

Exchange Requirement

Name	IDM for Building Programming. Building Programming information exchange (BPie) for Space Program
Identifier	BPie Space

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/departments
- R2: Program space requirements
- R3: Program system requirements
- R4: Program equipment requirements

The scope for this ER is about the exchange of information for detailed requirements to functions/departments, spaces, space types and/or zones (R1 and R2). This ER does not cover requirements set to FF&E. This will be handled in a separate ER.

Scope

The scope for this exchange requirement is the exchange of information from a building programming stage. The exchange is in two parts:

1. **Space List:** Information from an initial programming stage with overall requirements for the project and a space list. 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).
2. **Room Data Sheet (RDS):** Detailed information about each space in the project, either one by one, in zones or by type. All of the information to be considered is about specifying the requirements determined by the activity carried out in the space (that determine its ‘function’) and not about requirements for other purposes. Thus, if a requirement is expressed e.g. that there should be 3 electrical outlets, that is because there is a need for at least 3 items of this type in the space and not specifically for the purposes of specifying what type of electrical outlets should be used. This exchange also includes the information from the first part

The information that is exchanged through this ER will often be updated throughout the building project. The delta from the original program is important to monitor and report.

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 own object histories.

The mandatory/optional columns for each exchange (space list/RDS) indicates whether this information is mandatory (M) or optional (O). Blank means that this field is not part of this exchange. Mandatory properties is the minimum for each exchange, but properties are mandatory as specified in projects if required in contract/by the client.

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 department/function
- At least one space

The intention of this specification is to define a gross list of detailed requirements that can be applied in a building project, but the exchange is not limited to the defined properties.

Glossary

To be defined....

Information Requirements

[See tables below]

References

[1] Process Map Building Programming

[2] AR-5 Process Map description

Exchange Requirements for <name>

Element				Space list	RDS
Property concept	Property group	Property name	Definition		
Building					
General building requirements					
		Identification	A short name or a building number used for reference purposes.	M	M
		Name	A short or long name for reference purposes.	M	M
		Description	General information about the building.	O	O
Classification					
		Classification	The building can be classified using a reference library or any national, standard or project specific classification.	O	O
Occupancy requirements					
		Stating requirement	Stating if there are Occupancy requirements or not	M	M
		General Occupancy requirements	Any verbal description of the Occupancy requirements from the client perspective	O	O
		Primary objective	Description of the building's primary objective (e.g. hospital, school etc.)	M	M
		Gross area planned	Total planned floor area for the building	O	O

Exchange Requirements for <name>

Element				Space list	RDS
Property concept	Property group	Property name	Definition		
Storey					
General storey requirements					
		Identification	A short name or a building number used for reference purposes.	M	M
		Name	A short or long name for reference purposes.	M	M
		<i>Description</i>	<i>General information about the building.</i>	O	O
Dimensional requirements					
		<i>Minimum net storey height</i>	<i>The height between top of slab in storey and bottom of slab in overlying storey</i>	O	O

Exchange Requirements for spatial requirements

Element				Space list	RDS
Property concept	Property group	Property name	Definition		
Department/Function					
<i>General Department/Function requirements</i>					
		Identification	This include a short name and optionally a project number or long name used for reference purposes.	M	M
		Description	Description of the activity and performance of this department/function	M	M
		Net area planned	Net area planned for this department/function. This could be given as a specific number or a percentage of the total.	O	O
		Net/Gross factor	Net/Gross factor for this department/function given as a percentage	O	O
		Classification	The department/function can be classified using a reference library or any national, standard or project specific classification. Multiple classifications can be used.	O	O
		Department/Function decomposition	Hierarchical department/function relationships	O	O
		Department/Function relationships	Relationships to other departments/function	O	O
Proximity and location					

		Proximity relation to other functions	Set proximity relation to other functions.	Examples: * Adjacent * Not adjacent * Same building * Not same building * Same story/-floor * Not same story/-floor * Same wing * Not same wing * Vertically aligned (under/above) * Other		0
		Maximum walking distance	Set maximum walking distance between functions			0
		Minimum distance (point to point)	Set minimum distance to another function.			0
		Preferred location	Set the preferred location for the function. If the function must/should be in a specific building, storey, wing etc. Location can also relate to orientation facing in a certain direction (north, view of the ocean)	E.g. reception should be on ground floor. Function should face south-west		0

