



by David A. Cain, Ph.D. and Maggie Kinnaman

“If today’s man of science could find the time and courage to reflect calmly and critically about his plight and the tasks before him, and he would then act accordingly, then the possibilities for reasonable and satisfactory solutions would be considerably improved.”

—Albert Einstein, in a message to the Italian Society and Science, 1950

Listen closely; do you hear the subtle winds of change? The facilities profession has long embraced the metric of the Facility Condition Index, better known as the FCI. The FCI is considered an international metric with universal acceptance from facilities professional from all

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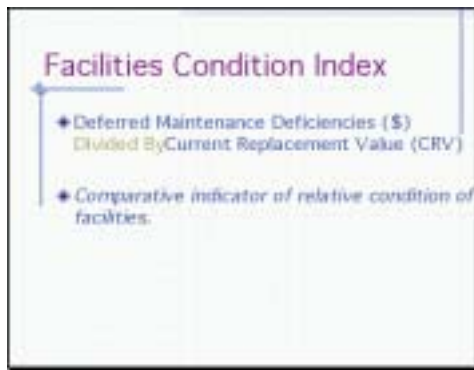
disciplines, K–12, higher education, private sector, and the federal government. The Facility Condition Index is a comparative indicator of the relative condition of facilities. The FCI is expressed as a ratio of the cost of remedying maintenance deficiencies to the current replacement value (see figure 1).

The FCI provides the facilities professional with one method of measurement to determine the relative condition of a single building, a group of buildings, or the entire portfolio or collection of buildings. The ratio is expressed as a percentage and provides a corresponding rule of thumb for annual reinvestment rates to prevent further accumulation of deferred maintenance deficiencies.

The FCI can also be used to indicate the readiness of a facility to support its mission. The FCI truly represents a moment in time, a digital instant of all the deferred maintenance activities necessary to keep an inventory of facilities in good working order.

It does not, however, represent all of the collective needs to keep existing facilities modern and relevant in an environment of changing standards and missions. The Needs Index represents more of a motion video of all the facility condition elements that need to be accounted for. A picture may say a thousands words, but a video image provides a million words of the total vision.

Figure 1. Facilities Condition Index



Recent studies and research suggest that there is a direct relationship between the condition of facilities and its ability to serve a changing mission. Much of this study has been summarized by the National Research Council (NRC) in a 1998 publication titled *Stewardship of Federal Facilities: A Proactive Strategy for Managing the Nation's Public Assets*. More broadly, the results reflect a new construct for analyzing and budgeting facilities sustainability, restoration, and modernization.

If we were a faculty member or a researcher, the concerns that would keep us awake at night would probably revolve around the issue of competitiveness.

- How do I attract the best and brightest student?
- How do I successfully apply for the state or federal grant?
- How will my institution be successful in attracting the most sought-after researcher?

Our ability to compete in these arenas is directly affected by the quality of the facilities that we have at our disposal.

- Are they flexible?
- Do they incorporate the latest technology?
- Do they support current state-of-the-art classroom?
- Is there a sufficient mix of lecture hall and breakout rooms?
- Are the laboratories designed in such a way that they foster collaboration across interdisciplinary functions?
- Are the spaces in compliance with current code issues such as ADA requirements (the Americans with Disabilities Act) and indoor air quality?
- Basically, is the quality of the facilities in alignment with the vision and mission for excellence?

In order for us to determine how important the FCI is as a quality indicator, we must determine the factors that contribute to the quality of educational facilities. One of the primary concepts that must be embraced is that a building without a purpose is much like a body without a spirit. Quality of space only has meaning within a particular context and for us that context is higher education. In the words of the authors of *Planning and Managing the Campus Facilities Portfolio* (published in 2003 by APPA and NACUBO), in order to define quality, a number of questions must be answered.

- First is the sufficiency question: Do you have enough space to support the mission?
- Next is the suitability question: Do you have the type of space available to support the function?
- Finally is the condition question: Is the condition of the space such that it will support the function intended?

Of the three questions posed above, the first two must be answered with input from the customer—basically, the students, faculty, and researchers. It is only the third question, which addresses the facility condition, that is the domain of the facilities manager.

When the quality of space is being determined, has the facilities focus been on only a portion of the need? If so, perhaps this is part of the reason that we've not been able to



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In today's competitive world, our colleges, universities, and schools are focused on the provision of quality education, research, and community service. Students, faculty, and researchers fully understand that in order to succeed in their areas of focus, they must ensure (and be assured) that their space is adequate and suitable for the purpose intended.

make a great deal of headway in reducing the deferred maintenance backlog affecting our institutions' capital assets. We have single handedly carried the deferred maintenance banner, when in reality our message addressed only a part of the needs equation.

