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## Introduction




Mc4Suite - Integrated design

Thermodynamics, energy analysis, solar thermal, fire protection

Mc4Suite represents the maximum performance in the design of the building-systems and brings productivity to your practice at assumed new levels.

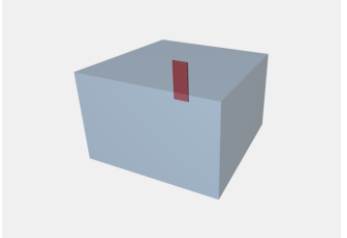
The integration of the programs that make up the suite and sharing comprehensive thermal data and room dimensions and allows quick and precise calculation ever before.

## Testlist

Name test	concepts total	manually checked		
				
CharsetTest-01MEP / 2x3	2	2		
DuplexHouse_Electrical / 2x3				65
DuplexHouse_Heating / 2x3	56	52	2	2
DuplexHouse_Sanitary / 2x3	52	44		8
DuplexHouse_Ventilation / 2x3	44	31	9	4
RandomMEP-X1 / 2x3	86	57	1	28
RandomMEP-X2 / 2x3	107	96	1	10
RandomMEP-X3 / 2x3	104	92	1	11
RandomMEP-X4 / 2x3	103	92	1	10
RandomMEP-X5 / 2x3	128	106	10	12
Space_01MEP / 2x3	15	14		1
UnitTest-01MEP / 2x3	3	1	2	

Concepts

CharsetTest-01MEP / 2x3



General	<i>company statement</i>	<i>CharsetTest-01MEP / 2x3</i>
_G1 Character sets	■	
_G4 Remarks	■	

## DuplexHouse\_Electrical / 2x3



204 IfcEnergyConversionDevice		<i>company statement</i>	<i>DuplexHouse_Electrical / 2x3</i>
010 Naming	■		
020 Placement			
020-2 Placement Relative	■		
030 Geometry			
030-6 Geometry Body			
030-6-5 Geometry Explicit	■		
030-6-9 Geometry Mapped	■		
100 Element Aggregation			
100-4 Port Assignment	■		
110 Connectivity			
110-5 Connectivity by Ports	■		
120 Spatial Containment	■		
130 Grouping			
130-2 Grouping to Systems	■		
300 Type			
300-1 Type Geometry	■		
300-2 Type Naming	■		
205 IfcFlowController		<i>company statement</i>	<i>DuplexHouse_Electrical / 2x3</i>
010 Naming	■		

020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
100 Element Aggregation		
100-4 Port Assignment	■	
110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	
300 Type		
300-1 Type Geometry	■	
300-2 Type Naming	■	
206 IfcFlowFitting		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Electrical / 2x3</i></span>
010 Naming	■	
020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	

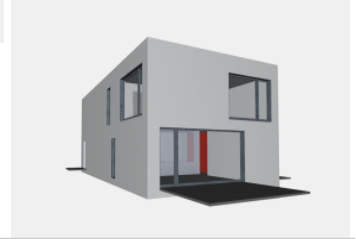
100 Element Aggregation		
100-4 Port Assignment	■	
110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	
300 Type		
300-1 Type Geometry	■	
300-2 Type Naming	■	
208 IfcFlowSegment		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Electrical / 2x3</i></span>
010 Naming	■	
020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	
100 Element Aggregation		
100-4 Port Assignment	■	
110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	

130 Grouping		
130-2 Grouping to Systems	■	
300 Type		
300-1 Type Geometry	■	
300-2 Type Naming	■	
210 IfcFlowTerminal		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Electrical / 2x3</i></span>
010 Naming	■	
020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	
050 CAD Layer	■	
100 Element Aggregation		
100-4 Port Assignment	■	
110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	

210 Property Set		
210-1 Property Set IFC Common	■	
210-6 Property Set IFC any	■	
210-9 Property Set User Defined	■	
300 Type		
300-1 Type Geometry	■	
300-2 Type Naming	■	
501 IfcProject		<i>company statement</i> DuplexHouse_Electrical / 2x3
010 Naming	■	
503 IfcBuilding		<i>company statement</i> DuplexHouse_Electrical / 2x3
010 Naming	■	
504 IfcBuildingStorey		<i>company statement</i> DuplexHouse_Electrical / 2x3
010 Naming	■	
020 Placement		
020-2 Placement Relative	■	
150 Spatial Aggregation		
150-1 Spatial Composition	■	
507 IfcSystem		<i>company statement</i> DuplexHouse_Electrical / 2x3
010 Naming	■	
130 Grouping		
130-2 Grouping to Systems	■	
130-5 Is Group	■	
General		<i>company statement</i> DuplexHouse_Electrical / 2x3
_G4 Remarks	■	The software doesn't manage electrical systems

















