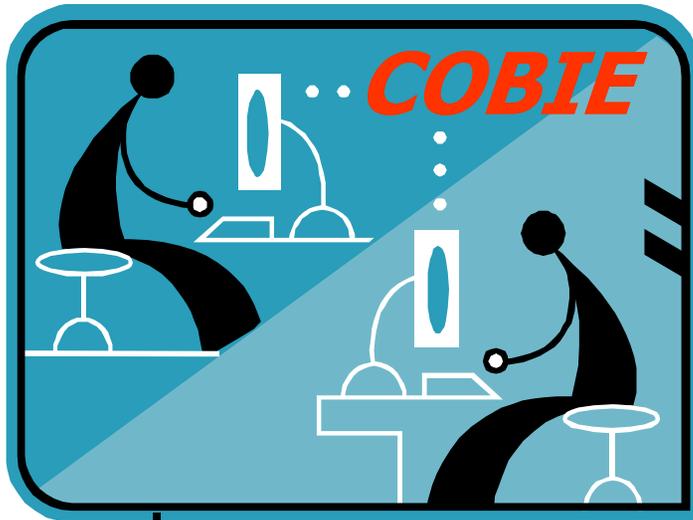


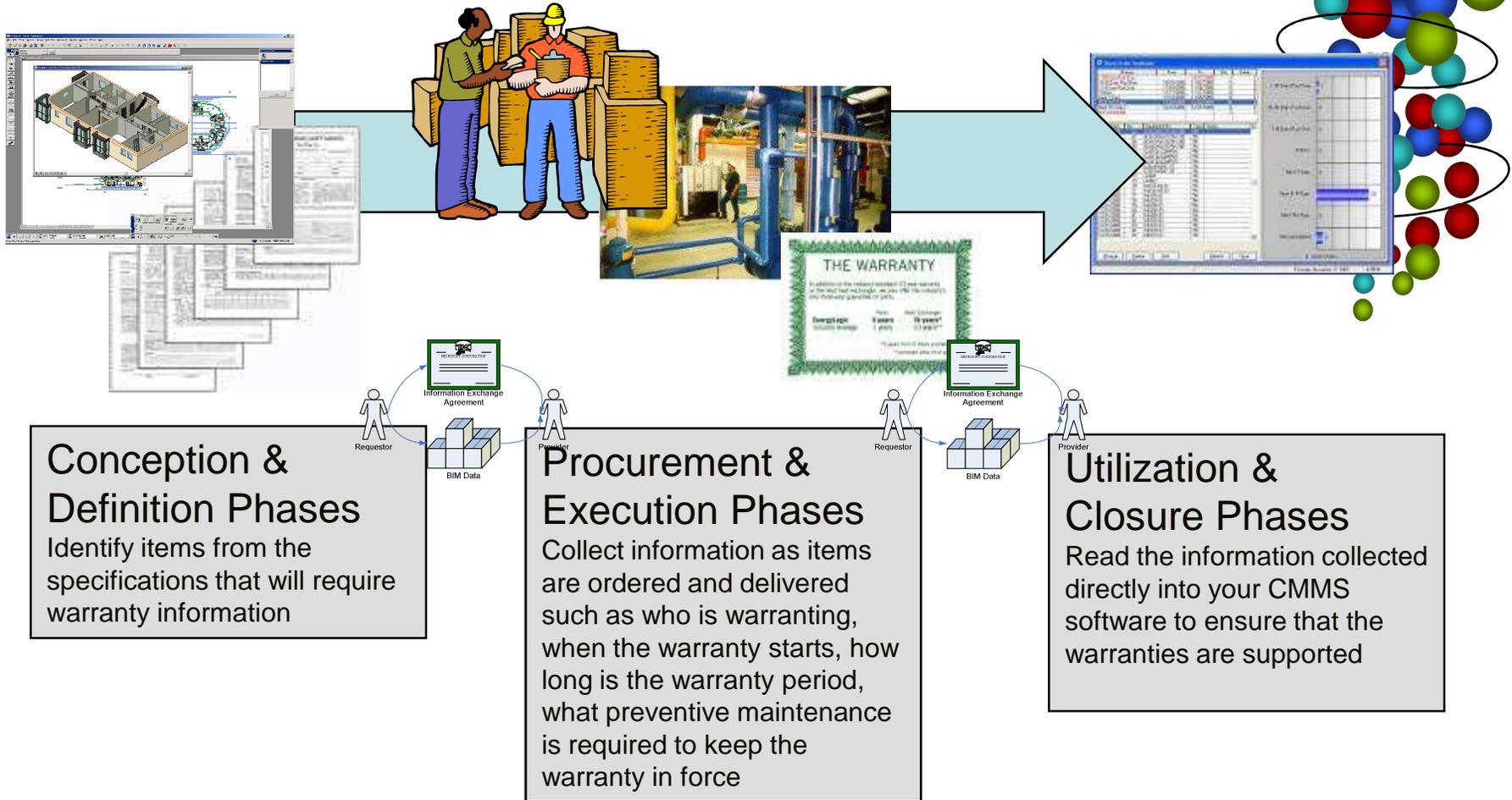
Construction Operations Building Information Exchange

