

REUSE POTENTIAL TOOL

Building assessment
Red House

Assessment performed by
Pieter Beurskens

Date
4-2-2019

REUSE POTENTIAL TOOL

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Input level 1 - General information

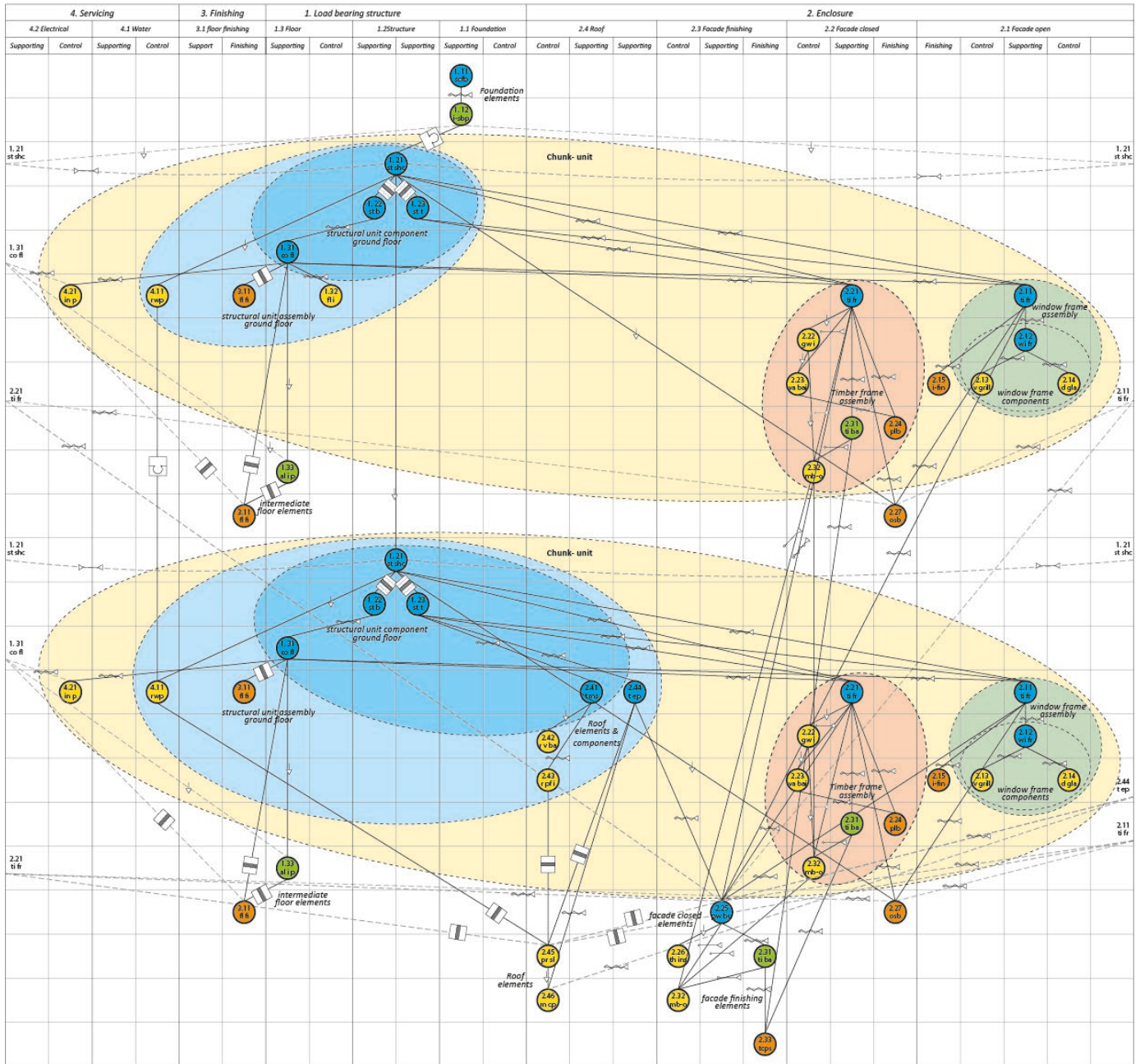
Assessment performed by

Pieter Beurskens

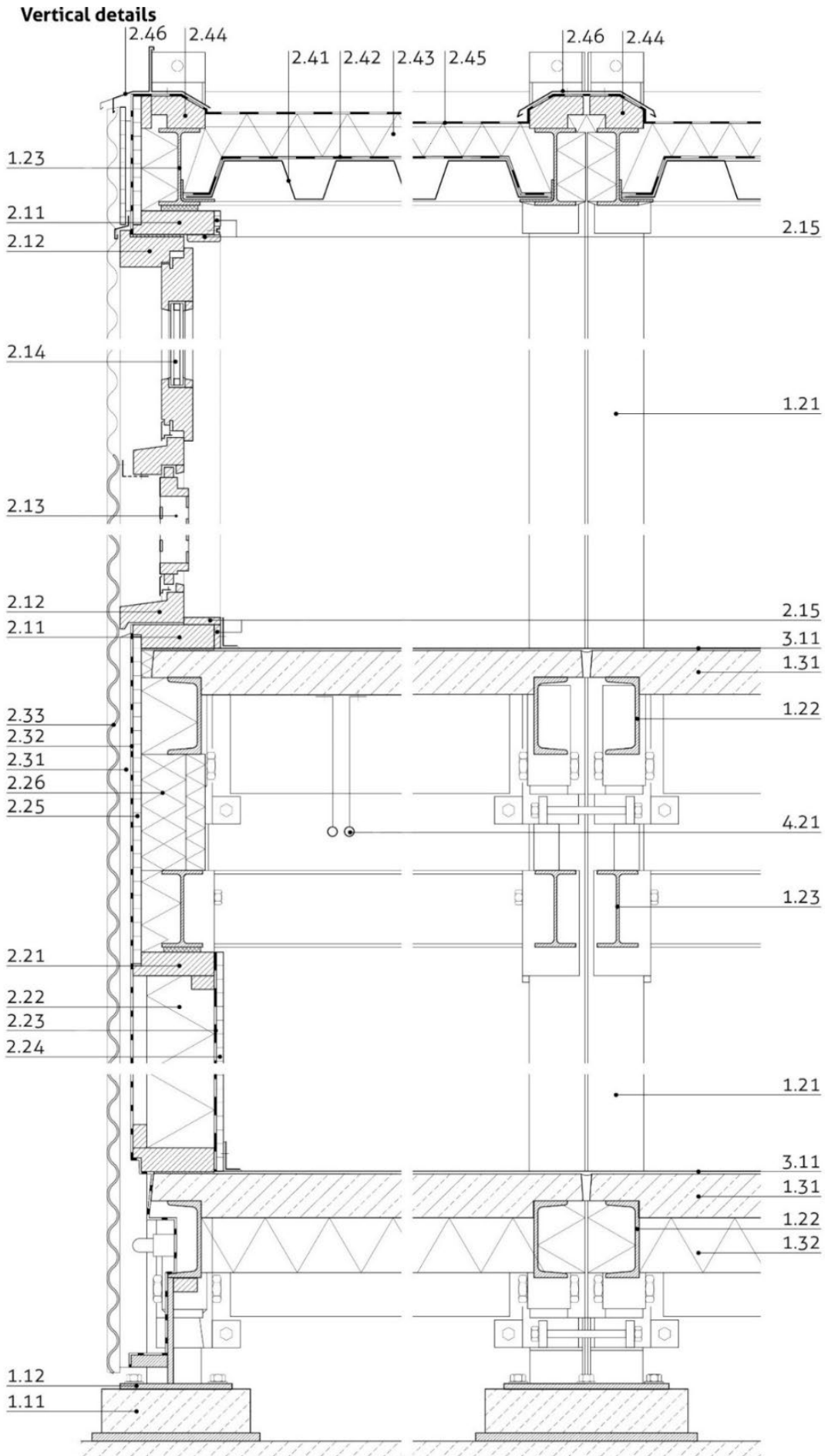
Building project information	
Criteria	Specification
Building name	Red House
Surface area	-
Dimensions (LxWxH)	1) 78 x 12 x 6,5m
Function	1) Exhibition space for children, 2) primary school, 3) office and warehouse
Adress	-
City	1) Rotterdam, 2) Hoogvliet, 3) Hilversum
postalcode	-
Country	The Netherlands
Constrution date	1-12-2000
Current date	4-2-2019
Age of building	18
Owner	-
Contractor	Wagenbouw
Design and eng. team	Jouke Post - XX architects

Building part specification				
System indication		Part identification code	Part specification	
1. Load bearing	1.1 Foundation	1.11 scfb	Stelcon concrete foundation block on asphalt - 2m/1m/160mm	
		1.12 i-sbp	Intermediary - steel base plate - 300/300/15mm	
	1.2 Structure	1.21 st shc	Steel SHS column - 100/100/5mm	
		1.22 st b	Steel bottom edge beam - c-section 140mm	
	1.3 Floors	1.23 st t	Steel top edge beam - 4x steel IPE-sections 140mm	
		1.31 co fl	Concrete floor (3x6m), 80mm with two downstand beams 260mm	
1.32 fl i		Thermal floor insulation - 100mm PE		
		1.33 al i p	Aluminum intermediate profile	
2. Enclosing	2.1 Facade open	2.11 ti fr	Timber frame	
		2.12 wi fr	Facade window frame	
		2.13 v grill	Ventilation grill	
		2.14 d gla	Double glazing	
		2.15 i-fin	Internal finishing	
	2.2 Facade closed	2.21 ti fr	Timber frame made of studs 43/120mm	
		2.22 gw i	Glass-wool thermal insulation 120mm	
		2.23 va bai	Vapour barrier - polythene sheet (inside)	
		2.24 plb	Plasterboard 12,5mm or OBS plate 12mm (inside)	
		2.25 pw bu	Plywood between units 15mm	
		2.26 th ins	Thermal insulation	
		2.27 osb	OSB plate between units 12mm	
		2.28 ti ba	Timber battens 22/43mm	
		2.29 mb-o	Moisture barrier - red polytex sheet (outside)	
		2.210 tcps	Transparent corrugated polycarbonate sheeting	
		2.3 Roof	2.31 t ms	Trapezoidal-section ribbed metal sheeting
			2.32 r v ba	Roof vapour barrier
			2.33 r pf i	Rigid polystyrene foam 100-70mm
2.34 t ep	Timber top edge of unit			
2.35 pr sl	Plastic roof sealing layer			
		2.36 m cp	Metal cap covering unit connection	
3. Finishing	3.1 (raised) Floor	3.11 fl fi	Floor finishing - linoleum	
		3.11 fl fi i	Floor finishing intermediate - linoleum	
	3.2 (lowered) Ceiling			
	3.3 Partitioning			
3.4 Stairs				
4. Servicing	4.1 Water	4.11 rwp	Rainwater pipe, PVC - Ø 50mm	
	4.2 Electrical	4.21 in p	Installation pipes	
	4.3 Heating			
	4.4 Ventilation			

Relational pattern

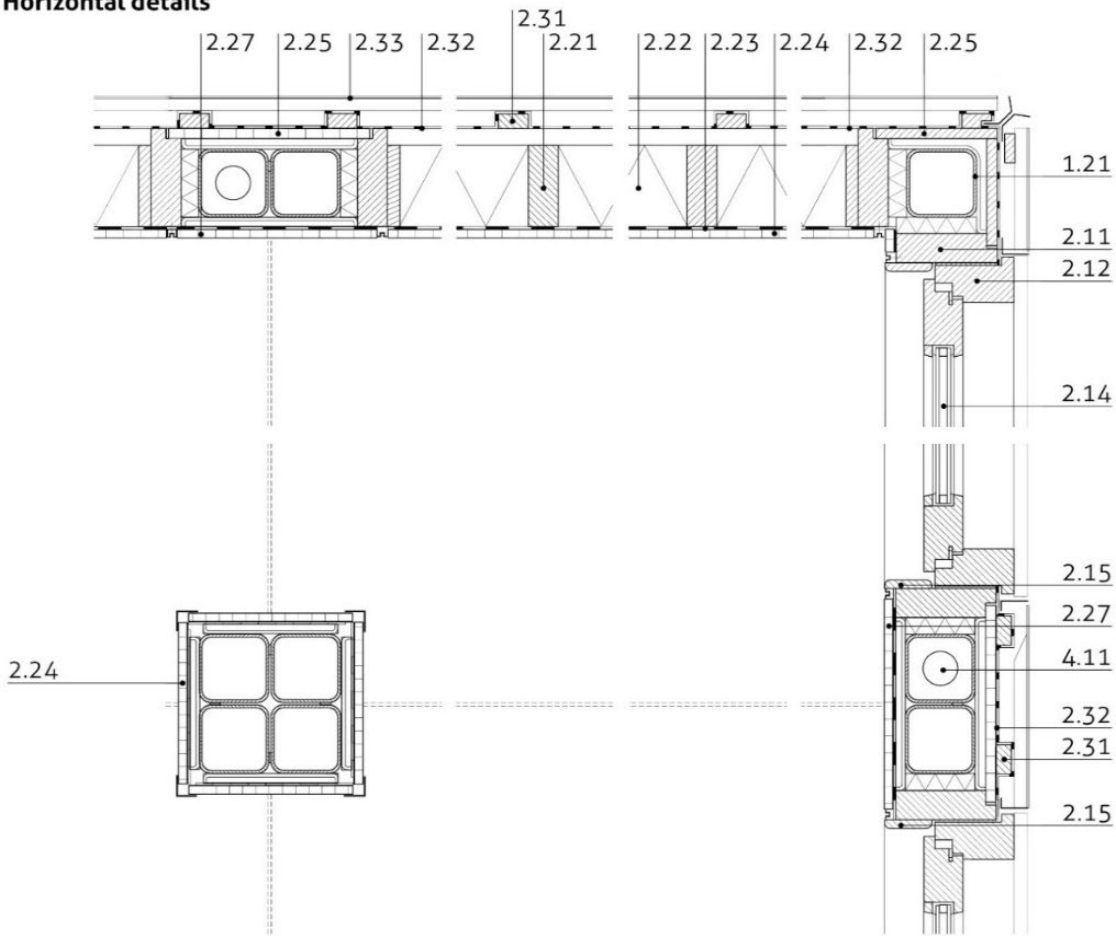


Vertical detail with part identification

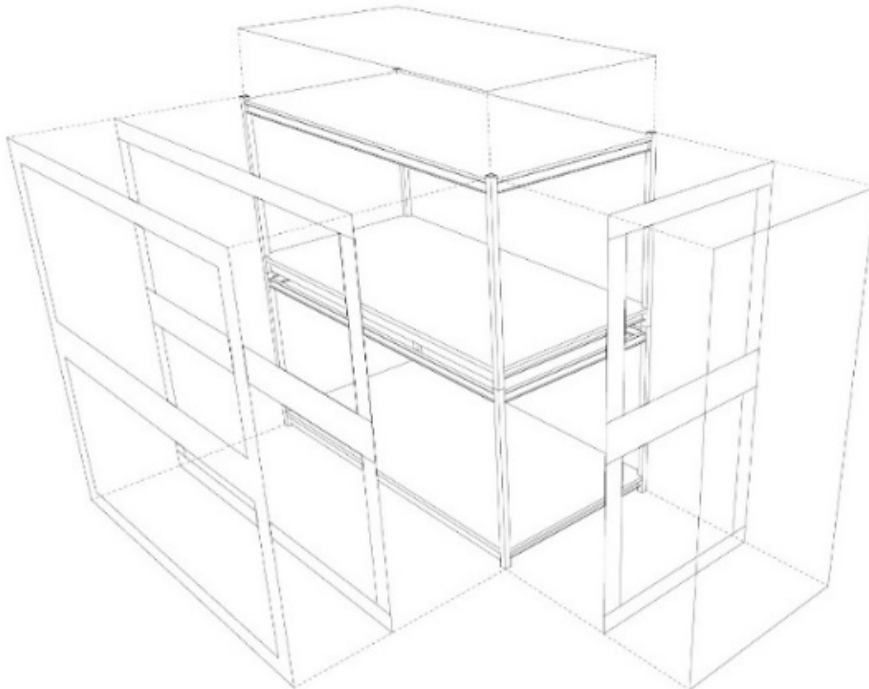


Horizontal detail with part identification

Horizontal details



Isometry - part of the building



Additional building information

Architect

XX architecten - Jouke Post
 In collaboration with students from the Rotterdam
 Academy of Architecture - Jaap van Dijk, Ramon
 Knoester & Remco Tolvink

Contractor

Wagenbouw (modular unit construction company)

Structural system

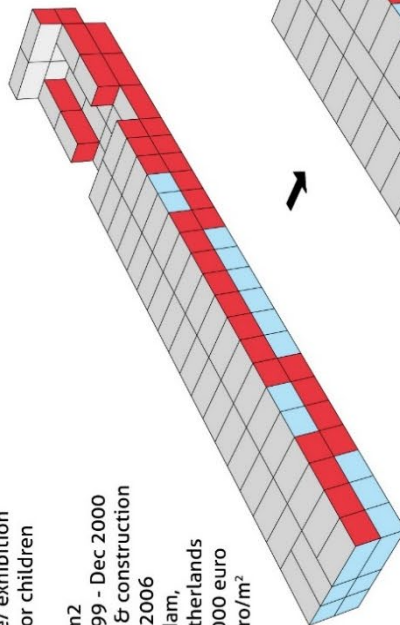
Modular unit construction system
 Unit size 3m x 3m x 6m
 steel unit structure with concrete floor and prefab
 timber facade panels finished with corrugated
 polycarbonate sheeting/ metal sheeting



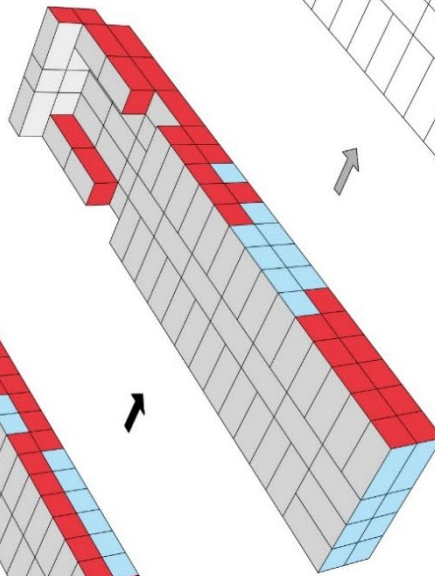
Villa zebra - 1st Generation

Programme Leisure/ exhibition
 space for children
 Units (3x6x3m) 98
 Floor area 2.181 m²
 construction time Des 1999 - Dec 2000
 Design & construction
 2001 - 2006
 Location Rotterdam,
 The Netherlands
 Costs 1.721.000 euro
 789 euro/m²

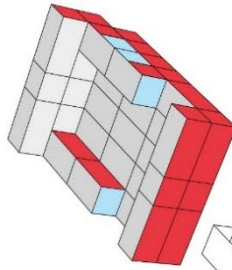
1st Generation



2nd Generation



3rd Generation



Red house - 3rd Generation
 Programme Office and warehouse
 Units (3x6x3m) 27 + 4x1/2 unit
 Floor area 477 m²
 Use period 2013 - now
 Location Hilversum,
 The Netherlands

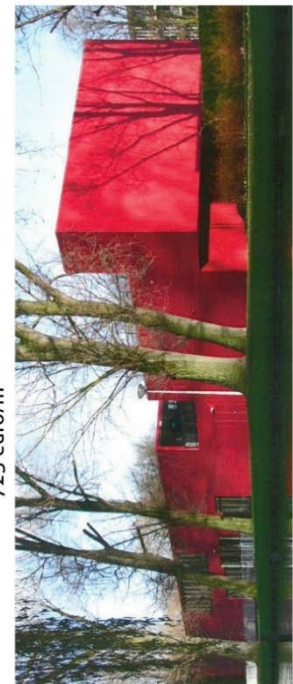
Costs



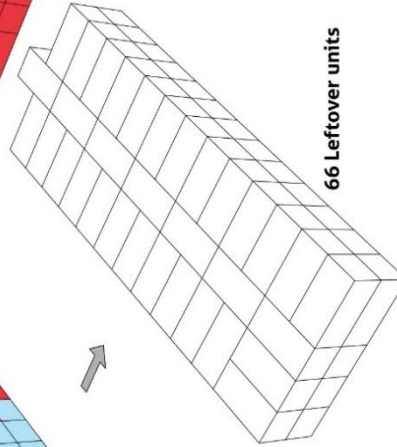
Red house

Villa Notenkraaker - 2nd Generation

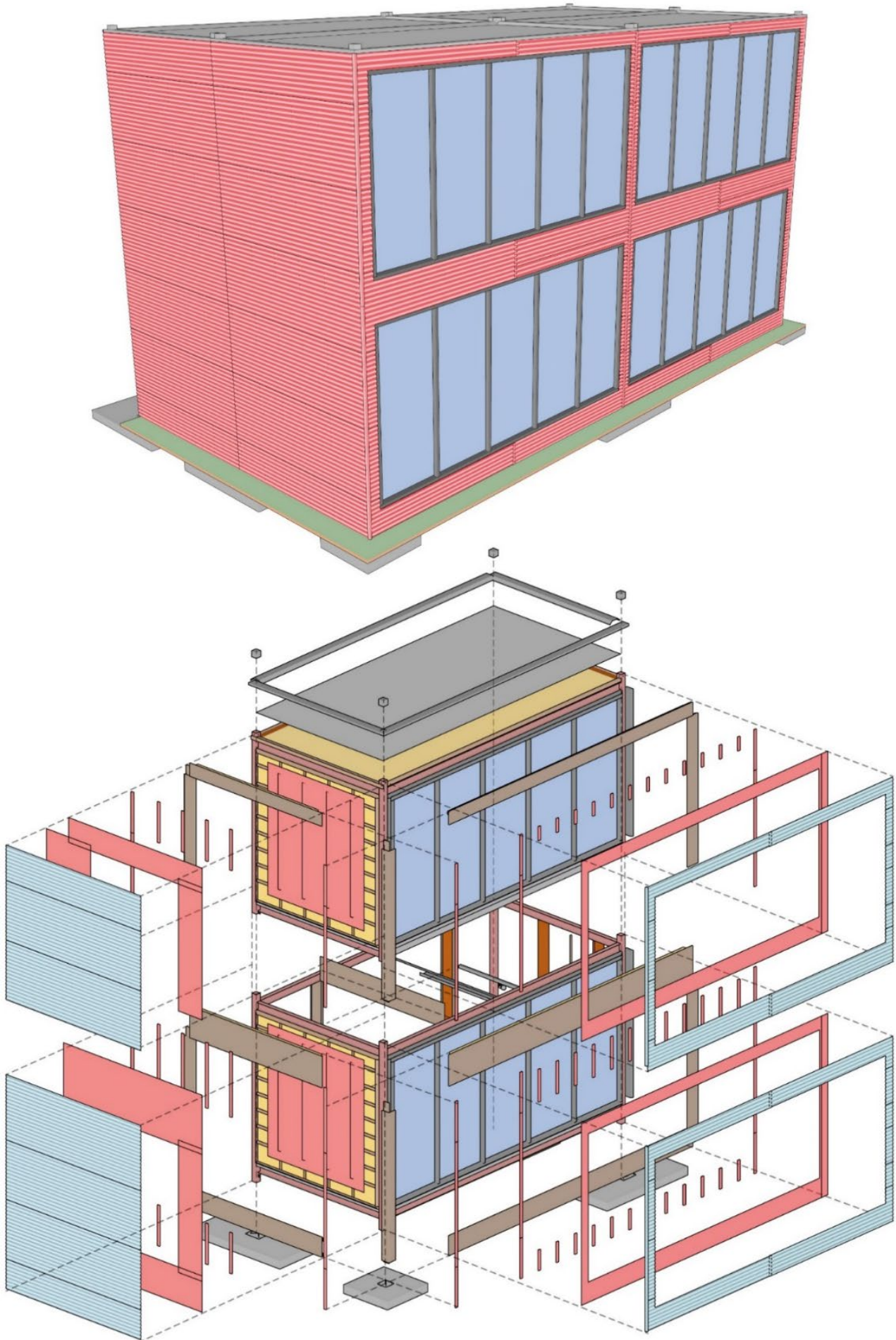
Programme Primary school
 Units (3x6x3m) 93 + 2x1/2 unit
 Floor area 1.890 m²
 Use period 2010 - 2013
 Location Hoogvliet,
 The Netherlands
 Costs 1.367.200
 723 euro/m²



66 Leftover units



Additional building information



Input level 2 - Part specification

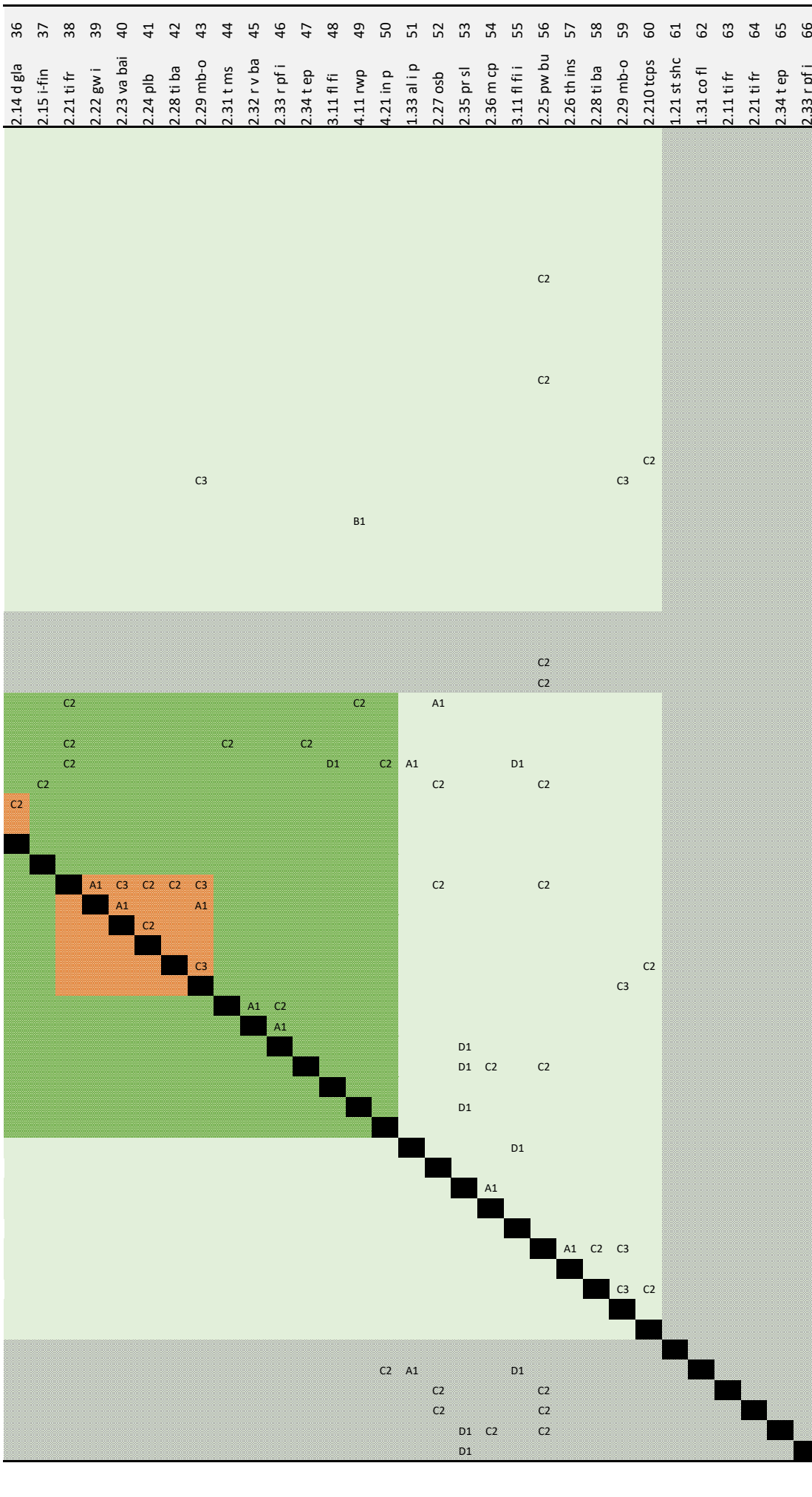
Part specification								
No.	Floor indication	Part id	Level of prefabrication			Adjacent	Basic function	Technical lifespan
			Chunk	Assembly	Component	Part		
1	bottom floor	1.11 scfb				no	Support	100
2	bottom floor	1.12 i-sbp				no	Integration	100
3	bottom floor	1.21 st shc	1		1	no	Support	100
4	bottom floor	1.22 st b	1		1	no	Support	100
5	bottom floor	1.23 st t	1		1	no	Support	100
6	bottom floor	1.31 co fl	1		1	no	Support	100
7	bottom floor	1.32 fl i	1			no	Control	75
8	bottom floor	2.11 ti fr	1			no	Support	50
9	bottom floor	2.12 wi fr	1	1	2	no	Support	50
10	bottom floor	2.13 v grill	1	1	3	no	Control	25
11	bottom floor	2.14 d gla	1	1		no	Control	30
12	bottom floor	2.15 i-fin	1			no	Finishing	35
13	bottom floor	2.21 ti fr	1	2	4	no	Support	50
14	bottom floor	2.22 gw i	1	2		no	Control	75
15	bottom floor	2.23 va bai	1	2		no	Control	25
16	bottom floor	2.24 plb	1	2		no	Finishing	25
17	bottom floor	2.28 ti ba	1	2		no	Integration	30
18	bottom floor	2.29 mb-o	1	2		no	Control	25
19	bottom floor	3.11 fl fi	1			no	Finishing	30
20	bottom floor	4.11 rwp	1			no	Control	30
21	bottom floor	4.21 in p	1			no	Control	30
22	bottom floor	2.27 osb				no	Finishing	75
23	bottom floor	1.33 al i p				no	Integration	50
24	bottom floor	3.11 fl fi i				no	Finishing	30
25	bottom floor	1.21 st shc				yes	Support	
26	bottom floor	1.31 co fl				yes	Support	
27	bottom floor	2.11 ti fr				yes	Support	
28	bottom floor	2.21 ti fr				yes	Support	
29	top floor	1.21 st shc	2		5	no	Support	100
30	top floor	1.22 st b	2		5	no	Support	100
31	top floor	1.23 st t	2		5	no	Support	100
32	top floor	1.31 co fl	2		5	no	Support	100
33	top floor	2.11 ti fr	2			no	Support	50
34	top floor	2.12 wi fr	2	3	6	no	Support	50
35	top floor	2.13 v grill	2	3	7	no	Control	25
36	top floor	2.14 d gla	2	3		no	Control	30
37	top floor	2.15 i-fin	2			no	Finishing	35
38	top floor	2.21 ti fr	2	4	8	no	Support	50
39	top floor	2.22 gw i	2	4		no	Control	75
40	top floor	2.23 va bai	2	4		no	Control	25
41	top floor	2.24 plb	2	4		no	Finishing	25
42	top floor	2.28 ti ba	2	4		no	Integration	30
43	top floor	2.29 mb-o	2	4		no	Control	25
44	top floor	2.31 t ms	2			no	Support	100
45	top floor	2.32 r v ba	2			no	Control	15
46	top floor	2.33 r pf i	2			no	Control	75
47	top floor	2.34 t ep	2			no	Integration	30
48	top floor	3.11 fl fi	2			no	Finishing	30
49	top floor	4.11 rwp	2			no	Control	30
50	top floor	4.21 in p	2			no	Control	30
51	top floor	1.33 al i p				no	Integration	50
52	top floor	2.27 osb				no	Finishing	75
53	top floor	2.35 pr sl				no	Control	30
54	top floor	2.36 m cp				no	Control	50
55	top floor	3.11 fl fi i				no	Finishing	30
56	all	2.25 pw bu				no	Support	20
57	all	2.26 th ins				no	Control	75
58	all	2.28 ti ba				no	Integration	75
59	all	2.29 mb-o				no	Control	25
60	all	2.210 tcps				no	Finishing	15
61	top floor	1.21 st shc				yes	Support	
62	top floor	1.31 co fl				yes	Support	
63	top floor	2.11 ti fr				yes	Support	

Input level 2 - Part specification

Part specification								
No.	Floor indication	Part id	Level of prefabrication			Adjacent	Basic function	Technical lifespan
			Chunk	Assembly	Component	Part		
64	top floor	2.21 ti fr				yes	Support	
65	top floor	2.34 t ep				yes	Integration	
66	top floor	2.33 r pf i				yes	Control	
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Input level 3 - Design Structure Matrix

No.	Part id	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		
1	1.11 scfb	C2																																				
2	1.12 i-sbp		B1																																			
3	1.21 st shc			D3 D3				C2						C2						A1			A1															
4	1.22 st b				C2																																	
5	1.23 st t					C2																																
6	1.31 co fl						C2	C2																														
7	1.32 fl i								C2																													
8	2.11 ti fr									C2			C2																									
9	2.12 wi fr										C2	C2																										
10	2.13 v grill																																					
11	2.14 d gla																																					
12	2.15 i-fin																																					
13	2.21 ti fr															A1	C3	C2	C2	C3																		
14	2.22 gw i																A1			A1																		
15	2.23 va bai																	C2																				
16	2.24 plb																																					
17	2.28 ti ba																																					
18	2.29 mb-o																																					
19	3.11 fl fi																																					
20	4.11 rwp																																					
21	4.21 in p																																					
22	2.27 osb																																					
23	1.33 al i p																																					
24	3.11 fl fi i																																					
25	1.21 st shc																																					
26	1.31 co fl																																					
27	2.11 ti fr																																					
28	2.21 ti fr																																					
29	1.21 st shc																																					
30	1.22 st b																																					
31	1.23 st t																																					
32	1.31 co fl																																					
33	2.11 ti fr																																					
34	2.12 wi fr																																					
35	2.13 v grill																																					
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39	2.22 gw i																																					
40	2.23 va bai																																					
41	2.24 plb																																					
42	2.28 ti ba																																					
43	2.29 mb-o																																					
44	2.31 t ms																																					
45	2.32 r v ba																																					
46	2.33 r pf i																																					
47	2.34 t ep																																					
48	3.11 fl fi																																					
49	4.11 rwp																																					
50	4.21 in p																																					
51	1.33 al i p																																					
52	2.27 osb																																					
53	2.35 pr sl																																					
54	2.36 m cp																																					
55	3.11 fl fi i																																					
56	2.25 pw bu																																					
57	2.26 th ins																																					
58	2.28 ti ba																																					
59	2.29 mb-o																																					
60	2.210 tcps																																					
61	1.21 st shc																																					
62	1.31 co fl																																					
63	2.11 ti fr																																					
64	2.21 ti fr																																					



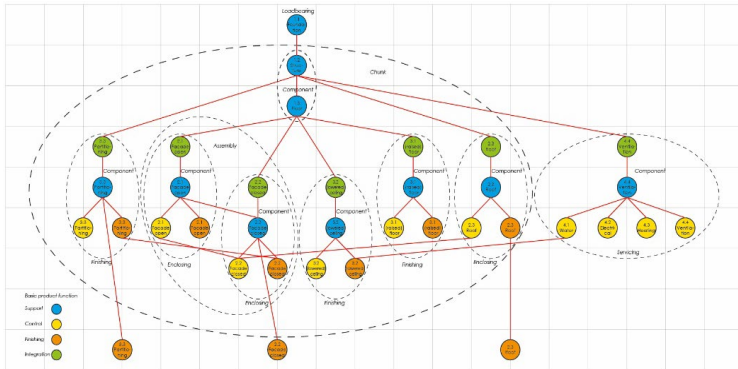
Reuse potential assessment scores

The reuse potential assessment scoring system is divided into three types of scores, namely:

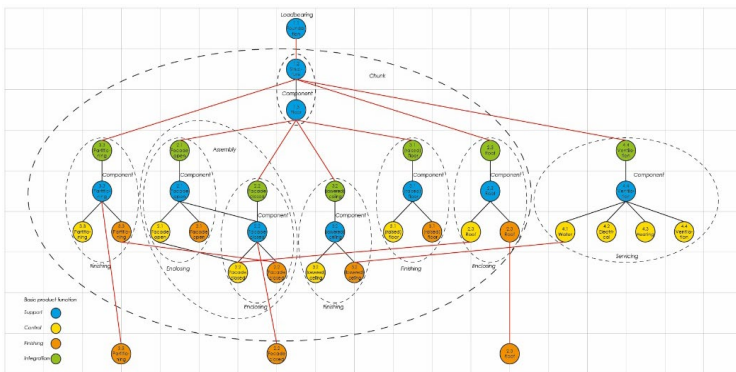
- Product score, to identify product specific scores, for each building sub function;
- System score, to identify system specific scores, for each main building system, and;
- Building score, to identify an overall score for the reuse potential of the building.

