

NEW AND RETROFIT GREEN SCHOOLS: The Influence of a Green School on Its Occupants

Key Findings from a New McGraw-Hill Construction *SmartMarket* Research Study

DRAMATIC LEVELS OF NEW AND RENOVATION/RETROFIT GREEN ACTIVITY IN THE EDUCATION SECTOR

In the past three years, McGraw-Hill Construction has seen tremendous growth in the green education market. In 2008, McGraw-Hill Construction sized the green building market share at 15% of total construction starts by value. By 2011, that share had grown to 45%, a market valued at \$19 billion—the largest sector for green by value.

Therefore, understanding and growing the green education market is critical to the growth of the green building market overall.

This new market research study supports this significant market sizing, and it also confirms that the penetration of green into the education sector is deep.

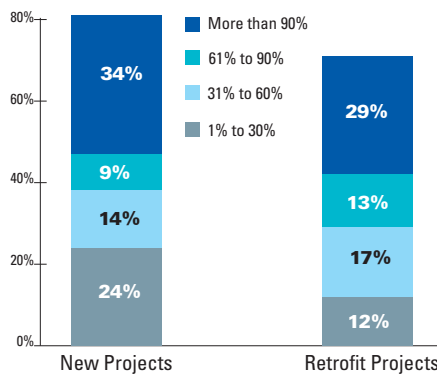
K-12 Schools

81% of the respondents from the K-12 sector report doing at least some new green projects, and 84% report doing some green renovations over the last three years.

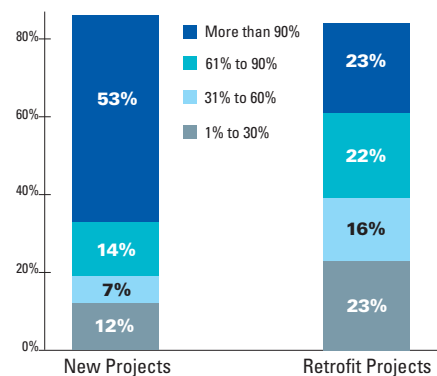
Not only are a large percentage of the respondents doing green work, but green also accounts for a large share of their overall projects. For more than one third of the schools, over 90% of their new building projects were green, and just under one third report that over 90% of their renovation projects were green over the last three years.

Percentage of Green Education Projects Conducted in the Last Three Years

K-12 SCHOOLS



HIGHER EDUCATION



Source: McGraw-Hill Construction, 2012 to be published in the 2013 *New and Retrofit Green Schools: The Influence of a Green School on Its Occupants SmartMarket Report*

While new construction is expected to stay pretty consistent, in the next three years, schools are expecting a small increase in the percentage of those doing mostly green renovation work, demonstrating the impact of the results they are achieving.

Higher Education

As significant as the penetration of green in the K-12 market is, however, the commitment of higher education to green is even greater. 86% of the higher education respondents report doing at least some new green buildings in the last three years, and almost the same percentage have done some green renovation projects.

Those doing new green construction in higher education are committed to green, with over half reporting that more than 90% of their new projects over the last three years were green. This commitment to new green building is probably driven by the importance that these institutions place on greening their facilities to build their reputation and attract students.

Their retrofit project penetration, while still substantial, is lower, more equivalent to K-12 schools. The level of green work by higher education respondents in the retrofit sector, though, is expected to continue to grow over the next three years, with 29% expecting more than 90% of their renovation projects to be green by 2015.

SOCIAL BENEFITS, SUCH AS HEALTH AND PRODUCTIVITY, ARE CRITICAL DRIVERS TO GREEN

What distinguishes the education sector from other sectors is that health and well-being factors are equally important in the decision to build green. Over 75% of respondents consider improving indoor air quality and enhancing health and well-being to be key reasons for their green building efforts.

In the K-12 sector, social factors are particularly prominent, with over 75% also citing increased student performance as an important element of their decision to build green. Enhancing health and well-being and decreasing student/faculty absenteeism were the only two factors that were considered important by over 25% more K-12 respondents in 2012 than in 2007, as published in McGraw-Hill Construction's 2007 *Education Green Building SmartMarket Report*.

