Welcome

Digital Deconstruction : Pilot feedback GTB Lab

Dr. Elma Durmisevic, GTB Lab /
4D architectes
27/04/2023

Interreg North-West Europe
Digital Deconstruction
European Regional Development Fund

About the project

The Interreg North West European Digital Deconstruction (DDC) project aims to develop an innovative digital decision support system, integrating various digital tools (3D scanning, Building Information Modelling, a digital materials & buildings database, blockchain technology) that helps to define the most sustainable and economical deconstruction and reuse strategy for building.

The project focuses on regions having set sustainable materials management, ecotechnologies, ICT and digitization in industry as one of their RIS3 priorities in NL, BE, LUX, FR, paving the way for roll-out to UK and DE.

Reversible BIM

Reuse Potential Tool

Interreg North-West Europe Digital Deconstruction

European Regional Development Fund

Heerlen

4D architects

EUROPEAN UNION

Roman museum, Heerlen Inventory of Reuse Capacity of Materials has been done with RBIM

BUILDING

REUSE POTENTIAL

Method Dr. Elma Durmisevic

gtb lab

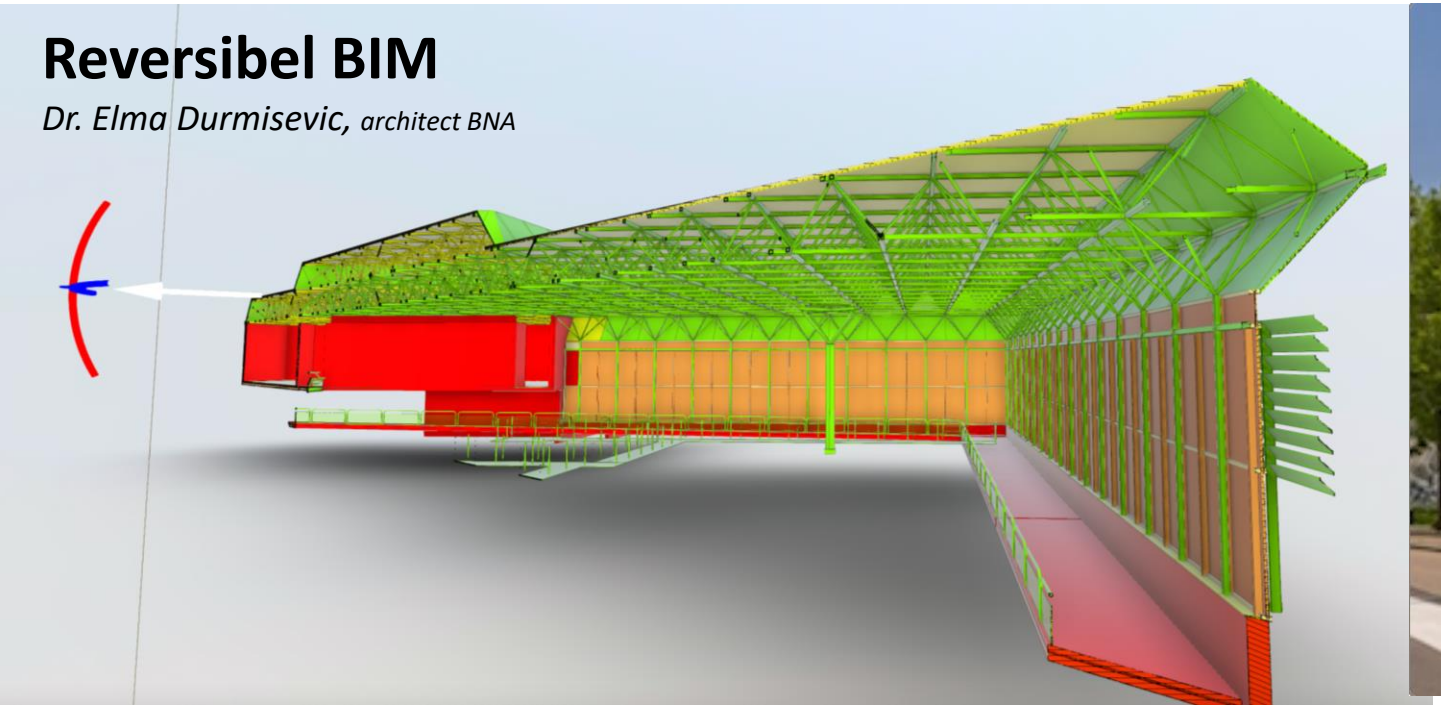
Reversible

Irreversible

0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1

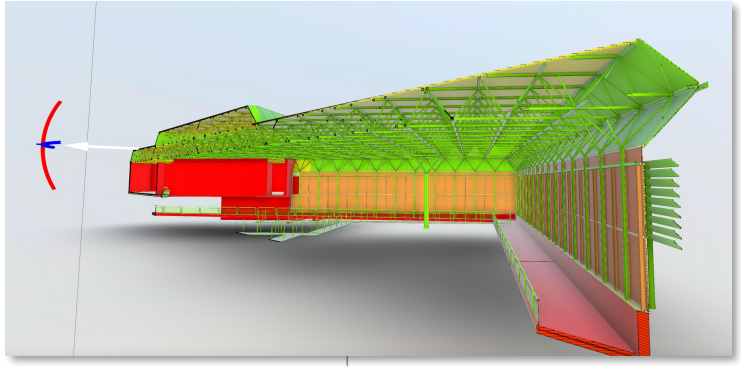
Reversibel BIM

Dr. Elma Durmisevic, architect BNA



Reversible BIM

Reuse Potential Tool



RBIM© output list with all 7277 elements has been created with information regarding: reused volume, tonnage, avoided CO2 per element and reused option

REUSE OPTIONS
07-09: Re-use by minor repair
05-0,6: Reuse by major repair
04 Remanufacture
03 Mono-material Recycle
02 Downcycle
01 Waste

