

## Electric Lighting Quality

The CUSD lighting design team utilized energy efficient products that meshed well with our daylighting scheme. We chose to use fluorescent tubes or compact fluorescent bulbs with an energy consumption of between 15 and 30 Watts throughout the house. The ballasts for all lamps dim to a 1% light output, so the interior and exterior lights can be adjusted as the level of available daylight fluctuates. Light sensors have been placed in front of our two largest apertures, allowing us to control how much artificial light is supplied to each space. The control of our ballasts is intricate, but refined and tested to avoid dysfunctional dimming or switching. While automatic controls are included, manual user overrides are provided in case the occupant prefers more or less light than is provided.

In choosing bulbs, we aimed for a light temperature of between 3500 and 5000 K. A color rendering index (CRI) of 90 for all lamps was set as our goal in designing the CUSD house's lighting. We felt that these criteria would provide interior conditions most suitable for the inhabitants. These goals are achieved with the fluorescent tubes featured in our home. Ambient light was installed throughout the house, with accent and task lighting at the workstation, in the kitchen, and at other task-oriented locations throughout the house (bedside table, bathroom vanity, etc). Exterior lighting was not chosen with these stringent guidelines in mind. Instead, the exterior lights were charged with providing a safe and attractive feel for our house and landscape at night.

Because the program for our house is so clearly defined, we chose to use predominantly permanently installed lighting fixtures, as opposed to plug-in lights. Cove lighting can be found throughout the house, providing ambient light to the space. Meanwhile, under-the-counter lighting and hanging fixtures are utilized in the kitchen to accent the working and dining areas.

The lighting schemes were split into five design areas: the north program wall, living room, kitchen, bathroom and bedroom. Relatively standard lighting methods were employed in the bathroom and kitchen, but more adventurous lighting schemes bring excitement to the living room and bedroom. In each case, the ambient and task lighting is well integrated into the design of the room. We have designed the lighting scheme to be functional and user-friendly, yet refreshing and enticing for the guests of the CUSD home.