In today's competitive world, our colleges, universities, and schools are focused on the provision of quality education, research, and community service. Students, faculty, and researchers fully understand that in order to succeed in their areas of focus, they must ensure (and be assured) that their space is adequate and suitable for the purpose intended. The condition question, which often addresses building infrastruc-

ture, is left up to the facilities managers. Maybe, by embracing a new paradigm that attempts to look at the total need—sufficiency, suitability and condition—we can paint a more comprehensive picture of how the building and infrastructure enhance an institution's ability to meet its mission and vision. Additionally, by telling the entire story of building and infrastructure need, we will certainly gain the support of the students, faculty, and researchers and perhaps be more effective in gaining the attention of legislators and funding authorities.

We must resist the temptation to describe our need for capital assets in a fragmented fashion that mimics the way in which our public institutions provide funding. The law of capital assets is true regardless of funding source. Capital assets are either procured or constructed, they must be maintained, and they must be renewed within predictable cycles and at the end of their useful life the asset must be disposed of. These capital asset needs are realities.

When the realities are ignored due to either a lack of priority or a lack of funding, the ability of the asset to meet the intended purpose is diminished. In our institutions of higher education where we strive to create a sense of place, investment in our capital assets is essential in ensuring our continued ability to sell the higher education place beyond the educational experience.

So how do we identify the complete picture, the complete need, and at the same time gain the attention of the faculty members and researchers? Facilities professionals need to be talking in terms

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Comparing the Needs Index to the FCI

TABLES 1 AND 2 illustrate the comparative difference in the FCI and the Needs Index. In the Strategic Assessment Model, APPA sponsored a national survey (1998–99 & 2000)

conducted by an independent outside research firm. Data was collected from 165 institutions representing K–12, community colleges, and higher education. We strongly feel that the results can be applied to the private sector as well as the federal government, because no matter what the agency, or facility type, a direct correlation exists among all facilities.

- Twenty-six percent (26%) of the responses came from private institutions, while
- Seventy-four percent (74%) came from public institutions.

The data was also sorted by Carnegie classification expressed in the statements below which show that there is good representation from the comprehensive universities offering baccalaureate or higher degrees.

- One percent (1%) was drawn from the K–12 category.
- Three percent (3%) from specialized institutions.
- Five percent (5%) from associate of arts institutions.
- Eleven percent (11%) from doctoral institutions.
- Thirteen percent (13%) from baccalaureate institutions.
- Thirty-seven percent (37%) from master's degree granting institutions.

The data was also grouped by enrollment range, which concluded that there was a fairly equal distribution among four enrollment categories.

- Less than 5,000 (29%)
- 5,000 to 12,000 (24%)
- 12,000 to 20,000 (19%)
- 20,000 or more (28%)

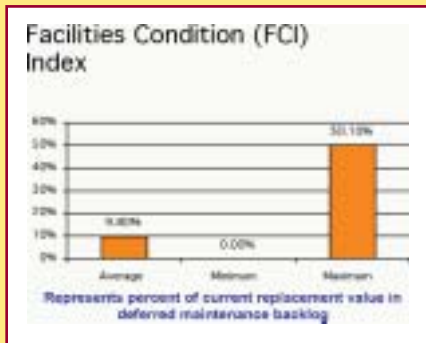
After analyzing the comparative data from the FCI and Needs Index in figures 1 and 2, one can interpret the results to conclude that:

1. There is a 2.5 times difference between the averages of the FCI and the Needs Index.
2. The FCI is a less powerful metric because its only uses a single element of deferred maintenance.
3. The Needs Index is more robust and significant due to the combined effects of comprehensive elements.

National Average for Facilities Condition Index

The descriptive statistics (data) illustrates that on the average approximately ten percent (9.8%) of the current replacement value (CRV) represents the deferred maintenance backlog value.

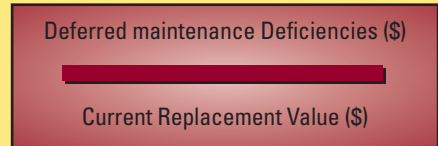
Table 1



Conclusions

- The FCI depicts only deferred maintenance issues related to CRV.
- The FCI represents a point (snapshot) on a continuum.
- The FCI is useful in showing a portion of the total need for facility condition.

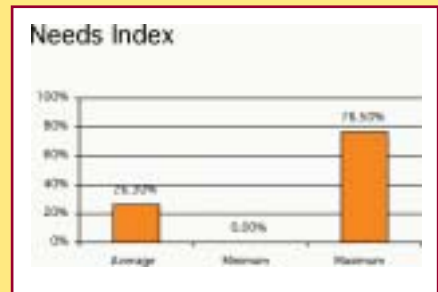
FCI equation



National average of the Needs Index

The descriptive statistics (data) illustrates that on the average approximately twenty six percent (26.38%) of the current replacement value (CRV) represents the full funding model to take care of Deferred maintenance + Capital Renewal + Renovation/moderation + Compliance Regulations.

