



### “BIM Speak” for the Rest of Us

Presented by:

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MCA Specifications

**CONSTRUCT 2009**  
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Indianapolis, IN



### A FEW REMINDERS...

- Please remember to mute all electronic devices.
- You must swipe your card at the door in order to receive credit for your course.
- No one under the age of 18 is allowed in meeting rooms.



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### Learning Objectives:

Upon completing this program, the participant should know how to:

1. Recognize terms commonly used in Building Information Modeling and Integrated Project Delivery
2. Understand uses and variations of abbreviations, acronyms and other BIM and IPD jargon
3. Practice defining common terms used in BIM and IPD




“BIM Speak”: Abbreviations, acronyms and other jargon commonly used in Building Information Modeling and Integrated Project Delivery.

“The Rest of Us”: Those who don't work with BIM software or who haven't been able to ask presenters to stop and explain certain terms.


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- BIM – Building Information **Model**
- BIM – Building Information **Modeling**
- BIM – Building Information **Management**
- **BIM** – Building **Information** Management


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“Building Information Modeling (BIM) is the process of generating and managing building data during its life cycle. Typically it uses three-dimensional, real-time, dynamic building modeling software to increase productivity in building design and construction. The process produces the Building Information Model (also abbreviated BIM), which encompasses building geometry, spatial relationships, geographic information, and quantities and properties of building components.”


Source: Wikipedia


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“Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle.”

Source: CSI Wiki


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- Building information **Modeling** is a Process
  - It is a way of Thinking
  - It is a progression through Sequential Levels of Information and Detail
- Building Information **Model** is a Product
  - It is an Interoperable Computer Program
  - It Defines a Specific Facility



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**BIM – Building Information Models**

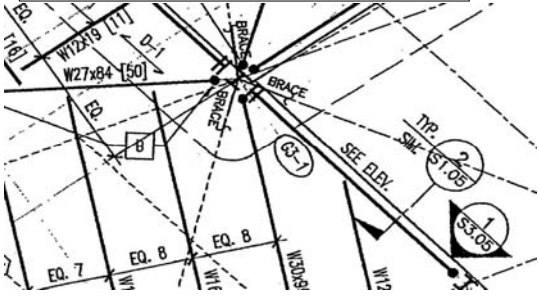
Reports:


- **Planning** – Analysis of options; massing; adjacencies; siting; cost estimates
- **Design Model** – Design development; early decisions; preliminary objects
- **Simulation Models** – Animations; fly-throughs; energy calcs; clash detection
- **Construction Model** – Shop “drawings”; fabrication details
- **Maintenance Model** – Schedules; replacement parts


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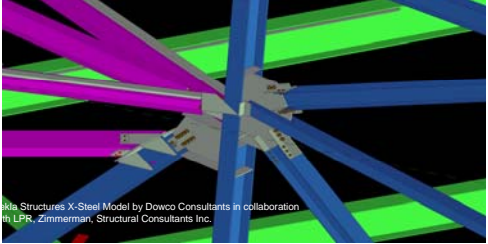
2D (CAD) Steel Detailing





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3D (BIM) Steel Detailing





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Steel as Actually Erected




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**PROGRAMS**

- ArchiCAD      Graphisoft's Virtual Building™ software
- MicroStation      Bentley's CAD/3D Software
- Revit      AutoDesk® Revit® Architecture software


- .DGN      Bentley Drawing Format
- .DWF      AutoDesk Drawing Format
- .DWG      AutoCAD, Sketch-Up, and other software Drawing Format
- .DXF      Drawing Exchange Format
- .RFA      Revit Drawing Format extension
- .GDL      ArchiCAD's Geometric Description Language
- .PDF      Adobe's Portable Document Format


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**BIM – Building Information Management**

- Planning for specifications that come from the model - and those that don't
- Validating compliance with established procedures and protocols for information exchange
- Managing version control
- Validating data integrity (e.g. ensuring data has not been corrupted) and verifying data integrity (ensuring data is correct)


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**BIM – Building Information Management**

- **PRACTICE STANDARDS**
  - NBIMS - National Building Information Modeling Standard (buildingSMART Alliance) [www.buildingsmartalliance.org](http://www.buildingsmartalliance.org)
  - Integrated Project Delivery: A Guide (American Institute of Architects) [www.aia.org](http://www.aia.org)
  - AGC BIM Guide: The Contractor's Guide to BIM, Edition 1 (Associated General Contractors of America) [www.agc.org](http://www.agc.org)
  - The Project Resource Manual - CSI Manual of Practice (PRM) [www.csinet.org](http://www.csinet.org)



## BIM – Building Information Management

### Format Standards

NCS	United States National CAD Standard
WBDG	Whole Building Design Guide
OmniClass	OmniClass Construction Classification System
UniFormat	Defines Systems and Assemblies (Objects)
MasterFormat	Defines Work Results and Contracts
IFC	Industry Foundation Classes
IFD	International Framework for Dictionaries Library
IDM	Information Delivery Manual



