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Interreg KARMA Staff exchange

Introduction to Interreg FCRBE & PREUSE

Tom Schoonjans & Gaspard Geerts for Rotor

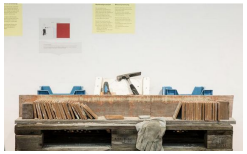
27/03/2025



Assistance to building owners



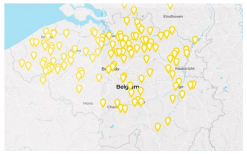
Design



Exhibitions



Education, workshops



R&D to foster reuse

Non-profit organisation
Since 2005
~15 people
https://rotordb.org

RotorDC

Cooperative company
Since 2016
~20 people
https://rotordc.com

OPALIS

Project
Since 2011
https://opalis.eu



Salvage



Materials cleaning



Stockholding



Shop

FCRBE: Facilitating the circulation of reclaimed building elements (2018 - 2023)

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Programme priority 3

Resource and materials efficiency

Objective

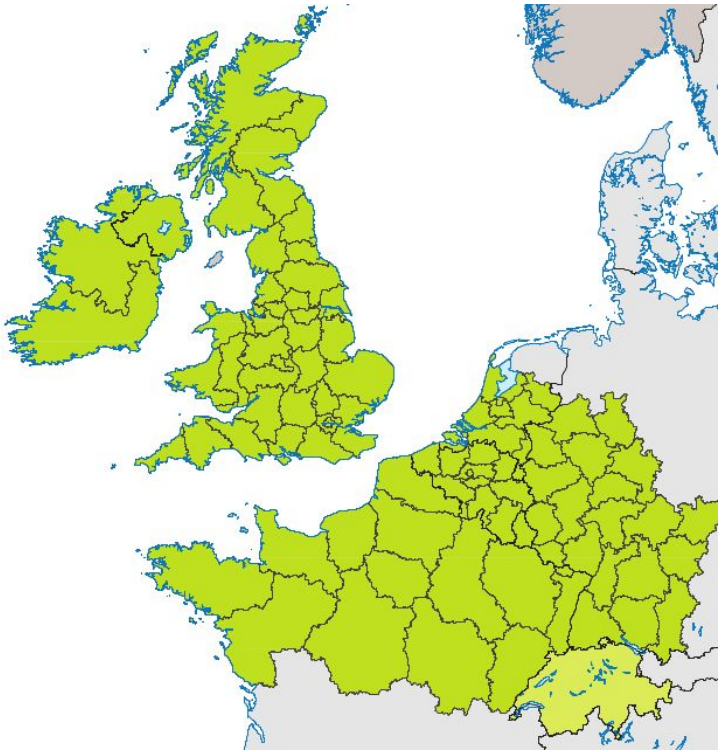
Increase by 150% the amount of materials being reclaimed and reused in NWE by 2032.

Budget

Total = 6.1 M€

EU-funding (ERDF) = 3.6 M€ (60%)

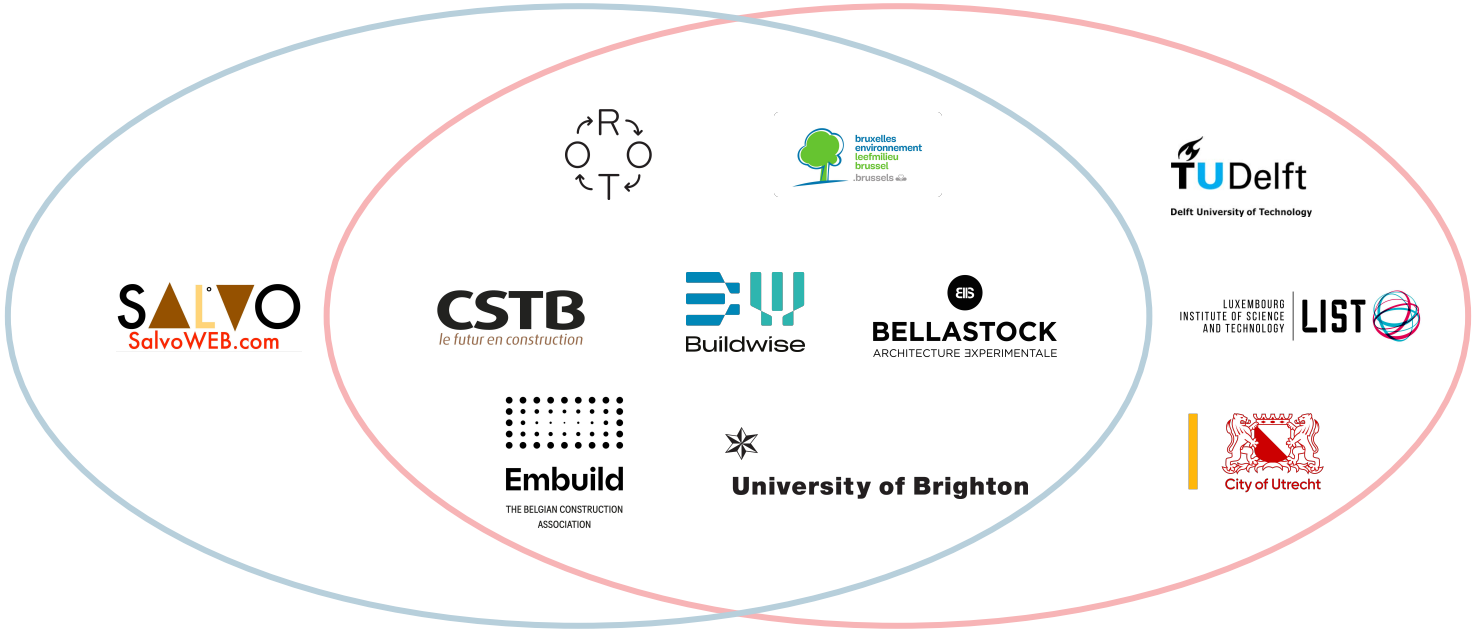
Match-funding = 2.5 M€ (40%) (regional funding and partner's own funds)



FCRBE Partnership

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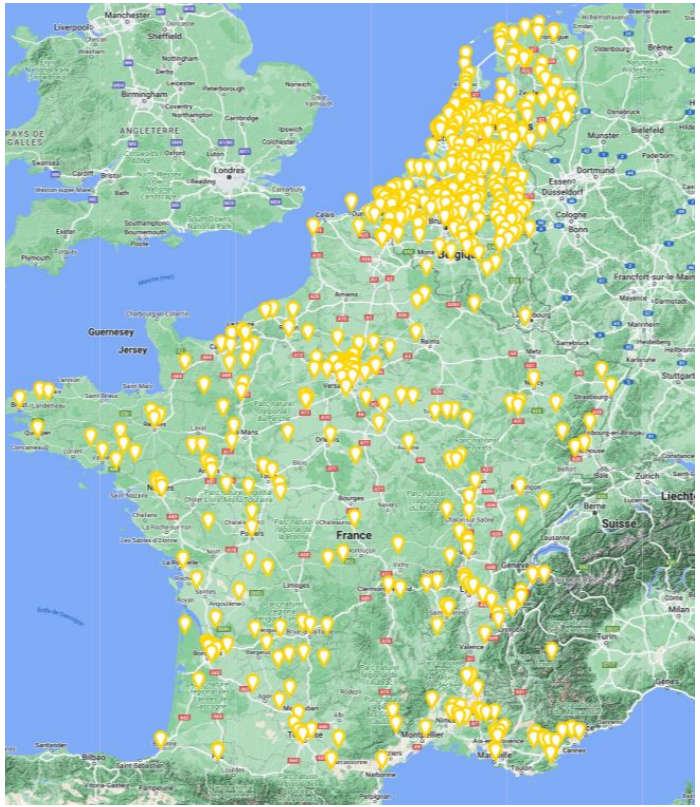
Initial phase: 2018-2021

