskets behind outlet and switch plates.
- Look for dirty spots in your insulation, which often indicates holes where air leaks into and out of the house. Staple sheets of plastic over the holes to seal them and caulk the edges of the plastic.

Then move on to weatherization. Warm air leaking into a home in the summer and out of a home during the winter can waste a substantial amount of energy dollars. One of the quickest and easiest tasks you can do is caulk, seal, and weather-strip all seams, cracks, and openings to the outside. By reducing the air leaks in a home, the energy bill can be reduced by 10 percent or more.

Common areas of air leakage into and out of homes include dropped ceilings, recessed lighting, attic entrance, electric wires and boxes, plumbing utilities, water and furnace flues, ducts, door sashes and frames, chimneys, warm air registers, window sashes and frames, baseboards, coves and interior trim, plumbing access panels, electrical outlets and switches, light fixtures, and sill plates. While air infiltrates a home through every nook and cranny, about one-third of this air infiltrates through openings in the ceilings, walls, and floors.

fyi

For more information on insulation, weatherization, and ventilation, contact:

Cellulose Insulation Manufacturers Association, *www.cellulose.org*
ENERGY STAR, *www.energystar.gov*
Insulation Contractors Association of America, *www.insulate.org*
National Association of Home Builders, *www.nahb.com*
North American Insulation Manufacturers Association, *www.naima.org*
Owens Corning Customer Service Hotline, *www.owenscorning.com*
Polyisocyanurate Insulation Manufacturers Association, *www.pima.org*
U.S. DOE's Energy Efficiency and Renewable Energy Clearinghouse, *www.eren.doe.gov/erec/factsheets*

Heating and Cooling

On average, heating and cooling account for 44 percent of a typical utility bill. In fact, heating and cooling uses more energy and drains more energy dollars than any other system in the home. It also has a negative effect on the environment. Together, the heating and cooling systems in the U.S. emit more than a half billion tons of carbon dioxide into the atmosphere each year, adding to global warming, and generating about 24 percent of the nation's sulfur dioxide and 12 percent of the nitrogen oxides—the chief ingredients in acid rain.

No matter what kind of heating, ventilation, and air-conditioning system is in a home, properly maintaining and upgrading equipment can save money and increase comfort. By combining proper equipment maintenance and upgrades with appropriate insulation, weatherization, and thermostat settings, energy bills and pollution output can be cut in half.

Ducts

Your home's duct system—a branching network of tubes in the walls, floors, and ceilings—carries the air from the furnace and central air conditioner to each room. Ducts are made of sheet metal, fiberglass, or other materials. Unfortunately, many duct systems are poorly insulated or not insulated at all. Ducts that leak heated air into unheated spaces can add hundreds of dollars a year to heating and cooling bills.

Insulating ducts that are in unconditioned spaces is usually very cost-effective. Sealing ducts to prevent leaks is even more important if the ducts are located in unconditioned areas such as attics or vented crawl spaces. Although minor duct repairs are easy to accomplish, ducts in unconditioned areas should be sealed and insulated by qualified professionals using the appropriate sealing materials.

Heat Pumps

Heat pumps are the most efficient form of electric heating in moderate climates, providing three times more heating than the equivalent amount of energy they consume. There are three types of heat pumps: air-to-air, water source, and ground source. They collect heat from the air, water, and ground outside a home and concentrate it

heating and cooling tips

- Set the thermostat as low as is comfortable in the winter and as high as is comfortable in the summer.
- Clean or replace furnace filters once a month or as needed.
- Clean warm-air registers, baseboard heaters, and radiators as needed.
- Don't place lamps or TV sets near your air-conditioning thermostat—it senses heat from these appliances and can cause the unit to run longer than necessary.
- Place heat-resistant radiator reflectors between exterior walls and the radiators.
- Turn kitchen, bath, and other ventilation fans off as soon as they have done the job. In just one hour, these fans can pull out a houseful of warmed or cooled air!
- Bleed trapped air from hot-water radiators once or twice a season; if in doubt about how to perform this, call a professional.

for use inside. Heat pumps also do double duty as a central air conditioner as they can cool a home by collecting the heat inside a house and effectively pumping it outside.