Exchange Requirements for spatial requirements

Element				Space list	RDS	
Property concept	Property group	Property name	Definition			Examples and further explanations
Space						
General space requirements						
		Identification	The space should be identified by a unique number 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/department B1 can be numbered A1.B1.001 or A1-B1-01. Other numbering systems are acceptable as long as each space number is unique in this project.	M	M
		Name	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.	M	M
		Description	Describe the activities and functions that the space is expected to serve.	The description can be free-form text that describes the usage of the space as seen from the end user perspective.	O	M
Shape requirements						
Dimensional requirements						
		Net Floor area	The required net floor area for this space that is needed for this space to fulfil its purpose		M	M
		Minimum net height	The minimum free height between floor and ceiling (the minimum headroom required for the activity assigned to this space).	The height between top of floor covering and bottom of ceiling (suspended ceiling if present) in space, indicating the height available for space activities.		O
		Minimum plenum height	The plenum or air space between the suspended ceiling and the slab surface.	The free height between top of suspended ceiling in space and bottom of slab of overlying storey, indicating the height available for the sum of ceiling installations etc		O
		Minimum length	The minimum required length or width of the space	The longest of the two measures		O
		Minimum width	The minimum required width of the space	For the shorter of the two measures		
Graphical requirements						
		2D Geometry	Simple 2D geometry of the space, provided as a starting point for CAD software.	Could be generated from the required net area using a length/width proportion		O
		3D Geometry	Simple 3D geometry of the space, provided as a starting point for CAD software.	Could be provided by 2D Geometry with a default height coming from the net height requirements.		O

Classification					
	Space classification	The space should be classified by activity (functional category) using a reference library or any national, standard or project specific classification. A single space can have more than one classification assigned.	Space classification is provided by a classification facet and the name of the classification system. Multiple classifications can be used.	O	O
Common functional requirements					
Common descriptions					
	Shared usage description	Describe the shared use of the space, if the space has different occupants	The description of shared use of the space, provided that more than one user is granted access to the space.		O
	External or internal space	Indication whether this space should be located inside or outside a building body	Boolean choice with [Yes] external, open space and [No] internal, enclosed space.	M	M
Common relations					
	Department/Function membership	Relationship to the department/function that this space belongs to. A space is only member of one department/function		M	M
	Space decomposition	Complex (multiple spaces), elemental (room), or partial (part of a room) and link to an elemental space (decomposition tree)			O
Proximity and location					
	Proximity relation	Set proximity relation to other spaces	Examples: <ul style="list-style-type: none"> * Adjacent * Not adjacent * Same building * Not same building * Same story/-floor * Not same story/-floor * Same wing * Not same wing * Vertically aligned (under/above) * Other 	O	O
	Maximum walking distance	Set maximum walking distance between spaces or space types	E.g. the maximum walking distance from an office to a toilet/wc should not exceed 30 meters (of walking distance)	O	O
	Minimum distance (point to point)	Set minimum distance to another spaces or space types.		O	O

		Preferred location	Set the preferred location for the space. If the space must/should be in a specific building, storey, wing etc. Location can also relate to orientation facing in a certain direction (north, view of the ocean)	E.g. reception should be on ground floor. Function should face south-west	O	O
		Occupancy information				
		Occupant reference	Reference to the organization who will occupy this space	The organization information should be preferably provided by the official business enterprise organization number, if not available (or applicable) by an individual designation). Note: Mandatory as specified (Challenge 2013)	O	O
		Occupancy type	Occupancy type of this space according to the prevailing building code.	It is defined according to the applicable building code. Building codes applicable shall be decided at the project level.	O	O
		Occupancy requirements				
		Stating requirement	Stating if there are occupancy requirements set for the room/space	yes/no.		M
		General Occupancy requirements	Any verbal description of the Occupancy requirements from the client perspective			O
		Occupancy number	Number of people that will occupy the space.	This should be the normal basis for design and engineering decisions.		M
		Occupancy number peak time	Number of people that will occupy the space during peak-time.	The maximum number of persons estimated necessary during limited duration peak-time for the activity in the space to be executed. This may be the basis for design / engineering decisions in certain situations.		M
		Occupancy schedule per day	The point of time during the day when the space will normally be taken into / out of service.	Example would be 9:00 - 18:00 expressed as 09:00/18:00 according to ISO8601 time-interval by start and end - extended format.		M
		Occupancy schedule per week	The number of operational service days during a working week when the space will normally be taken into / out of service.	Example would be "Mo till Fri" expressed as 5		M
		Occupancy peak schedule per day	The point of time during the day when the space will have its peak of service (with the occupancy peak number of people in the space).	Example would be 14:00 - 16:00 expressed as 14:00/16:00 according to ISO8601 time-interval by start and end - extended format.		O

