Exchange Requirements

Name	Building Owners' Spatial Program Validation

Identifier	ER_Spatial_Program_Validation_(concept)

Change Log		
05-Jun-08	Initial creation – version 0.7 – based on material developed by the GSA BIM Series 02 team in 2006.	RichSee@DigitalAlchemyPro.com
27-Jun-08	Changes for version 0.9	RichSee@DigitalAlchemyPro.com
25-Aug-08	Updates to address comments from Peggy Ho (GSA) and Anne Aaltonen (Solibri)	RichSee@DigitalAlchemyPro.com
05-Nov-08	Updates before sending v0.95 to Statsbygg & Senate	RichSee@DigitalAlchemyPro.com
30-Nov-08	Updates to address comments/requests from Statsbygg and Senate	RichSee@DigitalAlchemyPro.com
25-Jul-09	Version 1.10 -- updates to address comments/requests to generalize the verbiage to work for any building owner.	RichSee@DigitalAlchemyPro.com
19-Aug-09	Version 1.2 -- more updates to address comments/requests to generalize the verbiage to work for any building owner.	RichSee@DigitalAlchemyPro.com

Project Stage	0	Portfolio requirements	
	1	Conception of need	
	2	Outline feasibility	
	3	Substantive feasibility	
	4	Outline conceptual design	✓
	5	Full conceptual design	✓
	6	Coordinated design and procurement	✓
	7	Production information	✓
	8	Construction	
	9	Operation and maintenance	
	10	Disposal	

Overview

Please ensure that you have read the process mapping document 'PM_Concept_Design_BIM_2010__Spatial_Program_Validation_v1.2.doc" before proceeding with this exchange requirement.

The scope of this exchange requirement is the exchange of sufficient information to support performance assessment of the concept design --- relative to the building owner's Spatial Program requirements provided to the designers at the outset of the design process.

The exchange requirement assumes that a building model is developed by the project architect, using a BIM authoring application capable of capturing and including in the BIM, sufficient information to support this performance assessment. It is anticipated that the building model will provide context information about the project including project units of measure, coordinate systems, etc.

As described in the Process Map document for this IDM, GSA, Statsbygg, and Senate Properties have been performing such Spatial Program Validation on significant projects since early 2007. The 'Concept Design BIM 2010' will expand BIM requirements in this area --- in support of expanded/improved Spatial Program Validation, beginning in Q4-2010 or early in 2011. GSA/Statsbygg/Senate Properteis will either perform these analyses internally or will contract specialists in Spatial Program Validation. Submission of BIMs including the information defined in this exchange will be mandated by GSA, Statsbygg, and

Senate Properties after the vendor implementation and pilot project phases of the 'Concept Design BIM 2010' project.

Information provided through this exchange requirement includes:

- Basic information about the building and its spatial containment topology
- Information about spaces, including identification, geometry, intended use, classification, intended occupants, and floor area.
- Information about zones (collections of spaces that are related in the spatial program for the building)
- Information about several types of building elements, including: type identification geometry, and connections (both physical and logical)

Information Requirements

Type of Information	Information Needed	Descriptions and Comments	Req'd	Data Type	Units
Project/Building Information					
Project	The following properties should be included:				
	o Project ID	Unique identifier for the project	X	string	n/a
	o Project Name	Name assigned to the project by the client or designers		string	n/a
Building	The following properties should be included:				
	o Building ID	Unique identifier for the building	X	string	n/a
	o Building Name	Name assigned to the building by the client or designers		string	n/a
	o Geographic Location	Geographic location, expressed in degrees, minutes, and seconds longitude and latitude.		latitude, longitude	degree, minutes, seconds of rotation
	o Elevation	Base (datum) elevation for the building -- relative to sea level	X	real number	feet or meters
Building Stories	The following properties should be included:				
	o Building Story ID	Unique identifier for the building story	X	string	n/a
	o Building Story Name	Name assigned to the building story by the client or designers		string	n/a
	o Story height	Vertical length measure from top of slab to top of slab for the building story above	X	real number	feet or meters
	o Base elevation	Base (datum) elevation for the building story -- relative to building elevation.	X	real number	feet or meters
	o Design Gross Area	Area measure for the building story, using measurement rules defined for "Design Gross" in the owner's requirements documentation.	X	real number	sq feet or sq meters
Spatial Information					
Space	The following properties should be included:				
	o Identification	Unique identifier for space	X	string	n/a
	o Description	Description assigned to the space by the designers		string	n/a
	o Classification values	Support for multiple classifications is required. Examples include: GSA STAR space type, BOMA Space Category, and GSA STAR space category.		faceted strings	n/a
	o Inside or Outside space		X	boolean	n/a