## DuplexHouse\_Heating / 2x3



204 IfcEnergyConversionDevice	<i>company statement</i>		<i>DuplexHouse_Heating / 2x3</i>
010 Naming	■		
030 Geometry			
030-6 Geometry Body			
030-6-5 Geometry Explicit	■		
030-6-9 Geometry Mapped	■		
040 Presentation			
040-1 Geometric Presentation	■		
100 Element Aggregation			
100-4 Port Assignment	■		
110 Connectivity			
110-5 Connectivity by Ports	■		
130 Grouping			
130-2 Grouping to Systems	■		
300 Type			
300-1 Type Geometry	■		
300-5 Type Property Set	■		
205 IfcFlowController	<i>company statement</i>		<i>DuplexHouse_Heating / 2x3</i>
010 Naming	■		

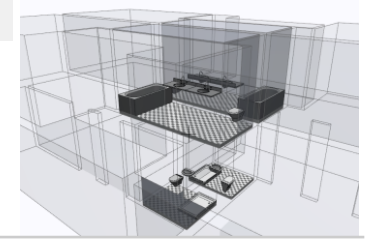
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	
100 Element Aggregation		
100-4 Port Assignment	■	
110 Connectivity		
110-5 Connectivity by Ports	■	
130 Grouping		
130-2 Grouping to Systems	■	
300 Type		
300-1 Type Geometry	■	
300-5 Type Property Set	■	
206 IfcFlowFitting		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Heating / 2x3</i></span>
010 Naming	■	
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	
100 Element Aggregation		
100-4 Port Assignment	■	

110 Connectivity			
110-5 Connectivity by Ports		■	
130 Grouping			
130-2 Grouping to Systems		■	
300 Type			
300-1 Type Geometry		■	
300-5 Type Property Set		■	
207 IfcFlowMovingDevice			<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Heating / 2x3</i></span>
010 Naming		■	
030 Geometry			
030-6 Geometry Body			
030-6-5 Geometry Explicit		■	
030-6-9 Geometry Mapped		■	
040 Presentation			
040-1 Geometric Presentation		■	
100 Element Aggregation			
100-4 Port Assignment		■	
110 Connectivity			
110-5 Connectivity by Ports		■	
130 Grouping			
130-2 Grouping to Systems		■	
300 Type			
300-1 Type Geometry		■	
300-5 Type Property Set		■	
208 IfcFlowSegment			<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Heating / 2x3</i></span>




010 Naming	
030 Geometry	
030-6 Geometry Body	
030-6-1 Geometry SweptSolid	
030-6-5 Geometry Explicit	
030-6-9 Geometry Mapped	
040 Presentation	
040-1 Geometric Presentation	
100 Element Aggregation	
100-4 Port Assignment	
110 Connectivity	
110-5 Connectivity by Ports	
130 Grouping	
130-2 Grouping to Systems	
300 Type	
300-1 Type Geometry	
300-5 Type Property Set	
210 IfcFlowTerminal	<i>company statement</i>
010 Naming	
030 Geometry	
030-6 Geometry Body	
030-6-5 Geometry Explicit	
030-6-9 Geometry Mapped	
040 Presentation	
040-1 Geometric Presentation	















100 Element Aggregation			
100-4 Port Assignment		■	
110 Connectivity			
110-5 Connectivity by Ports		■	
130 Grouping			
130-2 Grouping to Systems		■	
300 Type			
300-1 Type Geometry		■	
300-5 Type Property Set		■	
General			<i>company statement</i>
_G4 Remarks		■	<i>DuplexHouse_Heating / 2x3</i>

## DuplexHouse\_Sanitary / 2x3



205 IfcFlowController	<i>company statement</i>		<i>DuplexHouse_Sanitary / 2x3</i>
010 Naming	■		
020 Placement			
020-2 Placement Relative	■		
030 Geometry			
030-6 Geometry Body			
030-6-1 Geometry SweptSolid	■	Only explicit geometry supported	
030-6-5 Geometry Explicit	■		
030-6-9 Geometry Mapped	■		
040 Presentation			
040-1 Geometric Presentation	■		
100 Element Aggregation			
100-4 Port Assignment	■		
110 Connectivity			
110-5 Connectivity by Ports	■		
120 Spatial Containment	■		
130 Grouping			
130-2 Grouping to Systems	■		
206 IfcFlowFitting	<i>company statement</i>		<i>DuplexHouse_Sanitary / 2x3</i>
010 Naming	■		

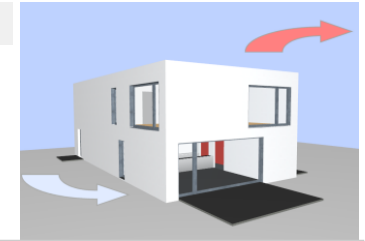
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		Only explicit geometry supported
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		
208 IfcFlowSegment		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Sanitary / 2x3</i></span>
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		Only explicit geometry supported
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		

