



Advisory Topic:

Business Solutions

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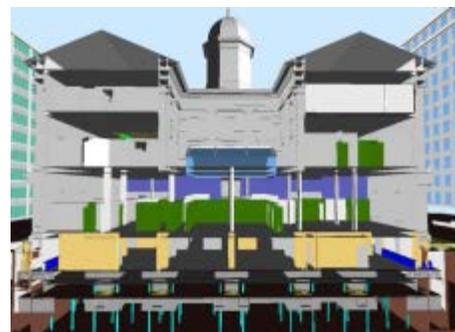
GSA Applies BIM Models to 100 Buildings in Portfolio

Author: Charles Matta, Deputy CIO, Public Buildings IT Services, GSA

Real estate owners plan, construct, and manage building portfolios that touch every aspect of the built environment, for the occupants, the general public, and the city environment where they work, reside and play.

Public owners have a responsibility to be stewards of the built environment they create, to set the example for excellence in design, construction and facility management to deliver buildings that provide healthy environments for tenants, neighbors, and the citizens that visit them. A key component of this stewardship is to build facilities that are sustainable, that reduce the environmental impact and that operate efficiently.

Enter Building Information Modeling (BIM) as the most advanced technology tool to enable the building community (owners, developers, architects, engineers, construction managers, and





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contractors) to plan, build, and operate buildings and the environments they shape.

A BIM model is the most accurate virtual representation of the actual physical building. BIM reduces the risk involved in the design, coordination, and construction of buildings for ALL stakeholders. BIM brings higher accuracy, higher efficiency, better predictability, better communications, and better conformance validation when it comes to program management, documentation of existing condition, energy and operation, and facility security for GSA. With today's technology, this can be accomplished with 2D, 3D, 4D technology, up to the nth D.

A Smart Building is a building that operates efficiently and sustainably by: (a) allowing users to control their environment for air quality and comfort; (b) having a central repository of ALL current building information through BIM; (c) having sensors that continuously obtain and deliver data on how the building is meeting its intended function in terms of occupancy, daylight, energy use, etc; (d) enabling facility operators to have ready access to its current and on-going performance; (e) empowering a designated operator to centrally control the building automation system in a secure environment.

A Smart Campus is a campus that is well planned and built for sustainability (orientation, density, vegetation, proximity to public transportation and living/working amenities, and leverages solar + water + geothermal harvesting). It is also a campus that has all buildings' automation systems linked for optimum operational efficiency.

A BIM-based approach supports 'on demand' generation of documents (e.g., drawings, lists, tables, and 3D renderings) from a consistent BIM. A BIM model, therefore, can live longer, contribute more to process efficiency, and provide superior accuracy than traditional CAD drawings. Therefore, a BIM model is essential to create a true Smart building and a Smart Campus.

The earliest GSA owned projects have been BIM-deployed starting in late 2003. These BIM Requirements have applied to all major projects started in 2007 and beyond. As technology has matured, we have seen a much higher BIM adoption rate by architects and contractors, as BIM also

promises designers and builders better efficiencies and performance, and ultimately competitiveness, with or without owner's mandate. GSA's BIM program may have been an important catalyst for architects and contractors to challenge their status-quo.

Given GSA's push toward sustainability and "green", the Architect/Engineer firms are looking at ever more creative ways to design a building with sustainability in mind. An Energy Performance and Analysis capability exists in BIM to conduct efficient, accurate, and reliable energy simulations to predict building performance during facility operations. Using this BIM capability can facilitate the comparison of actual building energy usage data against the quantified benefits in BIM to see if the design held up to its promise.

BIM and Geographic Information Systems (GIS) provide measurable sustainability in the areas of: energy simulation and optimization of factors such as building orientation, material choices, operation, location, and building system selection; energy simulation of building operation during planning and design that calibrate energy simulation based on live smart building data; and lifecycle assessment of building materials with respect to impacts on carbon, energy, water. This data contributes to an understanding of site selection impact on carbon footprint of employees and visitors on a more macro level with respect to trip generations and avoidance, and the use of public transportation.

As a champion and early adopter of BIM among public owners, GSA has worked top-down and bottom-up with a variety of national and international government agencies, professional and standard-setting organizations, academic institutions, BIM software vendors, and private AEC firms on various BIM-related efforts that culminated in Letters of Intention with counterparts in eight countries in support of Open Standards for BIM and Smart buildings technology. GSA's collaboration with the National Institute of Building Sciences led public owners in the creation and promotion of open BIM standards; development of BIM Guides that evaluate the use of BIM data for critical tasks during a building's lifecycle such as energy performance and facility operations; and amassing a BIM toolkit of case studies, BIM champions, and other resources to be used by BIM professionals everywhere.

In Summary, BIM has become essential to the realization of the recent aggressive energy reduction mandates passed by the Executive and the Legislative branches of government. Only through using BIM and smart building technologies can public real estate owners design and deliver innovative buildings, maximize energy efficiency, and achieve effective building operations throughout the building life cycle.

