

Maximizing Condition Assessment Efforts

by Brad Peterson and James Sebesta, P.E.



The future of effective condition assessments and building total owning and life-cycle cost programming will begin with the use of tools to efficiently map and document building systems, elements, and maintenance requirements during the building design and construction phase. Most institutions need to address existing facilities for deferred maintenance, capital budgeting, operating cost, energy use and optimization, and upgrading their facilities. However, institutions are faced with increasing needs to prioritize renewal and replacement dollars today. Communication and selling

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these financial needs to the institution's business officers requires that needs assessments, condition analyses, and presentation of material be done in a consistent, defensible, and repeatable manner that establishes the credibility and accuracy of the requests.

To do this, the institution must develop and execute its condition and needs assessments in a methodical and efficient manner. A basic process consists of nine individual steps:

1. Development of a survey mission statement
2. Establishment of the assessment criteria
3. Establishment of assessment standards and reference points
4. Development of standard assessment templates
5. Actual facility survey and assessment
6. Analysis of the data
7. Financial planning, programming and feedback mechanisms
8. Maintenance and renewal program development
9. Execution of the plan

Survey Mission Objective

Establish a clear project mission statement that defines the general

objectives and expectations for the assessment survey. Too many assessment projects have to go too deep in one area while being too light in others. This level of a project mission statement helps align expectations from the beginning of the project and minimizes any concern for scope adjustments downstream. It also aligns the needs and expectations of the business officer with the facilities officer before the task is undertaken, making communication of the results and cooperative goal setting in the future easier to attain.

Establish Assessment Criteria

This has been an area of considerable debate over the years where various industry associations have established baselines for capturing relevant survey data. One of the most costly areas for the basis of the survey is the actual field-deployed survey teams, where labor costs are most prevalent. With this investment, surveys now incorporate more data than several years ago, including photos, CAD drawing updates, enhanced field descriptions, nameplate data for Computerized Maintenance Management System (CMMS) and Computer Aided Facilities Management (CAFM) systems, in-field cost estimating, compliance to regulations, location information, related conditions, and potential solutions.

Establishing assessment criteria is paramount to a successful assessment survey, and sets the basis of your measurement criteria moving forward. More organizations are requesting the survey information be provided to the client in a format that can be managed, not in a fixed-report format that is static and remains on a bookshelf.

The criteria allows for an organization to establish its own "specification"

of sorts, defining the expectations, knowledge, and experience to the Facility Condition Assessment (FCA) survey team for field-level data collection. The assessment criteria also allows for the selection of additional information that either has not been gathered in the past, or was not measured effectively. Areas of concern that require an increase in the gathering of detailed asset information are generally high-value assets such as mechanical HVAC and electrical systems, and risk assessments.

By defining the survey requirements for the various elements that compose a thorough assessment, the survey can be developed on specific "system" requirements, or more of a comprehensive assessment which may be more building oriented. Building-oriented assessments tend to require a more broad based facilities knowledgeable survey team which has expertise in many areas, rather than only mechanical or electrical systems professionals.

With the expanded use of benchmarking of information in the higher education industry, much of the criteria for data gathering can be pulled from the structure of the various reports. Reporting elements such as the Facility Condition Index (FCI) all support specific data elements that the survey can capture.

Surveys can also involve everything from code compliance, safety/risk audits, environmental surveys, sustainability, arc-flash compliance, site assessment, equipment/system surveys, actual preventive maintenance work efforts, and materials required or general/specific building surveys—all of which require specific criteria to provide you with the most effective return on the survey investment.

Establish Assessment Standards

The assessment standards must be established from the beginning due to the importance of the evaluation, the depth of the system components of

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the gathered data, and the expected reporting process and accuracy of the final document.

What good is an assessment if the baseline requirements for assessing the data through effective reports cannot be accomplished efficiently? The standards must coincide with the assessment criteria so that the survey component of the process is well-defined and the data gathered is completed in the correct manner.

Many of today's assessment firms do provide survey teams that can develop the criteria and establish the standards in which you report on

the data. Standards would include naming conventions, barcoding, maintenance hours and scheduling, facilities and components replacement values, assigned codes, one-line diagrams, and costing database to name a few—all of which will allow you the opportunity to query and pull reports and valuation criteria from the reports once the survey has been completed.

The data standards will allow for flexibility in assessing the data for future reporting, along with the ability to assign effective costs to the survey data. Many of today's industry-standard unit cost models (RS Means, etc.) apply standards for specific data elements and unit of measure, allowing for conformity in aligning cost structures to data elements. The Construction Specifications Institute (CSI) provides either a Unifomat or Master Format for defining the various detailed elements of building

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Spending planning time up front, prior to the survey, to define your expectations from a reporting standpoint will assist in the proper definition of standards going into the survey and will result in a more efficient execution of the survey.

It is much more cost effective to have a survey team collecting once than having them at the same facility and/or component to identify facility and system data, contract requirements, design upgrade considerations, condition and life expectancy, replacement cost, and population of computerized maintenance programs. The information gathered will last you many years and provide enormous opportunities for future use, if gathered correctly and completely.