		Occupancy peak schedule per week	The number of operational service days during a working week when the space will have its peak of service.	Example would be "Mo till Fri" expressed as 5		O
		Occupancy area per occupant	Design occupancy loading for this type of usage assigned to this space.			O
		Permanent work space	The space is used as a permanent work space [TRUE] or not [FALSE]	"Permanent work space" signifies that the space is used as a permanent work location for one or more persons, and the space is typically used for more than 2 consecutive hours during a normal working day. Depending on national / local legislation/building code this may impose specific requirements for solutions in the space, e.g. for day lighting or Air Change per Hour.		M
		Accessibility	Stating if the room function must be handicap accessible	yes/no.		O
		Structural requirements				
		Stating requirement	Stating if there are Structural requirements or not	yes/no.		M
		General Structural requirements	Any verbal description of the Structural requirements from the client perspective			O
		Maximum load on floor (slab)	Maximum load (e. g. through extra heavy equipment)	If the space is designed to carry heavy equipment that require special relief measures when dimensioning floor slabs. Loads shall be given as weight per floor space area		M
		Maximum load on walls	Maximum load (e. g. through extra heavy wall-hung equipment)	The space will contain wall-hung equipment that must be anchored safely to the wall. Information regarding loads, dimensions etc shall be specified for the equipment object (not the space).		O
		Maximum load on slab/deck above	Maximum load (e. g. through extra heavy ceiling-hung equipment)	The space will contain ceiling-hung equipment that must be anchored safely to the ceiling or suspended ceiling. Information regarding loads, dimensions etc shall be specified for the equipment object (not the space).		O
		protection against incoming EM rays	Electromagnetic shielding of the space from outside EM sources			O
		protection against outgoing EM rays	Electromagnetic shielding of outside spaces from EM sources inside the space			O
		suppression incoming vibration	Protection of space against vibration originating from source outside space			O

		suppression outgoing vibration	Protection of outside spaces against vibration originating from source inside the space			O
		Covering requirements				
		Stating requirement	Stating if there are Covering requirements or not	yes/no.		M
		General Covering requirements	Any verbal description of the Covering requirements from the client perspective			O
		Covering floor	Required material for covering of floor - flooring.	Provides the required material and/or surface treatment for the flooring (like "carpet", or "polished")		M
		Covering wall	Required material for covering of walls - cladding.	Provides the required material and/or surface treatment for the cladding (like "plaster", or "paint")		M
		Covering ceiling	Required material for covering of ceiling - ceiling.	Provides the required material and/or surface treatment for the ceiling (like "gypsum", or "paint")		M
		Door requirements				
		Stating requirement	Stating if there are Door requirements or not	yes/no.		M
		General door requirement	Any verbal description of the door requirements from the client perspective			O
		Door material and minimum thickness	Required or prohibited materials, with associated required minimum thickness			O
		Door performances	Fire rating			O
		Minimum doorway dimensions	Clear height and width (unobstructed clearance) for minimum one of the doors leading to the space. Unobstructed clearance refers to net inner dimensions of door frame.			O
		Glazed light	Glazing within the door leaf			O
		Sidelight/transom	Glazing within frame system, but adjacent to door			
		Operation type	Required operation type for doors required by the space function (swing door inwards, sliding door, revolving door, etc.)	Operation types in accordance to the types defined by IFC. Combined for swing doors with opening direction.		O
		Locking type	State if the doors to/from the space requires special locking types			O
		Louvers	The space function requires louvres in the door(s)			O
		Transition Threshold	Lowered threshold or not			O
		Containment threshold	Minimum height	Contain fluid spills (e.g., water, oil).		O
		Access system	Access controlled door required, by means of magnetic stripe card reader, proximity reader, or some other means of controlled access through door.			O