Capitalisation: 2022-2023

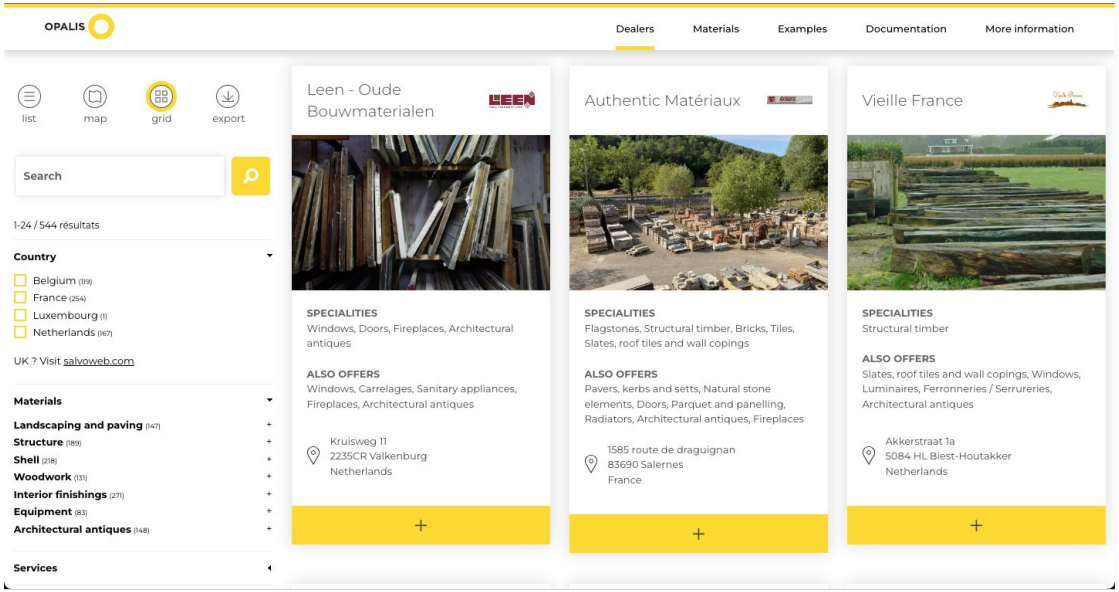
Opalis

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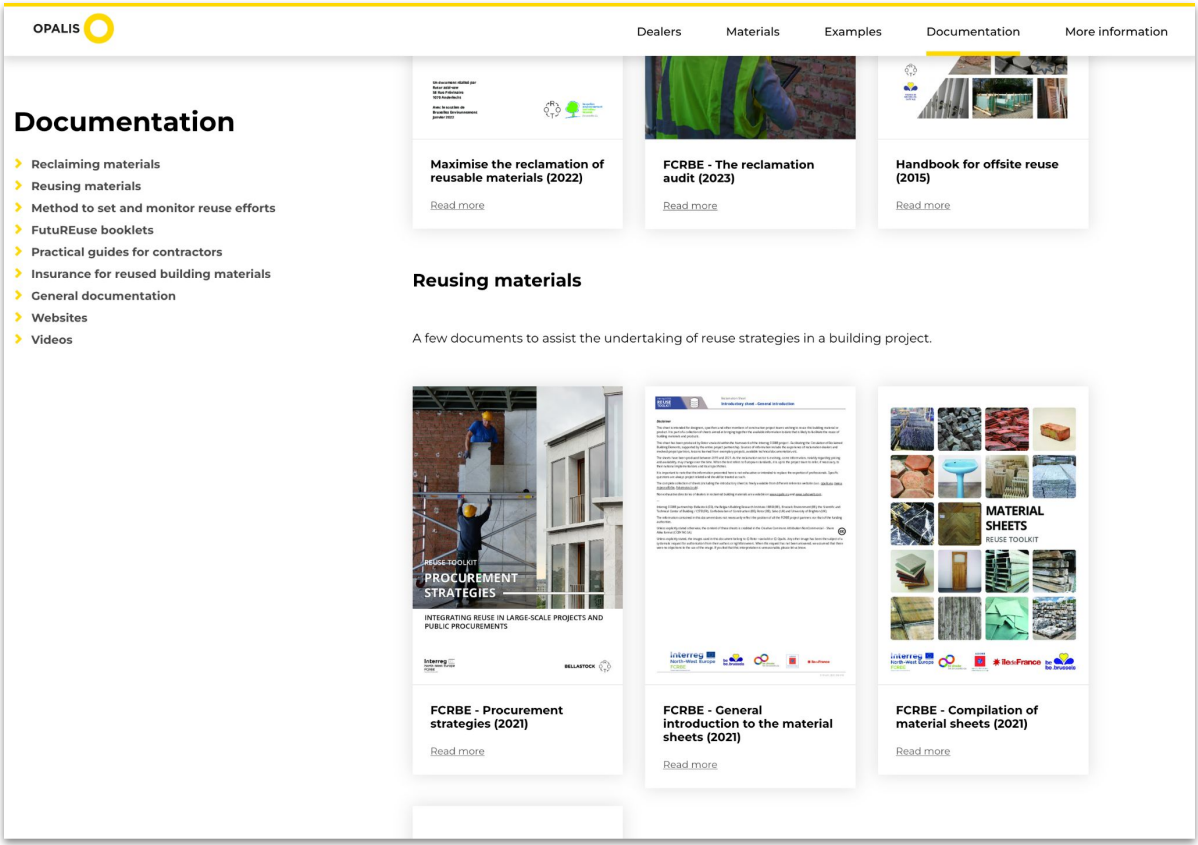
OPALIS