Bill Brodt

Chair



COBIE Construction Operations Building Information Exchange, e.g. warranties . . .



Information is captured at point of origin and flows through the phases of a facility

Typical Product Information Submittals

Safety precautions

Operator procedures

Operator service requirements

Environmental conditions

**Preventive maintenance plan
& schedule**

**Troubleshooting guides
& diagnostic techniques**

Wiring & control diagrams

Spare parts & supplies

Corrective maintenance man-hours

Warranty

Training requirements

Special tools

Contractor information

Problem - Building documentation is fragmented, and not organized . . .



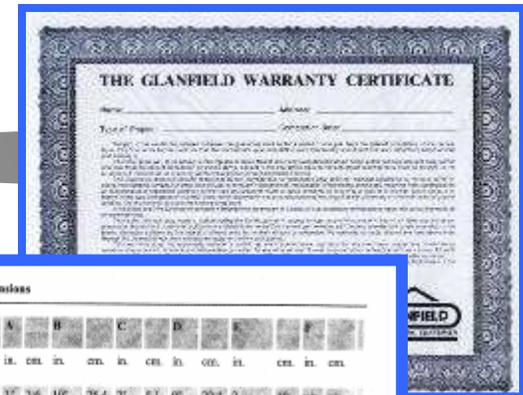
Standard Practice for O&M Submittals

Impacts on facility managers

- warranty terms unknown
- unknown PM requirements
- unknown system, equipment design criteria
- Spare parts suppliers
- Where is valve 5 ?

design

manage



Ordering Specifications and Dimensions

Product No.	Description	A		B		C		D		E		F		
		in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.	cm.	in.	cm.	
61STOP-1000	2" Cyl. Float	3"	7.6	10"	25.4	2"	5.1	9"	22.4	3"	15/16"	16"	0.6	0.6
61STOP-1004	2" Cyl. Float for Medanal	3"	7.6	10"	25.4	2"	5.1	9"	22.4	3"	15/16"	10"	0.6	0.6
61STOP-2000	2" Float Arm	3"	7.6	10"	25.4	1.02"	25.8	5"	127	18"	457	8"	203	15.2
61STOP-2004	2" Float Arm Sp.	3"	7.6	10"	25.4	1.02"	25.8	5"	127	18"	457	8"	203	15.2