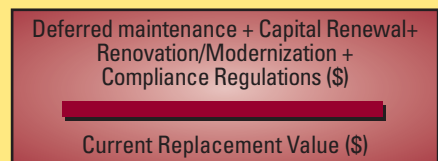
Table 2



Conclusions

- A linear relationship exists between the FCI and the Needs Index.
- There is positive correlation between the FCI and the Needs Index.
- The national average of the Needs Index is approximately 2.5 times greater than the FCI.
- The Needs Index represents a fully funded cost model perspective.

Needs Index equation



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of what is your *entire* need, not merely singing the one-note “Deferred Maintenance Backlog Blues.”

We don’t know about you, but we’re tired of being ignored. The mark of insanity is doing the same thing over and over while expecting a different result. This is the concern with the deferred-maintenance-only theory. It represents a too-narrow perspective of the entire story.

Alternatives and Options

What are the options and alternatives to using the FCI?

This obviously depends on what you need to accomplish in terms of assessing the condition of your facilities. Using the FCI is a first logical step; however, there is no single tool within the facilities profession that provides comprehensive data for fully funded solutions. We recommend that the Needs Index is worthy of consideration. The Needs Index was first introduced to the facilities management profession in APPA’s 1999 publication of *The Strategic Assessment Model*, second edition.

The Needs Index represents a holistic performance indicator expressed as a percentage of the entire needs of the facility. The Needs Index illustrates the overall condition assessment. The index is influenced by resource and utilization and is a ratio of needed deferred maintenance + capital renewal + renovation/moderation + compliance regulations, divided by the current replacement value. (see figure 2).

Figure 2. Needs Index



The Needs Index is a relatively new construct for the profession. It combines the elements of sustainment and recapitalization to provide a holistic metric creating a business case for fully funded facilities. The concept of sustainment includes regularly scheduled maintenance as well as anticipated repairs or replacement of components that occur periodically over an expected service life of the facilities.

Recapitalization includes keeping the existing facilities modern and relevant in an environment of changing needs such as code compliance issues and capital renewal needs. It should be noted that the Needs Index does not include any need that is not yet part of an institution’s physical structure. In other words, the capital planning process is not part of the performance indicator, because the future needs of the institution are not yet part of the institution’s current replacement value.

Summary and Conclusion

The facilities management professional must continue to develop and utilize new tools that provide "value free" information while providing credible data to develop its financial case. The overall goal for the facilities profession is to illustrate an objective, supportive, and comprehensive analysis so the right decisions can be made regarding facilities.

We believe that our responsibility as facilities professionals is one of stewardship. We need to honor and take care of the building(s) and infrastructure, while at the same time ensuring that our facilities truly add value to the vision and mission of the institution. We cannot perform this important role alone, but must engage the support of the entire community in order to properly communicate to campus decision makers the strategic role that facilities and infrastructure play. This is especially true if our goal is to achieve world-class recognition for our institution and its facilities.

The facilities management profession needs to take the lead by embracing a more comprehensive approach and helping to disseminate a fully funded model so that the entire facilities and infrastructure story can be told in a holistic fashion. The facilities professional should recognize that a two-step method of tracking metrics (FCI and Needs Index) is a more uniform evaluation that better supports the fully funded model for condition assessment of facilities. We need to drive the theme that facilities play a significant strategic role in the institution's mission.

The challenge is now for those in facilities management leadership positions to understand the value in a fully funded model that represents a sustainment and recapitalization effect. The fully funded model is applying the concepts of total cost of ownership and life cycle cost principles. In this article we suggest that both the FCI and Needs Index need to be fully applied before presenting the final condition assessment.

In closing, we feel that the FCI alone, in its single state, does not provide the most comprehensive data that provides the whole story. The FCI should be used in conjunction with the Needs Index to paint that picture. 🏠

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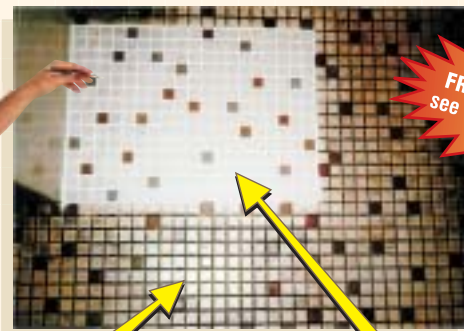
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