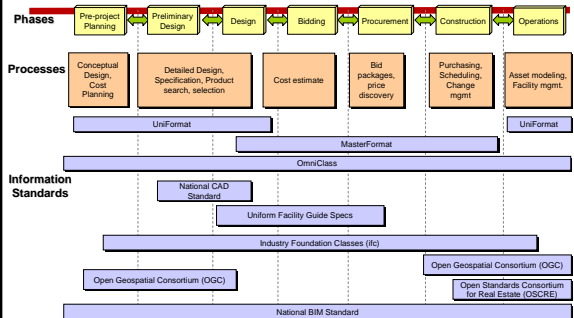
## Leaders in BIM/IPD/LEAN

Organizations  
Information Standards  
Software Programs




## INITIATIVES

- OmniClass Classification System
- CITI Construction Industry Terminology Initiative
- COBIE Construction Operations Building Information Exchange Project
- IFC Industry Foundation Classes
- IFD International Framework for Dictionaries
- IDM Information Delivery Manual
- IFOA Integrated Form of Agreement



## OmniClass Tables

- 11 Construction Entities by Function
- 12 Construction Entities by Form
- 13 Spaces by Function
- 14 Spaces by Form
- 21 Elements - UniFormat
- 22 Work Results – MasterFormat 04
- 23 Products
- 31 Phases
- 32 Services
- 33 Disciplines
- 34 Organizational Roles
- 35 Process Aids
- 41 Information
- 42 Materials
- 49 Properties

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### UniFormat

Defines Systems and Assemblies (Objects) in Nine Categories  
Table 21 of OmniClass

- Project Description
- A Substructure
- B Shell
- C Interiors
- D Services
- E Equipment and Furnishings
- F Special Construction & Demolition
- G Building Sitework
- Z General

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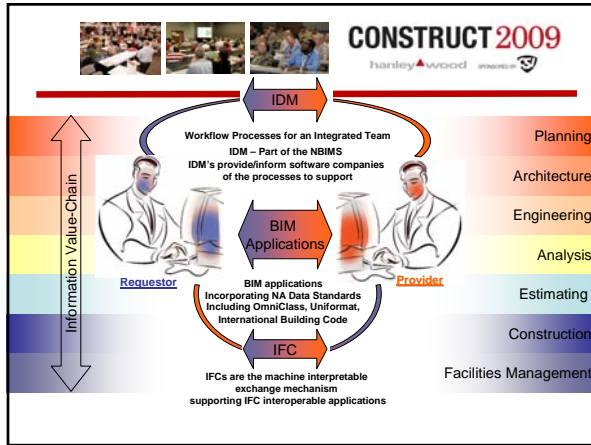
### MasterFormat™

Defines Work Results and Contracts  
Table 22 of OmniClass

Procurement and Contracting Requirements Group:  
Division 00

Specifications Group:

- General Requirements Subgroup: Division 01
- Facility Construction Subgroup: Divisions 02-14
- Facility Services Subgroup: Divisions 20-29
- Site and Infrastructure Subgroup: Divisions 30-39
- Process Equipment Subgroup: Divisions 40-49



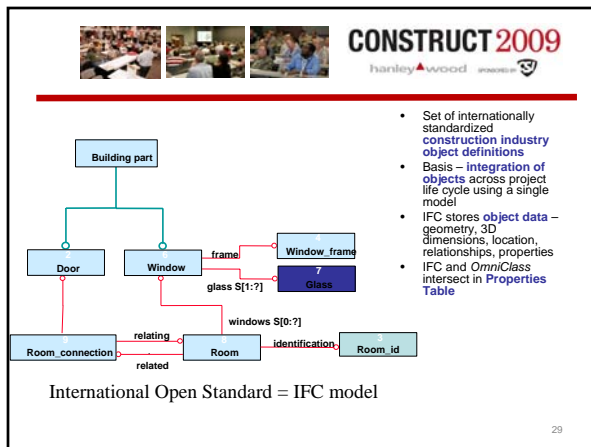
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### Industry Foundation Classes

“The IFC data model is a neutral and open specification that is not controlled by a singular vendor or group of vendors. It is an object oriented file format with a data model developed by the International Alliance for Interoperability (IAI) to facilitate interoperability in the building industry, and is a commonly used format for Building Information Modeling (BIM).”

Source: CSI Wiki



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### Example: IfcDoor Source: www.iai-tech.org

- Definition from ISO 6707-1:1989: Construction for closing an opening, intended primarily for access with hinged, pivoted or sliding operation.
- Definition from IAI: The door is a building element that is predominately used to provide controlled access for people and goods. It includes constructions with hinged, pivoted, sliding, and additionally revolving and folding operations. A door consists of a lining and one or several panels, properties concerning the lining and panel are defined by the IfcDoorLiningProperties and the IfcDoorPanelProperties.
- The actual parameter of the door and/or its shape are defined by the IfcDoor as the occurrence definition (or project instance), or by the IfcDoorStyle as the specific definition (or project type). Parameters are given:
  - at the IfcDoor for occurrence specific parameters. The IfcDoor specifies:
    - the door width and height
    - the door opening direction (by the y-axis of the ObjectPlacement)
  - at the IfcDoorStyle, to which the IfcDoor is related by the inverse relationship IsDefinedBy pointing to IfcRelDefinesByType, for style parameters common to all occurrences of the same style.
    - the operation type (single swing, double swing, revolving, etc.)
    - the door hinge side (by using two different styles for right and left opening doors)
    - the construction type
    - the particular attributes for the lining by the IfcDoorLiningProperties
    - the particular attributes for the panels by the IfcDoorPanelProperties





**The Future:**

- Better understanding of terms/processes
- New skillsets – technicians for input and manipulation of information; managers of the process for input/output of reports
- More effective pre-construction analysis through technology; money saved in the field; projects completed earlier.



**Thank You for Attending!**  
**Any Questions?**

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