Element sheet

total ton embodied CO2 = 6070 ton CO2

Avoided CO2 = 3202 ton CO2 total reused material = 567 m3

4D architects

gtb lab

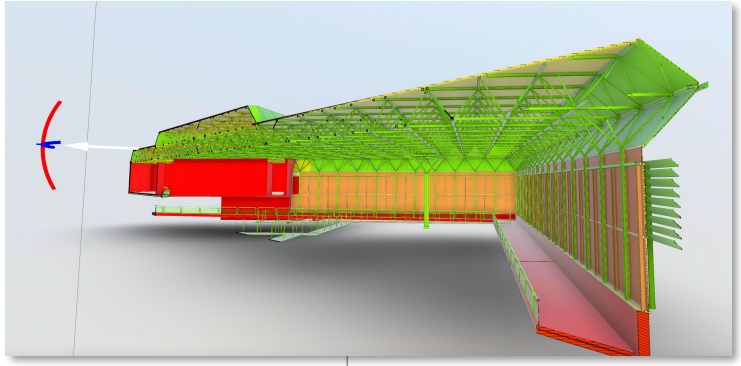
BUILDING
REUSE POTEN

Reversible
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
Irreversible

	Sequence no.	ID	Type	level	Element function	Material name	Embodied car	Volume	Area	Numbe	Total RP	Reused carbon(kg	Reused material (m3	function	Material gro	material (ton	Reused material (ton)
						Revit data export								*making data suitable*			
7230	35	3277732	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	28,60431316	0,182495	12,16635	2	0,45	12,87194092	0,082122885	3. Partitioning	Plaster	0,310242008	0,139608904
7231	35	2131406	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	15,23674247	0,09721	6,480687	5	0,45	6,856534111	0,043744635	3. Partitioning	Plaster	0,165257511	0,07436588
7232	35	2131386	Finish - IV Wall 15 Tiles Ceramic	Plan 2	Finishing	Ceramics, Tiles and Cladding Panels (chemical connection)	39,11559335	0,03582	2,388009	3	0,45	17,60201701	0,016119063	3. Partitioning	Ceramics	0,050148197	0,022566688
7233	35	2144659	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	18,28198503	0,116639	7,775928	4	0,45	8,226893266	0,052487516	3. Partitioning	Plaster	0,198286172	0,089228777
7234	35	2122041	Finish - IV Wall 15 Tiles Ceramic	Plan 3	Finishing	Ceramics, Tiles and Cladding Panels (chemical connection)	14,54497334	0,01332	0,936422	3	0,45	6,545238003	0,005993808	3. Partitioning	Ceramics	0,018647402	0,008391331
7235	35	2144658	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	6,345435075	0,040484	2,719172	4	0,45	2,855445784	0,018217722	3. Partitioning	Plaster	0,068822506	0,030970128
7236	35	2131814	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	5,670187168	0,036176	2,411717	5	0,45	2,551584226	0,016279088	3. Partitioning	Plaster	0,061498776	0,027674449
7237	35	2131723	Finish - IV Wall 15 Tiles Ceramic	Plan 2	Finishing	Ceramics, Tiles and Cladding Panels (chemical connection)	26,80048869	0,024543	1,636171	3	0,45	12,06021991	0,011044157	3. Partitioning	Ceramics	0,034359601	0,01546182
7238	35	2131902	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	4,387454736	0,027992	1,866129	4	0,45	1,974354631	0,012596367	3. Partitioning	Plaster	0,047586277	0,021413825
7239	35	2131922	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	6,720716482	0,042878	2,858541	5	0,45	3,024322417	0,019295154	3. Partitioning	Plaster	0,072892803	0,032801762
7240	35	2131626	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	15,03713408	0,095937	6,395787	4	0,45	6,766710335	0,04317156	3. Partitioning	Plaster	0,163092561	0,073391652
7241	35	2144661	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	4,71772926	0,030099	2,046651	4	0,45	2,122978167	0,013544584	3. Partitioning	Plaster	0,05116843	0,023025794
7242	35	2131582	Finish - IV Wall 15 Tiles Ceramic	Plan 2	Finishing	Ceramics, Tiles and Cladding Panels (chemical connection)	73,17831565	0,067013	4,467541	3	0,45	32,93024204	0,030155899	3. Partitioning	Ceramics	0,093818353	0,042218259
7243	35	2144662	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	6,585035686	0,042012	2,840878	5	0,45	2,963266059	0,018905615	3. Partitioning	Plaster	0,071421211	0,032139545
7244	35	3277731	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	28,60431316	0,182495	12,16635	2	0,45	12,87194092	0,082122885	3. Partitioning	Plaster	0,310242008	0,139608904
7245	35	2130270	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	13,32662258	0,085024	5,66825	4	0,45	5,996980159	0,038260688	3. Partitioning	Plaster	0,144540375	0,065043169
7246	35	2144660	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	12,49941745	0,079746	5,336663	3	0,45	5,624737851	0,035885784	3. Partitioning	Plaster	0,135568519	0,061005834
7247	35	2131263	Finish - IV Wall 15 Tiles Ceramic	Plan 2	Finishing	Ceramics, Tiles and Cladding Panels (chemical connection)	39,64214516	0,036302	2,420155	3	0,45	17,83896532	0,016336049	3. Partitioning	Ceramics	0,050823263	0,022870468
7248	35	2131197	Finish - IV Wall 15 Mortar Cement	Plan 2	Finishing	Plaster, Dried clay plaster	8,291456286	0,052899	3,526629	4	0,45	3,731155329	0,023804742	3. Partitioning	Plaster	0,089929027	0,040468062
7249	35	2131131	Finish - IV Wall 15 Tiles Ceramic	Plan 2	Finishing	Ceramics, Tiles and Cladding Panels (chemical connection)	39,50871489	0,03618	2,412009	3	0,45	17,7789217	0,016281064	3. Partitioning	Ceramics	0,050652199	0,022793489
7250	35	2131018	Finish - IV Wall 15 Tiles Ceramic	Plan 2	Finishing	Ceramics, Tiles and Cladding Panels (chemical connection)	38,89884485	0,035622	2,374777	3	0,45	17,50448018	0,016029744	3. Partitioning	Ceramics	0,049870314	0,022441641