Apply Survey Templates

Development and use of a survey template derived from the survey cri-

teria and institutional standards will allow for an expedited survey. These forms may be in either an electronic form or a paper form depending on the program and process established for the survey team. The goal of the template is to maintain consistency in data gathered, condition and maintenance needs and costs being established, and future reporting tools for assessment of the effectiveness of the program. Overall, such tools and processes result in greater efficiency and effectiveness of your survey teams.

When being developed, templates need to be clear and concise, with minimal areas for extensive field notations. The format of the template can be established in an electronic form that resides on a PDA, tablet, or laptop, or on a hardcopy form on a clipboard.

Assess Sites, Buildings, Assets or Systems

As mentioned earlier, there are numerous types of surveys that can be performed to support a facility organization. The type of survey and depth of information being developed is a direct result of the mission and objective established for the assessment. While areas of specialty have risen out of demand for various types of surveys, the predominate types of surveys performed for facilities involve either property sites, broad building models, combined assets of either the site or building, or the actual specific systems and subsystems within the buildings and property sites.

A comprehensive system analysis can be addressed either through use of internal resources, the use of an independent survey team or consultant, or through the primary non-proprietary FCA software firm engaging with a specialist to subcontract with. There are many areas where the survey value can be diluted through inexperience on general field conditions, or the lack of domain knowledge on a system analysis.

Analyze Assessment & Survey Data

Based on the survey results and the reports that are provided, one must ascertain what the assessment data means and how to rationally evaluate the results. Many of these reports can be overwhelming to the unaided customer. Reams of paper, numbers of binders, and lack of clear direction, recommendations, or summaries create frustration and confusion when trying to boil the significant amount of data down into something useful.

This is where the benefit of a reporting standard comes into play and the criteria for how the data is or was to be captured. An effective plan helps tremendously at this stage.

Analysis of the results falls to the survey team. Areas of priority are established and the results can be compiled and then interpreted for



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decision-based analysis. For executive level briefings, it is recommended that the comprehensive detail that comes out of the traditional survey be minimized and a composite amount of summary data submitted for review. The basics of 1) what is it, 2) where is it, 3) what is the cost, 4) expected timeframe, 5) how do we report future results and progress, and 6) what are the next steps to use the data to the fullest, allowing for adequate decision making.

Institutions also benefit from a living database of survey information—one where the institution can continually review and apply various scenarios to the survey data rather than simply reading a section in a binder...again.

Financial Planning and Assessments

By applying sound financial planning to the survey results, one can

develop effective financial planning tools for forecasting the assessment results and future financial needs of the institution for renewal, repair, and replacement activities.

Basic financial cost details such as current basic unit costs which allow for factoring in cost of funds with annualized expenses that account for inflation in labor rates and materials provide an organization with a dynamic financial model to make and measure decisions.

Financial departments need this information in summary level only, without the levels of detail for the unit cost measurements. However, detailed documentation will be needed for execution as well as providing credibility to the initial report.

Plan Maintenance Procedures

For your typical facility surveys that include buildings and assets, planned maintenance is a mandatory

process for the longevity of the asset. Applying industry standard processes for maintenance can improve the performance of that asset financially and operationally.

Effective budgeting for maintenance, which has many different methodologies, is mandatory these days to ensure the safety and use of buildings. Some organizations apply a basic rule-of-thumb annualized maintenance of 2 to 4 percent of your operating budget to funnel back into deferred maintenance. Based on a relative sampling of buildings that may be 40 to 50 years old and have been poorly maintained until the last ten years, that figure may double, or even triple, in order to catch up on delayed maintenance.

The basic element of budgeting and planning is critical for the successful maintenance of a facility. The FCA survey is great to perform, but it

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can be wasteful if there is not commitment to follow through and the findings are not acted upon. It is critical to have leadership in all affected departments involved with the process early and all the way through to better understand the value and long-term advantages to their institution.

Fortunately, facility maintenance has numerous industry standard references available, which cater to many different industries. Education has many internal and external benchmark references worth reviewing, and RS Means also provides substantial information for planned maintenance activities and cost comparisons.

Step-by-step maintenance procedures are available for all types of established building elements and equipment, providing for a standardization of care to be deployed.

Investment into these plans provides each maintenance organization the tools to be successful for managing resources and the surveyed asset.

Summary

With the growing demand of efficient and effective maintenance, institutions are delivering an educational environment that can meet and exceed the student's expectations. Being the eyes of the institution, both students and faculty will benefit as the facility maintenance organizations continue to raise the bar for service and quality. Through effective maintenance analysis and planning, institutions will realize a return-on-investment (ROI) from a well planned and executed FCA survey process. 🏛️

References

Building Condition Assessment "Standards"

- ASCE Standards—ANSI 11-90
- Americans with Disabilities Accessibility Act Guidelines (ADAAG)
- Americans with Disabilities Act (ADA Current 1990)
- International Facilities Management Association (IFMA)
- National Roofing Contractors Association (NRCA)
- National Fire Protection Association (NFPA)
- National Electric Code (NEC)
- National Electric Safety Code (NESC)
- Standard Guide for Baseline Property Condition Assessment Process (ASTM E-1480 and E-2018)
- Uniform Mechanical Code (UMC)
- Uniform Plumbing Code (UPC)
- Uniform Building Code (UBC)

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