

Exchange Requirement

Name	IDM for Building Programming. Exchange Requirements Space Program
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Identifier	ER_Exchange_Requirements[SpaceProgram]
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Change Log		
2008-11-18	Created	Håkon Clausen < hhc@nosyko.no >
2009-05-06	Updated with classification on function and project	Håkon Clausen < hhc@nosyko.no >
2010-01-29	Updated text according to changes in PM	Håkon Clausen < hhc@nosyko.no >

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

This Exchange Requirements (ER) is part of the IDM for building programming. The process model defines that the requirements process for a building project can be separated into these elements:

- R1: Program functions
- R2: Program space requirements
- R3: Program system requirements
- R4: Program equipment requirements

This scope for this ER is about the exchange of information for space program (space list) that is part of the result of this process (R1).

Scope

The scope of this exchange requirement is the exchange of information from an initial building programming stage. This information should be sufficient for the designers to develop a conceptual design. BIM authoring tools could use this information as a basis for the designed BIM. The information from this exchange requirement should also be used when verifying that the designed BIM comply with the requirements (Spatial Program Validation).

The information that is exchanged through this ER will be continuously updated throughout the building project. Design issues and solutions will also affect the program.

Information exchange

The information provided through this exchange requirement includes:

- Information about the project and its primary objective and identification.
- Definition of the main functions that this project will contain and must support, their intent and planned area
- Decomposition of the main functions into sub functions if needed.
- Information about required spaces including identification, intended use, classification and area.
- Information about zones (collections of spaces that are related in the space program)

Information about requirements to relations between functions (e.g. proximity, location, shared use) is defined in ER_Exchange_Requirements[functions]

Information Requirements

All objects that are to be included in the exchange requirement are properly identified (through a globally unique identifier - GUID) and have their owner object histories.

The required/optional columns indicates whether this information is required if the type of information is part of the exchange, but not all types are required. The following is required as a minimum information exchange:

- A project (A single information exchange should never contain more than one project)
- At least one Main Function
- At least one Space

This ER does not contain any references to the IFC model. All information entities are expressed as human readable information

Type of Information	Information Needed	Required	Optional
Project	Identification <i>This include a short name and optionally a project number or long name used for reference purposes.</i>	X	
	Primary objective <i>Description of the project primary objective (e.g. hospital, school etc.)</i>	X	
	Description <i>General information about the project.</i>		X
	Gross area planned <i>Total planned floor area for the project</i>		X
	Classification <i>The project can be classified using a reference library or any national, standard or project specific classification. Multiple classifications can be used.</i>		X
Main Function	Identification <i>Identification of the main function as a short and a long name</i>	X	
	Description <i>Description of the activity and performance of this main function (e.g. offices for 100 persons or x-ray department for 100 patients per day)</i>	X	
	Net area planned <i>Net area planned for this function. This could be given as a specific number or a percentage of the total.</i>		X
	Classification <i>The function can be classified using a reference library or any national, standard or project specific classification. Multiple classifications can be used.</i>		X
Sub Function	Identification <i>Identification of the sub function as a short and a long name.</i>	X	
	Function decomposition <i>Relationship to which main or sub function this sub function is a part of.</i>	X	

Type of Information	Information Needed	Required	Optional
	<p>Description</p> <p><i>(same as for main functions)</i></p>	X	
	<p>Net area planned</p> <p><i>Net area planned for this function. This could be given as a specific number or a percentage of the main function.</i></p>		X
	<p>Classification</p> <p><i>The function can be classified using a reference library or any national, standard or project specific classification. Multiple classifications can be used.</i></p>		X
Space	<p>Identification / Number</p> <p><i>The space should be identified by its function and sub function and should not change as long as the function for the room is the same (even if the location of the room is changed in the model). E.g. a space in main function A1 and sub function B1 should be numbered A1.B1.001 or A1-B1-01. The number must be unique for this project.</i></p>	X	
	<p>Name</p> <p><i>A name that describes the activity and function that should occur in this space. The name could follow a national standardized naming convention , or can be free-form text that typically caters for easy reference to the end user.</i></p>	X	
	<p>Description</p> <p><i>Further specifying the activity and use of the space, as an addition to the Name</i></p>		X
	<p>Space Classification</p> <p><i>The space should be classified by activity (functional category) using a reference library or any national, standard or project specific classification. Multiple classifications can be used.</i></p>	X	
	<p>Space Type Category</p> <p><i>The space should be classified by type that can be used to calculate floor area for different needs or for other purposes. Typical the building owner will need to treat e.g. technical area differently from the primary usable area. A reference library or any national, standard or project specific classification should preferably be used.</i></p>		X
	<p>Space Decomposition</p> <p><i>Complex (multiple spaces), elemental (room), or partial (part of a room) and link to an elemental space (decomposition tree)</i></p>	X	
	<p>Net Floor Area</p> <p><i>The required net floor area for this space that is needed for this space to fulfil its purpose</i></p>		

Type of Information	Information Needed	Required	Optional
	<p>Inside or Outside space</p> <p><i>Indication whether this space should be located inside or outside a building body</i></p>	X	
	<p>2D/3D Geometry</p> <p><i>Simple geometry of the space, provided as a starting point for CAD software.</i></p>		X
	<p>Function membership</p> <p><i>Relationship to the function or sub function that this space belongs to. A space is only member of one function.</i></p>	X	
	<p>Occupant information</p> <p><i>Reference to the organization who will occupy this space</i></p>		X
Zone	<p>Identification</p> <p><i>A name or number referencing this zone</i></p>	X	
	<p>Description</p> <p><i>Further description of this zone.</i></p>		X
	<p>Zone Type</p> <p><i>E.g. Security, Preservation, Privacy, Accessibility, CCTV surveillance etc.</i></p>	X	
	<p>Member spaces</p> <p><i>A list of spaces that is member of this zone. A space should only be a member in one zone of each zone type (but a space can be member of multiple zone types).</i></p>	X	