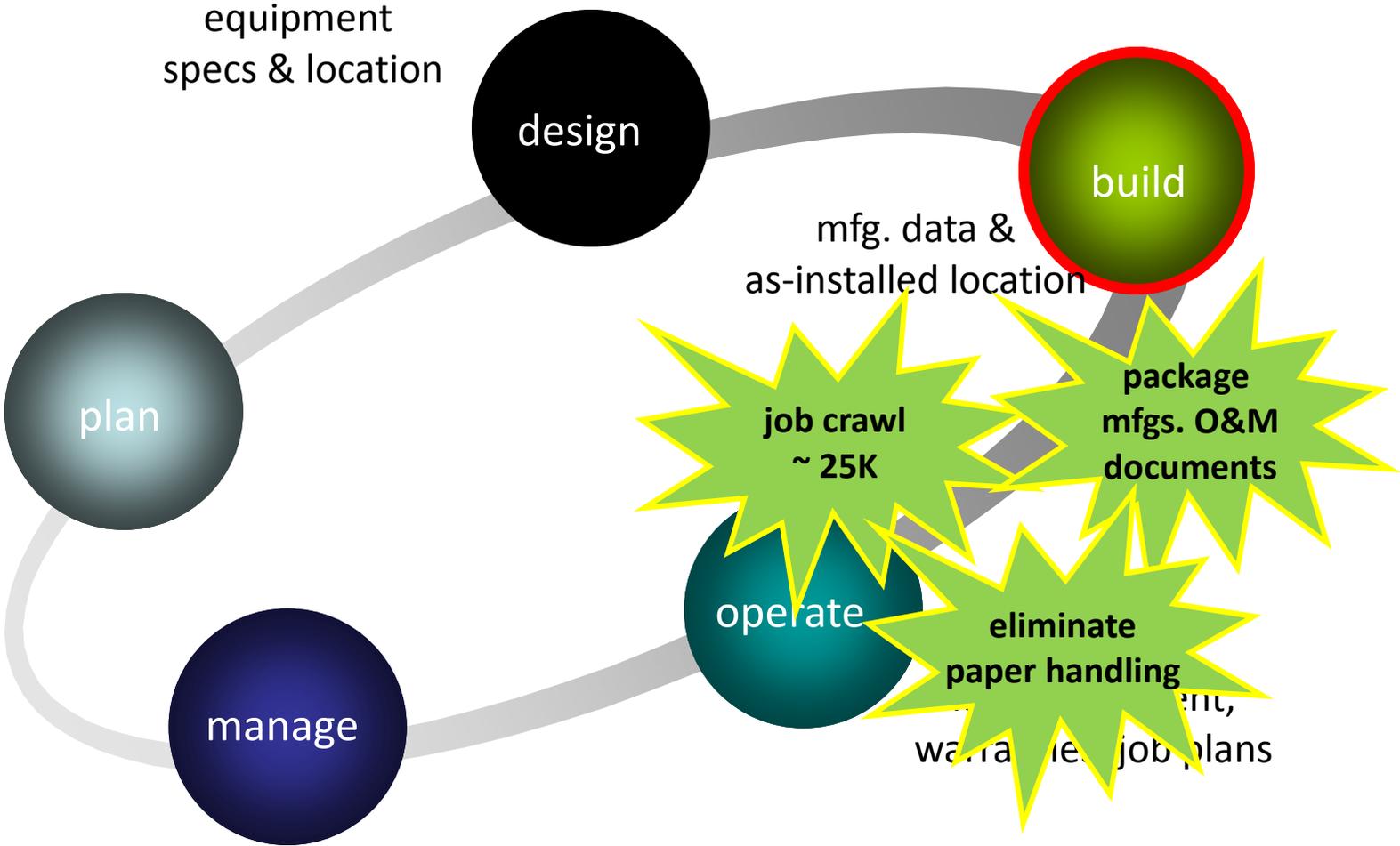
PUMP MODELS: XL2B, XL3B

DISCONTINUED MODELS: XL(S)2A-N, XL(S)3A-N

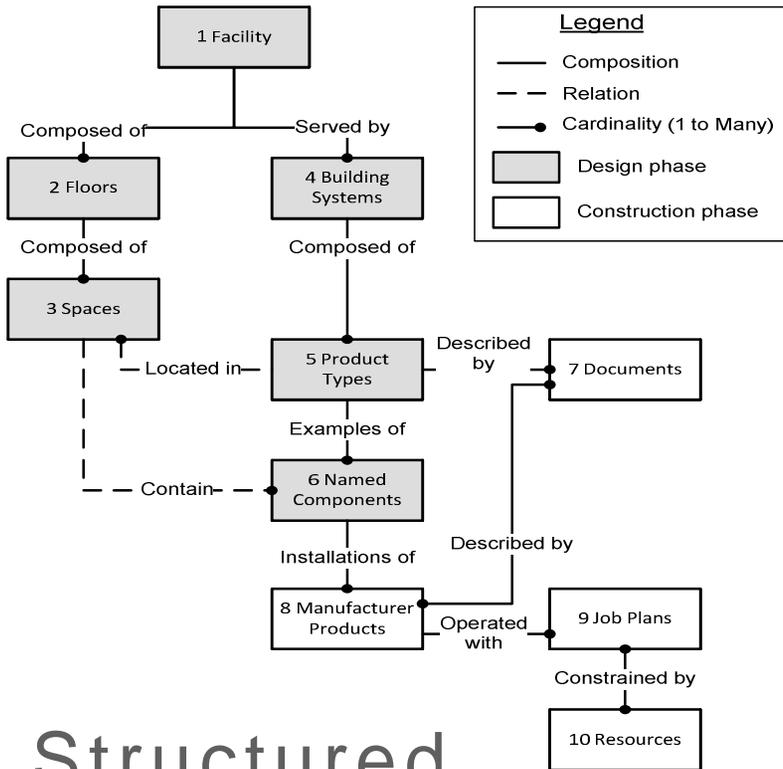
NOTE: "B" model suffix indicates Viton replaces Buna-N as the standard elastomer
(See Instructions 107-800 or for Installation, Operation and Maintenance)

Section Effective Replaces
107 Mar 2005 Oct 2004

Requirement = Savings Opportunity



COBIE



Structured for design, construction, O&M

Implement with Excel or commercial software

Items	Author(s)
File/offices/companies referenced in this file.	All

Items	Author(s)
Identification of facility(ies) referenced in a file	Designer
Description of vertical levels	Designer
Spaces referenced in a project	Designer
Items referenced in a project	Designer
Material/equipment/etc. catalog (submittal register)	Designer
Visually named materials and equipment	Designer
Material/equipment/etc. properties	Designer
Location of spaces and components	Designer

Items	Author(s)
Planned and needed-by dates for submittals	Contractor
Documents referenced in this file	Contr./Mfg
Submittals for given submittal register item	Contractor
Approval status of transmittals/submittals	Owner
	Rep.

Items	Author(s)
Location and serial no. of installed components	Contr./Mfg
Construction manuals for sets of/or components	Contr./Mfg
Warranty information for sets of/or components	Contr./Mfg