040 Presentation		
040-1 Geometric Presentation		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		
210 IfcFlowTerminal		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Sanitary / 2x3</i></span>
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		Only explicit geometry supported
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
050 CAD Layer		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		













120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		
200 Material		
200-1 Single Material		
210 Property Set		
210-6 Property Set IFC any		
210-9 Property Set User Defined		
300 Type		
300-1 Type Geometry		
300-2 Type Naming		
300-3 Type Material		
300-5 Type Property Set		
507 IfcSystem		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Sanitary / 2x3</i></span>
010 Naming		
130 Grouping		
130-5 Is Group		
250 System Assignment		
250-2 Services Spatial Element		
General		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Sanitary / 2x3</i></span>
_G4 Remarks		The software doesn't support the drawing of waste water systems and rainwater systems  No watermeter support.















## DuplexHouse\_Ventilation / 2x3











206 IfcFlowFitting	<i>company statement</i>		<i>DuplexHouse_Ventilation / 2x3</i>
010 Naming	■		
020 Placement 020-2 Placement Relative	■		
030 Geometry 030-6 Geometry Body 030-6-1 Geometry SweptSolid 030-6-5 Geometry Explicit 030-6-9 Geometry Mapped	■ ■ ■	■	
040 Presentation 040-1 Geometric Presentation	■		
100 Element Aggregation 100-4 Port Assignment	■		
110 Connectivity 110-5 Connectivity by Ports	■		
120 Spatial Containment	■		
130 Grouping 130-2 Grouping to Systems	■		
207 IfcFlowMovingDevice	<i>company statement</i>		<i>DuplexHouse_Ventilation / 2x3</i>
010 Naming	■	Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)	

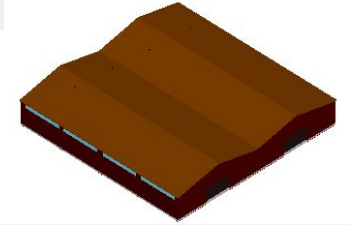
020 Placement	
020-2 Placement Relative	 Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
030 Geometry	
030-6 Geometry Body	
030-6-1 Geometry SweptSolid	 Only explicit geometry supported
030-6-5 Geometry Explicit	 Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
030-6-9 Geometry Mapped	 Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
040 Presentation	
040-1 Geometric Presentation	 Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
100 Element Aggregation	
100-4 Port Assignment	 Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
110 Connectivity	
110-5 Connectivity by Ports	 Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
120 Spatial Containment	 Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
130 Grouping	
130-2 Grouping to Systems	 Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
208 IfcFlowSegment	<i>company statement</i>
010 Naming	

DuplexHouse\_Ventilation / 2x3

020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		Only explicit geometry supported
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		
210 IfcFlowTerminal		<i>company statement</i> <span style="float: right;"><i>DuplexHouse_Ventilation / 2x3</i></span>
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		Only explicit geometry supported
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		








040 Presentation			
040-1 Geometric Presentation			
100 Element Aggregation			
100-4 Port Assignment			
110 Connectivity			
110-5 Connectivity by Ports			
120 Spatial Containment			
130 Grouping			
130-2 Grouping to Systems			
507 IfcSystem		<i>company statement</i>	<i>DuplexHouse_Ventilation / 2x3</i>
010 Naming			
130 Grouping			
130-5 Is Group			
250 System Assignment			
250-2 Services Spatial Element			
General		<i>company statement</i>	<i>DuplexHouse_Ventilation / 2x3</i>
_G4 Remarks			

## RandomMEP-X1 / 2x3



































102 IfcWall		<i>company statement</i>	<i>RandomMEP-X1 / 2x3</i>
001 GUIDs	■		
103 IfcBeam		<i>company statement</i>	<i>RandomMEP-X1 / 2x3</i>
002 History	■		
010 Naming	■		
104 IfcColumn		<i>company statement</i>	<i>RandomMEP-X1 / 2x3</i>
010 Naming	■		
204 IfcEnergyConversionDevice		<i>company statement</i>	<i>RandomMEP-X1 / 2x3</i>
010 Naming	■		
030 Geometry			
030-6 Geometry Body			
030-6-1 Geometry SweptSolid	■		
110 Connectivity			
110-5 Connectivity by Ports	■		
120 Spatial Containment	■		
130 Grouping			
130-2 Grouping to Systems	■		
230 Classification	■		

