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Higher Education Supplement: Facility Condition Assessments

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People need safe, enduring places to work, learn, eat, shop, and play. As buildings age, however, facility executives face major hurdles. Crumbling infrastructure has become a national problem. The near- and long-term solutions require that facility management professionals learn to plan and execute cost-effective maintenance and preservation strategies proactively. The challenge: In the public sector, funding that would prevent further decline dwindles as public dollars earmarked for institutional facilities continue to be reduced. In the private sector, companies seek lower maintenance and repair costs, while still enhancing workspaces for their employees.

Photo: Sinclair Community College

Fortunately, today's facility professionals have sophisticated tools at their disposal to maintain their buildings and to provide stakeholders—workers, students, managers, investors, and taxpayers—with a viable, prioritized plan to repair or rebuild, rethink, or renegotiate their spaces.

A starting point is to conduct a detailed facility condition assessment (FCA), using software that collects and handles massive amounts of relevant data. The FCA is a study, typically conducted by an architect- or engineer-led team, to determine and document the existing physical conditions of all major systems that comprise a facility, or campus of facilities. The

term FCA existed as early as 1980, but the full expression of the real-time benefit was not realized until computer assisted data collecting devices (laptops and tablets) made the FCA more useful. As facility management professionals strategically analyze and interpret this information, they will be able to create a viable planning document to make informed forecasting decisions without breaking their operational budgets.

Facility management software has been available for decades; however, recent enhancements enable facility executives to extract more useful planning documents from these powerful tools. One key area of improvement is at the data capture phase: Electronic tablets are used to collect facility condition metrics efficiently and deliver the volume of data to one processing location, which saves time and reduces human input errors.

The FCA "scorecard" structures the data collection and includes a rating and a priority for virtually any aspect of a facility's infrastructure that the team identifies as important to document. This includes, but is not limited to, structural, plumbing, electrical, exterior envelope, interior spaces, mechanical, lighting, etc. By loading the rating and severity of the problems into a tablet, and confirming the observations with existing conditions photos, the collection phase takes on a consistent structure that gives confidence to the software's output.

The FCA scorecard information provides a baseline of existing building information, coupled with a documentation of space use, departmental assignment, and space utilization to enable the generation of a facilities optimization plan (FOP). The FOP identifies opportunities and makes recommendations for how to optimize space usage, which may include reassignment of existing spaces across campus.

FOP outputs yield:

- accurate facilities drawings (to have a reliable base of information);
- identification of departments (to know who lives, works, or resides where); and
- an assessment of space utilization (to understand how often spaces or rooms are scheduled or used).

Based on the output from the FOP, the facility professional and his or her partners analyze the data and create space optimization recommendations. It is important to keep in mind that the final deliverable—a solid plan—takes time and thought. The goal is to return an Integrated Workplace Management System (IWMS) to satisfy stakeholders and to prioritize, phase, and implement proposed recommendations over the timeline defined in the FCA.

Legend					
Discipline	Rating	Priority			
Structural			**Ratings**		**Priority**	
Exterior Envelope			5	Optimum	1	Immediate Attention Required
Interior Spaces			4	Adequate	2	Attention Required in next 5 months
Mechanical			3	Fair	3	Attention Required in next two years
Plumbing			2	Poor	4	Attention Required in next five years
Electrical Power			1	Unsatisfactory	5	No Attention Required
Lighting						
Fire Suppression						

An example of a facility condition assessment (FCA) scorecard. (Image: BHDP Architecture.)

There are several robust facility management software programs to choose from in the marketplace: ARCHIBUS, IBM's Tririga, and Manhattan Software are but a few. Each is different, and part of the challenge is to choose the best one for the facility's distinct needs. The value these programs provide comes from bringing in other data not available on a CAD drawing or with a spreadsheet (e.g., variable school registration data, workspace sizes, etc.). A fully developed software program will incorporate and help make decisions, but the facility manager, the consulting team, and other stakeholders will drive the metrics they need to gather and update.

Though there are clear advantages of using facility management software, the programs carry a hefty price tag. Furthermore, building data at many sites are outdated or just plain wrong. This reality increases the cost to incorporate software into a planning agenda. Even if the program cost is a surmountable challenge, there may be insufficient money, time, resources, or general support to begin proper data gathering. If the software is purchased and even if the data is collected, the expense will be wasted if there is no commitment to timely updates after the software is in place. The GIGO (Garbage In, Garbage Out) phenomenon in the later phases of plan implementation will render the data outdated and the plan unworkable.

Case Study: Sinclair Community College

Located in Dayton, OH, Sinclair Community College (SCC) is the oldest continually operating community college in the U.S. (opened in 1872), and the campus presents an example of how technology helped inform the 2013 master plan for the college. The complexity of the project, which includes 21 buildings on 65 acres and totals 1.9 million square feet of academic and administrative space, shows how facility management software can help transform a static,

complicated master plan into a holistic, actionable roadmap with priorities, timelines, and budgets.

By leveraging the physical and academic resources of the campus to align with the college's mission and long range goals, SCC director of facilities, Woody Woodruff, currently has a clear set of priorities to not only maximize facilities spending but also to do a better job of aligning student and faculty needs with available spaces.

The project was not without challenges at the outset. There was a lack of confidence in the existing building documentation, a lack of SCC staff to manage and oversee the project, and a need to sort, prioritize, fund, and correct deficiencies.

Woodruff's department carefully coordinated with the data gathering team of architects and engineers hired to ensure consistency in assessing building conditions and repair priorities (e.g., "Is that really a '1,' or should it be a '2' priority?"). The number of data points for facilities of that age and size was staggering, and Woodruff agrees that without using the software to crunch the data into meaning, the planning task would have been nearly impossible.

The college and its stakeholders benefitted from this process in several ways. By managing the data capturing activities, everyone involved could be confident in the data's accuracy and consistency. Handling of big data granularity that included interior and exterior measurements, utilities, and other items overlaid with usage by building, by floor, and room number yielded a clear, targeted, actionable plan that helped SCC as it sought public and private funding. Examples of prioritized projects included, but are not limited to, exterior concrete walkways, building envelope restorations, and phased replacement of roof systems, based upon their age and estimated useful life expectancy.

The FCA input that was used delivered seamlessly into the facility management software, allowing Woodruff and other stakeholders to budget and plan for replacements and deferred maintenance in facilities. This not only applies to planning 20 or 30 years into the future, but also for the near-term increments.

Informed Decisions

Facility professionals who do not use current technology for planning and operational purposes, particularly for numerous facilities and larger campuses, are shooting in the dark. To rely on old technology is not an option as building systems have become increasingly complex. Facility management software invites the industry to be proactive. Without gathering data in real time and without having a plan for the future, facility professionals are often plugging leaks as they occur instead of proactively preventing costly breaches well ahead of time.

The software isn't a magic wand. In conjunction with technology, it is important to commit to keeping data accurate and current. Public and private management teams have to fund not only the initial purchase but also the ongoing data collection requirements. To ensure success, it is important for facility executives to maintain a competent staff or engage a knowledgeable consulting team to support this critical initiative. These projects are not accomplished overnight, and the data must be housed somewhere. Industry consulting teams trained in facility management software help see the plan through and encourage sustainable strategies to protect and maintain aging infrastructure.

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