Gas and Oil Heating Systems

If you plan to buy a new heating system, ask your local utility or state energy office for information about the latest technologies available to consumers. For a list of state energy offices, visit *www.naseo.org/members/states.htm*. They can advise you on more efficient systems on the market today. For example, newer models incorporate designs for burners and heat exchangers that result in higher efficiencies during operation and reduced heat loss when the equipment is off. Also look for the ENERGY STAR and EnergyGuide labels.

Fireplaces

A fireplace is one of the most inefficient heat sources you can possibly use. It sends energy dollars up the chimney along with volumes of warm air. When you use the fireplace, reduce heat loss by opening the dampers in the bottom of the firebox (if provided) or open the nearest window slightly (approximately an inch), close the door to the room, and lower the thermostat setting to between 50 and 55 degrees Fahrenheit.

Other tips to reduce energy loss associated with fireplaces include installing tempered glass doors and heat-air exchange system that blows warmed air back in the room, checking the seal on the flue damper to ensure it is as snug as possible, adding caulking around the fireplace hearth, and using grates made of C-shaped metal tubes to draw cool room air into the fireplace and circulate warm air back into the room.

Air Conditioners

Sizing is extremely important when selecting the right room air conditioning unit—and bigger is not better. A room air conditioner that is too big for the area it is supposed to cool will perform less efficiently and less effectively than a smaller, properly-sized unit. This is because room units work better if they run for relatively long periods of time than if they are continually switching off and on.

Size is equally important for central air-conditioning systems, which need to be sized by professionals. If you have a central air system in your home, set the fan to shut off at the same time as the cooling unit (compressor). In other words, don't use the system's central fan to provide circulation, but instead use circulating fans in individual rooms.

Don't set your thermostat at a colder setting than normal when you turn on your air conditioner. It will not cool your home any faster and could result in excessive cooling and, therefore, unnecessary expense.

Programmable Thermostats

You can save as much as 10 percent a year on your heating and cooling bills just by turning your thermostat back 10 to 15 percent for eight hours. You can do this automatically without sacrificing comfort by installing an automatic setback or programmable thermostat. Using a programmable thermostat, you can adjust the times you

turn on the heating or air-conditioning according to a pre-set schedule, resulting in reduced operation of the equipment when you are asleep or the house is not occupied.

For more information on heating and cooling, contact:
Air Conditioning and Refrigeration Institute, *www.ari.org*
ENERGY STAR, *www.energystar.gov*
Gas Appliance Manufacturers Association, *www.gamanet.org*
Owens Corning Customer Service Hotline, *www.owenscorning.com*
U.S. DOE's Energy Efficiency and Renewable Energy Clearinghouse, *www.eren.doe.gov/erec/factsheets*

Landscaping

Landscaping is a natural and beautiful way to keep your home more comfortable and reduce your energy bills by up to 25 percent. In addition to adding aesthetic value and environmental quality to your home, a well-placed tree, shrub, or vine can deliver effective shade, and act as a windbreak. A well designed home admits low-angle winter sun to reduce heating bills, rejects overhead summer heat to reduce cooling bills, and minimizes the chill effect of winter winds.

While the energy-conserving landscape strategies you should use for your home depend on the type of climate in which you live, there are some generalities. Deciduous trees planted on the south and on the west sides will keep your house cool in the summer and allow sun to shine in the windows in the winter. Vines also provide shading and cooling. Growing on trellises, vines can shade windows or the whole side of a house. Winter winds can be deflected by planting evergreen trees and shrubs on the north and west sides of the house.

For more information on landscaping, contact:
American Society of Landscape Architects, *www.asla.org*
National Arbor Day Foundation, *www.arborday.org*
U.S. Department of Agriculture, County Extension Service—Local Chapter
U.S. DOE's Energy Efficiency and Renewable Energy Clearinghouse, *www.eren.doe.gov/erec/factsheets*

Lighting

Increasing your lighting efficiency is one of the fastest ways to decrease your energy bills. If you replace 25 percent of your lights in high-use areas with fluorescents, you can save about 50 percent of your lighting energy bill.