300 Type			
300-1 Type Geometry		■	
300-2 Type Naming		■	
300-5 Type Property Set		■	
205 IfcFlowController			<i>company statement</i> <span style="float: right;"><i>RandomMEP-X1 / 2x3</i></span>
010 Naming		■	
020 Placement			
020-2 Placement Relative		■	
030 Geometry			
030-6 Geometry Body			
030-6-1 Geometry SweptSolid		■	
030-6-5 Geometry Explicit		■	
030-6-9 Geometry Mapped		■	
110 Connectivity			
110-5 Connectivity by Ports		■	
120 Spatial Containment		■	
130 Grouping			
130-2 Grouping to Systems		■	
230 Classification		■	
300 Type			
300-1 Type Geometry		■	
300-2 Type Naming		■	
300-5 Type Property Set		■	
206 IfcFlowFitting			<i>company statement</i> <span style="float: right;"><i>RandomMEP-X1 / 2x3</i></span>
001 GUIDs		■	

002 History	
010 Naming	
020 Placement	
020-2 Placement Relative	
030 Geometry	
030-6 Geometry Body	
030-6-1 Geometry SweptSolid	
030-6-5 Geometry Explicit	
030-6-9 Geometry Mapped	
040 Presentation	
040-1 Geometric Presentation	
050 CAD Layer	
100 Element Aggregation	
100-4 Port Assignment	
110 Connectivity	
110-5 Connectivity by Ports	
120 Spatial Containment	
130 Grouping	
130-2 Grouping to Systems	
210 Property Set	
210-1 Property Set IFC Common	
230 Classification	

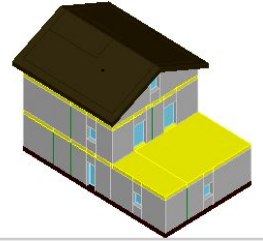


300 Type		
300-1 Type Geometry		
300-2 Type Naming		
300-5 Type Property Set		
208 IfcFlowSegment		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X1 / 2x3</i></span>
001 GUIDs		
002 History		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
050 CAD Layer		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		

210 Property Set		
210-1 Property Set IFC Common		
230 Classification		
300 Type		
300-1 Type Geometry		
300-2 Type Naming		
300-5 Type Property Set		
210 IfcFlowTerminal		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X1 / 2x3</i></span>
001 GUIDs		
002 History		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
050 CAD Layer		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		

















210 Property Set			
210-1 Property Set IFC Common		■	
230 Classification		■	
300 Type			
300-1 Type Geometry		■	
300-2 Type Naming		■	
300-5 Type Property Set		■	
408 IfcElementAssembly			<i>company statement</i> <span style="float: right;"><i>RandomMEP-X1 / 2x3</i></span>
001 GUIDs		■	
010 Naming		■	
020 Placement			
020-2 Placement Relative		■	
100 Element Aggregation			
100-1 Element Composition		■	
100-2 Element Decomposition		■	
507 IfcSystem			<i>company statement</i> <span style="float: right;"><i>RandomMEP-X1 / 2x3</i></span>
010 Naming		■	
130 Grouping			
130-5 Is Group		■	
250 System Assignment			
250-2 Services Spatial Element		■	
General			<i>company statement</i> <span style="float: right;"><i>RandomMEP-X1 / 2x3</i></span>
_G4 Remarks		■	





## RandomMEP-X2 / 2x3



204 IfcEnergyConversionDevice	<i>company statement</i>	<i>RandomMEP-X2 / 2x3</i>
001 GUIDs	■	
010 Naming	■	
020 Placement 020-2 Placement Relative	■	
030 Geometry 030-6 Geometry Body 030-6-5 Geometry Explicit 030-6-9 Geometry Mapped	■ ■ ■	
040 Presentation 040-1 Geometric Presentation	■	
050 CAD Layer	■	
100 Element Aggregation		
110 Connectivity 110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping 130-2 Grouping to Systems	■	
210 Property Set 210-3 Property Set User Defined	■	

300 Type		
300-1 Type Geometry	■	
300-2 Type Naming	■	
300-5 Type Property Set	■	
205 IfcFlowController		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X2 / 2x3</i></span>
001 GUIDs	■	
002 History	■	
010 Naming	■	
020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	
050 CAD Layer	■	
100 Element Aggregation		
100-4 Port Assignment	■	
110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	

210 Property Set		
210-3 Property Set User Defined		
230 Classification		
300 Type		
300-1 Type Geometry		
300-2 Type Naming		
300-5 Type Property Set		
206 IfcFlowFitting		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X2 / 2x3</i></span>
001 GUIDs		
002 History		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
050 CAD Layer		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		

120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		
210 Property Set		
210-9 Property Set User Defined		
<i>230 Classification</i>		
300 Type		
300-1 Type Geometry		
300-2 Type Naming		
300-5 Type Property Set		
207 IfcFlowMovingDevice		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X2 / 2x3</i></span>
001 GUIDs		
002 History		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
<i>030-6-1 Geometry SweptSolid</i>		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
050 CAD Layer		