For each score, three types of disassembly level scores are identified, depending on the disassembly depth and its effect on the parts and their reuse potential. The following levels are defined, for which each level is assessed based on the figures that provide a conceptual representation of the connections that are taken into account:

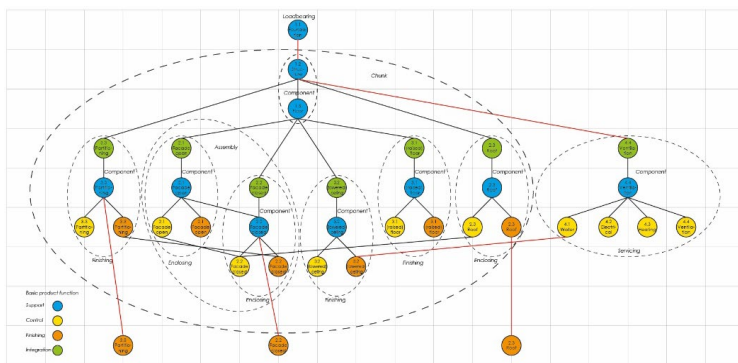
- Building disassembly



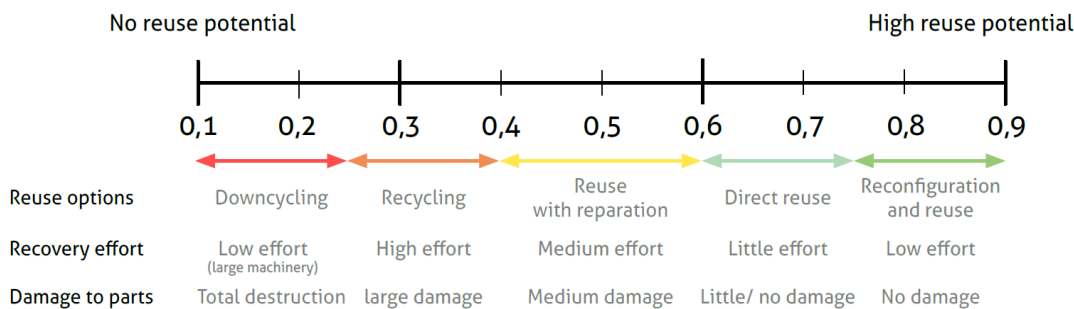
- System disassembly



- Product disassembly

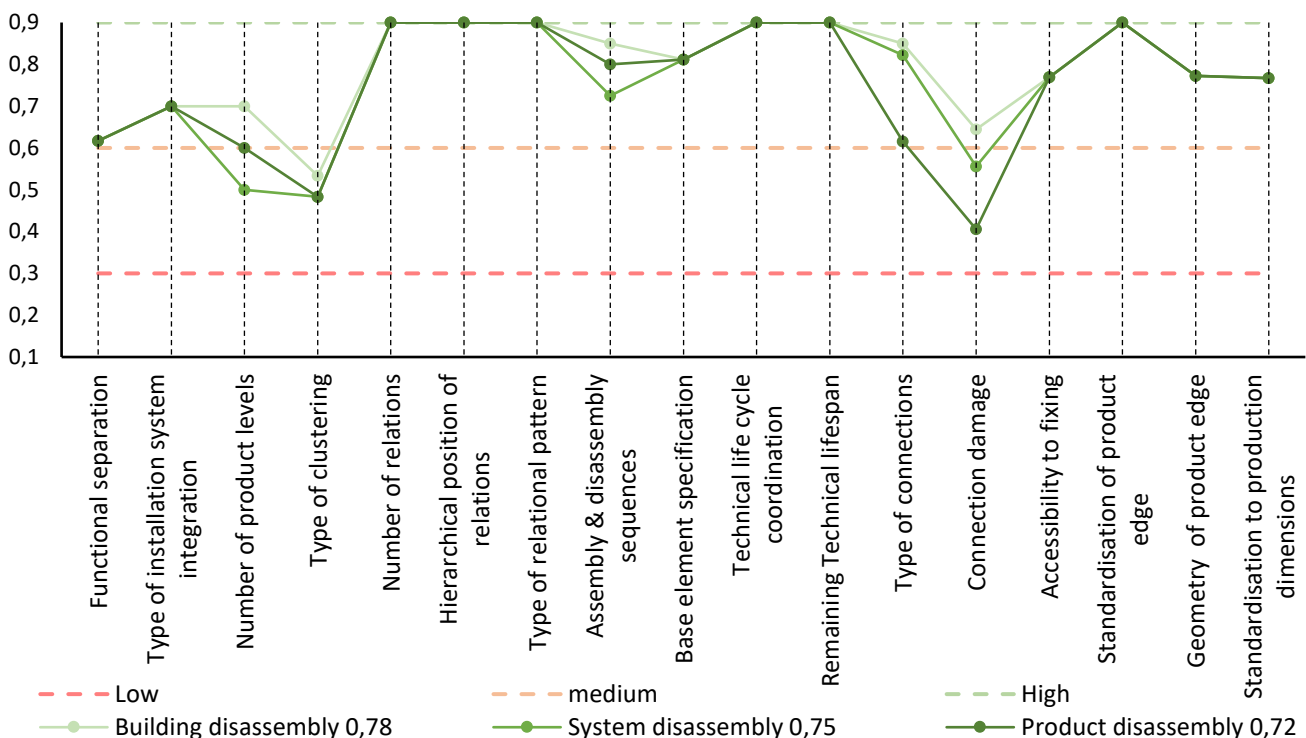


The interpretation of the assessment values can be done according to the following scheme



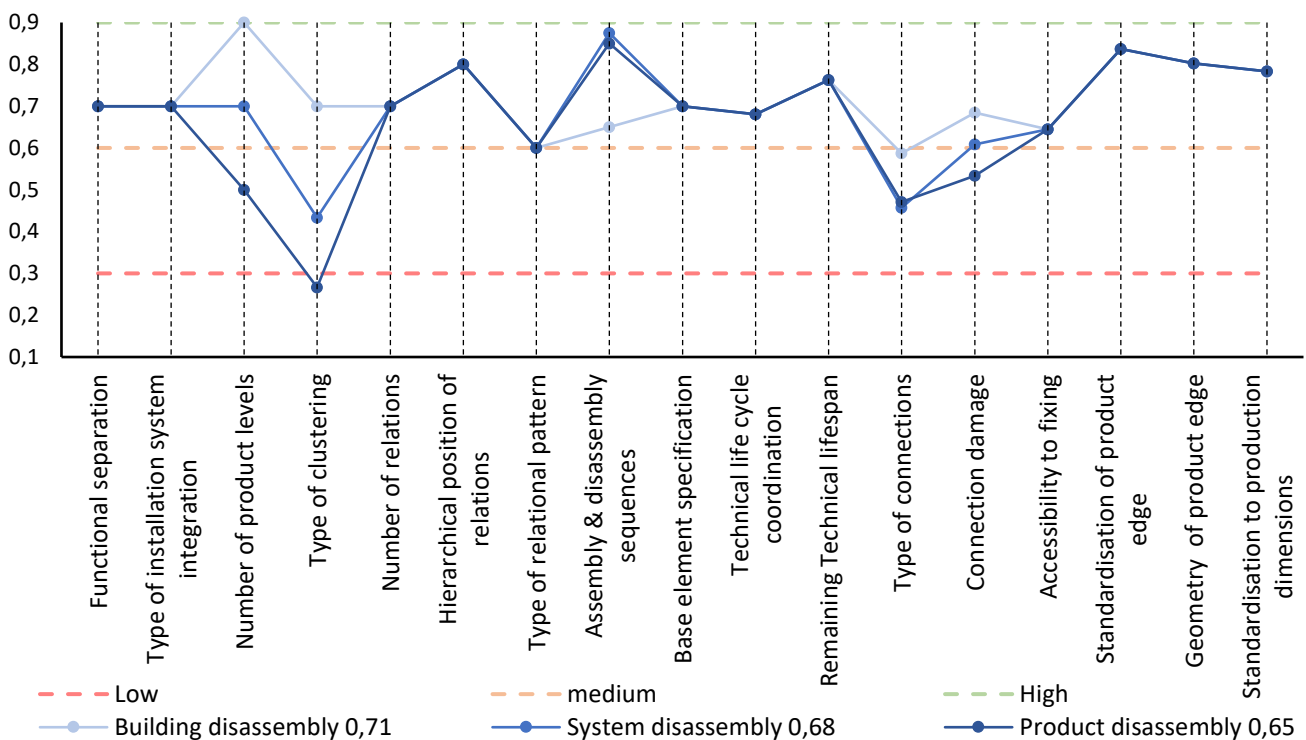
Reuse potential assessment	Product score											System score						
	Foundation			Structure				Floors				Factors	Loadbearing system					
	Building	disassembly	System	disassembly	Product	disassembly	Building	disassembly	System	disassembly	Product		disassembly	Building	disassembly	System	disassembly	Product
Category																		
Indicators																		
Criteria																		
Functional independency																		
Functional decomposition																		
F1 Functional separation	0,70	0,70	0,70	0,70	0,70	0,70	0,45	0,45	0,45	1	0,62	0,62	0,62					
Servicing integration																		
T1 Type of installation system integration	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1	0,70	0,70	0,70					
Systematisation of material levels																		
S1 Number of product levels	0,30	0,30	0,30	0,90	0,60	0,90	0,90	0,60	0,60	1	0,70	0,50	0,60					
S2 Type of clustering	0,10	0,10	0,10	0,90	0,90	0,90	0,60	0,45	0,45	1	0,53	0,48	0,48					
Technical independency																		
Relational pattern																		
R1 Number of relations	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	1	0,90	0,90	0,90					
R2 Hierarchical position of relations	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	1	0,90	0,90	0,90					
R3 Type of relational pattern	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	1	0,90	0,90	0,90					
Assembly																		
A1 Assembly & disassembly sequences	0,75	0,60	0,75	0,90	0,68	0,75	0,90	0,90	0,90	1	0,85	0,73	0,80					
Base element																		
B1 Base element specification	0,70	0,70	0,70	0,83	0,83	0,83	0,90	0,90	0,90	1	0,81	0,81	0,81					
Life cycle coordination																		
L1 Technical life cycle coordination	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	1	0,90	0,90	0,90					
L2 Remaining Technical lifespan	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	1	0,90	0,90	0,90					
Physical independency																		
Connections																		
C1 Type of connections	0,90	0,90	0,90	0,75	0,75	0,25	0,90	0,82	0,69	2	0,85	0,82	0,62					
C2 Connection damage	0,70	0,70	0,70	0,83	0,63	0,18	0,40	0,33	0,33	2	0,64	0,56	0,41					
Accessibility																		
AC1 Accessibility to fixing	0,90	0,90	0,90	0,63	0,63	0,63	0,78	0,78	0,78	1	0,77	0,77	0,77					
Geometry																		
G1 Standardisation of product edge	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	1	0,90	0,90	0,90					
G2 Geometry of product edge	0,60	0,60	0,60	0,90	0,90	0,90	0,82	0,82	0,82	1	0,77	0,77	0,77					
Resource Utilization																		
Resource input reduction																		
SP1 Standardisation to production dimensions	0,70	0,70	0,70	0,90	0,90	0,90	0,70	0,70	0,70	1	0,77	0,77	0,77					
Overall reuse potential rating	0,74	0,73	0,74	0,84	0,79	0,71	0,78	0,74	0,72		0,78	0,75	0,72					

Loadbearing system score 0,75



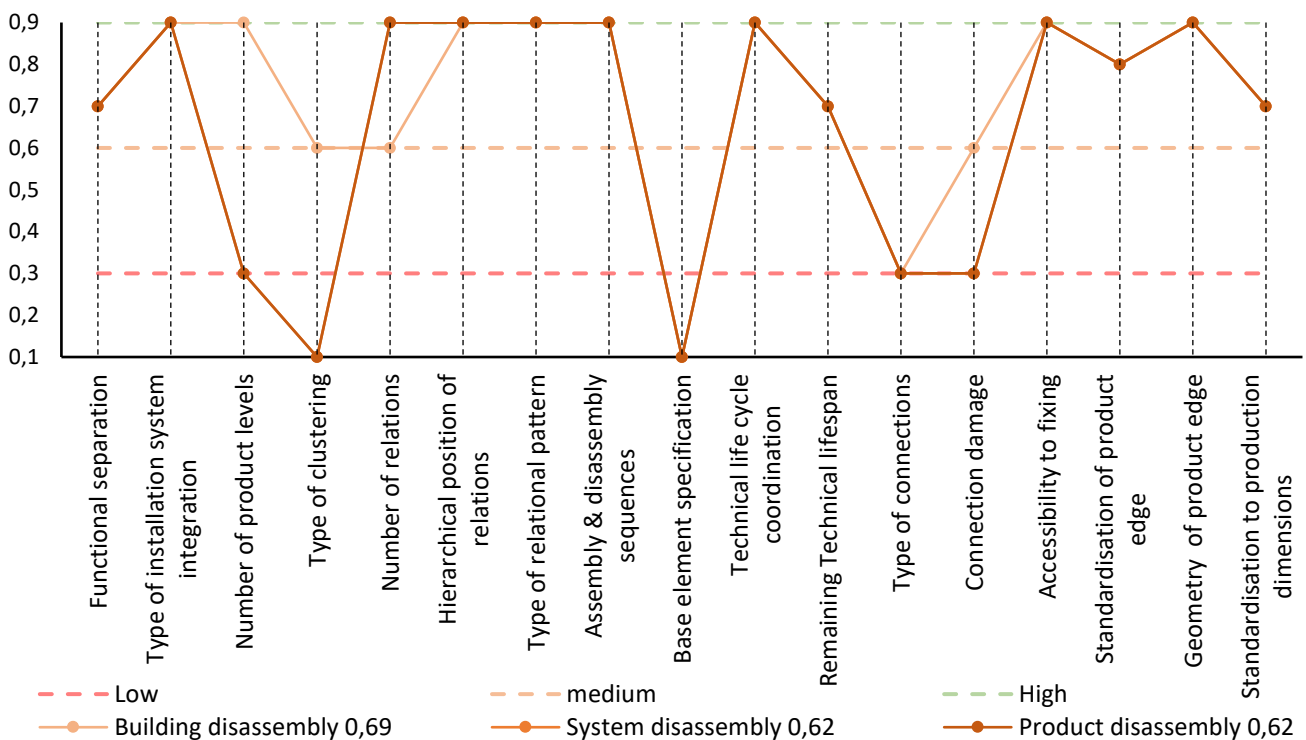
Reuse potential assessment		Product score										System score								
		Façade open			Façade closed			Roof			Factors	Enclosing system								
Category	Indicators	Building	disassembly	System	disassembly	Product	disassembly	Building	disassembly	System	disassembly	Product	disassembly	Factors	Building	disassembly	System	disassembly	Product	disassembly
Functional independency																				
Functional decomposition																				
	F1 Functional separation	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1	0,70	0,70	0,70			
Servicing integration																				
	T1 Type of installation system integration	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1	0,70	0,70	0,70			
Systematisation of material levels																				
	S1 Number of product levels	0,90	0,90	0,60	0,90	0,90	0,60	0,90	0,30	0,30	0,90	0,30	0,30	1	0,90	0,70	0,50			
	S2 Type of clustering	0,90	0,60	0,60	0,60	0,60	0,10	0,60	0,10	0,10	0,60	0,10	0,10	1	0,70	0,43	0,27			
Technical independency																				
Relational pattern																				
	R1 Number of relations	0,90	0,90	0,90	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	0,60	1	0,70	0,70	0,70			
	R2 Hierarchical position of relations	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,60	0,60	0,60	0,60	0,60	1	0,80	0,80	0,80			
	R3 Type of relational pattern	0,90	0,90	0,90	0,60	0,60	0,60	0,30	0,30	0,30	0,60	0,30	0,30	1	0,60	0,60	0,60			
Assembly																				
	A1 Assembly & disassembly sequences	0,60	0,90	0,90	0,75	0,90	0,90	0,60	0,83	0,75	0,60	0,83	0,75	1	0,65	0,88	0,85			
Base element																				
	B1 Base element specification	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	1	0,70	0,70	0,70			
Life cycle coordination																				
	L1 Technical life cycle coordination	0,75	0,75	0,75	0,77	0,77	0,77	0,52	0,52	0,52	0,52	0,52	0,52	1	0,68	0,68	0,68			
	L2 Remaining Technical lifespan	0,82	0,82	0,82	0,77	0,77	0,77	0,70	0,70	0,70	0,70	0,70	0,70	1	0,76	0,76	0,76			
Physical independency																				
Connections																				
	C1 Type of connections	0,90	0,40	0,40	0,46	0,45	0,50	0,40	0,52	0,52	0,40	0,52	0,52	2	0,59	0,46	0,47			
	C2 Connection damage	0,82	0,66	0,50	0,70	0,70	0,63	0,53	0,47	0,47	0,53	0,47	0,47	2	0,68	0,61	0,53			
Accessibility																				
	AC1 Accessibility to fixing	0,78	0,78	0,78	0,55	0,55	0,55	0,60	0,60	0,60	0,60	0,60	0,60	1	0,64	0,64	0,64			
Geometry																				
	G1 Standardisation of product edge	0,86	0,86	0,86	0,78	0,78	0,78	0,87	0,87	0,87	0,87	0,87	0,87	1	0,84	0,84	0,84			
	G2 Geometry of product edge	0,84	0,84	0,84	0,75	0,75	0,75	0,82	0,82	0,82	0,82	0,82	0,82	1	0,80	0,80	0,80			
Resource Utilization																				
Resource input reduction																				
	SP1 Standardisation to production dimensions	0,70	0,70	0,70	0,75	0,75	0,75	0,90	0,90	0,90	0,90	0,90	0,90	1	0,78	0,78	0,78			
Overall reuse potential rating		0,81	0,74	0,71	0,69	0,70	0,65	0,63	0,59	0,59	0,63	0,59	0,59		0,71	0,68	0,65			

Enclosing system score 0,68



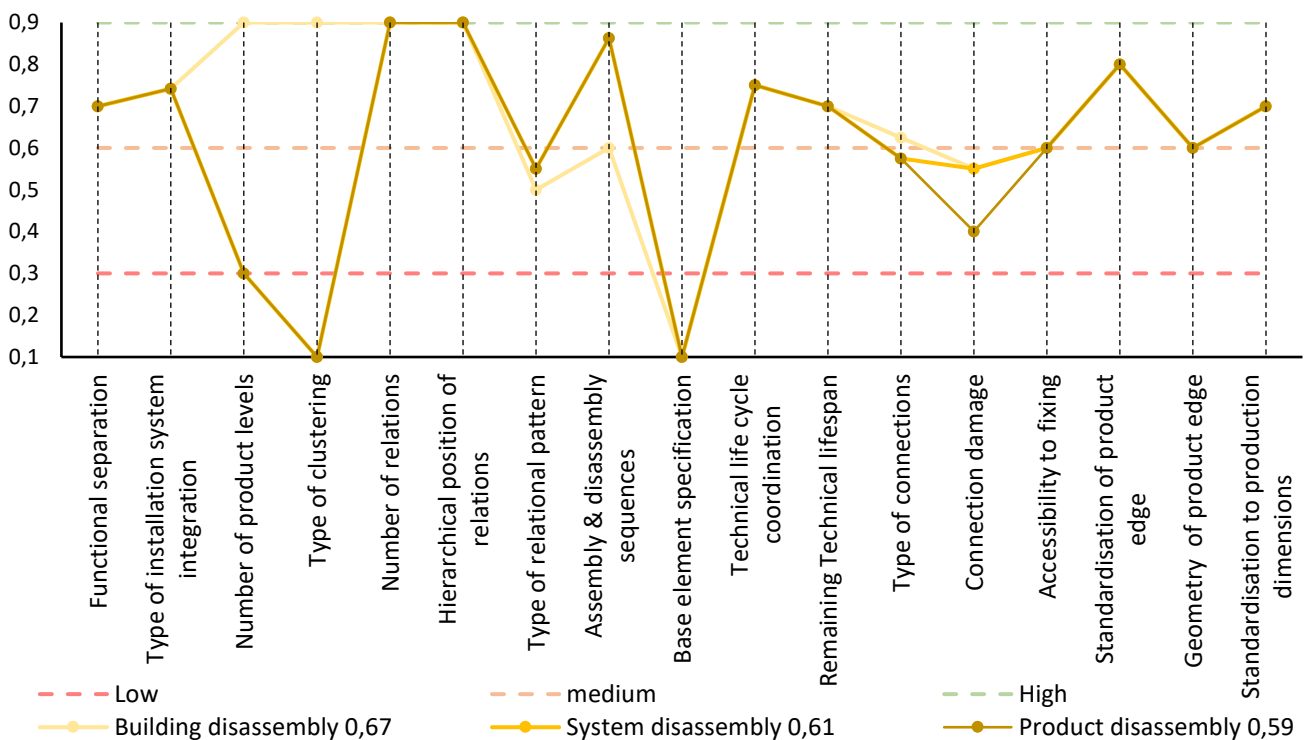
Reuse potential assessment	Product score														System score						
	(raised) Floor					(lowered) Ceiling				Partitioning			Stairs		Factors	Finishing system					
	Building	disassembly	System	disassembly	Product	Building	disassembly	System	disassembly	Product	Building	disassembly	System	Product	Building	disassembly	System	disassembly	Product	disassembly	
Category																					
Indicators																					
Criteria																					
Functional independency																					
Functional decomposition																					
F1 Functional separation	0,70	0,70	0,70																0,70	0,70	0,70
Servicing integration																					
T1 Type of installation system integration	0,90	0,90	0,90																0,90	0,90	0,90
Systematisation of material levels																					
S1 Number of product levels	0,90	0,30	0,30																0,90	0,30	0,30
S2 Type of clustering	0,60	0,10	0,10																0,60	0,10	0,10
Technical independency																					
Relational pattern																					
R1 Number of relations	0,60	0,90	0,90																0,60	0,90	0,90
R2 Hierarchical position of relations	0,90	0,90	0,90																0,90	0,90	0,90
R3 Type of relational pattern	0,90	0,90	0,90																0,90	0,90	0,90
Assembly																					
A1 Assembly & disassembly sequences	0,90	0,90	0,90																0,90	0,90	0,90
Base element																					
B1 Base element specification	0,10	0,10	0,10																0,10	0,10	0,10
Life cycle coordination																					
L1 Technical life cycle coordination	0,90	0,90	0,90																0,90	0,90	0,90
L2 Remaining Technical lifespan	0,70	0,70	0,70																0,70	0,70	0,70
Physical independency																					
Connections																					
C1 Type of connections	0,30	0,30	0,30																0,30	0,30	0,30
C2 Connection damage	0,60	0,30	0,30																0,60	0,30	0,30
Accessibility																					
AC1 Accessibility to fixing	0,90	0,90	0,90																0,90	0,90	0,90
Geometry																					
G1 Standardisation of product edge	0,80	0,80	0,80																0,80	0,80	0,80
G2 Geometry of product edge	0,90	0,90	0,90																0,90	0,90	0,90
Resource Utilization																					
Resource input reduction																					
SP1 Standardisation to production dimensions	0,70	0,70	0,70																0,70	0,70	0,70
Overall reuse potential rating	0,69	0,62	0,62																0,69	0,62	0,62

Finishing system score 0,65



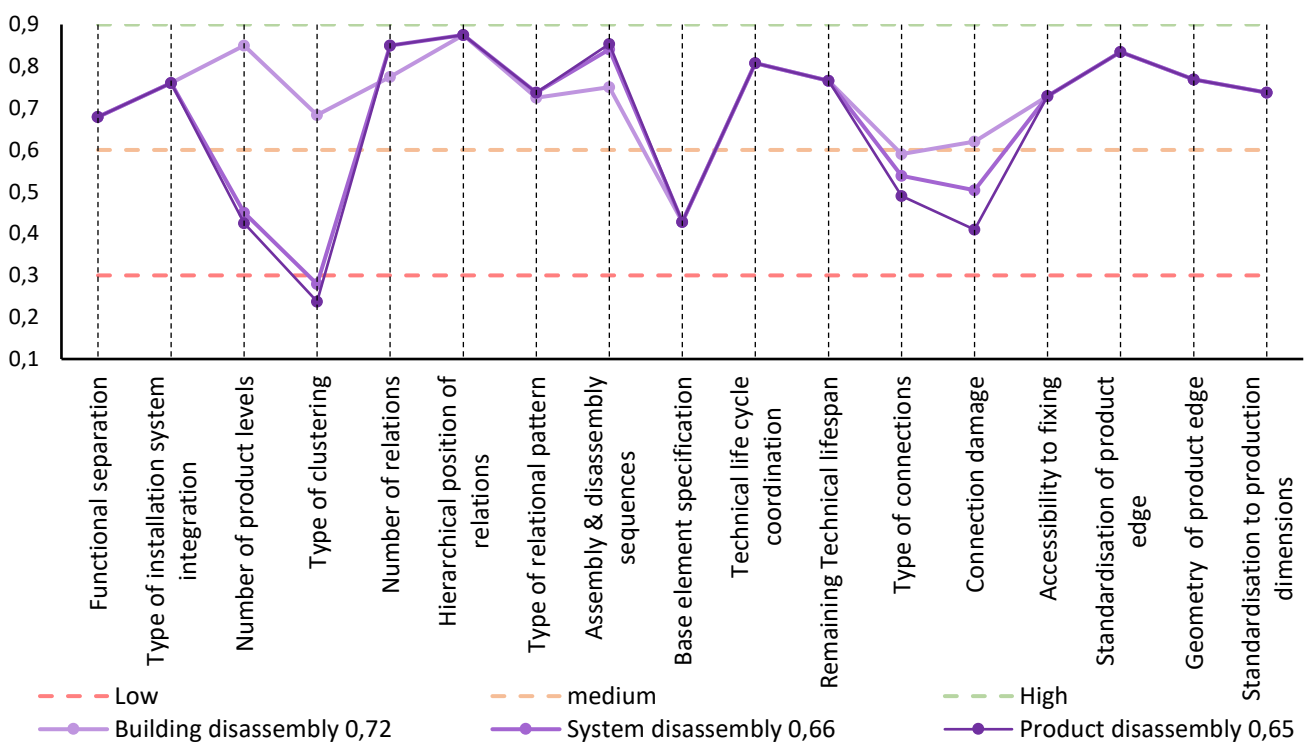
Reuse potential assessment	Product score															System score													
	Water					Electrical					Heating					Ventilation					Servicing system								
	Building	disassembly	System	disassembly	Product	Building	disassembly	System	disassembly	Product	Building	disassembly	System	disassembly	Product	Building	disassembly	System	disassembly	Product	Building	disassembly	System	disassembly	Product				
Functional independency																													
Functional decomposition																													
F1 Functional separation	0,70	0,70	0,70			0,70	0,70	0,70																		1	0,70	0,70	0,70
Servicing integration																													
T1 Type of installation system integration	0,75	0,75	0,75			0,73	0,73	0,73																		1	0,74	0,74	0,74
Systematisation of material levels																													
S1 Number of product levels	0,90	0,30	0,30			0,90	0,30	0,30																	1	0,90	0,30	0,30	
S2 Type of clustering	0,90	0,10	0,10			0,90	0,10	0,10																1	0,90	0,10	0,10		
Technical independency																													
Relational pattern																													
R1 Number of relations	0,90	0,90	0,90			0,90	0,90	0,90																	1	0,90	0,90	0,90	
R2 Hierarchical position of relations	0,90	0,90	0,90			0,90	0,90	0,90																	1	0,90	0,90	0,90	
R3 Type of relational pattern	0,10	0,20	0,20			0,90	0,90	0,90																	1	0,50	0,55	0,55	
Assembly																													
A1 Assembly & disassembly sequences	0,60	0,83	0,83			0,60	0,90	0,90																	1	0,60	0,86	0,86	
Base element																													
B1 Base element specification	0,10	0,10	0,10			0,10	0,10	0,10																	1	0,10	0,10	0,10	
Life cycle coordination																													
L1 Technical life cycle coordination	0,60	0,60	0,60			0,90	0,90	0,90																	1	0,75	0,75	0,75	
L2 Remaining Technical lifespan	0,70	0,70	0,70			0,70	0,70	0,70																	1	0,70	0,70	0,70	
Physical independency																													
Connections																													
C1 Type of connections	0,85	0,75	0,75			0,40	0,40	0,40																	2	0,63	0,58	0,58	
C2 Connection damage	0,60	0,60	0,30			0,50	0,50	0,50																	2	0,55	0,55	0,40	
Accessibility																													
AC1 Accessibility to fixing	0,30	0,30	0,30			0,90	0,90	0,90																	1	0,60	0,60	0,60	
Geometry																													
G1 Standardisation of product edge	0,90	0,90	0,90			0,70	0,70	0,70																	1	0,80	0,80	0,80	
G2 Geometry of product edge	0,30	0,30	0,30			0,90	0,90	0,90																	1	0,60	0,60	0,60	
Resource Utilization																													
Resource input reduction																													
SP1 Standardisation to production dimensions	0,70	0,70	0,70			0,70	0,70	0,70																	1	0,70	0,70	0,70	
Overall reuse potential rating	0,64	0,58	0,55			0,70	0,64	0,64																		0,67	0,61	0,59	

Servicing system score 0,62

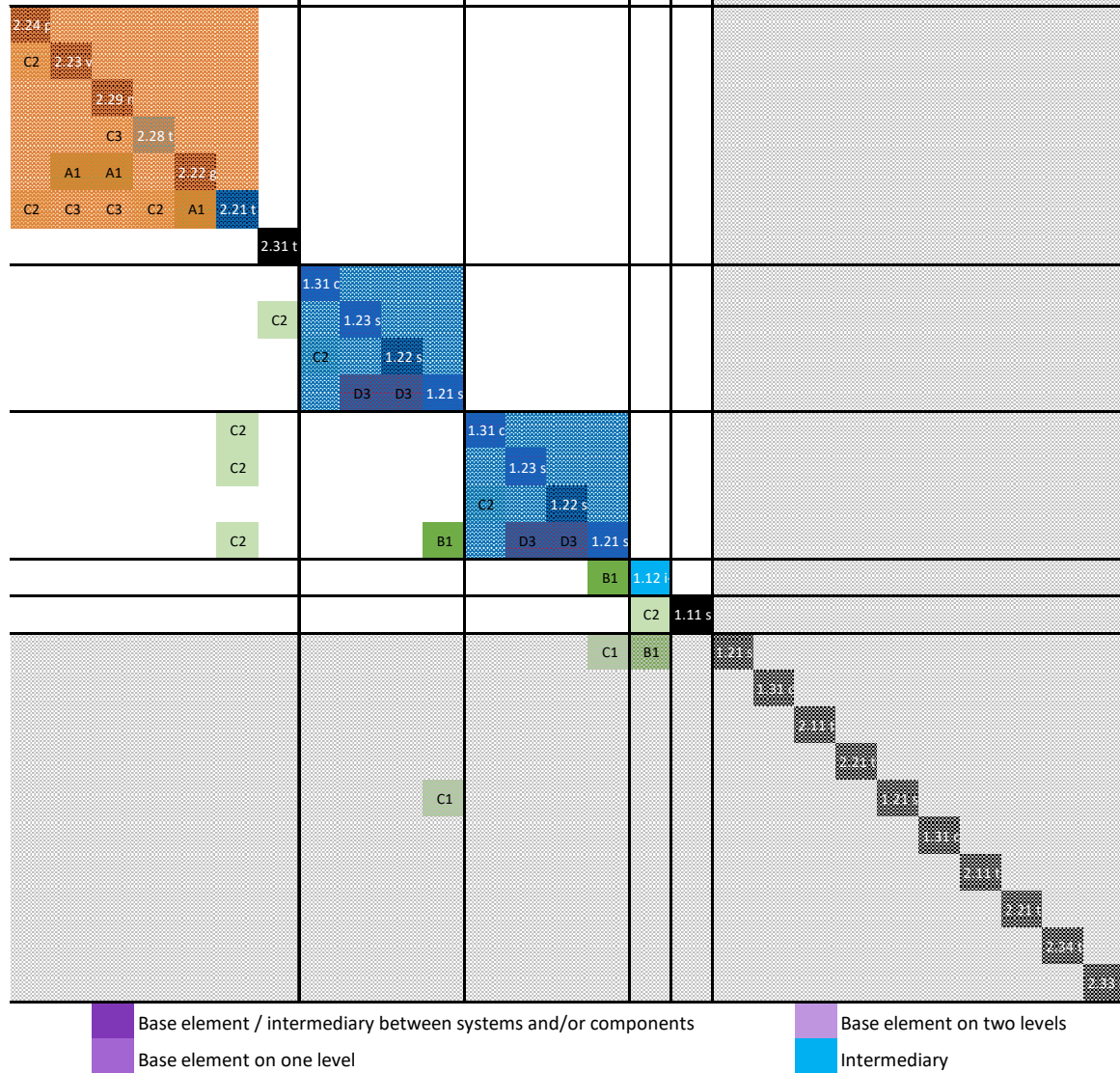


Reuse potential assessment				Building score			
Category				Building disassembly	System disassembly	Product disassembly	Factors
Indicators							
Criteria							
Functional independency							
Functional decomposition							
F1 Functional separation				0,68	0,68	0,68	1
Servicing integration							
T1 Type of installation system integration				0,76	0,76	0,76	1
Systematisation of material levels							
S1 Number of product levels				0,85	0,45	0,43	1
S2 Type of clustering				0,68	0,28	0,24	1
Technical independency							
Relational pattern							
R1 Number of relations				0,78	0,85	0,85	1
R2 Hierarchical position of relations				0,88	0,88	0,88	1
R3 Type of relational pattern				0,73	0,74	0,74	1
Assembly							
A1 Assembly & disassembly sequences				0,75	0,84	0,85	1
Base element							
B1 Base element specification				0,43	0,43	0,43	1
Life cycle coordination							
L1 Technical life cycle coordination				0,81	0,81	0,81	1
L2 Remaining Technical lifespan				0,77	0,77	0,77	1
Physical independency							
Connections							
C1 Type of connections				0,59	0,54	0,49	2
C2 Connection damage				0,62	0,50	0,41	2
Accessibility							
AC1 Accessibility to fixing				0,73	0,73	0,73	1
Geometry							
G1 Standardisation of product edge				0,83	0,83	0,83	1
G2 Geometry of product edge				0,77	0,77	0,77	1
Resource Utilization							
Resource input reduction							
SP1 Standardisation to production dimensions				0,74	0,74	0,74	1
Overall reuse potential rating				0,72	0,66	0,65	