Indoor Lighting

Fluorescent lamps are much more efficient than incandescent bulbs and last six to 10 times longer. Use linear fluorescent and energy-efficient compact fluorescent lamps (CFLs) in fixtures throughout your home to provide high-quality and high-efficiency lighting. While more expensive than incandescent bulbs, fluorescent lamps pay for themselves by saving energy over their lifetime. If you have torchiere fixtures with halogen

lamps, consider replacing them with compact fluorescent torchieres, which use 60 to 80 percent less energy, can produce more light, and do not get as hot.

Outdoor Lighting

Many homeowners use outdoor lighting for decoration and security. To save energy, use outdoor lights with a photocell unit or a timer so they will turn off during the day and turn off decorative outdoor gas lamps. Exterior lighting is one of the best places to use CFLs because of their long life. If you live in a cold climate, be sure to buy a lamp with a cold-weather ballast.

fyi

For more information on energy-efficient lighting, contact:

ENERGY STAR, *www.energystar.gov*

U.S. DOE's Energy Efficiency and Renewable Energy Clearinghouse, *www.eren.doe.gov/erec/factsheets*

Windows

Windows can be one of your home's most attractive features—they provide views, daylight, ventilation, and solar heating in the winter. However, windows also account for 10 to 25 percent of heating bills. During the summer, windows cause your air conditioner to work two to three times harder. If you have single-pane windows, consider replacing them with new double-pane windows with high-performance glass.

In colder climates, select windows that are gas filled with low-emissivity (low-e) coatings to reduce heat loss. In warmer climates, select windows with spectrally-selective coatings to reduce heat gain. More specifically, if you live in the Sun Belt—an area abundant with community associations—look into new solar control spectrally-selective windows, which can cut the cooling load by more than half.

If you decide not to replace your windows, there are simpler, less costly options. You can install exterior or interior storm windows; these can reduce heat loss through the windows by 25 to 50 percent. If necessary, you should repair and weatherize your current storm windows.

warm climate window tips

- Install white window shades, drapes, or blinds to reflect heat away from the house.
- Close curtains on south- and west-facing windows during the day.
- Install awnings on south- and west-facing windows.
- Apply sun-control or other reflective films on south-facing windows to reduce solar gain.

fyi

For more information on windows, contact:

American Architectural Manufacturers Association, *www.aamanet.org*

Efficient Windows Collaborative, *www.efficientwindows.org*

ENERGY STAR, *www.energystar.gov*

Wood Window and Door Manufacturers Association, *www.nwwda.org*

Owens Corning Customer Service Hotline, *www.owenscorning.com*

U.S. DOE's Energy Efficiency and Renewable Energy Clearinghouse, *www.eren.doe.gov/erec/factsheets*

SECTION TWO

Building Green

Building America

The U.S. Department of Energy's Building America Program is reengineering the American home for energy efficiency and affordability. The program works with the residential building industry to develop and promote efficient building processes and technologies that save both builders and homeowners millions of dollars in construction and energy costs. Building America helps homebuilders lower their customers' energy bills, reduce callbacks and claims, offer more options for the same price through cost-saving system trade-offs, and stand out in the market place.

Building America forms teams of architects, engineers, builders, equipment manufacturers, material suppliers, community planners, mortgage lenders, and contractors. The teams build houses with a systems engineering approach, which views a house as an integrated system of components, and incorporates improvements that together yield optimal energy and cost savings, quality, and performance. The program and its five national teams have built more than 14,000 energy efficient houses.

