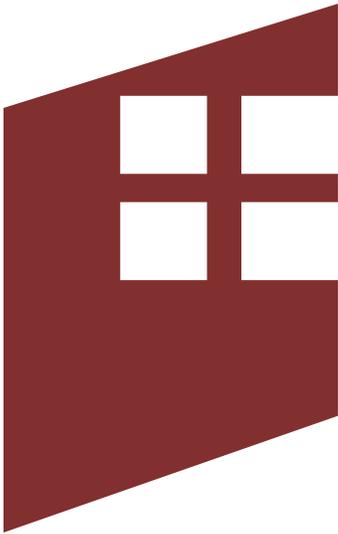


Facility Engineering Associates



High Performance in an Existing Building



By implementing energy conservation measures, the facilities team was able to increase the building's score to a 92 which the building still maintains.

1. Reset supply air temperature based on maximum zone demand
2. Optimize control of air handling unit economizer
3. Control ventilation (outside) air based on CO2
4. Optimize supply air temperature based on maximum zone demand
5. Optimize morning warm-up cycle
6. Reduce operating hours of exhaust fan

In 2007 VSP Vision Care set out to achieve operational excellence at their headquarters campus in Rancho Cordova, California. In 2008, they did. Their largest building, HQ1, earned the U.S. Green Building Council's LEED-EB O+M certification, platinum level. At the time, this was the 14th building to achieve platinum certification level. Three years later, the facilities team decided to take a second building, HQ4, through certification with a goal of bringing home another platinum certification and further demonstrating their commitment to operational excellence.

HQ4 is a two-story building that was originally constructed in 2004. The building has roof access, and consists of office, conference, lobby, and storage space. The building has a steel frame with tilt up pre-cast concrete panels. The building walls and roof are insulated. windows are dual pane, tinted. The building is conditioned by roof-mounted air handling units. The building air conditioning is centrally controlled by a building automation system. The parking lot occupies approximately five acres and is lit by shielded fixtures.

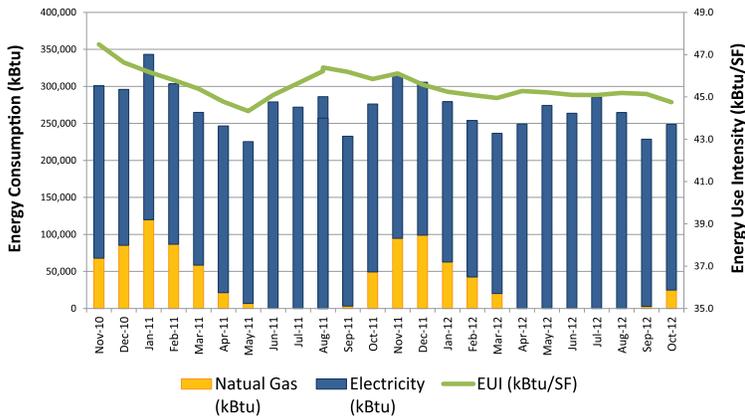
The project team had a few goals: improve use of resources including energy, water, and purchased items; reduce the building's carbon foot print; and provide a working environment that would promote a productive work environment.

The team started with energy. Their ENERGY STAR score historically had been very high, fluctuating in the low 90s. VSP first conducted an energy audit to document their current performance and identify additional opportunities for improvement. At the beginning of the certification project, the building's ENERGY STAR score was a 91. On a scale of 1-100, a score of 91 represents a very well performing building and indicates the building was in the top 9% of peer facilities of its type. VSP then implemented retro-commissioning and created an ongoing commissioning program.



