

**BRE Properties, Inc.**  
**Screening Audit**



Prepared for  
**BRE Properties, Inc.**

Commissioned by  
**Navigant Consulting**

Prepared by  
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# **BRE PROPERTIES ENERGY EFFICIENCY OPPORTUNITIES**

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## **Introduction**

Navigant Consulting commissioned ASW Engineering Management Consultants (ASW) to perform Screening Audits of various BRE Properties apartment complexes in Orange and Los Angeles Counties. The purpose of the audits was to identify the equipment and measures currently in use at the various locations and identify measures that can improve the efficient use of energy, water and natural resources. To accomplish this, ASW conducted Screening Audits of five complexes that were jointly selected by Navigant Consulting and ASW. The sites were selected based on their age and close proximity to ASW. This report is a compilation of measures found at the five locations that were visited for the pilot study.

One apartment complex in Los Angeles County and four in Orange County were selected for the pilot study. The five complexes were built between 1969 and 1989. With the assistance of the complex manager or assistant, ASW surveyed common areas including lighting, pools, laundry facilities, hot water systems, air conditioning equipment, and also the interior of at least one apartment per complex. The measures identified may be used as a representation of what may be found at other BRE apartment complexes of the same vintage. Below is a list of the complexes that were surveyed; one in Los Angeles County and four in Orange County.

Property Name	City	Year Built	# Units
Emerald Pointe	Diamond Bar	1989	160
Parkside Court	Santa Ana	1986	210
Pinnacle at Laguna Niguel	Laguna Niguel	1988	460
Sycamore Valley	Fountain valley	1969	440
Villa Santana	Santa Ana	1987	240

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## Cooling

Cooling for the various complexes is provided for each individual apartment by central cooling AC units or heat pumps, however, there are also through the wall package terminal units in some of the complexes.

The condensing units for the apartments with central cooling are located outside. As the AC units need to be replaced, they should be replaced with high efficiency units with a SEER of 14 or greater. Units over 20 years old are reaching the end of their useful life and should be considered for replacement. Many condensing units are in locations surrounded by dirt and shrubbery. Regular cleaning of the condenser coils will make the units run more efficiently. Filters should be checked regularly and replaced when dirty.

One of the five sites contained through the wall package terminals units. The package terminal units have filters that should be checked on a regular basis and replaced when needed. Utility programs provide incentives for energy efficient package terminal AC units and heat pumps.

Package terminal units



Central AC condensing units



## Heating

In apartments without heat pumps, heating is provided by either gas furnaces or central hot water boilers. Utility programs provide incentives for replacement of old furnaces with high efficiency gas furnaces. Filters should be checked regularly and replaced when dirty.

Gas forced air unit



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## Exterior Lighting

The common area exterior lighting is predominantly HID or fluorescent. The fluorescents are either straight tube or CFL. This lighting includes fixtures on building walls, stairs, front door porch lights, carports and general walkway lighting.

Outdoor lighting is controlled by photo cell or time clock. Timers should be checked to ensure that the time is changed to match day light savings time. In one instance a photocell is obstructed by a tree causing the lights to remain on during the day. Photocells should be checked to ensure they are in the proper locations.

Building HID



Carport fluorescents



Walkway CFLs



Building CFLs



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## Apartment Interior Lighting

In the interior, some of the apartments have incandescent lights in bathrooms, recessed hallway fixtures and ceiling fans. Incandescent lamps are being used on all back porch fixtures in one 240 unit complex. Older 4' T12 fluorescent lamps are being used in laundry rooms and kitchens. They can be replaced with energy efficient T8 lamps and electronic ballasts. Ceiling fans can be replaced with Energy Star rated fans. Utilities may offer programs to retrofit apartment complex lighting at no cost to the customer.

Fluorescent & incandescent bulbs



Fans containing incandescent bulbs



Bathroom with incandescents



Recessed cans



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## Laundries

Most of the complexes have central laundry facilities, however, one complex has washers and dryers in each apartment and another is converting at this time. Washers and dryers in the central laundries don't appear to be Energy Star rated. Upon replacement they should be specified Energy Star.