Building America aims to:

- Reduce home energy use by 30 to 70 percent.
- Improve comfort and indoor air quality.
- Encourage a systems engineering approach for the design and construction of new houses.
- Reduce construction time and waste.
- Accelerate the development and adoption of high performance in production housing.

fyi **To learn more about the Building America Program,** visit *www.eren.doe.gov/buildings/building_america/.*

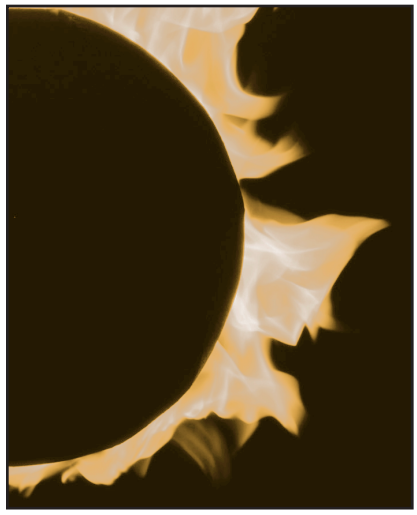
Civano, Arizona

Located southeast of Tucson, Arizona, Civano is a prime example an energy-efficient community that's used environmentally-friendly alternatives to foster connections among neighbors as well as to the environment. In response to the energy crisis in the 1970's, a group of innovative advocates and government officials created the concept of a master-planned community that would take advantage of Tucson's abundant solar resources. Civano was the result.

Over the years, the concept evolved to embrace a broader agenda, one that would address a number of environmental issues, and resource and planning concepts; all directed toward creating a planned community in balance with its natural surroundings. As Civano develops into a 1,100-acre sustainable community, it continues to emphasize the quality and value that are hallmarks of the community. Value is derived

from the security of knowing the homes are constructed to the highest standards of quality and energy-efficiency. Both the homes and the community are designed for lasting appeal—today and far into the future.

Today, the mission of Civano is to create a sense of place that invites community and connects people to each other and their natural surroundings, aspire to be more mindful of the environmental and natural resources, promote innovation in construction and design that will enhance the quality of life, and use less energy, and create lasting value for homeowners.



Developed by Civano and the City of Tucson, the IMPACT (Integrated Method of Performance and Tracking) Standards explore how it is possible, over time, to reach a balance among growth, affordability, and achieving a greater integration with the environment. The Standards address energy efficiency, resource and environmental awareness, and community-strengthening goals, as well as provide a means of measuring progress toward attaining them. More specifically, the Civano building code calls for R-38 roofs, R-19 walls, and double-paned glass—these construction improvements alone make the houses 15 to 20 percent more efficient. Well-installed, low-E, double-paned windows make a big difference in energy use for three reasons; first, leakage is reduced; second, the windows themselves are more energy efficient; and, third, solar coatings and low-E reduce the effect of direct solar heat gain through the glass.

This dynamic exploration of complex goals is an example of how Civano approached the development of a community from a sustainable perspective, while offering affordable homes. It is at the heart of Civano's goal of creating added value for homebuyers. The builders, developers, and residents of Civano are collectively committed to achieving the following goals:

- Significantly reducing energy consumption; all Civano homes are currently designed to use 50 percent less energy than a typical home of the same size
- Significantly reducing potable (drinking) water consumption
- Reducing internal vehicle miles by creating a pedestrian-friendly neighborhood
- Reducing landfill-destined solid waste
- Integrating working and living environments

Have they been successful? According to an article in the *Arizona Daily Star* on February 4, 2002, the annual energy cost savings by Civano homeowners ranged from $533 to $781, roughly $54 per month, according to a study by Al Nichols Engineering, Inc. The firm conducted the study for a 12-month period ending August 31, 2001, by comparing energy usage of homes at Civano to a baseline of energy usage during 1998 and 1999 in standard newly built Tucson homes. Savings were attributed to such Civano design features as highly efficient heating and cooling systems, solar hot water generation, higher-rated insulation, leak-tested ductwork, and energy-efficient windows.

fyi **For more information on Civano,** visit *www.civano.com.*

SECTION THREE

Case Studies

Think your community can't make a difference? Think again. Following are five case studies of community associations that made it a priority to reduce their energy consumption and costs—and have successfully done so. Your community can do the same.

case study #1

Castlegate Homeowners Association

Size:	48 units
Age:	29 years
Location:	Pasadena, California
Board Size:	5 members
Contact:	Dick Pruess, President
E-mail:	lileland@earthlink.net

Castlegate Homeowners Association is a 48-unit condominium, which has three hallways—each almost three hundred feet in length—that have no natural light. In addition, there are two stairwells, two foyers, and two entries to the parking garage, where the lights are on 24 hours a day, 365 days a year. Furthermore, the underground garage also has lighting at all times.