Documentation

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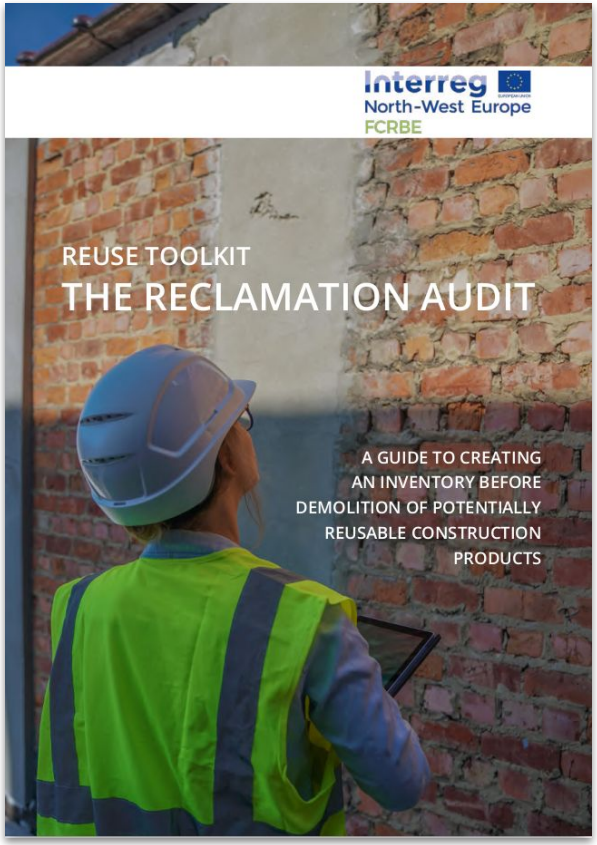


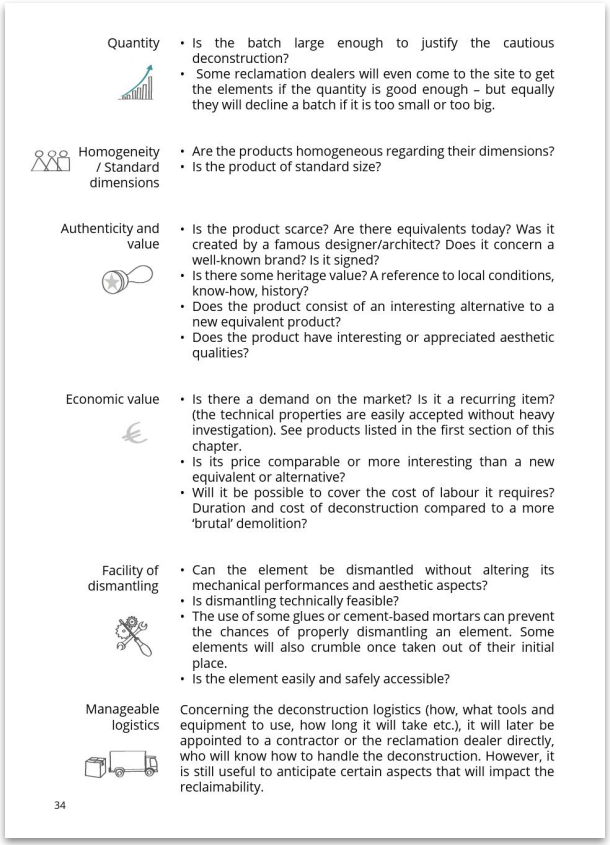
https://vb.nweurope.eu/FCRBE
https://opalis.eu

How to salvage materials?

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Quantity	• Is the batch large enough to justify the cautious deconstruction? • Some reclamation dealers will even come to the site to get the elements if the quantity is good enough – but equally they will decline a batch if it is too small or too big.
Homogeneity / Standard dimensions	• Are the products homogeneous regarding their dimensions? • Is the product of standard size?
Authenticity and value	• Is the product scarce? Are there equivalents today? Was it created by a famous designer/architect? Does it concern a well-known brand? Is it signed? • Is there some heritage value? A reference to local conditions, know-how, history? • Does the product consist of an interesting alternative to a new equivalent product? • Does the product have interesting or appreciated aesthetic qualities?
Economic value	• Is there a demand on the market? Is it a recurring item? (the technical properties are easily accepted without heavy investigation). See products listed in the first section of this chapter. • Is its price comparable or more interesting than a new equivalent or alternative? • Will it be possible to cover the cost of labour it requires? Duration and cost of deconstruction compared to a more 'brutal' demolition?
Facility of dismantling	• Can the element be dismantled without altering its mechanical performances and aesthetic aspects? • Is dismantling technically feasible? • The use of some glues or cement-based mortars can prevent the chances of properly dismantling an element. Some elements will also crumble once taken out of their initial place. • Is the element easily and safely accessible?
Manageable logistics	Concerning the deconstruction logistics (how, what tools and equipment to use, how long it will take etc.), it will later be appointed to a contractor or the reclamation dealer directly, who will know how to handle the deconstruction. However, it is still useful to anticipate certain aspects that will impact the reclaimability.

34

What is it all about?

A method to create an inventory of reusable materials in buildings scheduled for (partial) demolitions: how to identify them, what kind of information to collect, etc.

Target

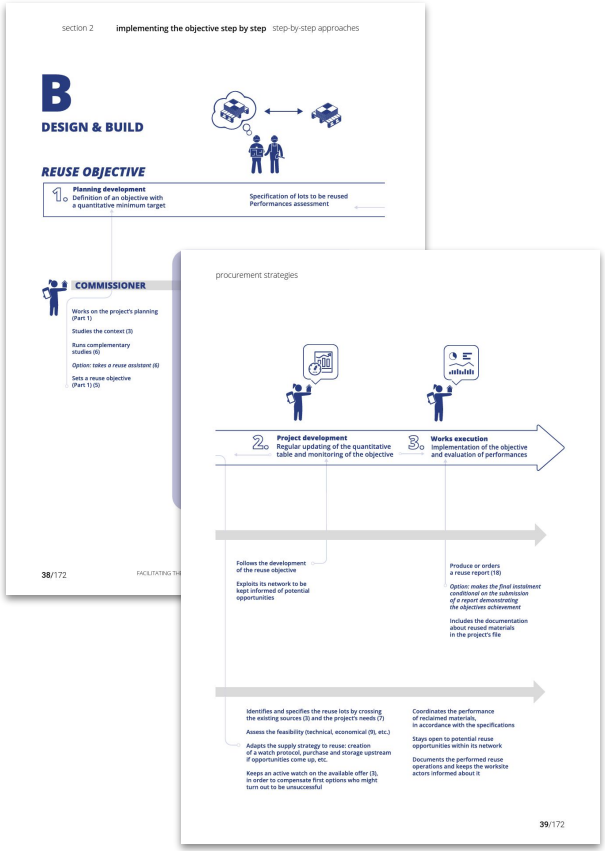
Any organisation who has to conduct this kind of audit: contracting authority, architects, contractors...

How to integrate salvaged materials?

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What is it all about?

Five step-by-step pathways to incorporate reuse objectives into tendering procedures. Complemented with a collection of factual sheets providing answers to frequently asked questions regarding this matter.

Target

(Public) contracting authorities (and architects).

Technical information: material sheets



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What is it all about?

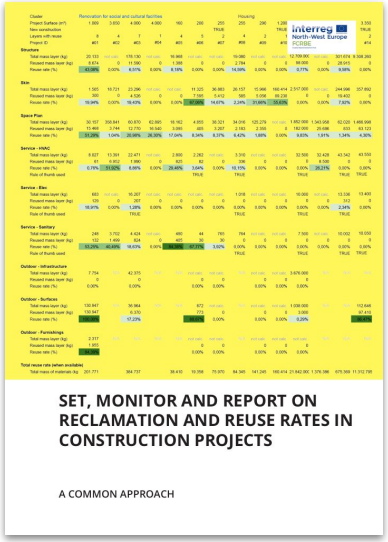
36 documentary sheets gathering technical and practical information to specify reclamation and reuse.

