

LEED, Follow, or Get Out Of The Way

By Brian E. Huff, CTS-D

I recently attended a construction kickoff meeting for a well-known educational institution's first new building in many years. At the table in the construction trailer were the normal compliment of project management, architectural, landscape, structural, IT, and acoustical consultants, as well as the school's facilities rep. The talk was the usual - meeting schedules, budgets, code compliance, document protocol, etc. This went on for over an hour until the talk turned to LEED goals.

If you're not familiar with LEED, it is the Leadership in Energy and Environmental Design Green Building Rating System™, a national benchmark for the design, construction, and operation of high performance green buildings, started in 1998 by the U.S. Green Building Council (www.usgbc.com). It's a voluntary certification program for building owners and architects to improve performance in five key areas of human and environmental health:

- sustainable site development
- water savings
- energy efficiency
- materials selection
- indoor environmental quality

Before you envision oddball residential structures made from old tires with grass roofs and solar panels, you might want to familiarize yourself and your organization with this initiative because the following projects are a small sampling of the thousands of projects currently LEED registered:

- The new World Trade Center, including the Freedom Tower, World Trade Center Office Towers 2, 3, and 4, as well as the World Trade Center Memorial and Memorial Museum.
- Clearview Elementary School, Hanover, PA
- Herman Miller Marketplace, Zeeland, MI
- Sabre Corporate Campus, Southlake, TX
- Rinker Hall at the University of Florida
- Fisher Pavilion at Seattle Center, WA
- Genzyme Center, Corporate Headquarters, Cambridge, MA

These sample projects show that LEED certification is being sought by all types of owners, public and private, and in several market verticals that our industry tracks, such as educational, government, corporate, performance, and retail. In response to this trend, the number of LEED certified professionals in architecture and construction has increased from about 2,400 in 2002 to 24,000 in 2006. In 2000, when the LEED program was launched, the USGBC registered 46 buildings and certified 13. By March of 2006, over 3,000 buildings were registered and nearly 400 have completed certification.

When you consider that the built environment will double in size in the next 50 years, and that buildings consume 12% of water, 70% of electricity, and 39% of all energy used

in the U.S., as well as 40% of all raw materials worldwide, you can understand why this organization was created, and why LEED certification is getting so much attention from building owners. And it's not just about reducing raw material consumption; it's about reducing operating costs and improving occupant health and productivity by constructing buildings that are cleaner, brighter, and more energy efficient.

And this is where it gets interesting to us: With the exception of AMX, Epson and Draper, the AV industry has very few manufacturers or contractors with a LEED certified professional on staff, and Infocomm, NSCA, and CES do not have any committees focused on LEED. Considering that AV costs for a large building project can run well into seven digits, and that our equipment consumes millions of kilowatt hours per year, this seems like a major blind spot and an incredible opportunity for forward-thinking companies.

If you're a pragmatist like me, you might be saying to yourself - so what? How would promoting energy-efficient products or having a LEED certified professional on staff bring any more business in the door of my company? Well read on, because here's the logic:

Of course the architect and the owner want to get their project LEED certified for a variety of compelling reasons. First, if the owner has submitted grants applications for any state or federal funding, it may be treated more favorably than a typical project. Second, LEED is a high-visibility promotional tool for the organization, in terms of attracting donor contributions, enhancing community relations, and presenting an eco-friendly profile to the world. This has made architects and builders anxious to show clients that they are LEED experts and have a large "green building" portfolio.

In order to earn certification, a building must meet certain prerequisites and performance benchmarks ("credits") within each category. Depending on the number of points achieved, the building can attain the following LEED status:

Platinum:	52 – 69 points
Gold:	39 – 51 points
Silver:	33 – 38 points
Certified:	26 – 32 points

Of course the overall goal is to reduce operating costs, support healthier and more productive occupants, and conserve natural resources. Many decisions must be made starting early and continuing through construction that may – or may not – allow the project to be awarded LEED certification once the building is complete. And there is often a cost implication that makes obtaining the points difficult and expensive – as much as 20% more expensive than typical construction costs.

