



Facility Information Management The Future of CSI

ICIS DA 2010

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Construction Specifications Institute



Outline

- How CSI Standards, Formats and Practice Guidelines are supporting the future of information management
- Formats
 - Update to *UniFormat*
 - *New PPDFFormat*
 - *New GreenFormat*
 - Ongoing *OmniClass* development
 - Ongoing *IFD Library* development
- Goal for the Future

CSI's Mission

“To advance the process of creating and sustaining the built environment for the benefit of the construction community by using the diversity of its members to exchange knowledge.”

Technology

“The rate at which technology is moving, it’s impossible to predict the next five years.”

David Richards, Australian Writer on Technology



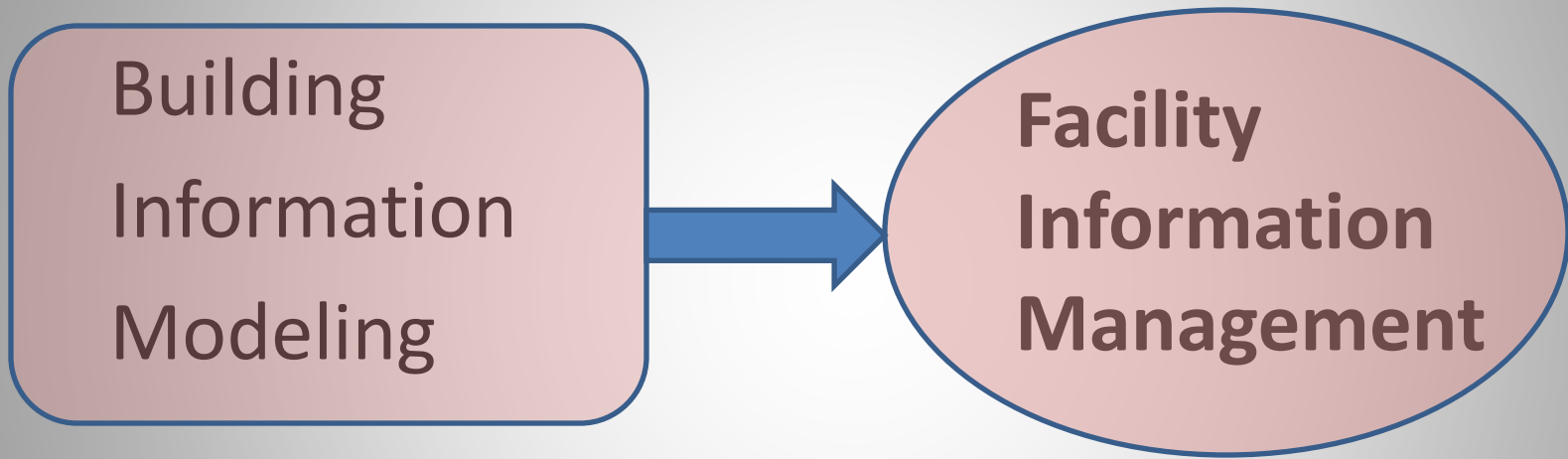
The Realities

“Once a new technology rolls over you, if you’re not part of the steamroller, you’re part of the road.”

Stewart Brand, American Writer



The future of BIM

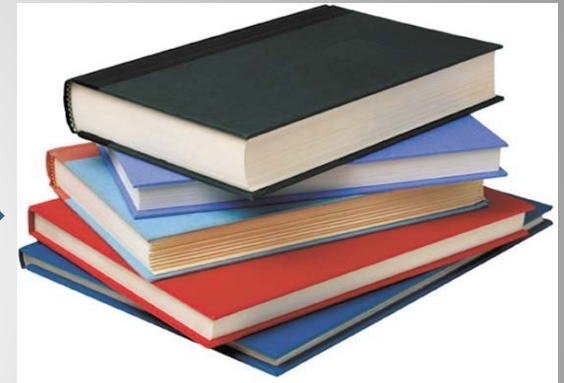


CSI: Standards and guides for organizing construction related information.

