

## The BIM Lifecycle Revolution

By Michael J. Vardaro, Zetlin & De Chiara LLP



Building Information Modeling (BIM) is commonly thought of as a design and construction tool, but project teams are now discovering an entirely new benefit that serves the project well beyond the initial design and construction phase. With some additional effort during the design and construction phase, the model can prove to be a useful tool to the owner and facility manager for years to come. The possibility

of achieving drastic reductions in operational and maintenance costs while increasing the quality and speed of services can now be a reality.

When BIM first burst onto the scene years ago much of the hype was associated with the futuristic fly-through capabilities that permitted visualization of a project in significant detail well before the first shovel entered the ground. The ability to virtualize projects from the earliest stages armed decision-makers with far more knowledge and insight than was historically available at similar points in the process. Ideas were sharpened and many projects benefitted immensely from the new perspective provided by BIM. The focus then shifted to clash resolution. BIM's ability to determine field coordination conflicts in a virtual environment prior to the start of construction was touted as a huge benefit that would result in significant cost savings. While both of these points are of critical importance and are certainly true, the construction phase of a project is typically miniscule as compared to the entire projected lifespan of a project. Consequently, while the design and construction phase benefits are powerful, BIM's utility and benefits extend throughout a project's lifecycle.

### How Does It Work?

Throughout the design and construction process valuable information about products and systems that are installed in the project is collected by the project team. Historically, much of the information that is contained in product submittals during the construction stage is 'lost' for all practical purposes and inaccessible in the later life of the project. Before BIM, the voluminous paper files containing product submittals would be sent to a storage facility or a spare room in the facility and would rarely be utilized. Warranty information, model numbers and other relevant details would be buried in mountains of documents, making it too time consuming and difficult to attempt to locate them after construction was completed.

Through the use of BIM, the information contained in the product submittals is now entered into the model in a predefined and consistent process. Once entered, the detailed information about specific components and building systems are readily accessible in the design and construction model. When the project is turned over to the owner, this information is then exported using a standardized format such as COBie (Construction Operations Building information exchange) or IFC (Industry Foundation Classes) and loaded into a computerized maintenance and management system (CMSS).

### BIM Lifecycle Benefits

There are a number of benefits to having information about build-

ing systems and components readily accessible in a CMSS, including maintenance scheduling, energy assessments and asset management:

*Maintenance Scheduling* – Data concerning various equipment and systems can be stored in the CMSS which will assist owners and operators in scheduling maintenance on building systems. Instead of reacting to problems that arise, proactive scheduling based on manufacturers recommendations and best practices can help avoid problems and insure efficient operation. Furthermore, certain projects employ building automation systems that provide live metrics on system performance to be delivered into the software to monitor system performance. If performance is not within an acceptable range, the software can alert the facility manager to this so that the system can be addressed to perform effectively. In those instances where there is a significant issue, it can be caught before the system becomes inoperable. Emergency repair costs can be minimized and allocating maintenance personnel can be simplified as well.

*Energy Assessments* – As new technologies become available and a facility must repair or replace certain equipment, it is important to understand the long term cost ramifications of the decisions that are made. The information in the model can provide valuable guidance to help make the most informed decisions which can save significant operating costs for a disproportionately low initial capital cost. Daylighting studies can also be performed to evaluate changes to the facility.

*Asset Management* – Most buildings undergo numerous renovation projects over a lifecycle. Analyzing what makes financial sense is often difficult. BIM can help define the cost implications of undertaking upgrades, improvements or alterations to the facility and what costs the building might be subject to over the course of time.

### Return On Investment

There can be no doubt that using BIM for Lifecycle uses can significantly reduce operational and maintenance costs, but as is the case with clash detection attributes, it is difficult to calculate the actual return on investment. However, in addition to the potential cost savings relating to maintenance, the wealth of information afforded by the modeling produces other significant benefits. Better space tracking and allocation along with improved disaster planning and response are just some examples.

With a little effort and planning owners and facility managers can collect the information needed to harness the incredible and long-term benefits of BIM.

Michael J. Vardaro  
 Managing Partner  
 Zetlin & De Chiara LLP  
 801 2<sup>nd</sup> Avenue #17  
 New York, NY 10017  
 Tel: 212-682-6800  
 www.zdllaw.com