Type of Information	Information Needed	Descriptions and Comments	Req'd	Data Type	Units
	o Space Decomposition Type	Complex (multiple spaces), elemental (room), or partial (part of a room)	X	enumeration value	n/a
	o Space Decomposition Tree	Example: partial space link to an Elemental space	X	n/a	n/a
	o 2D Geometry			various	metric or imperial
	o 3D Geometry		X	various	metric or imperial
	o Links to Space Boundaries		X	relationship	n/a
	o Gross Area	Inside face of walls.	X	real number	sq feet or sq meters
	o Net Area	Subtracting all 'holes' in the floor plan (e.g. columns, shafts, embedded rooms)	X	real number	sq feet or sq meters
	o Links to Occupant Organizations	Support for multiple occupants is required		relationships	n/a
Space Boundaries	The following properties should be included:				
	o 3D planar geometry		X	various	metric or imperial
	o Link to Space		X	relationships	n/a
	o Link to bounding Building Element		X	relationships	n/a
Zones	The following properties should be included:				
	o Identification		X	string	n/a
	o Description			string	n/a
	o Zone Type	Zone types to be supported include:	X	enumeration value	n/a
	o Member spaces	links to member spaces	X	relationships	n/a
Organizational Information					
Organization	The following properties should be included:				
	o Occupant Organization ID			string	n/a
	o Occupant Organization Name		X	string	n/a
	o Occupant Sub-Organization ID		X	string	n/a
Building Element Information					
Beams	The following properties should be included:				

Type of Information	Information Needed	Descriptions and Comments	Req'd	Data Type	Units
	o Identification		X	string	n/a
	o Construction Type			string	n/a
	o Classification Values			faceted strings	n/a
	o Placement	Relative to the Building Story.	X	3 real numbers = orientation	metric or imperial
	o 3D Geometry		X	various	metric or imperial
Columns	The following properties should be included:				
	o Identification		X	string	n/a
	o Construction Type			string	n/a
	o Classification Values			faceted strings	n/a
	o Placement	Relative to the Building Story.	X	3 real numbers = orientation	metric or imperial
	o 3D Geometry		X	various	metric or imperial
Doors	The following properties should be included:				
	o Identification		X	string	n/a
	o Construction Type			string	n/a
	o Classification Values			faceted strings	n/a
	o Placement	Relative to the Building Story.	X	3 real numbers = orientation	metric or imperial
	o 3D Geometry		X	various	metric or imperial
Ramps	The following properties should be included:				
	o Identification		X	string	n/a
	o Construction Type			string	n/a
	o Classification Values			faceted strings	n/a

Type of Information	Information Needed	Descriptions and Comments	Req'd	Data Type	Units
	o Placement	Relative to the Building Story.	X	3 real numbers = orientation	metric or imperial
	o 3D Geometry		X	various	metric or imperial
Slabs	The following properties should be included:				
	o Identification		X	string	n/a
	o Construction Type			string	n/a
	o Classification Values			faceted strings	n/a
	o Placement	Relative to the Building Story.	X	3 real numbers = orientation	metric or imperial
	o 3D Geometry		X	various	metric or imperial
Stairs	The following properties should be included:				
	o Identification		X	string	n/a
	o Construction Type			string	n/a
	o Classification Values			faceted strings	n/a
	o Placement	Relative to the Building Story.	X	3 real numbers = orientation	metric or imperial
	o 3D Geometry		X	various	metric or imperial
Walls	The following properties should be included:				
	o Identification		X	string	n/a
	o Construction Type			string	n/a
	o Classification Values			faceted strings	n/a
	o Placement	Relative to the Building Story.	X	3 real numbers = orientation	metric or imperial
	o 3D Geometry		X	various	metric or imperial

Type of Information	Information Needed	Descriptions and Comments	Req'd	Data Type	Units
Windows	The following properties should be included:				
	o Identification		X	string	n/a
	o Construction Type			string	n/a
	o Classification Values			faceted strings	n/a
	o Placement	Relative to the Building Story.	X	3 real numbers = orientation	metric or imperial
	o 3D Geometry		X	various	metric or imperial