Spare/parts reordering info for sets of/or components	Contr./Mfg

17 Spare components	Contr./Mfg
---------------------	------------

Commissioning Worksheets

Number	Name	Contents	Author(s)
18	Instruction	Installation/operating instructions	Contr./Mfg
19	Test	System/component test results	Contractor
20	Certification	Installation certifications	Contr./Mfg

Job Plan Resource Worksheets

Number	Name	Contents	Author(s)
21	Material	Special materials needed for a given Job Plan Task	Contr./Mfg
22	Tool	Special tools needed for a given Job Plan Task	Contr./Mfg
23	Training	Special training needed for a given Job Plan Task	Contr./Mfg

Job Plan Task Worksheets

Number	Name	Contents	Author(s)
24	PM	Identifies specific PM tasks and frequency	Contr./Mfg
25	Safety	Identifies required safety tasks	Contr./Mfg
26	Trouble	Maintenance trouble shooting procedures	Contr./Mfg
27	Start-Up	Start-up procedures	Contr./Mfg
28	Shut-Down	Shut-down procedures	Contr./Mfg
29	Emergency	Emergency operating procedures	Contr./Mfg

ERDC/CERL TR-07-30

Construction Engineering Research Laboratory



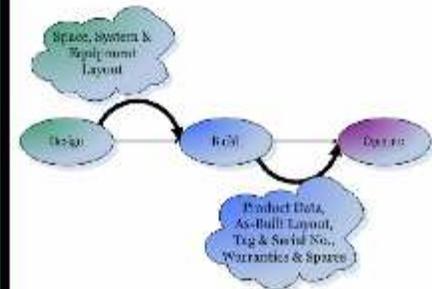
US Army Corps of Engineers
Engineering Research and Development Center

Construction Operations Building Information Exchange (COBIE)

Requirements Definition and Pilot Implementation Standard

2. William Egan

August 2007



Approved for public release; distribution is unlimited.

