

CERACQ – GRIDD – ETS

REUSE AND THE CIRCULAR ECONOMY IN THE CONSTRUCTION SECTOR

FCRBE PROJECT

16th May 2025

PR. ÉMILIE GOBBO



Takeda School
Crédit photo: S.Malaud (via Agwa)



CONTEXT

* Source: TOWARDS A CIRCULAR ECONOMY
IN THE BUILT ENVIRONMENT, Circular
Building Coalition, 2023

** Bruxelles Environnement, ICEDD, ULB, 2015



CONTEXT

C&DW vs End-of-life treatment

Circularity?

1% Reuse*
90 % Recycling**

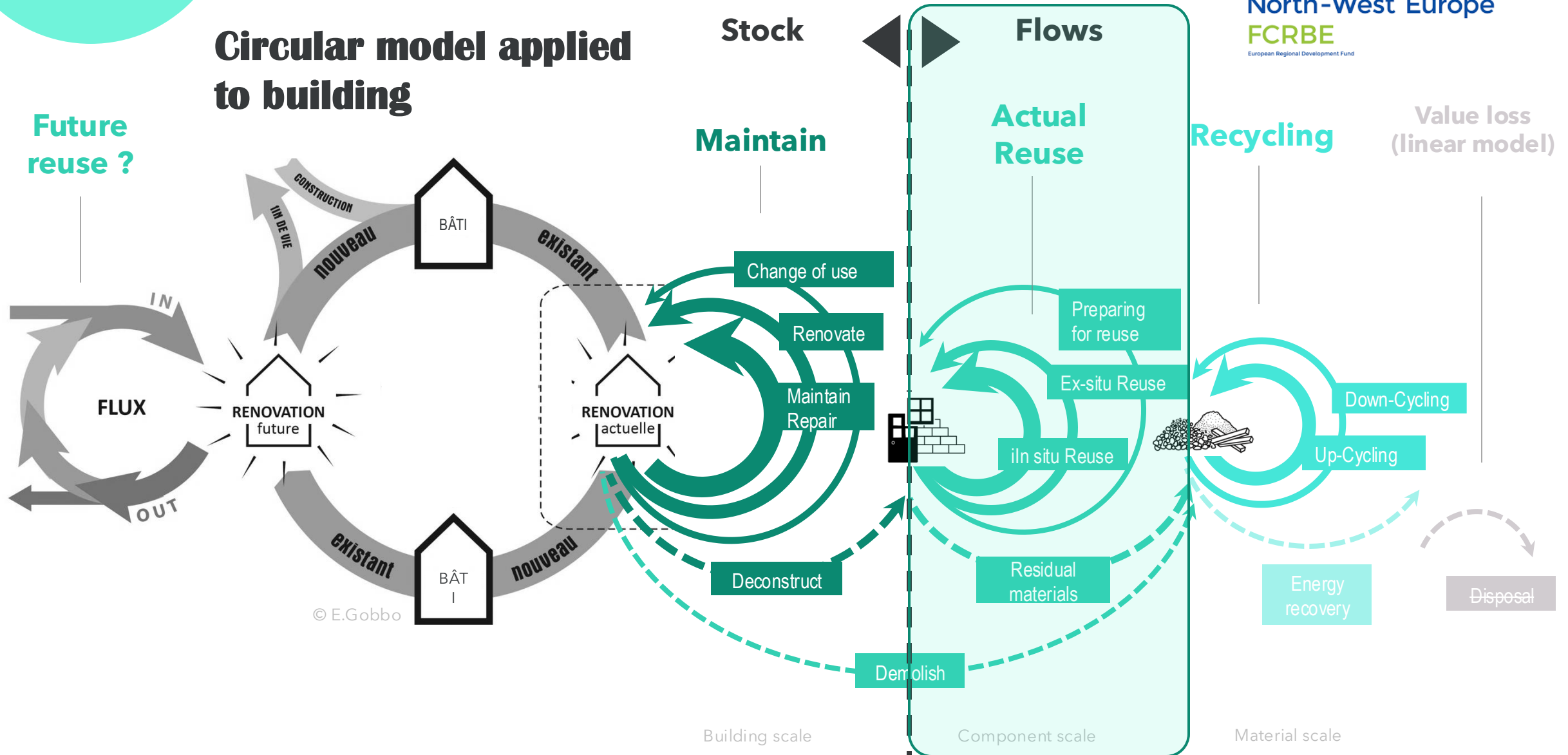
Gizeh [Egypt]

