



# UNDERSTANDING FUNCTIONAL ADEQUACY AND FACILITY CONDITION FOR STRATEGIC DECISION MAKING

BY RAY DUFRESNE

**A**t colleges and universities today, the increasing number of students is putting new pressure on facilities—and on facility staff. According to the 2012 APPA Thought Leaders report *Campus Space...An Asset and a Burden*, “Colleges and universities are scrambling to find enough classrooms, labs, and offices, and demand is expected to grow in the next few decades. Some 23 million students will be crowding U.S. colleges and universities by the end of the decade, yet only 6 percent of campus space is classified as classroom.” These numbers mean that most schools will soon be falling short in their ability to support students, if they are not already.

Student needs are also increasingly different, and most campus facilities have not kept up with the changing times. Quoting again from the Thought Leaders report: “More than half the

buildings on college and university campuses were constructed in the 1960s and 1970s when the Baby Boom generation reached college. The construction of these buildings reflected the then-current thinking on pedagogy, which essentially consisted of a professor at the front of the room lecturing to a passive student body.” An example of this, recently described in *The Chronicle of Higher Education’s The Digital Campus*, is a professor at Virginia Tech who leads highly interactive classes with up to 3,000 students in the largest space on campus, has guest speakers via Skype who receive questions from Twitter, and runs other classes from his office space with hundreds of students online.

With changing technology and user needs, numerous questions must be asked. Are the classrooms and labs up to date? Do they allow for interactive work? Is space going to waste, and



One important step is gathering accurate facility condition and cost data, through facility condition assessments (FCA) or self-assessment, which results in a benchmark to analyze the effect of investing in facility improvements. Developed by industry associations, including APPA, this benchmark is known as the Facility Condition Index (FCI). The FCI is the ratio of deferred maintenance dollars to replacement dollars, and provides a straightforward comparison of an organization's key estate assets. To calculate the FCI for a building, divide the total estimated cost of deferred maintenance projects for the building by its estimated replacement value. The lower the FCI, the lower the need for remedial or renewal funding relative to the facility's value. For example, an FCI of 0.1 signifies a 10 percent deficiency, which is generally considered low, and an FCI of 0.7 means that a building needs extensive repairs or replacement.

The FCI provides the ability to compare similar buildings to each other and to establish target condition ratings. Comparing buildings analytically rapidly highlights the buildings that are in the greatest need for updates, repairs, or replacements.

Next, functional adequacy must be addressed. Facility performance should be evaluated to determine if the building in question is still suited for the purpose originally intended, or if it needs to be changed for new uses. Measuring the functional adequacy of a building or campus requires a functional assessment to capture the current status, compare it to a predefined standard, and then identify the gaps.

Functional assessments may be conducted for an entire facility, or for a portion of the facility, e.g., classrooms, or laboratories or for specific rooms that are critical to the function of the department. Similar to an FCA, functional assessments need to be conducted on a regular basis. There are a number of potential sources for information on the current standards of delivery of a particular activity, i.e., teaching, research, dining, or athletics. Industry associations and companies have collected data over time from a variety of sources. Schools also develop standards that apply to their own facilities.

The gap analysis shows what changes need to be made to a facility to bring it into compliance. A functional score can be defined that gives the facility under review a rating as to how well it meets the overall standards. Ideally, a solution that includes a quantitative ranking system for functional criteria that enables the assignment of scores will help educational institutions objectively prioritize current requirements and focus their capital initiatives where they will be most effective. Modeling tools for functional assessment, coupled with facilities capital planning software, can provide a framework for organizations to evaluate alternatives for capital spending and their impact over time.

With metrics such as the FCI and a functional adequacy score, educational institutions can objectively prioritize facility projects and capital spend. The most successful prioritization is based on

costing money to operate? Can the space be easily modified or repurposed to accommodate changes?

Facilities are expensive to build, maintain, and renovate, and costs are on the rise. Funds for building, operating, and maintaining classrooms and laboratories, offices, and libraries represent a growing demand on the annual budget for higher education institutions. To effectively plan the capital spending for its facilities, a school needs to know not only the repair and renewal costs to maintain good condition but also the functional adequacy—the ability of a facility or a portion of the facility to match the current or intended use—and the cost of renovations required to bring facilities up to current standards and to make them suitable for changing needs.

#### **A STRATEGIC APPROACH**

It is important to take a strategic approach, looking at an entire campus holistically. Any analysis, in order for it to be valid, must be based on accurate, objective data, including an understanding of current facility condition and remediation costs, functional adequacy, and demographics. Without access to detailed information regarding these issues, facilities managers and capital planners find it virtually impossible to decide whether buildings are worth the investment required to make them both useful and usable.



organizational objectives as well as an understanding of the relative importance of assets, the functionality of the buildings, and demographics that may impact use.


For example, most schools have certain buildings on campus that are strategically critical with a high level of permanence. They serve a specific and highly necessary function, and the student population that uses these buildings is growing. These buildings are essentially irreplaceable and a low FCI is important. The strategy for such critical buildings may be to invest

to improve—renewing systems proactively, ensuring functional adequacy and addressing deferred maintenance.

On the other hand, many campus buildings may be operationally redundant, subject to frequent mission change, and easy to replace. They may no longer be serving the purpose for which they were built, and may or not be able to be repurposed. Demographic analysis for the population that uses these buildings may show a decline in future use or a change in who is using them. Depending on what the analysis shows, the strategy for

these less vital assets may be to reduce operating and maintenance costs, maintaining only critical systems for business continuity, making no long-term investments, and positioning for short-term disposition or alternate use.

The key benefits of a systematic, data-driven approach to functional adequacy, that includes a holistic view taking into account facility condition, is that the results are defensible; that upgrade costs can be quantified to facilitate all-inclusive planning; and that unnecessary spending on functionally deficient buildings can be avoided. Given the numbers of students on campus, and their demands to learn differently using technology, now is the time for colleges and universities to assess both the functional adequacy and condition of their facilities.

By combining best-of-breed methodologies for these assessments with sophisticated modeling and decision support tools, educational institutions can optimally plan for the future, take the subjectivity and guesswork out of the process, and use a rational, repeatable process to determine how to allocate funding where it will have the most impact and best support educational goals. Analysis based on accurate data results in objective prioritization, a clear path to decision making, and, ultimately, intelligent investment choices resulting in cost savings over time. 

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