	Door opener/holder	Door holders (part of fire alarm system) mounted on door/wall, for locking doors in normally open position.	E.g magnetic door holders		O
Window requirements					
	Stating requirement	Stating if there are Window requirements or not	yes/no.		M
	General Window requirements	Any verbal description of the Window requirements from the client perspective			O
	Openability window	At least one of the windows in the outer wall(s) of the space permits manual opening/closing (e.g. a casement window or a sash window).			O
	Emergency egress	Where required by code in residences			O
	Sill height				O
	Window controls	Manual or electronic operation			O
	Thermal properties	Set the maximum heat transmission value according to local building codes	E.g. U-value		O
Lighting requirements					
	Stating requirement	Stating if there are Lighting requirements or not	yes/no.		M
	General Lighting requirements	Any verbal description of the Lighting requirements from the client perspective			O
	Daylight	If direct day lighting to the space (through glazing in outer wall etc) is required, or if indirect day lighting through mirror systems, fibre optic systems etc is also considered sufficient to fulfil requirement			O
	No Artificial lighting	If artificial lighting to the space is not required.			M
	Local control daylight density	Control system for daylighting.			O
	Local control artificial light density	Continuous adjustment/dimming of illumination level.			O
	Internal shading	Various window blinds, shades, curtains, e.g. shutters, Venetian blinds, roller shades and curtain-like track blinds, enabling (a) limited darkening or (b) total darkening of the space from outside (sun) light.			O
	Zoning	Separate lighting switch on/off function for individual zones in the space			O
	Color temperature	Color temperature of light source, expressed as Kelvin (K).			O
	Color rendering index	The Color Rendering Index (CRI) is a measure of the ability of a light source to reproduce the colors of various objects being lit by the source			O

		Unified glare rating	Unified Glare Rating (UGR) tabular method according to CIE publication no. 117-1995.			O
		Illuminance	Illuminance (illumination level), measured as Lux, according to CIE lux tables. local standards and recommendations.			O
		Reflectance value surfaces	Reflectance values are critical in order to calculate lighting levels accurately.			O
		Thermal requirements				
		Stating requirement	Stating if there are Thermal requirements or not	yes/no.		M
		General Thermal requirements	Any verbal description of the Lighting requirements from the client perspective			O
		Minimum temperatures (winter)	Acceptable lower temperatures during a defined winter period, that is required from a user/designer view point.	In this context the phrase "winter" is interpreted as "during the heating season". The temperature may also be specified individually for day and night		M
		Maximum temperatures (winter)	Acceptable upper temperatures during a defined winter period, that is required from a user/designer view point.	In this context the phrase "winter" is interpreted as "during the heating season". The temperature may also be specified individually for day and night		M
		Minimum temperatures (summer)	Acceptable lower temperatures during a defined summer period, that is required from a user/designer view point.	The formal definition of the phrase "summer" usually is the period in which the normal daily mean temperature is more than +10°C/+50°F at a given place. In this context the phrase "summer" is interpreted as "outside of heating season". The temperature may also be specified individually for day and night		M
		Maximum temperatures (summer)	Acceptable upper temperatures during a defined summer period, that is required from a user/designer view point.	The formal definition of the phrase "summer" usually is the period in which the normal daily mean temperature is more than +10°C/+50°F at a given place. In this context the phrase "summer" is interpreted as "outside of heating season". The temperature may also be specified individually for day and night		M
		Zoning	Different thermal requirements for individual zones inside one space			O
		Local control heating	If space is temperature controlled from a centralized building automation system (BAS), the space can be controlled by the end user from a control switch or dial that locally overrides the BAS function within allowed temperature interval, e.g. +/- 3°C.			O
		Temporarily heating	Indication whether only temporarily heating is required/desirable from user/designer view point.			O