Belgium: 21.300.000 t
EU: 385.580.000 t



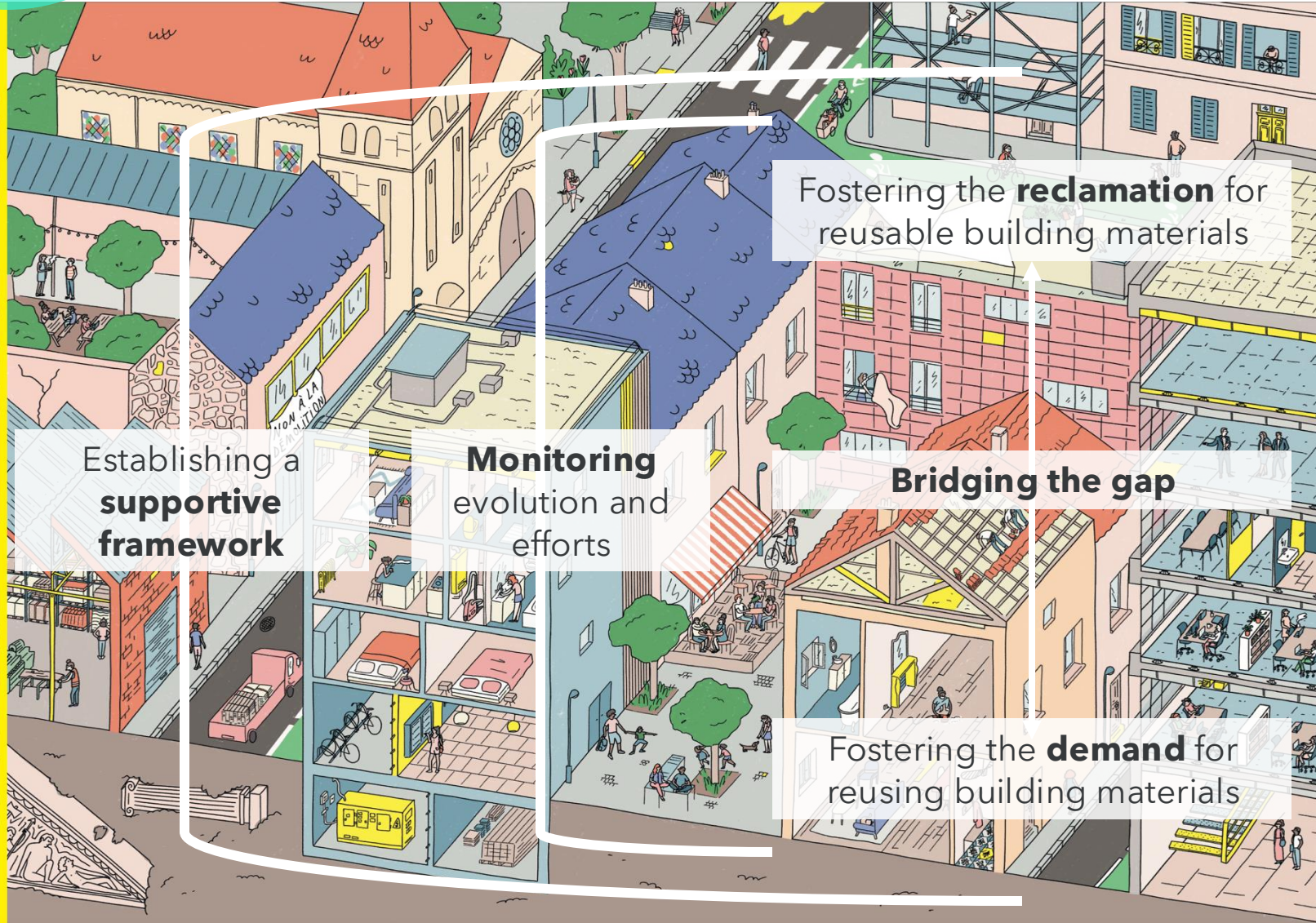
RESEARCH APPROACH

Circular model applied to building



FCRBE: APPROACH

WELCOME TO REUSE CITY!