GSA has more than 100 buildings that have employed BIM technology, and is working on investment strategies to turn all GSA assets into BIM. In early 2015, GSA's Public Buildings Service (PBS) will announce that it is expanding requirements to include standardized Building Information Models (BIM) throughout the entire project and facility life cycle for all phases of capital projects. The performance-based PBS-P100 "Facilities Standards for the Public Buildings Service" (gsa.gov/p100), the BIM Guide series (gsa.gov/bim) and the Division One specification in construction contracts will reflect new requirements for BIM submissions by Architect/Engineer firms, construction managers (CMA), lessors, and contractors.

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Next Week: In the Trenches

ADVISORY TOPIC #2



Reducing Development Risk

Author: Ward Caswell, Product Manager,
ARGUS Software

A recent survey conducted by ARGUS Software shows solid

growth in U.S. Commercial Real Estate (CRE) construction activity. In addition, terms are becoming more favorable for developers as investors have more capital to place and few high yield options. 83% of respondents indicated a larger development pipeline compared to 2008. In conversation, many said they are seeing stronger demand than at any time in the last fifteen years. Given the longer term trends, this makes sense. In broad terms, the 2007 construction levels which represented the peak of the last cycle, were just at the thirty year average across all property types for the U.S.

As we enter a new cycle of development, we owe it to our partners to learn from the past, and institute better controls, reporting, and overall transparency, thus building increased confidence, and in time, lower yield requirements. Lower investor yields due to lower risk premiums mean higher developer profits and volume. Managing the process of a development project is key to realizing expected returns. The tools needed to manage that process have improved since the last cycle.

The Global Financial Crisis (GFC) was a collapse in confidence. Consumer Confidence dropped to the lowest levels recorded since the survey began. The most recent report finally brought the number back above the benchmark level of 100. Coupled with this measure was a palpable lack of confidence in investments including commercial real estate. Risk premiums measuring the required investment yield compared to U.S. treasuries soared. While now back in line, the premiums demanded for CRE remain higher than other investments. This is due to the manner in which investors measure risk. In simple terms, risk is higher if volatility is higher. That makes sense of course, but risk is also measured as higher in investments with less frequent reporting periods. Quarterly reported values and cash flows, often lagged by weeks or months, increasing the amount of yield required by investors in CRE compared to other asset classes.

Following the GFC, many large institutional investors forced clawbacks of management fees from their general partners. These clawbacks were then written into many new limited partnership agreements (LPAs) to codify the expectation that large scale losses of investment capital would result in a similar repayment of fees earned by money managers,

operators and developers. ARGUS Software's survey showed a 60% drop in clawback clauses with the remaining developers surveyed indicating never having had such a provision. This can be seen as a return in negotiating leverage to the hands of the developers rather than the investors. Still, 55% of survey respondents reported more complexity in their investment structures for current projects compared to pre-2008. With more complexity, comes a greater likelihood of errors in complex spreadsheets. Errors in spreadsheets given to investors, do little to instill confidence.

With this thinking in mind, ARGUS has been hard at work over the last few years adding powerful new features to ARGUS Developer. With the release of ARGUS Developer version 7 at the end of February, the new Snapshot module will allow the import of project accounting actuals to compare to the budgets created in ARGUS Developer. The many thousands of existing ARGUS Developer users appreciate the rich project builder capabilities which help them model the cash flows from multi-phase development projects. The industry leading structured finance module manages the mission critical task of defining investor waterfalls, tied to those budgets. Now with version 7's Snapshot module, the monthly project accounting actuals can be compared to budget, variances spread, and the resulting forecasted cash flows instantly understood with real time KPIs and, most importantly, updated investor return reporting.

With more frequent, timely and accurate reporting, ARGUS Developer clients will be able to increase their investors' confidence, resulting in a higher likelihood of repeat investment at lower risk premiums.

UPCOMING REALCOMM WEBINARS



World Trade Center: A Global Icon Opens for Business - 2/26/2015

In this webinar, you will hear from the key Information Technology leaders who have leveraged software and mobile technologies to manage the successful opening and ongoing operations at One and 4 World Trade Center. Hear how they transitioned from construction to commissioning to live operations. More

important, you will gain insight into how they coordinate not only the building's daily operations but how they manage the complex relationships between all the key stakeholders that include tenants, vendors, regulatory authorities and building management.



Business Intelligence - Successful Strategies Uncovered - 3/12/2015

Business Intelligence (BI) has been a central topic in our industry for more than five years; as a group, we've made tremendous headway, but the level of BI sophistication by individual company can vary significantly. This webinar describes all the necessary elements of a BI framework and provides a roadmap for developing company-wide BI capabilities. Elements covered include: vision, data model, governance, technology, GUI, staffing and adoption considerations. For anyone in the process of implementing or considering a BI platform, this is a must attend discussion. [Register now!](#)

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