Specifier's Changing Role

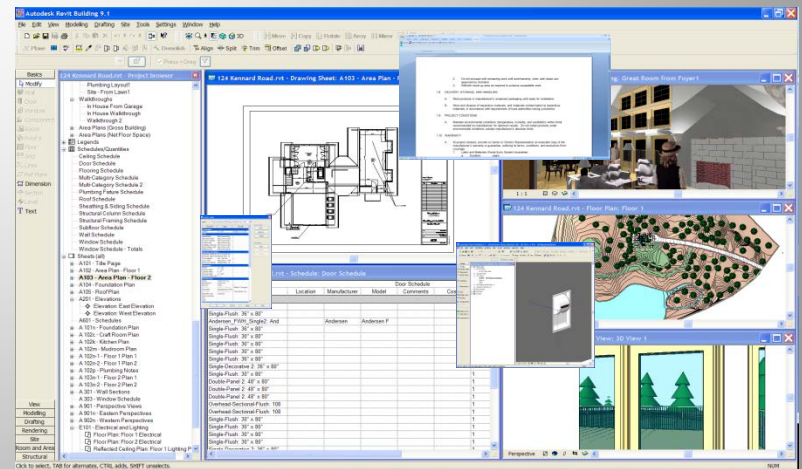
Static

Specification Writer

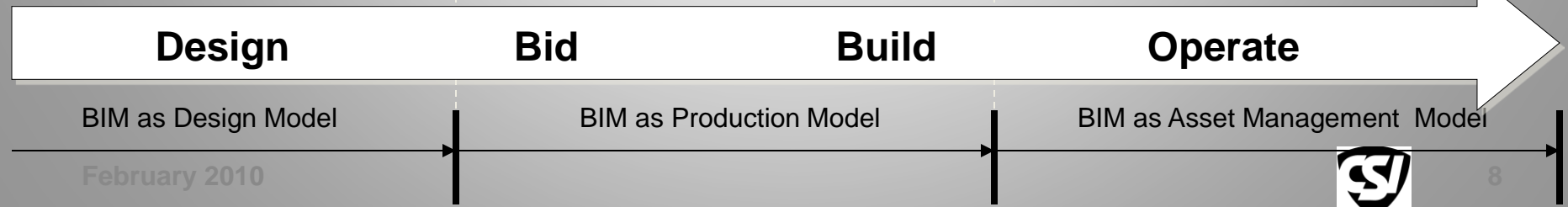
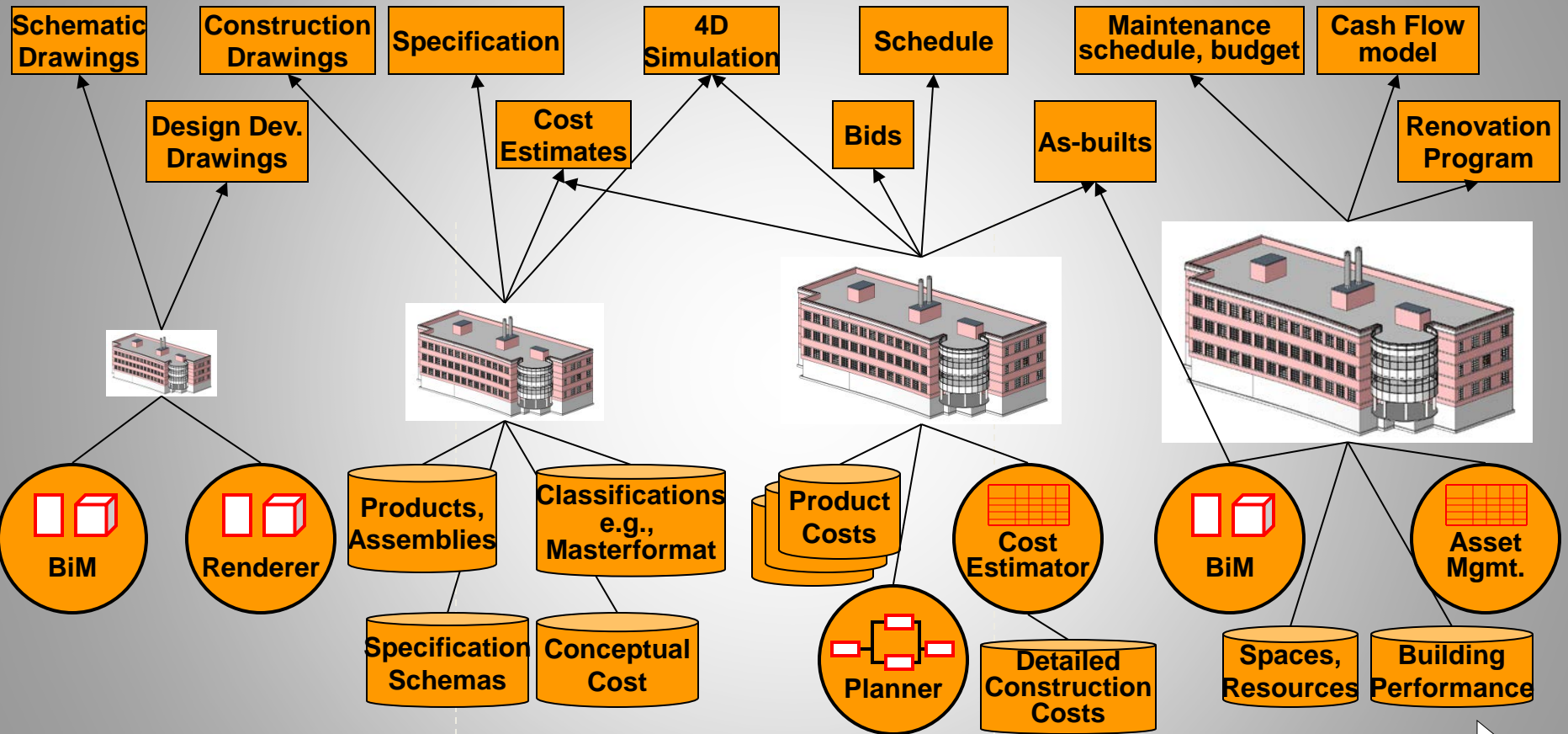


Dynamic

Knowledge Manager



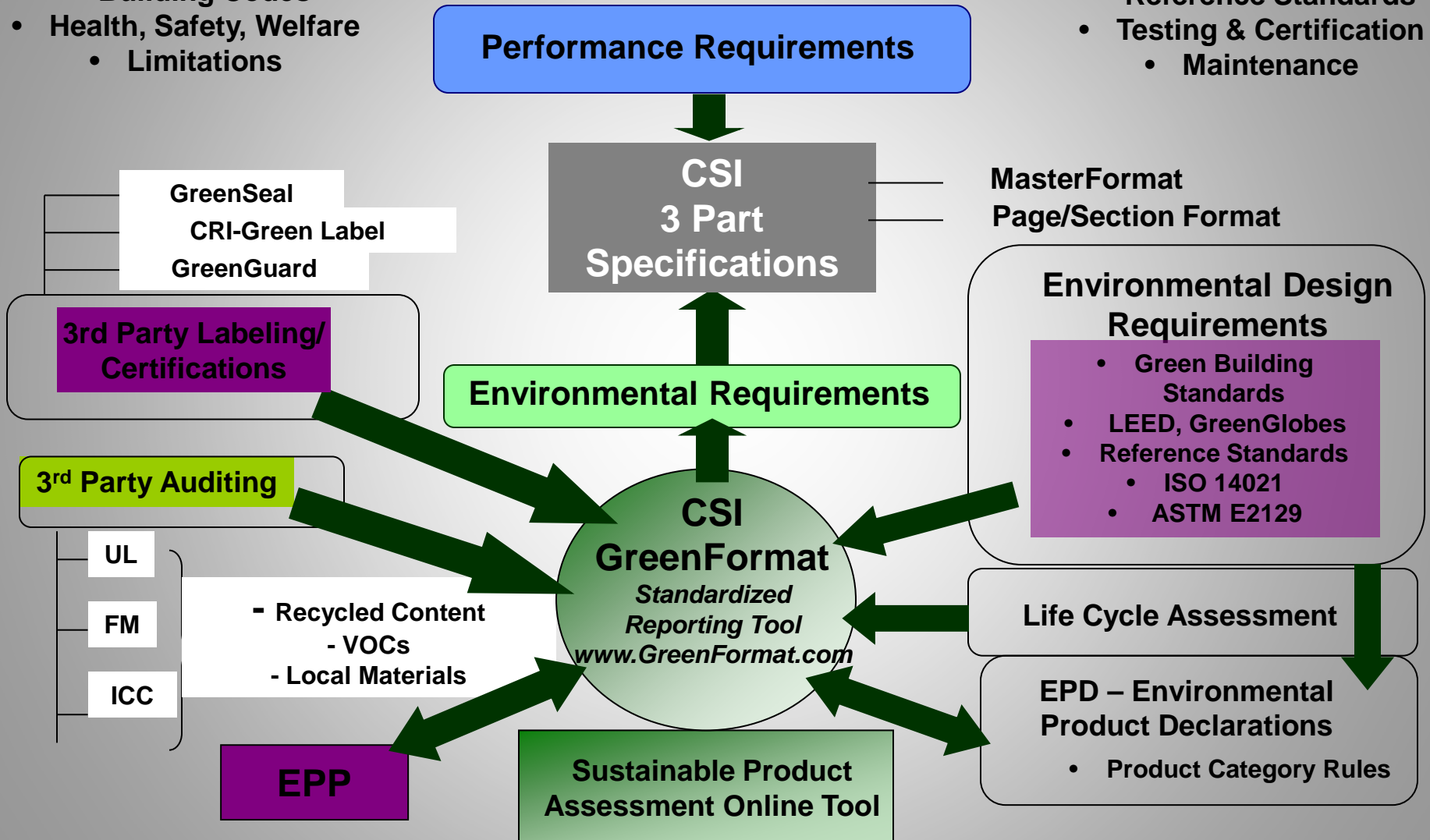
Project Information is distributed in multiple formats, and changes



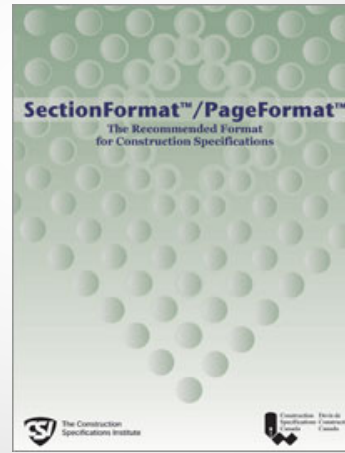
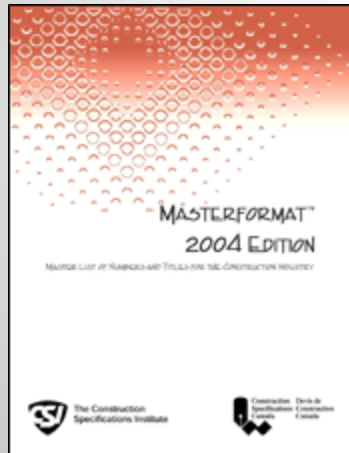
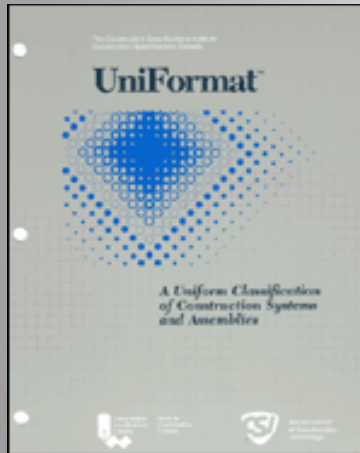
- Regulatory Requirements
- Building Codes
- Health, Safety, Welfare
- Limitations