7251	36	4267324	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	244,9267757	0,785022	15,70043	1	0,9	220,4340981	0,706519545	3. Partitioning	Plaster	0,628017373	0,565215636
7252	36	8199477	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	123,5005767	0,395835	7,916704	1	0,9	111,150519	0,356251664	3. Partitioning	Plaster	0,316668145	0,285001331
7253	36	8200234	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	228,1772335	0,731337	14,62675	1	0,9	205,3595101	0,658203558	3. Partitioning	Plaster	0,585069829	0,526562846
7254	36	8200470	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	178,7982893	0,573071	11,46143	1	0,9	160,9184604	0,515764296	3. Partitioning	Plaster	0,458457152	0,412611437
7255	36	4268946	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	244,9637073	0,78514	15,7028	1	0,9	220,4673366	0,706626079	3. Partitioning	Plaster	0,62811207	0,565300863
7256	36	4268998	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	243,7244212	0,781168	15,62336	1	0,9	219,351979	0,703051215	3. Partitioning	Plaster	0,624934413	0,562440972
7257	36	2150136	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	82,77593338	0,265307	5,30615	1	0,9	74,49834004	0,238776731	3. Partitioning	Plaster	0,212245983	0,191021385
7258	36	4268620	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	243,4810434	0,780388	15,60776	1	0,9	219,1329391	0,702349164	3. Partitioning	Plaster	0,624310368	0,561879331
7259	36	8221174	Partition - Ceiling Plywood Multiplex Wood 20	Plan 2	Partitioning	Timber, Particle Board	-33,49778445	0,059841	2,992051	1	0,9	-30,148006	0,05385692	3. Partitioning	Timber	0,041101576	0,036991418
7260	36	8199455	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	285,3403899	0,914553	18,29105	1	0,9	256,8063509	0,823097279	3. Partitioning	Plaster	0,731642025	0,658477823
7261	36	8375564	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	82,97163619	0,265935	5,318695	1	0,9	74,67447257	0,239341258	3. Partitioning	Plaster	0,212747785	0,191473007
7262	36	8375471	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	100,4168948	0,321849	6,43698	1	0,9	90,37520532	0,28966412	3. Partitioning	Plaster	0,257479217	0,231731296
7263	36	8376201	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	963,4187964	3,087881	61,75762	1	0,9	867,0769168	2,779092682	3. Partitioning	Plaster	2,470304606	2,223274146
7264	36	8376099	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	1353,354326	4,337674	86,75348	1	0,9	1218,018893	3,903906708	3. Partitioning	Plaster	3,470139296	3,123125367
7265	36	4266273	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	241,7661824	0,774892	15,49783	1	0,9	217,5895642	0,697402449	3. Partitioning	Plaster	0,619913288	0,557921959
7266	36	4435363	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	397,7691032	1,274901	25,49802	1	0,9	357,9921929	1,147410875	3. Partitioning	Plaster	1,019920777	0,9179287
7267	36	2112436	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	336,4103531	1,078238	21,56477	1	0,9	302,7693178	0,97041448	3. Partitioning	Plaster	0,862590649	0,776331584
7268	36	2118883	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	243,4849586	0,780401	15,60801	1	0,9	219,1364628	0,702360458	3. Partitioning	Plaster	0,624320407	0,561888366
7269	36	8376482	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	73,0322585	0,234078	4,681555	1	0,9	65,72903265	0,210669976	3. Partitioning	Plaster	0,187262201	0,168535981
7270	36	8376900	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	13,96318722	0,044754	0,895076	1	0,9	12,5668685	0,040278425	3. Partitioning	Plaster	0,035803044	0,03222274
7271	36	8376857	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	73,11648333	0,234348	4,686954	1	0,9	65,804835	0,210912933	3. Partitioning	Plaster	0,187478162	0,168730346
7272	36	8222906	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	231,8518278	0,743115	14,8623	1	0,9	208,666645	0,668803349	3. Partitioning	Plaster	0,594491866	0,53504268
7273	36	8376943	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	20,46459794	0,065592	1,311833	1	0,9	18,41813815	0,059032494	3. Partitioning	Plaster	0,052473328	0,047225995
7274	36	8376696	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	14,30657094	0,045854	0,917088	1	0,9	12,87591385	0,041268955	3. Partitioning	Plaster	0,036683515	0,033015164
7275	36	8376621	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	21,19006988	0,067917	1,358338	1	0,9	19,07106289	0,061125202	3. Partitioning	Plaster	0,054333513	0,048900161
7276	36	8376814	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	72,65372028	0,232864	4,65729	1	0,9	65,38834825	0,209578039	3. Partitioning	Plaster	0,18629159	0,167662431
7277	36	8376752	Partition - Ceiling Generic 50 mm Gypsum	Plan 2	Partitioning	Plaster, Plasterboard (ceiling tiles)	28,24707972	0,090536	1,81071	1	0,9	25,42237175	0,081481961	3. Partitioning	Plaster	0,07242841	0,065185569