Target

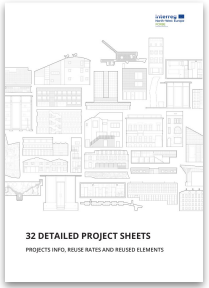
Specifiers organisation reclamation and/or reuse operations.

Anyone wishing to know more about material reuse.

How to set reuse ambitions?







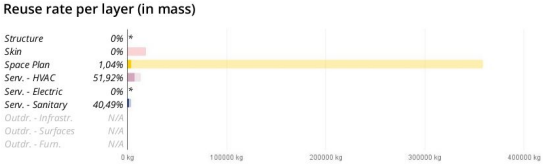


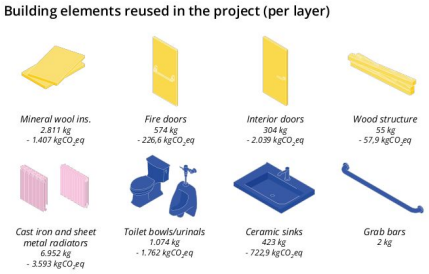
Legend:

Reused mat. | Other mat.

* = not calculated because the layer does not contain reused element
N/A = the project does not include this layer

Data source for avoided GHG emissions: LBC database. This database provides data on GHG emissions at the level of material families, hence some discrepancies between the mass of the elements (corresponding to the exact product) and the GHG savings (corresponding to a more generic family).





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What is it all about?

An annex to the procurement strategies. Focus on a particular case: the expression of a quantitative reuse objective (reuse rate). 3 parts:

- General method
- Analysis of 32 projects
- Detailed project sheets

Target

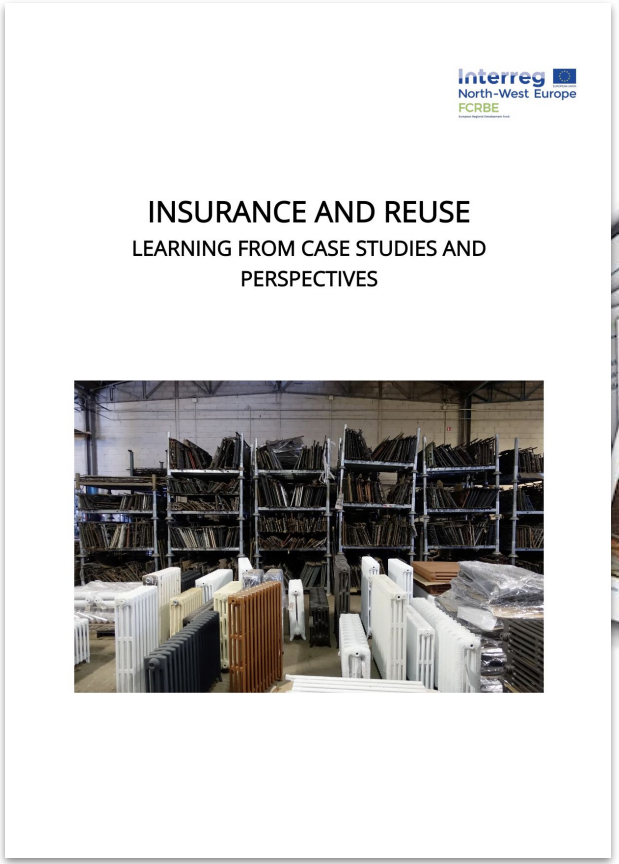
(Public) contracting authorities (and architects).

How to insure reclaimed materials?

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Documented case studies + report

What is it all about?

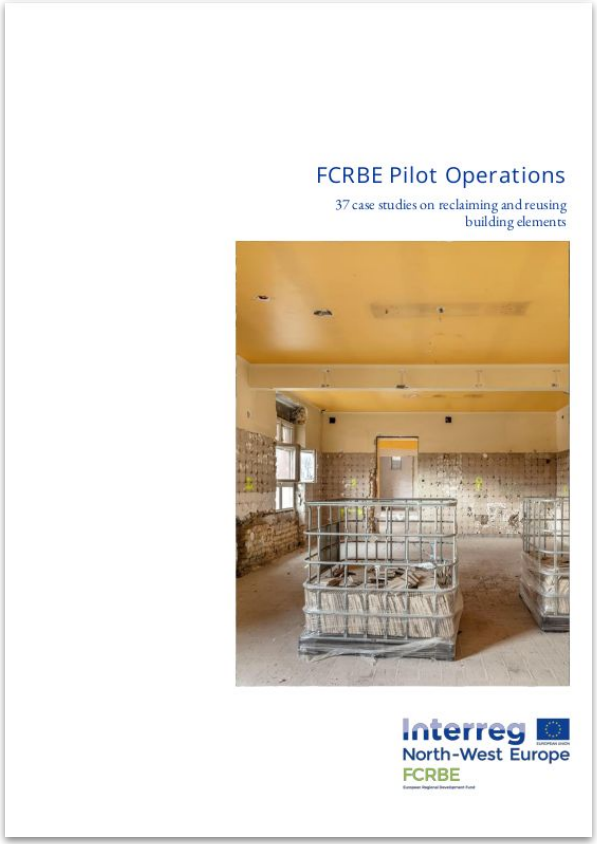
Analysis of different insurance schemes for reuse:

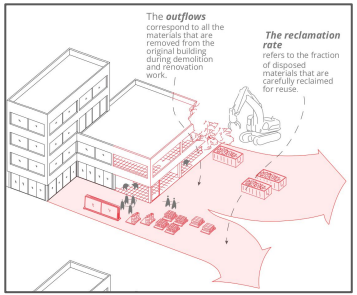
- At salvage dealers (5 cases)
- On construction sites (4 cases)
- At insurance companies (2 cases)

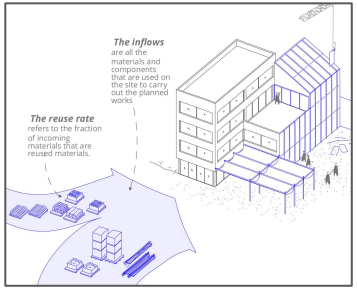
Target

Control offices + Insurance companies + Clients and contracting authorities + Architects and experts + Construction companies.

Pilot operations report









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What is it all about?

A detailed report on the 37 pilot operations conducted as part of the project: lessons learned and main takeaways.

Target

Clients and contracting authorities + Architects and experts + Construction contractors + Anyone curious about this feedback from the field...