- Functional Requirements
- Aesthetic Requirements

- Warranties
- Performance Criteria
- Reference Standards
- Testing & Certification
- Maintenance



CSI Formats, Standards and Practice Guidelines





PROJECT DESCRIPTION

A SUBSTRUCTURE

- A10 Foundations
- A20 Basement Construction

B SHELL

- B10 Superstructure
- B20 Exterior Enclosure
- B30 Roofing

C INTERIORS

- C10 Interior Construction
- C20 Stairs
- C30 Interior Finishes

D SERVICES

- D10 Conveying
- D20 Plumbing
- D30 Heating, Ventilating, and Air Conditioning (HVAC)
- D40 Fire Protection
- D50 Electrical

E EQUIPMENT AND FURNISHINGS

- E10 Equipment
- E20 Furnishings

F SPECIAL CONSTRUCTION AND DEMOLITION

- F10 Special Construction
- F20 Selective Demolition

G BUILDING SITEWORK

- G10 Site Preparation
- G20 Site Improvements
- G30 Site Civil/Mechanical Utilities
- G40 Site Electrical Utilities
- G90 Other Site Construction

Z GENERAL

- Z10 General Requirements
- Z20 Contingencies

For additional detail and information, refer to *UniFormat*SM.



BIM Functional Elements – Element A Substructure

BIM Functional Elements - Element A Substructure - CSiWiki - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://wiki.csinet.org/index.php?title=BIM_Functional_Elements_-_Element_A_Substructure

Wikipedia (en)

Start Stumbling... or Sign-in

BIM Functional Elements - Element A...

- Printable version
- Permanent link

Standard: _____

Criteria: _____

A1030 Slabs on Grade: Assigned to Michael White, Bob Johnson.

Includes slabs as well as fine grading, base courses, soil treatment, vapor retarders, under-slab waterproofing, under-slab insulation, under-slab drainage.

Performance Criteria:

- Criteria: Load capacity
 - Units of Measure: Pounds Per Square foot (PSF).
 - Standard: ----
- Criteria: Thermal Resistance.
 - Units of Measure: R-Value.
 - Standard: ASTM E 1155.
- Criteria: Water Vapor Transmission Resistance.
 - Units of Measure: Perms.
 - Standard: ASTM E 96.

Includes excavation for basement construction, excavation support system, backfill and compaction, soil treatment.

Performance Criteria:

- Criteria: _____
- Units of Measure: _____

Done

start CSI Microsoft PowerPoint ... 4 Firefox dora.csinet.org - Re... 11:21 AM

CSiWiki -- The Construction Community's Wiki -- <http://wiki.csinet.org>





Preliminary Project Description and *PPDF*Format

B SHELL

B10 Superstructure

B1010 Floor Construction

- A. Floor System: Two-hour fire-rated, composite steel beam, steel deck, and concrete slab system in 6100 mm (20 feet) by 7600 mm (25 feet) bay dimensions capable of supporting 3.6 kPa (75 psf) live load.

B1020 Roof Construction

- A. Roof System: Two-hour fire-rated, composite steel beam, steel deck, and concrete slab system in 6100 mm (20 feet) by 7600 mm (25 feet) bay dimensions capable of supporting 1.5 kPa (30 psf) live load.

B20 Exterior Enclosure

B2010 Exterior Walls

- A. Masonry Cavity Wall Construction:
 - 1. Modular facing brick installed in running bond with tooled concave joints.
 - 2. Extruded polystyrene board installed between continuous joint reinforcing.
 - 3. Bituminous dampproofing applied over concrete masonry units.
 - 4. Load-bearing concrete masonry units with galvanized continuous joint reinforcing.
 - 5. Concrete masonry unit lintel units over openings; concrete masonry unit bond beams at top of wall.
- B. Loose galvanized steel lintels over brick openings with 203 mm (8 inches) minimum bearing on each side of opening.
- C. Elastomeric masonry flashing at sills, lintels, and other cavity interruptions.
- D. Open weepholes in brick masonry at flashing locations on 600 mm (24 inches) centers.

B2020 Exterior Windows

- A. Windows: Commercial-grade, aluminum double-hung windows with clear anodized finish and clear insulating glass.

B2030 Exterior Doors

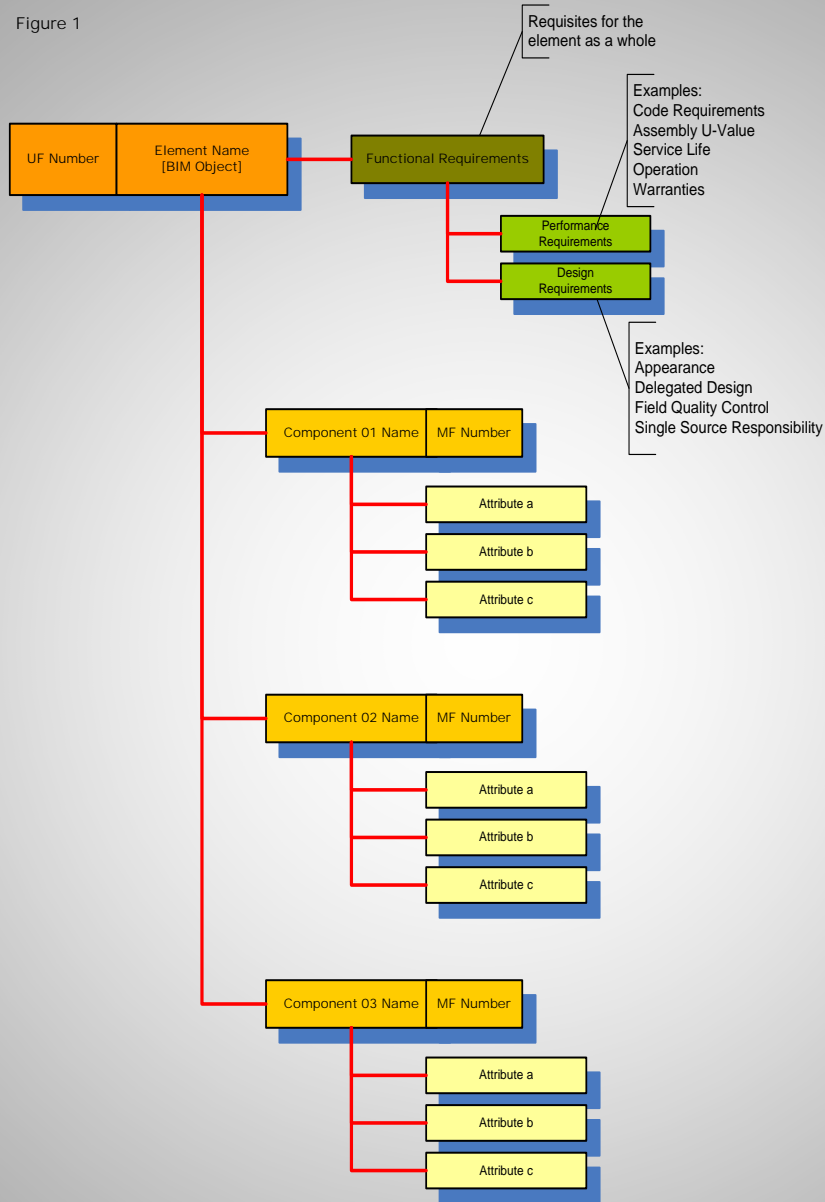
- A. Doors and Frames: Insulated, exterior flush steel doors set in steel frames.
- B. Hardware: Ball bearing butts, closers, locksets, thresholds, and weatherstripping.