Main Obstacles to Reuse Practices

Reusable materials are **not systematically reclaimed** during demolition works

Existing reclamation dealers **lack of visibility** in the construction industry

Specifiers face challenges in fixing and implementing **reuse ambitions**, especially in procurement procedures and specifications

FCRBE: MAIN OUTPUTS



OUTCOMES

EVENTS

BIG EVENTS & EXHIBIT

PILOTS

IN THE PRESS

ABOUT

SUMMER SCHOOL

Follow us on
[f](#) [in](#) [c](#)



Reuse toolkit

Contracting authorities, building developers, architects and other building professionals will find here a series of tools and methods to implement reuse actions in their projects:



Reclamation audit method

How to identify reusable materials in a building scheduled for demolition. Version: December 2022. Available in EN, FR and NL. Targets: building developers, contracting authorities, architects, contractors, etc.

[GO TO THE DOWNLOAD PAGE](#)



Guidebook on procurement strategies

How to integrate reuse ambitions in the tendering procedures of construction and renovation projects (including for public tenders). Version: February 2022. Available in FR, NL and EN. Targets: building developers, contracting authorities.

[GO TO THE DOWNLOAD PAGE](#)



Collection of material sheets

36 sheets covering a wide range of materials: how to reclaim and reuse them, what are their known characteristics, how available are they on the market, what are their environmental benefits... Version: December 2021. Available in FR, NL and EN. Targets: specifiers, architects, contractors...

[GO TO THE DOWNLOAD PAGE](#)



Practical guides for contractors

Six guides on reuse for specialised trades: general contractors, finishing companies, woodworkers, roofers, demolishers and infrastructure contractors. Version: September 2023. Available in FR, NL, EN.

[GO TO THE DOWNLOAD PAGE](#)



Reuse objectives method

Method to set, measure and report on reuse objectives in tenders, project implementation and public policies. Available in EN, FR. Targets: building developers, contracting authorities and policy makers.

[GO TO THE DOWNLOAD PAGE](#)



Insurance for reused building materials: good practices

A selection of 11 case studies which successfully dealt with insurance issues for reused building materials. A synthesis suggests guidelines for best practices. Version: September 2023. Available in EN (soon), FR. Targets: Building developers, contracting authorities, architects, contractors, insurers, etc.

[GO TO DOWNLOAD PAGE](#)



Finding The FCRBE and salv



Reclamation and salvage dealers in the United Kingdom and Ireland

[SALVOWEB.COM](#)



Digital Contracting



Digital Tools Report

How digital tools could facilitate the task of auditing buildings for assessing the reuse potential of their components (reality capture, scanning technologies, artificial intelligence, BIM...).

[DOWNLOAD REPORT](#)



Futureuse booklets

7 shorts introduction to the world of reuse. These booklets cover the following topics: environmental impact, technical performances, material surface treatments, the product or waste issue, roadmap for public policies, urban stocks, fashion for reclamation. Version: November 2021. Available in FR, EN and NL.

[GO TO THE DOWNLOAD PAGE](#)



A statistical survey of the reclamation trade in Ireland, the UK, France, Belgium and the Netherlands

Profiles, socio-economic impact and quantity of materials stockpiled by professional reclamation and salvage dealers in the project area. Forthcoming...

[DOWNLOAD REPORT](#)

Resources for reuse

Reusing building materials may raise a series of questions. To tackle them, the FCRBE project has developed a series of resources:



Yours Truly Reclaimed - The new label for authentic reclaimed products

The new Truly Reclaimed label verifies that a product or batch of material is genuinely reclaimed. The campaign helps customers distinguish Truly Reclaimed from new products that are made to resemble the old. Discover [trulyreclaimed.org](#) and the [futuREuse](#) community to support your journey in using the label.

[TRULYRECLAIMED.ORG](#)



A roadmap to foster reuse practices in the construction sector

A collection of inspiring actions for public authorities and policy makers who wish to encourage the reuse of building materials in their area. Languages: EN, FR, NL.

