BIM for Healthcare

Healthcare BIM Consortium

KICK-OFF MEETING

29 JULY 2010
WASHINGTON, DC

Military Health System
(Tricare Management Activity / Health Affairs)
Welcome and Introduction

Welcome and Introductions

Purpose:
- Define the role of BIM in the Healthcare Facility Life Cycle Management (FLCM)
- Establish the Healthcare BIM Consortium (HBC) including Healthcare Owners and Software Vendors

Goals:
- Participants leave with a common understanding of mutual requirements and needs for success
- Participants have a commitment to an action plan for real results
Introductions

Bill McLaurin, Facilitator
Renee Tietjen, VA
Gary Fischer, VA
Abeer Haddad, Kaiser Permanente
Ingrid La Mar, Kaiser Permanente
Brenda Harhen, Kaiser Permanente
Xiajun Lin, Kaiser Permanente
Russ Manning, DoD MHS
Healthcare Defining Characteristics

Why is healthcare different from other AEC sectors?

- Complexity
- Volume
- Criticality
Relevance and Focus

• Why:
  ❖ Vendors have asked to clarify our BIM objectives in the Healthcare Sector of the AEC.

• Focus:
  ❖ Software platforms do not effectively support workflows needed to optimize the FLCM process, especially:
    ▶ Input Data
    ▶ Output Data
Healthcare Market Significance

- US Healthcare Market 16% of the GDP or $2.2T annually*
  - Kaiser Permanente, VA, and DoD represent approximately $150B annually in the US Healthcare Market (7% of the US Healthcare Market) – among largest healthcare systems owning facilities

*Based on 2008 Labor & Statistics Data
Healthcare Market Significance

• Construction Programs Represented (Next 5 Years) – Estimated Total $26B
  ❖ VA - $5B
  ❖ DoD – $6B
  ❖ Kaiser – $15B

• What’s the impact to Software Vendors?
  ❖ Designers and Builders will be required to manage, share and be responsible for a broader range of data associated with FLCM.

• HBC sees BIM as an enabling tool to achieve these goals.
Facility Life Cycle Management (FLCM)

- Plan
- Design
- Build
- Transition
- Operations
Facility Life Cycle Management (FLCM)

Choke Points of Data Exchange & Information Loss

Operations
Plan

Mission

Transition
Build

Design
Relative Costs Across FLCM

- Operations: 87%
- Other: 13%
- Planning: 0.1%
- Design: 0.9%
- Construction: 8.7%
- Transition: 3.1%

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The owner’s role is to manage FLCM

No single platform will handle all data sets required to manage a facility and operations

Data will need to transfer among multiple databases across the FLCM

Solutions must support viable scalability across project size, software, and hardware

Interoperability of data is required

Interoperability of graphics is desired
Data Flow

Choke Points:
- Importing Data to use in Model.
- Exporting Data from Model to use.

The data flow is an **Iterative Process**, not an event.
Input Data Flow

Space Planning Criteria
Medical Equipment & Furniture Data
Space Technical Criteria
Planning Database

Space Program & Technical Criteria
Room GUID
Medical Equipment & Furniture

(1) Space = (Many) Equipment

Design
Construction

Corporate
Project Specific
Output Data Flow

Design

Construction

CMMS / CAFM Facility

CMMS Medical Equipment & Furniture

Way finding

Benchmarking

Logistics Inventory

Patient Monitoring

BAS

Space Program & Tech. Criteria

Medical Equipment & Furniture

Project Specific

Output back to Corporate Systems

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Objectives - Overview
Objectives - Focus

1. Automate space PFD (Program for Design) validation in design submittal

2. Automate Room Equipment (Project Room Contents) Validation
Objectives – Validation PFD

- Automate space PFD (Program for Design) validation in design submittal
Import Space & Technical Data

1. Space Planning Criteria
2. Medical Equipment & Furniture Data
3. Space Technical Criteria

- Planning Database
- Medical Equipment & Furniture Program
- Space Program & Technical Criteria
- Room GUID
- Medical Equipment & Furniture Program

