

To: Don Young and Heather Wiederhoeft  
From: Eric Teicholz, IFMA Fellow  
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Subject: Legends & Legacies Issue

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I would like to use this opportunity to briefly comment on an issue that is associated with the near term future of technology and facility management. The issue relates to the architectural, engineering and constructing (AEC) industries increasing use of 3-D computer models (Building Information Modeling or BIM) and their potential impact on building owners. I have previously discussed some aspects of this issue in an article entitled "Bridging the AEC/FM Technology Gap" that appeared in the Mar/Apr 2004 issue of FMJ. In this article, in discussing BIM, I made the statement that "ideally, the ultimate solution for AEC FM integration would be the development of a single 3D data model of a building's graphic/asset databases with manufacturers providing relevant asset data in a prescribed format. Such an integrated, coordinated building model would provide, for example, for the ability to check clearances, enable rapid communication between disciplines, enable changes to be made to all disciplines simultaneously, result in faster turnaround (design and delivery) of buildings, result in fewer errors and omissions and so forth." I further stated that 3D CAD systems, in contrast of 2D drawing systems, that offer FM applications have not, in general, been accepted by the FM industry. At some point, I stated in the article, CAFM systems will incorporate 3D databases and BIM models but this is not the case presently. This last statement is changing at a rate much faster than I originally anticipated.

It is now the author's opinion that 3D models will be the new and required standard within the next few years and that it will totally change how facility managers work on projects and communicate with their design consultants. At a recent AIA TAP (Technology in Architectural Practice) conference, BIM was already "taken for granted" by the AEC professions and discussions primarily dealt with related business issues such as model ownership, financial, insurance, legal and building/FM integration. Numerous case studies describing technical and financial benefits were presented by the AEC community, owners, service providers and vendors.

Other positive BIM drivers at play include Autodesk's support for interoperability and the IFC<sup>1</sup> with its Revit series of products and the GSA's (as well as other large building owners), increasing adoption and support of BIM. This in return has resulted in a number of product manufacturers starting to develop object models for their products which should start to be available late this year. Object models will contain valuable FM information such as equipment IDs, life-cycle (e.g., replacement values of the asset at the end of its useful life), preventive maintenance information, service contract information and cost data. Large contractors also see an opportunity to offer FM/owner products and services based on BIM technology and are in the process to piloting a wide variety of owner services for their clients. Finally, there soon will be third party service companies that convert traditional 2D models to 3D models and add building owner-related services to the 3D model.

The rapid maturity and acceptance of BIM technology by the AEC industry is a great opportunity for owners, facility managers and vendors of FM software products. Valuable lifecycle and capital planning cost projections, asset, and space data that is required, and in some cases mandated,<sup>2</sup> for FM applications often has its genesis during the planning, design and construction phases of buildings. It is likely that facility managers will increasingly demand and contractually require BIM models and associated FM information from their design consultants. FM technology vendors will soon support the 3D BIM models and build applications on top of such technology. Likewise, to survive, they will provide interoperability, workflow and collaboration capabilities that integrate with BIM technology.

There are still many technical, legal and financial questions that need to be resolved. Who pays for and owns the model, liability issues, how models transact with one another, how

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<sup>1</sup> To promote interoperability between systems through the development of BIM, the International Alliance For Interoperability (IAI) promotes Industry Foundation Classes (IFCs) for data sharing over a project's life cycle across disciplines and across discrete technical applications. The technology it employs for data can be interchangeable between software systems in a unified way and is based on the Extended Markup Language (XML), a flexible text format that enables the exchange of a wide variety of data on the Internet

<sup>2</sup> In February 2004, President Bush signed Executive Order #13327, "Federal Real Property Asset Management," to promote efficient and economical use of the US Federal Government's real property assets. The Order mandates the collection of life-cycle data, including a Facility Condition Indices for all buildings owned by the government. The pending Nov/Dec 2005 issue of

other critical issues such as sustainability and energy are integrated and so forth. Such issues are rapidly being resolved. The rewards are great in that the FM services market is currently estimated at \$300B and, the author believes, the financial benefits of FM related BIM models are such that all obstacles will be overcome within a short time.

#### Related references:

1. AIA TAP 2005 conference:

[http://www.aia.org/tap2\\_template.cfm?pagename=tap\\_crp\\_20031016](http://www.aia.org/tap2_template.cfm?pagename=tap_crp_20031016) and discussed in

AECbytes newsletter [http://www.aecbytes.com/newsletter/issue\\_21.htm](http://www.aecbytes.com/newsletter/issue_21.htm)

2. Teicholz, Eric, "Bridging the AEC Technology Gap," IFMA Facility Management Journal, March-April, 2004.

3. The International Alliance for Operability: <http://www.iai-na.org>

4. Executive Order #13327: <http://www.whitehouse.gov/news/releases/2004/02/20040204-1.html>

#### About the Author

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IFMA's FMJ has an article, written by the author, on EO 13327 and its implications for facility managers in the public and private sector.