The central laundries could be considered for solar water heaters. One complex had solar at one time and is still plumbed for solar, however, the storage tanks are disabled and collectors have been removed. Lighting in the laundry facilities is T12 fluorescent lighting and could be retrofitted to T8.

Standard top loading washers



Standard front load dryers



Typical laundry fluorescent fixture



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## Domestic Hot Water (DHW)

DHW was generally provided to the complexes through central systems located at each building. Temperatures were found ranging from 140° to 167°. Boilers have the potential for automated controls to match the heating load with use patterns and upon replacement, condensing boilers should be considered. One of the five complexes was found to have individual water heaters.

Many of the showerheads and toilets that were observed are standard flow although many have been changed out to low flow. So Cal Gas may have a program to assist in the conversion to low flow.

Typical boiler with storage tank



Individual water heater



## Swimming Pools

All complexes had heated swimming pools and spas but none had pool covers. Covers can help to reduce heat loss and maintenance costs. Rebates for high efficiency pumps or variable speed or two speed pumps are available through the local utility.

Time clocks control the operation of the filter pumps. Some were found operating 24 hours. City or county health departments specify the number of hours required for filtering for each particular pool based on the time required for the pump to turn over the water in a specified time, usually 6 hours, or remain filtering during posted pool hours. Pool filtering requirements should be investigated which could potentially result in reduced operating hours when the pool is closed.

Swimming pool/spa pumps



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## Landscaping

None of the complexes were found to be landscaped with drought resistant landscaping. All of the complexes were landscaped with typical Southern California foliage.

Typical walkway landscaping



Typical building landscaping



## Building Envelope

All complexes were observed to have clear glass with aluminum frames. Window areas were estimated at 15% to 30% of wall surface. The windows generally are not shaded, however, some shading is provided by decks or porches and some trees. Roofing material is medium in color.

Villa Santana



Pinnacle at Laguna Niguel



## Storm Drainage Systems

No rain collection systems were identified.

## Irrigation Systems

Sprinkler timers were located at all sites and most were set to operate daily for short periods of time.

## Recycling

Recycling of waste is generally not practiced. One complex did, however, provide separate bins for trash. Others could follow this example if there is adequate room for bins.



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## **Conclusions**

ASW has concluded that many opportunities to improve energy efficiency exist at the locations surveyed. Many of the opportunities, such as lighting, can be implemented in the short term while others requiring large capital investment may require long term budgeting considerations and possible policy changes. ASW offers the following for consideration.

## **New Policy Considerations**

Specify Energy Star on all new or replacement equipment  
Specify new AC EER requirements; greater than 14 SEER  
Specify high efficiency water heaters  
Specify 4' fluorescents with magnetic ballasts to be T8 with electronic ballasts  
All incandescent lights should be retrofitted to CFL  
Require tenant to replace CFLs if removed  
Require new pool pumps to have premium efficiency motors or 2 speed motor  
Reset time clocks with yearly time changes  
Require complexes to clean condenser coils once a year

## **Other Things to Consider**

Investigate utility multifamily programs that may offset entire cost of lighting retrofits  
Offer split incentives to tenants to use energy efficient equipment indoors  
Hold on site energy fairs with utilities  
Provide utility energy efficiency flyers to tenants  
State programs may cover the cost of solar water heaters for laundries and pools  
Install programmable thermostats in common area facilities with air conditioning  
Consider installing condensing boilers for potable water boilers  
Install showerheads with button to stop water flow while soaping up  
Replace all showerheads and toilets with low flow  
Upgrade attic insulation to R-30 if needed

## **The Next Steps**

Upon approval by Navigant Consulting, ASW feels the following are possible steps for the existing properties;

- Select one property to revisit for a more detailed data gathering
- Evaluate this property for cost benefits of technologies for common areas and apartment interiors
- Develop upgrades that can be performed right now on most properties
- Develop on going operating policies to be recommended
- Continue exploring what an upgrade program might look like with an overlay of utility program possibilities