The PREUSE project



9 project partners

BELLASTOCK
ARCHITECTURE EXPERIMENTALE

City of Utrecht

La fabrique des quartiers
MÉTROPOLE EUROPÉENNE DE LILLE - SPLA

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY
LIST

LORIENT AN ORIANT

MECHELEN

Métropole du Grand Paris

R O O T

Wiltz
Capitale des Ardennes

+ 22 associated organisations

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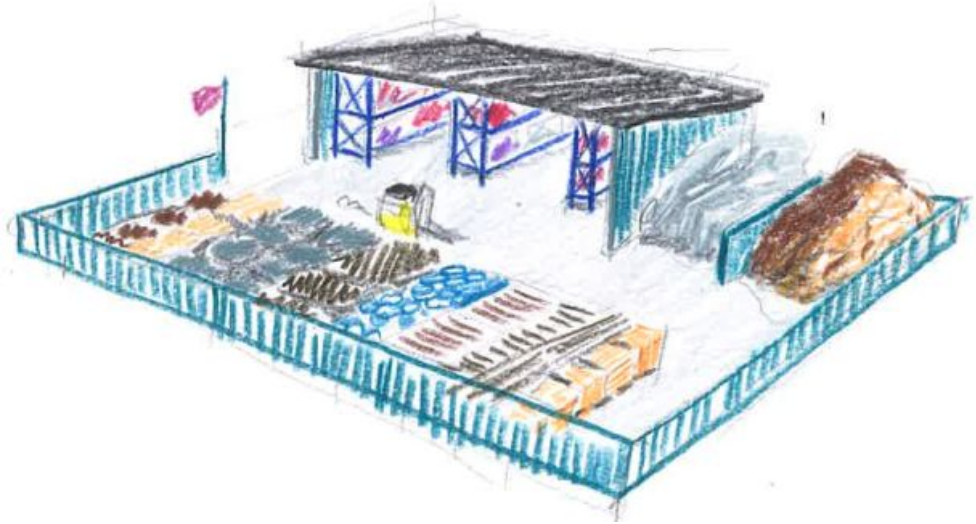


Helping cities to (re)develop reuse centres

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Reuse centre?

- A site where to store materials salvaged from public works.
- A site from where to source reusable materials for (public) works.
- A site operated by public authorities (or, at least, *for* public authorities).
- An overall solution for better managing public resources.



An old idea for new challenges

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Throughout history, most municipalities seeked to keep control of their material resources.

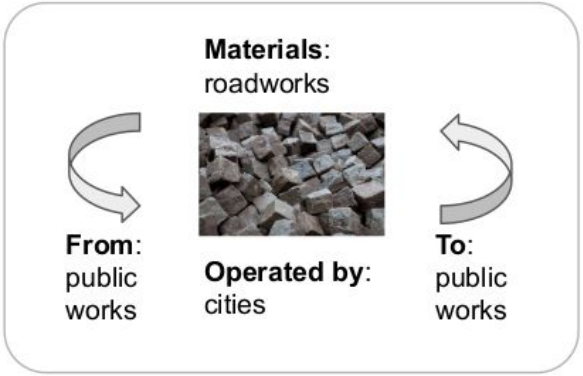
Most of the time, this involved organising the storage of reclaimed building elements, hence the creation of municipal depots.

"There was clearly a demand for second-hand building materials throughout the Roman period, which made demolition profitable. Re-use was not a haphazard occurrence but a process that constituted a large number of practices, which were performed by diverse and skilled labourers – epigraphic sources even mention a collegium subrutorum or a guild of demolition experts."

"At Rome, a warehouse [...] was possibly identified in the area of the Campus Martius, where unfinished architectural elements and statues, as well as stone blocks, have been repeatedly recovered."

Simon J. Barker, Yuri A. Marano, "Demolition laws in an archaeological context", *Thiasos Monografie* 9, 2017, pp. 833-850.

Exploring different variants



Exploring different variants

New types of materials



Materials:
roadworks



Operated by:
cities

From:
public
works

To:
public
works

New flows

From:
several public
works.

To:
several public
works.

From:
1 specific urban
renewal project
(limited in time).

To:
1 specific urban
renewal project
(limited in time).

New potential operators

Operated by:
a public
organisation

Operated by:
a public-private
partnership

Operated by:
a private
organisation

Example: Paris' roadworks materials reuse centre

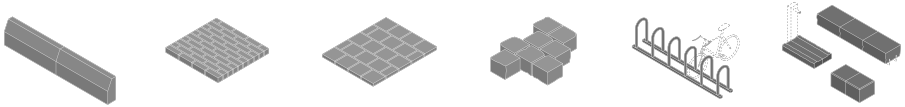
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Concrete curbs *Brick pavers* *Concrete pavers and slabs* *Stone pavers* *Bicycle racks* *Stone furnishings*

What are we going to do?

▸ Analyse **existing models** (state of the art) in order to write a general **strategy** for developing reuse centres (Act. 1.1).

▸ Write and start to implement **4 action plans** (in Mechelen, Utrecht, Paris Greater Metropolis and Wiltz) (Act. 1.2)

▸ Develop **3 variants of reuse centres** through pilot projects in Lorient, Roubaix and Utrecht (Act. 1.3)

▸ Communicate on these activities towards other local/regional public authorities and representatives, through:

- **Site visits** and workshops (Act. 1.4)
- A **symposium** on this topic (Act. 1.4)

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State of the art (in progress)

16 reuse centre already visited

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La Maison du Réemploi, Nancy



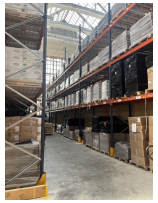


La Base du Réemploi, Bordeaux





Cynéo, Vitry-sur-Seine

Batirécup, Rennes



Poitiers University Hospital




Cycle Up, Noisy-le-Sec





City of Brussels roadworks stock



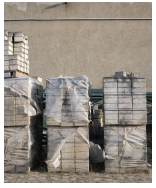

Banco de materiais, Porto



Paris cobblestone depot



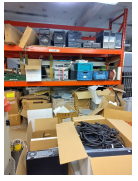

Schaerbeek roadworks stock

Etterbeek roadworks stock




In Limbo, Brussels

More than 40 reuse centre identified and documented

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Cluster 1 / Internal public reuse centres

Reuse centres within large public organisations, facilitating day-to-day maintenance of infrastructure and equipment