100 Element Aggregation	
100-4 Port Assignment	■
110 Connectivity	
110-5 Connectivity by Ports	■
120 Spatial Containment	■
130 Grouping	
130-2 Grouping to Systems	■
200 Material	
200-1 Single Material	■
210 Property Set	
210-9 Property Set User Defined	■
230 Classification	■
300 Type	
300-1 Type Geometry	■
300-2 Type Naming	■
300-5 Type Property Set	■
208 IfcFlowSegment	<i>company statement</i>
001 GUIDs	■
002 History	■
010 Naming	■
020 Placement	
020-2 Placement Relative	■

*RandomMEP-X2 / 2x3*



030 Geometry	
030-6 Geometry Body	
030-6-1 Geometry SweptSolid	■
030-6-5 Geometry Explicit	■
030-6-9 Geometry Mapped	■
040 Presentation	
040-1 Geometric Presentation	■
050 CAD Layer	■
100 Element Aggregation	
100-4 Port Assignment	■
110 Connectivity	
110-5 Connectivity by Ports	■
120 Spatial Containment	■
130 Grouping	
130-2 Grouping to Systems	■
210 Property Set	
210-9 Property Set User Defined	■
230 Classification	■
300 Type	
300-2 Type Naming	■
300-5 Type Property Set	■
210 IfcFlowTerminal	<i>company statement</i>
001 GUIDs	■
002 History	■
010 Naming	■

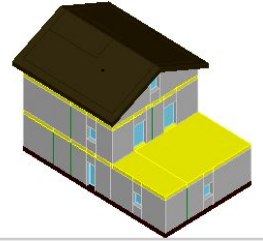
RandomMEP-X2 / 2x3

020 Placement	
020-2 Placement Relative	■
030 Geometry	
030-6 Geometry Body	
030-6-1 Geometry SweptSolid	■
030-6-5 Geometry Explicit	■
030-6-9 Geometry Mapped	■
040 Presentation	
040-1 Geometric Presentation	■
050 CAD Layer	■
100 Element Aggregation	
100-4 Port Assignment	■
110 Connectivity	
110-5 Connectivity by Ports	■
120 Spatial Containment	■
130 Grouping	
130-2 Grouping to Systems	■
210 Property Set	
210-9 Property Set User Defined	■
230 Classification	■
300 Type	
300-1 Type Geometry	■
300-2 Type Naming	■
300-5 Type Property Set	■
507 IfcSystem	company statement

RandomMEP-X2 / 2x3

















010 Naming	■		
130 Grouping			
130-5 Is Group	■		
250 System Assignment			
250-2 Services Spatial Element	■		
General		<i>company statement</i>	<i>RandomMEP-X2 / 2x3</i>
_G4 Remarks	■		

## RandomMEP-X3 / 2x3



204 IfcEnergyConversionDevice	<i>company statement</i>	<i>RandomMEP-X3 / 2x3</i>
001 GUIDs	■	
010 Naming	■	
020 Placement 020-2 Placement Relative	■	
030 Geometry 030-6 Geometry Body 030-6-1 Geometry SweptSolid 030-6-5 Geometry Explicit 030-6-9 Geometry Mapped	■ ■ ■	
040 Presentation 040-1 Geometric Presentation	■	
050 CAD Layer	■	
100 Element Aggregation 100-4 Port Assignment	■	
110 Connectivity 110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping 130-2 Grouping to Systems	■	

210 Property Set		
210-3 Property Set User Defined		
230 Classification		
300 Type		
300-1 Type Geometry		
300-2 Type Naming		
300-5 Type Property Set		
205 IfcFlowController		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X3 / 2x3</i></span>
001 GUIDs		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		
230 Classification		

300 Type		
300-1 Type Geometry		
300-2 Type Naming		
300-5 Type Property Set		
206 IfcFlowFitting		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X3 / 2x3</i></span>
001 GUIDs		
002 History		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
050 CAD Layer		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		

200 Material		
200-1 Single Material		■
210 Property Set		
210-9 Property Set User Defined		■
230 Classification		■
300 Type		
300-1 Type Geometry		■
300-2 Type Naming		■
300-5 Type Property Set		■
208 IfcFlowSegment	<i>company statement</i>	<i>RandomMEP-X3 / 2x3</i>
001 GUIDs		■
002 History		■
010 Naming		■
020 Placement		
020-2 Placement Relative		■
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		■
030-6-5 Geometry Explicit		■
030-6-9 Geometry Mapped		■
040 Presentation		
040-1 Geometric Presentation		■
050 CAD Layer		■
100 Element Aggregation		
100-4 Port Assignment		■

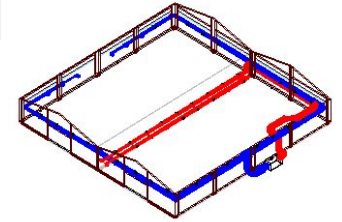
110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	
210 Property Set		
210-6 Property Set IFC any	■	
210-9 Property Set User Defined	■	
230 Classification	■	
300 Type		
300-2 Type Naming	■	
300-5 Type Property Set	■	
210 IfcFlowTerminal		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X3 / 2x3</i></span>
001 GUIDs	■	
002 History	■	
010 Naming	■	
020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid	■	
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	