Reversible BIM

Reuse Potential Tool

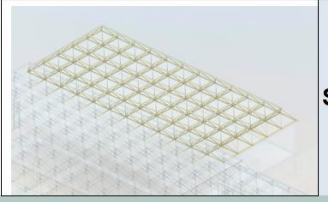
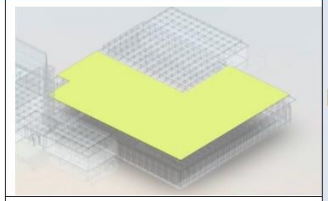
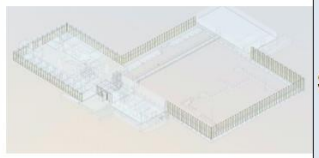
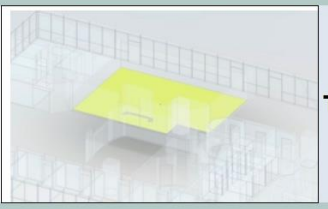


RBIM output list with all 7277 elements has been SORTED OUT per reuse option with information regarding THE POSITION

Element sheet

total ton embodied CO2 = 6070 ton CO2

Avoided CO2 = 3202 ton CO2 total reused material = 567 m3

Total RP	Element function	Visual	Material name	ID/Count	Volume (m3)	Area (r	Embodied carbon (kgCO2e/kg)	Reused carbon (kgCO2e/kg	Reused Material(m3)	Material	Reused Material ton
			Steel, pipe (load bearing, window/door frame)_HSC Total	1	2,4044085	366,1664	52471,40639	20988,56256	0,9617634	18,874607	7,5498426
	Load-bearing Total			1	2,4044085	366,1664	52471,40639	20988,56256	0,9617634	18,874607	7,5498426
0,4 Total				1	2,4044085	366,1664	52471,40639	20988,56256	0,9617634	18,874607	7,5498426
			Insulation, Fibreglass (Glasswool) Total	2	108,9884	2179,768	5149,701845	2946,530385	62,360431	3,814594	2,1826151
			Steel, Section (load bearing, window/door frame) Total	86	0,2047743	73,65372	2491,591509	1477,771516	0,1214524	1,6074784	0,953401
	Enclosure Total			88	109,19317	2253,422	7641,293354	4424,301901	62,481884	5,4220724	3,1360161
			Timber, General Total	1	1,8268556	91,34278	1174,401188	680,3427573	1,0583164	1,1391999	0,6599503
	Finishing Total			1	1,8268556	91,34278	1174,401188	680,3427573	1,0583164	1,1391999	0,6599503
											

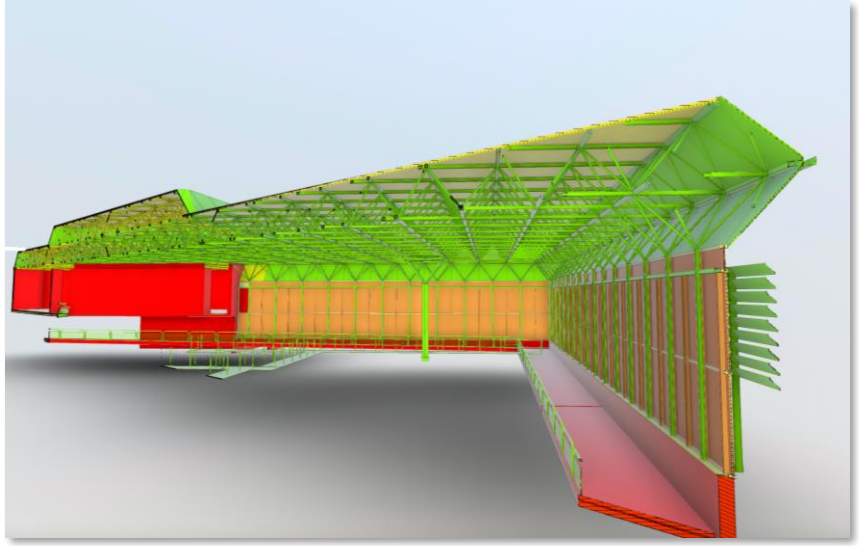
07-09: Re-use by minor repair
05-0,6: Reuse by major repair
04 Remanufacture
03 Mono-material Recycle
02 Downcycle
01 Waste

Reversible BIM

Reuse Potential Tool

4D architects

EUROPEAN UNION



Reversible 0,9 0,8 0,7 0,6 0,5 0,4 0,3 0,2 0,1 Irreversible

07-09: Re-use by minor repair
05-0,6: Reuse by major repair
04 Remanufacture
03 Mono-material Recycle
02 Downcycle
01 Waste

Interreg North-West Europe Digital Deconstruction
European Regional Development Fund

gtb lab

Circularity profile based on RBIM©EDurmisevic

Irreversible Building

Circularity Profile 0

Partly Reversible

Circularity Profile 1
uo to 20% Reuse
more than 80% recycling

Partly Reversible

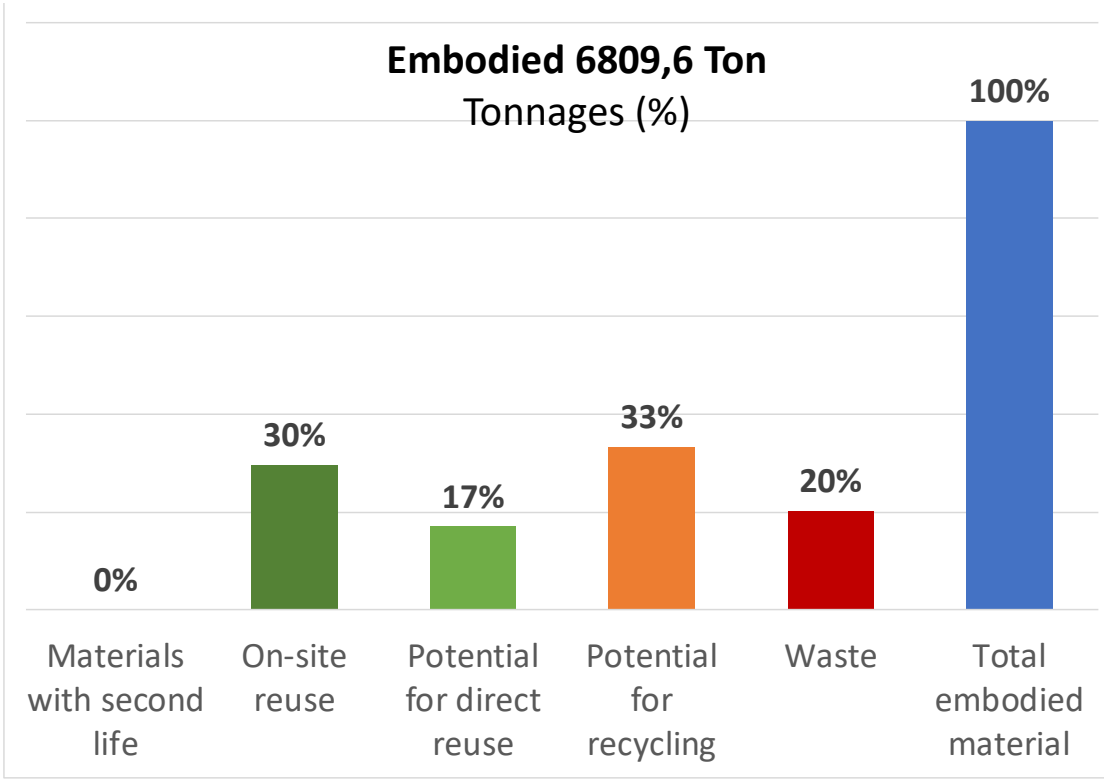
Circularity Profile 2
20 to 40 % Reuse
40% to 80% Recycling

