

**Financial Management and Development CoP's
Green Building: The ROI of Sustainable Design
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Introduction

Brailsford & Dunlavy have worked on over 400 campus building projects including over 50 independent schools. They help organizations from concept to implementation.

The number of schools becoming 'green certified' continues to grow. Certification is by the U.S. Green Building Council (website below) through their Leadership in Energy and Environmental Design (LEED) program. LEED has four progressive certification levels according to a point system: Certified, Silver, Gold, and Platinum. Lower levels of certification require design changes of minimal cost, while the Platinum level will cost the school significantly more.

Over 561 schools (K-12) have registered their projects for certification, with 75 schools have receiving it thus far. Interest is growing rapidly across many sectors. The National Business Officers Association recently filled a seminar on this topic at their recent symposium.

Key web resources on sustainable design include the following:

- USGBC US Green Building Council www.usgbc.org
- CHPS (Coalition of High Performance Schools) www.CHPS.NET
- ULI (Urban Land Institute) www.ULI.org
- GREENGUARD environmental institute www.greenguard.org
- Greenseal www.greenseal.org
- Rocky Mountain Institute www.rmi.org
- GSA www.gsa.gov
- GREENBUILD <http://www.greenbuildexpo.org>

Why Go Green?

- Green buildings save on average 30% in energy, 35% in carbon emissions, 30-50% in water, 50-90% in waste.
- Schools have documented a 3% decrease in turnover and absenteeism among teachers and a 3% increase in productivity, learning, and performance
- Green buildings provide a healthy, productive learning environment: **20% Better Test Scores have been documented**
 - Increased daylight improves performance
 - Acoustics increases learning potential
 - Comfortable indoor temperatures increase occupant satisfaction.
 - Good indoor air quality improves health.
 - Mold prevention decreases asthma incidence.
- Hands on learning: Teachers can integrate teaching with the design of the building

Participating schools had the following stories and questions to share about their green projects:

- Several schools were in the midst of developing their own sustainable design projects that did not involve new construction
- One school solicited a donor to lend money for a geothermal building. The heat savings will allow a three to five year pay back with future savings going right to the school

- While designing a new building, one school encountered restrictions associated with wetlands on the property. Local zoning allowed them to build over part of the wetlands if they paid to conserve wetlands elsewhere. School leadership decided to convert one of the wetlands into an open air biology lab
- One school is replacing lighting in two of its facilities with energy efficient fixtures and updating the windows and doors. Payback for the upfront costs will take five years.
- One school in the Northwest is considering solar paneling for hot water. The payback will be 3 years. They can actually sell tax credits in their state.
- Someone asked how feasible solar energy is in states where there is not a lot sun. Julie said that the buyback is longer and it needs an in depth analysis. Solar energy tends to be more expensive. For one school, the payback would have been thirty years.
- One school found a much more feasible option for solar paneling. They sold tax credits through their energy reseller resulting in a \$500,000 windfall that did not cost the school anything. The tax credit money is coming from funds earmarked for renewable energy in utility bills. The energy reseller also helps the school by locking in energy rates a year at a time.
- Some teachers on the call discussed integration within their high school science curriculum. A ‘green team’ of students is involved in aiding in the facility planning.

The financial case:

Julie shared the capital costs associated with each of the four LEED levels according to various sources. Capital costs are limited at lower levels of certification. Her firm puts forward the following cost estimates for LEED construction by level, although improvements in technology and market acceptance are changing (lowering) these cost:

Certified	2%
Silver	4%
Gold	6%
Platinum	8%

Reductions in energy and water costs by LEED level are as follows:

Certified	25%
Silver	30%
Gold	35%
Platinum	40%

Julie took the previous information on capital costs and operational cost reductions to come up with average return on investments for each LEED level using the following chart (arrows point to ROI in years for each LEED level):

	SF	\$/SF	Total Cost	Certified	Silver	Gold	Platinum
Capital Cost	40,000	\$250	\$10,000,000	2% \$200,000	4% \$400,000	6% \$600,000	8% \$800,000
Operating Cost	40,000	\$3	\$120,000	25% \$30,000	30% \$36,000	35% \$42,000	40% \$48,000
ROI				7	11	14	17

For example, at the certified level with a 2% capital cost and 25% reduction in operational costs, it takes about seven years to recoup the initial investment.

Another way to look at green building is in terms of resource reallocation. Green building costs higher in architecture, but much less in mechanical costs. In other words, a school will spend more money up front on windows, for example, but much less money over time on heating and cooling.

Discussion among the schools on the call included the following points and questions:

- AVI CHAI has a loan program allowing schools to borrow up to \$1.5 million for new construction and \$750,000 for renovation. You can read more here: <http://www.avi-chai.org/Static/documents/Building%20Loan%20Program%20Info%20-%20January%202008.pdf>
- One school had the chair of the facilities committee on the phone. They are preparing to interview architects for a \$20 million building. What are they key questions to ask during the proposals? Julie answered the following:
 - Ask them about their approach. It is much more cost effective to incorporate sustainable design in the early stages of planning and engineering
 - Ask them for their track record with capital costs

The Fundraising Case

How to go after donors and make a strong case:

- The educational benefits statistics are compelling
 - Improved Attendance and Better Test Scores
- The business world is embracing green building
- Students are passionate about it
- It broadens the appeal of campaigns
 - Sustainable design can shift the focus from deferred maintenance or away from just one facility type
 - A ‘sustainability’ donor may not be interested in a conventional athletic center, but making the case that it will be a Sustainable Athletic & Wellness Center may make it much more exciting
- Environment benefits
 - Many donors want to be good stewards of the campus and the greater world
- Cost savings
 - Because operational costs are so much lower, the amount needed to endow building operations are also lower. Funds can therefore be reallocated from endowment to construction costs. The following chart indicates the size of endowment required to maintain operational costs of 40,000 square foot buildings of various types, from non-certified all the way to Platinum Level (see arrows):

	SF	\$/SF	Total Cost	Certified	Silver	Gold	Platinum
Operating Cost	40,000	\$3	\$120,000	25% \$90,000	30% \$84,000	35% \$78,000	40% \$72,000
Endowment		5%	\$2,400,000	\$1,800,000	\$1,680,000	\$1,560,000	\$1,440,000

For example, a conventional 40,000 square foot facility may cost \$120,000 to operate requiring a \$2.4 million endowment at a 5% disbursement rate. A LEED Certified will cost 25% less to operate, or \$90,000 per year, therefore requiring a \$1.8 million endowment.

There are also Government-sponsored incentives at the local, state, & federal level

As of May 2007, 72 cities, 22 counties, 27 states, and 13 federal agencies have adopted policies either mandating or incentivizing LEED standards for construction

There are private grants available.

- U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy offers financial assistance / procurement for development of energy efficiencies
 - Assistance includes grants, cooperative agreements, continuation & renewal rewards
- USDOE's Million Solar Roofs Initiative aimed to install 1 million solar energy systems by 2010
 - Lending & financing opportunities available to public & private entities

A school on the call shared that a team effort between the development and business offices is required. Some innovations seem prohibitively expensive up front. However, with the business office supplying some numbers, the development staff can make a proper case.

Conclusion

The number of Jewish day schools engaged in this work is clearly greater than anyone anticipated. As energy prices continue to climb and as global warming legislation and general concern grow, the number of schools focused on sustainable design will only increase.