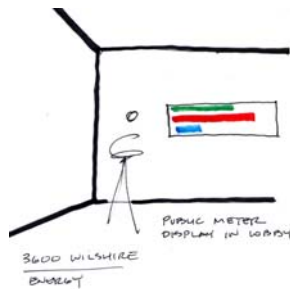


## COMMERCIAL BUILDINGS

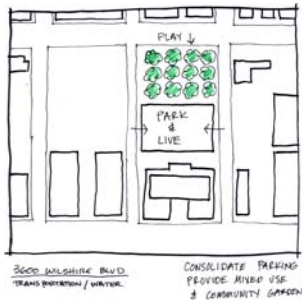
Measures to reduce greenhouse gas emissions from high-rise commercial buildings include ongoing best practices, and upgrades that conserve the energy associated with interior and exterior lighting, building heating and cooling systems, and water supply and treatment.

### BEST PRACTICES

- *Implement on-bill financing.*
- *Implement on-site composting.*
- *Continually investigate and leverage new energy technologies as they become available (e.g., solar, geothermal, hydrogen).*
- *Commission a light-colored artwork for parking lot surface to reduce heat island effects and create an amenity.*
- *Install a bike rental stand and/or a building bike fleet to reduce auto usage for daytime errands.*
- *Initiate green leases with building tenants. ([sustainca.org](http://sustainca.org))*
- *Share parking space with neighboring entities such as temples, churches, and farmers' markets to encourage telecommuting and discourage automobile use.*



## ENERGY EFFICIENCY



### SHORT-TERM

- *Conduct energy audit. Identify benchmark goals (energy star) based on results.*
- *Routinely maintain HVAC ducts, fans and pumps.*
- *Conduct retrofit-commissioning to ensure all systems optimized.*
- *Locate and exploit energy synergies with other consumers.*
- *Implement server and/or desktop virtualization.*
- *Upgrade fluorescent fixtures to T8 lamps with electronic ballasts.*
- *Install occupancy sensors.*



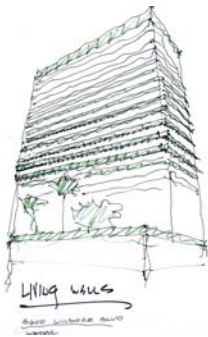
### MID-TERM

- *Repair, seal, and insulate ducts. Shut off air supply to vacant spaces.*
- *Add insulation and use a “white coating” when re-roofing.*
- *Install rooftop photovoltaic panels.*
- *VAV system (HVAC)*
- *Add PV system/s – either utility owned or bldg owned*
- *Create public meter display in lobby and combine with low usage competitions*
- *Sub-meter each floor – create efficiency competitions*
- *AMI – Smart Meters*

- *Daylight harvesting -- Re-wire existing electrical systems and install photo-cell sensors to facilitate daylight harvesting.*

### *LONG-TERM*

- *Investigate new technologies district-wide (ie hydrogen ,solar a/c, geothermal)*
- *Locate and exploit energy synergies (ie. church/temple vs. commercial uses)*
- *Create new ext-frame (to support transp. Pvs?)-create new air space-allows insulation, natural ventilation*
- *Create a new external building frame that provides air space for insulation and natural ventilation.*
- *Create "living" spandrels on building walls.*



The LADWP recommendations were:

**Lighting:** upgrade fluorescent fixtures to T8 lamps with electronic ballasts; Install photocell light fixtures at offices and occupancy sensors in hallways, restrooms, and offices.

**HVAC:** Repair, seal and insulate ducts; Shut off air supply to vacant spaces; Balance system. Maintain fans and pumps

**Energy Management System:** Install to control lighting and HVAC

**Building Structure:** Add insulation and use a “white coating” when re-roofing.

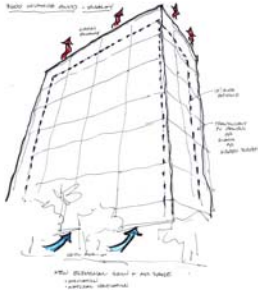
**Water Conservation:** Install low-flow aerators on faucets. Check for water leaks. Inspect and repair irrigation system monthly.

**Renewable Energy:** Consider photovoltaic panels on the roof.

**Billings:** Look for deviations in monthly bills that may indicate water leaks.

This building has electric metering that records usage at 15-minute intervals. Such detail is available to the Owner and can help building operations personnel manage equipment use and thus minimize energy costs.

## WATER CONSERVATION

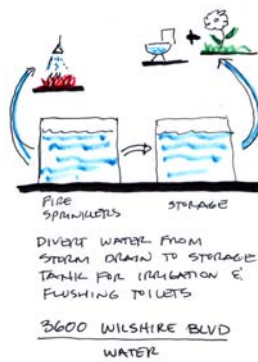


### SHORT-TERM

- *Install low-flow aerators on faucets.*
- *Check for water leaks. Sudden changes in monthly billings may provide clues to leaks.*
- *Inspect and repair irrigation system monthly.*
- *Install waterless urinals.*
- *Reduce use of bottled water by adding a water filtration system.*

### MID-TERM

- *Install a septic tank.*
- *Acquire a fire sprinkler tank to store water to be used for irrigation.*
- *Add native plantings, including trees, in open space, such as parking lot islands.*
- *Reuse fire sprinkler water for irrigation of green roof-gardens and street trees.*



### *LONG-TERM*

- *Add storage tanks to harvest roof stormwater.*
- *Over open parking structures, add a photovoltaic canopy that can capture rainwater.*
- *Replace sidewalks with pervious surfaces.*
- *Over closed parking structures, create parks or community gardens.*
- *Over the long-term (when parking space requirements have declined) consolidate parking into a multistory mixed-use building.*

For further information and assistance, please visit <http://www.wilshirecenter.com/cooldistrict>.