Preliminary Project Description (PPD)

- Written descriptions of Schematic Design organized by systems and assemblies
- Written descriptions that provide sufficient information for cost estimating without making final design decisions
- Documentation of qualitative requirements for the project appropriate to the phase
- Organized using *UniFormat*

PPDFormat provides guidance for writing PPDs

Figure 1



Tabular Format - Sample

B20 EXTERIOR ENCLOSURE	
B2010 EXTERIOR WALLS	<p>Thermal Performance: Minimum assembly U-value of 0.06 per International Energy Conservation Code.</p> <p>Aesthetic Requirements: Match appearance of existing building.</p>
Exterior Wall Exterior Skin	<p>Aluminum-faced composite metal panel cladding system with face sealed joints; 4 mm thickness, factory-applied fluorocarbon coating in metallic color.</p> <p>Sealant: Medium modulus silicone.</p>
Exterior Wall Construction	<p>8-inch deep cold formed metal framing with glass-fiber faced gypsum sheathing.</p>
Exterior Wall Vapor Retarders, Air Barriers, and Insulation	<p>Insulation: 2-inch thick continuous extruded polystyrene insulation in drainage cavity, 3-1/2-inch fiberglass batts in stud cavities.</p> <p>Weather Barrier: Liquid-applied vapor permeable air and water barrier membrane.</p>
Exterior Wall Interior Skin	<p>Gypsum board, painted finish.</p>
Exterior Louvers	<p>Aluminum louvers, drainable storm-proof blades, welded construction, factory-applied fluorocarbon finish that matches metal cladding panels.</p>
Exterior Soffits	<p>Direct-applied exterior finish system (DEFS) on gypsum sheathing over CFMF framing with 8-inch unfaced fiberglass batt insulation.</p>

Outline Format - Sample

B2010 EXTERIOR WALLS

B2010.01 Masonry Veneer Walls

- A. Description: Face brick veneer with architectural precast concrete trim, insulated cavity, air and water barrier membrane, sheathing, and cold-formed metal framing back-up.
- B. Functional Requirements:
 - 1. Thermal Performance: Minimum assembly U-value of 0.06 per International Energy Conservation Code.
 - 2. Aesthetic Requirements: Match appearance of existing building.
- C. Components:
 - 1. Brick: Match existing jumbo size brick.
 - 2. Precast Trim: Match existing. Portions will have decorative moldings with multi-color painted finish to match existing building.
 - 3. Cavity Insulation: Extruded polystyrene, R-10
 - 4. Weather-Resistive Barrier: Liquid-applied air and water barrier membrane, vapor permeable.
 - 5. Sheathing: Glass-mat faced gypsum sheathing.
 - 6. Framing: 4-inch cold-formed metal framing, delegated design.
 - 7. Framing Space Insulation: R-13 unfaced fiberglass batts.



A Structured Format for Reporting Sustainable/Green Product Attributes

1. BACKGROUND INFORMATION

- 1.1 CSI MASTERFORMAT™ SECTION NUMBER AND NAME
- 1.2 MANUFACTURER
- 1.3 PRODUCT DESCRIPTION

2. PRODUCT DETAILS

2.1 SUSTAINABLE STANDARDS AND CERTIFICATIONS

- 2.1.1 Third Party Certification Program
 - 2.1.1.1 Whole Product Sustainability
 - 2.1.1.2 Forestry Practices
 - 2.1.1.3 Indoor Emissions
 - 2.1.1.4 Other Certification Categories
- 2.1.2 Second Party Certification Program
 - 2.1.2.1 Whole Product Sustainability
 - 2.1.2.2 Energy
 - 2.1.2.3 Indoor Emissions
 - 2.1.2.4 Other
- 2.1.3 Self-Declaration of Compliance
 - 2.1.3.1 Indoor Emissions
 - 2.1.3.2 Other Certification Categories

2.2 SUSTAINABLE PERFORMANCE CRITERIA

- 2.2.1 Insulating Materials
- 2.2.2 Roofing Materials
- 2.2.3 Window, Skylight, and Fenestration Assemblies
- 2.2.4 Glass and Glazing Materials
- 2.2.5 HVAC Insulation
- 2.2.6 Air Distribution
- 2.2.7 Central Heating Equipment
- 2.2.8 HVAC Equipment
- 2.2.9 General Product Performance

2.3 SUSTAINABLE COMPOSITION OF PRODUCT

- 2.3.1 Composition
- 2.3.2 Toxicity
- 2.3.3 Recycled Content
- 2.3.4 Rapidly Renewable Materials
- 2.3.5 Wood-based Composite Materials
- 2.3.6 Reused Materials
- 2.3.7 Emissions
- 2.3.8 Product Specific:

3. PRODUCT USAGE

3.1 LIFE CYCLE ANALYSIS

3.2 MATERIAL EXTRACTION AND TRANSPORTATION

- 3.2.1 Regional Materials

3.3 MANUFACTURING

- 3.3.1 Manufacturing and Support Facilities
- 3.3.2 Manufacturing Process

3.4 CONSTRUCTION

- 3.4.1 Construction Waste Management
- 3.4.2 Installation
- 3.4.3 Contract Closeout

3.5 FACILITY OPERATIONS PHASE

- 3.5.1 Product Lifespan
- 3.5.2 Recommended Cleaning and Maintenance

3.6 DECONSTRUCTION / RECYCLING PHASE

- 3.6.1 Manufacturer/Industry Programs
- 3.6.2 Product Reuse
- 3.6.3 Product Recycling / Disposal

4. ADDITIONAL INFORMATION

- 4.1 Editorial screened green listings that include this product
- 4.2 Transparency of Information

5. CERTIFICATION

LCA
In
GreenFormat

A Template for Product Manufacturers to meet Environmental Information Needs

www.greenformat.com



Section 1: Background Information

General information organized by **MasterFormat number, manufacturer name, product type, product or trade name**

Brief description of product and its use

Designers can search by MasterFormat number, manufacturer name, or product type keyword search



Section 2: Product Details – Standards and Certifications

Section 2.1: Standards and Certifications

Which regulatory sustainable criteria and standards the product meets; yes/no answers with date verified/accepted.

Included are:

Federal evaluation tools such as Energy Star, USDA Bio-based Compliant, USDA Organic, etc.

State and local/regional criteria including state-funded EPP programs and local/regional standards like the South Coast Air Quality Management District (SCAQMC)

Other questions include international sustainable standards





Section 2: Product Details – Performance and Composition

Section 2.2: Performance Criteria

Section 2.3: Composition of Product

These categories, which collect certification, performance and product composition information, include **questions relevant to three of the four methods of specifying products:**

- Reference Standards
- Performance
- Descriptive specifications

Proprietary specs would use Sections 1 & 2.



Section 3: Product Usage

Section 3.1: Life Cycle Analysis

Section 3.2: Material Extraction and
Transportation

Section 3.3: Manufacturing Phase

Section 3.4: Construction Phase

Section 3.5: Facility Operations Phase

Section 3.6: Deconstruction and Recycling





Section 4 and 5: Additional Information and Authorization

Additional manufacturer information re: transparency of information

Listings with other organizations such as BGI GreenSpec

Authorization/Self-Certification by the manufacturer or an authorized agent that the information provided is true and correct





Find the Right Green Products For Your Project



- Search "Green" Product Information
- Evaluate the Green Characteristics of Products
- Choose the Products that Fit Your Project
- Obtain Spec-friendly Results

Start searching now!