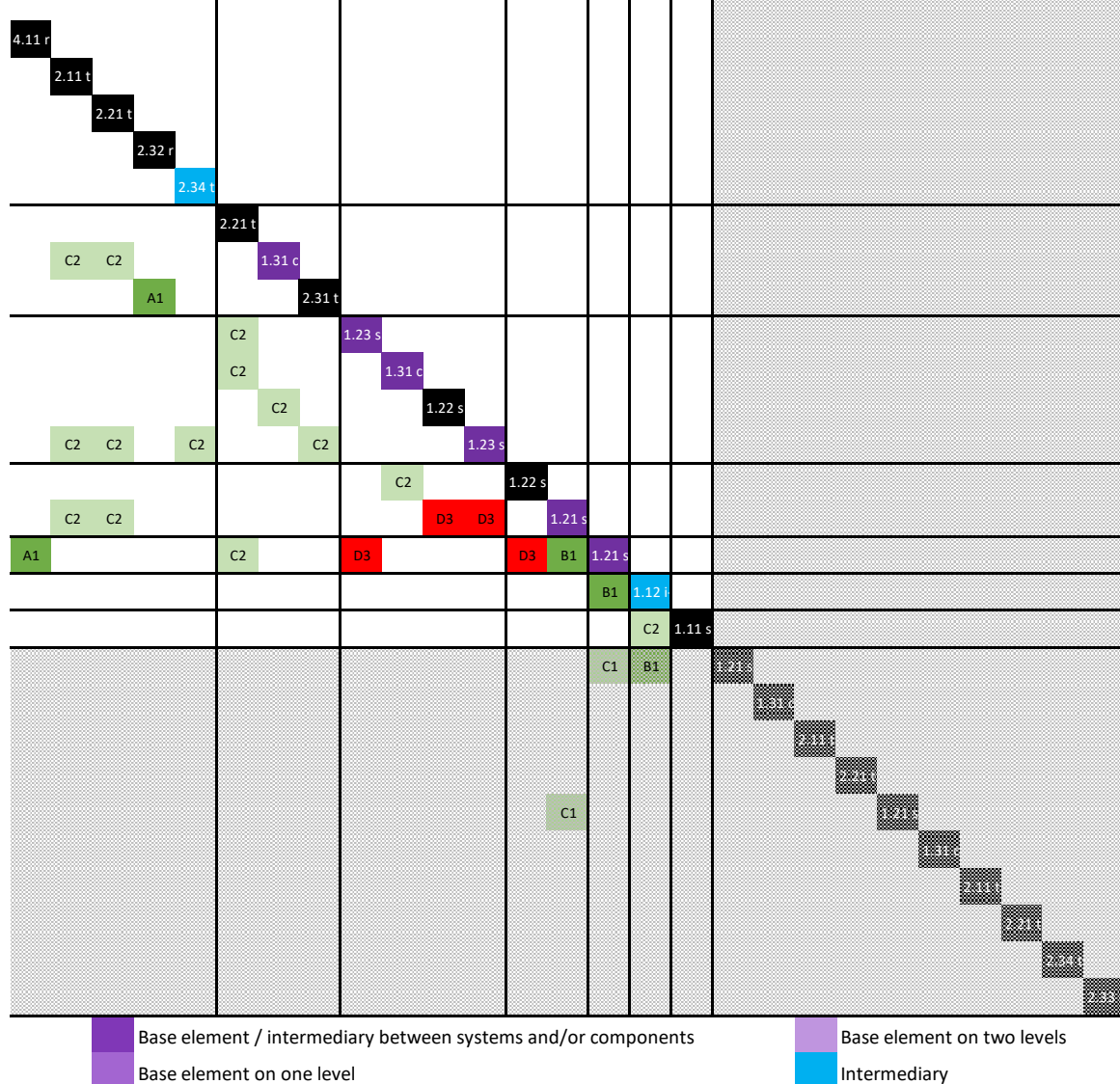
Building score 0,68



	2.24 plb	2.23 va bai	2.29 mb-o	2.28 ti ba	2.22 gw l	2.21 ti fr	2.31 t ms	1.31 co fl	1.23 st t	1.22 st b	1.21 st shc	1.31 co fl	1.23 st t	1.22 st b	1.21 st shc	1.12 i-sbp	1.11 scfb	1.21 st shc	1.31 co fl	2.11 ti fr	2.21 ti fr	1.21 st shc	1.31 co fl	2.11 ti fr	2.21 ti fr	2.34 t ep	2.33 r pfi												
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Element	Component	Floor	Level	Reuse Potential
4.11 rwp	Component8	bottom floor	0	20
2.11 ti fr	Element	top floor	4	33
2.21 ti fr	Component8	top floor	4	38
2.32 rv ba	Element	top floor	4	45
2.34 tep	Element	top floor	4	47
2.21 ti fr	Component4	bottom floor	5	13
1.31 co fl	Component5	top floor	5	32
2.31 t ms	Element	top floor	5	44
1.23 st t	Component1	bottom floor	6	5
1.31 co fl	Component1	bottom floor	6	6
1.22 st b	Component5	top floor	6	30
1.23 st t	Component5	top floor	6	31
1.22 st b	Component1	bottom floor	7	4
1.21 st shc	Component5	top floor	7	29
1.21 st shc	Component1	bottom floor	8	3
1.12 i-sbp	Element	bottom floor	9	2
1.11 scfb	Element	bottom floor	10	1
1.21 st shc	adjacent	bottom floor	0	25
1.31 co fl	adjacent	bottom floor	0	26
2.11 ti fr	adjacent	bottom floor	0	27
2.21 ti fr	adjacent	bottom floor	0	28
1.21 st shc	adjacent	top floor	0	61
1.31 co fl	adjacent	top floor	0	62
2.11 ti fr	adjacent	top floor	0	63
2.21 ti fr	adjacent	top floor	0	64
2.34 tep	adjacent	top floor	0	65
2.33 r pfi	adjacent	top floor	0	66



REUSE POTENTIAL ASSESSMENT SPECIFICATION

Content	<i>Differentiation between building / system / product disassembly</i>	
Functional decomposition		
F1 Functional separation	✗	
Servicing integration		
T1 Type of installation system integration	✗	
Systematisation of material levels		
S1 Number of product levels	✓	
S2 Type of clustering	✓	
Relational pattern		
R1 Number of relations	✓	
R2 Hierarchical position of relations	✓	
R3 Type of relational pattern	✓	
Assembly		
A1 Assembly & disassembly sequences	✓	
Base element		
B1 Base element specification	✗	
Life cycle coordination		
L1 Technical life cycle coordination	✗	
L2 Remaining Technical lifespan	✗	
Connections		
C1 Type of connections	✓	
C2 Connection damage	✓	
Accessibility		
AC1 Accessibility to fixing	✗	
Geometry		
G1 Standardisation of product edge	✗	
G2 Geometry of product edge	✗	
Resource input reduction		
SP1 Standardisation to production dimensions	✗	

Rating - Functional separation

Building level / System level / Product level assessment											
Floor / system indication	Functional separation - generic functionality (FSgf) *			Functional separation - sub-functions (FSf) **			Functional separation - basic functions (FSf) **			Functional separation assessment ***	
	# parts with generic functionality		Rating	# parts with multiple sub-functions		Rating	# parts with multiple basic functions		Rating	Total number of parts P (x)	Rating
	functionality	% of total	(FSgfA)	functions	% of total	(FSfA)	functions	% of total	(FSfA)		(FSA)
Bottom floor											
1. Loadbearing											
1.1 Foundation	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	2	0,70
1.2 Structure	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	3	0,70
1.3 Floors	0	0,0%	+0,00	1	33,3%	0,30	0	0,0%	0,70	3	0,50
2. Enclosing											
2.1 Façade open	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	5	0,70
2.2 Façade closed	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	12	0,70
2.3 Roof	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
3. Finishing											
3.1 (raised) Floor	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	2	0,70
3.2 (lowered) Ceiling	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
3.3 Partitioning	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
3.4 Stairs	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
4. Servicing											
4.1 Water	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	1	0,70
4.2 Electrical	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	1	0,70
4.3 Heating	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
4.4 Ventilation	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
Top Floor											
1. Loadbearing											
1.1 Foundation	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
1.2 Structure	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	3	0,70
1.3 Floors	0	0,0%	+0,00	1	50,0%	0,10	0	0,0%	0,70	2	0,40
2. Enclosing											
2.1 Façade open	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	5	0,70
2.2 Façade closed	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	12	0,70
2.3 Roof	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	6	0,70
3. Finishing											
3.1 (raised) Floor	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	2	0,70
3.2 (lowered) Ceiling	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
3.3 Partitioning	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
3.4 Stairs	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
4. Servicing											
4.1 Water	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	1	0,70
4.2 Electrical	0	0,0%	+0,00	0	0,0%	0,70	0	0,0%	0,70	1	0,70
4.3 Heating	0	0,0%	+0,00	0	0,0%		0	0,0%		0	
4.4 Ventilation	0	0,0%	+0,00	0	0,0%		0	0,0%		0	

Functional separation - Assessment values			
* Rating is based on the percentage of sub-systems or components that are designed in such a way that they can be directly reused as another sub-function, according to formula 1 and 2, which allows the assessment value to be increased with 0,2 if 30% or more is identified as a generic function.			
** Rating is based on the percentage of parts that represent multiple sub-functions or multiple basic element functions (except for parts with another basic element function being finishing), according to formula 3 and 4.			
*** Rating according to formula 5.			
Types of functional separation	Max FSr	Discount value (Dv)	Rating (at 100%)
1 Components with generic functions	0,3	+0,20	0,90
2 Elements with one function	0,7	0	0,70
3 Element with more than one sub-function/ basic function	0,5	-0,60	0,10

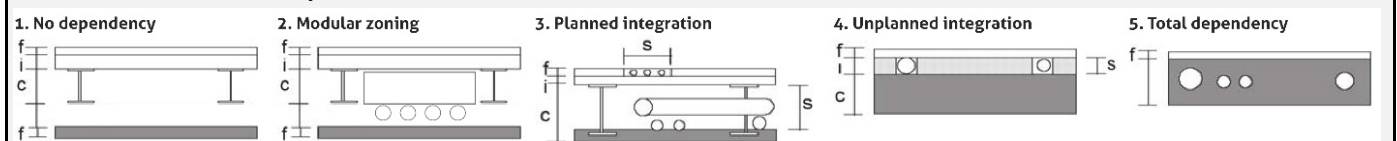
Formulas	
1. $FSgf(x) = FSgf(x) / \sum P(x)$	4. $FSfA(x) = 0,7 - (FSf(x) / \text{Max FSr}) * Dv(3)$
2. $FSgfA(x) = (FSgf(x) / \text{Max FSr}) * Dv(1)$	5. $FSA(x) = (FSfA(\text{sub-functions})(x) + FSfA(\text{basic functions})(x)) / 2 + FSgfA(x)$
3. $FSf(x) = FSf(x) / \sum P(x)$	Assessment startvalue 0,7
Abbreviations	
P (x)	Number of parts
Max FSr (x)	Maximum functional separation rating
Dv(x)	Discount value
FSgf(x)	Products with generic functionality ratio
FSgfA	Functional separation - generic functionality assessment
FSf (x)	Parts with more than one sub-/basic-function ratio
FSfA (x)	Functional separation - sub-/basic functions assessment
FSA(x)	Functional separation assessment

Rating - Type of installation system integration

Building level / System level / Product level assessment			
Floor / system indication	Rating main distribution	Rating sub-distribution	Average rating
Building level			
1. Loadbearing			
1.1 Foundation			0,70
1.2 Structure			0,70
1.3 Floors	0,70	0,70	0,70
2. Enclosing			
2.1 Façade open			0,70
2.2 Façade closed		0,70	0,70
2.3 Roof			0,70
3. Finishing			
3.1 (raised) Floor		0,90	0,90
3.2 (lowered) Ceiling			
3.3 Partitioning			
3.4 Stairs			
4. Servicing			
4.1 Water	0,70	0,80	0,75
4.2 Electrical	0,70	0,77	0,73
4.3 Heating			
4.4 Ventilation			

Type of installation integration - Assessment values

Depending on the type of integration of the installation system in the building, the installation will enable modification or additions in a non-destructive manner, which in turn would allow the subtracted building products to be reused. To assess the incorporation of installation systems in a building five types of integration are defined, which will be used to evaluate the integration of both, the main distribution and sub-distribution of all four types of installations (water, electrical, heating and ventilation system). Five types of integration are defined based on Durmisevic (2006), as shown in the figure below, which are evaluated based on the assessment values defined below.



Types of integration		Rating
1. No dependency	Installation system has no dependency or relation with the determined building function	
2. Modular zoning	Dedicated area is used where installations are clustered and easily accessible for modifications	0,9
3. Planned integration	Specified area is dedicated for the installations, which allows for minor modifications or additions	0,7
4. Unplanned integration	Installation is accessible, but integrated with no excess space for future modifications or additions	0,3
5. Total dependence	Installation is entirely integrated in the buildings, only accessible in a destructive manner	0,1

Rating - Number of product levels

Building level assessment							
<i>Number of prefabricated product per level in the building</i>							
<i>Floor indication</i>	<i>Materials</i>	<i>Elements</i>	<i>Components</i>	<i>Assemblies</i>	<i>Chunks</i>	<i>Functional layers is composed of</i>	Rating
Bottom floor							
1. Loadbearing							
1.1 Foundation	0	> 1	0	0	0	Elements	0,3
1.2 Structure	0	0	0	0	3	Elements, components, assemblies & chunks	0,9
1.3 Floors	0	> 1	0	0	2	Elements, components, assemblies & chunks	0,9
2. Enclosing							
2.1 Façade open	0	0	0	0	5	Elements, components, assemblies & chunks	0,9
2.2 Façade closed	0	> 1	0	0	6	Elements, components, assemblies & chunks	0,9
2.3 Roof	0	0	0	0	0		
3. Finishing							
3.1 (raised) Floor	0	> 1	0	0	1	Elements, components, assemblies & chunks	0,9
3.2 (lowered) Ceiling	0	0	0	0	0		
3.3 Partitioning	0	0	0	0	0		
3.4 Stairs	0	0	0	0	0		
4. Servicing							
4.1 Water	0	0	0	0	1	Elements, components, assemblies & chunks	0,9
4.2 Electrical	0	0	0	0	1	Elements, components, assemblies & chunks	0,9
4.3 Heating	0	0	0	0	0		
4.4 Ventilation	0	0	0	0	0		
Top Floor							
1. Loadbearing							
1.1 Foundation	0	0	0	0	0		
1.2 Structure	0	0	0	0	3	Elements, components, assemblies & chunks	0,9
1.3 Floors	0	> 1	0	0	1	Elements, components, assemblies & chunks	0,9
2. Enclosing							
2.1 Façade open	0	0	0	0	5	Elements, components, assemblies & chunks	0,9
2.2 Façade closed	0	> 1	0	0	6	Elements, components, assemblies & chunks	0,9
2.3 Roof	0	> 1	0	0	4	Elements, components, assemblies & chunks	0,9
3. Finishing							
3.1 (raised) Floor	0	> 1	0	0	1	Elements, components, assemblies & chunks	0,9
3.2 (lowered) Ceiling	0	0	0	0	0		
3.3 Partitioning	0	0	0	0	0		
3.4 Stairs	0	0	0	0	0		
4. Servicing							
4.1 Water	0	0	0	0	1	Elements, components, assemblies & chunks	0,9
4.2 Electrical	0	0	0	0	1	Elements, components, assemblies & chunks	0,9
4.3 Heating	0	0	0	0	0		
4.4 Ventilation	0	0	0	0	0		

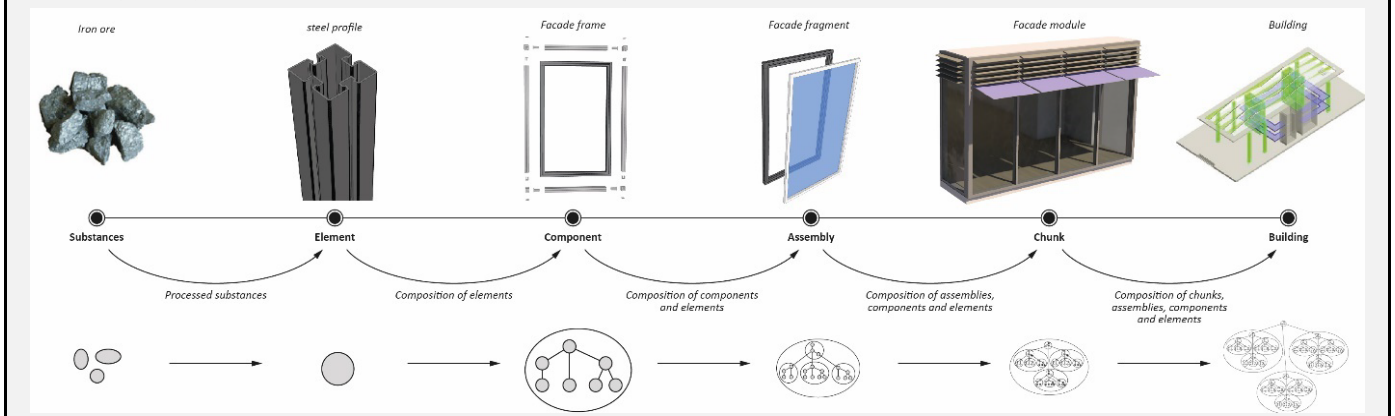
Rating - Number of product levels

System level assessment							
Number of prefabricated product per level in the building							
Floor indication	Materials	Elements	Components	Assemblies	Chunks	Functional layers is composed of	Rating
Bottom floor							
1. Loadbearing							
1.1 Foundation	0	> 1	0	0		Elements	0,3
1.2 Structure	0	0	3	0		Elements & components	0,6
1.3 Floors	0	> 1	1	0		Elements & components	0,6
2. Enclosing							
2.1 Façade open	0	> 1	0	3		Elements, components & assemblies	0,9
2.2 Façade closed	0	> 1	0	6		Elements, components & assemblies	0,9
2.3 Roof	0	0	0	0			
3. Finishing							
3.1 (raised) Floor	0	> 1	0	0		Elements	0,3
3.2 (lowered) Ceiling	0	0	0	0			
3.3 Partitioning	0	0	0	0			
3.4 Stairs	0	0	0	0			
4. Servicing							
4.1 Water	0	> 1	0	0		Elements	0,3
4.2 Electrical	0	> 1	0	0		Elements	0,3
4.3 Heating	0	0	0	0			
4.4 Ventilation	0	0	0	0			
Top Floor							
1. Loadbearing							
1.1 Foundation	0	0	0	0			
1.2 Structure	0	0	3	0		Elements & components	0,6
1.3 Floors	0	> 1	1	0		Elements & components	0,6
2. Enclosing							
2.1 Façade open	0	> 1	0	3		Elements, components & assemblies	0,9
2.2 Façade closed	0	> 1	0	6		Elements, components & assemblies	0,9
2.3 Roof	0	> 1	0	0		Elements	0,3
3. Finishing							
3.1 (raised) Floor	0	> 1	0	0		Elements	0,3
3.2 (lowered) Ceiling	0	0	0	0			
3.3 Partitioning	0	0	0	0			
3.4 Stairs	0	0	0	0			
4. Servicing							
4.1 Water	0	> 1	0	0		Elements	0,3
4.2 Electrical	0	> 1	0	0		Elements	0,3
4.3 Heating	0	0	0	0			
4.4 Ventilation	0	0	0	0			

Number of material levels - Assessment values

Building level and system level assessment

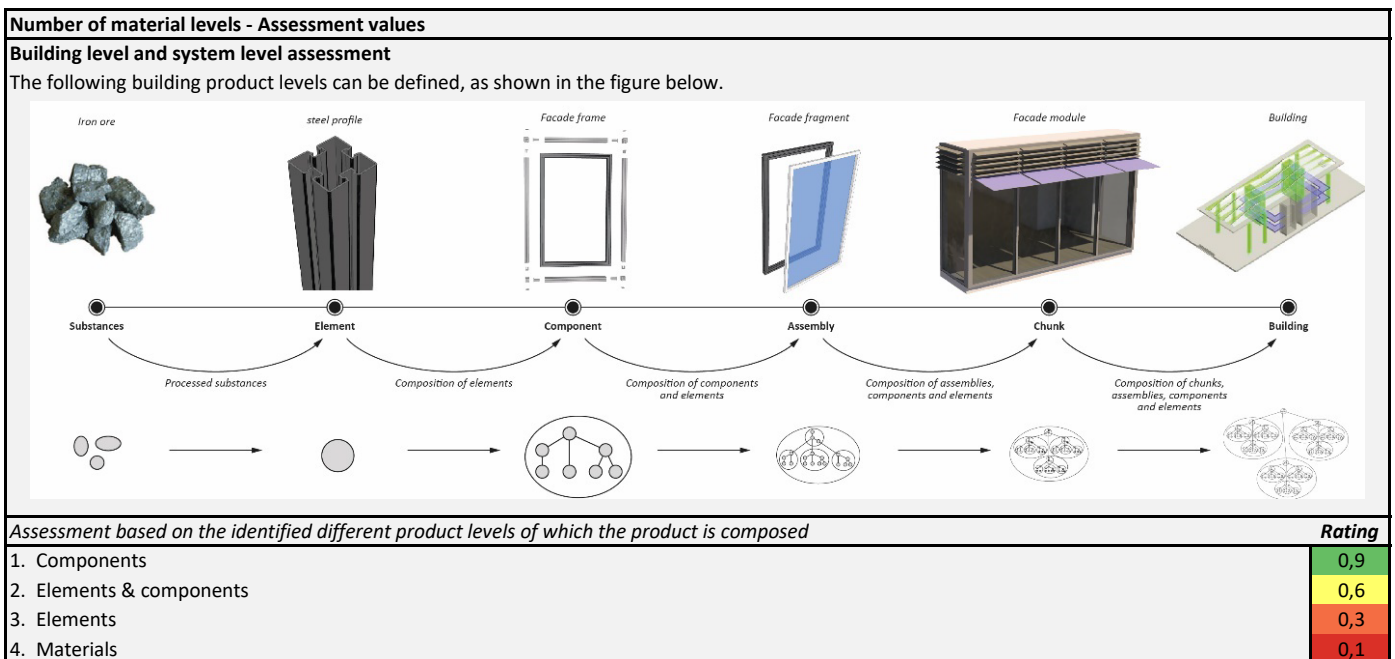
The following building product levels can be defined, as shown in the figure below.



Assessment based on the identified different product levels of which the building or system is composed	Rating
1. Elements, components, assemblies & chunks	0,9
2. Elements, components & assemblies	0,9
3. Elements & components	0,6
4. Elements	0,3
5. Materials	0,1

Rating - Number of product levels

Product level assessment							
Number of prefabricated product per level in the building							
Floor indication	Materials	Elements	Components	Assemblies	Chunks	Functional layers is composed of	Rating
Bottom floor							
1. Loadbearing							
1.1 Foundation	0	> 1	0			Elements	0,3
1.2 Structure	0	0	3			Components	0,9
1.3 Floors	0	> 1	1			Elements & components	0,6
2. Enclosing							
2.1 Façade open	0	> 1	2			Elements & components	0,6
2.2 Façade closed	0	> 1	1			Elements & components	0,6
2.3 Roof	0	0	0				
3. Finishing							
3.1 (raised) Floor	0	> 1	0			Elements	0,3
3.2 (lowered) Ceiling	0	0	0				
3.3 Partitioning	0	0	0				
3.4 Stairs	0	0	0				
4. Servicing							
4.1 Water	0	> 1	0			Elements	0,3
4.2 Electrical	0	> 1	0			Elements	0,3
4.3 Heating	0	0	0				
4.4 Ventilation	0	0	0				
Top Floor							
1. Loadbearing							
1.1 Foundation	0	0	0				
1.2 Structure	0	0	3			Components	0,9
1.3 Floors	0	> 1	1			Elements & components	0,6
2. Enclosing							
2.1 Façade open	0	> 1	2			Elements & components	0,6
2.2 Façade closed	0	> 1	1			Elements & components	0,6
2.3 Roof	0	> 1	0			Elements	0,3
3. Finishing							
3.1 (raised) Floor	0	> 1	0			Elements	0,3
3.2 (lowered) Ceiling	0	0	0				
3.3 Partitioning	0	0	0				
3.4 Stairs	0	0	0				
4. Servicing							
4.1 Water	0	> 1	0			Elements	0,3
4.2 Electrical	0	> 1	0			Elements	0,3
4.3 Heating	0	0	0				
4.4 Ventilation	0	0	0				



Rating - Type of clustering

Product level assessment									
Floor / system indication	Total	Number of parts				Ratio	Rating		
		Adjacent	non-adjacent	Chunk	Assembly			Component	Element
Bottom floor									
1. Loadbearing									
1.1 Foundation	2	0	2	0	0	0	2	0,0%	0,1
1.2 Structure	4	1	3	3	0	0	0	100,0%	0,9
1.3 Floors	4	1	3	2	0	0	1	66,7%	0,6
2. Enclosing									
2.1 Façade open	6	1	5	5	0	0	0	100,0%	0,9
2.2 Façade closed	13	1	12	6	0	0	6	50,0%	0,6
2.3 Roof	0	0	0	0	0	0	0		
3. Finishing									
3.1 (raised) Floor	2	0	2	1	0	0	1	50,0%	0,6
3.2 (lowered) Ceiling	0	0	0	0	0	0	0		
3.3 Partitioning	0	0	0	0	0	0	0		
3.4 Stairs	0	0	0	0	0	0	0		
4. Servicing									
4.1 Water	1	0	1	1	0	0	0	100,0%	0,9
4.2 Electrical	1	0	1	1	0	0	0	100,0%	0,9
4.3 Heating	0	0	0	0	0	0	0		
4.4 Ventilation	0	0	0	0	0	0	0		
Top floor									
1. Loadbearing									
1.1 Foundation	0	0	0	0	0	0	0		
1.2 Structure	4	1	3	3	0	0	0	100,0%	0,9
1.3 Floors	3	1	2	1	0	0	1	50,0%	0,6
2. Enclosing									
2.1 Façade open	6	1	5	5	0	0	0	100,0%	0,9
2.2 Façade closed	13	1	12	6	0	0	6	50,0%	0,6
2.3 Roof	8	2	6	4	0	0	2	66,7%	0,6
3. Finishing									
3.1 (raised) Floor	2	0	2	1	0	0	1	50,0%	0,6
3.2 (lowered) Ceiling	0	0	0	0	0	0	0		
3.3 Partitioning	0	0	0	0	0	0	0		
3.4 Stairs	0	0	0	0	0	0	0		
4. Servicing									
4.1 Water	1	0	1	1	0	0	0	100,0%	0,9
4.2 Electrical	1	0	1	1	0	0	0	100,0%	0,9
4.3 Heating	0	0	0	0	0	0	0		
4.4 Ventilation	0	0	0	0	0	0	0		

Rating - Type of clustering

Product level assessment									
Elements Floor / system indication	Total	Number of parts			Assemblies		Functional layers is composed of	Rating Ratio	Rating
		Adjacent	non-adjacent	Chunk	Assembly	Component	Element		
Bottom floor									
1. Loadbearing									
1.1 Foundation	2	0	2		0	0	2	0,0%	0,1
1.2 Structure	4	1	3		0	3	0	100,0%	0,9
1.3 Floors	4	1	3		0	1	2	33,3%	0,3
2. Enclosing									
2.1 Façade open	6	1	5		3	0	2	60,0%	0,6
2.2 Façade closed	13	1	12		6	0	6	50,0%	0,6
2.3 Roof	0	0	0		0	0	0		
3. Finishing									
3.1 (raised) Floor	2	0	2		0	0	2	0,0%	0,1
3.2 (lowered) Ceiling	0	0	0		0	0	0		
3.3 Partitioning	0	0	0		0	0	0		
3.4 Stairs	0	0	0		0	0	0		
4. Servicing									
4.1 Water	1	0	1		0	0	1	0,0%	0,1
4.2 Electrical	1	0	1		0	0	1	0,0%	0,1
4.3 Heating	0	0	0		0	0	0		
4.4 Ventilation	0	0	0		0	0	0		
Top floor									
1. Loadbearing									
1.1 Foundation	0	0	0		0	0	0		
1.2 Structure	4	1	3		0	3	0	100,0%	0,9
1.3 Floors	3	1	2		0	1	1	50,0%	0,6
2. Enclosing									
2.1 Façade open	6	1	5		3	0	2	60,0%	0,6
2.2 Façade closed	13	1	12		6	0	6	50,0%	0,6
2.3 Roof	8	2	6		0	0	6	0,0%	0,1
3. Finishing									
3.1 (raised) Floor	2	0	2		0	0	2	0,0%	0,1
3.2 (lowered) Ceiling	0	0	0		0	0	0		
3.3 Partitioning	0	0	0		0	0	0		
3.4 Stairs	0	0	0		0	0	0		
4. Servicing									
4.1 Water	1	0	1		0	0	1	0,0%	0,1
4.2 Electrical	1	0	1		0	0	1	0,0%	0,1
4.3 Heating	0	0	0		0	0	0		
4.4 Ventilation	0	0	0		0	0	0		

Rating - Type of clustering

Product level assessment									
Floor / system indication	Total	Number of parts			Clustered parts		Non-clustered parts		Rating
		Adjacent	non-adjacent	Chunk	Assembly	Component	Element	Ratio	
Bottom floor									
1. Loadbearing									
1.1 Foundation	2	0	2		0		2	0,0%	0,1
1.2 Structure	4	1	3		3		0	100,0%	0,9
1.3 Floors	4	1	3		1		2	33,3%	0,3
2. Enclosing									
2.1 Façade open	6	1	5		2		3	40,0%	0,6
2.2 Façade closed	13	1	12		1		11	8,3%	0,1
2.3 Roof	0	0	0		0		0		
3. Finishing									
3.1 (raised) Floor	2	0	2		0		2	0,0%	0,1
3.2 (lowered) Ceiling	0	0	0		0		0		
3.3 Partitioning	0	0	0		0		0		
3.4 Stairs	0	0	0		0		0		
4. Servicing									
4.1 Water	1	0	1		0		1	0,0%	0,1
4.2 Electrical	1	0	1		0		1	0,0%	0,1
4.3 Heating	0	0	0		0		0		
4.4 Ventilation	0	0	0		0		0		
Top floor									
1. Loadbearing									
1.1 Foundation	0	0	0		0		0		
1.2 Structure	4	1	3		3		0	100,0%	0,9
1.3 Floors	3	1	2		1		1	50,0%	0,6
2. Enclosing									
2.1 Façade open	6	1	5		2		3	40,0%	0,6
2.2 Façade closed	13	1	12		1		11	8,3%	0,1
2.3 Roof	8	2	6		0		6	0,0%	0,1
3. Finishing									
3.1 (raised) Floor	2	0	2		0		2	0,0%	0,1
3.2 (lowered) Ceiling	0	0	0		0		0		
3.3 Partitioning	0	0	0		0		0		
3.4 Stairs	0	0	0		0		0		
4. Servicing									
4.1 Water	1	0	1		0		1	0,0%	0,1
4.2 Electrical	1	0	1		0		1	0,0%	0,1
4.3 Heating	0	0	0		0		0		
4.4 Ventilation	0	0	0		0		0		

Type of clustering - Assessment values	
To assess the extent to which building parts are part of components, assemblies and chunks, the ratio clustered parts (chunks, assemblies and components) versus unclustered parts (elements) are being calculated, which will be assessed according to the assessment criteria shown below.	
Percentage of clustered parts	Rating
1. $70 \leq x$	0,9
2. $40 \leq x < 70$	0,6
3. $20 \leq x < 40$	0,3
4. $20 > x$	0,1

Rating - Number of relations

Building level assessment				
<i>Floor indication</i>	<i>Number of relations</i>	<i>Number of related parts</i>	<i>Average</i>	<i>Rating</i>
Bottom floor				
1. Loadbearing				
1.1 Foundation	2	1	2,0	0,9
1.2 Structure	2	1	2,0	0,9
1.3 Floors	2	1	2,0	0,9
2. Enclosing				
2.1 Façade open	0	0	0,0	0,9
2.2 Façade closed	24	6	4,0	0,6
2.3 Roof	0	0	0,0	
3. Finishing				
3.1 (raised) Floor	4	1	4,0	0,6
3.2 (lowered) Ceiling	0	0	0,0	
3.3 Partitioning	0	0	0,0	
3.4 Stairs	0	0	0,0	
4. Servicing				
4.1 Water	0	0	0,0	0,9
4.2 Electrical	1	1	1,0	0,9
4.3 Heating	0	0	0,0	
4.4 Ventilation	0	0	0,0	
Top floor				
1. Loadbearing				
1.1 Foundation	0	0	0,0	
1.2 Structure	2	1	2,0	0,9
1.3 Floors	2	1	2,0	0,9
2. Enclosing				
2.1 Façade open	0	0	0,0	0,9
2.2 Façade closed	25	7	3,6	0,6
2.3 Roof	8	2	4,0	0,6
3. Finishing				
3.1 (raised) Floor	3	1	3,0	0,6
3.2 (lowered) Ceiling	0	0	0,0	
3.3 Partitioning	0	0	0,0	
3.4 Stairs	0	0	0,0	
4. Servicing				
4.1 Water	1	1	1,0	0,9
4.2 Electrical	1	1	1,0	0,9
4.3 Heating	0	0	0,0	
4.4 Ventilation	0	0	0,0	

Rating - Number of relations

System level assessment				
<i>Floor indication</i>	<i>Number of relations</i>	<i>Number of related parts</i>	<i>Average</i>	<i>Rating</i>
Bottom floor				
1. Loadbearing				
1.1 Foundation	2	1	2,0	0,9
1.2 Structure	2	1	2,0	0,9
1.3 Floors	3	2	1,5	0,9
2. Enclosing				
2.1 Façade open	2	2	1,0	0,9
2.2 Façade closed	23	6	3,8	0,6
2.3 Roof	0	0	0,0	
3. Finishing				
3.1 (raised) Floor	0	0	0,0	0,9
3.2 (lowered) Ceiling	0	0	0,0	
3.3 Partitioning	0	0	0,0	
3.4 Stairs	0	0	0,0	
4. Servicing				
4.1 Water	0	0	0,0	0,9
4.2 Electrical	0	0	0,0	0,9
4.3 Heating	0	0	0,0	
4.4 Ventilation	0	0	0,0	
Top floor				
1. Loadbearing				
1.1 Foundation	0	0	0,0	
1.2 Structure	2	1	2,0	0,9
1.3 Floors	2	1	2,0	0,9
2. Enclosing				
2.1 Façade open	2	2	1,0	0,9
2.2 Façade closed	24	7	3,4	0,6
2.3 Roof	10	4	2,5	0,6
3. Finishing				
3.1 (raised) Floor	0	0	0,0	0,9
3.2 (lowered) Ceiling	0	0	0,0	
3.3 Partitioning	0	0	0,0	
3.4 Stairs	0	0	0,0	
4. Servicing				
4.1 Water	1	1	1,0	0,9
4.2 Electrical	0	0	0,0	0,9
4.3 Heating	0	0	0,0	
4.4 Ventilation	0	0	0,0	

Rating - Number of relations

Product level assessment				
Floor indication	Number of relations	Number of related parts	Average	Rating
Bottom floor				
1. Loadbearing				
1.1 Foundation	2	1	2,0	0,9
1.2 Structure	4	3	1,3	0,9
1.3 Floors	4	3	1,3	0,9
2. Enclosing				
2.1 Façade open	4	4	1,0	0,9
2.2 Façade closed	32	11	2,9	0,6
2.3 Roof	0	0	0,0	
3. Finishing				
3.1 (raised) Floor	0	0	0,0	0,9
3.2 (lowered) Ceiling	0	0	0,0	
3.3 Partitioning	0	0	0,0	
3.4 Stairs	0	0	0,0	
4. Servicing				
4.1 Water	0	0	0,0	0,9
4.2 Electrical	0	0	0,0	0,9
4.3 Heating	0	0	0,0	
4.4 Ventilation	0	0	0,0	
Top floor				
1. Loadbearing				
1.1 Foundation	0	0	0,0	
1.2 Structure	4	3	1,3	0,9
1.3 Floors	3	2	1,5	0,9
2. Enclosing				
2.1 Façade open	4	4	1,0	0,9
2.2 Façade closed	33	11	3,0	0,6
2.3 Roof	10	4	2,5	0,6
3. Finishing				
3.1 (raised) Floor	0	0	0,0	0,9
3.2 (lowered) Ceiling	0	0	0,0	
3.3 Partitioning	0	0	0,0	
3.4 Stairs	0	0	0,0	
4. Servicing				
4.1 Water	1	1	1,0	0,9
4.2 Electrical	0	0	0,0	0,9
4.3 Heating	0	0	0,0	
4.4 Ventilation	0	0	0,0	

Type of clustering - Assessment values	
Building level, system level and product level assessment	
Average number of relations per part at building level, system level and product level is calculated (relations within each main function) and rated according to the following categories	
	Rating
1. $x \leq 2$	0,9
2. $2 < x \leq 4$	0,6
3. $4 < x \leq 6$	0,3
4. $6 < x$	0,1

Rating - Hierarchical position of relations

Building level / System level / Product level assessment				
<i>Floor / system indication</i>	<i>Number of parts connected to another function of which none are a support function or have the same functionality</i>	<i>Total parts</i>	<i>Percentage</i>	<i>Rating</i>
Bottom floor				
1. Loadbearing				
1.1 Foundation	-	2	0%	0,9
1.2 Structure	-	3	0%	0,9
1.3 Floors	-	3	0%	0,9
2. Enclosing				
2.1 Façade open	0	5	0%	0,9
2.2 Façade closed	0	12	0%	0,9
2.3 Roof	0	0	0%	
3. Finishing				
3.1 (raised) Floor	0	2	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	0	1	0%	0,9
4.2 Electrical	0	1	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	
Top floor				
1. Loadbearing				
1.1 Foundation	-	0	0%	
1.2 Structure	-	3	0%	0,9
1.3 Floors	-	2	0%	0,9
2. Enclosing				
2.1 Façade open	0	5	0%	0,9
2.2 Façade closed	0	12	0%	0,9
2.3 Roof	1	6	17%	0,6
3. Finishing				
3.1 (raised) Floor	0	2	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	0	1	0%	0,9
4.2 Electrical	0	1	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	