[DOWNLOAD THE ROADMAP](#)



Reuse in Environmental Impact Assessment tools

Designers are increasingly required to use modelling tools to assess the environmental impact of their projects. How do these tools integrate reuse? What are the best practices in this context? Version: November 2021. Available in EN.

[DOWNLOAD REPORT](#)

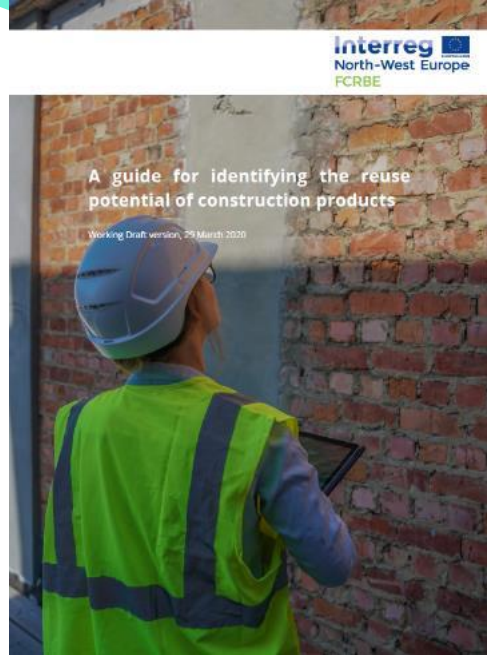


Reuse in Green Building Frameworks

To demonstrate their commitment towards sustainable building, developers can use different labels, certifications and guidelines. How do these frameworks reward reuse strategies? What are the best practices in this context? Version: November 2021. Available in EN.

[DOWNLOAD REPORT](#)

FCRBE: MAIN OUTPUTS



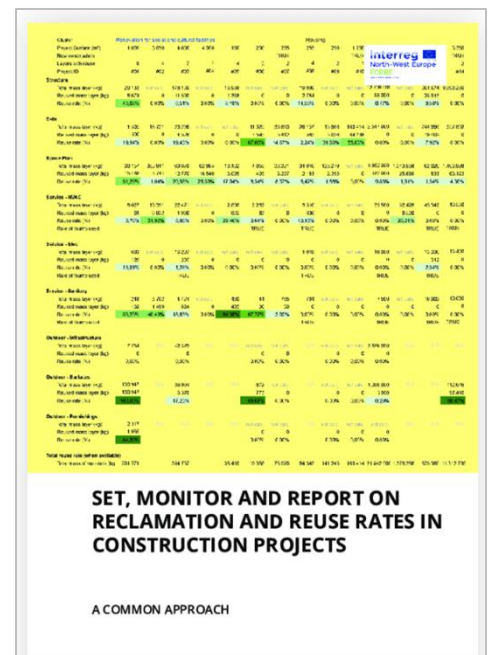
Fostering the **reclamation** for reusable building materials