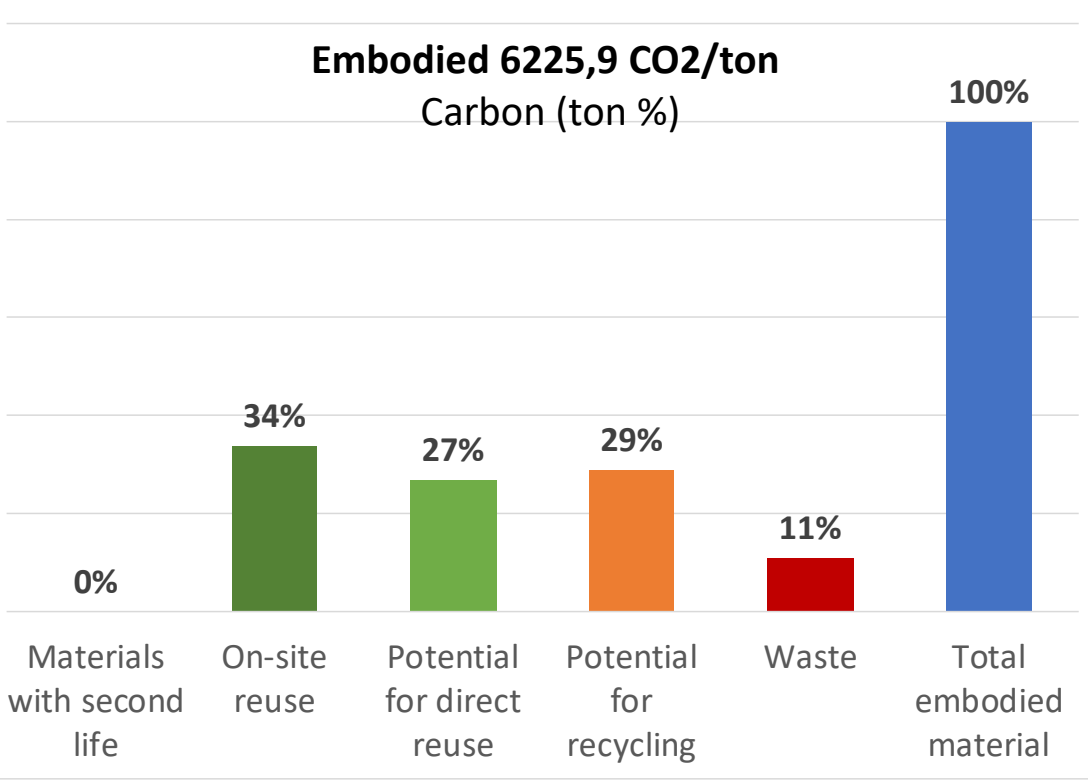
Reversible Building

Circularity Profile 3
40 to 70% Reuse
30% to 60% recycling

Reversible Building

Circularity profile 4
More Than 70% Reuse
Up to 30% recycling

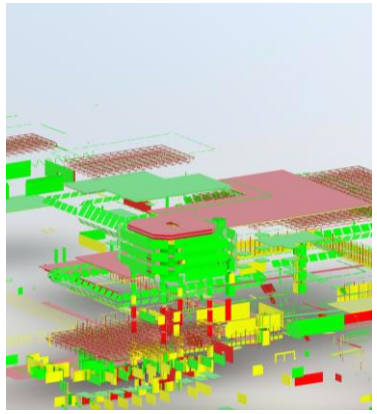




Reversible BIM

Reuse Potential Tool

Reused tonnages Per matrial groups and material functions



Interreg North-West Europe Digital Deconstruction

European Regional Development Fund

4D architects

EUROPEAN UNION

gtb lab

Reused tonnage per material (ton)

	Aluminium	*Asbestos*	*Bitumen*	*Ceramics*	*Concrete*	*Glass*	*Insulation*	*Linoleum*	*Plaster*	*Plastics*	*Steel*	*Stone*	*Timber*	*Total*	*Proportion*
High Reuse Potential (0,7-0,9)	9,1	0,0	0,0	0,0	3,9	7,8	0,1	0,0	15,7	0,4	44,4	0,0	3,9	**85,3**	5%
Upcycled Medium Reuse Potential (0,4-0,6)	2,8	0,4	8,6	1,6	49,0	0,0	4,6	1,3	9,8	18,9	1027,8	0,5	7,7	**1133,0**	68%
Low Reuse Potential (0,2-03)	1,1	0,1	0,0	0,2	0,7	0,9	0,0	0,0	0,8	0,0	12,9	0,0	0,0	**16,7**	1%
Downcycled Reuse Potential (0,1)	0,3	4,1	0,0	1,7	400,3	2,1	0,0	0,5	0,3	0,0	0,0	16,9	0,0	**426,2**	26%
Total	**13,3**	**4,6**	**8,6**	**3,6**	**453,9**	**10,8**	**4,7**	**1,8**	**26,6**	**19,3**	**1085,2**	**17,4**	**11,7**	**1661,3**	100%
Proportion	1%	0%	1%	0%	27%	1%	0%	0%	2%	1%	65%	1%	1%	100%	