Rating - Hierarchical position of relations

Building level / System level / Product level assessment				
<i>Floor / system indication</i>	<i>Number of parts connected to another function of which none are a support function or have the same functionality</i>	<i>Total parts</i>	<i>Percentage</i>	<i>Rating</i>
Bottom floor				
1. Loadbearing				
1.1 Foundation	-	2	0%	0,9
1.2 Structure	-	3	0%	0,9
1.3 Floors	-	3	0%	0,9
2. Enclosing				
2.1 Façade open	0	5	0%	0,9
2.2 Façade closed	0	12	0%	0,9
2.3 Roof	0	0	0%	
3. Finishing				
3.1 (raised) Floor	0	2	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	0	1	0%	0,9
4.2 Electrical	0	1	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	
Top floor				
1. Loadbearing				
1.1 Foundation	-	0	0%	
1.2 Structure	-	3	0%	0,9
1.3 Floors	-	2	0%	0,9
2. Enclosing				
2.1 Façade open	0	5	0%	0,9
2.2 Façade closed	0	12	0%	0,9
2.3 Roof	1	6	17%	0,6
3. Finishing				
3.1 (raised) Floor	0	2	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	0	1	0%	0,9
4.2 Electrical	0	1	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	

Rating - Hierarchical position of relations

Building level / System level / Product level assessment				
<i>Floor / system indication</i>	<i>Number of parts connected to another function of which none are a support function or have the same functionality</i>	<i>Total parts</i>	<i>Percentage</i>	<i>Rating</i>
Bottom floor				
1. Loadbearing				
1.1 Foundation	-	2	0%	0,9
1.2 Structure	-	3	0%	0,9
1.3 Floors	-	3	0%	0,9
2. Enclosing				
2.1 Façade open	0	5	0%	0,9
2.2 Façade closed	0	12	0%	0,9
2.3 Roof	0	0	0%	
3. Finishing				
3.1 (raised) Floor	0	2	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	0	1	0%	0,9
4.2 Electrical	0	1	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	
Top floor				
1. Loadbearing				
1.1 Foundation	-	0	0%	
1.2 Structure	-	3	0%	0,9
1.3 Floors	-	2	0%	0,9
2. Enclosing				
2.1 Façade open	0	5	0%	0,9
2.2 Façade closed	0	12	0%	0,9
2.3 Roof	1	6	17%	0,6
3. Finishing				
3.1 (raised) Floor	0	2	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	0	1	0%	0,9
4.2 Electrical	0	1	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	

Hierarchical position of relations - Assessment values	
<i>Percentage of parts connected to another function (excluding same main functionality or support functions)</i>	<i>Rating</i>
1. $x \leq 10$	0,9
2. $10 < x \leq 20$	0,6
3. $20 < x \leq 30$	0,3
4. $30 < x$	0,1

Rating - Type of relational pattern

Building level assessment				
<i>Floor / system indication</i>	<i>Number of connections not to intermediary or base elements</i>	<i>Total connections</i>	<i>Percentage</i>	Rating
Bottom floor				
1. Loadbearing				
1.1 Foundation	0	4	0%	0,9
1.2 Structure	0	4	0%	0,9
1.3 Floors	0	5	0%	0,9
2. Enclosing				
2.1 Façade open	0	2	0%	0,9
2.2 Façade closed	4	34	12%	0,6
2.3 Roof	0	0	0%	
3. Finishing				
3.1 (raised) Floor	0	4	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	1	1	100%	0,1
4.2 Electrical	0	1	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	
Top floor				
1. Loadbearing				
1.1 Foundation	0	0	0%	
1.2 Structure	0	3	0%	0,9
1.3 Floors	0	5	0%	0,9
2. Enclosing				
2.1 Façade open	0	2	0%	0,9
2.2 Façade closed	4	34	12%	0,6
2.3 Roof	6	13	46%	0,3
3. Finishing				
3.1 (raised) Floor	0	3	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	2	2	100%	0,1
4.2 Electrical	0	1	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	

Rating - Type of relational pattern

System level assessment				
<i>Floor / system indication</i>	<i>Number of connections not to intermediary or base elements</i>	<i>Total connections</i>	<i>Percentage</i>	<i>Rating</i>
Bottom floor				
1. Loadbearing				
1.1 Foundation	0	4	0%	0,9
1.2 Structure	0	9	0%	0,9
1.3 Floors	0	11	0%	0,9
2. Enclosing				
2.1 Façade open	0	9	0%	0,9
2.2 Façade closed	4	37	11%	0,6
2.3 Roof	0	0	0%	
3. Finishing				
3.1 (raised) Floor	0	5	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	1	2	50%	0,3
4.2 Electrical	0	2	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	
Top floor				
1. Loadbearing				
1.1 Foundation	0	0	0%	
1.2 Structure	0	10	0%	0,9
1.3 Floors	0	9	0%	0,9
2. Enclosing				
2.1 Façade open	0	9	0%	0,9
2.2 Façade closed	4	37	11%	0,6
2.3 Roof	8	21	38%	0,3
3. Finishing				
3.1 (raised) Floor	0	4	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	2	3	67%	0,1
4.2 Electrical	0	2	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	

Rating - Type of relational pattern

Product level assessment				
Floor / system indication	Number of connections not to intermediary or base elements	Total connections	Percentage	Rating
Bottom floor				
1. Loadbearing				
1.1 Foundation	0	4	0%	0,9
1.2 Structure	0	14	0%	0,9
1.3 Floors	0	12	0%	0,9
2. Enclosing				
2.1 Façade open	0	13	0%	0,9
2.2 Façade closed	10	55	18%	0,6
2.3 Roof	0	0	0%	
3. Finishing				
3.1 (raised) Floor	0	5	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	1	2	50%	0,3
4.2 Electrical	0	2	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	
Top floor				
1. Loadbearing				
1.1 Foundation	0	0	0%	
1.2 Structure	0	15	0%	0,9
1.3 Floors	0	10	0%	0,9
2. Enclosing				
2.1 Façade open	0	13	0%	0,9
2.2 Façade closed	10	55	18%	0,6
2.3 Roof	8	21	38%	0,3
3. Finishing				
3.1 (raised) Floor	0	4	0%	0,9
3.2 (lowered) Ceiling	0	0	0%	
3.3 Partitioning	0	0	0%	
3.4 Stairs	0	0	0%	
4. Servicing				
4.1 Water	2	3	67%	0,1
4.2 Electrical	0	2	0%	0,9
4.3 Heating	0	0	0%	
4.4 Ventilation	0	0	0%	

Type of relational pattern - Assessment values	
Open versus closed relational patterns are identified based on the amount of relations in the relational pattern, which are relations between non-base elements or non-intermediary parts, which result in closed assemblies. The percentage of total relations is being calculated to assess ratio closed versus open relational pattern, according to the following values.	
1. $x \leq 10$	0,9
2. $10 < x \leq 30$	0,6
3. $30 < x \leq 50$	0,3
4. $50 < x$	0,1

Rating - Assembly & disassembly sequences

Building level assessment					
<i>Floor / system indication</i>	<i>Average disassembly sequence (per part)</i>	<i>Sub-rating</i>	<i>per disassembly sequence</i>	<i>Sub-rating</i>	<i>Rating</i>
Building level					
Bottom floor					
1. Loadbearing					
1.1 Foundation	5,5	0,6	2,8	0,9	0,75
1.2 Structure	4,0	0,9	3,5	0,9	0,90
1.3 Floors	3,0	0,9	2,7	0,9	0,90
2. Enclosing					
2.1 Façade open	4,0	0,6	3,5	0,6	0,60
2.2 Façade closed	2,3	0,6	2,1	0,6	0,60
2.3 Roof	0,0		0,0		
3. Finishing					
3.1 (raised) Floor	2,0	0,9	1,8	0,9	0,90
3.2 (lowered) Ceiling	0,0		0,0		
3.3 Partitioning	0,0		0,0		
3.4 Stairs	0,0		0,0		
4. Servicing					
4.1 Water	4,0	0,6	3,5	0,6	0,60
4.2 Electrical	4,0	0,6	3,5	0,6	0,60
4.3 Heating	0,0		0,0		
4.4 Ventilation	0,0		0,0		
Top floor					
1. Loadbearing					
1.1 Foundation	0,0		0,0		
1.2 Structure	3,0	0,9	3,3	0,9	0,90
1.3 Floors	2,0	0,9	2,2	0,9	0,90
2. Enclosing					
2.1 Façade open	3,0	0,6	3,3	0,6	0,60
2.2 Façade closed	1,8	0,9	2,0	0,9	0,90
2.3 Roof	2,2	0,6	2,4	0,6	0,60
3. Finishing					
3.1 (raised) Floor	1,5	0,9	1,7	0,9	0,90
3.2 (lowered) Ceiling	0,0		0,0		
3.3 Partitioning	0,0		0,0		
3.4 Stairs	0,0		0,0		
4. Servicing					
4.1 Water	3,0	0,6	3,3	0,6	0,60
4.2 Electrical	3,0	0,6	3,3	0,6	0,60
4.3 Heating	0,0		0,0		
4.4 Ventilation	0,0		0,0		

Rating - Assembly & disassembly sequences

System level assessment					
<i>Floor / system indication</i>	<i>Average disassembly sequence (per part)</i>	<i>Sub-rating</i>	<i>per disassembly sequence</i>	<i>Sub-rating</i>	<i>Rating</i>
Building level					
Bottom floor					
1. Loadbearing					
1.1 Foundation	7,5	0,6	4,6	0,6	0,60
1.2 Structure	6,0	0,6	5,5	0,6	0,60
1.3 Floors	2,3	0,9	2,2	0,9	0,90
2. Enclosing					
2.1 Façade open	0,6	0,9	0,5	0,9	0,90
2.2 Façade closed	1,8	0,9	1,5	0,9	0,90
2.3 Roof	0,0		0,0		
3. Finishing					
3.1 (raised) Floor	0,0	0,9	0,0	0,9	0,90
3.2 (lowered) Ceiling	0,0		0,0		
3.3 Partitioning	0,0		0,0		
3.4 Stairs	0,0		0,0		
4. Servicing					
4.1 Water	3,0	0,6	1,0	0,9	0,75
4.2 Electrical	0,0	0,9	0,0	0,9	0,90
4.3 Heating	0,0		0,0		
4.4 Ventilation	0,0		0,0		
Top floor					
1. Loadbearing					
1.1 Foundation	0,0		0,0		
1.2 Structure	5,0	0,9	4,2	0,6	0,75
1.3 Floors	3,0	0,9	2,6	0,9	0,90
2. Enclosing					
2.1 Façade open	0,6	0,9	0,5	0,9	0,90
2.2 Façade closed	1,8	0,9	1,3	0,9	0,90
2.3 Roof	2,2	0,6	1,1	0,9	0,75
3. Finishing					
3.1 (raised) Floor	0,0	0,9	0,0	0,9	0,90
3.2 (lowered) Ceiling	0,0		0,0		
3.3 Partitioning	0,0		0,0		
3.4 Stairs	0,0		0,0		
4. Servicing					
4.1 Water	2,0	0,9	1,0	0,9	0,90
4.2 Electrical	0,0	0,9	0,0	0,9	0,90
4.3 Heating	0,0		0,0		
4.4 Ventilation	0,0		0,0		

Rating - Assembly & disassembly sequences

Product level assessment					
<i>Floor / system indication</i>	<i>Average disassembly sequence (per part)</i>	<i>Sub-rating</i>	<i>per disassembly sequence</i>	<i>Sub-rating</i>	<i>Rating</i>
Building level					
Bottom floor					
1. Loadbearing					
1.1 Foundation	5,5	0,6	2,8	0,9	0,75
1.2 Structure	6,3	0,6	2,9	0,9	0,75
1.3 Floors	2,0	0,9	1,4	0,9	0,90
2. Enclosing					
2.1 Façade open	0,8	0,9	0,9	0,9	0,90
2.2 Façade closed	1,3	0,9	1,0	0,9	0,90
2.3 Roof	0,0		0,0		
3. Finishing					
3.1 (raised) Floor	0,0	0,9	0,0	0,9	0,90
3.2 (lowered) Ceiling	0,0		0,0		
3.3 Partitioning	0,0		0,0		
3.4 Stairs	0,0		0,0		
4. Servicing					
4.1 Water	3,0	0,6	1,0	0,9	0,75
4.2 Electrical	0,0	0,9	0,0	0,9	0,90
4.3 Heating	0,0		0,0		
4.4 Ventilation	0,0		0,0		
Top floor					
1. Loadbearing					
1.1 Foundation	0,0		0,0		
1.2 Structure	5,7	0,6	3,3	0,9	0,75
1.3 Floors	2,5	0,9	2,3	0,9	0,90
2. Enclosing					
2.1 Façade open	0,8	0,9	0,9	0,9	0,90
2.2 Façade closed	1,0	0,9	1,1	0,9	0,90
2.3 Roof	2,2	0,6	1,1	0,9	0,75
3. Finishing					
3.1 (raised) Floor	0,0	0,9	0,0	0,9	0,90
3.2 (lowered) Ceiling	0,0		0,0		
3.3 Partitioning	0,0		0,0		
3.4 Stairs	0,0		0,0		
4. Servicing					
4.1 Water	2,0	0,9	1,0	0,9	0,90
4.2 Electrical	0,0	0,9	0,0	0,9	0,90
4.3 Heating	0,0		0,0		
4.4 Ventilation	0,0		0,0		

Rating - Assembly & disassembly sequences

Assembly & Disassembly sequences - Assessment values	
Building level / System level / Product level assessment	
Based on the average disassembly sequences and parallel assemblies, the following assessment values are used:	
<i>Loadbearing system</i>	
1. $x \leq 5$ sequences	0,9
2. $5 < x \leq 8$ sequences	0,6
3. $8 < x \leq 12$ sequences	0,3
4. $12 < x$ sequences	0,1
<i>Enclosing, finishing and servicing systems</i>	
1. $x \leq 2$ sequences	0,9
2. $2 < x \leq 4$ sequences	0,6
3. $4 < x \leq 6$ sequences	0,3
4. $6 < x$ sequences	0,1
<i>Loadbearing system</i>	
1. $x \leq 4$ parallel assemblies	0,9
2. $4 < x \leq 6$ parallel assemblies	0,6
3. $6 < x \leq 9$ parallel assemblies	0,3
4. $9 < x$ parallel assemblies	0,1
<i>Enclosing, finishing and servicing system</i>	
1. $x \leq 2$ parallel assemblies	0,9
2. $2 < x \leq 4$ parallel assemblies	0,6
3. $4 < x \leq 6$ parallel assemblies	0,3
4. $6 < x$ parallel assemblies	0,1

Rating - Base element specification

Building level / System level / Product level assessment					
Floor / system indication	Base element / intermediary between systems and/or components	Number of base elements per type			Rating
		Base element for one function	Base element for two functions	No base element	
Bottom floor					
1. Load bearing					
1.1 Foundation	0	1	0	0	0,70
1.2 Structure	2	1	0	0	0,83
1.3 Floors	1	0	0	0	0,90
2. Enclosing					
2.1 Façade open	0	2	0	0	0,70
2.2 Façade closed	0	2	0	0	0,70
2.3 Roof	0	0	0	0	
3. Finishing					
3.1 (raised) Floor	0	0	0	1	0,10
3.2 (lowered) Ceiling	0	0	0	0	
3.3 Partitioning	0	0	0	0	
3.4 Stairs	0	0	0	0	
4. Servicing					
4.1 Water	0	0	0	1	0,10
4.2 Electrical	0	0	0	1	0,10
4.3 Heating	0	0	0	0	
4.4 Ventilation	0	0	0	0	
Top floor					
1. Load bearing					
1.1 Foundation	0	0	0	0	
1.2 Structure	2	1	0	0	0,83
1.3 Floors	1	0	0	0	0,90
2. Enclosing					
2.1 Façade open	0	2	0	0	0,70
2.2 Façade closed	0	2	0	0	0,70
2.3 Roof	0	1	0	0	0,70
3. Finishing					
3.1 (raised) Floor	0	0	0	1	0,10
3.2 (lowered) Ceiling	0	0	0	0	
3.3 Partitioning	0	0	0	0	
3.4 Stairs	0	0	0	0	
4. Servicing					
4.1 Water	0	0	0	1	0,10
4.2 Electrical	0	0	0	1	0,10
4.3 Heating	0	0	0	0	
4.4 Ventilation	0	0	0	0	

Base element specification - Assessment values	
Identification of the presence of a base element and if so, the type of base element that is present per sub-function	Rating
1 Base element / intermediary between systems and/or components	0,9
2 Base element for one function	0,7
3 Base element for two functions	0,5
4 No base element	0,1

Rating - Technical lifecycle coordination

Building level / System level / Product level assessment	
<i>Floor / system indication</i>	Rating
Bottom floor	
1. Loadbearing	
1.1 Foundation	0,90
1.2 Structure	0,90
1.3 Floors	0,90
2. Enclosing	
2.1 Façade open	0,75
2.2 Façade closed	0,77
2.3 Roof	
3. Finishing	
3.1 (raised) Floor	0,90
3.2 (lowered) Ceiling	
3.3 Partitioning	
3.4 Stairs	
4. Servicing	
4.1 Water	0,60
4.2 Electrical	0,90
4.3 Heating	
4.4 Ventilation	
Top floor	
1. Loadbearing	
1.1 Foundation	
1.2 Structure	0,90
1.3 Floors	0,90
2. Enclosing	
2.1 Façade open	0,75
2.2 Façade closed	0,77
2.3 Roof	0,52
3. Finishing	
3.1 (raised) Floor	0,90
3.2 (lowered) Ceiling	
3.3 Partitioning	
3.4 Stairs	
4. Servicing	
4.1 Water	0,60
4.2 Electrical	0,90
4.3 Heating	
4.4 Ventilation	

Technical lifecycle coordination - Assessment values	
<i>Average of all parts is calculated based on the technical lifespan of the part and the technical lifespan of later assembled parts</i>	Rating
1. $x = 100$	0,9
2. $50 \leq x < 100$	0,6
3. $0 < x < 50$	0,3
4. $0 > x$	0,1

Rating - Remaining Technical lifespan

Building level / System level / Product level assessment		Rating
<i>Floor / system indication</i>		
Bottom floor		
1. Loadbearing		
1.1 Foundation		0,90
1.2 Structure		0,90
1.3 Floors		0,90
2. Enclosing		
2.1 Façade open		0,82
2.2 Façade closed		0,77
2.3 Roof		
3. Finishing		
3.1 (raised) Floor		0,70
3.2 (lowered) Ceiling		
3.3 Partitioning		
3.4 Stairs		
4. Servicing		
4.1 Water		0,70
4.2 Electrical		0,70
4.3 Heating		
4.4 Ventilation		
Top floor		
1. Loadbearing		
1.1 Foundation		
1.2 Structure		0,90
1.3 Floors		0,90
2. Enclosing		
2.1 Façade open		0,82
2.2 Façade closed		0,77
2.3 Roof		0,70
3. Finishing		
3.1 (raised) Floor		0,70
3.2 (lowered) Ceiling		
3.3 Partitioning		
3.4 Stairs		
4. Servicing		
4.1 Water		0,70
4.2 Electrical		0,70
4.3 Heating		
4.4 Ventilation		

Remaining Technical lifespan - Assessment values		Rating
<i>Remaining technical lifespan in years</i>		
1. $20 < x$	<i>Long remaining technical lifespan</i>	0,9
2. $10 < x \leq 20$	<i>Medium remaining technical lifespan</i>	0,7
3. $5 < x \leq 10$	<i>Short remaining technical lifespan (medium temporary function)</i>	0,5
4. $0 < x \leq 5$	<i>Short remaining technical lifespan (temporary function)</i>	0,3
5. $x = 0$	<i>No remaining technical lifespan</i>	0,1

Rating - Type of connection

Building level assessment											
Floor / system indication	Connection types/ ratio									SUM	Rating (Cra)
	1	2	3	4	5	6	7	8	9		
Bottom floor											
1. Loadbearing											
1.1 Foundation	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0,90
1.2 Structure	0%	0%	0%	0%	50%	0%	50%	0%	0%	100%	0,75
1.3 Floors	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0,90
2. Enclosing											
2.1 Façade open											0,90
2.2 Façade closed	0%	0%	0%	88%	0%	0%	0%	4%	8%	100%	0,46
2.3 Roof											
3. Finishing											
3.1 (raised) Floor	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	0,30
3.2 (lowered) Ceiling											
3.3 Partitioning											
3.4 Stairs											
4. Servicing											
4.1 Water											0,90
4.2 Electrical	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
4.3 Heating											
4.4 Ventilation											
Top floor											
1. Loadbearing											
1.1 Foundation											
1.2 Structure	0%	0%	0%	0%	50%	0%	50%	0%	0%	100%	0,75
1.3 Floors	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0,90
2. Enclosing											
2.1 Façade open											0,90
2.2 Façade closed	0%	0%	0%	88%	0%	0%	0%	4%	8%	100%	0,46
2.3 Roof	0%	0%	63%	25%	0%	0%	0%	0%	13%	100%	0,40
3. Finishing											
3.1 (raised) Floor	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	0,30
3.2 (lowered) Ceiling											
3.3 Partitioning											
3.4 Stairs											
4. Servicing											
4.1 Water	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0,80
4.2 Electrical	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
4.3 Heating											
4.4 Ventilation											

Rating - Type of connection

System level assessment											
Floor / system indication	Connection types/ ratio									SUM	Rating (Cra)
	1	2	3	4	5	6	7	8	9		
Bottom floor											
1. Loadbearing											
1.1 Foundation	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0,90
1.2 Structure	0%	0%	0%	0%	50%	0%	50%	0%	0%	100%	0,75
1.3 Floors	0%	0%	0%	33%	0%	0%	0%	67%	0%	100%	0,73
2. Enclosing											
2.1 Façade open	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
2.2 Façade closed	0%	0%	0%	89%	0%	0%	0%	4%	7%	100%	0,46
2.3 Roof											
3. Finishing											
3.1 (raised) Floor	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	0,30
3.2 (lowered) Ceiling											
3.3 Partitioning											
3.4 Stairs											
4. Servicing											
4.1 Water	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	0,90
4.2 Electrical	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
4.3 Heating											
4.4 Ventilation											
Top floor											
1. Loadbearing											
1.1 Foundation											
1.2 Structure	0%	0%	0%	0%	50%	0%	50%	0%	0%	100%	0,75
1.3 Floors	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0,90
2. Enclosing											
2.1 Façade open	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
2.2 Façade closed	0%	0%	0%	89%	0%	0%	0%	4%	7%	100%	0,45
2.3 Roof	0%	0%	38%	31%	0%	0%	0%	8%	23%	100%	0,52
3. Finishing											
3.1 (raised) Floor	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	0,30
3.2 (lowered) Ceiling											
3.3 Partitioning											
3.4 Stairs											
4. Servicing											
4.1 Water	0%	0%	0%	50%	0%	0%	50%	0%	0%	100%	0,60
4.2 Electrical	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
4.3 Heating											
4.4 Ventilation											

Rating - Type of connection

Product level assessment											
Floor / system indication	Connection types/ ratio									SUM	Rating (Cra)
	1	2	3	4	5	6	7	8	9		
Bottom floor											
1. Loadbearing											
1.1 Foundation	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0,90
1.2 Structure	0%	50%	0%	0%	25%	0%	25%	0%	0%	100%	0,25
1.3 Floors	0%	0%	0%	50%	0%	0%	0%	50%	0%	100%	0,65
2. Enclosing											
2.1 Façade open	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
2.2 Façade closed	0%	0%	0%	81%	0%	0%	0%	6%	14%	100%	0,50
2.3 Roof											
3. Finishing											
3.1 (raised) Floor	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	0,30
3.2 (lowered) Ceiling											
3.3 Partitioning											
3.4 Stairs											
4. Servicing											
4.1 Water	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	0,90
4.2 Electrical	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
4.3 Heating											
4.4 Ventilation											
Top floor											
1. Loadbearing											
1.1 Foundation											
1.2 Structure	0%	50%	0%	0%	25%	0%	25%	0%	0%	100%	0,25
1.3 Floors	0%	0%	0%	33%	0%	0%	0%	67%	0%	100%	0,73
2. Enclosing											
2.1 Façade open	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
2.2 Façade closed	0%	0%	0%	81%	0%	0%	0%	5%	14%	100%	0,49
2.3 Roof	0%	0%	38%	31%	0%	0%	0%	8%	23%	100%	0,52
3. Finishing											
3.1 (raised) Floor	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	0,30
3.2 (lowered) Ceiling											
3.3 Partitioning											
3.4 Stairs											
4. Servicing											
4.1 Water	0%	0%	0%	50%	0%	0%	50%	0%	0%	100%	0,60
4.2 Electrical	0%	0%	0%	100%	0%	0%	0%	0%	0%	100%	0,40
4.3 Heating											
4.4 Ventilation											

Type of connection - Assessment values						
Building level assessment is based on the number of connections applied per floor are calculated at building level and at system level assessment is based on the number of connections applied per floor and building system at system level, both according to formula 1 and 2.						
Main connection category	Connection types			Max Cr	Dv	Rating (at 100%)
Material connections	1 Direct chemical connection			0,7	0,8	0,1
	2 Indirect connection with irreversible chemical connection			0,7	0,8	0,1
	3 Indirect connection with reversible chemical connection			1,0	0,6	0,3
Direct connections with connecting device	4 Direct insert connection			1,0	0,5	0,4
	5 Direct connection with additional fixing device			1,0	0,2	0,7
Interlock connections	6 Indirect connection via dependent third component			1,0	0,1	0,8
	7 Direct connection between two pre-made components			1,0	0,1	0,8
Reversible connections	8 Intermediary connection			1,0	0,0	0,9
	9 Gravity connection			1,0	0,0	0,9
Formulas						
1. $Cr(x) = C(x) / \sum C(x1-9)$				* $CR(1) + Cr(2) \geq 0,7 = Cra(0,1)$		0,7
2. $Cra = 0,9 - ((Cr(1)/Max Cr(1))*Dv(1)+(Cr(2)/Max Cr(2))*Dv(2) \dots +(Cr(9)/Max(9))*Dv(9))$						
*Additional condition						
Lowest Cra			0,1	Highest Cra		0,9
Abbreviations						
(x)	Connection type			Max Cr (x) maximum connection rating		
Cr(x)	Connection ratio			Dv(x) discount value		
Cra	Connection rating assessment					

Rating - Connection damage

Building level assessment						
<i>Floor / system indication</i>	<i>No damage</i>	<i>Little damage</i>	<i>Medium damage</i>	<i>Large damage</i>	<i>Total destruction</i>	Rating
Bottom floor						
1. Loadbearing						
1.1 Foundation	50%	0%	50%	0%	0%	0,70
1.2 Structure	67%	33%	0%	0%	0%	0,83
1.3 Floors	33%	0%	0%	67%	0%	0,50
2. Enclosing						
2.1 Façade open	80%	0%	20%	0%	0%	0,82
2.2 Façade closed	50%	0%	50%	0%	0%	0,70
2.3 Roof	0%	0%	0%	0%	0%	
3. Finishing						
3.1 (raised) Floor	50%	0%	0%	50%	0%	0,60
3.2 (lowered) Ceiling	0%	0%	0%	0%	0%	
3.3 Partitioning	0%	0%	0%	0%	0%	
3.4 Stairs	0%	0%	0%	0%	0%	
4. Servicing						
4.1 Water	100%	0%	0%	0%	0%	0,90
4.2 Electrical	0%	0%	100%	0%	0%	0,50
4.3 Heating	0%	0%	0%	0%	0%	
4.4 Ventilation	0%	0%	0%	0%	0%	
Top Floor						
1. Loadbearing						
1.1 Foundation	0%	0%	0%	0%	0%	
1.2 Structure	67%	33%	0%	0%	0%	0,83
1.3 Floors	0%	0%	0%	100%	0%	0,30
2. Enclosing						
2.1 Façade open	80%	0%	20%	0%	0%	0,82
2.2 Façade closed	50%	0%	50%	0%	0%	0,70
2.3 Roof	33%	0%	17%	50%	0%	0,53
3. Finishing						
3.1 (raised) Floor	50%	0%	0%	50%	0%	0,60
3.2 (lowered) Ceiling	0%	0%	0%	0%	0%	
3.3 Partitioning	0%	0%	0%	0%	0%	
3.4 Stairs	0%	0%	0%	0%	0%	
4. Servicing						
4.1 Water	0%	0%	0%	100%	0%	0,30
4.2 Electrical	0%	0%	100%	0%	0%	0,50
4.3 Heating	0%	0%	0%	0%	0%	
4.4 Ventilation	0%	0%	0%	0%	0%	

Rating - Connection damage

System level assessment						
<i>Floor / system indication</i>	<i>No damage</i>	<i>Little damage</i>	<i>Medium damage</i>	<i>Large damage</i>	<i>Total destruction</i>	Rating
Bottom floor						
1. Loadbearing						
1.1 Foundation	50%	0%	50%	0%	0%	0,70
1.2 Structure	33%	0%	67%	0%	0%	0,63
1.3 Floors	0%	0%	33%	67%	0%	0,37
2. Enclosing						
2.1 Façade open	40%	0%	60%	0%	0%	0,66
2.2 Façade closed	50%	0%	50%	0%	0%	0,70
2.3 Roof	0%	0%	0%	0%	0%	
3. Finishing						
3.1 (raised) Floor	0%	0%	0%	100%	0%	0,30
3.2 (lowered) Ceiling	0%	0%	0%	0%	0%	
3.3 Partitioning	0%	0%	0%	0%	0%	
3.4 Stairs	0%	0%	0%	0%	0%	
4. Servicing						
4.1 Water	100%	0%	0%	0%	0%	0,90
4.2 Electrical	0%	0%	100%	0%	0%	0,50
4.3 Heating	0%	0%	0%	0%	0%	
4.4 Ventilation	0%	0%	0%	0%	0%	
Top Floor						
1. Loadbearing						
1.1 Foundation	0%	0%	0%	0%	0%	
1.2 Structure	33%	0%	67%	0%	0%	0,63
1.3 Floors	0%	0%	0%	100%	0%	0,30
2. Enclosing						
2.1 Façade open	40%	0%	60%	0%	0%	0,66
2.2 Façade closed	50%	0%	50%	0%	0%	0,70
2.3 Roof	17%	0%	33%	50%	0%	0,47
3. Finishing						
3.1 (raised) Floor	0%	0%	0%	100%	0%	0,30
3.2 (lowered) Ceiling	0%	0%	0%	0%	0%	
3.3 Partitioning	0%	0%	0%	0%	0%	
3.4 Stairs	0%	0%	0%	0%	0%	
4. Servicing						
4.1 Water	0%	0%	0%	100%	0%	0,30
4.2 Electrical	0%	0%	100%	0%	0%	0,50
4.3 Heating	0%	0%	0%	0%	0%	
4.4 Ventilation	0%	0%	0%	0%	0%	

Rating - Connection damage

Product level assessment						
Floor / system indication	No damage	Little damage	Medium damage	Large damage	Total destruction	Rating
Bottom floor						
1. Loadbearing						
1.1 Foundation	50%	0%	50%	0%	0%	0,70
1.2 Structure	0%	0%	0%	33%	67%	0,17
1.3 Floors	0%	0%	33%	67%	0%	0,37
2. Enclosing						
2.1 Façade open	0%	0%	100%	0%	0%	0,50
2.2 Façade closed	33%	0%	67%	0%	0%	0,63
2.3 Roof	0%	0%	0%	0%	0%	
3. Finishing						
3.1 (raised) Floor	0%	0%	0%	100%	0%	0,30
3.2 (lowered) Ceiling	0%	0%	0%	0%	0%	
3.3 Partitioning	0%	0%	0%	0%	0%	
3.4 Stairs	0%	0%	0%	0%	0%	
4. Servicing						
4.1 Water	100%	0%	0%	0%	0%	0,90
4.2 Electrical	0%	0%	100%	0%	0%	0,50
4.3 Heating	0%	0%	0%	0%	0%	
4.4 Ventilation	0%	0%	0%	0%	0%	
Top Floor						
1. Loadbearing						
1.1 Foundation	0%	0%	0%	0%	0%	
1.2 Structure	0%	0%	0%	50%	50%	0,20
1.3 Floors	0%	0%	0%	100%	0%	0,30
2. Enclosing						
2.1 Façade open	0%	0%	100%	0%	0%	0,50
2.2 Façade closed	33%	0%	67%	0%	0%	0,63
2.3 Roof	17%	0%	33%	50%	0%	0,47
3. Finishing						
3.1 (raised) Floor	0%	0%	0%	100%	0%	0,30
3.2 (lowered) Ceiling	0%	0%	0%	0%	0%	
3.3 Partitioning	0%	0%	0%	0%	0%	
3.4 Stairs	0%	0%	0%	0%	0%	
4. Servicing						
4.1 Water	0%	0%	0%	100%	0%	0,30
4.2 Electrical	0%	0%	100%	0%	0%	0,50
4.3 Heating	0%	0%	0%	0%	0%	
4.4 Ventilation	0%	0%	0%	0%	0%	

Connection damage - Assessment per connection type

The connection damage to the dedicated part is identified based the type of connections that are connected to the dedicated part and the connections with which the part is connected to other parts. Both type of connections are assessed independently, since the effect of a connection that is connected to a part and a connection from a part varies in resulting damage and reuse potential. The following assessment values are used per connection type divided in connections connected to part and connections from part.

No.	connection types	Connected to part	Connection from part
1	Direct chemical connection	Large damage	Total destruction
2	Indirect connection with irreversible chemical connection	Large damage	Total destruction
3	Indirect connection with reversible chemical connection	Large damage	Large damage
4	Direct insert connection	Medium damage	Medium damage
5	Direct connection with additional fixing device	Little damage	Little damage
6	Indirect connection via dependent third component	No damage	No damage
7	Direct connection between two pre-made components	No damage	No damage
8	Intermediary connection	No damage	No damage
9	Gravity connection	No damage	No damage

Connection damage - Assessment values

After the connection damage is identified for each part, the connection that is identified as most damaging is indicative, for which the following values are used to evaluate the impact at building level, system level and product level.