Fostering the **demand** for reusing building materials



Bridging the gap



Monitoring evolution and efforts

Aims and objectives

Establishing a **supportive framework**

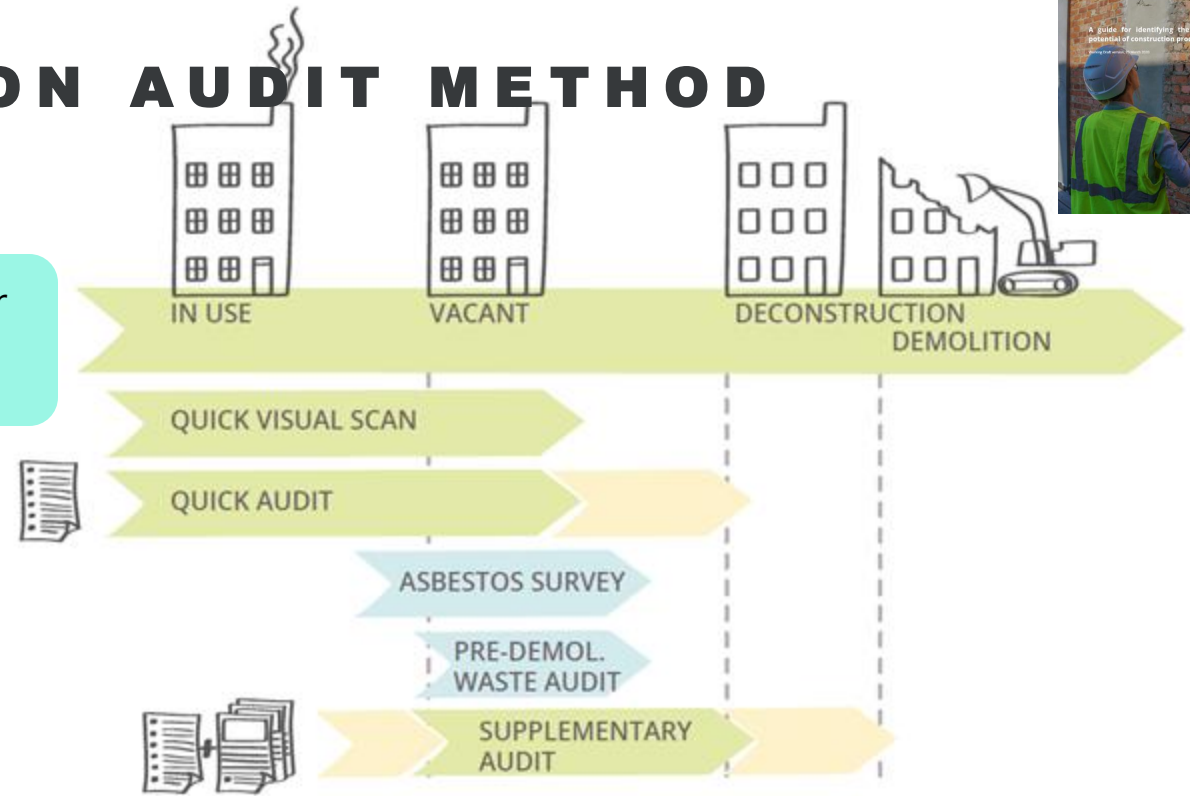


FCRBE: RECLAMATION AUDIT METHOD

How to identify reusable materials and their potential for reuse in a building to be demolished?

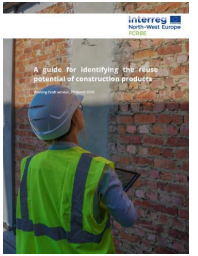
This guide has been developed to help create a pre-demolition inventory of potentially reusable construction products.

- What are the **objectives** of the reuse inventory ?
- **How** to carry out a reuse inventory?
- **Who** can carry out an inventory?
- **When** should an inventory be carried out?
- How to **identify** reusable items and their potential?
- What **information** should be gathered and how should it be **structured**?
- What are the **destinations** for reclaimed items?



By analogy with common materials on the re-use market

By criteria based on positive and negative aspects



FCRBE: GUIDEBOOK ON PROCUREMENT STRATEGIES

How to integrate reuse ambitions in the tendering procedures of construction and renovation projects (including for public tenders)

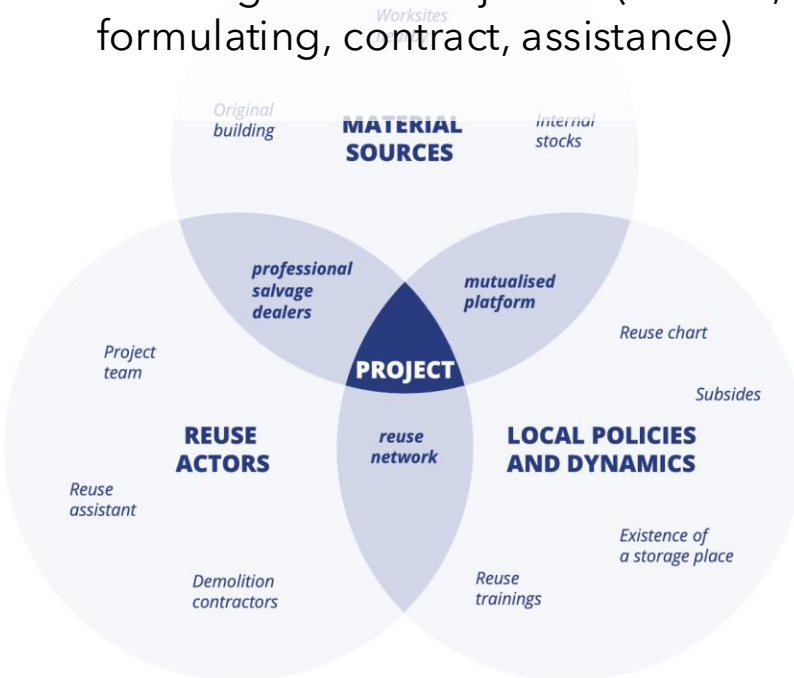


Conclusion:

- Adapting reuse to your own practice
- Analyse the context
- Start small and develop your ambitions with your feedback (gradation of objectives)
- Allow a degree of flexibility

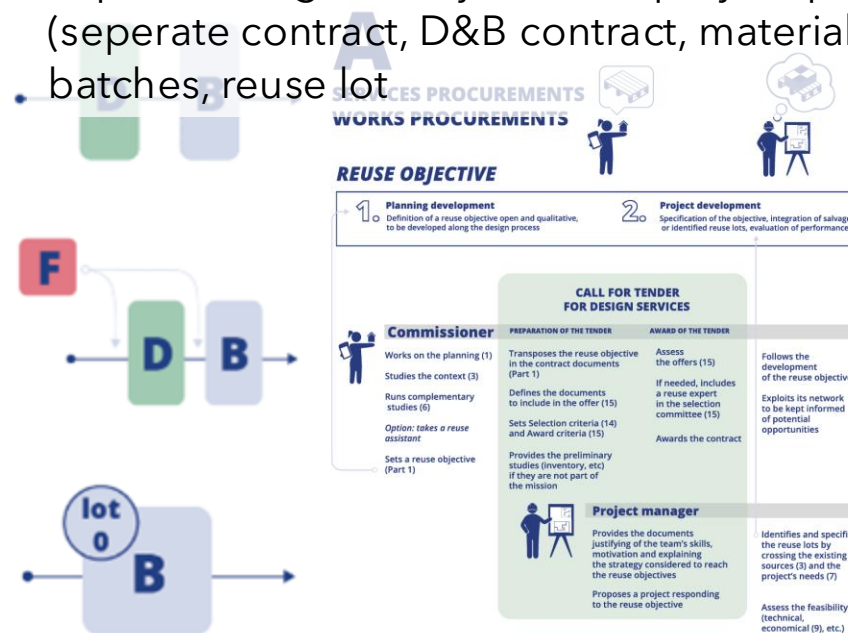
Building a re-use strategy

Defining a reuse objective (context, formulating, contract, assistance)



Procurement

Implementing the objective step by step (separate contract, D&B contract, material batches, reuse lot)



Thematic sheets

- Benefit of reuse
- Linking reuse with other CE aspects
- Exploring different sources of reclaimant materials
- Finding out what is available from salvage dealers
- Contracting additional services (audit, assistance...)
- Conducting a prior market consultation
- ...



FCRBE: MATERIAL SHEETS

How to specify reclaimed materials in a project when no information is available?

Collection of **36 material sheets** intended for designers, specifiers and other members of construction project teams wishing to reuse these building materials or product. This collection of sheets is aimed at bringing together the available information to date that is likely to facilitate the reuse of building materials and products.

Fiches
introductives

Finitions
intérieures

Structure et
gros-oeuvre

Paysage et
pavage

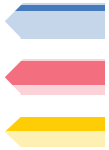
Portes et
fenêtres

Équipement

FCRBE: REUSE OBJECTIVE METHOD

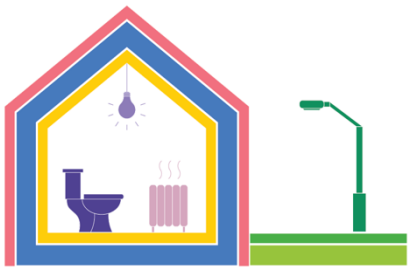
What reuse rates are actually achieved in projects? How can we help project owners to identify quantitative targets for reuse in their projects? Retrospective analyses

$$\text{Taux de réemploi par layer } [\%] = \frac{Q \text{ matériaux réemployés dans le layer } [Kg]}{Q \text{ tot. matériaux utilisés dans le layer } [Kg]}$$



