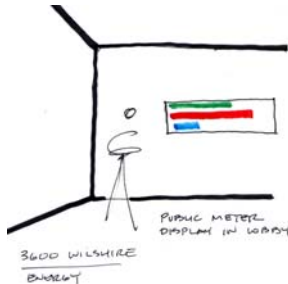


COMMERCIAL BUILDINGS

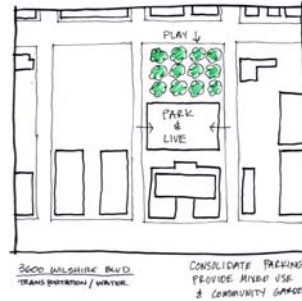
Measures to reduce greenhouse gas emissions from high-rise commercial buildings include ongoing best practices, and upgrades that conserve the energy associated with interior and exterior lighting, building heating and cooling systems, and water supply and treatment.

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)
- Share parking space with neighboring entities such as temples, churches, and farmers' markets to encourage telecommuting and discourage automobile use.



ENERGY EFFICIENCY



SHOR-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.

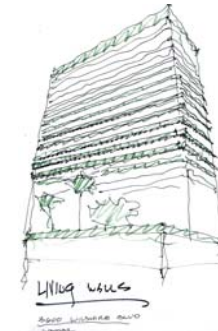
MID-TERM

- 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.

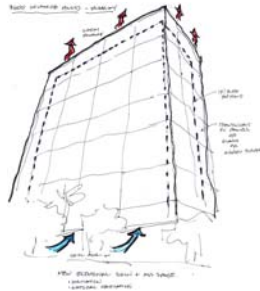
Water Conservation: Install low-flow aerators on faucets. Check for water leaks. Inspect and repair irrigation system monthly.

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

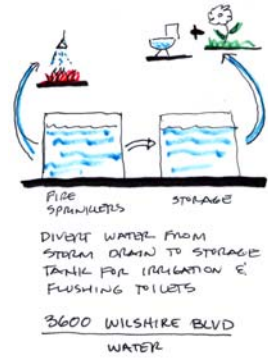


SHORT-TERM

- 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>.