No.	Damage categories	Reconditioning effort	Rating
1	No damage	Direct product reuse without additional reconditioning	0,90
2	Little damage	Product reuse after light reconditioning	0,70
3	Medium damage	Product reuse after moderate reconditioning	0,50
4	Large damage	Product reuse after intensive reconditioning	0,30
5	Total destruction	Product is destroyed, its particles can be reused as raw resources, when separated carefully	0,10

Rating - Accessibility to fixing

Building level / System level / Product level assessment	
<i>Floor / system indication</i>	Rating
Bottom floor	
1. Loadbearing	
1.1 Foundation	0,90
1.2 Structure	0,63
1.3 Floors	0,80
2. Enclosing	
2.1 Façade open	0,78
2.2 Façade closed	0,53
2.3 Roof	
3. Finishing	
3.1 (raised) Floor	0,90
3.2 (lowered) Ceiling	
3.3 Partitioning	
3.4 Stairs	
4. Servicing	
4.1 Water	0,30
4.2 Electrical	0,90
4.3 Heating	
4.4 Ventilation	
Top floor	
1. Loadbearing	
1.1 Foundation	
1.2 Structure	0,63
1.3 Floors	0,75
2. Enclosing	
2.1 Façade open	0,78
2.2 Façade closed	0,58
2.3 Roof	0,60
3. Finishing	
3.1 (raised) Floor	0,90
3.2 (lowered) Ceiling	
3.3 Partitioning	
3.4 Stairs	
4. Servicing	
4.1 Water	0,30
4.2 Electrical	0,90
4.3 Heating	
4.4 Ventilation	

Accessibility to fixing - Assessment values	
<i>Based on the number of disassembly sequences required to access the fixing of the part</i>	Rating
1. Part is directly accessible	0,9
2. $0 < x \leq 2$ sequences	0,6
3. $2 < x \leq 4$ sequences	0,3
4. $4 < x$ sequences	0,1

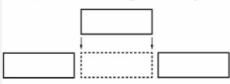
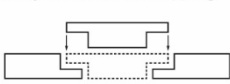
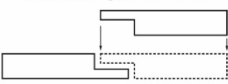

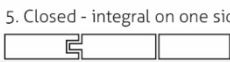
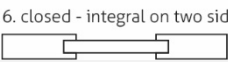
Rating - Standardisation of product edge

Building level / System level / Product level assessment		Rating
<i>Floor / system indication</i>		
Bottom floor		
1. Loadbearing		
1.1 Foundation		0,90
1.2 Structure		0,90
1.3 Floors		0,90
2. Enclosing		
2.1 Façade open		0,86
2.2 Façade closed		0,78
2.3 Roof		
3. Finishing		
3.1 (raised) Floor		0,80
3.2 (lowered) Ceiling		
3.3 Partitioning		
3.4 Stairs		
4. Servicing		
4.1 Water		0,90
4.2 Electrical		0,70
4.3 Heating		
4.4 Ventilation		
Top floor		
1. Loadbearing		
1.1 Foundation		
1.2 Structure		0,90
1.3 Floors		0,90
2. Enclosing		
2.1 Façade open		0,86
2.2 Façade closed		0,78
2.3 Roof		0,87
3. Finishing		
3.1 (raised) Floor		0,80
3.2 (lowered) Ceiling		
3.3 Partitioning		
3.4 Stairs		
4. Servicing		
4.1 Water		0,90
4.2 Electrical		0,70
4.3 Heating		
4.4 Ventilation		

Standardisation of product edge - Assessment values		Rating
<i>The standardisation of product edge each part will be evaluated based on the following values</i>		
1. Pre-made	Parts that are manufactured off-site and allow for direct assembled without modifications	0,9
2. Half-standardised	e.g. materials of commerce that have to be modified in the dimension required on-site	0,7
3. On-site	Parts made on-site, e.g. in-situ concrete, cement or plaster	0,1

Rating - Geometry of product edge

Building level / System level / Product level assessment								
Floor indication	Open - linear geometry	Symmetric overlapping	Overlapping on one side	Unsymmetric overlapping	Closed - integral on one side	Closed - integral on two sides	Number of parts	Average rating
Bottom floor								
1. Loadbearing								
1.1 Foundation	1	0	0	0	1	0	2	0,60
1.2 Structure	3	0	0	0	0	0	3	0,90
1.3 Floors	1	2	0	0	0	0	3	0,83
2. Enclosing								
2.1 Façade open	2	3	0	0	0	0	5	0,84
2.2 Façade closed	6	2	0	4	0	0	12	0,75
2.3 Roof	0	0	0	0	0	0	0	
3. Finishing								
3.1 (raised) Floor	2	0	0	0	0	0	2	0,90
3.2 (lowered) Ceiling	0	0	0	0	0	0	0	
3.3 Partitioning	0	0	0	0	0	0	0	
3.4 Stairs	0	0	0	0	0	0	0	
4. Servicing								
4.1 Water	0	0	0	0	1	0	1	0,30
4.2 Electrical	1	0	0	0	0	0	1	0,90
4.3 Heating	0	0	0	0	0	0	0	
4.4 Ventilation	0	0	0	0	0	0	0	
Top floor								
1. Loadbearing								
1.1 Foundation	0	0	0	0	0	0	0	
1.2 Structure	3	0	0	0	0	0	3	0,90
1.3 Floors	0	2	0	0	0	0	2	0,80
2. Enclosing								
2.1 Façade open	2	3	0	0	0	0	5	0,84
2.2 Façade closed	6	2	0	4	0	0	12	0,75
2.3 Roof	4	1	0	1	0	0	6	0,82
3. Finishing								
3.1 (raised) Floor	2	0	0	0	0	0	2	0,90
3.2 (lowered) Ceiling	0	0	0	0	0	0	0	
3.3 Partitioning	0	0	0	0	0	0	0	
3.4 Stairs	0	0	0	0	0	0	0	
4. Servicing								
4.1 Water	0	0	0	0	1	0	1	0,30
4.2 Electrical	1	0	0	0	0	0	1	0,90
4.3 Heating	0	0	0	0	0	0	0	
4.4 Ventilation	0	0	0	0	0	0	0	

Standardisation of product edge - Assessment values	
The standardisation of product edge each part will be evaluated based on six types of standardisation of product edge, as defined in the figure below.	
<p>1. Open - linear geometry</p> 	<p>2. Symmetrical overlapping</p> 
<p>3. Overlapping on one side</p> 	
<p>4. Unsymmetric overlapping</p> 	<p>5. Closed - integral on one side</p> 
<p>6. closed - integral on two sides</p> 	
	Rating
1. Open - linear geometry	0,9
2. Symmetric overlapping	0,8
3. Overlapping on one side	0,7
4. Unsymmetric overlapping	0,5
5. Closed - integral on one side	0,3
6. Closed - integral on two sides	0,1

Rating - Standardisation to production dimensions

Building level / System level / Product level assessment	
Floor / system indication	Rating
Bottom floor	
1. Loadbearing	
1.1 Foundation	0,70
1.2 Structure	0,90
1.3 Floors	0,70
2. Enclosing	
2.1 Façade open	0,70
2.2 Façade closed	0,75
2.3 Roof	
3. Finishing	
3.1 (raised) Floor	0,70
3.2 (lowered) Ceiling	
3.3 Partitioning	
3.4 Stairs	
4. Servicing	
4.1 Water	0,70
4.2 Electrical	0,70
4.3 Heating	
4.4 Ventilation	
Top floor	
1. Loadbearing	
1.1 Foundation	
1.2 Structure	0,90
1.3 Floors	0,70
2. Enclosing	
2.1 Façade open	0,70
2.2 Façade closed	0,75
2.3 Roof	0,90
3. Finishing	
3.1 (raised) Floor	0,70
3.2 (lowered) Ceiling	
3.3 Partitioning	
3.4 Stairs	
4. Servicing	
4.1 Water	0,70
4.2 Electrical	0,70
4.3 Heating	
4.4 Ventilation	

Standardisation to production dimensions - Assessment values	
based on % of waste being produced in the production stage	Rating
1. $x \leq 5$	0,9
2. $5 < x \leq 10$	0,6
3. $10 < x \leq 20$	0,3
4. $20 < x$	0,1

INPUT SPECIFICATION - REUSE POTENTIAL TOOL

Content	<i>Generated/ non-generated input</i>		<i>All required data inserted? (automatically checked)</i>	
Functional decomposition				
F1 Functional separation	x		✓	
Servicing integration				
T1 Type of installation system integration	x		✓	
Systematisation of material levels				
S1 Number of product levels	✓		✓	
S2 Type of clustering	✓		✓	
Relational pattern				
R1 Number of relations	✓		✓	
R2 Hierarchical position of relations	✓		✓	
R3 Type of relational pattern	✓		✓	
Assembly				
A1 Assembly & disassembly sequences	✓		✓	
Base element				
B1 Base element specification	✓		✓	
Life cycle coordination				
L1 Technical life cycle coordination	✓		✓	
L2 Remaining Technical lifespan	✓		✓	
Connections				
C1 Type of connections	✓		✓	
C2 Connection damage	✓		✓	
Accessibility				
AC1 Accessibility to fixing	x		✓	
Geometry				
G1 Standardisation of product edge	x		✓	
G2 Geometry of product edge	x		✓	
Resource input reduction				
SP1 Standardisation to production dimensions	x		✓	

Functional separation

Input - Building level / System level - Generic functionality of sub-systems and components							
<i>Is the component or sub-system designed in such a way that it can be directly reused as another sub-function?</i>							
Building system and floor indication				Building system and floor indication			
Sub-system	Generic product	Component	Generic product	Sub-system	Generic product	Component	Generic product
Bottom floor				Top floor			
1. Loadbearing				1. Loadbearing			
		Component1	no			Component5	no
2. Enclosing				2. Enclosing			
Assembly1	no	Component2	no	Assembly3	no	Component6	no
Assembly2	no	Component3	no	Assembly4	no	Component7	no
		Component4	no			Component8	no

Input - Building level / System level - Sub-functions/ basic functions (FSf)											
Bottom floor						Top floor					
No	Part id	Sub-function	Multiple sub-functions	Generic function	Multiple basic functions	No	Part id	Sub-function	Multiple sub-functions	Generic function	Multiple basic functions
1	1.11 scfb	Foundation	No	Support	No	29	1.21 st shc	Structure	No	Support	No
2	1.12 i-sbp	Foundation	No	Integration	No	30	1.22 st b	Structure	No	Support	No
3	1.21 st shc	Structure	No	Support	No	31	1.23 st t	Structure	No	Support	No
4	1.22 st b	Structure	No	Support	No	61					
5	1.23 st t	Structure	No	Support	No	32	1.31 co fl	Floors	Structure	Support	No
25						51	1.33 al i p	Floors	No	Integration	No
6	1.31 co fl	Floors	Structure	Support	No	62					
7	1.32 fl i	Floors	No	Control	No	33	2.11 ti fr	Façade open	No	Support	No
23	1.33 al i p	Floors	No	Integration	No	34	2.12 wi fr	Façade open	No	Support	No
26						35	2.13 v grill	Façade open	No	Control	No
8	2.11 ti fr	Façade open	No	Support	No	36	2.14 d gla	Façade open	No	Control	No
9	2.12 wi fr	Façade open	No	Support	No	37	2.15 i-fin	Façade open	No	Finishing	No
10	2.13 v grill	Façade open	No	Control	No	63					
11	2.14 d gla	Façade open	No	Control	No	38	2.21 ti fr	Façade closed	No	Support	No
12	2.15 i-fin	Façade open	No	Finishing	No	39	2.22 gw i	Façade closed	No	Control	No
27						40	2.23 va bai	Façade closed	No	Control	No
13	2.21 ti fr	Façade closed	No	Support	No	41	2.24 plb	Façade closed	No	Finishing	No
14	2.22 gw i	Façade closed	No	Control	No	42	2.28 ti ba	Façade closed	No	Integration	No
15	2.23 va bai	Façade closed	No	Control	No	43	2.29 mb-o	Façade closed	No	Control	Finishing
16	2.24 plb	Façade closed	No	Finishing	No	52	2.27 osb	Façade closed	No	Finishing	No
17	2.28 ti ba	Façade closed	No	Integration	No	56	2.25 pw bu	Façade closed	No	Support	No
18	2.29 mb-o	Façade closed	No	Control	Finishing	57	2.26 th ins	Façade closed	No	Control	No
22	2.27 osb	Façade closed	No	Finishing	No	58	2.28 ti ba	Façade closed	No	Integration	No
28						59	2.29 mb-o	Façade closed	No	Control	Finishing
56	2.25 pw bu	Façade closed	No	Support	No	60	2.210 tcps	Façade closed	No	Finishing	No
57	2.26 th ins	Façade closed	No	Control	No	64					
58	2.28 ti ba	Façade closed	No	Integration	No	44	2.31 t ms	Roof	No	Support	No
59	2.29 mb-o	Façade closed	No	Control	Finishing	45	2.32 r v ba	Roof	No	Control	No
60	2.210 tcps	Façade closed	No	Finishing	No	46	2.33 r pf i	Roof	No	Control	No
19	3.11 fl fi	(raised) Floor	No	Finishing	No	47	2.34 t ep	Roof	No	Integration	No
24	3.11 fl fi i	(raised) Floor	No	Finishing	No	53	2.35 pr sl	Roof	No	Control	No
20	4.11 rwp	Water	No	Control	No	54	2.36 m cp	Roof	No	Control	No
21	4.21 in p	Electrical	No	Control	No	65					
						66					
						48	3.11 fl fi	(raised) Floor	No	Finishing	No
						55	3.11 fl fi i	(raised) Floor	No	Finishing	No
						49	4.11 rwp	Water	No	Control	No
						50	4.21 in p	Electrical	No	Control	No

Type of installation system integration

Input - Building level / System level / Product level		Assessment based on the average value, which is calculated based on the type of integration of different main and sub-distribution installation systems (e.g. water, electrical, heating and ventilation) in the building sub-functions (foundation, structure, floor, façade open, façade closed, roof, (raised) floor, (lowered) ceiling, partitioning and stairs)								
Sub-functions		Type of integration of different types of installations in sub-functions								
		Water	Electrical	Heating	Ventilation					
Main distribution	1. Loadbearing	1.1 Foundation	no dependency	no dependency	no dependency	no dependency				
		1.2 Structure	no dependency	no dependency	no dependency	no dependency				
		1.3 Floor	planned integration	planned integration	No dependency	No dependency				
	2. Enclosing	2.1 Façade open	no dependency	no dependency	no dependency	No dependency				
		2.2 Façade closed	no dependency	No dependency	no dependency	no dependency				
		2.3 Roof	no dependency	no dependency	no dependency	no dependency				
	3. Finishing	3.1 (raised) Floor	no dependency	no dependency	no dependency	no dependency				
		3.2 (lowered) Ceiling	no dependency	No dependency	no dependency	no dependency				
		3.3 Partitioning	no dependency	No dependency	no dependency	no dependency				
		3.4 Stairs	no dependency	no dependency	no dependency	no dependency				
	Sub-distribution	1. Loadbearing	1.1 Foundation	no dependency	no dependency	no dependency	no dependency			
			1.2 Structure	no dependency	no dependency	no dependency	no dependency			
1.3 Floor			planned integration	planned integration	No dependency	No dependency				
2. Enclosing		2.1 Façade open	no dependency	no dependency	no dependency	No dependency				
		2.2 Façade closed	no dependency	Planned integration	no dependency	no dependency				
		2.3 Roof	no dependency	no dependency	no dependency	no dependency				
3. Finishing		3.1 (raised) Floor	modular zoning	modular zoning	No dependency	No dependency				
		3.2 (lowered) Ceiling	no dependency	no dependency	no dependency	no dependency				
		3.3 Partitioning	No dependency	No dependency	No dependency	No dependency				
		3.4 Stairs	no dependency	no dependency	no dependency	no dependency				

Type of installation integration - Assessment values	
<p>Depending on the type of integration of the installation system in the building, the installation will enable modification or additions in a non-destructive manner, which in turn would allow the subtracted building products to be reused. To assess the incorporation of installation systems in a building five types of integration are defined, which will be used to evaluate the integration of both, the main distribution and sub-distribution of all four types of installations (water, electrical, heating and ventilation system). Five types of integration are defined based on Durmisevic (2006), as shown in the figure below, which are evaluated based on the assessment values defined below.</p>	
Types of integration	Rating
1. No dependency: Installation system has no dependency or relation with the determined building function	
2. Modular zoning: Dedicated area is used where installations are clustered and easily accessible for modifications	0,9
3. Planned integration: Specified area is dedicated for the installations, which allows for minor modifications or additions	0,7
4. Unplanned integration: Installation is accessible, but integrated with no excess space for future modifications or additions	0,3
5. Total dependency: Installation is entirely integrated in the buildings, only accessible in a destructive manner	0,1

Number of product levels

Input - Building level / System level / Product level									
<i>For each element the selected product levels are identified</i>									
Bottom floor				Top Floor					
<i>Prefabricated product level indication</i>				<i>Prefabricated product level indication</i>					
No	Part id	Chunk	Assembly	Component	No	Part id	Chunk	Assembly	Component
1	1.11 scfb	Element	Element	Element	29	1.21 st shc	Chunk2	Component5	Component5
2	1.12 i-sbp	Element	Element	Element	30	1.22 st b	Chunk2	Component5	Component5
3	1.21 st shc	Chunk1	Component1	Component1	31	1.23 st t	Chunk2	Component5	Component5
4	1.22 st b	Chunk1	Component1	Component1	61				
5	1.23 st t	Chunk1	Component1	Component1	32	1.31 co fl	Chunk2	Component5	Component5
25					51	1.33 al i p	Element	Element	Element
6	1.31 co fl	Chunk1	Component1	Component1	62				
7	1.32 fl i	Chunk1	Element	Element	33	2.11 ti fr	Chunk2	Element	Element
23	1.33 al i p	Element	Element	Element	34	2.12 wi fr	Chunk2	Assembly3	Component6
26					35	2.13 v grill	Chunk2	Assembly3	Component7
8	2.11 ti fr	Chunk1	Element	Element	36	2.14 d gla	Chunk2	Assembly3	Element
9	2.12 wi fr	Chunk1	Assembly1	Component2	37	2.15 i-fin	Chunk2	Element	Element
10	2.13 v grill	Chunk1	Assembly1	Component3	63				
11	2.14 d gla	Chunk1	Assembly1	Element	38	2.21 ti fr	Chunk2	Assembly4	Component8
12	2.15 i-fin	Chunk1	Element	Element	39	2.22 gw i	Chunk2	Assembly4	Element
27					40	2.23 va bai	Chunk2	Assembly4	Element
13	2.21 ti fr	Chunk1	Assembly2	Component4	41	2.24 plb	Chunk2	Assembly4	Element
14	2.22 gw i	Chunk1	Assembly2	Element	42	2.28 ti ba	Chunk2	Assembly4	Element
15	2.23 va bai	Chunk1	Assembly2	Element	43	2.29 mb-o	Chunk2	Assembly4	Element
16	2.24 plb	Chunk1	Assembly2	Element	52	2.27 osb	Element	Element	Element
17	2.28 ti ba	Chunk1	Assembly2	Element	56	2.25 pw bu	Element	Element	Element
18	2.29 mb-o	Chunk1	Assembly2	Element	57	2.26 th ins	Element	Element	Element
22	2.27 osb	Element	Element	Element	58	2.28 ti ba	Element	Element	Element
28					59	2.29 mb-o	Element	Element	Element
56	2.25 pw bu	Element	Element	Element	60	2.210 tcps	Element	Element	Element
57	2.26 th ins	Element	Element	Element	64				
58	2.28 ti ba	Element	Element	Element	44	2.31 t ms	Chunk2	Element	Element
59	2.29 mb-o	Element	Element	Element	45	2.32 r v ba	Chunk2	Element	Element
60	2.210 tcps	Element	Element	Element	46	2.33 r pf i	Chunk2	Element	Element
19	3.11 fl fi	Chunk1	Element	Element	47	2.34 t ep	Chunk2	Element	Element
24	3.11 fl fi i	Element	Element	Element	53	2.35 pr sl	Element	Element	Element
20	4.11 rwp	Chunk1	Element	Element	54	2.36 m cp	Element	Element	Element
21	4.21 in p	Chunk1	Element	Element	65				
					66				
					48	3.11 fl fi	Chunk2	Element	Element
					55	3.11 fl fi i	Element	Element	Element
					49	4.11 rwp	Chunk2	Element	Element
					50	4.21 in p	Chunk2	Element	Element

Type of clustering

Input - Building level / System level / Product level									
For each element the selected product levels are identified									
Bottom floor					Top Floor				
No.	Part id	Building level	Clustered parts		No.	Part id	Building level	Clustered parts	
			System level	Product level				System level	Product level
1	1.11 scfb				29	1.21 st shc	Clustered	Clustered	Clustered
2	1.12 i-sbp				30	1.22 st b	Clustered	Clustered	Clustered
3	1.21 st shc	Clustered	Clustered	Clustered	31	1.23 st t	Clustered	Clustered	Clustered
4	1.22 st b	Clustered	Clustered	Clustered	61				
5	1.23 st t	Clustered	Clustered	Clustered	32	1.31 co fl	Clustered	Clustered	Clustered
25					51	1.33 al i p			
6	1.31 co fl	Clustered	Clustered	Clustered	62				
7	1.32 fl i	Clustered			33	2.11 ti fr	Clustered		
23	1.33 al i p				34	2.12 wi fr	Clustered	Clustered	Clustered
26					35	2.13 v grill	Clustered	Clustered	Clustered
8	2.11 ti fr	Clustered			36	2.14 d gla	Clustered	Clustered	
9	2.12 wi fr	Clustered	Clustered	Clustered	37	2.15 i-fin	Clustered		
10	2.13 v grill	Clustered	Clustered	Clustered	63				
11	2.14 d gla	Clustered	Clustered		38	2.21 ti fr	Clustered	Clustered	Clustered
12	2.15 i-fin	Clustered			39	2.22 gw i	Clustered	Clustered	
27					40	2.23 va bai	Clustered	Clustered	
13	2.21 ti fr	Clustered	Clustered	Clustered	41	2.24 plb	Clustered	Clustered	
14	2.22 gw i	Clustered	Clustered		42	2.28 ti ba	Clustered	Clustered	
15	2.23 va bai	Clustered	Clustered		43	2.29 mb-o	Clustered	Clustered	
16	2.24 plb	Clustered	Clustered		52	2.27 osb			
17	2.28 ti ba	Clustered	Clustered		56	2.25 pw bu			
18	2.29 mb-o	Clustered	Clustered		57	2.26 th ins			
22	2.27 osb				58	2.28 ti ba			
28					59	2.29 mb-o			
56	2.25 pw bu				60	2.210 tcps			
57	2.26 th ins				64				
58	2.28 ti ba				44	2.31 t ms	Clustered		
59	2.29 mb-o				45	2.32 r v ba	Clustered		
60	2.210 tcps				46	2.33 r pf i	Clustered		
19	3.11 fl fi	Clustered			47	2.34 t ep	Clustered		
24	3.11 fl fi i				53	2.35 pr sl			
20	4.11 rwp	Clustered			54	2.36 m cp			
21	4.21 in p	Clustered			65				
					66				
					48	3.11 fl fi	Clustered		
					55	3.11 fl fi i			
					49	4.11 rwp	Clustered		
					50	4.21 in p	Clustered		

Number of relations

Generated input - Building level							
Bottom floor				Top floor			
No.	Part id	Sub-function	Number of relations	No.	Part id	Sub-function	Number of relations
1	1.11 scfb	Foundation	0	29	1.21 st shc	Structure	2
2	1.12 i-sbp	Foundation	2	30	1.22 st b	Structure	0
3	1.21 st shc	Structure	2	31	1.23 st t	Structure	0
4	1.22 st b	Structure	0	61			
5	1.23 st t	Structure	0	32	1.31 co fl	Floors	0
25				51	1.33 al i p	Floors	2
6	1.31 co fl	Floors	0	62			
7	1.32 fl i	Floors	0	33	2.11 ti fr	Façade open	0
23	1.33 al i p	Floors	2	34	2.12 wi fr	Façade open	0
26				35	2.13 v grill	Façade open	0
8	2.11 ti fr	Façade open	0	36	2.14 d gla	Façade open	0
9	2.12 wi fr	Façade open	0	37	2.15 i-fin	Façade open	0
10	2.13 v grill	Façade open	0	63			
11	2.14 d gla	Façade open	0	38	2.21 ti fr	Façade closed	0
12	2.15 i-fin	Façade open	0	39	2.22 gw i	Façade closed	0
27				40	2.23 va bai	Façade closed	0
13	2.21 ti fr	Façade closed	0	41	2.24 plb	Façade closed	0
14	2.22 gw i	Façade closed	0	42	2.28 ti ba	Façade closed	0
15	2.23 va bai	Façade closed	0	43	2.29 mb-o	Façade closed	1
16	2.24 plb	Façade closed	0	52	2.27 osb	Façade closed	5
17	2.28 ti ba	Façade closed	0	56	2.25 pw bu	Façade closed	10
18	2.29 mb-o	Façade closed	0	57	2.26 th ins	Façade closed	1
22	2.27 osb	Façade closed	5	58	2.28 ti ba	Façade closed	1
28				59	2.29 mb-o	Façade closed	4
56	2.25 pw bu	Façade closed	10	60	2.210 tcps	Façade closed	3
57	2.26 th ins	Façade closed	1	64			
58	2.28 ti ba	Façade closed	1	44	2.31 t ms	Roof	0
59	2.29 mb-o	Façade closed	4	45	2.32 r v ba	Roof	0
60	2.210 tcps	Façade closed	3	46	2.33 r pf i	Roof	0
19	3.11 fl fi	(raised) Floor	0	47	2.34 t ep	Roof	0
24	3.11 fl fi i	(raised) Floor	4	53	2.35 pr sl	Roof	5
20	4.11 rwp	Water	0	54	2.36 m cp	Roof	3
21	4.21 in p	Electrical	1	65			
				66			
				48	3.11 fl fi	(raised) Floor	0
				55	3.11 fl fi i	(raised) Floor	3
				49	4.11 rwp	Water	1
				50	4.21 in p	Electrical	1
Total			35	Total			42

Number of relations

Generated input - System level											
Bottom floor					Top Floor						
Relations between same main building function					Relations between same main building function						
No.	Part id	Loadbearing	Enclosing	Finishing	Servicing	No.	Part id	Loadbearing	Enclosing	Finishing	Servicing
Loadbearing					Loadbearing						
1	1.11 scfb	0	0	0	0	29	1.21 st shc	2	0	0	0
2	1.12 i-sbp	2	0	0	0	30	1.22 st b	0	0	0	0
3	1.21 st shc	2	0	0	0	31	1.23 st t	0	0	0	0
4	1.22 st b	0	0	0	0	61					
5	1.23 st t	0	0	0	0	32	1.31 co fl	0	0	0	0
25						51	1.33 al i p	2	0	0	0
6	1.31 co fl	0	0	0	0	62					
7	1.32 fl i	1	0	0	0						
23	1.33 al i p	2	0	0	0						
26											
<i>Total relations</i>		7	0	0	0	<i>Total relations</i>		4	0	0	0
<i>Total parts with relator</i>		4	0	0	0	<i>Total parts with relator</i>		2	0	0	0
Enclosing					Enclosing						
8	2.11 ti fr	3	0	0	0	33	2.11 ti fr	3	0	0	0
9	2.12 wi fr	0	1	0	0	34	2.12 wi fr	0	1	0	0
10	2.13 v grill	0	0	0	0	35	2.13 v grill	0	0	0	0
11	2.14 d gla	0	0	0	0	36	2.14 d gla	0	0	0	0
12	2.15 i-fin	0	1	0	0	37	2.15 i-fin	0	1	0	0
27						63					
13	2.21 ti fr	3	0	0	0	38	2.21 ti fr	3	0	0	0
14	2.22 gw i	0	0	0	0	39	2.22 gw i	0	0	0	0
15	2.23 va bai	0	0	0	0	40	2.23 va bai	0	0	0	0
16	2.24 plb	0	0	0	0	41	2.24 plb	0	0	0	0
17	2.28 ti ba	0	0	0	0	42	2.28 ti ba	0	0	0	0
18	2.29 mb-o	0	0	0	0	43	2.29 mb-o	0	1	0	0
22	2.27 osb	1	4	0	0	52	2.27 osb	1	4	0	0
28						56	2.25 pw bu	0	10	0	0
56	2.25 pw bu	0	10	0	0	57	2.26 th ins	0	1	0	0
57	2.26 th ins	0	1	0	0	58	2.28 ti ba	0	1	0	0
58	2.28 ti ba	0	1	0	0	59	2.29 mb-o	0	4	0	0
59	2.29 mb-o	0	4	0	0	60	2.210 tcps	0	3	0	0
60	2.210 tcps	0	3	0	0	64					
						44	2.31 t ms	1	0	0	0
						45	2.32 r v ba	0	1	0	0
						46	2.33 r pf i	0	2	0	0
						47	2.34 t ep	1	0	0	0
						53	2.35 pr sl	0	4	0	1
						54	2.36 m cp	0	3	0	0
						65					
						66					
<i>Total relations</i>		7	25	0	0	<i>Total relations</i>		9	36	0	1
<i>Total parts with relator</i>		3	8	0	0	<i>Total parts with relator</i>		5	13	0	1
Finishing					Finishing						
19	3.11 fl fi	1	0	0	0	48	3.11 fl fi	1	0	0	0
24	3.11 fl fi i	4	0	0	0	55	3.11 fl fi i	3	0	0	0
<i>Total relations</i>		5	0	0	0	<i>Total relations</i>		4	0	0	0
<i>Total parts with relator</i>		2	0	0	0	<i>Total parts with relator</i>		2	0	0	0
Servicing					Servicing						
20	4.11 rwp	1	0	0	0	49	4.11 rwp	1	0	0	1
21	4.21 in p	2	0	0	0	50	4.21 in p	2	0	0	0
<i>Total relations</i>		3	0	0	0	<i>Total relations</i>		3	0	0	1
<i>Total parts with relator</i>		2	0	0	0	<i>Total parts with relator</i>		2	0	0	1

Number of relations

Generated input - Product level											
Bottom floor					Top Floor						
Relations between same main building function					Relations between same main building function						
No.	Part id	Loadbearing	Enclosing	Finishing	Servicing	No.	Part id	Loadbearing	Enclosing	Finishing	Servicing
Loadbearing					Loadbearing						
1	1.11 scfb	0	0	0	0	29	1.21 st shc	2	0	0	0
2	1.12 i-sbp	2	0	0	0	30	1.22 st b	1	0	0	0
3	1.21 st shc	2	0	0	0	31	1.23 st t	1	0	0	0
4	1.22 st b	1	0	0	0	61					
5	1.23 st t	1	0	0	0	32	1.31 co fl	1	0	0	0
25						51	1.33 al i p	2	0	0	0
6	1.31 co fl	1	0	0	0	62					
7	1.32 fl i	1	0	0	0						
23	1.33 al i p	2	0	0	0						
26											
<i>Total relations</i>		10	0	0	0	<i>Total relations</i>		7	0	0	0
<i>Total parts with relator</i>		7	0	0	0	<i>Total parts with relator</i>		5	0	0	0
Enclosing					Enclosing						
8	2.11 ti fr	3	0	0	0	33	2.11 ti fr	3	0	0	0
9	2.12 wi fr	0	1	0	0	34	2.12 wi fr	0	1	0	0
10	2.13 v grill	0	1	0	0	35	2.13 v grill	0	1	0	0
11	2.14 d gla	0	1	0	0	36	2.14 d gla	0	1	0	0
12	2.15 i-fin	0	1	0	0	37	2.15 i-fin	0	1	0	0
27						63					
13	2.21 ti fr	3	0	0	0	38	2.21 ti fr	3	0	0	0
14	2.22 gw i	0	1	0	0	39	2.22 gw i	0	1	0	0
15	2.23 va bai	0	2	0	0	40	2.23 va bai	0	2	0	0
16	2.24 plb	0	2	0	0	41	2.24 plb	0	2	0	0
17	2.28 ti ba	0	1	0	0	42	2.28 ti ba	0	1	0	0
18	2.29 mb-o	0	3	0	0	43	2.29 mb-o	0	4	0	0
22	2.27 osb	1	4	0	0	52	2.27 osb	1	4	0	0
28						56	2.25 pw bu	0	10	0	0
56	2.25 pw bu	0	10	0	0	57	2.26 th ins	0	1	0	0
57	2.26 th ins	0	1	0	0	58	2.28 ti ba	0	1	0	0
58	2.28 ti ba	0	1	0	0	59	2.29 mb-o	0	4	0	0
59	2.29 mb-o	0	4	0	0	60	2.210 tcps	0	3	0	0
60	2.210 tcps	0	3	0	0	64					
						44	2.31 t ms	1	0	0	0
						45	2.32 r v ba	0	1	0	0
						46	2.33 r pf i	0	2	0	0
						47	2.34 t ep	1	0	0	0
						53	2.35 pr sl	0	4	0	1
						54	2.36 m cp	0	3	0	0
						65					
						66					
<i>Total relations</i>		7	36	0	0	<i>Total relations</i>		9	47	0	1
<i>Total parts with relator</i>		3	15	0	0	<i>Total parts with relator</i>		5	19	0	1
Finishing					Finishing						
19	3.11 fl fi	1	0	0	0	48	3.11 fl fi	1	0	0	0
24	3.11 fl fi i	4	0	0	0	55	3.11 fl fi i	3	0	0	0
<i>Total relations</i>		5	0	0	0	<i>Total relations</i>		4	0	0	0
<i>Total parts with relator</i>		2	0	0	0	<i>Total parts with relator</i>		2	0	0	0
Servicing					Servicing						
20	4.11 rwp	1	0	0	0	49	4.11 rwp	1	0	0	1
21	4.21 in p	2	0	0	0	50	4.21 in p	2	0	0	0
<i>Total relations</i>		3	0	0	0	<i>Total relations</i>		3	0	0	1
<i>Total parts with relator</i>		2	0	0	0	<i>Total parts with relator</i>		2	0	0	1

Hierarchical position of relations

Generated input - Building level													
Bottom floor						Top floor							
Relations to other main building functions (being no support function)						Relations to other main building functions (being no support function)							
No.	Part id	Loadbearing	Enclosing	Finishing	Servicing	# of parts related to (being no support function)	No.	Part id	Loadbearing	Enclosing	Finishing	Servicing	# of parts related to (being no support function)
1	1.11 scfb	0	0	0	0	0	29	1.21 st shc	2	0	0	0	0
2	1.12 i-sbp	2	0	0	0	0	30	1.22 st b	0	0	0	0	0
3	1.21 st shc	2	0	0	0	0	31	1.23 st t	0	0	0	0	0
4	1.22 st b	0	0	0	0	0	61						
5	1.23 st t	0	0	0	0	0	32	1.31 co fl	0	0	0	0	0
25							51	1.33 al i p	2	0	0	0	0
6	1.31 co fl	0	0	0	0	0	62						
7	1.32 fl i	1	0	0	0	0	33	2.11 ti fr	3	0	0	0	0
23	1.33 al i p	2	0	0	0	0	34	2.12 wi fr	0	1	0	0	0
26							35	2.13 v grill	0	0	0	0	0
8	2.11 ti fr	3	0	0	0	0	36	2.14 d gla	0	0	0	0	0
9	2.12 wi fr	0	1	0	0	0	37	2.15 i-fin	0	1	0	0	0
10	2.13 v grill	0	0	0	0	0	63						
11	2.14 d gla	0	0	0	0	0	38	2.21 ti fr	3	0	0	0	0
12	2.15 i-fin	0	1	0	0	0	39	2.22 gw i	0	0	0	0	0
27							40	2.23 va bai	0	0	0	0	0
13	2.21 ti fr	3	0	0	0	0	41	2.24 plb	0	0	0	0	0
14	2.22 gw i	0	0	0	0	0	42	2.28 ti ba	0	0	0	0	0
15	2.23 va bai	0	0	0	0	0	43	2.29 mb-o	0	1	0	0	0
16	2.24 plb	0	0	0	0	0	52	2.27 osb	1	4	0	0	0
17	2.28 ti ba	0	0	0	0	0	56	2.25 pw bu	0	10	0	0	0
18	2.29 mb-o	0	0	0	0	0	57	2.26 th ins	0	1	0	0	0
22	2.27 osb	1	4	0	0	0	58	2.28 ti ba	0	1	0	0	0
28							59	2.29 mb-o	0	4	0	0	0
56	2.25 pw bu	0	10	0	0	0	60	2.210 tcps	0	3	0	0	0
57	2.26 th ins	0	1	0	0	0	64						
58	2.28 ti ba	0	1	0	0	0	44	2.31 t ms	1	0	0	0	0
59	2.29 mb-o	0	4	0	0	0	45	2.32 r v ba	0	1	0	0	0
60	2.210 tcps	0	3	0	0	0	46	2.33 r pf i	0	2	0	0	0
19	3.11 fl fi	1	0	0	0	0	47	2.34 t ep	1	0	0	0	0
24	3.11 fl fi i	4	0	0	0	0	53	2.35 pr sl	0	4	0	1	1
20	4.11 rwp	1	0	0	0	0	54	2.36 m cp	0	3	0	0	0
21	4.21 in p	2	0	0	0	0	65						
							66						
							48	3.11 fl fi	1	0	0	0	0
							55	3.11 fl fi i	3	0	0	0	0
							49	4.11 rwp	1	0	0	1	0
							50	4.21 in p	2	0	0	0	0
Total						0	Total						1

Hierarchical position of relations

Generated input - System level											
Bottom floor					Top floor						
Relations to other main building functions (being no support or same function)					Relations to other main building functions (being no support or same function)						
No.	Part id	Loadbearing	Enclosing	Finishing	Servicing	No.	Part id	Loadbearing	Enclosing	Finishing	Servicing
Loadbearing					Loadbearing						
Enclosing					Enclosing						
8	2.11 ti fr	3	0	0	0	33	2.11 ti fr	3	0	0	0
9	2.12 wi fr	0	1	0	0	34	2.12 wi fr	0	1	0	0
10	2.13 v grill	0	0	0	0	35	2.13 v grill	0	0	0	0
11	2.14 d gla	0	0	0	0	36	2.14 d gla	0	0	0	0
12	2.15 i-fin	0	1	0	0	37	2.15 i-fin	0	1	0	0
27						63					
13	2.21 ti fr	3	0	0	0	38	2.21 ti fr	3	0	0	0
14	2.22 gw i	0	0	0	0	39	2.22 gw i	0	0	0	0
15	2.23 va bai	0	0	0	0	40	2.23 va bai	0	0	0	0
16	2.24 plb	0	0	0	0	41	2.24 plb	0	0	0	0
17	2.28 ti ba	0	0	0	0	42	2.28 ti ba	0	0	0	0
18	2.29 mb-o	0	0	0	0	43	2.29 mb-o	0	1	0	0
22	2.27 osb	1	4	0	0	52	2.27 osb	1	4	0	0
28						56	2.25 pw bu	0	10	0	0
56	2.25 pw bu	0	10	0	0	57	2.26 th ins	0	1	0	0
57	2.26 th ins	0	1	0	0	58	2.28 ti ba	0	1	0	0
58	2.28 ti ba	0	1	0	0	59	2.29 mb-o	0	4	0	0
59	2.29 mb-o	0	4	0	0	60	2.210 tcps	0	3	0	0
60	2.210 tcps	0	3	0	0	64					
						44	2.31 t ms	1	0	0	0
						45	2.32 r v ba	0	1	0	0
						46	2.33 r pf i	0	2	0	0
						47	2.34 t ep	1	0	0	0
						53	2.35 pr sl	0	4	0	1
						54	2.36 m cp	0	3	0	0
						65					
						66					
<i>Total relations</i>		7	25	0	0	<i>Total relations</i>		9	36	0	1
<i>Total parts with relations</i>		3	8	0	0	<i>Total parts with relations</i>		5	13	0	1
Finishing					Finishing						
19	3.11 fl fi	1	0	0	0	48	3.11 fl fi	1	0	0	0
24	3.11 fl fi i	4	0	0	0	55	3.11 fl fi i	3	0	0	0
<i>Total relations</i>		5	0	0	0	<i>Total relations</i>		4	0	0	0
<i>Total parts with relations</i>		2	0	0	0	<i>Total parts with relations</i>		2	0	0	0
Servicing					Servicing						
20	4.11 rwp	1	0	0	0	49	4.11 rwp	1	0	0	1
21	4.21 in p	2	0	0	0	50	4.21 in p	2	0	0	0
<i>Total relations</i>		3	0	0	0	<i>Total relations</i>		3	0	0	1
<i>Total parts with relations</i>		2	0	0	0	<i>Total parts with relations</i>		2	0	0	1