Flux IN

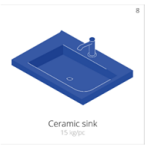
Proposed Layers



Structure
Enveloppe
Aménagements intérieurs

Services
HVAC
Sanitaires
Électricité

Aménagements extérieurs
Revêtements
Infrastructures
Mobiliers



Ceramic sink
17 kg/m²



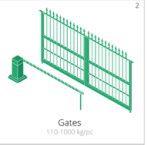
Toilet bowls
16 kg/m²



Mixed aggregate
2000 kg/m³



Concrete pavers and slabs
2000 kg/m³



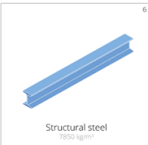
Gates
110-1200 kg/m²



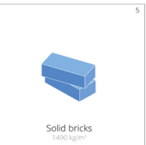
Stone kerbs
2000-2500 kg/m³



Bicycle racks
16 kg/m²



Structural steel
7800 kg/m³



Solid bricks
1400 kg/m³



Exterior windows
100-200 kg/m²



Solid bricks
1400 kg/m³



Interior doors
20-30 kg/m²



Ceramic tiles
2000 kg/m²



Wood finishes
400-700 kg/m²



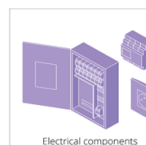
Sheet metal radiators
10-40 kg/m²



Cast iron radiators
50-200 kg/m²



Spot lights, lamps, sconces
10-1 kg/m²

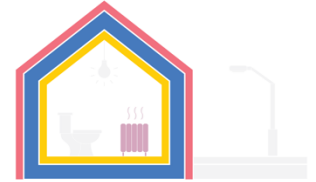


Electrical components
10-1 kg/m²

FCRBE: REUSE OBJECTIVE METHOD



Retrospective analyses on 32 construction and renovation projects to identify the effective reuse target achieved and test the reuse objective method



Projet Dethy

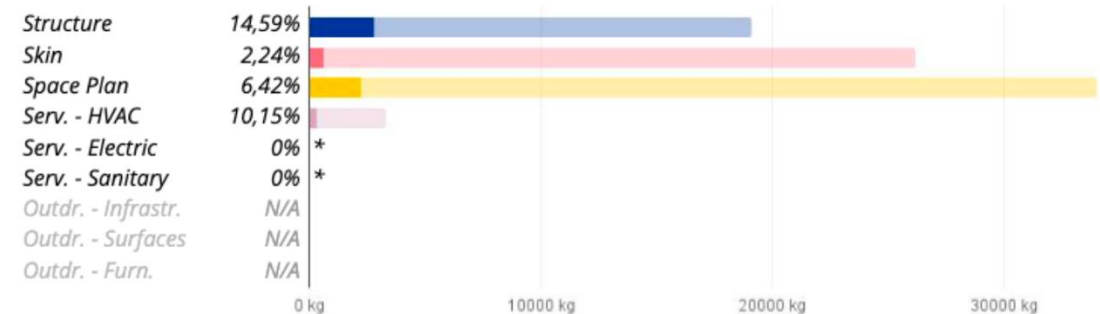


Program: Individual housing
Project type: Transformation of an existing building
Surface area: 255 m²
Contracting authority: Private owner
Architect: BXL MRS - Lionel Bousquet
Contractor: Bois&Structure
Reuse assistance: Enesta
Engineering assistance: Enesta
Contract: Private
Public support: N/A
Year of completion: 2017

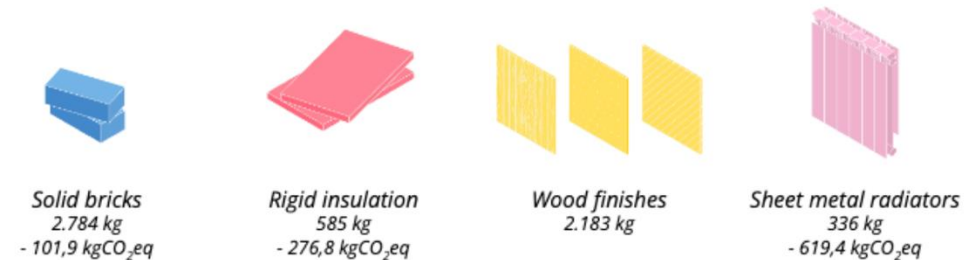


Source: S.Roland

Reuse rate per layer (in mass)



Building elements reused in the project (per layer)



FCRBE: REUSE OBJECTIVE METHOD

A document that proposes a collection of **35 inspiring actions** developed along 5 strategic lines and provides **guidelines** for public authorities **to encourage the reuse of building materials and components**

What?