	Heating type	specific heating type required (e. g. floor heating)			O
	Cooling type	specific colling type required (e. g. cooling beam)			O
	Local control ventilation	If space is ventilation controlled from a centralized building automation system (BAS), the space can be controlled by the end user from a control switch or dial that locally overrides the BAS function within allowed intervals.			O
	Ventilation requirements				
	Stating requirement	Stating if there are Ventilation requirements or not	yes/no.		M
	Ventilation requirements	Any verbal description of the Ventilation requirements from the client perspective			O
	Ventilation type	natural, mechanical ventilation or air conditioning	describe selection, & relation to 'air quality '		O
	Minimum fresh air flow rate	minimum fresh air flow rate for the space (in combination with outside clean air)			O
	Air quality requirements				
	Stating requirement	Stating if there are Air quality requirements or not	yes/no.		M
	General Air quality requirements	Any verbal description of the Air quality requirements from the client perspective			O
	Air pressure	Required positive or negative pressure relative to atmospheric pressure in the space, typically expressed in Pascal (SI unit), bar, or psi.			O
	Air quality	Air supply to the space with specific requirements for air maintained virtually free of contaminants, such as airborne microbes/bacteria, dust, aerosol particles and chemical vapors. Description should if relevant indicate required (exceeding building code) clean air maximum colony forming unit count (CFU), as a for measure of viable bacterial numbers, typically expressed as CFU/mL - colony-forming units per milliliter. A cleanroom specification according to ISO 14644-1, US FED STD 209E or similar standards can also be used if relevant.	break out three scenarios: general filtering, cleanroom filtering, and chem.-bio filtering		O
	Required air humidity	Description of the required set point for air-water mixture relative humidity (RH), expressed as a fraction (e.g. 0.4 = 40% RH), and the maximum set point variation for (RH), expressed as a fraction (e.g. 0.2 = +/- 20% RH).			O
	Maximum CO2 level				O

		Electrical power supply requirements			
		Stating requirement	Stating if there are Electrical power supply requirements or not	yes/no.	M
		General Electrical power supply requirements	Any verbal description of the Electrical power supply requirements from the client perspective		O
		Outlets (mains)	Number of electrical power outlets (sockets)		O
		Outlets (back up)	Number of electrical power outlets (sockets) in the space supplied from backup (interruptible for some seconds to a few minutes) generator power		O
		Outlets (UPS)	Number of electrical power outlets (sockets) in the space supplied from UPS (uninterruptible power supply) backup power		O
		Permanently connected electrical equipment			O
		Clean power	Power filtering (ensure stable power frequency)	yes/no.	O
		Telecommunication requirements			
		Stating requirement	Stating if there are Telecommunication requirements or not	yes/no.	M
		General Telecommunication requirements	Any verbal description of the Telecommunication requirements from the client perspective		
		Outlets (ICT)	Number of outlets for normal Information and Communications Technology (ICT) supply in the space. Typically this is RJ-11 or RJ-45 outlets for copper cabling.		M
		Outlets (Telephone)	Number of outlets for traditional telephone supply in the space. Typically this is RJ-11 or RJ-45 outlets for copper cabling, the cabling often being lower rated than datacom cabling. IP-telephony within ICT solutions are not counted here		M
		WLAN	WLAN coverage area		O
		Local signaling	Local signaling requirements between spaces or functions that need separate cabling. Signaling type and affected spaces can be specified.		O
		Fibers	In certain spaces connection speed and tolerance for disturbance require light fiber installations for telecommunication.		O
		Sensor requirements			
		Stating requirement	Stating if there are Sensor requirements or not	yes/no.	M

	General Sensor requirements	Any verbal description of the Sensor requirements from the client perspective		O
	Gas			O
	Temperature			O
	Air Pressure			O
	Radiation			O
	Sound			O
	Humidity			O
	CO ₂			O
	Ventilation Rate			O
	Fire Detection	Special fire alarm requirements (e.g. detector type or sensitivity) required in the space, beyond fire code, regulations etc.		O
	Occupancy Sensor			O
	Combination of different alarms			O
	Security requirements			
	Stating requirement	Stating if there are Security requirements or not	yes/no.	M
	General Security requirements	Any verbal description of the Security requirements from the client perspective		O
	CCTV	CCTV camera surveillance of the space.		O
	Screening equipment			O
	Intrusion detection			O
	Vehicular access control			O
	Forced-entry resistance			O
	Ballistic resistance			O
	Blast resistance			O
	Window grilles			O
	object security	Object security in the space - protection against theft of valuable objects within the space.		O
	Other			O
	Emergency requirements			
	Stating requirement	Stating if there are Emergency requirements or not	yes/no.	M
	General Emergency requirements	Any verbal description of the Emergency requirements from the client perspective		O