1.1 City/municipality's stock of road materials

	City of Paris maintenance and supply centre oke City of Paris cobblestone depot	150 Quai du Rancy 94380 Bonneuil-sur-	Total area = 38 000m2 + Temporary annex of 10	Approx 2600m2 (included in the 38 000m2)	1990's	Port of Bonneuil. Rented by the City of Paris.	The installations belong to the City of Paris.	City of Paris	Pavers, kerbs and setts, metal street furniture	/	Each year, 20,000 tonnes of materials pass through	Road works and public spaces from City of Paris.	Road works and public spaces from City of Paris.	- 2 machines for cutting paving stones, one for cutting	10 forklift drivers, 3 reception staff, 2 supervisors.	Sorting, cutting, surface treatement (hammering	Supplying new granite for roadworks in the city of paris	Accessible for semi-trailers. Located alongside the	The platform "sells internally" to the city's	The Bonneuil centre has existed since the 1990s, but other similar centres probably preceded it. The city of Paris has a long tradition of using stone, dating back to at least the 18th century, when the city had its own quarries. Historically, companies have	The City of Paris has a long tradition of supplying stone for its roadworks and public spaces. More
	City of Brussels roadworks stock /depot	Rue du Bruel, 82 1130 Brussels, BE	approx. 8200m2	approx. 2900m2	approx. 2004	City of Brussels	City of Brussels	City of Brussels	Pavers, kerbs and setts, street furniture	?	?	Road works and public spaces from City of Brussels	Road works and public spaces from City of Brussels	Bobcat, forklift, tool to cut stone, shredding		Cleaning, stone cutting				
	Municipality of Schaerbeek roadworks stock	Chaussée de Helmet 29, 1030 Brussels, BE	approx. 2300m2	approx. 50m2	approx. 1960	Schaerbeek municipality	Schaerbeek municipality	Schaerbeek municipality	Pavers, kerbs and setts, street furniture	?	?	Road works and public spaces from Schaerbeek	Road works and public spaces from Schaerbeek	Bobcat, forklift	1	None				
	Municipality of Etterbeek roadworks stock	Two different sites, Etterbeek, Brussels, BE	approx. 700m2	approx. 1000m2	Outdoor: appears since 1977, but maybe run by	Etterbeek municipality, STIB for the outdoor stock	Etterbeek municipality	Etterbeek municipality	Pavers, kerbs and setts, signage and street	?	?	Road works and public spaces from Etterbeek	Road works and public spaces from Etterbeek	Forklift	?	None				
	Green Spaces Division of the Brussels environmental administration (BE)	Two different sites, Woluwe and Laeken, Brussels, BE					Green Spaces Division of the Brussels environmental	Pavers, street furniture, wood, etc.											Interesting : they are developing an online inventory of their stocks, so the project managers can see what's available.	
	City of Caen roadworks' depot						City of Caen												"dépot matériaux de voieries. Le dépot n'est pas bien géré ni entretenu, les matériaux sont enterrés dans le sol, a quelle profondeur ?)"	
	City of Rennes roadworks' depot	/	/	/	/		City of Rennes	Roadworks' material : paving stones, paving slabs,	/	daily arrival of new items offer	/	Private and public works, mainly roadworks		/	Stone surface treatment, Stone cutting, Paving stone	None	/	Sale	/	Incitateur public : **services t**
	Commune of Wiltz "temporary" roadworks' depot	Behind commune of Wiltz cemetery (Rue des	Env. 750m2, ("c'est donc un site très petit, ce qui amène à	None	/	Commune of Wiltz	Commune of Wiltz	Commune of Wiltz	Roadworks materials (reused and new one in	/	/	public road works from Wiltz and	public road works from Wiltz and around Wiltz	Commune of Wiltz's tools (forklift truck, small trucks,)	Commune of Wiltz workers	none	none	/	/		permettre - un jour - l' extension du cimetière ("Mais ce stock est là depuis nombreux années, et
	Nationale bruggenbank ("Dutch Bridge Foundation")	Nederlandse Bruggenstichting, Lange Kleiweg 34,					**Dutch government** (cities of **Amsterdam**	bridges, viaducts and bridge / viaducts				all infrastructure authorities projects							donation ? Transfer	"As major clients for infrastructure projects, the cities of Amsterdam and Rotterdam have joined forces with Rijkswaterstaat (Netherlands Directorate-General for Public Works and Water Management) and the Bruggenstichting (Dutch Bridge Foundation) to establish an independent	Incitateur public : volonté politique d'accompagner et d'inscrire des projets d'économie circulaire

1.2 Internal stocks of a public building owners (social landlords, hospitals, etc.)

	Poitiers University Hospital	CHU de Poitiers 2 rue de la Milétrie	/	/	2022 ? > Not yet finished	City of Poitiers ?	City of Poitiers ?	Poitiers hospital	building materials and hospital equipment	/	/	Construction, demolition, and renovation works of	Maintenance, renovation and construction works of	Technical workshops on Poitiers Universitv	/	cleaning, fixing	IT tools: stock management software developed with	/	Transfer / or reuse on site	"Ce projet (...) est né à l'initiative de Frédéric Marchal, le directeur des constructions et du patrimoine." /// (Cf. Article TRANSITION ÉCOLOGIQUE : DÉMARCHE DE BÉNÉMIN EN DE MAITRISE... 30.02.22) " Ingénieur des travaux depuis 10 ans à la direction des constructions et	Incitateur public : **Volonté p**
	La Maison du Réemploi (La MdR)	Place du Père Brandicourt, Plateau de Haye, 54000, Nancy,	Nothing is stored outside, or rarely for a very short time	Administration : offices, meeting room + shop (where materials	6th of March 2023	OMh ("office méti "Dans ces locaux	OMh ("office métropolitain de l'habitat") which is Grand Nancy	Réciprocité (association)	All sorts : construc	/	From OMh, project (which is La MdR's bigger project for the	**Public works** : Mi	**Mostly public destinations** : OMh construction and	sanitaries reconditioning workshop, machining tools,	Around 40 people work on site : 16 people on	Cleaning (sanitaries cleaning workshops for	Shop, professional reintegration programme. La Maison du	public transport, heavy trucks, cars.,	sale	Dans le cadre de la rénovation urbaine, il s'agit de « casser les grands ensembles » a expliqué Mathieu Klein, pour construire désormais des immeubles à taille humaine et favoriser la mixité sociale. » (Cf. Article) // " "Dans notre plan de rénovation du quartier, nous avons passé un appel	Incitateur public : **important fl**

Cluster 2 / Temporary reuse centres

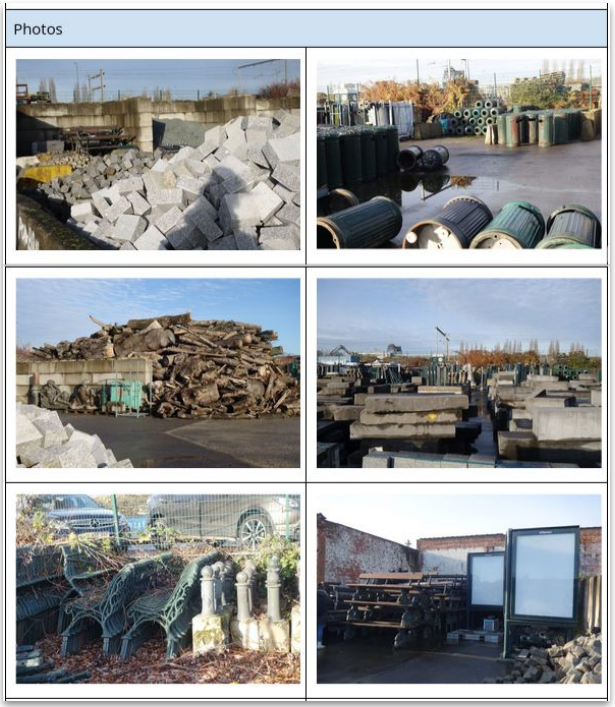
Temporary reuse centres linked to large-scale (public) building operations