Hierarchical position of relations

Generated input - Product level											
Bottom floor					Top floor						
Relations to other main building functions (being no support or same function)					Relations to other main building functions (being no support or same function)						
No.	Part id	Loadbearing	Enclosing	Finishing	Servicing	No.	Part id	Loadbearing	Enclosing	Finishing	Servicing
Loadbearing					Loadbearing						
Enclosing					Enclosing						
8	2.11 ti fr	3	0	0	0	33	2.11 ti fr	3	0	0	0
9	2.12 wi fr	0	1	0	0	34	2.12 wi fr	0	1	0	0
10	2.13 v grill	0	1	0	0	35	2.13 v grill	0	1	0	0
11	2.14 d gla	0	1	0	0	36	2.14 d gla	0	1	0	0
12	2.15 i-fin	0	1	0	0	37	2.15 i-fin	0	1	0	0
27						63					
13	2.21 ti fr	3	0	0	0	38	2.21 ti fr	3	0	0	0
14	2.22 gw i	0	1	0	0	39	2.22 gw i	0	1	0	0
15	2.23 va bai	0	2	0	0	40	2.23 va bai	0	2	0	0
16	2.24 plb	0	2	0	0	41	2.24 plb	0	2	0	0
17	2.28 ti ba	0	1	0	0	42	2.28 ti ba	0	1	0	0
18	2.29 mb-o	0	3	0	0	43	2.29 mb-o	0	4	0	0
22	2.27 osb	1	4	0	0	52	2.27 osb	1	4	0	0
28						56	2.25 pw bu	0	10	0	0
56	2.25 pw bu	0	10	0	0	57	2.26 th ins	0	1	0	0
57	2.26 th ins	0	1	0	0	58	2.28 ti ba	0	1	0	0
58	2.28 ti ba	0	1	0	0	59	2.29 mb-o	0	4	0	0
59	2.29 mb-o	0	4	0	0	60	2.210 tcps	0	3	0	0
60	2.210 tcps	0	3	0	0	64					
						44	2.31 t ms	1	0	0	0
						45	2.32 r v ba	0	1	0	0
						46	2.33 r pf i	0	2	0	0
						47	2.34 t ep	1	0	0	0
						53	2.35 pr sl	0	4	0	1
						54	2.36 m cp	0	3	0	0
						65					
						66					
<i>Total relations</i>		7	36	0	0	<i>Total relations</i>		9	47	0	1
<i>Total parts with relations</i>		3	15	0	0	<i>Total parts with relations</i>		5	19	0	1
Finishing					Finishing						
19	3.11 fl fi	1	0	0	0	48	3.11 fl fi	1	0	0	0
24	3.11 fl fi i	4	0	0	0	55	3.11 fl fi i	3	0	0	0
<i>Total relations</i>		5	0	0	0	<i>Total relations</i>		4	0	0	0
<i>Total parts with relations</i>		2	0	0	0	<i>Total parts with relations</i>		2	0	0	0
Servicing					Servicing						
20	4.11 rwp	1	0	0	0	49	4.11 rwp	1	0	0	1
21	4.21 in p	2	0	0	0	50	4.21 in p	2	0	0	0
<i>Total relations</i>		3	0	0	0	<i>Total relations</i>		3	0	0	1
<i>Total parts with relations</i>		2	0	0	0	<i>Total parts with relations</i>		2	0	0	1

Assembly & disassembly sequences

Generated input - Building level																			
Bottom floor																			
No.	Part id	Number of parallel disassemblies per disassembly sequence														Total	Average assemblies	Disassembly sequences	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14				15
1	1.11 scfb	8	4	1	1	1	1										16	2,7	6
2	1.12 i-sbp	8	4	1	1	1											15	3,0	5
3	1.21 st shc	8	4	1	1												14	3,5	4
4	1.22 st b	8	4	1	1												14	3,5	4
5	1.23 st t	8	4	1	1												14	3,5	4
25																			
6	1.31 co fl	8	4	1	1												14	3,5	4
7	1.32 fl i	8	4	1	1												14	3,5	4
23	1.33 al i p	1															1	1,0	1
26																			
8	2.11 ti fr	8	4	1	1												14	3,5	4
9	2.12 wi fr	8	4	1	1												14	3,5	4
10	2.13 v grill	8	4	1	1												14	3,5	4
11	2.14 d gla	8	4	1	1												14	3,5	4
12	2.15 i-fin	8	4	1	1												14	3,5	4
27																			
13	2.21 ti fr	8	4	1	1												14	3,5	4
14	2.22 gw i	8	4	1	1												14	3,5	4
15	2.23 va bai	8	4	1	1												14	3,5	4
16	2.24 plb	8	4	1	1												14	3,5	4
17	2.28 ti ba	8	4	1	1												14	3,5	4
18	2.29 mb-o	8	4	1	1												14	3,5	4
22	2.27 osb																0	0,0	0
28																			
56	2.25 pw bu	3	1														4	2,0	2
57	2.26 th ins																0	0,0	0
58	2.28 ti ba	2															2	2,0	1
59	2.29 mb-o																0	0,0	0
60	2.210 tcps																0	0,0	0
19	3.11 fl fi	8	4	1	1												14	3,5	4
24	3.11 fl fi i																0	0,0	0
20	4.11 rwp	8	4	1	1												14	3,5	4
21	4.21 in p	8	4	1	1												14	3,5	4

Assembly & disassembly sequences

Generated input - Building level																			
Top floor																			
No.	Part id	Disassembly sequence number															Average assemblies	Disassembly sequences	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			total
29	1.21 st shc	6	3	1													10	3,3	3
30	1.22 st b	6	3	1													10	3,3	3
31	1.23 st t	6	3	1													10	3,3	3
61																			
32	1.31 co fl	6	3	1													10	3,3	3
51	1.33 al i p	1															1	1,0	1
62																			
33	2.11 ti fr	6	3	1													10	3,3	3
34	2.12 wi fr	6	3	1													10	3,3	3
35	2.13 v grill	6	3	1													10	3,3	3
36	2.14 d gla	6	3	1													10	3,3	3
37	2.15 i-fin	6	3	1													10	3,3	3
63																			
38	2.21 ti fr	6	3	1													10	3,3	3
39	2.22 gw i	6	3	1													10	3,3	3
40	2.23 va bai	6	3	1													10	3,3	3
41	2.24 plb	6	3	1													10	3,3	3
42	2.28 ti ba	6	3	1													10	3,3	3
43	2.29 mb-o	6	3	1													10	3,3	3
52	2.27 osb																0	0,0	0
56	2.25 pw bu	3	1														4	2,0	2
57	2.26 th ins																0	0,0	0
58	2.28 ti ba	2															2	2,0	1
59	2.29 mb-o																0	0,0	0
60	2.210 tcps																0	0,0	0
64																			
44	2.31 t ms	6	3	1													10	3,3	3
45	2.32 r v ba	6	3	1													10	3,3	3
46	2.33 r pf i	6	3	1													10	3,3	3
47	2.34 t ep	6	3	1													10	3,3	3
53	2.35 pr sl	1															1	1,0	1
54	2.36 m cp																0	0,0	0
65																			
66																			
48	3.11 fl fi	6	3	1													10	3,3	3
55	3.11 fl fi i																0	0,0	0
49	4.11 rwp	6	3	1													10	3,3	3
50	4.21 in p	6	3	1													10	3,3	3

Assembly & disassembly sequences

Generated input - System level																			
Bottom floor																			
No.	Part id	Number of parallel disassemblies per disassembly sequence														Total	Average assemblies	Disassembly sequences	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14				15
1	1.11 scfb	17	4	3	6	2	1	1	1								35	4,4	8
2	1.12 i-sbp	17	4	3	6	2	1	1									34	4,9	7
3	1.21 st shc	17	4	3	6	2	1										33	5,5	6
4	1.22 st b	17	4	3	6	2	1										33	5,5	6
5	1.23 st t	17	4	3	6	2	1										33	5,5	6
25																			
6	1.31 co fl	17	4	3	6	2	1										33	5,5	6
7	1.32 fl i																0	0,0	0
23	1.33 al i p	1															1	1,0	1
26																			
8	2.11 ti fr	6	1	1													8	2,7	3
9	2.12 wi fr																0	0,0	0
10	2.13 v grill																0	0,0	0
11	2.14 d gla																0	0,0	0
12	2.15 i-fin																0	0,0	0
27																			
13	2.21 ti fr	4	2	1													7	2,3	3
14	2.22 gw i	4	2	1													7	2,3	3
15	2.23 va bai	4	2	1													7	2,3	3
16	2.24 plb	4	2	1													7	2,3	3
17	2.28 ti ba	4	2	1													7	2,3	3
18	2.29 mb-o	4	2	1													7	2,3	3
22	2.27 osb																0	0,0	0
28																			
56	2.25 pw bu	3	1														4	2,0	2
57	2.26 th ins																0	0,0	0
58	2.28 ti ba	2															2	2,0	1
59	2.29 mb-o																0	0,0	0
60	2.210 tcps																0	0,0	0
19	3.11 fl fi																0	0,0	0
24	3.11 fl fi i																0	0,0	0
20	4.11 rwp	1	1	1													3	1,0	3
21	4.21 in p																0	0,0	0

Assembly & disassembly sequences

Generated input - System level																			
Top floor																			
No.	Part id	Disassembly sequence number															Average assemblies	Disassembly sequences	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			total
29	1.21 st shc	10	3	3	4	1											21	4,2	5
30	1.22 st b	10	3	3	4	1											21	4,2	5
31	1.23 st t	10	3	3	4	1											21	4,2	5
61																			
32	1.31 co fl	10	3	3	4	1											21	4,2	5
51	1.33 al i p	1															1	1,0	1
62																			
33	2.11 ti fr	6	1	1													8	2,7	3
34	2.12 wi fr																0	0,0	0
35	2.13 v grill																0	0,0	0
36	2.14 d gla																0	0,0	0
37	2.15 i-fin																0	0,0	0
63																			
38	2.21 ti fr	4	1	1													6	2,0	3
39	2.22 gw i	4	1	1													6	2,0	3
40	2.23 va bai	4	1	1													6	2,0	3
41	2.24 plb	4	1	1													6	2,0	3
42	2.28 ti ba	4	1	1													6	2,0	3
43	2.29 mb-o	4	1	1													6	2,0	3
52	2.27 osb																0	0,0	0
56	2.25 pw bu	3	1														4	2,0	2
57	2.26 th ins																0	0,0	0
58	2.28 ti ba	2															2	2,0	1
59	2.29 mb-o																0	0,0	0
60	2.210 tcps																0	0,0	0
64																			
44	2.31 t ms	1	1	1	1												4	1,0	4
45	2.32 r v ba	1	1	1													3	1,0	3
46	2.33 r pf i	1	1														2	1,0	2
47	2.34 t ep	4	2	1													7	2,3	3
53	2.35 pr sl	1															1	1,0	1
54	2.36 m cp																0	0,0	0
65																			
66																			
48	3.11 fl fi																0	0,0	0
55	3.11 fl fi i																0	0,0	0
49	4.11 rwp	1	1														2	1,0	2
50	4.21 in p																0	0,0	0

Assembly & disassembly sequences

Generated input - Product level																			
Bottom floor																			
No.	Part id	Number of parallel disassemblies per disassembly sequence														Total	Average assemblies	Disassembly sequences	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14				15
1	1.11 scfb	8	4	1	1	1	1										16	2,7	6
2	1.12 i-sbp	8	4	1	1	1											15	3,0	5
3	1.21 st shc	13	4	1	3	1	3	3									28	4,0	7
4	1.22 st b	10	3	1	1	1	1	1									18	2,6	7
5	1.23 st t	6	2	1	1	1											11	2,2	5
25																			
6	1.31 co fl	10	3	1	1	1											16	3,2	5
7	1.32 fl i																0	0,0	0
23	1.33 al i p	1															1	1,0	1
26																			
8	2.11 ti fr	6	1	1													8	2,7	3
9	2.12 wi fr	2															2	2,0	1
10	2.13 v grill																0	0,0	0
11	2.14 d gla																0	0,0	0
12	2.15 i-fin																0	0,0	0
27																			
13	2.21 ti fr	5	3	2	2												12	3,0	4
14	2.22 gw i	2	2	1													5	1,7	3
15	2.23 va bai	1															1	1,0	1
16	2.24 plb																0	0,0	0
17	2.28 ti ba	2	1	1													4	1,3	3
18	2.29 mb-o	1	1														2	1,0	2
22	2.27 osb																0	0,0	0
28																			
56	2.25 pw bu	3	1														4	2,0	2
57	2.26 th ins																0	0,0	0
58	2.28 ti ba	2															2	2,0	1
59	2.29 mb-o																0	0,0	0
60	2.210 tcps																0	0,0	0
19	3.11 fl fi																0	0,0	0
24	3.11 fl fi i																0	0,0	0
20	4.11 rwp	1	1	1													3	1,0	3
21	4.21 in p																0	0,0	0

Assembly & disassembly sequences

Generated input - Product level																			
Top floor																			
No.	Part id	Disassembly sequence number															Average assemblies	Disassembly sequences	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			total
29	1.21 st shc	10	3	3	4	1	3										24	4,0	6
30	1.22 st b	9	2	1	2	1	1										16	2,7	6
31	1.23 st t	7	2	2	4	1											16	3,2	5
61																			
32	1.31 co fl	9	2	1	2												14	3,5	4
51	1.33 al i p	1															1	1,0	1
62																			
33	2.11 ti fr	6	1	1													8	2,7	3
34	2.12 wi fr	2															2	2,0	1
35	2.13 v grill																0	0,0	0
36	2.14 d gla																0	0,0	0
37	2.15 i-fin																0	0,0	0
63																			
38	2.21 ti fr	5	3	3													11	3,7	3
39	2.22 gw i	2	2														4	2,0	2
40	2.23 va bai	1															1	1,0	1
41	2.24 plb																0	0,0	0
42	2.28 ti ba	2	1														3	1,5	2
43	2.29 mb-o	1															1	1,0	1
52	2.27 osb																0	0,0	0
56	2.25 pw bu	3	1														4	2,0	2
57	2.26 th ins																0	0,0	0
58	2.28 ti ba	2															2	2,0	1
59	2.29 mb-o																0	0,0	0
60	2.210 tcps																0	0,0	0
64																			
44	2.31 t ms	1	1	1	1												4	1,0	4
45	2.32 r v ba	1	1	1													3	1,0	3
46	2.33 r pf i	1	1														2	1,0	2
47	2.34 t ep	4	2	1													7	2,3	3
53	2.35 pr sl	1															1	1,0	1
54	2.36 m cp																0	0,0	0
65																			
66																			
48	3.11 fl fi																0	0,0	0
55	3.11 fl fi i																0	0,0	0
49	4.11 rwp	1	1														2	1,0	2
50	4.21 in p																0	0,0	0

Base element specification

Generated input - Building level / System level / Product level			
<i>For each element the presence of a base element is identified and if it is a base element, the type of base element is identified</i>			
Bottom floor		Top Floor	
No.	Part id	No.	Part id
Base element specification		Base element specification	
Loadbearing		Loadbearing	
1	1.11 scfb	29	1.21 st shc
	Base element for one function		Base element / intermediary between systems and/or components
2	1.12 i-sbp	30	1.22 st b
	intermediary		Base element for one function
3	1.21 st shc	31	1.23 st t
	Base element / intermediary between systems and/or components		Base element / intermediary between systems and/or components
4	1.22 st b	61	
	Base element for one function		
5	1.23 st t	32	1.31 co fl
	Base element / intermediary between systems and/or components		Base element / intermediary between systems and/or components
25		51	1.33 al i p
			intermediary
6	1.31 co fl	62	
	Base element / intermediary between systems and/or components		
7	1.32 fl i		
23	1.33 al i p		
	intermediary		
26			
Enclosing		Enclosing	
8	2.11 ti fr	33	2.11 ti fr
	Base element for one function		Base element for one function
9	2.12 wi fr	34	2.12 wi fr
	Base element for one function		Base element for one function
10	2.13 v grill	35	2.13 v grill
11	2.14 d gla	36	2.14 d gla
12	2.15 i-fin	37	2.15 i-fin
27		63	
13	2.21 ti fr	38	2.21 ti fr
	Base element for one function		Base element for one function
14	2.22 gw i	39	2.22 gw i
15	2.23 va bai	40	2.23 va bai
16	2.24 plb	41	2.24 plb
17	2.28 ti ba	42	2.28 ti ba
	intermediary		intermediary
18	2.29 mb-o	43	2.29 mb-o
22	2.27 osb	52	2.27 osb
28		56	2.25 pw bu
			Base element for one function
56	2.25 pw bu	57	2.26 th ins
	Base element for one function		intermediary
57	2.26 th ins	58	2.28 ti ba
	intermediary		intermediary
58	2.28 ti ba	59	2.29 mb-o
	intermediary		
59	2.29 mb-o	60	2.210 tcps
60	2.210 tcps	64	
		44	2.31 t ms
			Base element for one function
		45	2.32 r v ba
		46	2.33 r pf i
		47	2.34 t ep
			intermediary
		53	2.35 pr sl
		54	2.36 m cp
		65	
		66	
Finishing		Finishing	
No base element		No base element	
19	3.11 fl fi	48	3.11 fl fi
24	3.11 fl fi i	55	3.11 fl fi i
Servicing		Servicing	
No base element		No base element	
20	4.11 rwp	49	4.11 rwp
21	4.21 in p	50	4.21 in p

Technical lifecycle coordination

Input - Building level / System level / Product level									
Bottom floor					Top floor				
No	Part id	Number of parts with shorter or equal TC to be disassembled before	Number of parts with longer TC to be disassembled before	Rating	No	Part id	Number of parts with shorter or equal TC to be disassembled before	Number of parts with longer TC to be disassembled before	Rating
1	1.11 scfb	55	0	0,9	29	1.21 st shc	31	0	0,9
2	1.12 i-sbp	54	0	0,9	30	1.22 st b	22	0	0,9
3	1.21 st shc	53	0	0,9	31	1.23 st t	23	0	0,9
4	1.22 st b	24	0	0,9	61				
5	1.23 st t	18	0	0,9	32	1.31 co fl	21	0	0,9
25					51	1.33 al i p	1	0	0,9
6	1.31 co fl	23	0	0,9	62				
7	1.32 fl i	0	0		33	2.11 ti fr	7	3	0,6
23	1.33 al i p	1	0	0,9	34	2.12 wi fr	2	0	0,9
26					35	2.13 v grill	0	0	
8	2.11 ti fr	7	3	0,6	36	2.14 d gla	0	0	
9	2.12 wi fr	2	0	0,9	37	2.15 i-fin	0	0	
10	2.13 v grill	0	0		63				
11	2.14 d gla	0	0		38	2.21 ti fr	7	4	0,6
12	2.15 i-fin	0	0		39	2.22 gw i	4	0	0,9
27					40	2.23 va bai	1	0	0,9
13	2.21 ti fr	8	4	0,6	41	2.24 plb	0	0	
14	2.22 gw i	5	0	0,9	42	2.28 ti ba	3	0	0,9
15	2.23 va bai	1	0	0,9	43	2.29 mb-o	1	0	0,9
16	2.24 plb	0	0		52	2.27 osb	0	0	
17	2.28 ti ba	4	0	0,9	56	2.25 pw bu	1	3	0,3
18	2.29 mb-o	2	0	0,9	57	2.26 th ins	0	0	
22	2.27 osb	0	0		58	2.28 ti ba	2	0	0,9
28					59	2.29 mb-o	0	0	
56	2.25 pw bu	1	3	0,3	60	2.210 tcps	0	0	
57	2.26 th ins	0	0		64				
58	2.28 ti ba	2	0	0,9	44	2.31 t ms	4	0	0,9
59	2.29 mb-o	0	0		45	2.32 r v ba	0	3	0,1
60	2.210 tcps	0	0		46	2.33 r pf i	2	0	0,9
19	3.11 fl fi	0	0		47	2.34 t ep	4	3	0,6
24	3.11 fl fi i	0	0		53	2.35 pr sl	0	1	0,1
20	4.11 rwp	2	1	0,6	54	2.36 m cp	0	0	
21	4.21 in p	0	0		65				
					66				
					48	3.11 fl fi	0	0	
					55	3.11 fl fi i	0	0	
					49	4.11 rwp	1	1	0,6
					50	4.21 in p	0	0	

Remaining technical lifespan

Input - Building level / System level / Product level											
Bottom floor					Top floor						
No.	Part id	Used lifespan	Technical lifespan	Remaining lifespan	Rating	No.	Part id	Used lifespan	Technical lifespan	Remaining lifespan	Rating
1	1.11 scfb	18	100	82	0,9	29	1.21 st shc	18	100	82	0,9
2	1.12 i-sbp	18	100	82	0,9	30	1.22 st b	18	100	82	0,9
3	1.21 st shc	18	100	82	0,9	31	1.23 st t	18	100	82	0,9
4	1.22 st b	18	100	82	0,9	61					
5	1.23 st t	18	100	82	0,9	32	1.31 co fl	18	100	82	0,9
25						51	1.33 al i p	18	50	32	0,9
6	1.31 co fl	18	100	82	0,9	62					
7	1.32 fl i	18	75	57	0,9	33	2.11 ti fr	18	50	32	0,9
23	1.33 al i p	18	50	32	0,9	34	2.12 wi fr	18	50	32	0,9
26						35	2.13 v grill	18	25	7	0,9
8	2.11 ti fr	18	50	32	0,9	36	2.14 d gla	18	30	12	0,7
9	2.12 wi fr	18	50	32	0,9	37	2.15 i-fin	18	35	17	0,7
10	2.13 v grill	18	25	7	0,9	63					
11	2.14 d gla	18	30	12	0,7	38	2.21 ti fr	18	50	32	0,9
12	2.15 i-fin	18	35	17	0,7	39	2.22 gw i	18	75	57	0,9
27						40	2.23 va bai	18	25	7	0,9
13	2.21 ti fr	18	50	32	0,9	41	2.24 plb	18	25	7	0,9
14	2.22 gw i	18	75	57	0,9	42	2.28 ti ba	18	30	12	0,7
15	2.23 va bai	18	25	7	0,9	43	2.29 mb-o	18	25	7	0,9
16	2.24 plb	18	25	7	0,9	52	2.27 osb	18	75	57	0,9
17	2.28 ti ba	18	30	12	0,7	56	2.25 pw bu	18	20	2	0,3
18	2.29 mb-o	18	25	7	0,9	57	2.26 th ins	18	75	57	0,9
22	2.27 osb	18	75	57	0,9	58	2.28 ti ba	18	75	57	0,9
28						59	2.29 mb-o	18	25	7	0,9
56	2.25 pw bu	18	20	2	0,3	60	2.210 tcps	18	15	0	0,1
57	2.26 th ins	18	75	57	0,9	64					
58	2.28 ti ba	18	75	57	0,9	44	2.31 t ms	18	100	82	0,9
59	2.29 mb-o	18	25	7	0,9	45	2.32 r v ba	18	15	0	0,1
60	2.210 tcps	18	15	0	0,1	46	2.33 r pf i	18	75	57	0,9
19	3.11 fl fi	18	30	12	0,7	47	2.34 t ep	18	30	12	0,7
24	3.11 fl fi i	18	30	12	0,7	53	2.35 pr sl	18	30	12	0,7
20	4.11 rwp	18	30	12	0,7	54	2.36 m cp	18	50	32	0,9
21	4.21 in p	18	30	12	0,7	65					
						66					
						48	3.11 fl fi	18	30	12	0,7
						55	3.11 fl fi i	18	30	12	0,7
						49	4.11 rwp	18	30	12	0,7
						50	4.21 in p	18	30	12	0,7

Type of connection

Generated input - Building level																							
Bottom floor											Top floor												
		Connection types											Connection types										
no.	part id	1	2	3	4	5	6	7	8	9	SUM	Part	Part id	1	2	3	4	5	6	7	8	9	SUM
1	1.11 scfb	0	0	0	0	0	0	0	0	0	0	29	1.21 st shc	0	0	0	0	1	0	1	0	0	2
2	1.12 i-sbp	0	0	0	0	0	0	0	2	0	2	30	1.22 st b	0	0	0	0	0	0	0	0	0	0
3	1.21 st shc	0	0	0	0	1	0	1	0	0	2	31	1.23 st t	0	0	0	0	0	0	0	0	0	0
4	1.22 st b	0	0	0	0	0	0	0	0	0	0	61											
5	1.23 st t	0	0	0	0	0	0	0	0	0	0	32	1.31 co fl	0	0	0	0	0	0	0	0	0	0
25												51	1.33 al i p	0	0	0	0	0	0	0	2	0	2
6	1.31 co fl	0	0	0	0	0	0	0	0	0	0	62											
7	1.32 fl i	0	0	0	0	0	0	0	0	0	0	33	2.11 ti fr	0	0	0	0	0	0	0	0	0	0
23	1.33 al i p	0	0	0	0	0	0	0	2	0	2	34	2.12 wi fr	0	0	0	0	0	0	0	0	0	0
26												35	2.13 v grill	0	0	0	0	0	0	0	0	0	0
8	2.11 ti fr	0	0	0	0	0	0	0	0	0	0	36	2.14 d gla	0	0	0	0	0	0	0	0	0	0
9	2.12 wi fr	0	0	0	0	0	0	0	0	0	0	37	2.15 i-fin	0	0	0	0	0	0	0	0	0	0
10	2.13 v grill	0	0	0	0	0	0	0	0	0	0	63											
11	2.14 d gla	0	0	0	0	0	0	0	0	0	0	38	2.21 ti fr	0	0	0	0	0	0	0	0	0	0
12	2.15 i-fin	0	0	0	0	0	0	0	0	0	0	39	2.22 gw i	0	0	0	0	0	0	0	0	0	0
27												40	2.23 va bai	0	0	0	0	0	0	0	0	0	0
13	2.21 ti fr	0	0	0	0	0	0	0	0	0	0	41	2.24 plb	0	0	0	0	0	0	0	0	0	0
14	2.22 gw i	0	0	0	0	0	0	0	0	0	0	42	2.28 ti ba	0	0	0	0	0	0	0	0	0	0
15	2.23 va bai	0	0	0	0	0	0	0	0	0	0	43	2.29 mb-o	0	0	0	1	0	0	0	0	0	1
16	2.24 plb	0	0	0	0	0	0	0	0	0	0	52	2.27 osb	0	0	0	4	0	0	0	0	1	5
17	2.28 ti ba	0	0	0	0	0	0	0	0	0	0	56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10
18	2.29 mb-o	0	0	0	0	0	0	0	0	0	0	57	2.26 th ins	0	0	0	0	0	0	0	0	1	1
22	2.27 osb	0	0	0	4	0	0	0	0	1	5	58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
28												59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4
56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10	60	2.210 tcps	0	0	0	3	0	0	0	0	0	3
57	2.26 th ins	0	0	0	0	0	0	0	0	1	1	64											
58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1	44	2.31 t ms	0	0	0	0	0	0	0	0	0	0
59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4	45	2.32 r v ba	0	0	0	0	0	0	0	0	0	0
60	2.210 tcps	0	0	0	3	0	0	0	0	0	3	46	2.33 r pf i	0	0	0	0	0	0	0	0	0	0
19	3.11 fl fi	0	0	0	0	0	0	0	0	0	0	47	2.34 t ep	0	0	0	0	0	0	0	0	0	0
24	3.11 fl fi i	0	0	4	0	0	0	0	0	0	4	53	2.35 pr sl	0	0	5	0	0	0	0	0	0	5
20	4.11 rwp	0	0	0	0	0	0	0	0	0	0	54	2.36 m cp	0	0	0	2	0	0	0	0	1	3
21	4.21 in p	0	0	0	1	0	0	0	0	0	1	65											
												66											
												48	3.11 fl fi	0	0	0	0	0	0	0	0	0	0
												55	3.11 fl fi i	0	0	3	0	0	0	0	0	0	3
												49	4.11 rwp	0	0	0	0	0	0	1	0	0	1
												50	4.21 in p	0	0	0	1	0	0	0	0	0	1

Type of connection

Generated input - System level											
Bottom floor											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
1	1.11 scfb	0	0	0	0	0	0	0	0	0	0
2	1.12 i-sbp	0	0	0	0	0	0	0	2	0	2
3	1.21 st shc	0	0	0	0	1	0	1	0	0	2
4	1.22 st b	0	0	0	0	0	0	0	0	0	0
5	1.23 st t	0	0	0	0	0	0	0	0	0	0
25											
6	1.31 co fl	0	0	0	0	0	0	0	0	0	0
7	1.32 fl i	0	0	0	1	0	0	0	0	0	1
23	1.33 al i p	0	0	0	0	0	0	0	2	0	2
26											
Top floor											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
29	1.21 st shc	0	0	0	0	1	0	1	0	0	2
30	1.22 st b	0	0	0	0	0	0	0	0	0	0
31	1.23 st t	0	0	0	0	0	0	0	0	0	0
61											
32	1.31 co fl	0	0	0	0	0	0	0	0	0	0
51	1.33 al i p	0	0	0	0	0	0	0	2	0	2
62											
Enclosing											
8	2.11 ti fr	0	0	0	3	0	0	0	0	0	3
9	2.12 wi fr	0	0	0	1	0	0	0	0	0	1
10	2.13 v grill	0	0	0	0	0	0	0	0	0	0
11	2.14 d gla	0	0	0	0	0	0	0	0	0	0
12	2.15 i-fin	0	0	0	1	0	0	0	0	0	1
27											
13	2.21 ti fr	0	0	0	3	0	0	0	0	0	3
14	2.22 gw i	0	0	0	0	0	0	0	0	0	0
15	2.23 va bai	0	0	0	0	0	0	0	0	0	0
16	2.24 plb	0	0	0	0	0	0	0	0	0	0
17	2.28 ti ba	0	0	0	0	0	0	0	0	0	0
18	2.29 mb-o	0	0	0	0	0	0	0	0	0	0
22	2.27 osb	0	0	0	4	0	0	0	0	1	5
28											
56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10
57	2.26 th ins	0	0	0	0	0	0	0	0	1	1
58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4
60	2.210 tcps	0	0	0	3	0	0	0	0	0	3
64											
44	2.31 t ms	0	0	0	1	0	0	0	0	0	1
45	2.32 r v ba	0	0	0	0	0	0	0	0	1	1
46	2.33 r pf i	0	0	0	1	0	0	0	0	1	2
47	2.34 t ep	0	0	0	0	0	0	0	1	0	1
53	2.35 pr sl	0	0	5	0	0	0	0	0	0	5
54	2.36 m cp	0	0	0	2	0	0	0	0	1	3
65											
66											
Finishing											
19	3.11 fl fi	0	0	1	0	0	0	0	0	0	1
24	3.11 fl fi i	0	0	4	0	0	0	0	0	0	4
Servicing											
20	4.11 rwp	0	0	0	0	0	0	0	0	1	1
21	4.21 in p	0	0	0	2	0	0	0	0	0	2
Top floor											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Finishing											
48	3.11 fl fi	0	0	1	0	0	0	0	0	0	1
55	3.11 fl fi i	0	0	3	0	0	0	0	0	0	3
Servicing											
49	4.11 rwp	0	0	0	1	0	0	1	0	0	2
50	4.21 in p	0	0	0	2	0	0	0	0	0	2

Type of connection

Generated input - Product level											
Bottom floor						Top floor					
Connection types											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
1	1.11 scfb	0	0	0	0	0	0	0	0	0	0
2	1.12 i-sbp	0	0	0	0	0	0	0	2	0	2
3	1.21 st shc	0	0	0	1	0	1	0	0	0	2
4	1.22 st b	0	1	0	0	0	0	0	0	0	1
5	1.23 st t	0	1	0	0	0	0	0	0	0	1
25											
6	1.31 co fl	0	0	0	1	0	0	0	0	0	1
7	1.32 fl i	0	0	0	1	0	0	0	0	0	1
23	1.33 al i p	0	0	0	0	0	0	0	2	0	2
26											
Enclosing											
8	2.11 ti fr	0	0	0	3	0	0	0	0	0	3
9	2.12 wi fr	0	0	0	1	0	0	0	0	0	1
10	2.13 v grill	0	0	0	1	0	0	0	0	0	1
11	2.14 d gla	0	0	0	1	0	0	0	0	0	1
12	2.15 i-fin	0	0	0	1	0	0	0	0	0	1
27											
13	2.21 ti fr	0	0	0	3	0	0	0	0	0	3
14	2.22 gw i	0	0	0	0	0	0	0	0	1	1
15	2.23 va bai	0	0	0	1	0	0	0	0	1	2
16	2.24 plb	0	0	0	2	0	0	0	0	0	2
17	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
18	2.29 mb-o	0	0	0	2	0	0	0	0	1	3
22	2.27 osb	0	0	0	4	0	0	0	0	1	5
28											
56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10
57	2.26 th ins	0	0	0	0	0	0	0	0	1	1
58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4
60	2.210 tcps	0	0	0	3	0	0	0	0	0	3
Finishing											
19	3.11 fl fi	0	0	1	0	0	0	0	0	0	1
24	3.11 fl fi i	0	0	4	0	0	0	0	0	0	4
Servicing											
20	4.11 rwp	0	0	0	0	0	0	0	0	1	1
21	4.21 in p	0	0	0	2	0	0	0	0	0	2
Loadbearing											
29	1.21 st shc	0	0	0	0	1	0	1	0	0	2
30	1.22 st b	0	1	0	0	0	0	0	0	0	1
31	1.23 st t	0	1	0	0	0	0	0	0	0	1
61											
32	1.31 co fl	0	0	0	1	0	0	0	0	0	1
51	1.33 al i p	0	0	0	0	0	0	0	2	0	2
62											
Enclosing											
33	2.11 ti fr	0	0	0	3	0	0	0	0	0	3
34	2.12 wi fr	0	0	0	1	0	0	0	0	0	1
35	2.13 v grill	0	0	0	1	0	0	0	0	0	1
36	2.14 d gla	0	0	0	1	0	0	0	0	0	1
37	2.15 i-fin	0	0	0	1	0	0	0	0	0	1
63											
38	2.21 ti fr	0	0	0	3	0	0	0	0	0	3
39	2.22 gw i	0	0	0	0	0	0	0	0	1	1
40	2.23 va bai	0	0	0	1	0	0	0	0	1	2
41	2.24 plb	0	0	0	2	0	0	0	0	0	2
42	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
43	2.29 mb-o	0	0	0	3	0	0	0	0	1	4
52	2.27 osb	0	0	0	4	0	0	0	0	1	5
56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10
57	2.26 th ins	0	0	0	0	0	0	0	0	1	1
58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4
60	2.210 tcps	0	0	0	3	0	0	0	0	0	3
64											
44	2.31 t ms	0	0	0	1	0	0	0	0	0	1
45	2.32 r v ba	0	0	0	0	0	0	0	0	1	1
46	2.33 r pf i	0	0	0	1	0	0	0	0	1	2
47	2.34 t ep	0	0	0	0	0	0	0	1	0	1
53	2.35 pr sl	0	0	5	0	0	0	0	0	0	5
54	2.36 m cp	0	0	0	2	0	0	0	0	1	3
65											
66											
Finishing											
48	3.11 fl fi	0	0	1	0	0	0	0	0	0	1
55	3.11 fl fi i	0	0	3	0	0	0	0	0	0	3
Servicing											
49	4.11 rwp	0	0	0	1	0	0	1	0	0	2
50	4.21 in p	0	0	0	2	0	0	0	0	0	2