	SOS telephone	Number of emergency call supplies in the space. IP-based signaling within ICT solutions are not counted here			O
	fire extinguisher	Special fire extinguishing requirements (e.g. type) required in the space, beyond fire code, regulations etc.			O
	Fire sprinklers				O
	Emergency medical supplies		e.g., AED		O
	Mass notification system	Ability to receive messages			O
	Duress Alarms				O
	Signaling requirements				
	Stating requirement	Stating if there are Signaling requirements or not	yes/no.		M
	General Signaling requirements	Any verbal description of the Signaling requirements from the client perspective			O
	Signaling lamp	Office signaling (lamp) outside space entrance, indicating vacant or occupied space.			O
	Traffic lights	Entrance call system			O
	Synchronized clocks	Number of (traditional) synchronized clock supplies in the space. IP-based time synchronization within ICT solutions are not counted here			O
	Audiovisual requirements				
	Stating requirement	Stating if there are Audiovisual requirements or not	yes/no.		M
	General Audiovisual requirements	Any verbal description of the Audiovisual requirements from the client perspective			O
	Radio/TV outlets	Number of (traditional) combined radio/TV outlets (e.g. coax RG-59) in the space (IP-based broadcasting within ICT solutions are not counted here).			O
	Hearing loop	Induction loop supply (or similar functional solution) for hearing aid purposes in the space.			O
	Speech system	Audio system for amplification and distribution of human speech in the space.			O
	Program source sound system	Audio system for amplification and distribution of program source sound (e.g. from BRD or DVD) in the space.			O
	Audiovisual system	Audiovisual (AV) control system for operating AV functions (audio, video, lighting, window shades, preset scenarios etc) in the space.			O

	Remote observation system	Remote activity listening and/or observation in the space from activities in other spaces, through transfer of audio and/or video signals.			O
Acoustic requirements					
	Stating requirement	Stating if there are Acoustic requirements or not	yes/no.		M
	General Acoustic requirements	Any verbal description of the Acoustic requirements from the client perspective			O
	Acoustic privacy	Non-defined	yes/no.		O
	Maximum sound level	Maximum accepted sound level in the space in dBA in addition to national codes.			O
	Outdoor noise sum				O
	Technical systems noise sum (dBA)	Contribution of noise from the sum of technical systems (dBA)			O
	Technical systems noise sum (dBC)	Contribution of noise from the sum of technical systems (dBC)			O
	Noise rating curve	Maximum allowed noise rating curve (NR) as the contribution of noise from the sum of technical systems.			O
	Sound insulation partition wall (w/o door)				O
	Sound insulation partition wall (w/ door)				O
	Sound insulation door				O
	Sound insulation corridor wall (w/ door)				O
	Sound reduction index floor slab	R' w [dB]			O
	Reverberation time				O
	Absorption factor				O
	Impact sound	L' n,w [dB]			O
	Impact sound reduction	Shock absorbing coating with property measured as $\Delta L' n,w$ [dB].			O
Water requirements					
	Stating requirement	Stating if there are Water requirements or not	yes/no.		M
	General water requirements	Any verbal description of the Water requirements from the client perspective			O
	Water supply (Cold)	Number of cold water supplies as pipe stubs, for sink/basin connection.			O
	Water supply (Hot)	Number of hot water supplies as pipe stubs, for sink/basin connection.			O