050 CAD Layer	■	
100 Element Aggregation		
100-4 Port Assignment	■	
110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	
210 Property Set		
210-6 Property Set IFC any	■	
210-9 Property Set User Defined	■	
<i>230 Classification</i>	■	
300 Type		
300-1 Type Geometry	■	
300-2 Type Naming	■	
300-5 Type Property Set	■	
211 IfcFlowTreatmentDevice		<i>company statement</i>
		<i>RandomMEP-X3 / 2x3</i>
001 GUIDs	■	
010 Naming	■	
020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
<i>030-6-1 Geometry SweptSolid</i>	■	
030-6-9 Geometry Mapped	■	

110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	
<i>230 Classification</i>	■	
300 Type		
300-1 Type Geometry	■	
300-2 Type Naming	■	
300-5 Type Property Set	■	
506 IfcGroup		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X3 / 2x3</i></span>
001 GUIDs	■	
010 Naming	■	
130 Grouping		
130-5 Is Group	■	
507 IfcSystem		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X3 / 2x3</i></span>
010 Naming	■	
130 Grouping		
130-5 Is Group	■	
250 System Assignment		
250-2 Services Spatial Element	■	
General		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X3 / 2x3</i></span>
_G4 Remarks	■	

## RandomMEP-X4 / 2x3



203 IfcDistributionControlElement	<i>company statement</i>	<i>RandomMEP-X4 / 2x3</i>
001 GUIDs	■	
010 Naming	■	
020 Placement 020-2 Placement Relative	■	
030 Geometry 030-6 Geometry Body 030-6-5 Geometry Explicit 030-6-9 Geometry Mapped	■ ■ ■	
120 Spatial Containment	■	
130 Grouping 130-2 Grouping to Systems	■	
300 Type 300-2 Type Naming	■	
204 IfcEnergyConversionDevice	<i>company statement</i>	<i>RandomMEP-X4 / 2x3</i>
001 GUIDs	■	
010 Naming	■	
020 Placement 020-2 Placement Relative	■	

030 Geometry	
030-6 Geometry Body	
030-6-5 Geometry Explicit	■
030-6-9 Geometry Mapped	■
040 Presentation	
040-1 Geometric Presentation	■
050 CAD Layer	■
100 Element Aggregation	
100-4 Port Assignment	■
110 Connectivity	
110-5 Connectivity by Ports	■
120 Spatial Containment	■
130 Grouping	
130-2 Grouping to Systems	■
210 Property Set	
210-3 Property Set User Defined	■
300 Type	
300-2 Type Naming	■
205 IfcFlowController	<i>company statement</i>
010 Naming	■
020 Placement	
020-2 Placement Relative	■

RandomMEP-X4 / 2x3

030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	
050 CAD Layer	■	
100 Element Aggregation		
100-4 Port Assignment	■	
110 Connectivity		
110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	
210 Property Set		
210-3 Property Set User Defined	■	
230 Classification	■	
300 Type		
300-2 Type Naming	■	
300-5 Type Property Set	■	
206 IfcFlowFitting		<i>company statement</i>
001 GUIDs	■	
002 History	■	
010 Naming	■	

RandomMEP-X4 / 2x3















020 Placement	
020-2 Placement Relative	■
030 Geometry	
030-6 Geometry Body	
030-6-5 Geometry Explicit	■
030-6-9 Geometry Mapped	■
040 Presentation	
040-1 Geometric Presentation	■
050 CAD Layer	■
100 Element Aggregation	
100-4 Port Assignment	■
110 Connectivity	
110-5 Connectivity by Ports	■
120 Spatial Containment	■
130 Grouping	
130-2 Grouping to Systems	■
200 Material	
200-1 <i>Single Material</i>	■
210 Property Set	
210-9 Property Set User Defined	■
230 <i>Classification</i>	■
300 Type	
300-2 Type Naming	■
300-5 Type Property Set	■
208 IfcFlowSegment	<i>company statement</i>

RandomMEP-X4 / 2x3

001 GUIDs	■
002 History	■
010 Naming	■
020 Placement	
020-2 Placement Relative	■
030 Geometry	
030-6 Geometry Body	
030-6-5 Geometry Explicit	■
030-6-9 Geometry Mapped	■
040 Presentation	
040-1 Geometric Presentation	■
050 CAD Layer	■
100 Element Aggregation	
100-4 Port Assignment	■
110 Connectivity	
110-5 Connectivity by Ports	■
120 Spatial Containment	■
130 Grouping	
130-2 Grouping to Systems	■
200 Material	
200-1 <i>Single Material</i>	■
210 Property Set	
210-9 Property Set User Defined	■
230 <i>Classification</i>	■