Connection damage

Generated input - Building level																								
Bottom floor											Top floor													
Connection types connected to part											Connection types connected to part													
no.	part id	1	2	3	4	5	6	7	8	9	SUM	Part	Part id	1	2	3	4	5	6	7	8	9	SUM	
1	1.11 scfb	0	0	0	1	0	0	0	0	0	1	29	1.21 st shc	0	0	0	0	0	0	0	0	0	1	1
2	1.12 i-sbp	0	0	0	0	0	0	0	1	0	1	30	1.22 st b	0	0	0	0	0	0	0	0	0	0	
3	1.21 st shc	0	0	0	0	0	0	1	0	1	2	31	1.23 st t	0	0	0	0	0	0	0	0	0	0	
4	1.22 st b	0	0	0	0	0	0	0	0	0		61												
5	1.23 st t	0	0	0	0	0	0	0	0	0		32	1.31 co fl	0	0	1	0	0	0	0	0	0	1	2
25												51	1.33 al i p	0	0	1	0	0	0	0	0	0	0	1
6	1.31 co fl	0	0	1	0	0	0	0	0	1	2	62												
7	1.32 fl i	0	0	0	0	0	0	0	0	0		33	2.11 ti fr	0	0	0	2	0	0	0	0	0	0	2
23	1.33 al i p	0	0	1	0	0	0	0	0	0	1	34	2.12 wi fr	0	0	0	0	0	0	0	0	0	0	
26												35	2.13 v grill	0	0	0	0	0	0	0	0	0	0	
8	2.11 ti fr	0	0	0	2	0	0	0	0	0	2	36	2.14 d gla	0	0	0	0	0	0	0	0	0	0	
9	2.12 wi fr	0	0	0	0	0	0	0	0	0		37	2.15 i-fin	0	0	0	0	0	0	0	0	0	0	
10	2.13 v grill	0	0	0	0	0	0	0	0	0		63												
11	2.14 d gla	0	0	0	0	0	0	0	0	0		38	2.21 ti fr	0	0	0	2	0	0	0	0	0	0	2
12	2.15 i-fin	0	0	0	0	0	0	0	0	0		39	2.22 gw i	0	0	0	0	0	0	0	0	0	0	
27												40	2.23 va bai	0	0	0	0	0	0	0	0	0	0	
13	2.21 ti fr	0	0	0	2	0	0	0	0	0	2	41	2.24 plb	0	0	0	0	0	0	0	0	0	0	
14	2.22 gw i	0	0	0	0	0	0	0	0	0		42	2.28 ti ba	0	0	0	0	0	0	0	0	1	0	1
15	2.23 va bai	0	0	0	0	0	0	0	0	0		43	2.29 mb-o	0	0	0	1	0	0	0	0	0	0	1
16	2.24 plb	0	0	0	0	0	0	0	0	0		52	2.27 osb	0	0	0	0	0	0	0	0	0	0	
17	2.28 ti ba	0	0	0	0	0	0	0	1	0	1	56	2.25 pw bu	0	0	0	2	0	0	0	0	0	1	3
18	2.29 mb-o	0	0	0	2	0	0	0	0	0	2	57	2.26 th ins	0	0	0	0	0	0	0	0	0	0	
22	2.27 osb	0	0	0	0	0	0	0	0	0		58	2.28 ti ba	0	0	0	0	0	0	0	0	2	0	2
28												59	2.29 mb-o	0	0	0	0	0	0	0	0	0	0	
56	2.25 pw bu	0	0	0	2	0	0	0	0	1	3	60	2.210 tcps	0	0	0	0	0	0	0	0	0	0	
57	2.26 th ins	0	0	0	0	0	0	0	0	0		64												
58	2.28 ti ba	0	0	0	0	0	0	0	2	0	2	44	2.31 t ms	0	0	0	0	0	0	0	0	0	0	
59	2.29 mb-o	0	0	0	0	0	0	0	0	0		45	2.32 r v ba	0	0	0	0	0	0	0	0	0	0	
60	2.210 tcps	0	0	0	0	0	0	0	0	0		46	2.33 r pf i	0	0	1	0	0	0	0	0	0	0	1
19	3.11 fl fi	0	0	0	0	0	0	0	0	0		47	2.34 t ep	0	0	1	0	0	0	0	0	2	0	3
24	3.11 fl fi i	0	0	0	0	0	0	0	0	0		53	2.35 pr sl	0	0	0	0	0	0	0	0	1	0	1
20	4.11 rwp	0	0	0	0	0	0	1	0	0	1	54	2.36 m cp	0	0	0	0	0	0	0	0	0	0	
21	4.21 in p	0	0	0	0	0	0	0	0	0		65												
												66												
												48	3.11 fl fi	0	0	0	0	0	0	0	0	0	0	
												55	3.11 fl fi i	0	0	0	0	0	0	0	0	0	0	
												49	4.11 rwp	0	0	1	0	0	0	0	0	0	0	1
												50	4.21 in p	0	0	0	0	0	0	0	0	0	0	

Connection damage

Generated input - Building level																							
Bottom floor											Top floor												
Connection types connected from part											Connection types connected from part												
no.	part id	1	2	3	4	5	6	7	8	9	SUM	no.	part id	1	2	3	4	5	6	7	8	9	SUM
1	1.11 scfb	0	0	0	0	0	0	0	0	0		29	1.21 st shc	0	0	0	0	1	0	1	0	0	2
2	1.12 i-sbp	0	0	0	0	0	0	0	2	0	2	30	1.22 st b	0	0	0	0	0	0	0	0	0	
3	1.21 st shc	0	0	0	0	1	0	1	0	0	2	31	1.23 st t	0	0	0	0	0	0	0	0	0	
4	1.22 st b	0	0	0	0	0	0	0	0	0		61											
5	1.23 st t	0	0	0	0	0	0	0	0	0		32	1.31 co fl	0	0	0	0	0	0	0	0	0	
25												51	1.33 al i p	0	0	0	0	0	0	2	0	0	2
6	1.31 co fl	0	0	0	0	0	0	0	0	0		62											
7	1.32 fl i	0	0	0	0	0	0	0	0	0		33	2.11 ti fr	0	0	0	0	0	0	0	0	0	
23	1.33 al i p	0	0	0	0	0	0	0	2	0	2	34	2.12 wi fr	0	0	0	0	0	0	0	0	0	
26												35	2.13 v grill	0	0	0	0	0	0	0	0	0	
8	2.11 ti fr	0	0	0	0	0	0	0	0	0		36	2.14 d gla	0	0	0	0	0	0	0	0	0	
9	2.12 wi fr	0	0	0	0	0	0	0	0	0		37	2.15 i-fin	0	0	0	0	0	0	0	0	0	
10	2.13 v grill	0	0	0	0	0	0	0	0	0		63											
11	2.14 d gla	0	0	0	0	0	0	0	0	0		38	2.21 ti fr	0	0	0	0	0	0	0	0	0	
12	2.15 i-fin	0	0	0	0	0	0	0	0	0		39	2.22 gw i	0	0	0	0	0	0	0	0	0	
27												40	2.23 va bai	0	0	0	0	0	0	0	0	0	
13	2.21 ti fr	0	0	0	0	0	0	0	0	0		41	2.24 plb	0	0	0	0	0	0	0	0	0	
14	2.22 gw i	0	0	0	0	0	0	0	0	0		42	2.28 ti ba	0	0	0	0	0	0	0	0	0	
15	2.23 va bai	0	0	0	0	0	0	0	0	0		43	2.29 mb-o	0	0	0	1	0	0	0	0	0	1
16	2.24 plb	0	0	0	0	0	0	0	0	0		52	2.27 osb	0	0	0	4	0	0	0	0	1	5
17	2.28 ti ba	0	0	0	0	0	0	0	0	0		56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10
18	2.29 mb-o	0	0	0	0	0	0	0	0	0		57	2.26 th ins	0	0	0	0	0	0	0	0	1	1
22	2.27 osb	0	0	0	4	0	0	0	0	1	5	58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
28												59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4
56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10	60	2.210 tcps	0	0	0	3	0	0	0	0	0	3
57	2.26 th ins	0	0	0	0	0	0	0	0	1	1	64											
58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1	44	2.31 t ms	0	0	0	0	0	0	0	0	0	
59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4	45	2.32 r v ba	0	0	0	0	0	0	0	0	0	
60	2.210 tcps	0	0	0	3	0	0	0	0	0	3	46	2.33 r p f i	0	0	0	0	0	0	0	0	0	
19	3.11 fl fi	0	0	0	0	0	0	0	0	0		47	2.34 t ep	0	0	0	0	0	0	0	0	0	
24	3.11 fl fi i	0	0	4	0	0	0	0	0	0	4	53	2.35 pr sl	0	0	5	0	0	0	0	0	0	5
20	4.11 rwp	0	0	0	0	0	0	0	0	0		54	2.36 m cp	0	0	0	2	0	0	0	0	1	3
21	4.21 in p	0	0	0	1	0	0	0	0	0	1	65											
												66											
												48	3.11 fl fi	0	0	0	0	0	0	0	0	0	
												55	3.11 fl fi i	0	0	3	0	0	0	0	0	0	3
												49	4.11 rwp	0	0	0	0	0	0	1	0	0	1
												50	4.21 in p	0	0	0	1	0	0	0	0	0	1

Connection damage

Generated input - Building level															
Bottom floor							Top floor								
		Damage scale				destru ction	Rating			Damage scale				Destru ction	Rating
no.	part id	no	little	medium	large			no.	part id	no	little	medium	large		
1	1.11 scfb	0	0	1	0	0	Medium damage	29	1.21 st shc	2	1	0	0	0	Little damage
2	1.12 i-sbp	3	0	0	0	0	No damage	30	1.22 st b	0	0	0	0	0	No damage
3	1.21 st shc	3	1	0	0	0	Little damage	31	1.23 st t	0	0	0	0	0	No damage
4	1.22 st b	0	0	0	0	0	No damage	61							
5	1.23 st t	0	0	0	0	0	No damage	32	1.31 co fl	1	0	0	1	0	Large damage
25								51	1.33 al i p	2	0	0	1	0	Large damage
6	1.31 co fl	1	0	0	1	0	Large damage	62							
7	1.32 fl i	0	0	0	0	0	No damage	33	2.11 ti fr	0	0	2	0	0	Medium damage
23	1.33 al i p	2	0	0	1	0	Large damage	34	2.12 wi fr	0	0	0	0	0	No damage
26								35	2.13 v grill	0	0	0	0	0	No damage
8	2.11 ti fr	0	0	2	0	0	Medium damage	36	2.14 d gla	0	0	0	0	0	No damage
9	2.12 wi fr	0	0	0	0	0	No damage	37	2.15 i-fin	0	0	0	0	0	No damage
10	2.13 v grill	0	0	0	0	0	No damage	63							
11	2.14 d gla	0	0	0	0	0	No damage	38	2.21 ti fr	0	0	2	0	0	Medium damage
12	2.15 i-fin	0	0	0	0	0	No damage	39	2.22 gw i	0	0	0	0	0	No damage
27								40	2.23 va bai	0	0	0	0	0	No damage
13	2.21 ti fr	0	0	2	0	0	Medium damage	41	2.24 plb	0	0	0	0	0	No damage
14	2.22 gw i	0	0	0	0	0	No damage	42	2.28 ti ba	1	0	0	0	0	No damage
15	2.23 va bai	0	0	0	0	0	No damage	43	2.29 mb-o	0	0	2	0	0	Medium damage
16	2.24 plb	0	0	0	0	0	No damage	52	2.27 osb	1	0	4	0	0	Medium damage
17	2.28 ti ba	1	0	0	0	0	No damage	56	2.25 pw bu	1	0	12	0	0	Medium damage
18	2.29 mb-o	0	0	2	0	0	Medium damage	57	2.26 th ins	1	0	0	0	0	No damage
22	2.27 osb	1	0	4	0	0	Medium damage	58	2.28 ti ba	3	0	0	0	0	No damage
28								59	2.29 mb-o	0	0	4	0	0	Medium damage
56	2.25 pw bu	1	0	12	0	0	Medium damage	60	2.210 tcps	0	0	3	0	0	Medium damage
57	2.26 th ins	1	0	0	0	0	No damage	64							
58	2.28 ti ba	3	0	0	0	0	No damage	44	2.31 t ms	0	0	0	0	0	No damage
59	2.29 mb-o	0	0	4	0	0	Medium damage	45	2.32 r v ba	0	0	0	0	0	No damage
60	2.210 tcps	0	0	3	0	0	Medium damage	46	2.33 r pf i	0	0	0	1	0	Large damage
19	3.11 fl fi	0	0	0	0	0	No damage	47	2.34 t ep	2	0	0	1	0	Large damage
24	3.11 fl fi i	0	0	0	4	0	Large damage	53	2.35 pr sl	1	0	0	5	0	Large damage
20	4.11 rwp	1	0	0	0	0	No damage	54	2.36 m cp	1	0	2	0	0	Medium damage
21	4.21 in p	0	0	1	0	0	Medium damage	65							
								66							
								48	3.11 fl fi	0	0	0	0	0	No damage
								55	3.11 fl fi i	0	0	0	3	0	Large damage
								49	4.11 rwp	1	0	0	1	0	Large damage
								50	4.21 in p	0	0	1	0	0	Medium damage

Connection damage

Generated input - System level											
Bottom floor											
Connection types connected to part											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
1	1.11 scfb	0	0	0	1	0	0	0	0	0	1
2	1.12 i-sbp	0	0	0	0	0	0	0	1	0	1
3	1.21 st shc	0	0	0	2	0	0	1	0	2	5
4	1.22 st b	0	0	0	0	0	0	0	0	0	
5	1.23 st t	0	0	0	2	0	0	0	0	0	2
25											
6	1.31 co fl	0	0	2	4	0	0	0	0	1	7
7	1.32 fl i	0	0	0	0	0	0	0	0	0	
23	1.33 al i p	0	0	1	0	0	0	0	0	0	1
26											
Enclosing											
8	2.11 ti fr	0	0	0	4	0	0	0	0	0	4
9	2.12 wi fr	0	0	0	0	0	0	0	0	0	
10	2.13 v grill	0	0	0	0	0	0	0	0	0	
11	2.14 d gla	0	0	0	0	0	0	0	0	0	
12	2.15 i-fin	0	0	0	0	0	0	0	0	0	
27											
13	2.21 ti fr	0	0	0	2	0	0	0	0	0	2
14	2.22 gw i	0	0	0	0	0	0	0	0	0	
15	2.23 va bai	0	0	0	0	0	0	0	0	0	
16	2.24 plb	0	0	0	0	0	0	0	0	0	
17	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
18	2.29 mb-o	0	0	0	2	0	0	0	0	0	2
22	2.27 osb	0	0	0	0	0	0	0	0	0	
28											
56	2.25 pw bu	0	0	0	2	0	0	0	0	1	3
57	2.26 th ins	0	0	0	0	0	0	0	0	0	
58	2.28 ti ba	0	0	0	0	0	0	0	2	0	2
58	2.28 ti ba	0	0	0	0	0	0	0	2	0	2
59	2.29 mb-o	0	0	0	0	0	0	0	0	0	
60	2.210 tcps	0	0	0	0	0	0	0	0	0	
64											
44	2.31 t ms	0	0	0	1	0	0	0	0	1	2
45	2.32 r v ba	0	0	0	0	0	0	0	0	1	1
46	2.33 r pf i	0	0	1	0	0	0	0	0	0	1
47	2.34 t ep	0	0	1	0	0	0	0	2	0	3
53	2.35 pr sl	0	0	0	0	0	0	0	0	1	1
54	2.36 m cp	0	0	0	0	0	0	0	0	0	
65											
66											
Finishing											
19	3.11 fl fi	0	0	0	0	0	0	0	0	0	
24	3.11 fl fi i	0	0	0	0	0	0	0	0	0	
Servicing											
20	4.11 rwp	0	0	0	0	0	0	1	0	0	1
21	4.21 in p	0	0	0	0	0	0	0	0	0	

Connection damage

Generated input - System level											
Bottom floor											
Connection types connected from part											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
1	1.11 scfb	0	0	0	0	0	0	0	0	0	0
2	1.12 i-sbp	0	0	0	0	0	0	0	2	0	2
3	1.21 st shc	0	0	0	1	0	1	0	0	0	2
4	1.22 st b	0	0	0	0	0	0	0	0	0	0
5	1.23 st t	0	0	0	0	0	0	0	0	0	0
25											
6	1.31 co fl	0	0	0	0	0	0	0	0	0	0
7	1.32 fl i	0	0	0	1	0	0	0	0	0	1
23	1.33 al i p	0	0	0	0	0	0	0	2	0	2
26											
Enclosing											
8	2.11 ti fr	0	0	0	3	0	0	0	0	0	3
9	2.12 wi fr	0	0	0	1	0	0	0	0	0	1
10	2.13 v grill	0	0	0	0	0	0	0	0	0	0
11	2.14 d gla	0	0	0	0	0	0	0	0	0	0
12	2.15 i-fin	0	0	0	1	0	0	0	0	0	1
27											
13	2.21 ti fr	0	0	0	3	0	0	0	0	0	3
14	2.22 gw i	0	0	0	0	0	0	0	0	0	0
15	2.23 va bai	0	0	0	0	0	0	0	0	0	0
16	2.24 plb	0	0	0	0	0	0	0	0	0	0
17	2.28 ti ba	0	0	0	0	0	0	0	0	0	0
18	2.29 mb-o	0	0	0	0	0	0	0	0	0	0
22	2.27 osb	0	0	0	4	0	0	0	0	1	5
28											
56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10
57	2.26 th ins	0	0	0	0	0	0	0	0	1	1
58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4
60	2.210 tcps	0	0	0	3	0	0	0	0	0	3
64											
44	2.31 t ms	0	0	0	1	0	0	0	0	0	1
45	2.32 r v ba	0	0	0	0	0	0	0	0	1	1
46	2.33 r pf i	0	0	0	1	0	0	0	0	1	2
47	2.34 t ep	0	0	0	0	0	0	0	1	0	1
53	2.35 pr sl	0	0	5	0	0	0	0	0	0	5
54	2.36 m cp	0	0	0	2	0	0	0	0	1	3
65											
66											
Finishing											
19	3.11 fl fi	0	0	1	0	0	0	0	0	0	1
24	3.11 fl fi i	0	0	4	0	0	0	0	0	0	4
Servicing											
20	4.11 rwp	0	0	0	0	0	0	0	0	1	1
21	4.21 in p	0	0	0	2	0	0	0	0	0	2

Connection damage

Generated input - System level															
		Damage scale				Rating			Damage scale				Rating		
no.	part id	no	little	medium	large		total	no.	part id	no	little	medium		large	total
Loadbearing							Loadbearing								
1	1.11 scfb	0	0	1	0	0	Medium damage	29	1.21 st shc	2	1	3	0	0	Medium damage
2	1.12 i-sbp	3	0	0	0	0	No damage	30	1.22 st b	0	0	0	0	0	No damage
3	1.21 st shc	4	1	2	0	0	Medium damage	31	1.23 st t	0	0	4	0	0	Medium damage
4	1.22 st b	0	0	0	0	0	No damage	61							
5	1.23 st t	0	0	2	0	0	Medium damage	32	1.31 co fl	1	0	3	2	0	Large damage
25								51	1.33 al i p	2	0	0	1	0	Large damage
6	1.31 co fl	1	0	4	2	0	Large damage	62							
7	1.32 fl i	0	0	1	0	0	Medium damage								
23	1.33 al i p	2	0	0	1	0	Large damage								
26															
Enclosing							Enclosing								
8	2.11 ti fr	0	0	7	0	0	Medium damage	33	2.11 ti fr	0	0	7	0	0	Medium damage
9	2.12 wi fr	0	0	1	0	0	Medium damage	34	2.12 wi fr	0	0	1	0	0	Medium damage
10	2.13 v grill	0	0	0	0	0	No damage	35	2.13 v grill	0	0	0	0	0	No damage
11	2.14 d gla	0	0	0	0	0	No damage	36	2.14 d gla	0	0	0	0	0	No damage
12	2.15 i-fin	0	0	1	0	0	Medium damage	37	2.15 i-fin	0	0	1	0	0	Medium damage
27								63							
13	2.21 ti fr	0	0	5	0	0	Medium damage	38	2.21 ti fr	0	0	5	0	0	Medium damage
14	2.22 gw i	0	0	0	0	0	No damage	39	2.22 gw i	0	0	0	0	0	No damage
15	2.23 va bai	0	0	0	0	0	No damage	40	2.23 va bai	0	0	0	0	0	No damage
16	2.24 plb	0	0	0	0	0	No damage	41	2.24 plb	0	0	0	0	0	No damage
17	2.28 ti ba	1	0	0	0	0	No damage	42	2.28 ti ba	1	0	0	0	0	No damage
18	2.29 mb-o	0	0	2	0	0	Medium damage	43	2.29 mb-o	0	0	2	0	0	Medium damage
22	2.27 osb	1	0	4	0	0	Medium damage	52	2.27 osb	1	0	4	0	0	Medium damage
28								56	2.25 pw bu	1	0	12	0	0	Medium damage
56	2.25 pw bu	1	0	12	0	0	Medium damage	57	2.26 th ins	1	0	0	0	0	No damage
57	2.26 th ins	1	0	0	0	0	No damage	58	2.28 ti ba	3	0	0	0	0	No damage
58	2.28 ti ba	3	0	0	0	0	No damage	59	2.29 mb-o	0	0	4	0	0	Medium damage
59	2.29 mb-o	0	0	4	0	0	Medium damage	60	2.210 tcps	0	0	3	0	0	Medium damage
60	2.210 tcps	0	0	3	0	0	Medium damage	64							
								44	2.31 t ms	1	0	2	0	0	Medium damage
								45	2.32 r v ba	2	0	0	0	0	No damage
								46	2.33 r pf i	1	0	1	1	0	Large damage
								47	2.34 t ep	3	0	0	1	0	Large damage
								53	2.35 pr sl	1	0	0	5	0	Large damage
								54	2.36 m cp	1	0	2	0	0	Medium damage
								65							
								66							
Finishing							Finishing								
19	3.11 fl fi	0	0	0	1	0	Large damage	48	3.11 fl fi	0	0	0	1	0	Large damage
24	3.11 fl fi i	0	0	0	4	0	Large damage	55	3.11 fl fi i	0	0	0	3	0	Large damage
Servicing							Servicing								
20	4.11 rwp	2	0	0	0	0	No damage	49	4.11 rwp	1	0	1	1	0	Large damage
21	4.21 in p	0	0	2	0	0	Medium damage	50	4.21 in p	0	0	2	0	0	Medium damage

Connection damage

Generated input - Product level											
Bottom floor											
Connection types connected to part											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
1	1.11 scfb	0	0	0	1	0	0	0	0	0	1
2	1.12 i-sbp	0	0	0	0	0	0	0	1	0	1
3	1.21 st shc	0	2	0	2	0	0	1	0	2	7
4	1.22 st b	0	0	0	1	0	0	0	0	0	1
5	1.23 st t	0	0	0	2	0	0	0	0	0	2
25											
6	1.31 co fl	0	0	2	4	0	0	0	0	1	7
7	1.32 fl i	0	0	0	0	0	0	0	0	0	
23	1.33 al i p	0	0	1	0	0	0	0	0	0	1
26											
Enclosing											
8	2.11 ti fr	0	0	0	4	0	0	0	0	0	4
9	2.12 wi fr	0	0	0	2	0	0	0	0	0	2
10	2.13 v grill	0	0	0	0	0	0	0	0	0	
11	2.14 d gla	0	0	0	0	0	0	0	0	0	
12	2.15 i-fin	0	0	0	0	0	0	0	0	0	
27											
13	2.21 ti fr	0	0	0	6	0	0	0	0	1	7
14	2.22 gw i	0	0	0	0	0	0	0	0	2	2
15	2.23 va bai	0	0	0	1	0	0	0	0	0	1
16	2.24 plb	0	0	0	0	0	0	0	0	0	
17	2.28 ti ba	0	0	0	0	0	0	0	2	0	2
18	2.29 mb-o	0	0	0	2	0	0	0	0	0	2
22	2.27 osb	0	0	0	0	0	0	0	0	0	
28											
56	2.25 pw bu	0	0	0	2	0	0	0	0	1	3
57	2.26 th ins	0	0	0	0	0	0	0	0	0	
58	2.28 ti ba	0	0	0	0	0	0	0	2	0	2
59	2.29 mb-o	0	0	0	0	0	0	0	0	0	
60	2.210 tcps	0	0	0	0	0	0	0	0	0	
Finishing											
19	3.11 fl fi	0	0	0	0	0	0	0	0	0	
24	3.11 fl fi i	0	0	0	0	0	0	0	0	0	
Servicing											
20	4.11 rwp	0	0	0	0	0	0	1	0	0	1
21	4.21 in p	0	0	0	0	0	0	0	0	0	

Top floor											
Connection types connected to part											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
29	1.21 st shc	0	2	0	3	0	0	0	0	1	6
30	1.22 st b	0	0	0	1	0	0	0	0	0	1
31	1.23 st t	0	0	0	4	0	0	0	0	0	4
61											
32	1.31 co fl	0	0	2	3	0	0	0	0	1	6
51	1.33 al i p	0	0	1	0	0	0	0	0	0	1
62											
Enclosing											
33	2.11 ti fr	0	0	0	4	0	0	0	0	0	4
34	2.12 wi fr	0	0	0	2	0	0	0	0	0	2
35	2.13 v grill	0	0	0	0	0	0	0	0	0	
36	2.14 d gla	0	0	0	0	0	0	0	0	0	
37	2.15 i-fin	0	0	0	0	0	0	0	0	0	
63											
38	2.21 ti fr	0	0	0	6	0	0	0	0	1	7
39	2.22 gw i	0	0	0	0	0	0	0	0	2	2
40	2.23 va bai	0	0	0	1	0	0	0	0	0	1
41	2.24 plb	0	0	0	0	0	0	0	0	0	
42	2.28 ti ba	0	0	0	0	0	0	0	2	0	2
43	2.29 mb-o	0	0	0	1	0	0	0	0	0	1
52	2.27 osb	0	0	0	0	0	0	0	0	0	
56	2.25 pw bu	0	0	0	2	0	0	0	0	1	3
57	2.26 th ins	0	0	0	0	0	0	0	0	0	
58	2.28 ti ba	0	0	0	0	0	0	0	2	0	2
59	2.29 mb-o	0	0	0	0	0	0	0	0	0	
60	2.210 tcps	0	0	0	0	0	0	0	0	0	
64											
44	2.31 t ms	0	0	0	1	0	0	0	0	1	2
45	2.32 r v ba	0	0	0	0	0	0	0	0	1	1
46	2.33 r pf i	0	0	1	0	0	0	0	0	0	1
47	2.34 t ep	0	0	1	0	0	0	0	2	0	3
53	2.35 pr sl	0	0	0	0	0	0	0	0	1	1
54	2.36 m cp	0	0	0	0	0	0	0	0	0	
65											
66											
Finishing											
48	3.11 fl fi	0	0	0	0	0	0	0	0	0	
55	3.11 fl fi i	0	0	0	0	0	0	0	0	0	
Servicing											
49	4.11 rwp	0	0	1	0	0	0	0	0	0	1
50	4.21 in p	0	0	0	0	0	0	0	0	0	

Connection damage

Generated input - Product level											
Bottom floor											
Connection types connected from part											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
1	1.11 scfb	0	0	0	0	0	0	0	0	0	0
2	1.12 i-sbp	0	0	0	0	0	0	0	2	0	2
3	1.21 st shc	0	0	0	0	1	0	1	0	0	2
4	1.22 st b	0	1	0	0	0	0	0	0	0	1
5	1.23 st t	0	1	0	0	0	0	0	0	0	1
25											
6	1.31 co fl	0	0	0	1	0	0	0	0	0	1
7	1.32 fl i	0	0	0	1	0	0	0	0	0	1
23	1.33 al i p	0	0	0	0	0	0	0	2	0	2
26											
Enclosing											
8	2.11 ti fr	0	0	0	3	0	0	0	0	0	3
9	2.12 wi fr	0	0	0	1	0	0	0	0	0	1
10	2.13 v grill	0	0	0	1	0	0	0	0	0	1
11	2.14 d gla	0	0	0	1	0	0	0	0	0	1
12	2.15 i-fin	0	0	0	1	0	0	0	0	0	1
27											
13	2.21 ti fr	0	0	0	3	0	0	0	0	0	3
14	2.22 gw i	0	0	0	0	0	0	0	0	1	1
15	2.23 va bai	0	0	0	1	0	0	0	0	1	2
16	2.24 plb	0	0	0	2	0	0	0	0	0	2
17	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
18	2.29 mb-o	0	0	0	2	0	0	0	0	1	3
22	2.27 osb	0	0	0	4	0	0	0	0	1	5
28											
56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10
57	2.26 th ins	0	0	0	0	0	0	0	0	1	1
58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4
60	2.210 tcps	0	0	0	3	0	0	0	0	0	3
64											
44	2.31 t ms	0	0	0	1	0	0	0	0	0	1
45	2.32 r v ba	0	0	0	0	0	0	0	0	1	1
46	2.33 r pf i	0	0	0	1	0	0	0	0	1	2
47	2.34 t ep	0	0	0	0	0	0	0	1	0	1
53	2.35 pr sl	0	0	5	0	0	0	0	0	0	5
54	2.36 m cp	0	0	0	2	0	0	0	0	1	3
65											
66											
Finishing											
19	3.11 fl fi	0	0	1	0	0	0	0	0	0	1
24	3.11 fl fi i	0	0	4	0	0	0	0	0	0	4
Servicing											
20	4.11 rwp	0	0	0	0	0	0	0	0	1	1
21	4.21 in p	0	0	0	2	0	0	0	0	0	2

Top floor											
Connection types connected from part											
No.	Part id.	1	2	3	4	5	6	7	8	9	SUM
Loadbearing											
29	1.21 st shc	0	0	0	0	1	0	1	0	0	2
30	1.22 st b	0	1	0	0	0	0	0	0	0	1
31	1.23 st t	0	1	0	0	0	0	0	0	0	1
61											
32	1.31 co fl	0	0	0	1	0	0	0	0	0	1
51	1.33 al i p	0	0	0	0	0	0	0	2	0	2
62											
Enclosing											
33	2.11 ti fr	0	0	0	3	0	0	0	0	0	3
34	2.12 wi fr	0	0	0	1	0	0	0	0	0	1
35	2.13 v grill	0	0	0	1	0	0	0	0	0	1
36	2.14 d gla	0	0	0	1	0	0	0	0	0	1
37	2.15 i-fin	0	0	0	1	0	0	0	0	0	1
63											
38	2.21 ti fr	0	0	0	3	0	0	0	0	0	3
39	2.22 gw i	0	0	0	0	0	0	0	0	1	1
40	2.23 va bai	0	0	0	1	0	0	0	0	1	2
41	2.24 plb	0	0	0	2	0	0	0	0	0	2
42	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
43	2.29 mb-o	0	0	0	3	0	0	0	0	1	4
52	2.27 osb	0	0	0	4	0	0	0	0	1	5
56	2.25 pw bu	0	0	0	10	0	0	0	0	0	10
57	2.26 th ins	0	0	0	0	0	0	0	0	1	1
58	2.28 ti ba	0	0	0	0	0	0	0	1	0	1
59	2.29 mb-o	0	0	0	4	0	0	0	0	0	4
60	2.210 tcps	0	0	0	3	0	0	0	0	0	3
64											
44	2.31 t ms	0	0	0	1	0	0	0	0	0	1
45	2.32 r v ba	0	0	0	0	0	0	0	0	1	1
46	2.33 r pf i	0	0	0	1	0	0	0	0	1	2
47	2.34 t ep	0	0	0	0	0	0	0	1	0	1
53	2.35 pr sl	0	0	5	0	0	0	0	0	0	5
54	2.36 m cp	0	0	0	2	0	0	0	0	1	3
65											
66											
Finishing											
48	3.11 fl fi	0	0	1	0	0	0	0	0	0	1
55	3.11 fl fi i	0	0	3	0	0	0	0	0	0	3
Servicing											
49	4.11 rwp	0	0	0	1	0	0	1	0	0	2
50	4.21 in p	0	0	0	2	0	0	0	0	0	2

Connection damage

Generated input - Product level															
Damage scale							Damage scale								
no.	part id	no	little	medium	large	total	Rating	no.	part id	no	little	medium	large	total	Rating
Loadbearing							Loadbearing								
1	1.11 scfb	0	0	1	0	0	Medium damage	29	1.21 st shc	2	1	3	2	0	Large damage
2	1.12 i-sbp	3	0	0	0	0	No damage	30	1.22 st b	0	0	1	0	1	Total destruction
3	1.21 st shc	4	1	2	2	0	Large damage	31	1.23 st t	0	0	4	0	1	Total destruction
4	1.22 st b	0	0	1	0	1	Total destruction	61							
5	1.23 st t	0	0	2	0	1	Total destruction	32	1.31 co fl	1	0	4	2	0	Large damage
25								51	1.33 al i p	2	0	0	1	0	Large damage
6	1.31 co fl	1	0	5	2	0	Large damage	62							
7	1.32 fl i	0	0	1	0	0	Medium damage								
23	1.33 al i p	2	0	0	1	0	Large damage								
26															
Enclosing							Enclosing								
8	2.11 ti fr	0	0	7	0	0	Medium damage	33	2.11 ti fr	0	0	7	0	0	Medium damage
9	2.12 wi fr	0	0	3	0	0	Medium damage	34	2.12 wi fr	0	0	3	0	0	Medium damage
10	2.13 v grill	0	0	1	0	0	Medium damage	35	2.13 v grill	0	0	1	0	0	Medium damage
11	2.14 d gla	0	0	1	0	0	Medium damage	36	2.14 d gla	0	0	1	0	0	Medium damage
12	2.15 i-fin	0	0	1	0	0	Medium damage	37	2.15 i-fin	0	0	1	0	0	Medium damage
27								63							
13	2.21 ti fr	1	0	9	0	0	Medium damage	38	2.21 ti fr	1	0	9	0	0	Medium damage
14	2.22 gw i	3	0	0	0	0	No damage	39	2.22 gw i	3	0	0	0	0	No damage
15	2.23 va bai	1	0	2	0	0	Medium damage	40	2.23 va bai	1	0	2	0	0	Medium damage
16	2.24 plb	0	0	2	0	0	Medium damage	41	2.24 plb	0	0	2	0	0	Medium damage
17	2.28 ti ba	3	0	0	0	0	No damage	42	2.28 ti ba	3	0	0	0	0	No damage
18	2.29 mb-o	1	0	4	0	0	Medium damage	43	2.29 mb-o	1	0	4	0	0	Medium damage
22	2.27 osb	1	0	4	0	0	Medium damage	52	2.27 osb	1	0	4	0	0	Medium damage
28								56	2.25 pw bu	1	0	12	0	0	Medium damage
56	2.25 pw bu	1	0	12	0	0	Medium damage	57	2.26 th ins	1	0	0	0	0	No damage
57	2.26 th ins	1	0	0	0	0	No damage	58	2.28 ti ba	3	0	0	0	0	No damage
58	2.28 ti ba	3	0	0	0	0	No damage	59	2.29 mb-o	0	0	4	0	0	Medium damage
59	2.29 mb-o	0	0	4	0	0	Medium damage	60	2.210 tcps	0	0	3	0	0	Medium damage
60	2.210 tcps	0	0	3	0	0	Medium damage	64							
								44	2.31 t ms	1	0	2	0	0	Medium damage
								45	2.32 r v ba	2	0	0	0	0	No damage
								46	2.33 r pf i	1	0	1	1	0	Large damage
								47	2.34 t ep	3	0	0	1	0	Large damage
								53	2.35 pr sl	1	0	0	5	0	Large damage
								54	2.36 m cp	1	0	2	0	0	Medium damage
								65							
								66							
Finishing							Finishing								
19	3.11 fl fi	0	0	0	1	0	Large damage	48	3.11 fl fi	0	0	0	1	0	Large damage
24	3.11 fl fi i	0	0	0	4	0	Large damage	55	3.11 fl fi i	0	0	0	3	0	Large damage
Servicing							Servicing								
20	4.11 rwp	2	0	0	0	0	No damage	49	4.11 rwp	1	0	1	1	0	Large damage
21	4.21 in p	0	0	2	0	0	Medium damage	50	4.21 in p	0	0	2	0	0	Medium damage

