How higher education helps shape the future of green building

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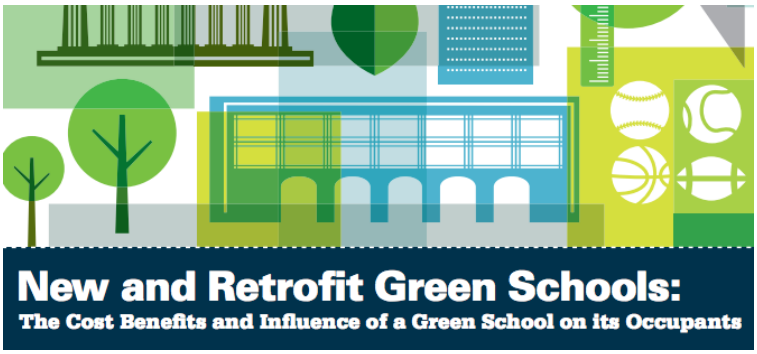

This article originally appeared on GreenBiz in May 2013 and is authored by Ashka Naik, director of ACUPCC Initiatives at Second Nature.

In spite of its growth, green building often has to defend its right to exist.

In today's business case-driven industry, questions such as how the investment is justified and the length of ROI are posed with preconceived notions of green building costing more than projected and offering less than promised.

Therefore, it's worth listening to what the U.S. education sector has learned from its green building efforts.

In 2012, despite a 39 percent decline in education sector-related construction, the growth in its total green share was estimated to be $16 billion, almost double the 2008 green education market, according to the new report from McGraw-Hill Construction, "New and Retrofit Green Schools: The Cost Benefits and Influence of a Green School."

According to the report, in this year the education sector accounted for 8 percent of all construction starts and 24 percent of total non-residential construction starts (see chart below).

Last year, Second Nature contributed to McGraw-Hill Construction's new SmartMarket Report on green building in K-12 and higher education. As it provides a crucial insight into how the education sector has evolved into a mature market for green buildings while paving a path for others, we decided to take a deeper look into its findings.

What follows are the highlights of a Q&A with Donna Laquidara-Carr, editor of the report.

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Ashka Naik: *What led you to focus on education, especially higher education, in this SmartMarket Report?*

Donna Laquidara-Carr: This report follows up on the 2007 Education Green Building SmartMarket Report. In 2007, education was really on the vanguard of green, with enough green projects allowing us do a sector-specific focus. As this sector has remained a prominent green market player, it was important to reinvestigate its growth.

Higher education's focus on mission is a great differentiator, and a reason why climate is important to this sector. Higher education has a unique potential to guide other sectors by demonstrating its pursuit of the triple-bottom-line metrics for evaluating its green projects. Through the American College and University President's Climate Commitment (ACUPCC), higher education also has made a public commitment to climate neutrality, therefore we hope that the inclusion of the ACUPCC data in the report highlights the leadership role this sector can play in bridging the gap between various dimensions of sustainability.

AN: *How did ACUPCC data help bridge the gap between green building and climate?*

DL: Partnership with Second Nature allowed for a wonderful marriage of our data and the ACUPCC data to provide a complete picture of higher education and how it is driving the marketplace. We recognize that mitigating greenhouse gas emissions is a critical reason why green building is ramping up. However, we often aren't able to reflect that.

Especially in the commercial sector, cost and energy savings become so prominent that connecting the built environment to addressing climate change is less frequently discussed. In comparison, higher education is a crucial player in addressing climate change.

For example, the ACUPCC data demonstrate that higher education is the third largest purchaser of Renewable Energy Credits (RECs) in the U.S. by purchasing a total of 1.3 million kWh of RECs. This makes RECs more viable as an industry for all sectors. Another compelling data-piece was the climate neutrality dates -- 103 institutions have committed to relatively early climate neutrality dates [from 2012 to 2030].

AN: *How does education sector compare with other sectors vis-à-vis its commitment to green building?*

DL: In our most recent Dodge Construction Green Outlook report, we looked at four sectors -- education, office, healthcare and retail -- and broke down their share of green construction.

Currently, the office sector has the highest level of green activity, with 54 percent of construction starts for offices in 2012 being green compared to 45 percent of education starts and 44 percent of healthcare starts. To correctly understand the data, one should look at the bigger picture for green in institutional construction. The education sector has the benefit of a much longer commitment to green compared to other major institutional sectors such as healthcare. In 2011, we found that the same percentage of education starts were green, but in the same year, only 35 percent of healthcare starts were green.