	Fire suppression Water supply	Supply of cold water to the space, terminated in pipe stub and connected to fire hose with fittings and cabinet. Water supply is dimensioned for fire hose.			O
	Water supply (purified water)	Number of water supplies as pipe stubs to the space that is purified/treated according to specifications given to comply with purification requirements related to the space function/activity.			O
	Water temperature	Upper and lower acceptable temperatures for cold and hot water supply to space.			O
	Water basins	Number of sinks, including cold and hot water supplies			O
	Toilets	Number of toilets, including cold water supplies and drainage			O
	Showers	Number of showers, including cold and hot water supplies for shower connection - and drainage			O
	Floor drain	Gully in floor, attached to water drain system.			M
	Oil separator	Describe type (e.g., grease traps)			O
	Exhaust requirements				
	Stating requirement	Stating if there are Exhaust requirements or not	yes/no.		M
	General Exhaust requirements	Any verbal description of the Exhaust requirements from the client perspective			O
	Exhaust ventilation	The removal of foul/contaminated/toxic air from a space by a mechanical means by a separate exhaust air system.			O
	Kitchen Exhaust	The removal of fatty/greasy/oily air from a food preparation space by a mechanical means by a separate exhaust air system.			O
	Restroom Exhaust	The removal of foul air from a space by a mechanical means by a separate exhaust air system.			O
	Suction (waste)	The removal of waste from space by means of an automatic vacuum based ducting system, for further collection and treatment.			O
	Suction (fabric/cloth)	The removal of fabrics/clothes from space by means of an automatic vacuum based ducting system, for cleaning etc.			O
	Central vacuum cleaner	Number of outlets			O
	Gas requirements				
	Stating requirement	Stating if there are Gas requirements or not	yes/no.		M

	General Gas requirements	Any verbal description of the Gas requirements from the client perspective			O
	Air (medical)	Number of pressurized treated air outlets for medical purposes in the space.			O
	Air (technical)	Number of pressurized air outlets for technical purposes in the space.			O
	Oxygen	Number of Oxygen gas supply outlets in the space.			O
	Helium	Number of Helium gas supply outlets in the space.			O
	Argon	Number of Argon gas supply outlets in the space.			O
	Nitrogen	Number of Nitrogen gas supply outlets in the space.			O
	Hydrogen	Number of Hydrogen gas supply outlets in the space.			O
	Nitrous oxide	Number of Nitrous oxide ('laughing gas') gas supply outlets in the space.			O
	Carbon dioxide	Number of Carbon dioxide gas supply outlets in the space.			O
	Propane gas	Number of Propane gas supply outlets in the space.			O
	Positioning gas outlets	Description of requirements for exact positioning on specific space surfaces of gas supply outlets			O
	FM and operation requirements				
	Stating requirement	Stating if there are FM and operation requirements or not	yes/no.		M
	General FM and operation requirements	Any verbal description of the FM and operation requirements from the client perspective			O
	Waste special treatment	Waste from running operations that needs special treatment for storage and transport, due to toxic or caustic substances, danger of infection etc.			O
	Cleaning agents	Special cleaning agents required in this space, different from project default.			O
	Cleaning methods	Special cleaning methods required in this space, different from project default.			O
	Cleaning intervals	Special cleaning intervals required in this space, different from project default.			O
	Equipment list (FF&E)				

		Planned FF&E in the room function	List of planned furniture, fixtures and equipment in the space. The FF&E items should be identified by a project unique id and a name and the lists should also contain a count for each item. <i>Note: the complete FF&E requirements will be handled in separate Exchange requirement</i>			0
		Custom Space requirements/properties				
		Custom properties	Any other requirements or properties that needs to be exchanged and is not covered by other properties. E.g. client specific requirements.			0
						0

Exchange Requirements for spatial requirements

Element				Space list	RDS
Property concept	Property group	Property name	Definition		
Zone					
			Basic requirements		
		Identification	A name or number referencing this zone	M	M
		<i>Description</i>	<i>Further description of this zone</i>	O	O
		Zone Type		M	M
		Member spaces	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).	M	M
		Space Decomposition	Complex (multiple spaces), elemental (room), or partial (part of a room) and link to an elemental space (decomposition tree)	M	M
			Fire compartment requirements		
		Stating requirement	Stating if there are Fire compartment requirements or not		O
		General Fire compartment requirements	Any verbal description of the Fire compartment requirements from the client perspective		O
		Fire compartment	The space is defined as separate fire compartment, and is designed and engineered accordingly, as defined in building code and regulations etc.	M	M
			Exhaust requirements		
		Stating requirement	Stating if there are Exhaust requirements or not		O
		General Exhaust requirements	Any verbal description of the Exhaust requirements from the client perspective		O
		Central vacuum cleaner	Number of outlets		O