Manufacturers - list your products on GreenFormat TODAY!

See pricing.

FIND A PRODUCT

 in

- [Search](#) - Type in Product Information and select field
- [Browse](#) - by MasterFormat Number
- [Advanced Search](#) for products meeting LEED credits or certifications
- [iPhone App](#) - Search GreenFormat

LIST A PRODUCT

- [Register](#) or [Log-in](#) to your account.
- [Tell me more!](#)

LEARN:

- **Designers & Specifiers:** Learn about Integrating GreenFormat Data into Project Specifications in this [free webinar!](#) CE credits available.
- **Manufacturers:** Learn how to list your products in this [free webinar!](#)

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Find a Product

Interface FLOR carpet tiles

INTERFACEFLOR [manufacturer details and additional products \(5\)](#) »



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EXPAND ALL

BACKGROUND

Product image • Product description • Contact information

PRODUCT DETAILS

2.1 SUSTAINABLE STANDARDS AND CERTIFICATIONS

2.1.1 Third Party Certification - Whole Product Sustainability

CERTIFICATION NAME	CERTIFYING ORGANIZATION	LEVEL	CERTIFICATION NUMBER	ACTIVATION DATE	LENGTH OF TERM
Sustainable Choice	Scientific Certification Systems, Inc. (SCS)	Silver	--	--	--
Other	SCS	Platin	01370	2007-09-30	12 months

2.1.4 Third Party Certification - Other Certification Categories

CERTIFICATION NAME	CERTIFYING ORGANIZATION	LEVEL	CERTIFICATION NUMBER	ACTIVATION DATE	LENGTH OF TERM
Other	climate neut	verifi	n.a	2008-01-01	12 months

2.1.5 Second Party Certification Program - Whole Product Sustainability

CERTIFICATION NAME	CERTIFYING ORGANIZATION	LEVEL	CERTIFICATION (OR STANDARD*) NUMBER	ACTIVATION (OR TEST*) DATE	TESTING ORGANIZATION*	LENGTH OF TERM
Cradle-to-Cradle	MBDC	Biological Nutrient	--	--	--	--
Environmental Choice/Ecologo	Canada	N/A	123456	2008-01-01	--	12 months

4.1 Stewardship • 4.2 Transparency of Information • Manufacturer Comments



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 Tools

36 Information

41 Materials

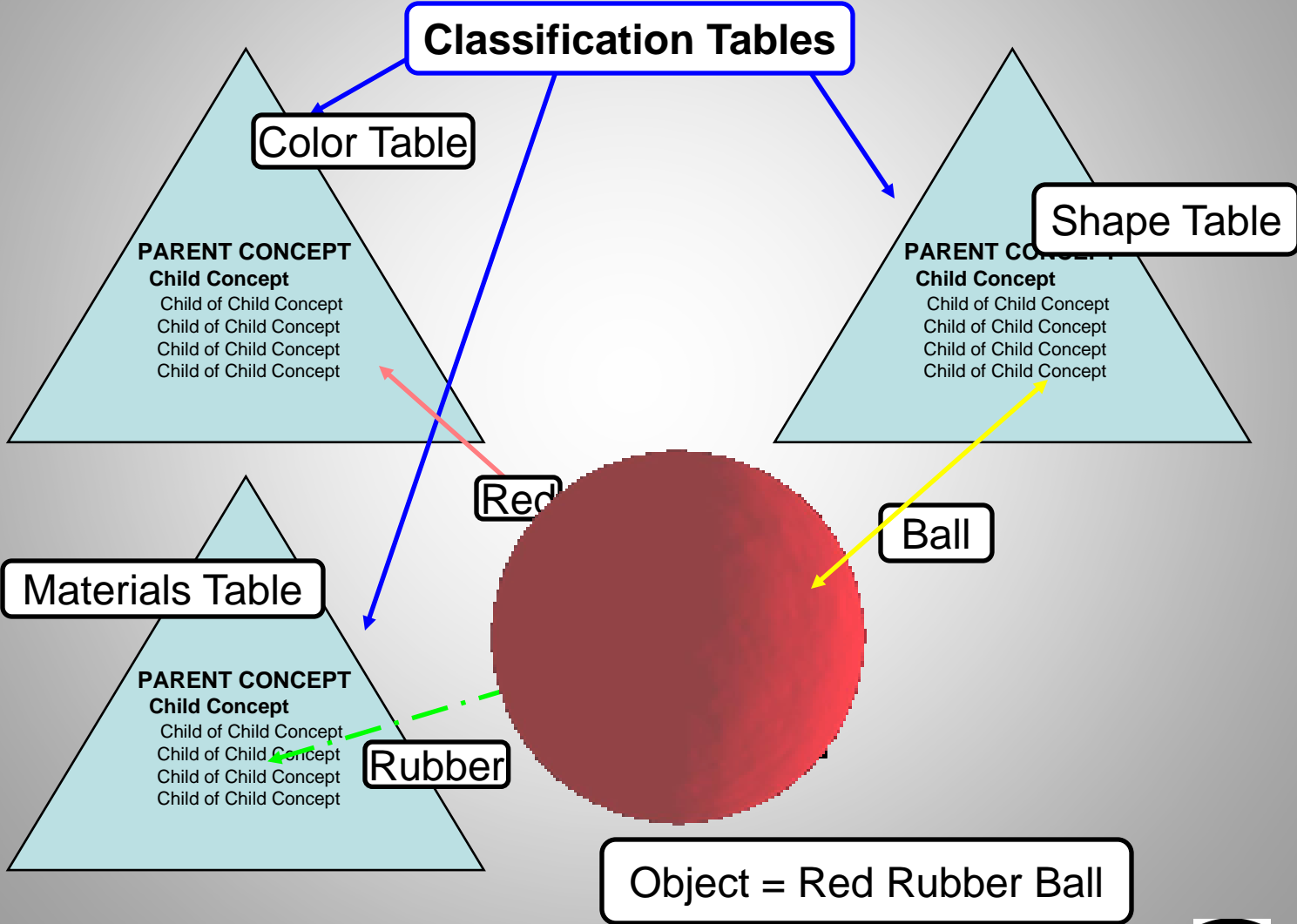
49 Properties

Basis of Table Concept

Classification of Information in the Construction Industry

- ISO TC59/SC13/WG2 (1988)
- ISO Technical Report 14177 (1994) Organization of information about construction works
- ISO/IS 12006-2 Framework for classification of information
- ISO/PAS 12006-3 Framework for object-oriented information exchange

Faceted Classification



Faceting in OmniClass Numbering

22-221013	pipes/piping/as a work section
23-7116	pipe as a product
11-2800	process facility

23-7116:22-221013<11-2800 **pipe**
(product) as specified in a work section
as part of a process facility



OmniClass Status



- Active Working Groups (WG) for:
 - Facility Types and Spaces
 - Products
 - Properties
 - Activities and Process (ensuring tables meet demands of BIM)
- Revised drafts of tables from above WG expected March 2010
- OmniClass Development Committee approval for these drafts expected May 2010
- Part of National BIM Standard
- Being incorporated into IFD

OmniClass Working Groups

Facility Types and Spaces WG

- Table 13 – Spaces by Function
 - Organizes Facility Spaces by Use Type
 - VA Medical Facility Spaces being classified
 - Participation from OSCRE, ICC, BOMA, others

