



History of the Facility Condition Index

by Robert G. Brooks, P.E.

Over the last several years the subject of the history of the Facility Condition Index (FCI) has been raised in several settings. It was brought up again at APPA's July 2003 Educational Facilities Leadership Forum in Nashville, Tennessee, and I was asked to prepare a brief article, as I have a somewhat unique perspective on the topic.

The FCI history roughly parallels the establishment of Applied Management Engineering, Inc. (AME), and our first publication, *Managing the Facilities Portfolio* (MFP), published in 1991 with NACUBO.

AME was formed in 1980, and by the late 1980s, we had completed a significant amount of assessment work—at least 50 million square feet. We were becoming recognized for that specialty, because at that time the national need and service level for condition assessment firms that we know today did not exist.

At the same time, we were approached by a research group working on a project that was sponsored by the National Association of College and University Business Officers

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(NACUBO). They were specifically working on a follow-up phase to a 1989 book called *Financial Planning Guidelines for Facility Renewal and Adaptation*, published by the Society for College and University Planning (SCUP) as a joint project of SCUP, NACUBO, and APPA. The group had arrived at the subject of facility condition assessments and reached a dead-end. Through a series of chance encounters, they met us and heard about our condition assessment work. The group asked for a written description of our assessment work, and any related data analysis we had prepared.

We responded with a series of white papers and project writeups, and NACUBO asked for more. We responded several times, and finally NACUBO announced that it had enough material for a book; the result was *Managing the Facilities Portfolio*.

As the material was being prepared, it became clear that there were many "authors" and "contributors," demonstrating a true collaborative effort. Technically, 11 people from AME's staff and five from the higher education community either authored or contributed to the book. As it was being written, edited, and revised by this group, several concepts were considered; some were used and some were discarded. We were looking for correlation, significance, validation, and application techniques from our assessment work.

It eventually made sense to introduce the Facility Condition Index concept and term, to the NACUBO effort. The FCI at that point was strictly an informal tool that the AME staff developed—sound in basis and easy to follow, simply the effect of a ratio of two numbers based on a lot of experience. The NACUBO group had never heard of the FCI concept, so when that effort became a book, an official benchmark was

FCI



Cost of maintenance and repair deficiencies



Current replacement value of the facility(s)

born. It is safe to say that no one in that group could have anticipated the impact that the FCI has had in the intervening years.

Still, what about the FCI itself? First, for the record, the FCI is a mathematical formula and is shown at the top of this page.

When *Managing the Facilities Portfolio* was completed, we searched for a published reference or source for the FCI and found none. Not being able to cite any previous official published source for the basis of the FCI, it was defined for the first time in *Managing the Facilities Portfolio*.

I've seen the FCI referenced in numerous books, articles, GAO (Government Accounting Office) documents, and special reports. It is often reported as a "common industry benchmark/standard," or it is cited from *Managing the Facilities Portfolio* or from a book that references *Managing*.

When *Managing the Facilities Portfolio* was completed, the original NACUBO group's role had diminished considerably. Therefore, while authorship is credited to AME and Sean Rush (from the NACUBO research group), the copyright is jointly held between AME and NACUBO.

Was AME the first organization to use it in a higher education setting? I've never seen it referenced, used, or defined prior to our work of 1982–90, but I continue to research old books, articles, etc., for some earlier application.

What I am now fairly sure of is that we were the first to define it in a copyrighted publication that was disseminated to a broad general audience of executives with facilities responsibility.

One thing is certain: the "Good, Fair, Poor," ranges originated from AME's exclusive work on assessments. The AME president in the 1980s, the late John Reavis, should be credit-

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ed for establishing the initial condition assessment skills at AME that provided the foundation for those ranges. Without our assessment work to build on these ratings, the index would still be just an index. To be of value, it must be tied to quality. Specifically, without the data to define quality ranges as benchmarks, the entire index concept is somewhat academic.

I have had numerous inquiries about the original FCI ratings, with some people telling me they are too high, others think they are too low. Some think they are too narrowly defined, and others think they are too broadly defined. Thankfully, no one ever asked me to define good, fair, and poor! But the passing of time has shown that they are basically okay and are a terrific starting point from which to measure success. Which, incidentally, is all that the ratings were ever meant to be in the first place.

As an analogy, you can determine relative deficiencies by taking a look at 1,000 cars and asking a group of professional mechanics to judge their good, fair, or poor condition. They could then prepare a list of repair requirements and costs for each of the subject cars. Next, a comparison between repair costs and retail value would be made. A \$1,000 repair for a ten-year-old, \$2,000 Chevy is definitely different than a \$1,000 repair for a two-year-old, \$30,000 BMW. By listing the cars in ascending order of the comparison costs (your condi-

tion 'index'), along with the condition judgment assessments, a trend should emerge with natural 'breakpoints.' If you look at 1,000 vehicles, you can also sort them out by age, make, use, etc., compare your condition judgments, and you have your condition rating ranges.

Today the original FCI is used across the broad spectrum of institutional facilities: federal and state governments, higher ed, and K-12. It is both praised and criticized within this larger institutional community—praised in its strength and simplicity, and criticized for being too narrow. But the criticisms miss the point of the FCI concept. The FCI was designed to be a quantitative method of uniformly comparing and monitoring groups of comparable facilities over time, and to merely assist the facilities professional in the ongoing decision process of facilities management.

At AME, we have moved beyond the simple Facility Condition Index of 1990-91 and have led the expansion of new "FCIs" and related development of numerous other concepts. We hope that these capabilities and concepts will become part of APPA's new Center for Facilities Research (CFaR) effort. 🏠



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