(1) Space = (Many) Equipment

Design
Construction
Load to Room in Model

- Possible Solutions:
  - Drag & Drop

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Space Program & Technical Data

BIM Model

Drag, Drop & Load/Link

Project Specific Program

- Other viable solutions welcome
Data should be able to be queried

Data should

- compare program against actual design in basic tables
- be readily exported (excel or other data set)
- Show delta between program and actual design (actual delta and % delta)

Data should be able to be selected for various space color diagrams

Linking / Import process should differentiate between “Spaces” already linked and those not yet linked
Objectives – Validate Medical Equipment & Furniture

- Automate Room Equipment & Furniture (Project Room Contents) Validation
Import Medical Equipment & Furniture

2 Space Planning Criteria

Medical Equipment & Furniture Data

Space Technical Criteria

Planning Database

Space Program & Technical Criteria

Design

Construction

Room GUID

Medical Equipment & Furniture

(1) Space = (Many) Equipment
2 Capabilities / Attributes

- Data should be able to be queried
- Data should
  - compare program against actual design in basic tables
  - be readily exported (excel or other)
- Medical Equipment & Furniture should have all data points from “Medical Equipment & Furniture Program”
- Objects should be able to be selected to highlight (preferably color based on selected parameter)
Using Room/Space GUID from “Space Program” automate the Medical Equipment & Furniture load for each room with a 3D volumetric representation.

- Object is generated from volumetric data in “Medical Equipment & Furniture Program”
  - where 0 x 0 x 0 generate 1 x 1 x 1

Linking / Import process should differentiate between Medical Equipment & Furniture already loaded and those not yet loaded in a room based on the program.
Volumetric Object can be replaced with detailed 3D representation of the object at later time and retain the parametric data.

Model can flip between detailed 3D and volumetric wire representation to limit graphic generation as working with model.

Mouse-over or select can display selected parametric data for the Object.

Plan/sheet view automatically displays selected parametric variable (e.g. JSN or SPECNO).
2 Capabilities / Attributes

- Example: Plan/sheet view automatically displays selected parametric variable (e.g. JSN or SPECNO)
Objectives - Focus

3. Automate the data population of computerized maintenance management software (CMMS) / CAFM

4. Automate the data population –Medical Equipment & Furniture Inventory and Maintenance System
Objectives – CMMS Load

- Automate the data population of computerized maintenance management software (CMMS)

Exporting to a common definition

BIM .dgn, .rvt, etc.

Common Language “The Latin”

COBIE Other ?

Import Routine based on common Language

O&M Management System

DMLSS-FM Maximo ArchiBus Other ?
Objectives – Equipment and Furniture Management

- Automate import of equipment and furniture data process (FFE / Initial Outfitting)
  - Includes building system and medical equipment & furniture

Exporting to a common definition

Importing against a common definition

- BIM .dgn, .rvt, etc.
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- Medical Equipment & Furniture Mgmt. System
- DMLSS-EQ&T Maximo ArchiBus Other ?
Interoperability
Framework of Interoperability

- Defining degrees/levels of interoperability
- What degree of interoperability do we need?

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Path Forward
We want to keep you engaged in the Future of the HBC.

- Here is what we see right now:
  - Feedback & Planning Survey (September)
  - Open invitation to present individual technical solutions to the HBC owner members as a group
  - Periodic full HBC group updates for active participants (every 6 to 12 months)

- What do you think? (at the end of the open dialogue each company will have the opportunity to speak)
Thank You
1 Importing Data - Space

- Space Planning Criteria
- Medical Equipment & Furniture Data
- Space Technical Criteria

Planning Database

Room GUID

Medical Equipment & Furniture Program

Space Program & Technical Criteria

(1) Space = (Many) Equipment
2 Importing Data - Equipment

- Space Planning Criteria
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## Framework of Interoperability

- Defining degrees/levels of interoperability
- What degree of interoperability do we need?

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