	Magasin SAMOA	Nantes, Île de Nantes > au nord ouest du	/ Cf plan du magasin	/ Cf plan du magasin	2003	Nantes Metropolis ?	Nantes Metropolis ?	Nantes Metropolis	All sorts : pavers, kerbs, sand, etc.(On condition that	/	/	Deconstruction sites on l'île de Nantes	Construction sites on l'île de Nantes	/	/	/	In charge of Île de Nantes's urban development plan. cultural			Incitateur public : **Projet d**
	Temporary storage of materials from the urban renewal project in the Sanitas district of Tours	Sanitas district, Secteur Marie-Curie 37000, Tours	/	/	2020>2024	Tours habitat ?	Tours habitat	Tours habitat (social landlord of Tours), Solibat	Cut stone (tuffeau stone, 360 m3), shale blocks, gravels,	1429 tonnes de matériaux réemployées	/	collective housing's complete demolition	8 local work sites, reuse on site	/	357	cleaning, fixing	Education of diferent actors involved in the project	/	sales ?	2020/2024 : plateforme installée avec Bellastock dans le cad	Incitateur public : **importan**
	Matériauthèque > La "Maison du geste"	Sanatorium de Bergesserin, 5 place du marché ,	/	/	/	/	**Etablissement**	**Communauté c**	/	/	/	/	/	/	Aprox. 6 personnes ?	/	formation > chantiers d'isertion	By car / lorry	/	mise en place immédiate d'une expérimentation de matériauthèq	

Cluster 3 / Publicly supported reuse centres

Reuse centres supported by a public authority to foster the creation and development of reuse activities on its territory

	La Base du Réemploi (La BDR) Projet lié à Refair, anciennement appelé Lieu de ressources	26 avenue de la somme, Mérignac, France (ancien local commercial, s' inscrivant dans le secteur de l'	Cf. Refair's site - organisation + Recita's website **Outdoor + indoor** aprox. = 1 440 m2 : **Offices** :	Cf. Refair's site - organisation + Recita's website : **Outdoor + indoor aprox.** = 1 440 m2 : **Offices** :	2021 > Cf. Refair's project chronology	La Fab (Bordeaux Metropolis) ?	La Fab (Bordeaux Metropolis)	La Fab (projects manager), Solibat (in charge of deconstruction , sale and formation), flo	All sorts : structure, joinery (windows, doors, demountable partitions...), technical	/	Mainly Bordeaux Metropolis' works but over time it will include other stakeholders	Bordeaux Metropolis' works, but over time it will include other stakeholders	workshops (including wood workshops using a CNC machine), finxing and cleaning tools	stakeholders from the Social and Solidarity Economy	cleaning and fixing	Guidance assistance + online inventory		sale ? donation ?	"Dans le contexte actuel de raréfaction des ressources et d'accumu Son ouverture en phase de préfiguration est prévue pour septemt À terme, le Lieu Ressources devra pouvoir s'insérer dans une filièr	**Volonté politique d'inciter et de soutenir les projets d'économie circulaire** ("depuis 2017, La Fab développe une démarche stratégique et opérationnelle visant à réduire l'impact



Brussels



Schaerbeek

Photos






Porto

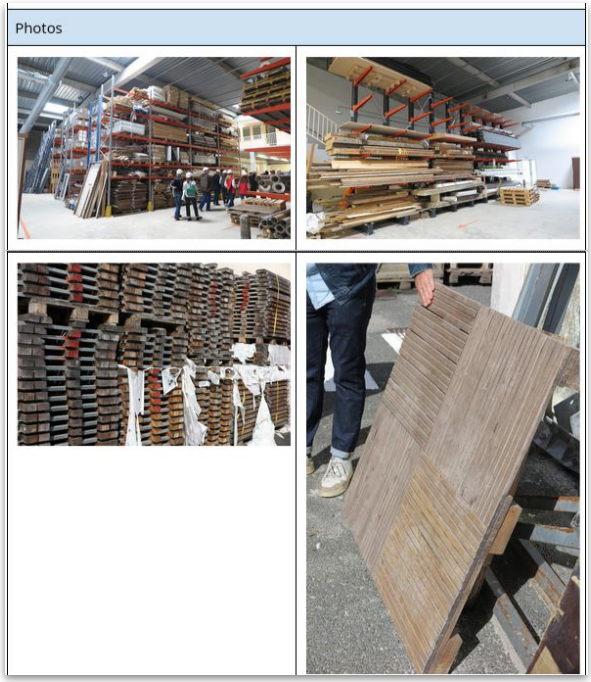
Photos



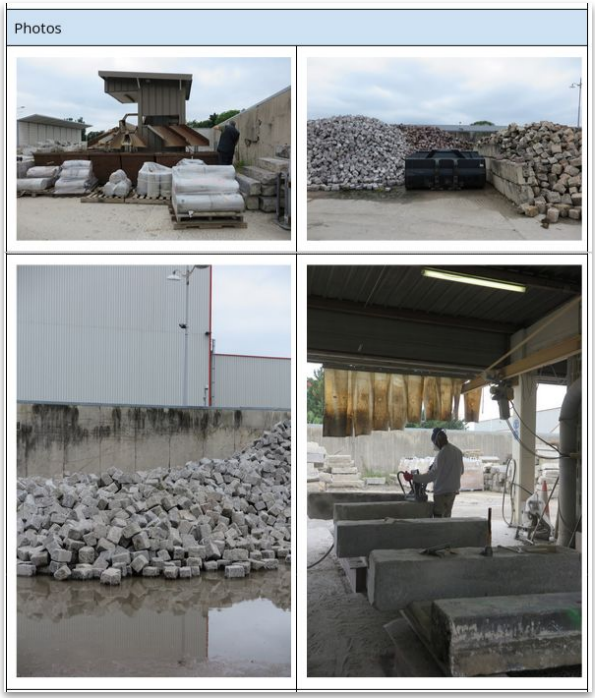




Etterbeek



Bordeaux



Paris

Photos







Cycle-up, Noisy-le-sec

Photos











Nancy

Photos







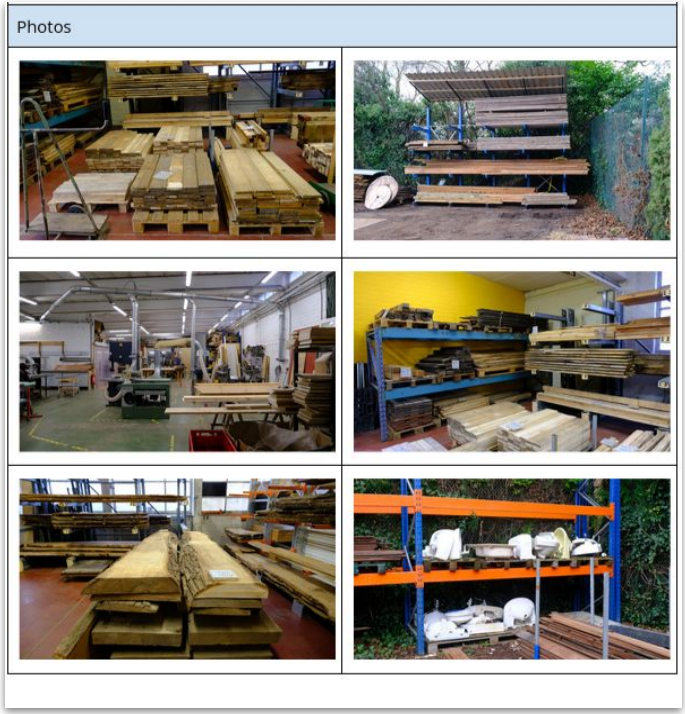
CHU Poitiers

Photos






SNCF Beaune



Materialenbank, Leuven



Woodpark, Brussels

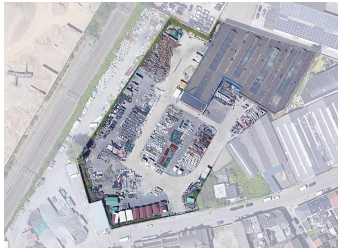
Clustering

Clustering is based on the public authority's **main intention** behind the creation of the reuse centres