In planning for the 2002 fiscal year, the electricity forecast for the community was up nearly seven percent, or 11.5 percent of the total budget. Since the City of Pasadena was offering energy cost rebates on projects of up to 25 percent of project cost, not to exceed the first year's energy cost savings, and the building was due for complete interior painting and decorating, the board agreed that the timing was right to replace the light fixtures—which used five 40-watt candelabra incandescent bulbs with high heat output, short life spans, and were dated in appearance—with energy-efficient lighting.

The goals for the lighting project were to reduce the cost of electricity by more than 25 percent, minimize the number of bulbs and tubes inventoried, and select light fixtures that blended in with the redecorating project. A secondary goal was to reduce the hallway temperatures by more than five degrees Fahrenheit, as the old fixtures expended a tremendous amount of heat.

The first step was to determine the number of existing fixtures and bulb wattages, plus days and hours lighted. The next step was to compare fluorescent bulb energy usage versus incandescent and determine if the lumens were adequate to light three 290-foot halls. Once that information was collected, the community built a spreadsheet containing the number of fixtures, bulbs and wattage, and the hours and days of use per fixture. Then, they added the same information for the proposed fluorescent fixtures and deter-

mined the energy cost per kilowatt based on information from Pasadena Water and Power. The findings were substantial. The incandescent light used 59,545 kilowatts per year at an annual cost of $7,595 while the fluorescent light used only 8,833 kilowatts per year at an annual cost of $1,325. The result was a projected annual savings of $6,270.

The community has since completed the lighting project and received a rebate check from Pasadena Water and Power, a Department of the City of Pasadena, in the amount of $2,023.55. The completed project cost $8,084.19, with an after-rebate cost of $6,060.64. Thus, the payback time on the project was less than one year.

What have the actual results been? From October 2001 through March 2002, the number of kilowatts used per day was reduced by 31.8 percent, representing a savings of $3,254 for the 182 days. While the projected savings for 365 days equals $6,526, the actual savings have been four percent greater than projected. Can your association have energy savings like these? Absolutely. The key steps are to contact your energy provider and to build board and owner support for the project. If your energy supplier won't build a spreadsheet, see if one of the residents has the capability and willingness to do so.

case study #2

Watergate at Landmark Condominium Unit Owners Association

Size:	1,460 units
Age:	27 years
Location:	Alexandria, Virginia
Board Size:	9 members
Contact:	Ronald Kirby, CMCA®, President, Community Management Corporation, AAMC®
E-mail:	rkirby@cmc-management.com

Watergate at Landmark was established in 1975 as the first condominium association subject to the Virginia Condominium Act. Since it's founding, the association has continued to mature as a community while maintaining the original vision of the developer. Conceptually, the volunteer and organizational structure, have remained the same since 1975.

In the early 1990's, Watergate's managing agent performed an energy audit that resulted in a recommendation that, among other things, the community convert the current hot water and common area heating system from electric to gas. This was an enormous undertaking for a community with 1,460 units on 38 acres with master meters for both gas and electric. The projected savings was approximately $1,000.00 per day. The board of directors made the decision after obtaining a 51 percent ownership approval to convert the domestic hot water, indoor pool and Jacuzzi water, and corridor heating systems to gas. Because many residents were concerned about the safety of gas fuel, the gas lines for the hot water heaters and heating, ventilation, and air conditioning (HVAC) sys-

tem were all placed on the roof with no gas lines inside the buildings and no unsightly flue going up the outside of the building. The resulting energy savings exceeded the projection and the time for dollar payback was less than three years.

