W109: BIM and Facility Management – What Every Owner and Facility Manager Needs to Know

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IT for Facility Management Life Cycle

- Business Process Analysis, Requirements Development
- Project Management
- Full Service Implementation & Systems Integration
- Custom Software Design & Development
- Ongoing Support

building SMART alliance Board of Directors – Owners and Developers; Chair, Business Process Task Team

Independent consulting group, 1985

More information, see web site at: www.jordani.com
Audience Survey

- **Industry**
  - Facility Manager, Owner, Property Manager
  - A/E, Interiors, FM or other Service Provider
  - Software Vendors or VARs
  - Other?

- **BIM Experience**
  - For the Owners – how many of you have asked for a BIM deliverable?
  - For the Service Providers – how many of you have provided a BIM?
BIM Buzz is Rather Intense…

- Promise of major transformation for facility life cycle
  - Shorten development schedule
  - Improve design quality
  - Improve building performance
  - Improve facilities operations & maintenance profile
- Reduce cost of design, construct, operate
- Reduce facility delivery time
- Scent of $
BIM - a Disruptive Technology

- Owners demanding improvement
- Portends realignment in industry
- New business relationships rapidly emerging
- Industry stakeholders scrambling for position
- Catalyst for linking a fragmented industry - silo mentality will not survive
Business Case

- NIST study identified $15.8B lost to lack of interoperability
- Construction productivity in decline
- The numbers are significant

- Worldwide Construction Industry 2008 = $4.8T
- US Construction Industry 2008 = $1.288T
- 57% of $1.288T = $734B Annually
- 2/3rds of $734B = $492B Annually
Owners are Catalysts in the Move to BIM

- No longer willing to yield to a tradition of inefficiency
- Lead the charge for a leaner, smarter process
- Challenge providers to deliver facilities faster, better, safer and at lower cost
- Expect design/construction partners to be proactive in applying concepts
- Looking for early returns—tangible results from bid through implementation at the site
- Require BIM to enable lean practices to identify and eliminate waste in the entire project cycle
The Move to Lean is not Without Precedent

- Automotive, electronics, aircraft
  - Supply chain automation
  - Compliance with standards entry level for participation - collaborate or out

- Applied to facility projects
  - Better value for their investment
  - More collaboration, all stakeholders, less combative
  - Ability to use information across full design/construct/operations teams
  - Increased focus on life cycle including operations
A Building Information Model (BIM) is a digital representation of physical and functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle from inception onward.

A basic premise of BIM is collaboration by different stakeholders at different phases of the life cycle of a facility to provide, extract, update or modify information in the BIM to support and reflect the role of that stakeholder. The BIM is a shared digital representation founded on open standards for interoperability.

The US National BIM Standard promotes the business requirement that this model be interoperable based on open standards.
BIM Impact for Planning and Design Activity

- Improve design quality and visualization
- Design process improved
  - Interdisciplinary coordination & collaboration
  - Increase design resolution
  - More informed decision making
  - Reduced time for documentation
  - Right decision makers at the right time
  - Reduce RFI
  - Design for constructability
- Better integration of design changes
- Cost implications predictable

Office Towers planned for Dostyk, Kazakhstan
Simulate Design Issues Virtually

- Sustainable design a priority
- Virtual simulation with BIM integrated to energy modeling and analysis programs
- Simulation with other systems like SMARTCodes™
- Realign design decision process: right questions at the right time
BIM Impact for the Construction Activity

- Constructability and coordination built into model
- Systems clash detection - no change orders from interferences
- Define access areas to service components
- Construction sequencing and scheduling (4D)
- Build virtually then for real; 3D “as-builts” before turning even one spade of dirt
BIM Impact for the Facility Management Activity

- Commissioning provides BIM data for use by FM
  - As constructed documentation
  - Design decision audit trail
- Portal to Facility Information for Life Cycle
  - Asset management
    - Information about critical building components: Model, warranty, maintenance history.
    - Component replacement
    - Maintenance process and technical manuals
    - Condition assessment
  - Space management
  - Capital planning and renewal
BIM – A Portal for Facility Information

Stewardship roles extend to information about the facility.

Designer

Owner / Occupier

Legal

Financial

Geospatial

First Responder

Codes & Compliance

Environmental

Sustainers

Portal
For the Owner and Facility Manager

- Time and Cost improvements in Design and Construct
- Commissioning activity includes handoff of facility information in BIM
- Easy access to previously scattered and out of date information
- Capture facility knowledge for a changing workforce
- An opportunity to harvest business intelligence and operational information into a **Business Intelligence Model**
- A compelling vision… if it can be realized.
Case Histories thru Design and Construct

- GSA
- Corps
- GM
- Holder Construction

... but little to discuss in the way of case history for the use of this data after construction.
List Serv Thread on BIM > FM Case Histories

- Interest widely shared, still looms more as an vision than a reality.
- Projects either preliminary or proprietary; significant adoption has yet to occur
- Purpose built models a barrier - collaboration still needs to take hold
- Business and legal issues that limit data sharing
- Interoperability problems remain – little integration with IWMS/CMMS; proprietary integrations
Best practices for maintaining a facility cycle life BIM model are immature at best.

Skill sets required to maintain the data may yet pose another set of problems.

Won’t happen all at once – FM fragmented, Owners need to be proactive to define lean processes; Use cases needed.
Panel of Experts

- Finith Jernigan, AIA - Design Atlantic
  - Cradle to Cradle BIM
- Steve Hagan, FAIA – GSA
  - An Owner’s Perspective
- Toby Considine, UNC
  - BIM and the Intelligent Building
- Break
- Scott Ebert, Soft Innovations
  - Standards for BIM and FM
- Q&A
Questions?

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