Connection damage

Generated input - Overview Building level - System level - Product level									
Bottom floor				Top floor					
no.	part id	Damage per level			no.	part id	Damage per level		
		building level	system level	product level			building level	system level	product level
1	1.11 scfb	Medium damage	Medium damage	Medium damage	29	1.21 st shc	Little damage	Medium damage	Large damage
2	1.12 i-sbp	No damage	No damage	No damage	30	1.22 st b	No damage	No damage	Total destruction
3	1.21 st shc	Little damage	Medium damage	Large damage	31	1.23 st t	No damage	Medium damage	Total destruction
4	1.22 st b	No damage	No damage	Total destruction	61				
5	1.23 st t	No damage	Medium damage	Total destruction	32	1.31 co fl	Large damage	Large damage	Large damage
25					51	1.33 al i p	Large damage	Large damage	Large damage
6	1.31 co fl	Large damage	Large damage	Large damage	62				
7	1.32 fl i	No damage	Medium damage	Medium damage	33	2.11 ti fr	Medium damage	Medium damage	Medium damage
23	1.33 al i p	Large damage	Large damage	Large damage	34	2.12 wi fr	No damage	Medium damage	Medium damage
26					35	2.13 v grill	No damage	No damage	Medium damage
8	2.11 ti fr	Medium damage	Medium damage	Medium damage	36	2.14 d gla	No damage	No damage	Medium damage
9	2.12 wi fr	No damage	Medium damage	Medium damage	37	2.15 i-fin	No damage	Medium damage	Medium damage
10	2.13 v grill	No damage	No damage	Medium damage	63				
11	2.14 d gla	No damage	No damage	Medium damage	38	2.21 ti fr	Medium damage	Medium damage	Medium damage
12	2.15 i-fin	No damage	Medium damage	Medium damage	39	2.22 gw i	No damage	No damage	No damage
27					40	2.23 va bai	No damage	No damage	Medium damage
13	2.21 ti fr	Medium damage	Medium damage	Medium damage	41	2.24 plb	No damage	No damage	Medium damage
14	2.22 gw i	No damage	No damage	No damage	42	2.28 ti ba	No damage	No damage	No damage
15	2.23 va bai	No damage	No damage	Medium damage	43	2.29 mb-o	Medium damage	Medium damage	Medium damage
16	2.24 plb	No damage	No damage	Medium damage	52	2.27 osb	Medium damage	Medium damage	Medium damage
17	2.28 ti ba	No damage	No damage	No damage	56	2.25 pw bu	Medium damage	Medium damage	Medium damage
18	2.29 mb-o	Medium damage	Medium damage	Medium damage	57	2.26 th ins	No damage	No damage	No damage
22	2.27 osb	Medium damage	Medium damage	Medium damage	58	2.28 ti ba	No damage	No damage	No damage
28					59	2.29 mb-o	Medium damage	Medium damage	Medium damage
56	2.25 pw bu	Medium damage	Medium damage	Medium damage	60	2.210 tcps	Medium damage	Medium damage	Medium damage
57	2.26 th ins	No damage	No damage	No damage	64				
58	2.28 ti ba	No damage	No damage	No damage	44	2.31 t ms	No damage	Medium damage	Medium damage
59	2.29 mb-o	Medium damage	Medium damage	Medium damage	45	2.32 r v ba	No damage	No damage	No damage
60	2.210 tcps	Medium damage	Medium damage	Medium damage	46	2.33 r pf i	Large damage	Large damage	Large damage
19	3.11 fl fi	No damage	Large damage	Large damage	47	2.34 t ep	Large damage	Large damage	Large damage
24	3.11 fl fi i	Large damage	Large damage	Large damage	53	2.35 pr sl	Large damage	Large damage	Large damage
20	4.11 rwp	No damage	No damage	No damage	54	2.36 m cp	Medium damage	Medium damage	Medium damage
21	4.21 in p	Medium damage	Medium damage	Medium damage	65				
					66				
					48	3.11 fl fi	No damage	Large damage	Large damage
					55	3.11 fl fi i	Large damage	Large damage	Large damage
					49	4.11 rwp	Large damage	Large damage	Large damage
					50	4.21 in p	Medium damage	Medium damage	Medium damage

Accessibility to fixing

Input - Building level / System level / Product level									
Bottom floor				Top floor					
No.	Part id	Accessibility from outside/inside	Accessibility	Rating	No.	Part id	Accessibility from outside/inside	Accessibility	Rating
1	1.11 scfb	yes	directly accessible	0,9	29	1.21 st shc	no	accessible after 7 disassembly steps	0,1
2	1.12 i-sbp	yes	directly accessible	0,9	30	1.22 st b	yes	directly accessible	0,9
3	1.21 st shc	no	accessible after 8 disassembly steps	0,1	31	1.23 st t	yes	directly accessible	0,9
4	1.22 st b	yes	directly accessible	0,9	61				
5	1.23 st t	yes	directly accessible	0,9	32	1.31 co fl	yes	directly accessible	0,9
25					51	1.33 al i p	no	accessible after 2 disassembly steps	0,6
6	1.31 co fl	yes	directly accessible	0,9	62				
7	1.32 fl i	yes	directly accessible	0,9	33	2.11 ti fr	no	accessible after 4 disassembly steps	0,3
23	1.33 al i p	no	accessible after 2 disassembly steps	0,6	34	2.12 wi fr	yes	directly accessible	0,9
26					35	2.13 v grill	yes	directly accessible	0,9
8	2.11 ti fr	no	accessible after 4 disassembly steps	0,3	36	2.14 d gla	yes	directly accessible	0,9
9	2.12 wi fr	yes	directly accessible	0,9	37	2.15 i-fin	yes	directly accessible	0,9
10	2.13 v grill	yes	directly accessible	0,9	63				
11	2.14 d gla	yes	directly accessible	0,9	38	2.21 ti fr	no	accessible after 4 disassembly steps	0,3
12	2.15 i-fin	yes	directly accessible	0,9	39	2.22 gw i	no	accessible after 3 disassembly steps	0,3
27					40	2.23 va bai	no	accessible after 2 disassembly steps	0,6
13	2.21 ti fr	no	accessible after 5 disassembly steps	0,1	41	2.24 plb	yes	directly accessible	0,9
14	2.22 gw i	no	accessible after 4 disassembly steps	0,3	42	2.28 ti ba	no	accessible after 3 disassembly steps	0,3
15	2.23 va bai	no	accessible after 2 disassembly steps	0,6	43	2.29 mb-o	no	accessible after 2 disassembly steps	0,6
16	2.24 plb	yes	directly accessible	0,9	52	2.27 osb	yes	directly accessible	0,9
17	2.28 ti ba	no	accessible after 4 disassembly steps	0,3	56	2.25 pw bu	no	accessible after 3 disassembly steps	0,3
18	2.29 mb-o	no	accessible after 3 disassembly steps	0,3	57	2.26 th ins	no	accessible after 1 disassembly steps	0,6
22	2.27 osb	yes	directly accessible	0,9	58	2.28 ti ba	no	accessible after 2 disassembly steps	0,6
28					59	2.29 mb-o	no	accessible after 1 disassembly steps	0,6
56	2.25 pw bu	no	accessible after 3 disassembly steps	0,3	60	2.210 tcps	yes	directly accessible	0,9
57	2.26 th ins	no	accessible after 1 disassembly steps	0,6	64				
58	2.28 ti ba	no	accessible after 2 disassembly steps	0,6	44	2.31 t ms	yes	directly accessible	0,9
59	2.29 mb-o	no	accessible after 1 disassembly steps	0,6	45	2.32 r v ba	no	accessible after 4 disassembly steps	0,3
60	2.210 tcps	yes	directly accessible	0,9	46	2.33 r pf i	no	accessible after 3 disassembly steps	0,3
19	3.11 fl fi	yes	directly accessible	0,9	47	2.34 t ep	no	accessible after 4 disassembly steps	0,3
24	3.11 fl fi i	yes	directly accessible	0,9	53	2.35 pr sl	yes	directly accessible	0,9
20	4.11 rwp	no	accessible after 4 disassembly steps	0,3	54	2.36 m cp	yes	directly accessible	0,9
21	4.21 in p	yes	directly accessible	0,9	65				
					66				
					48	3.11 fl fi	yes	directly accessible	0,9
					55	3.11 fl fi i	yes	directly accessible	0,9
					49	4.11 rwp	no	accessible after 3 disassembly steps	0,3
					50	4.21 in p	yes	directly accessible	0,9

Standardisation of product edge

Input - Building level / System level / Product level							
Bottom floor				Top floor			
No.	Part id	Type of product	Rating	No.	Part id	Type of product	Rating
1	1.11 scfb	pre-made	0,9	29	1.21 st shc	pre-made	0,9
2	1.12 i-sbp	pre-made	0,9	30	1.22 st b	pre-made	0,9
3	1.21 st shc	pre-made	0,9	31	1.23 st t	pre-made	0,9
4	1.22 st b	pre-made	0,9	61			
5	1.23 st t	pre-made	0,9	32	1.31 co fl	pre-made	0,9
25				51	1.33 al i p	pre-made	0,9
6	1.31 co fl	pre-made	0,9	62			
7	1.32 fl i	pre-made	0,9	33	2.11 ti fr	pre-made	0,9
23	1.33 al i p	pre-made	0,9	34	2.12 wi fr	pre-made	0,9
26				35	2.13 v grill	pre-made	0,9
8	2.11 ti fr	pre-made	0,9	36	2.14 d gla	pre-made	0,9
9	2.12 wi fr	pre-made	0,9	37	2.15 i-fin	half-standardised	0,7
10	2.13 v grill	pre-made	0,9	63			
11	2.14 d gla	pre-made	0,9	38	2.21 ti fr	pre-made	0,9
12	2.15 i-fin	half-standardised	0,7	39	2.22 gw i	pre-made	0,9
27				40	2.23 va bai	pre-made	0,9
13	2.21 ti fr	pre-made	0,9	41	2.24 plb	pre-made	0,9
14	2.22 gw i	pre-made	0,9	42	2.28 ti ba	pre-made	0,9
15	2.23 va bai	pre-made	0,9	43	2.29 mb-o	half-standardised	0,7
16	2.24 plb	pre-made	0,9	52	2.27 osb	half-standardised	0,7
17	2.28 ti ba	pre-made	0,9	56	2.25 pw bu	half-standardised	0,7
18	2.29 mb-o	half-standardised	0,7	57	2.26 th ins	half-standardised	0,7
22	2.27 osb	half-standardised	0,7	58	2.28 ti ba	half-standardised	0,7
28				59	2.29 mb-o	half-standardised	0,7
56	2.25 pw bu	half-standardised	0,7	60	2.210 tcps	half-standardised	0,7
57	2.26 th ins	half-standardised	0,7	64			
58	2.28 ti ba	half-standardised	0,7	44	2.31 t ms	pre-made	0,9
59	2.29 mb-o	half-standardised	0,7	45	2.32 r v ba	pre-made	0,9
60	2.210 tcps	half-standardised	0,7	46	2.33 r pf i	pre-made	0,9
19	3.11 fl fi	pre-made	0,9	47	2.34 t ep	pre-made	0,9
24	3.11 fl fi i	half-standardised	0,7	53	2.35 pr sl	half-standardised	0,7
20	4.11 rwp	pre-made	0,9	54	2.36 m cp	pre-made	0,9
21	4.21 in p	half-standardised	0,7	65			
				66			
				48	3.11 fl fi	pre-made	0,9
				55	3.11 fl fi i	half-standardised	0,7
				49	4.11 rwp	pre-made	0,9
				50	4.21 in p	half-standardised	0,7

Geometry of product edge

Input - Building level / System level / Product level			
What geometry of product edge is used at sub-system and component level?			
Building system and floor indication			
Sub-system	Type of product edge	Component	Type of product edge
Bottom floor			
Building level			
Chunk1	Open - linear geometry		
1. Loadbearing			
		Component1	Open - linear geometry
2. Enclosing			
Assembly1	Symmetric overlapping	Component2	Symmetric overlapping
Assembly2	Open - linear geometry	Component3	Symmetric overlapping
		Component4	Open - linear geometry

Input - Building level / System level / Product level			
Bottom floor			
No	Part id	Sub-function	Type of product edge
1	1.11 scfb	Foundation	Open - linear geometry
2	1.12 i-sbp	Foundation	Closed - integral on one side
3	1.21 st shc	Structure	Open - linear geometry
4	1.22 st b	Structure	Open - linear geometry
5	1.23 st t	Structure	Open - linear geometry
25			
6	1.31 co fl	Floors	Symmetric overlapping
7	1.32 fl i	Floors	Open - linear geometry
23	1.33 al i p	Floors	Symmetric overlapping
26			
8	2.11 ti fr	Façade open	Open - linear geometry
9	2.12 wi fr	Façade open	Symmetric overlapping
10	2.13 v grill	Façade open	Symmetric overlapping
11	2.14 d gla	Façade open	Symmetric overlapping
12	2.15 i-fin	Façade open	Open - linear geometry
27			
13	2.21 ti fr	Façade closed	Open - linear geometry
14	2.22 gw i	Façade closed	Open - linear geometry
15	2.23 va bai	Façade closed	Unsymmetric overlapping
16	2.24 plb	Façade closed	Symmetric overlapping
17	2.28 ti ba	Façade closed	Open - linear geometry
18	2.29 mb-o	Façade closed	Unsymmetric overlapping
22	2.27 osb	Façade closed	Open - linear geometry
28			
56	2.25 pw bu	Façade closed	Symmetric overlapping
57	2.26 th ins	Façade closed	Open - linear geometry
58	2.28 ti ba	Façade closed	Open - linear geometry
59	2.29 mb-o	Façade closed	Unsymmetric overlapping
60	2.210 tcps	Façade closed	Unsymmetric overlapping
19	3.11 fl fi	(raised) Floor	Open - linear geometry
24	3.11 fl fi i	(raised) Floor	Open - linear geometry
20	4.11 rwp	Water	Closed - integral on one side
21	4.21 in p	Electrical	Open - linear geometry

Geometry of product edge

Input - Building level / System level / Product level			
What geometry of product edge is used at sub-system and component level?			
Building system and floor indication			
Sub-system	Type of product edge	Component	Type of product edge
Top floor			
Building level			
Chunk2	Open - linear geometry		
1. Loadbearing			
		Component5	Open - linear geometry
2. Enclosing			
Assembly3	Symmetric overlapping	Component6	Symmetric overlapping
Assembly4	Open - linear geometry	Component7	Symmetric overlapping
		Component8	Open - linear geometry

Input - Building level / System level / Product level			
Top floor			
No	Part id	Sub-function	Type of product edge
29	1.21 st shc	Structure	Open - linear geometry
30	1.22 st b	Structure	Open - linear geometry
31	1.23 st t	Structure	Open - linear geometry
61			
32	1.31 co fl	Floors	Symmetric overlapping
51	1.33 al i p	Floors	Symmetric overlapping
62			
33	2.11 ti fr	Façade open	Open - linear geometry
34	2.12 wi fr	Façade open	Symmetric overlapping
35	2.13 v grill	Façade open	Symmetric overlapping
36	2.14 d gla	Façade open	Symmetric overlapping
37	2.15 i-fin	Façade open	Open - linear geometry
63			
38	2.21 ti fr	Façade closed	Open - linear geometry
39	2.22 gw i	Façade closed	Open - linear geometry
40	2.23 va bai	Façade closed	Unsymmetric overlapping
41	2.24 plb	Façade closed	Symmetric overlapping
42	2.28 ti ba	Façade closed	Open - linear geometry
43	2.29 mb-o	Façade closed	Unsymmetric overlapping
52	2.27 osb	Façade closed	Open - linear geometry
56	2.25 pw bu	Façade closed	Symmetric overlapping
57	2.26 th ins	Façade closed	Open - linear geometry
58	2.28 ti ba	Façade closed	Open - linear geometry
59	2.29 mb-o	Façade closed	Unsymmetric overlapping
60	2.210 tcps	Façade closed	Unsymmetric overlapping
64			
44	2.31 t ms	Roof	Symmetric overlapping
45	2.32 r v ba	Roof	Open - linear geometry
46	2.33 r pf i	Roof	Open - linear geometry
47	2.34 t ep	Roof	Open - linear geometry
53	2.35 pr sl	Roof	Unsymmetric overlapping
54	2.36 m cp	Roof	Open - linear geometry
65			
66			
48	3.11 fl fi	(raised) Floor	Open - linear geometry
55	3.11 fl fi i	(raised) Floor	Open - linear geometry
49	4.11 rwp	Water	Closed - integral on one side
50	4.21 in p	Electrical	Open - linear geometry

Standardisation of product dimensions

Input Building level / System level / Product level												
No.	Part id	Production limitation dimension	Material type	Product dimensions			Production capacity				Number of parts from one length/surface	Waste (%)
				Length	width	height/thickness	Length/beam length	width	amount from plate	cutting thickness		
1	1.11 scfb	None										
2	1.12 i-sbp	None										
3	1.21 st shc	Length	Steel	3490	-	-	7000	-	-	4	2	0,2%
4	1.22 st b	Length	Steel	2800	-	-	8500	-	-	4	3	1,0%
5	1.23 st t	Length	Steel	5800	-	-	12000	-	-	4	2	3,3%
6	1.31 co fl	None										
7	1.32 fl i	None										
8	2.11 ti fr	Length	Timber	2600	-	-	5400	-	-	4	2	3,6%
9	2.12 wi fr	Length	Timber	5790	-	-	6000	-	-	4	1	3,4%
10	2.13 v grill	None										
11	2.14 d gla	Length x Width	Glass	2600	800	double	6000	3210	8	-	8	13,6%
12	2.15 i-fin	None										
13	2.21 ti fr	Length	Timber	2730	-	-	5700	-	-	4	2	4,1%
14	2.22 gw i	None										
15	2.23 va bai	None										
16	2.24 plb	Length x Width	OSB	2800	1220	12	2800	1220	1	-	1	0,0%
17	2.28 ti ba	Length	Timber	2150	-	-	6600	-	-	4	3	2,1%
18	2.29 mb-o	None										
19	3.11 fl fi	None										
20	4.11 rwp	None										
21	4.21 in p	None										
22	2.27 osb	Length x Width	OSB	2800	270	12	2800	1220	4	-	4	11,5%
23	1.33 al i p	None										
24	3.11 fl fi i	None										
29	1.21 st shc	Length	Steel	3490	-	-	7000	-	-	4	2	0,2%
30	1.22 st b	Length	Steel	2800	-	-	8500	-	-	4	3	1,0%
31	1.23 st t	Length	Steel	5800	-	-	12000	-	-	4	2	3,3%
32	1.31 co fl	None										
33	2.11 ti fr	Length	Timber	2600	-	-	5400	-	-	4	2	3,6%
34	2.12 wi fr	None										
35	2.13 v grill	Length	Timber	5790	-	-	6000	-	-	4	1	3,4%
36	2.14 d gla	Length x Width	Glass	2600	800	double	6000	3210	8	-	8	13,6%
37	2.15 i-fin	None										
38	2.21 ti fr	Length	Timber	2730	-	-	5700	-	-	4	2	4,1%
39	2.22 gw i	None										
40	2.23 va bai	None										
41	2.24 plb	Length x Width	OSB	2800	1220	12	2800	1220	1	-	1	0,0%
42	2.28 ti ba	Length	Timber	2150	-	-	6600	-	-	4	3	2,1%
43	2.29 mb-o	None										
44	2.31 t ms	None										
45	2.32 r v ba	None										
46	2.33 r pf i	None										
47	2.34 t ep	Length	Timber	5800	-	-	6000	-	-	4	1	3,3%
48	3.11 fl fi	None										
49	4.11 rwp	None										
50	4.21 in p	None										
51	1.33 al i p	None										
52	2.27 osb	Length x Width	OSB	2800	270	12	2800	1220	4	-	4	11,5%
53	2.35 pr sl	None										
54	2.36 m cp	None										
55	3.11 fl fi i	None										
56	2.25 pw bu	Length x Width	Meranti	3000	500	15	3100	1530	3	-	3	5,1%
57	2.26 th ins	None										
58	2.28 ti ba	Length	Timber	2150	-	-	6600	-	-	4	3	2,1%
59	2.29 mb-o	None										
60	2.210 tcps	None										

APPENDICES - REUSE POTENTIAL TOOL

Appendix 1 - Building functions

Appendix 2 - Technical lifecycle data

Appendix 3 - Production dimensions

Appendix 1 - Building functions

Building functions		
<i>Main function</i>	<i>Sub-function</i>	<i>Part function</i>
1. Loadbearing	1.1 Foundation	1.1.1 Support
		1.1.2 Control
		1.1.3 Finishing
		1.1.4 Integration
	1.2 Structure	1.2.1 Support
		1.2.2 Control
		1.2.3 Finishing
		1.2.4 Integration
	1.3 Floors	1.3.1 Support
1.3.2 Control		
1.3.3 Finishing		
1.3.4 Integration		
2. Enclosing	2.1 Façade open	2.1.1 Support
		2.1.2 Control
		2.1.3 Finishing
		2.1.4 Integration
	2.2 Façade closed	2.2.1 Support
		2.2.2 Control
		2.2.3 Finishing
		2.2.4 Integration
	2.3 Roof	2.3.1 Support
2.3.2 Control		
2.3.3 Finishing		
2.3.4 Integration		
3. Finishing	3.1 (raised) Floor	3.1.1 Support
		3.1.2 Control
		3.1.3 Finishing
		3.1.4 Integration
	3.2 (lowered) Ceiling	3.2.1 Support
		3.2.2 Control
		3.2.3 Finishing
		3.2.4 Integration
	3.3 Partitioning	3.3.1 Support
		3.3.2 Control
		3.3.3 Finishing
		3.3.4 Integration
	3.4 Stairs	3.4.1 Support
		3.4.2 Control
		3.4.3 Finishing
		3.4.4 Integration
4. Servicing	4.1 Water	Core distribution
		Sub-distribution
		4.1.1 Support
		4.1.2 Control
	4.2 Electrical	Core distribution
		Sub-distribution
		4.2.1 Support
		4.2.2 Control
	4.3 Heating	Core distribution
		Sub-distribution
		4.2.3 Finishing
		4.2.4 Integration
	4.4 Ventilation	Core distribution
		Sub-distribution
		4.3.1 Support
		4.3.2 Control
		4.3.3 Finishing
		4.3.4 Integration
		4.4.1 Support
		4.4.2 Control
		4.4.3 Finishing
		4.4.4 Integration

Appendix 2 - Technical lifecycle data

Technical lifecycle data							
Main function	Sub-function	Element function	Material type	Specification	Technical lifespan		
1. Loadbearing	1.1 Foundation	support (foundationbeams, basementwalls)	concrete	(prefab/ in-situ)	100 < 100+		
			stoney material		100 < 100+		
			concrete		100 < 100+		
		support (pile foundation)	timber		75		
			steel	coating c	75		
				coating d zinc layer >100um	100 < 100+		
		control (basement insulation)	EPS, XPS, foamglas		75		
			control (soil sealing)	concrete	in-situ concrete	75	
				foam concrete	50		
		stoney material		sea shells	75		
				sand/ gravel/ debris	100 < 100+		
				clay granules	30		
			plastic material	PVC	20		
				PE foil	40		
		1.2 Structure	support (beams, columns)	concrete		100 < 100+	
	stoney material				100 < 100+		
	timber				100 < 100+		
	steel				100 < 100+		
	support (Lintels)			concrete		75	
				stoney material		75	
	support (stairs)		steel		100 < 100+		
			concrete, steel		100 < 100+		
			timber		50		
	1.3 Floors		support (structural floors on soil)	concrete (others)		100 < 100+	
				foam concrete		50	
				timber		75	
			support (cantilevered floors)	concrete	channel floor, wide slab floor, aerated concrete floor, steel plate concrete floor, PC hybridfloors		100 < 100+
				stoney material	ceramic floor		50
					ribcasette floor		75
		timber			timber	75	
steel		dovetail floor with concrete		75			
control (floor insulation)		EPS, XPS, glaswool, PUR, PIR plates			75		
		Fenol or resolfoam, cellulose plate		30			
		stonewool or cellular glass plates		100 < 100+			
		polyester-aluminumfoil		25			
		polyester-aluminum pillow,		40			
		flax shaving plate					
2. Enclosure		2.1 façade open	control (window frame)	steel	galvanized and enamelled steel	100 < 100+	
				aluminum enamelled, insulated	75		
	timber		european softwood, painted	35			
			european hardwood, painted	50			
			tropical hardwood finished	50			

Appendix 2 - Technical lifecycle data

Technical lifecycle data					
Main function	Sub-function	Element function	Material type	Specification	Technical lifespan
				European softwood with aluminum, painted	40
				hardwood with aluminum, painted	50
		control (exterior doors)	plastic material	PVC	40
			steel	steel sandwich	35
				insulated galvanized and coated steel plate	50
				RVS	50
				aluminum enamelled, insulated	35
			timber	European softwood, painted	25
				2x multiplex, sandwich, painted	30
				tropical hardwood finished	40
		control (exterior windows)	plastic material	PVC, MDF, HDF panels	20
			glass	single glazing	75
				double glazing, HR glass, triple glazing	30
		control (solid panels)	steel	sandwich panel	50
			timber	multiplex sandwich panel	20
			plastic material	HPL sandwich panel	25
			glass	enamel glass sandwich panel	25
		finish (windowsill)	stone material	ceramic tiles, polyesterconcrete, natural stone	100 < 100+
			timber	hardwood painted	50
				softwood painted	35
				plasticized chipboard	15
		control (waterproof layer)	steel	aluminum slab	25
				Aluminum enamelled; RVS, blank	25
				PVC-foil	30
			plastic material	EPDM-foil, EPDM slab,	50
				PIB slab	25
				Polylead	25
		control (draft seal)	PVC strips		10
			rubber strips		20
			brush strips		15
	2.2 façade closed	support (internal wall)	concrete		100 < 100+
			stone material		100 < 100+
			limestone		75
			timber		75
			Steel/ aluminum		50
		support (external walls)	concrete		100 < 100+
			stone material		100 < 100+
			limestone		75
		finish (external walls)	concrete	concrete panel	75
				Polyester concrete	40
			stone material	natural stone	75
				natural stone slates	40
				ceramics with chemical connection	40
				ceramics with mechanical connection	75

Appendix 2 - Technical lifecycle data

Technical lifecycle data					
Main function	Sub-function	Element function	Material type	Specification	Technical lifespan
			timber	European untreated softwood, painted	15
				European treated softwood, painted	30
				European untreated hardwood, painted	40
				European untreated hardwood	30
				Tropical hardwood finished	60
				Tropical hardwood unfinished	50
				Oak, Robinia and Western Red Cedar parts	60
				Meranti parts	40
				Wood fiber cement sheet	25
				Multiplex	30
			steel	Galvanized steel	30
				Galvanized and coated steel	50
				Aluminum anodized	30
				Aluminum profiled plate + profiles	60
				Aluminum profiled plate anodized uncoated	30
				Aluminum profiled plate coated	40
				Aluminum (sandwich, PE core/ plastic core)	40
				Copper facade	100 < 100+
				Zinc	25
			plastic material	HPL-plate	25
			Glass	Glass	30
				Reinforced glass (with RVS connections)	40
			Finishing layers	Plaster (cement, chalk, stucco on insulation)	25
				Clay plaster	15
		control (insulation)	insulation layers	Flax wool	40
				Cellulose	30
				Phenol plate resin foam sheet	75
				EPS, glasswool, stonewool, XPS	75
				Cellular glass plate	100 < 100+
				PUR/ PIR	75
				Coccolite plate	40
		integration (wall joints)	wall joints	Chalk joint	40
				Cement joint, spread	60
				Cement joint, brushed	20
				Mason mortar, spread	100 < 100+
			dilatation joint	Elastic seal	15
				Plastic seal	10
				EPDM profiles	40
				Aluminum strips	50
		support (balustrades/ handrails)	Timber	European untreated softwood, painted	15
				European treated softwood, painted	30
				European untreated hardwood, painted	40
				European untreated hardwood	30

Appendix 2 - Technical lifecycle data

Technical lifecycle data					
Main function	Sub-function	Element function	Material type	Specification	Technical lifespan
				tropical hardwood finished	60
				tropical hardwood unfinished	50
			steel	coating d zinc layer >100um	100 < 100+
				Steel HPL plate	50
				Steel / glass, aluminum/ glass	50
				aluminum anodized	40
				RVS	75
	2.4 Roof	roofwindow	timber		40
			steel		75
			plastic material	PVC	15
				plastic	25
		Support (flat roof)	concrete	channel floor, wide slab floor, aerated concrete floor, in-situ or prefab concrete	100
			timber		75
			steel		100
		Support (sloped roofs)	concrete	in-situ or prefab concrete, aerated concrete	100
			timber		75
			steel		75
		finishing (finishing outside)	timber	softwood on battens	30
				hardwood on battens	40
				multiplex on battens	20
				western red cedar on battens	40
			steel	steel profiled plates (un)insulated	50
				aluminum profiled plates (un)insulated	40
		control (waterproof layer)	plastic material	HPL-plate	25
			steel	lead slab	25
			plastic material	PVC-foil	15
				PE-foil	50
		control (flat roofing)	metal	EPDM-foil	50
				galvanized steel	15
				galvanized and coated steel	50
				aluminum anodized	30
				aluminum profiled plate enamelled	60
				aluminum profiled plate coated	40
				copper roof	75
				zinc plate roof, gutters	75
			bitumen		30
			plastic material	PVC, EPDM, POCB	30
			greenroof plants on EPDM or modified bitumen		40
		control (sloped roofs)	stoney material	concrete rooftile	50
				ceramic rooftile	75
				glazed ceramic rooftile	100
				profiled fiber cement sheet or slats	35
				natural stone slats	75
			timber	timber slats	15

Appendix 2 - Technical lifecycle data

Technical lifecycle data					
Main function	Sub-function	Element function	Material type	Specification	Technical lifespan
				timber shingles, western red cedar	30
			steel	galvanized and enamelled steel plate	50
				galvanized steel plate	20
				galvanized and coated steel	50
				aluminum profiled plate enamelled	60
				aluminum profiled plate coated	50
				copper roof	100
				zinc plate roof	40
			bitumen	bitumen shingles	15
			greenroof plants on EPDM or modified bitumen		40
			straw roofing		40
		finishing (finishing outside)	stoney material	concrete tiles	50
				gravel	30
		control (insulation)	plastic material	rubber tiles	30
				flax wool	30
				cellulose	20
				phenol plate resol foam sheet	30
				EPS, glasswool, stonewool, XPS, PUR, PIR	75
				cellular glass plate	75
3. Finishing	3.1 Floor finishing	finishing (screeds)	sand cement floor		30
			Anhydrite		75
			monolithic concrete floor		100 < 100+
			linoleum		30 *
			vinyl		15 *
		Finishing (floor finishing dilitations)	elastic seal		10
			bitumen		10
			rubber strips		15
	3.2 Finishing (lowered) ceiling	ceiling tiles			20 *
	3.3 Partitioning	support (internal wall)	stoney material		100 < 100+
			limestone		75
			timber		75
			Steel/ aluminum		50
		finishing (internal wall)	stuc/ wall paper		15
4. servicing	4.4 ventilation	control (ventilation grill)	steel	Aluminum blank	15
				Aluminum enamelled, RVS blank	25
	4.1 water	control (rainwater pipe)	PVC		30 *
	4.2 electrical	control (slat screen)	Slat screen		20 *
	-	installations			30 *

All lifecycle data is retrieved from: SBR (2011) Levensduur van bouwproducten - Methode voor referentiewaarden
* technical lifespan values with an asterics behind them are values that were missing in the reference guide, and are added by the author based on product manufacturer data.
** technical lifespan values with < 100+ behind them are indicated in the reference guide with 100+ years, while 100 is used.

Appendix 3 - Production dimensions

Standard production dimensions (plates/ sheets) (length x width)													
Material type	Thickness	length	width	length	width	length	width	length	width	length	width	length	width
Glass	single	6000	3210										
	double	6000	3210										
	triple	6000	3210										
Aluminum	0,8	2500	1250	3000	1500	2000	1000	4000	1500				
	1	2500	1250	3000	1500	2000	1000	4000	1500				
	1,2	2500	1250	3000	1500	2000	1000	4000	1500				
	1,5	2500	1250	3000	1500	2000	1000	4000	1500				
	2	2500	1250	3000	1500	2000	1000	4000	1500				
	2,5	2500	1250	3000	1500	2000	1000	4000	1500				
	3	2500	1250	3000	1500	2000	1000	4000	1500				
	4	2500	1250	3000	1500	2000	1000	4000	1500				
	5	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
	6	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
	8	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
	10	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
	20	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
30	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000			
40	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000			
Steel	0,8	2500	1250	3000	1500	2000	1000	4000	1500				
	1	2500	1250	3000	1500	2000	1000	4000	1500				
	1,2	2500	1250	3000	1500	2000	1000	4000	1500				
	1,5	2500	1250	3000	1500	2000	1000	4000	1500				
	2	2500	1250	3000	1500	2000	1000	4000	1500				
	2,5	2500	1250	3000	1500	2000	1000	4000	1500				
	3	2500	1250	3000	1500	2000	1000	4000	1500				
	4	2500	1250	3000	1500	2000	1000	4000	1500				
	5	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
	6	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
	8	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
	10	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
	20	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000		
30	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000			
40	2500	1250	3000	1500	2000	1000	4000	1500	6000	3000			
Gypsum	12,5	1000	1500	2600	600	2600	1200	3000	1200				
	9,5	1200	600	2000	600	3000	600	3600	600	4200	600	2600	1200
OSB	9	2440	1220										
	12	2440	1220	2800	1220								
	18	2440	1220	2440	590								
	22	2440	590										
MDF	9	3050	1220	2440	1220								
	12	3050	1220	2440	1220								
	16	3050	1220	2440	1220								
	18	3050	1220	2440	1220								
	22	3050	1220	2440	1220								
25	3050	1220	2440	1220									
underlayment	19	2440	1220										
Poplar wood	3	2500	1220										
	6	2500	1220										
	9	2500	1220										
	12	2500	1220										
	15	2500	1220										
	18	2500	1220										
Birch wood	3	1530	1530										
	4	1530	1530										
	6	1530	1530										
	6,5	3050	1530	2440	1220								
	9	3050	1530	1530	1530	2440	1220						
	12	3050	1530	1530	1530	2440	1220						
	15	3050	1530	1530	1530	2440	1220						
	18	3050	1530	2440	1220								
	21	3050	1530	2440	1220								
	25	3050	1530	2440	1220								
27	3050	1530	2440	1220									
30	3050	1530	2440	1220									

Appendix 3 - Production dimensions

Standard production dimensions (plates/ sheets) (length x width)													
Material type	Thickness	length	width	length	width	length	width	length	width	length	width	length	width
Meranti	3,2	3100	1530	2440	1220								
	3,6	2750	1000										
	5,5	3100	1530	2440	1220								
	9	3100	1530	2440	1220								
	12	3100	1530	2440	1220								
	15	3100	1530	2440	1220								
	18	3100	1530	2440	1220								
	22	3100	1530	2440	1220								
	25	3100	1530	2440	1220								
	40	2150	950										
Betonplex	3	1530	1530										
	4	1530	1530										
	6	1530	1530										
	9	3050	1530	1530	1530	2440	1220	3100	1530				
	12	3050	1530	1530	1530	2440	1220	3100	1530				
	15	3050	1530	1530	1530	2440	1220	3100	1530				
	18	3050	1530	2440	1220	3100	1530						
	21	3050	1530	2440	1220								
	22	3100	1530	2440	1220								
	25	3050	1530	2440	1220	3100	1530						
	27	3050	1530	2440	1220								
	30	3050	1530	2440	1220								
40	2150	950											
Multiplex Okoume	4	3100	1220	3100	1530	2500	1220						
	6	3100	1220	3100	1530	2500	1220						
	8	3100	1220	3100	1530	2500	1220						
	10	3100	1220	3100	1530	2500	1220						
	12	3100	1220	3100	1530	2500	1220						
	15	3100	1220	3100	1530	2500	1220						
	18	3100	1220	3100	1530	2500	1220						
	22	3100	1220	3100	1530	2500	1220						
	25	3100	1220	3100	1530	2500	1220						
	30	3100	1220	3100	1530	2500	1220						
40	3100	1530	2500	1220	2150	950							
* green area can be added onto, if required dimension is not available													
** cells in yellow are custom dimensions added to the matrix													

Appendix 3 - Production dimensions

Production dimensions of beams / profiles (mm)				
<i>Timber</i>	<i>Steel</i>	<i>Aluminum</i>	<i>Cutting thickness</i>	
2400	6500	6000	1	
2700	7000	6500	1,5	
3000	7500	7000	2	
3300	8000	7500	2,5	
3600	8500	8000	3	
3900	9000	8500	3,5	
4200	9500	9000	4	
4500	10000	9500	4,5	
4800	10500	10000	5	
5100	11000	10500	5,5	
5400	11500	11000	6	
5700	12000	11500	[Green area]	
6000	12500	12000		
6300	13000	12500		
6600		13000		
6900		13500		
7200		14000		
7500		14500		
		15000		
		15500		
		16000		

* green area can be added onto, if required dimension is not available