BUILDING
REUSE POTENTIAL

Reversible

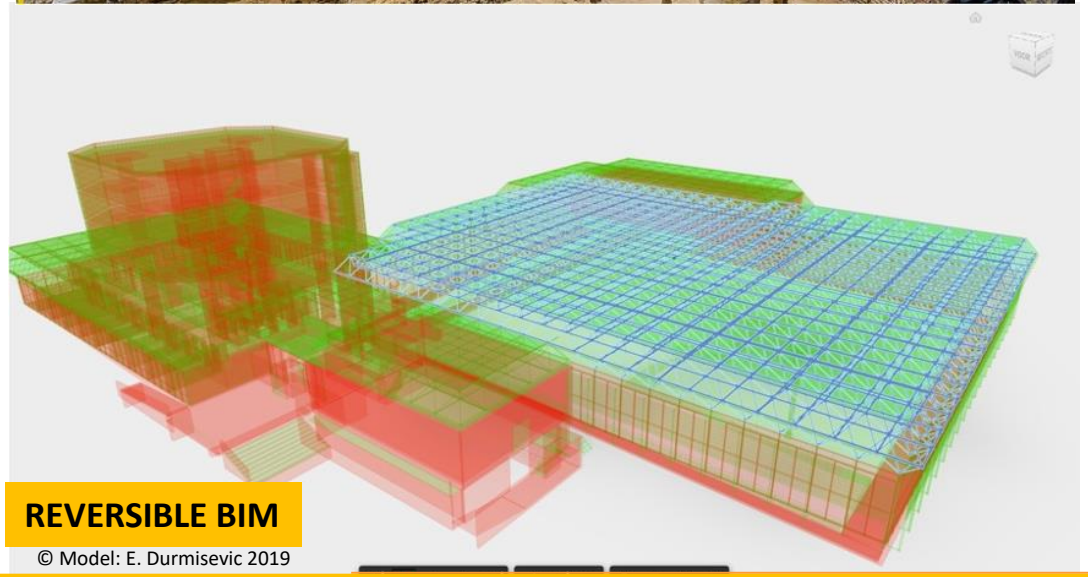
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1

Irreversible

Reused tonnage per function (ton)

	1. Load bearing	*2. Enclosing*	*3. Partitioning*	*4. Servicing*	*5. Vertical communication*	*6. Equipment*	*Total*	*Proportion*
High Reuse Potential (0,7-0,9)	30,9	19,4	19,3	0,5	0,0	15,3	**85,3**	5%
Upcycled Medium Reuse Potential (0,4-0,6)	167,0	898,8	66,8	0,3	0,0	0,0	**1133,0**	68%
Low Reuse Potential (0,2-03)	0,0	14,9	1,8	0,0	0,0	0,0	**16,7**	1%
Downcycled Reuse Potential (0,1)	343,2	48,2	31,3	0,0	3,6	0,0	**426,2**	26%
Total	**541,1**	**981,4**	**119,1**	**0,9**	**3,6**	**15,3**	**1661,3**	100%
Proportion	33%	59%	7%	0%	0%	1%	100%	

3D & VISUAL INFORMATION



REVERSIBLE BIM

© Model: E. Durmisevic 2019

REVERSIBILITY ID CARD

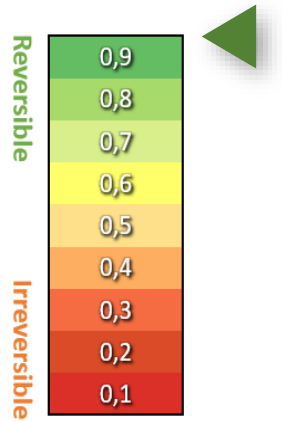
NAME	**Structure - Space Grid 17x24 Steel:Space Grid 17x24 Steel**
ID	**9415609/10056963**

PROJECT
Roman Museum Heerlen

CIRCULARITY INDICATORS

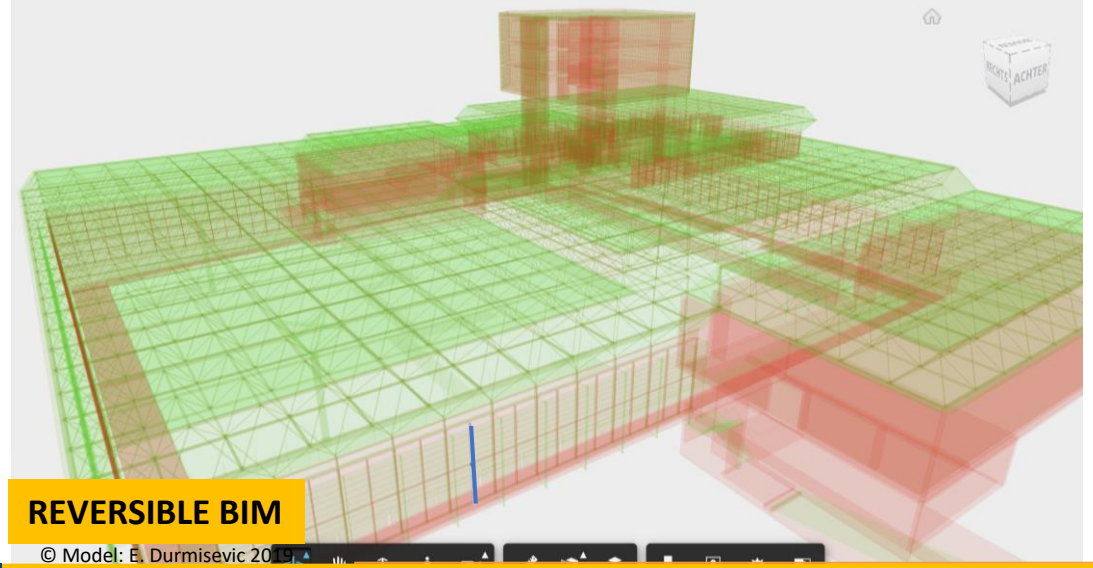
FUNCTION	1. Load bearing
MATERIAL	Steel
VOLUME	18,17 m3
EMBODIED MASS	142,64 ton
EMBODIED CO2	396,56 ton CO2
REUSE POTENTIAL	**0.99**
REUSE STRATEGY	**On-site reuse**
HAZARD	No hazard
NO. DISASSEMBLY STEPS	10 steps
AVOIDED WASTE	141,21 ton
AVOIDED VOLUME	18,00 m3
AVOIDED CO2	392,59 ton CO2