In essence, what we're observing is not that education is falling behind, but other sectors have now started to catch up. It is important for those outside the education sector to understand the relevance of these data in indicating that education is a very mature green market. And, the value of this report is in its ability to demonstrate what a mature green market looks like.

AN: *What are some key differences between sectors?*

DL: There are some interesting differences. A study we conducted with Siemens, A Path to Achieving Higher Building Performance, looks at three sectors in green building: office, healthcare and higher education.

Higher education in general responded to more triggers, and there were a few it responded more strongly to than any other: It put greater emphasis on improved occupant performance, meeting internal sustainability goals, conforming to government regulations and lowering the environmental impact of buildings. Top triggers for higher education also included demonstrating fiscal responsibility, improving costs over 10-plus years, water use reduction and attracting students.

Anecdotally, case studies we have conducted with higher education institutions reveal that the payback period higher education expects is roughly equivalent to what most commercial construction requires, which is surprising, given higher education's longer ownership. Another difference was in the reasons for making unique investments versus universal improvements, because of higher education's mixed-use building portfolios.

AN: *How do the report's findings address the ROI of green building?*

DL: The report makes a compelling argument that higher education finds green to be a good financial investment. Nearly half of the respondents find that green buildings reduce their operating costs and most find that they achieve savings in yearly operating cost between 5 percent to less than 20 percent. Over 60 percent said they were measuring factors such as operating cost decreases, yet 34 percent didn't know if the green buildings are saving them operating costs.

This demonstrates a gap in tracking mechanisms and metrics of individual performance of green buildings. Higher education institutions find that they are seeing business benefits of green building beyond simple cost savings: 65 percent find that they have enhanced reputation and a greater ability to attract students, and 33 percent find that their green building efforts actually have improved enrollment. However, these factors are often not included in ROI calculations. The challenge every sector is facing is finding well-defined and comprehensive metrics to evaluate ROI.

AN: *Based on your research, are different sectors benefiting differently from behavioral and productivity returns?*

DL: All sectors are reporting returns, but most sectors do not report them at the same level as the education sector. 51 percent of higher education institutions that have included improved acoustics in their green projects found moderate to significant improvement in attentiveness. 86 percent reported having increased daylighting in buildings, and 56 percent of them reported that it had at least moderate impact on improving student engagement. Since there is more awareness, schools are more likely to demand these elements. Over a third reported improved productivity and test scores. We compare this with our study on green building improvements in the office sector and we only found 10 percent of tenant respondents reporting positive impact.

AN: *According to the report, architects/contractors and the building users have a different level of expectation on the impact and ROI of green buildings. Why such discrepancy, and how can it be bridged?*

DL: We found that discrepancy to be valuable, as it can inform the design and construction community about how they are viewing their projects differently than the owners/users. The data suggest significant gaps in efficiency modeling. We need a feedback loop -- modeling of building performance during design phase to be informed by the actual experience of building occupants. The latest version of LEED pushes to report performance. Without this final piece helping to continually refine the model, we are missing a massive step. Industry is aware of it, but findings like these reinforce and remind us of them.

AN: *How can the findings of the report help sustainability professionals of other sectors?*

DL: 84 percent of higher education respondents compared to 66 percent of K-12 reported achieving third-party green certification on projects in the last three years. More importantly, 75 percent of higher education respondents reported exceeding guidelines, with nearly 25 percent achieving LEED Platinum even though most common requirement was LEED Silver. In terms of vertical construction, building as opposed to infrastructure, higher education undoubtedly is the leader in trying to put a price on carbon. More cooperation between public and private sector on that could be extremely beneficial. Our SmartMarket Executive Brief, Determining the Value of Green Building Investment, stresses higher education's dedication to triple bottom-line. Looking at higher education as a deep green market, with examination of its challenges and success, paints a portrait of what is coming down the line for many other sectors.

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Aleksey Marintsev 2 years 24 weeks ago
Student at ITT-Techincal Institute

Green Schools with nice looking Architecture will inspire their students to love their learning environment. The affects of green building should be almost invisibly positive on its inhabitants; there for enchanting the mind and body to be more creative and seamlessly boosting the thought process.

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