WG Lead: Alan Edgar

13-11 00 00		Interaction Spaces
	13-11 11 00	Gathering Spaces
13-11 11 11		Briefing Room
13-11 11 14		Seminar Room
13-11 11 17		Classroom
13-11 11 19		Computer Lab
13-11 11 21		Assembly Hall
13-11 11 24		Information Counter
13-11 11 27		Social Room
13-11 11 31		Reception Space
13-11 11 99		Other Gathering Spaces
	13-11 17 00	Performance Spaces
13-11 17 11		General Performance Spaces
13-11 17 11 11		Acting Stage
13-11 17 11 15		Lectern
13-11 17 11 17		Orchestra Pit
13-11 17 11 21		Choir Loft
13-11 17 11 24		Performance Rehearsal Space
13-11 17 11 27		Sound Stage
13-11 17 11 31		Production Stage
13-11 17 11 34		Performance Hall
13-11 17 11 37		Auditorium
13-11 17 11 99		Other General Performance Spaces
13-11 17 14		Audience Spaces
13-11 17 14 11		Pre-function Lobby
13-11 17 14 21		Seating Section
13-11 17 14 24		Seating
13-11 17 14 27		Seating Aisle
13-11 17 14 31		Bleacher
13-11 17 14 34		Viewing Room

Table 13



OmniClass Working Groups

Products WG

- Table 23 – Products
 - Organizes Product classes
 - Table 23 being revised in conjunction with GSA IFACT project
 - Used to identify components
 - Combined with Table 21 – Elements

WG Lead: Robert Keady

Table 23

23-30 20 00 Windows	
23-30 20 11 Window Components	
23-30 20 11 11	Window Sections
23-30 20 11 14	Window Linings and Boards
23-30 20 11 17	Window Vents
23-30 20 14 Windows by Material	
23-30 20 14 11	Metal Windows
23-30 20 14 14	Wood Windows
23-30 20 14 17	Plastic Windows
23-30 20 14 21	Composite Windows
23-30 20 17 Windows by Method of Opening	
23-30 20 17 11	Fixed Windows
23-30 20 17 14	Sliding Windows
23-30 20 17 14 11	Vertical Sliding Windows
23-30 20 17 14 14	Horizontal Sliding Windows
23-30 20 17 17	Hung Windows
23-30 20 17 17 11	Single-Hung Windows
23-30 20 17 17 14	Double-Hung Windows
23-30 20 17 17 17	Triple-Hung Windows
23-30 20 17 21	Swinging Windows
23-30 20 17 21 11	Awning Windows
23-30 20 17 21 14	Casement Windows
23-30 20 17 21 17	Projected Windows
23-30 20 17 21 21	Vertical Pivoted Windows
23-30 20 17 21 24	Jalousie Windows
23-30 20 17 21 27	Jal-Awning Windows

**Aluminum Casement
Windows: 23-30 20 17 21 14**

OmniClass Working Groups

Activities and Process WG

Demands of BIM

Work progressing on three tables currently:

Table 31 – Phases

Organize project data exchanges based on project life cycle

Table 32 – Services

For combining with Disciplines and Organizational Roles tables

Table 36 – Information

Interaction with Properties Table

Other tables being examined for enhancement

WG Lead: Dianne Davis

31-20 00 00 Design Stage

31-20 10 00 Preliminary Project Description Phase

31-20 10 11 Preliminary Engineering Phase
31-20 10 14 Conceptual Design Phase
31-20 10 17 Schematic Design Phase
31-20 10 21 Preliminary Design Phase

31-20 20 00 Design Development Phase

31-20 20 11 Detailed Design Phase
31-20 20 14 Final Design Phase
31-20 20 17 Prototype Design and Testing Phase
31-20 20 21 Engineering Analysis Phase
31-20 20 24 Product Selection Phase
31-20 20 27 Material Selection Phase
31-20 20 31 Equipment Selection Phase
31-20 20 34 Estimating Phase
31-20 20 37 Value Analysis Phase

31-25 00 00 Construction Documents Stage

31-25 10 00 Construction Documents Preparation Phase

31-25 10 11 Construction Data Preparation Phase
31-25 10 14 Drawing Preparation Phase
31-25 10 17 Detail Preparation Phase
31-25 10 21 Fabrication Drawing Preparation Phase
31-25 10 24 Coordination Drawing Preparation Phase
31-25 10 27 Specifications Preparation Phase
31-25 10 31 Project Manual Preparation Phase

31-25 20 00 Construction Documents Production Phase

31-25 30 00 Construction Cost Estimating Phase

Table 31

OmniClass Working Groups

Properties WG

- Participation from Autodesk, Reed, MHC, others
- Table 49 – Properties
 - Conceptual organization for properties
 - Establish preferred terms
- Being incorporated into SPie