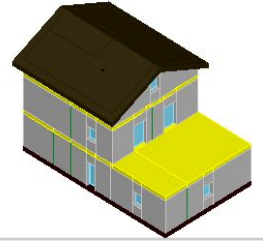
300 Type			
300-2 Type Naming		■	
300-5 Type Property Set		■	
210 IfcFlowTerminal			<i>company statement</i> <span style="float: right;"><i>RandomMEP-X4 / 2x3</i></span>
001 GUIDs		■	
002 History		■	
010 Naming		■	
020 Placement			
020-2 Placement Relative		■	
030 Geometry			
030-6 Geometry Body			
<i>030-6-1 Geometry SweptSolid</i>		■	
030-6-5 Geometry Explicit		■	
030-6-9 Geometry Mapped		■	
040 Presentation			
040-1 Geometric Presentation		■	
050 CAD Layer		■	
100 Element Aggregation			
100-4 Port Assignment		■	
110 Connectivity			
110-5 Connectivity by Ports		■	
120 Spatial Containment		■	
130 Grouping			
130-2 Grouping to Systems		■	


















200 Material		
200-1 Single Material		
210 Property Set		
210-9 Property Set User Defined		
230 Classification		
300 Type		
300-2 Type Naming		
300-5 Type Property Set		
501 IfcProject		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X4 / 2x3</i></span>
002 History		
005 Project Units		
005-2 Project Imperial Units		
008 Representation Context		
008-1 Representation Main Context		
008-2 Representation Sub Context		
008-2-2 Representation Sub Context 3D		
507 IfcSystem		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X4 / 2x3</i></span>
010 Naming		
130 Grouping		
130-2 Grouping to Systems		
130-5 Is Group		
210 Property Set		
210-6 Property Set IFC any		
230 Classification		
















250 System Assignment			
250-2 Services Spatial Element	■		
508 IfcZone		<i>company statement</i>	<i>RandomMEP-X4 / 2x3</i>
001 GUIDs	■		
002 History	■		
010 Naming	■		
130 Grouping			
130-3 Grouping to Zones	■		
210 Property Set			
210-6 Property Set IFC any	■		
General		<i>company statement</i>	<i>RandomMEP-X4 / 2x3</i>
_G4 Remarks	■		










## RandomMEP-X5 / 2x3

















204 IfcEnergyConversionDevice	<i>company statement</i>	<i>RandomMEP-X5 / 2x3</i>
001 GUIDs	■	
010 Naming	■	
020 Placement 020-2 Placement Relative	■	
030 Geometry 030-6 Geometry Body 030-6-5 Geometry Explicit 030-6-9 Geometry Mapped	■ ■ ■	
040 Presentation 040-1 Geometric Presentation	■	
050 CAD Layer	■	
100 Element Aggregation 100-4 Port Assignment	■	
110 Connectivity 110-5 Connectivity by Ports	■	
120 Spatial Containment	■	
130 Grouping 130-2 Grouping to Systems	■	

210 Property Set		
210-3 Property Set User Defined		
230 Classification		
300 Type		
300-2 Type Naming		
300-5 Type Property Set		
205 IfcFlowController		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X5 / 2x3</i></span>
001 GUIDs		
002 History		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
050 CAD Layer		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		

130 Grouping		
130-2 Grouping to Systems		
210 Property Set		
210-1 Property Set IFC Common		
210-3 Property Set User Defined		
300 Type		
300-2 Type Naming		
206 IfcFlowFitting		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X5 / 2x3</i></span>
001 GUIDs		
002 History		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
<i>030-6-1 Geometry SweptSolid</i>		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		
040 Presentation		
040-1 Geometric Presentation		
050 CAD Layer		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		

120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		
200 Material		
200-1 Single Material		
210 Property Set		
210-1 Property Set IFC Common		
210-9 Property Set User Defined		
230 Classification		
300 Type		
300-2 Type Naming		
300-5 Type Property Set		
207 IfcFlowMovingDevice		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X5 / 2x3</i></span>
001 GUIDs		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
002 History		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
010 Naming		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
030-6-9 Geometry Mapped		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
















040 Presentation		
040-1 Geometric Presentation		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
120 Spatial Containment		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
130 Grouping		
130-2 Grouping to Systems		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
210 Property Set		
210-1 Property Set IFC Common		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
300 Type		
300-2 Type Naming		Our software don't use fans, just air treatment unit. Used IfcEnergyConversionDevice of type IfcUnitaryEquipmentType instead (a air treatment unit)
208 IfcFlowSegment		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X5 / 2x3</i></span>
001 GUIDs		
002 History		
010 Naming		
020 Placement		
020-2 Placement Relative		
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid		
030-6-5 Geometry Explicit		
030-6-9 Geometry Mapped		