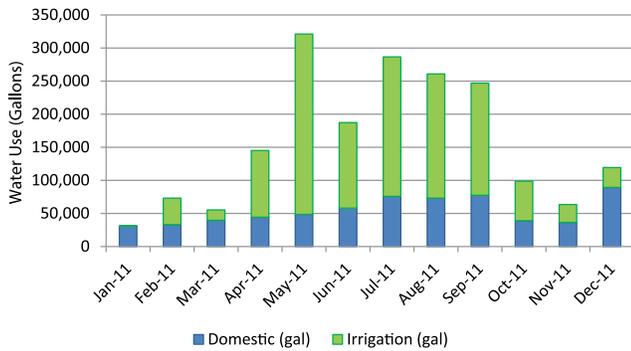
- Location: Rancho Cordova, CA
- Primary building use: Office
- Size: 71,594 square-feet
- ENERGY STAR score: 92
- Achievement: USGBC LEED-EB O+M Level: Platinum





Over the last five years, energy use has decreased 10%. Looking at the building's energy use patterns since the time the project was initiated, through certification, and several months following, the overall energy consumption has continued to decrease. In an already energy efficient building, this improvement is noteworthy.

In considering water use, VSP had not only certification requirements to consider, but also the local environment. VSP is located in the central valley of California where water is a key issue for the community as well as facility operators. The HQ4 building has two major water use types: domestic and irrigation. VSP installed electronic data logging water meters to record and report water use through the building automation system. By monitoring water use on a regular basis, leaks and other water-related problems can be identified quickly. Monitoring also has raised the importance of water management among the building occupants.



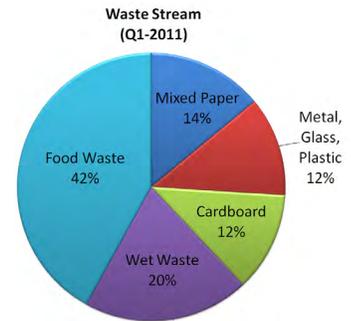
To support indoor environmental quality, VSP places restrictions on what types of chemicals can be used in and around the building. All surface cleaners, kitchen cleaners, carpet cleaners, and dishwashing products are required to be biodegradable, to contain only minimal volatile organic compounds or toxic chemicals, and to contain no chlorine or ammonia. This promotes a better indoor environment and contributes to occupant health and productivity.

VSP has a training program that focuses on educating core team members and employees on building operational improvements. The training covers indoor air quality, smoking policy, lighting quality, cleaning practices, thermal comfort management, water use

and efficiency, and pest management practices. Another training program covers purchasing practices, and the recycling and waste management program. Through implementation of a purchasing policy, and training on that policy and its impacts, VSP improved its sustainable purchasing and demonstrated compliance with their preferred purchasing practices:

- Ongoing consumables 64%
- Durable goods electronics 122%
- Durable goods furniture 55%
- Facility alterations and additions 68%

In managing the waste stream, VSP's purchasing policy is one of the first steps in to success. Their purchasing policy supports the use of recyclable materials. The facility uses only recyclable paper material, printer cartridges, and toner and encourages employees to reuse paper and envelopes in-house. It also actively participates in the building's recycling program. Paper, glass bottles, plastic bottles, and cans are picked up daily, and cardboard is picked up on an as-needed basis. A local composting operation collects all food waste.



To monitor the health of recycling and waste, VSP conducts quarterly waste stream audits. In the first audit at HQ4, the building's waste diversion rate was 70%. Through education efforts and placement of intuitive recycling containers throughout the facility, the diversion rate has increased to between 73% and 74%.

To address occupant satisfaction with the interior environment, VSP conducted an occupant survey which addressed thermal comfort, furniture, lighting, air quality, acoustic quality, and maintenance. With the exception of thermal comfort, the building's systems received ratings above the 80% satisfaction level. Thermal comfort received a 25% satisfaction rating with occupants primarily complaining that the space was too hot or too cold. VSP then implemented a plan to address the dissatisfaction. The facilities department monitors the building controls system and checks temperatures at least three times a day to ensure building thermal zones fall within operational guidelines. The work order system further supports interior comfort by providing a place for occupants to make requests to resolve thermal comfort issues. The system administrator reviews work orders every hour, and technicians are dispatched immediately.

In March 2012, VSP was once again honored with its second platinum certification at their HQ4 facility. The facilities team has put measures in place to monitor and report consumption of energy, water, purchases, and waste, and recycling. They have engaged building occupants and facility staff in the through ongoing education and training. Through use of facilities technology and training, the facilities staff is helping to extend the life of their facility.