WG Lead: Wayne Watson

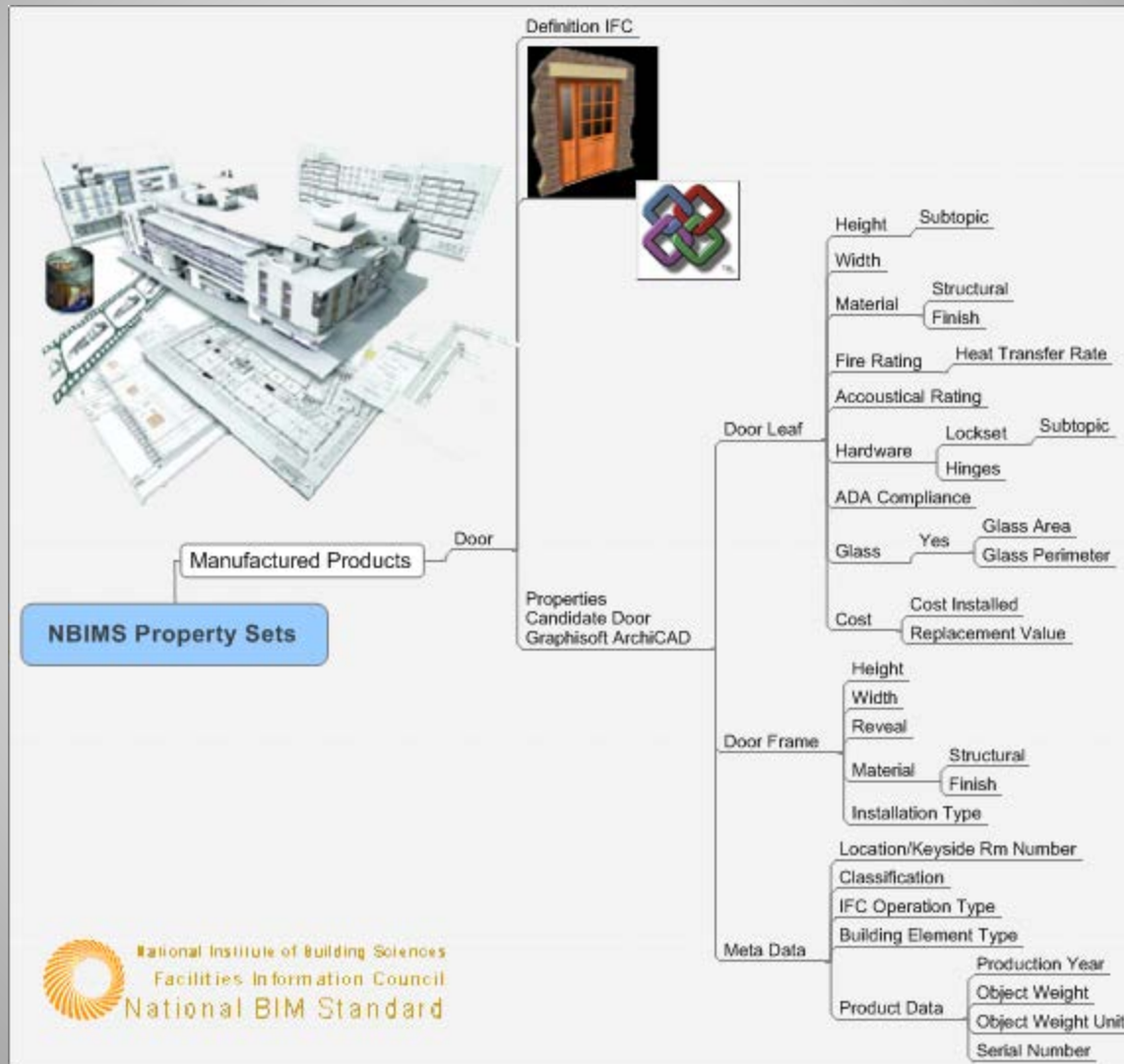
Properties Relating to Applied Forces

Pressure and Stress

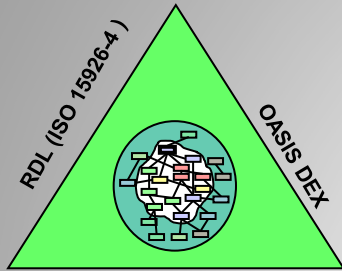
pressure	[newton per meter squared, N/m ²]
	[pascal, Pa; use kPa, Mpa for more convenient numbers]
absolute pressure	
atmospheric pressure	
ambient pressure	[Pa (ambient)]
gage pressure	(absolute pressure minus ambient pressure, usually atmospheric pressure) [Pa (gage)]
static pressure differential	
vacuum	(use negative pressure)
wind pressure	(not wind speed)
vapor pressure	
stress	(reaction to applied force) [pascal, Pa]
abrasion resistance	
adhesion strength	(determined by test method)
bending strength	
compressive resistance	
compressive strength	
crack resistance	
creep resistance	
explosion resistance	
fatigue resistance	
fiber stress in bending [wood]	
hardness	
impact strength	(use impact energy absorption (energy and work))
indentation resistance	
peel strength	(determined by test method)
puncture resistance	
screw pullout resistance	
shear strength	
tear strength	
tensile strength	
uniform wind load resistance	
wind uplift resistance	

Table 49

OmniClass Tables in NBIMS

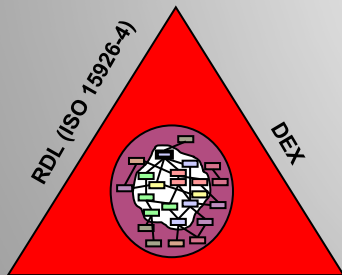


Interoperability through standards



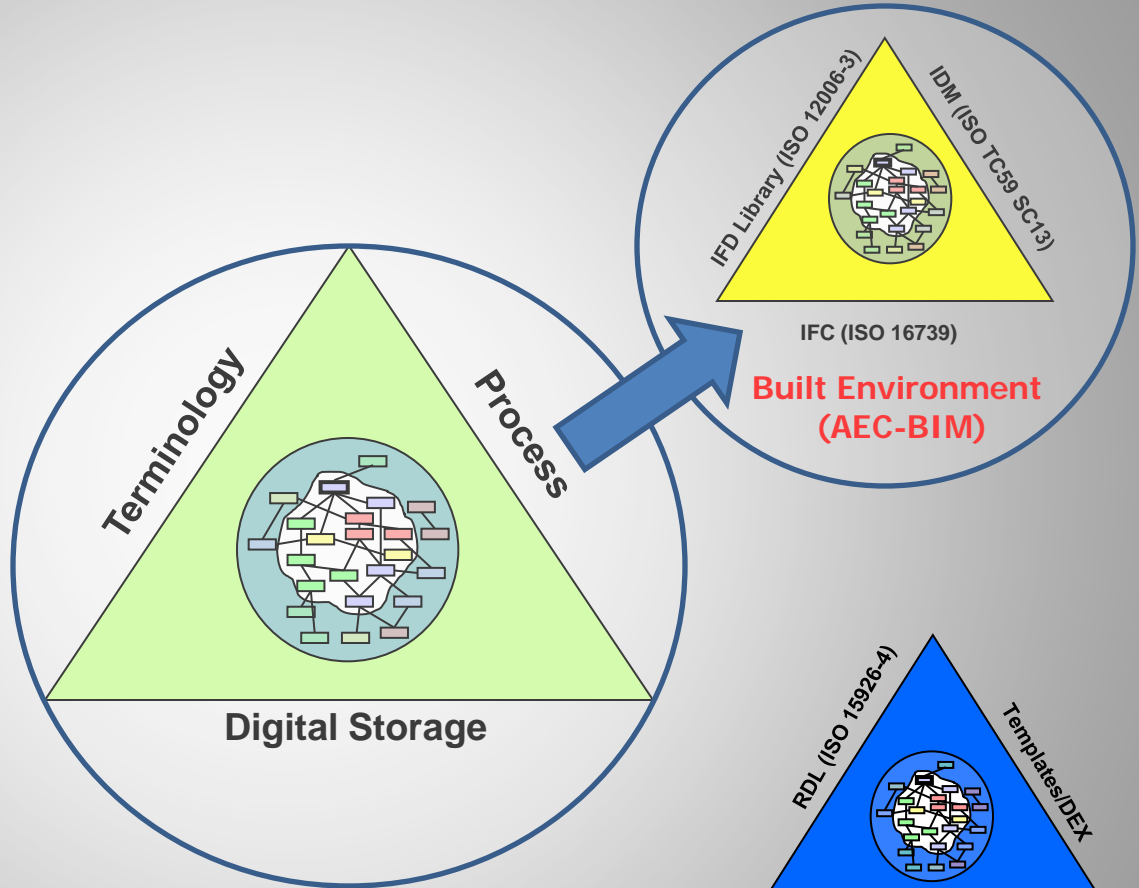
ISO 10303-203, 209, 212, 214, 239,
ASD 9300-110

Aeronautics & Space

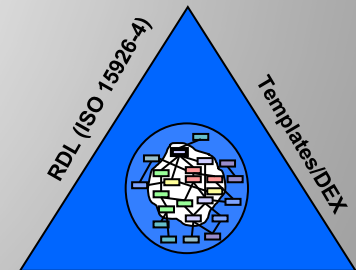


PLCS (ISO 10303-239),
ASD/AIA S1000D,
ADL SCORM

Defense



**Built Environment
(AEC-BIM)**



ISO 15926-2

Oil & Gas



EPM TECHNOLOGY



IFD Library Description

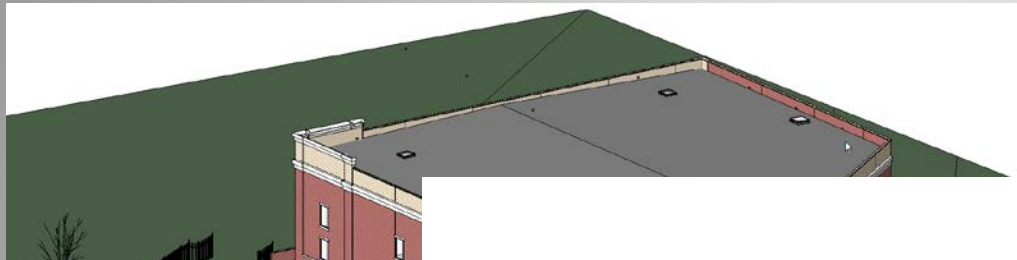
- IFD Library provides:
 - Multilingual and translation capabilities
 - Important in a globalized world
 - Unique global reference to any concept – GUID
 - IFC model enrichment and link to product specific data
 - Database of terminology and definitions
- IFD Library needs to be international to succeed
 - A GUID must be G = Global
- Implementation – many opportunities but market driven
 - IFD Library provide a generic API and content
 - Business opportunities?
 - Demonstration – dominated by commercial interests