040 Presentation		
040-1 Geometric Presentation		
050 CAD Layer		
100 Element Aggregation		
100-4 Port Assignment		
110 Connectivity		
110-5 Connectivity by Ports		
120 Spatial Containment		
130 Grouping		
130-2 Grouping to Systems		
200 Material		
200-1 Single Material		
210 Property Set		
210-6 Property Set IFC any		
210-9 Property Set User Defined		
230 Classification		
300 Type		
300-1 Type Geometry		
300-2 Type Naming		
300-3 Type Material		
300-5 Type Property Set		
209 IfcFlowStorageDevice		<i>company statement</i>
001 GUIDs		
010 Naming		

RandomMEP-X5 / 2x3



020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	
300 Type		
300-2 Type Naming	■	
210 IfcFlowTerminal		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X5 / 2x3</i></span>
001 GUIDs	■	
002 History	■	
010 Naming	■	
020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	

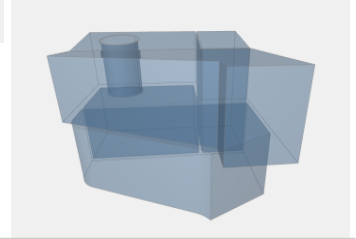
050 CAD Layer	
100 Element Aggregation	
100-4 Port Assignment	
110 Connectivity	
110-5 Connectivity by Ports	
120 Spatial Containment	
130 Grouping	
130-2 Grouping to Systems	
200 Material	
200-1 Single Material	
210 Property Set	
210-1 Property Set IFC Common	
210-6 Property Set IFC any	
210-9 Property Set User Defined	
230 Classification	
300 Type	
300-2 Type Naming	
300-5 Type Property Set	
211 IfcFlowTreatmentDevice	<i>company statement</i>
001 GUIDs	
010 Naming	
020 Placement	
020-2 Placement Relative	

RandomMEP-X5 / 2x3

030 Geometry		
030-6 Geometry Body		
030-6-5 Geometry Explicit	■	
030-6-9 Geometry Mapped	■	
040 Presentation		
040-1 Geometric Presentation	■	
120 Spatial Containment	■	
130 Grouping		
130-2 Grouping to Systems	■	
300 Type		
300-2 Type Naming	■	
303 IfcCovering		<i>company statement</i> <span style="float: right;"><i>RandomMEP-X5 / 2x3</i></span>
001 GUIDs	■	
020 Placement		
020-2 Placement Relative	■	
030 Geometry		
030-6 Geometry Body		
030-6-1 Geometry SweptSolid	■	
030-6-5 Geometry Explicit	■	
050 CAD Layer	■	
200 Material		
200-1 Single Material	■	
300 Type		
300-1 Type Geometry	■	
300-3 Type Material	■	

507 IfcSystem		<i>company statement</i>	<i>RandomMEP-X5 / 2x3</i>
010 Naming	■		
250 System Assignment			
250-2 Services Spatial Element	■		
General		<i>company statement</i>	<i>RandomMEP-X5 / 2x3</i>
_G4 Remarks	■		

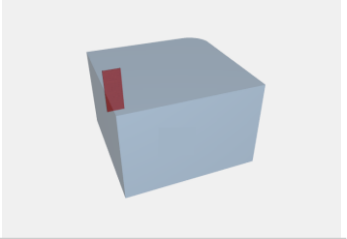
**Space\_01MEP / 2x3**



111 IfcBuildingElementProxy	<i>company statement</i>		<i>Space_01MEP / 2x3</i>
010 Naming	■		
020 Placement			
020-2 Placement Relative	■		
030 Geometry			
030-6 Geometry Body			
030-6-1 Geometry SweptSolid	■		
210 Property Set			
210-2 Property Set IFC any	■		
505 IfcSpace	<i>company statement</i>		<i>Space_01MEP / 2x3</i>
001 GUIDs	■		
002 History	■		
010 Naming	■		
020 Placement			
020-2 Placement Relative	■		
030 Geometry			
030-6 Geometry Body			
030-6-1 Geometry SweptSolid	■		
030-6-2 Geometry Clipping	■		

040 Presentation			
040-1 Geometric Presentation		■	
050 CAD Layer		■	
150 Spatial Aggregation			
150-1 Spatial Composition		■	
210 Property Set			
210-6 Property Set IFC any		■	
General			<i>company statement</i>
_G4 Remarks		■	
			<i>Space_01MEP / 2x3</i>

**UnitTest-01MEP / 2x3**



501 IfcProject	<i>company statement</i>	<i>UnitTest-01MEP / 2x3</i>
005 Project Units		
005-1 Project Metric Units	■ No angular units supported	
005-2 Project Imperial Units	■ No angular units supported	
<b>General</b>	<i>company statement</i>	<i>UnitTest-01MEP / 2x3</i>
_G4 Remarks	■	