REUSE POTENTIAL INDEX



© Model E.Durmisevic 2019

3D & VISUAL INFORMATION



REVERSIBLE BIM

© Model: E. Durmisevic 2019

REVERSIBILITY ID CARD

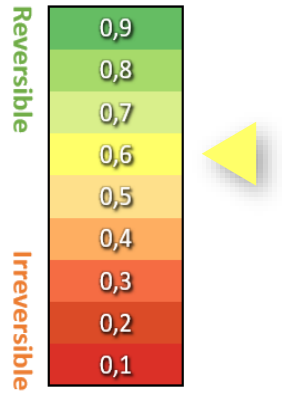
NAME	**Column Steel Rectang.:Enclosure - Ext. Column 70x35 Steel**
ID	**3347735**

PROJECT
Roman Museum Heerlen

CIRCULARITY INDICATORS

FUNCTION	2. Enclosure
MATERIAL	Steel
VOLUME	0,0016 m3
EMBODIED MASS	0,013 ton
EMBODIED CO2	19,87 kg CO2
REUSE POTENTIAL	**0.6**
REUSE STRATEGY	**Reuse by repair**
HAZARD	No hazard
NO. DISASSEMBLY STEPS	3 steps
AVOIDED WASTE	0,008 ton
AVOIDED VOLUME	0,0010 m3
AVOIDED CO2	12,47 kg CO2

REUSE POTENTIAL INDEX



© Model E.Durmisevic 2019

Reversible BIM

Reuse Potential Tool

REUSE POTENTIAL FROM **RBIM©** IN THE

TENDER SPECIFICATION

Tenders are assessed on multiple quality criteria. For each quality criterion, the assessment committee indicates how much added value can be achieved on this particular quality criterion.

The extent to which the reuse of materials is achievable is used as a quality criterion following reuse potential index from RBIM© assessment.

Nr.	Definition	Re-use potential	Score
1	Reuse within the project (on-site)	099	100
2	Reuse within other project(s)	05-09	70
3	Recycle	02-04	40
4	Waste	01	10

Heerlen

Interreg North-West Europe Digital Deconstruction

Reversible BIM

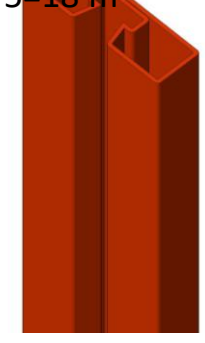
Reuse Potential Tool

4D architects

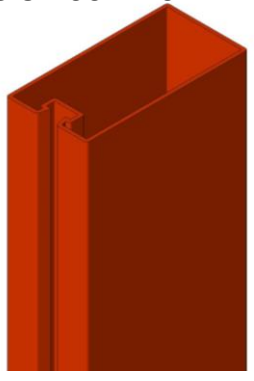
EUROPEAN UNION

Digital library: BIM objects of reusable elements

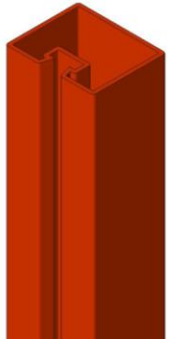
No. of profiles : 201
Embodied 3172 CO2/kg:
Embodied 2 Tonne steel
RP=0,48
Remaining value: 40-50%
Dimension 60x18,5mm
L=4,3+5=18 m

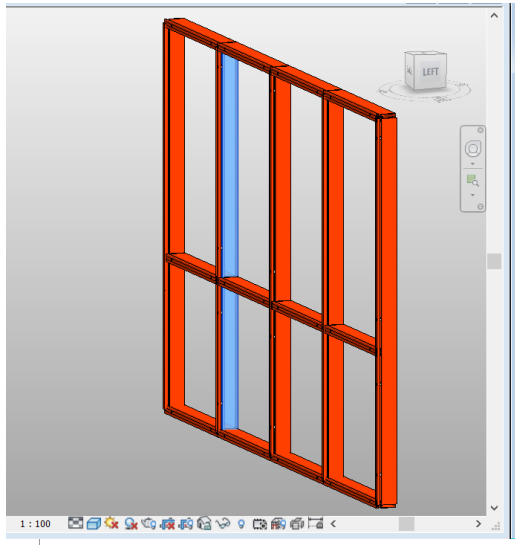


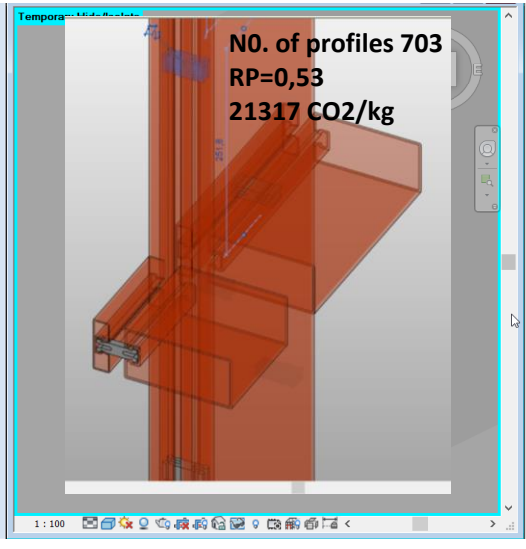
No. of profiles : 93
Embodied 3520 CO2/kg
Embodied 1Tonne
RP=0,44
Remaining value: 40-50%
Dimension 60x120mm
L=5m



No. of profiles : 108
Embodied 2751 CO2/kg
Embodied 1,75 Tonne
RP=0,45
Remaining value: 40-50%
Dimension 60X50mm
L= 4,3m