Pilot Projects – U.S. / Canada

- **Construction Industry Terminology Initiative (CITI)** – Terms used on drawings and in specifications (using NCS terms)
- **OmniClass** – Support NBIMS
- **ICC SMART Codes** – Energy Code (*on hold*)
- **Specifiers Properties Information Exchange (SPie)**
- PRM Glossary/other Terminology bases

Vision - Objects in a model have integrated supporting information available from multiple sources



SECTION 08550 WOOD DOUBLE HUNG WINDOW

PART 1 GENERAL

- 1.1 SECTION INCLUDES
- A. Wood double hung [single hung] [triple sash single hung] [stationary/picture] windows complete with hardware, glazing, weatherstrip, [insect screen] [removable grille] [grilles-between-the-glass] [simulated divided lite] [authentic divided lite] [jamb extension] [combination storm/screen] and standard or specified anchors, trim, and attachments.

- 1.2 RELATED SECTIONS...
 1.3 REFERENCES
 A. American Society for Testing and Materials (ASTM):...
 1.4 SYSTEM DESCRIPTION
 A. Design and Performance Requirements:

- 1.5 SUBMITTALS
 1.6 QUALITY ASSURANCE
 1.7 DELIVERY
 1.8 STORAGE AND HANDLING
 1.9 WARRANTY

PART 2 PRODUCTS

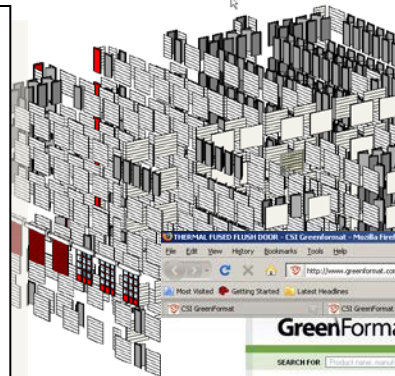
- 2.1 MANUFACTURED UNITS
 A. Description: Factory assembled Wood Double Hung [Single Hung] [Triple Sash Single Hung] [and related stationary or picture units] as manufactured by ...XYZ Window Mfr.
- 2.2 WOOD MAGNUM DOUBLE HUNG [SINGLE HUNG] [TRIPLE SASH SINGLE HUNG] MATERIALS

- A. Frame: ...
- B. Sash: ...
- C. Glazing: ...
 - 1. Glazing Method:...
 - 2. Glass Type:...
 - 3. Glazing Seal: ...
- D. Finish: ...
 - 1. Interior / Exterior:...
- E. Hardware:...
- F. Weatherstrip:
- G. Jamb Extension:
- H. Insect Screens:
- I. Wood Combination Storm Sash and Screen:
- J. Removable Grilles
- K. Authentic Divided Lites
- L. Simulated Divided Lites (SDL):
- M. Grilles-between-the-glass (GBG):

PART 3 EXECUTION

- 3.1 EXAMINATION...
 3.2 INSTALLATION...
 3.3 CLEANING...

END OF SECTION



Type Properties

Family: System Family: Basic Wall

Type: Generic - 8"

Parameter	Value
Construction	
Structure	Edit...
Wrapping at Inserts	Do not wrap
Wrapping at Ends	None
Width	0' 8"
Wall Function	Exterior
Graphics	
Coarse Scale Fill Pattern	
Coarse Scale Fill Color	Black
Identity Data	
Model	
Manufacturer	
Type Comments	
URL	
Description	Exterior Walls
Assembly Code	B2010

Ifc Properties

W-51-1000-1200 (

Name

GlobalId

Name

Description

ObjectType

OverallHeight

OverallWidth

GreenFormat

SEARCH FOR: Product Name, Manufacturer or MasterFormat Number

THERMAL FUSED FLUSH DOOR

THE MAIMAN COMPANY manufacturer details and additional products (2)

BACKGROUND

Description: The Maiman Company's revolutionary new THERMAL FUSED flush door technology. Let us help with LEED POINTS for FSC Chain of Custody, Recycled Content, and No Added Urea Formaldehyde. Full complement of Positive pressure fire rated doors, wood frames and sile and rail doors with the same degree of concern for the environment as the THERMAL FUSED FLUSH DOORS.

MasterFormat Numbers: 08 14 23 16

PRODUCT DETAILS

3.1 SUSTAINABLE STANDARDS AND CERTIFICATIONS - OTHER CONTRIBUTION CATEGORIES		CERTIFICATION NUMBER	ACTION DATE	LENGTH OF TERM
Other	SCIENTIFIC ORGANIZATION	CHAIN OF CUSTODY SCS-COC-000	2008-09-24	60 months

2.2 SUSTAINABLE PERFORMANCE CRITERIA

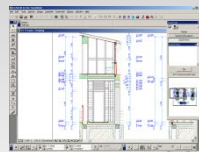
2.3 SUSTAINABLE COMPOSITION OF PRODUCT



buildingSMART is about exchange and sharing of information

Building application – E-submission

- Local authority
- Building permit



BIM software

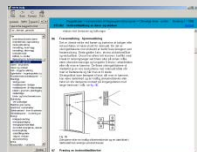
- Drawings
- Arch, HVAC, EL, CivEng

VRML

- Visualisation

Knowledge databases

- Best practice
- Specific knowledge
- Company knowledge



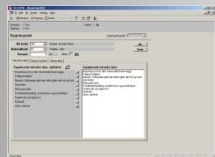
Briefing

- Functions
- Estimates,
- Budget
- Requirements



Demolishing, re-use

- Renovation
- Demolishing
- Reconstruct

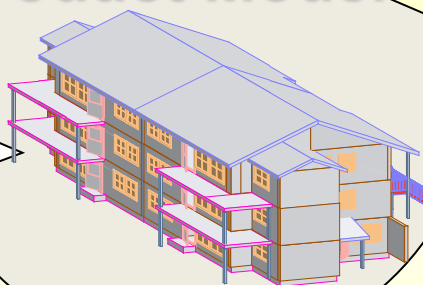


FM Operation

- Renting, sale and use
- Maintenance
- Warranty

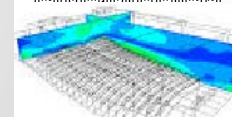
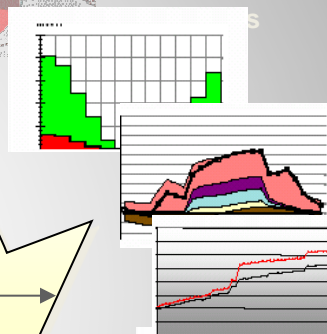


IFC+IFD Product Model



SIMULATIONS

- Indoor climate
- Air, heating
- Lifecycle cost analysis
- Light and acoustics
- Energy use
- Fire and hazards
- Environmental impact
- Life expectancy



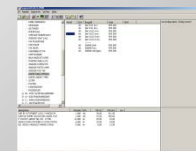
Codes and regulations

- Building codes
- Building regulation
- Central authority



Specification

- Specified Bill Of Quantities
- Standardized texts
- Cost estimates



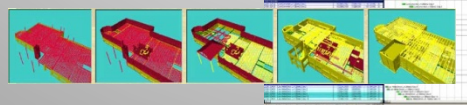
Tendering / Procurement

- Product databases
- Price databases



Progress - time schedules

- Progress planning
- Logistics, 4D



February 2010

