

## Theory of Everything—FM Style

by Robert G. Brooks, P.E.

I am grateful to Jim Whittaker for his column “Asset Management Challenges and Opportunities” in the May/June issue of *Facilities Manager*. His comments about Government Accounting Standards Board (GASB) provide a perfect segue for my thoughts on the subject.

Noted physicist Dr. Stephen Hawking, the author of *A Brief History of Time*, recently wrote a follow-up book to his 1992 publication. The new book, *The Earth in a Nutshell*, describes the current state of physicists trying to uncover the Theory of Everything (TOE). In it, Hawking tells of physicists’ struggles to find/create an all-encompassing theory of atomic forces or one theory to explain all physical forces and reactions—from the movement of atomic particles, to the movement of the planets, and everything in between. This search principally started with Newton and plateaued with Einstein. So far, physicists do not have the final theory, but they are all pretty sure one exists.

Hawking’s story reminds me of the search for the one facilities’ life-cycle model that would cover a facility’s 200-year-old buildings, as well as the buildings constructed six months ago. We haven’t found it yet, but we are all pretty sure that it exists!

The problem starts in daily operations. In the facility manager’s world, the bulk of their day-to-day activities

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are not so much with engineering or technical matters, as they are with juggling various “pots of money” to finance desired or needed projects. Thus, many battles erupt between the engineers and the accountants. In these ongoing battles, the accountants continue to win where it really hurts.

Before any kind of life-cycle model can be successfully developed or implemented, there must be agreement on basic foundations and parameters. In GASB, how assets are accounted for is a major consideration—whether using the modified approach or the depreciation method. It appears that in the GASB 34/35 conflict between the engineers and the accountants, the latter have won on a major point—depreciation.

Most attempts at life-cycle modeling require some assumptions regarding deterioration versus depreciation. I use the word assumption because the lack of broad, comprehensive data makes it difficult to support any statistical conclusion. During discussions about facility costing and life-cycle modeling, nothing

confuses progress more than the term depreciation.

I have, for some time, found myself making more of a distinction between depreciation and deterioration, and not to use the words interchangeably. To state very simply: Engineers *deteriorate* and accountants *depreciate*. The basic confusion between the two terms is that they both start with the letter D. However, one is a very real phenomenon, while the other is a bookkeeping entry.

To tie depreciation to the physical world is actually quite a stretch. For example, an engineer/technician can look at a building’s system, and judge with some accuracy the quasi-age and condition of the asset. An accountant cannot look at the same asset and judge the status of the depreciation that may be on the books.

Deterioration is a real effect of design, construction, use, age, and maintenance, and can be described by deterioration tables, curves, etc. An architect/engineer can inspect a 30-year-old roof designed for 30 years’ use, and declare, “We can get another 10 years out of this!” This really confuses the accountants!

Depreciation, on the other hand, is an accounting exercise that primarily was designed to affect income tax liability by dividing asset values into a number of years. In my experience, depreciation is a bookkeeping issue that in the private world is driven by tax policy. For the higher education market—particularly for public schools—there really is no need to engage in a depreciation discussion... at all. (I realize this is heresy, which is sometimes needed to shake things up.)

In the early 1980s, there was an attempt to create a deterioration

model based on a depreciation concept. Known as the Sherman-Dergis model, it used the sum of a year's digits to make the calculations. It seemed that finally a facility manager had something that the accountants could agree on. However, the American Public Works Association concluded in a study and in a report that it could not document any published data about the use of this model, but it did highlight the first attempt to link together the two Ds in higher education.

This concern with depreciation is why, in the world of crumbling academic facilities, there really is no end to the life-cycle model discussion; we



all haven't agreed on a basic foundation. I think everyone is mixing the two discussions, trying to force a square peg, as it were. The two Ds have some elements in common, but I believe their basic difference is the

crux of many facilities management accounting woes. I appreciate the work of accountants; it is just that the depreciation concept really doesn't help the typical facilities manager.

Back to Dr. Hawking, his search for the TOE has consumed a large part of his life. Every time someone develops what could be the final theory, someone else finds a flaw; no matter how minute. Thankfully, Hawking does not have to get his theory approved by a CFO, comptroller, etc.; otherwise the state of physics may forever be in a state of flux. 🏰

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