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PREUSE

1 / Internal public reuse centres



City of Brussels roadworks depot, Brussels, Belgium
City / municipality stock of road materials

2 / Temporary reuse center



La Maison du réemploi, Nancy, France
linked to a major public building operation

3/ Publicly supported reuse center



Batirécup, Langouet, France
Reuse centre managed by a public authority, hosting private operators

4 / Heritage oriented reuse center



Banco de materiais, Porto, Portugal
Today's heritage-oriented reuse centre

Other possible classification

Types of Places and Functions

- Roadworks Depot (for maintaining railway or road networks)
- Maintenance Reserve (for maintaining a building stock)
- Building Resource Center (a store for individuals and small businesses)
- Stock Storage (for managing internal flows)
- Conservatory (for preserving historical materials)
- Circular Hub (for networking existing actors)
- …

Other possible classification

Timeframes: Permanent or Temporary

Public Support Mechanisms:

- Provision of land (free of charge or at a preferential rent)
- Provision of infrastructure and/or equipment
- Initial financial investment (e.g., through a public subsidy or equity participation in the organization)
- Assistance with organization financing (preferential loans, bank guarantees)
- Incubation trajectory organization
- Networking with similar actors
- Privileged contractual relationships with the center (e.g., for material supply and/or acquisition)
- Support for R&D

March 2025: opening of Utrecht's Reuse Center !

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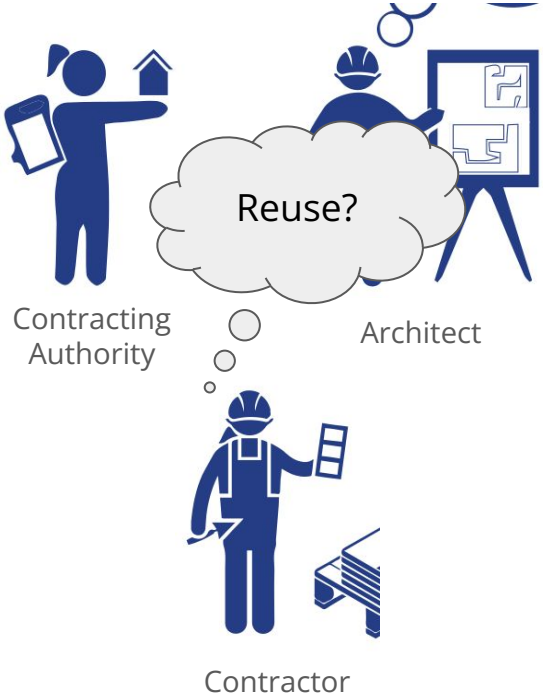




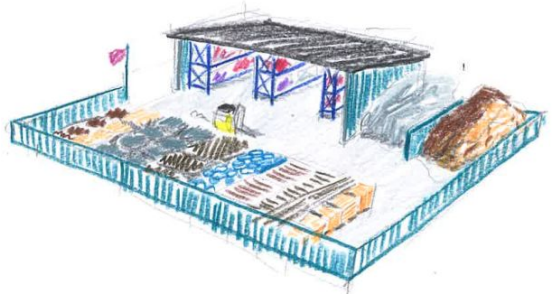


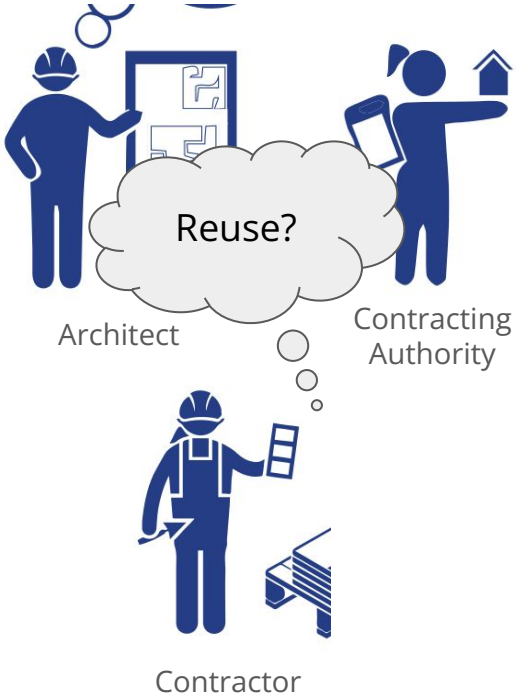
Reuse relies on a chain of actors

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UPSTREAM



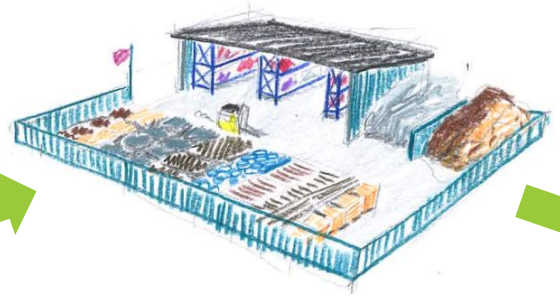


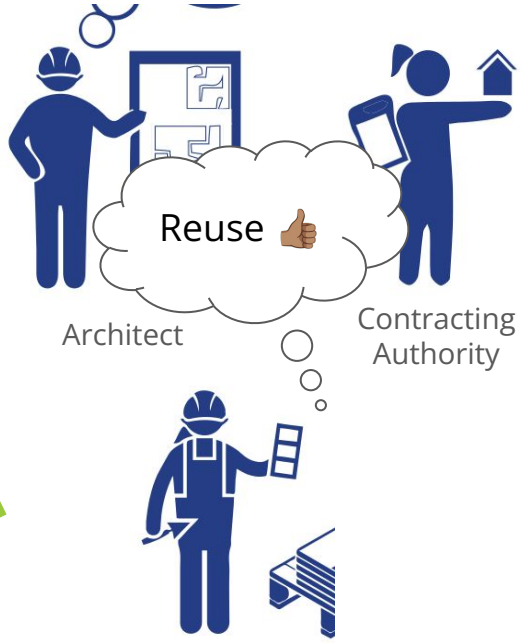
DOWNSTREAM

Which all need to be empowered



UPSTREAM





DOWNSTREAM

What are we going to do?

- Develop a **training scheme** for building professionals (Act. 2.1).
- Set an **online reference centre** with documentation and resources on salvage and reuse (Act. 2.2).
- Maintain, update and roll-out the FCRBE **reuse toolkit** (Act. 2.3).
- Conduct **Live Tests** to enable local chains of value for reuse (Act. 2.3).
- **Communicate and raise awareness** on reuse solutions through (Act. 2.4):
    - Publications
    - Workshops
    - Website
    - Social media
    - A final event

Thanks for your attention

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