In addition, Watergate has embarked on two programs aimed at producing significant electrical cost savings. The first was to provide computerized load shedding of electrical devices to control power demand rates that have a large affect on the community's electricity bills. The second agreement was with a local power company to change all common area lighting, including site lighting, to more energy efficient fixtures. The time for dollar payback on this investment was less than five years.

case study #3

Radisson Community Association, Inc.

Size:	2,100+ units
Age:	27 years
Location:	Baldwinsville, New York
Board Size:	9 members
Contact:	Robert Schwarting, PCAM®, Executive Director
E-mail:	rschwarting@radissoncommunity.org

Radisson Community Association, Inc., is distinguished among community associations for its strong, steady performance over a 27-year history of continuous community building. With its many corporate properties, Radisson embodies the philosophy of a classic English new town. Preservation of the environment and involvement in social and cultural causes sets Radisson apart from other suburban residences and elevates the community among its peers. Radisson makes a conscious effort to continuously create an evolving sense of community.

Over the years, Radisson has adopted several common-interest property energy conservation measures, and periodically promotes one or more of these residential measures in its newspaper. For example, the outdoor lighting of buildings and grounds are on timers, but many are the mechanical clock type. These devices are affected by power outages and do not compensate for the seasonal variation of sunrise and sunset. In the past two years, Astro-timers have been installed on the larger lighting systems at the parks. These new timers reduce energy consumption and save labor. Lower priority has been given the low wattage lighting systems, but, in time, they will also receive new controllers.

In addition, a variety of other actions have been taken in order to increase the energy efficiency of the community. High-pressure sodium lamps are gradually replacing the mercury vapor and incandescent lamps in the security lights. One set of security lamps is now being controlled by a motion detector at considerable savings. An evening cover

for the heated pool was installed to cut down on night-time heat and chlorine loss, and has proven effective in reducing the consumption of both. In addition, air conditioning occurs in only two buildings and the normal separation of heating and cooling thermostat settings are observed. Two pieces of heavy grounds equipment were replaced with the more economical diesel fuel models. Lastly, the community is included in the regional mass transit system and planning and promotes both car pooling and mass transit ridership in the newspaper.

case study #4

Heron's Cove Condominium

Size:	406 units
Age:	32 years
Location:	Montgomery Village, Maryland
Board Size:	5 members
Contact:	Rose Hopp Capriotti, PCAM®, On-Site Manager
E-mail:	heronscovecondo@earthlink.com

Heron's Cove Condominium is a 406-unit, thirty-two year old condominium association built on a stretch of land consisting of 24 acres. Over the years, the association leaders have taken major steps to conserve both light and heat. In the early 1990s, the association participated in Pepco's energy saving program. Through this program, the lights inside each unit were replaced with energy-saving bulbs. In 1997, the board approved a contract with Derick Associates for retrofitting the common areas—all the stairwells, electric rooms, storage, and trash rooms—with low energy lighting.

With the soaring cost of utilities, the association has taken action to help contain heating costs. Once again, due especially to the age of the property facilities, owners are encouraged to consider window and exterior door replacements. To assist with this effort, management consulted with window and door contactors in order to best advise owners. In late 1999, guidelines and specifications were drafted and are made available to owners as they are ready to pursue replacements.

To further address concerns about high heating costs, in June of 2000, the board contracted with Gardener's General Contractor to replace the door insulation on 70 unit doors. At the same time, the door sweeps were replaced on all 40 three-bedroom units that have exterior doors. It is anticipated that another round of interior unit doors will get new weather stripping in 2002.

case study #5

Mountain Park Home Owners Association

Size:	3,716 units
Age:	34 years
Location:	Lake Oswego, Oregon
Board Size:	7 members
Contact:	Barbara Price, Executive Manager
E-mail:	mtnpark@earthlink.net

Mountain Park Home Owners Association is situated on 700 acres of land and is located on a dormant volcano known as Mt. Sylvania. Of the 700 acres, the association maintains 185 acres of common land. Some of the common area is maintained in a natural state and a large portion is manicured and beautifully landscaped. Members have access to a host of amenities including a superb recreation center, tennis courts, parks, playgrounds, and 20 miles of walking paths. Mountain Park is a unique community made up of single-family homes, townhouses, condominiums, and apartments.