Currently, virtually all mass-market electronics manufacturers participate in the U.S. ENERGY STAR program: <http://www.energystar.gov/index.cfm>.

However, with the exception of some flat-panel displays, there are few Pro AV products, and no video projectors on the market that are ENERGY STAR compliant. Apparently this is because ENERGY STAR hasn't gotten around to defining specifications for projectors yet.

ENERGY STAR's oversight is split between the Environmental Protection Agency and the Dept. of Energy, and projectors will likely fall under the EPA's purview. The EPA has been diligently working on more specifications for electronics, so it's only a matter of time before this fast-growing product segment is eligible for the ENERGY STAR logo.

And that's where the AV industry may be able to help. At my meeting, the architect had found a total of 21 points in their audit of the project – 5 points short of the minimum needed to attain basic LEED certification. Additionally, the project had an extremely tight budget, so the owner would not be able to buy more LEED points in the form of better insulation, recycled building materials, water reuse systems, or other expensive eco-friendly luxuries.

It occurred to me that with forty 350-watt video projectors going into the project, we might be able to use a networked AV management system to qualify for LEED "innovation points". Innovation points are identified on page 80 of the USGBC's Green Building Rating System for New Construction and Major Renovation, Version 2.2 (<https://www.usgbc.org/ShowFile.aspx?DocumentID=1095>).

Needless to say, I had the entire table's rapt attention when I brought it up. I can't remember the last time anyone had that much interest in AV at a construction kickoff meeting.

In short, up to four (4) points can be awarded for identifying quantifiable energy savings by using technologies or strategies that demonstrate environmental or health benefits. We all know that users leave projectors on unattended for hours (days even), so the question is how to demonstrate how much energy could be saved by various techniques, such as using eco-mode, and auto shut-down sequencing. Based on the Sharp XR-10X (rated #1 by popularity in conference room and educational projectors over 1200 lumens by Projector Central in October 2006), I found that:

- In full-brightness mode (350 watts) at 40 hours per week, 48 weeks/yr., annual power consumption would be about 672 kilowatt hours per year.
- In eco-mode, (305 watts), the same usage would consume only 586 kilowatt hours, a 13% energy savings, per unit.
- By switching to eco mode, the lamp life increased 50% from 2,000 to 3,000 hours.

Multiplied by the forty projectors in the project, a savings of 86 kilowatts hours would only be about \$344 per year, based on the US commercial average price of electricity of 10 cents per kilowatt hour. But, by including lamp costs, the *savings work out to be over \$9,300 per year in power and replacement lamps*. You could go one step further and calculate how much would be saved from lower building cooling costs when in eco-mode (6,800 BTUs less, for my project), and the savings to the environment for not having to manufacture and dispose of as many lamps over the life of the projector.

This logic could be expanded to the selection of power efficient amplifiers, routers, interfaces, control systems and touch panels. Another opportunity could be the use of AV control systems to intelligently operate shade and sun screen motors to reduce annual heating and cooling costs, and by using power sensors to eliminate the need to leave equipment running 24/7, (See ENERGY STAR sidebar).

Other ideas include lowering standby power consumption, publishing RoHS (Restriction of Hazardous Substances) and life expectancy data on all products, and initiating product recycling programs. You can probably think of more ideas, these are just what come to mind as I write this.

Ultimately, consultants, manufacturers, and integrators could show, by the use of their products and services that Pro AV systems can assist in the attainment of LEED certification in an area that at the moment is almost entirely overlooked both by the architectural design community and the AV industry at large. Personally, I can't think of

a more instantaneous competitive advantage for manufacturers, or a more unique AV integration approach in the world of sustainable conservation trends.

Oh and by the way, it would also be good for the environment.

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