Reversible BIM

Reuse Potential Tool

BIM objects

Digital library of reusable elements

From deconstruction to construction

4D architects

EUROPEAN UNION

Architect: Elma Durmisevic, 4D Architects

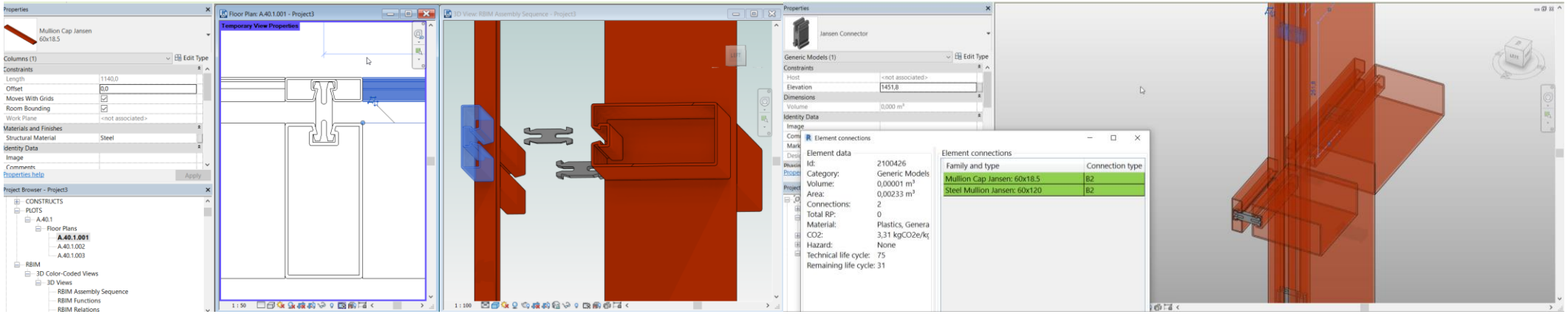
BUILDING

REUSE POTENTIAL

Reversible

0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1

Irreversible



Reversible BIM

Reuse Potential Tool

Interreg North-West Europe Digital Deconstruction

European Regional Development Fund

gtb lab

4D architects

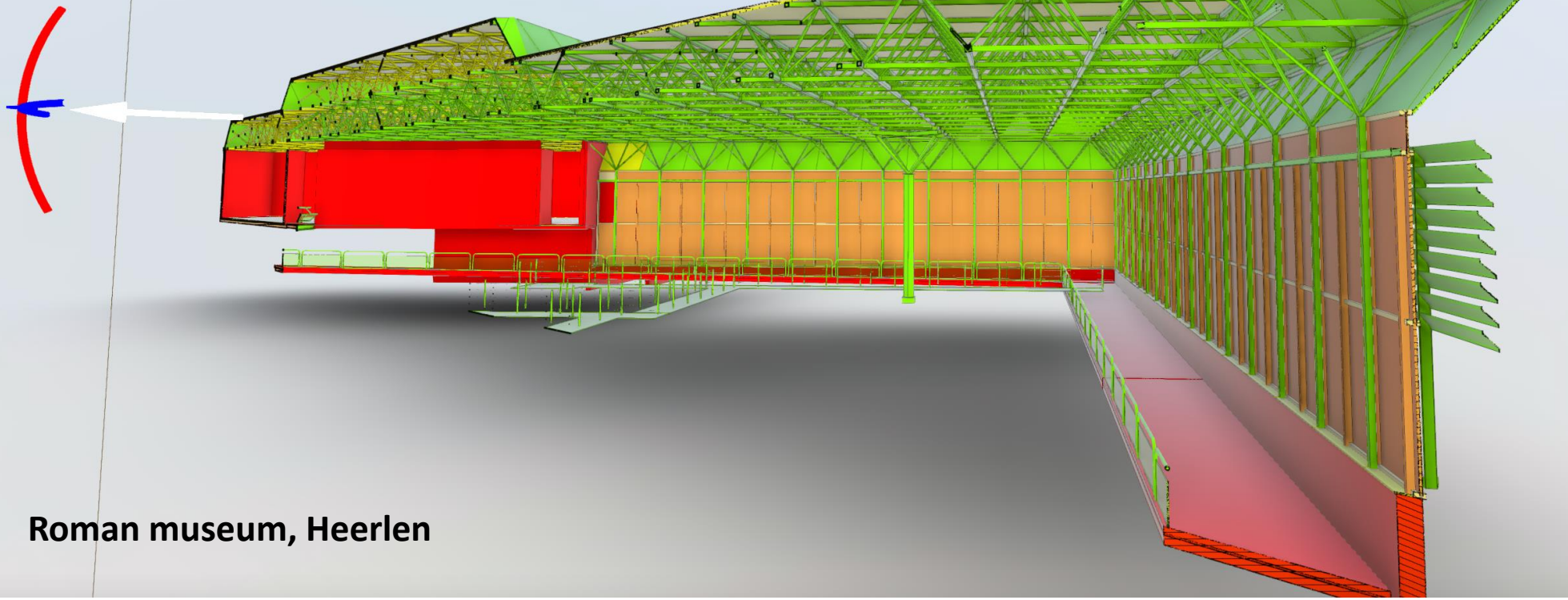
EUROPEAN UNION

BUILDING
REUSE POTENTIAL

Reversible 0,9 0,8 0,7 0,6 0,5 0,4 0,3 0,2 0,1 Irreversible

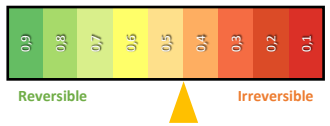
Reversibel BIM

Dr. Elma Durmisevic, architect BNA

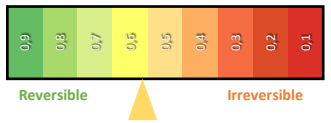


Roman museum, Heerlen

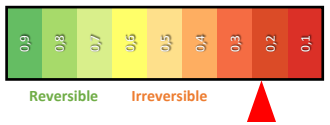
Materiaal substitution/ reuse



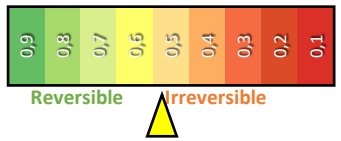
CO2 avoided



Waste produced



RP/Circularity Indicator



Interreg North-West Europe
Digital Deconstruction
European Regional Development Fund

Lead partner / project partners

Brightlands
Brightlands Smart Services Campus
gtb lab
provincie limburg
Kempens Landschap
vilogia
SCHROEDER & ASSOCIÉS
GreenFlex
bbri.be
BLOCK MATERIALS
BIMY
LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY
LIST
AREP
SNCF
Nobatek INEF4

Thanks you for your attention

Dr.Elma DURMISEVI
GTB LAB,
In de Cramer 173, 6412 PM Heerlen
The Netherlands