Next – Manufacturers and Vendors match with *COBIE*

- Technical Data –
 - PDF format
- Possible future links to URL or XML database
- Specifier's Properties Information Exchange

FOAMULAR Extruded Polystyrene Insulation
FOAMULAR® 404 & 604

Product Data

FOAMULAR 404 and 604 Insulation

Material Extruded polystyrene closed-cell on face and back surface. FOAM Owens Corning's patented HIR conditions of strict quality control.

Thermal resistance* R-6.0 at 75°F mean temperature (R-value is the resistance of the material, the greater the R-value, the greater the resistance).

Size 1/2" x 24" x 36" 2" x 24" x 36"

Edges Foam-chamfered on all faces

Weight Approximately 200 lb/1000

Packaging Shipped in units with two storage or exposure to the be arranged.

FOAMULAR 404 RB and 604 RB Insulation

Material Extruded polystyrene closed-cell on top side. FOAM Owens Corning's patented HIR conditions of strict quality control.

Thermal resistance* R-6.0 at 75°F mean temperature (R-value is the resistance of the material, the greater the R-value, the greater the resistance).

Size 1/2" x 24" x 36" 2" x 24" x 36"

Edges Foam-chamfered on all faces

Weight Shipped in units with two storage or exposure to the be arranged.

*Assuming a linear relationship to the volume of

Maximum Design Load Recommendations, PSF

FOAMULAR Product	Dead Load	Live Load
404	1950	1150
404 RB	1150	600
604	2850	1725
604 RB	1650	1000

OWENS CORNING SYSTEM THIS MAKES IT A SYSTEM

OWENS CORNING WORLD HEAD
ONE OWENS CORNING PARKWAY
TOLLEDO, OHIO 43609

1-800-GET-PI-ICE
www.owenscorning.com
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Product Data Sheet

OWENS CORNING

FOAMULAR® 404 & 604
FOAMULAR
404 RB & 604 RB
FOAMULAR Extruded Polystyrene Insulation



For use in Protected Roof Membrane Assemblies and plaza deck systems.

Owens Corning Has the System Solution for Protected Roof Membrane Assemblies (PRMA)

- FOAMULAR 404 and 604 insulation products protect the roof membrane from damage, thermal stress and UV exposure in PRMA systems.
- Designed for use with pavers, FOAMULAR 404 RB and 604 RB insulation products support pavers without the need for pedestals and provide excellent drainage.
- High compressive strength – choose 40 or 60 psi.
- Outstanding moisture resistance gives long-term thermal performance.
- Superior R-values of 5 per inch of product thickness.
- Tough, lightweight panels handle, hoist, and install quickly and easily.
- 15-year Owens Corning thermal warranty combines with membrane manufacturer's warranties for assured performance.

PRMA Product Solutions

You may already know that extruded polystyrene is the only type of insulation recommended for PRMA applications. Owens Corning offers four specific types of FOAMULAR insulation for this use:

- FOAMULAR 404
- FOAMULAR 404 RB
- FOAMULAR 604
- FOAMULAR 604 RB

Powered System Solutions

When the designer prefers to place the insulation directly beneath the pavers, FOAMULAR 404 RB and FOAMULAR 604 RB insulation products are the materials of choice. In addition to providing strong support for the PRMA roof, these products offer excellent drainage characteristics. That's because they're manufactured with ribs that run the entire length of each panel. Coupled with the standard bottom-side rain channels, the ribs help drain moisture away from the underside of the paver to protect it from frost/thaw cycle damage.

As a bonus, FOAMULAR 404 RB and FOAMULAR 604 RB insulation products eliminate the need for pedestals beneath the pavers. Result: significant savings in labor and materials.