Mountain Park's recreation center building is roughly 30,000 square feet in size and is over 30 years old. Keeping it in optimum condition is always a challenge. The association recently had an energy audit by a local electric company. Their suggestion was to retrofit almost all of the lighting fixtures in the entire building. By retrofitting the fixtures to more energy efficient lighting, Mountain Park will be able to save close to 100,000 kilowatts per year. Mountain Park is currently working with Portland Gas and Electric to implement a program to retrofit all fixtures. Mountain Park has also lowered the general air temperature in the building and tests the efficiency of its boiler on a regular basis. Currently, Mountain Park is on a waiting list to have an energy audit with the local gas company.

Mountain Park's landscape department has replaced all irrigation spray heads with models that are more efficient. They use bark dust not only for aesthetic reasons, but also to help conserve water. A polymer product is also being used in the association's plantings. Like bark dust, this product absorbs water and releases it as the plants need it. Trials are being performed with turf growth regulators that slow turf growth with the goal of reducing weed eating and mowing, in turn saving labor and fuel costs. Lastly, Mountain Park also includes energy and water saving hints in its monthly newspaper.

About Foundation for Community Association Research

Foundation for Community Association Research is a national, nonprofit 501(c)(3) organization founded by CAI in 1975. The Foundation is the driving force for common interest community research, development, and scholarship. CAI and Foundation for Community Association Research are the only organizations recording the history of, and identifying trends in, residential community association living.

Foundation for Community Association Research serves as the catalyst for positive change in the community association industry by: illuminating future trends and opportunities; supporting and conducting research; and mobilizing resources. Operating under the belief that community associations reflect a deep commitment to grassroots democracy, the Foundation has fostered the growth of associations by providing educational and research support through CAI's chapters. The Foundation is committed to providing quality research and publications for promoting academic interest in these phenomena.

For more information about Foundation for Community Association Research, please visit our website at *www.cairf.org* or call us at *(703) 548-8600*.

About Community Associations Institute (CAI)

America's leading advocate for responsible communities

Community Associations Institute (CAI) is the only national organization dedicated to fostering vibrant, responsive, competent community associations. Our mission is to assist community associations in promoting harmony, community, and responsible leadership. We believe that by giving board members, managers, and homeowners the knowledge to better run their associations, they can turn "owners" into "neighbors," increasing harmony, and leading to more prosperous, safer communities.

Putting unity into community

CAI was founded in 1973 as a multidisciplinary nonprofit alliance serving all stakeholders in community associations. We provide education and resources to America's 240,000 residential condominium, cooperative, and homeowner associations, and to the professionals and suppliers who serve them.

CAI members include all types of association-governed communities, including condominium and homeowner associations, cooperatives, and planned communities of all sizes; individual homeowners; community managers and management firms; builders and developers; accountants, attorneys, lenders, insurance providers, reserve specialists, and other providers of professional services; public officials; and product and service suppliers—all working together to create more livable communities.

CAI has16,000 members in 55 chapters throughout the United States and in several foreign countries, but our reach is much greater. Every homeowner in our member associations, and every employee in our member firms, enjoys many of the benefits of CAI membership as well.

The CAI promise

In CAI, you'll find a friendly and accessible forum to develop relationships, increase your knowledge, and help shape the future of our communities. CAI offers a host of resources that will help you excel.

To find out more about CAI, visit *www.caionline.org* or call CAI Direct at 888-CAI-4321 (M–F, 9–6:30 ET).

About the U.S. Department Of Energy

The U.S. Department of Energy (DOE) works to ensure secure, reliable, and affordable energy supplies that support a growing economy and protect the environment. Energy efficiency improvements and tips are easy ways for Americans to preserve the global environment, reduce air pollution, and conserve natural resources for future generations.

To learn more about DOE programs that promote energy efficiency and renewable energy, visit the Office of Energy Efficiency and Renewable Energy's Web site at *www.eren.doe.gov/*.

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