The results reported by K-12 schools and higher education institutions are also impressive in this area. The chart top right reveals some of the key benefits.

FINANCIAL BENEFITS ACHIEVED HELP DRIVE GREEN IN EDUCATION

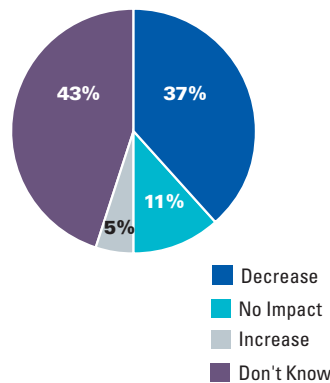
Like all construction sectors, cost savings are critically important in driving green activity in the education sector. Over 75% of respondents in both K-12 and higher education report that reducing energy use, operational savings, and improving 10-year operating costs are important reasons that have led them to build green. The importance placed on the financial benefits offered by green buildings in this study correspond to findings in other McGraw-Hill Construction studies in the commercial office and healthcare sector.

Social Benefits of Green Schools
(Percentage of Respondents)

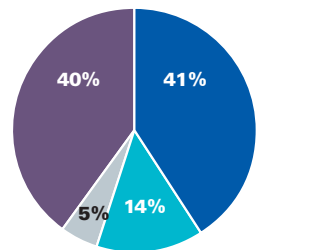
| BENEFIT | K-12 | HIGHER EDUCATION |
|--|------|------------------|
| Positive Impact on Student Health and Well-Being | 100% | 90% |
| Improved Test Scores | 70% | N/A |
| Increased Enrollment | N/A | 39% |
| Increased Reputation | 69% | 65% |

10-Year Impact on Operating Costs
(According to Facility Managers, School Design and Construction Staff and Real Estate Staff)

K-12 SCHOOLS



HIGHER EDUCATION



Respondents are also reporting measurable financial benefits from their green building investments. 58% of the K-12 school respondents cite decreased energy use in their green buildings, and 55% report lower annual operating costs.

Higher education respondents agree that green schools yield these benefits, with 55% reporting decreased energy use and 46% reporting lower annual costs.

CRITICAL CHALLENGE FOR EDUCATORS: MEASURING AND PREDICTING THE BENEFITS OF GREEN

Various metrics and tools—such as absenteeism, visits to nurse/health center, asthma incidence (K-12 only), and student surveys—are used by some to determine the social benefits of green building in the education sector. But one clear trend that emerges from this study is the need for better measures more consistently applied.

One striking example is the impact of green on the 10-year operating costs of buildings. According to the staff most knowledgeable about building performance—building and facility managers, design and construction staff, and real estate staff—over 40% of both the K-12 and higher education respondents do not know the longer-term impact of their building improvements.

Thus, there is opportunity in the industry to provide this sector with the tools and data necessary to help owners accurately predict building performance and to capture these factors effectively in their ROI calculations on green.

The findings of this study are drawn from a McGraw-Hill Construction survey of K-12 and high education administrator and staff and survey of architects, engineers and contractors, about the green building activities occurring in new and retrofit school and university projects. The report is an update and significant expansion of McGraw-Hill Construction's 2007 *Education Green Building SmartMarket Report*. In addition to demonstrating how green schools have evolved since 2007, this new study also provides more complete data on the financial, social and environmental benefits of green. The full results of this research will appear in the *New and Retrofit Green Schools: The Cost Benefits and Influence of a Green School on Its Occupants SmartMarket Report*, part of the continuing McGraw-Hill Construction SmartMarket Report series, expected to be published in early 2013 at http://construction.com/market_research.

The premier partners of the research are the U.S. Green Building Council Center for Green Schools and Lutron. Corporate partners include Project Frog and Siemens. Survey and data partners included the Council of Educational Facility Planners International, The American Institute of Architects, Associated General Contractors of America, Green Schools National Network, National Association of Independent Schools, Society for Colleges and University Planning, and Second Nature.