

IDeAs "Z-SQUARED"

It's the first net zero energy, net zero carbon emissions commercial office building.



The headquarters for Integrated Design Associates Inc. (IDeAs) in San Jose is the first commercial office building that is completely green, producing net zero carbon dioxide emissions and using net zero electrical energy.

The "Z-Squared" building was designed to produce more electric energy than it uses, via its rooftop solar power system, and to have no reliance on fossil fuels for heating or cooling. The estimated energy consumption is approximately 60% below ASHRAE 90.1 - 2004.

This innovative facility was designed by EHDD Architecture and the electrical engineering firm IDeAs. It has generated a lot of excitement in the lighting industry and among "green" leaders. The building was selected to showcase the Silicon Valley's "Green Vision" and California's high tech version of environmentalism.

Explains building owner and co-designer David Kaneda, "Our design and architecture team set out to move away from incremental improvement to radical change, striving for a net zero energy building that is simultaneously affordable, comfortable, and beautiful."

PROJECT SNAPSHOT



3-watt
PLS Desk Lamp



Series X1-R,
1 lamp T8

**Overall Lighting Power
Density: 0.60 w/ft²**

“We recommend PLS...just 3-watts, architects love it for the styling, and it turns itself off.”

- David Kaneda, President, IDeAs



The 7,200-square foot building proves that even a smaller project can have a huge impact on environmental design. The building has been a model to educate other designers and all the details have been shared on the IDeAs website to make the project replicable.

David Kaneda, one of the principals at IDeAs, answered some questions we had about the project:

WHY THIS PROJECT, WHY THIS IDEA?

“Well, we knew all the players because we had worked with most of them, so we started with a great team.

“In September 2005 we got together for a sustainability charrette. This was critical if you’re going to do something that’s cutting edge. It’s where a lot of the concepts that you are going to do have a chance to set up. At that time I was interested in achieving LEED platinum, and LEED was all the buzz. So in the middle of the charette, Scott Shell of EHDD says, ‘What if we backed away from LEED platinum and designed a super energy efficient building? We could take out all gas, and design it all electric – zero energy, zero emissions.’

“This was a really a different idea and at first it seemed very radical. That was a key decision and I wasn’t sure about it at first, but after talking it over with my wife and business partner, I decided to do it. From there it was all about minimizing energy, what we can do, and how you do it.”

SO HOW DID YOU DO IT?

“The three areas that we looked at were plug loads, lighting, and HVAC.

“When it comes to plug loads, usually architects say ‘that’s out of my control’. But we’re the owners and occupants so we looked at everything, all the details, and worked to get

the plug loads as low as we could, right down to each watt.

“We are big proponents of Finelite’s Personal Lighting System for task lighting and we recommend it. It has very low wattage – just 3-watts, architects love it for the styling, and it turns itself off when not in use. We also wanted a low ambient approach with high reflectancy, high efficiency fixtures, and mostly downlight. So that was one concept.

“We were going to use all daylighting during the day so we designed the skylights so that light stays even across the space. We used a glass that’s good at blocking the infrared and UV but still lets through as much visible light as possible.

“In the evening we used Finelite Series X1-R T8 Indirect/Direct in the open area. We’ve tried different sensors and we needed a system that would not just dim down, but shut all the way off if the light wasn’t needed. The ambient is at 18-19fc at night and that works well for us, and there are all ages here.”



PROJECT DETAILS

- Location:**
San Jose, CA
- Owner:**
IDeAs
David Kaneda, PE, AIA, LEED AP
President
- Mark Fisher, PE, AIA, LEED AP
Principal
- Architect:**
EHDD Architects
- Scott Shell, AIA
Design Principal
- Mechanical Engineer:**
Rumsey Engineers
- Peter Rumsey, AIA, LEED AP
Director of Sustainability