Compliance with Standards

- Underwriters Laboratories, Inc.* See Classification Certificate U-107
- BOCA I-914
- ICBO 3085
- SBCCI P87 & ESI 9727

Physical Properties

Property	ASTM	FOAMULAR 404 Insulation	FOAMULAR 404 RB Insulation	FOAMULAR 604 Insulation	FOAMULAR 604 RB Insulation
R-value† (at 75°F mean temp.)	C 518 Modified	10	10	9.5	9.5
Compressive strength minimum (specification)	D 1821	40.0	60.0	40.0†	60.0†
Water absorption (% by volume max.)	C 272	0.07	0.07	0.07	0.07
Dimensional stability (% linear change max.)	D 2135	2.0	2.0	2.0	2.0
Linear coefficient of thermal expansion (in/in/°F max.)		–	2.7 x 10 ⁻⁴	2.7 x 10 ⁻⁴	2.7 x 10 ⁻⁴
Flame spread	E 82†	5	5	5	5

† Based on 2" thickness.
‡ From core property; see design load recommendations at right.
§ These laboratory tests are not intended to describe the hazard presented by this material under actual fire conditions.

Basis For SSC's A-3 Test Facility Product Model

MasterFormat and the Building Information Model (BIM) Standards

NASA and buildingSMART. The National Aeronautics and Space Administration (NASA) and its U. S. Army Corps of Engineers and Naval Facilities Command partners are leading the way in making construction specifications support the concepts embedded within **buildingSMART**.

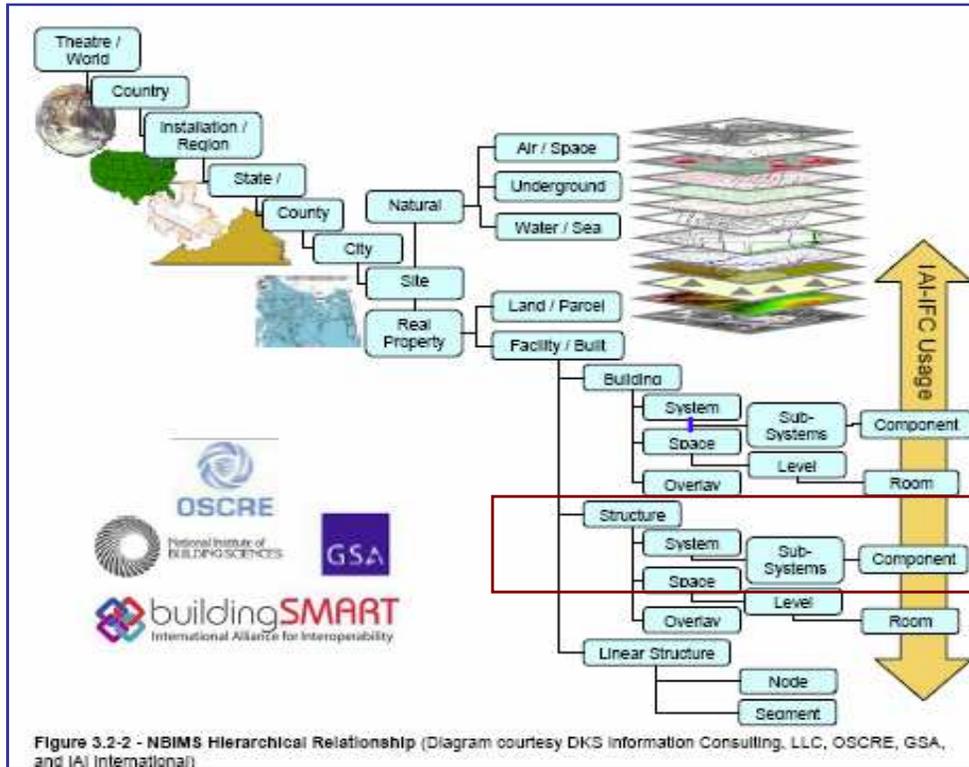
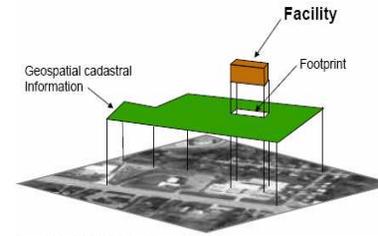


Figure 3.2-2 - NBIMS Hierarchical Relationship (Diagram courtesy DKS Information Consulting, LLC, OSCRE, GSA, and IAI International)

- **BIM** and **UniFormat** were utilized to construct the A-3 Test Facility Product Structure Model