How?

Who?

Examples?



Links with other actions and FCRBE deliverables



6.1 FOSTERING THE DEMAND FOR REUSING BUILDING MATERIALS	6.2 FOSTERING THE PROPER RECLAMATION OF REUSABLE BUILDING MATERIALS	6.3 BRIDGING THE GAP	6.4 ESTABLISHING A SUPPORTIVE FRAMEWORK	6.5 MONITORING EVOLUTION
6.1.1 Encouraging and supporting specifiers and contractors to adopt reuse practices	6.2.1 Raising private owners' awareness of reclamation procedures	6.3.1 Documenting the reclamation trade	6.4.1 Integrating reuse in Green Building Rating Systems	6.5.1 Surveying the reclamation trade
6.1.2 Assisting and supporting building commissioners to adopt reuse practices	6.2.2 Raising demolition contractors' awareness of possible reclamation pathways	6.3.2 Analysing existing reuse practices	6.4.2 Developing LCA and EPD for reclaimed materials	6.5.2 Monitoring reuse in building projects
6.1.3 Setting reuse objectives in public tenders	6.2.3 Raising DfTers' awareness of possible reclamation pathways	6.3.3 Fostering collaborative dynamics	6.4.3 Integrating reuse in environmental impact assessment tools	6.5.3 Surveying future material flows
6.1.4 Giving visibility to active enterprises and available reclaimed materials stocks	6.2.4 Conducting systematic reclamation audits	6.3.4 Supporting enterprises that adopt reuse practices	6.4.4 Developing labels for reclaimed products	
	6.2.5 Specifying dismantling for reuse	6.3.5 Developing synergies between the social economy and salvage activities	6.4.5 Ensuring a common approach regarding the fitness for reuse	
	6.2.6 Establishing a list of 'protected materials'	6.3.6 Federating the actors of the sector	6.4.6 Developing adapted insurance schemes	
	6.2.7 Developing material passports for reclaimed building elements	6.3.7 Fostering urban salvage yards	6.4.7 Facilitating the access to the technical documentation for past, present and future building materials	
		6.3.8 Facilitating the access to land and storage spaces	6.4.8 Clarifying CE-marking	
		6.3.9 Dealing with logistics issues	6.4.9 Clarifying the conditions of application for the end-of-waste status	
		6.3.10 Adapting education and training programmes	6.4.10 Internalising environmental costs of new products	
			6.4.11 Adapting fiscal policy for reclaimed products	

A roadmap to foster reuse practices in the construction sector

6.4

6.4.7 FACILITATING THE ACCESS TO THE TECHNICAL DOCUMENTATION FOR PAST, PRESENT AND FUTURE BUILDING MATERIALS

6.4.7.1	Documentation of existing building products can be hard, if not impossible, to find. Old catalogues, technical documentation, original specifications and other related records do not always exist and are often scattered. This brings much uncertainty as to what is available for reuse of reclaimed building materials and, more urgently, for getting a better understanding of materials from the past that could be reused today.
6.4.7.2	This type of action can be implemented following a technical approach: 1. At the level of construction elements and materials: Public authorities could support the creation of a major public archive which brings together any type of documentation of building materials present in the built environment. It could be based on its architecture and construction history, building repair or repair, manufacturers, reclamation activities, etc. The time span would correspond to the age of the buildings undergoing major transformations, probably from the early 19th century (first world war) onwards. This long period would be easily accessible to the relevant information can be found quickly. Together with the built documents, it would become a major source of information about the reuse in the built environment. The creation of such an archive clearly requires the development of an open-source and reuse-friendly database to collect technical sheets of construction products that have been put in the market. It is also essential to ensure that the material sheets are maintained and archived over time. This type of approach could also be coupled with the principle of material passports. If these are indeed made available. 2. At the project level: The principle of providing access to updated technical information and plans is also a major issue in facilitating future interventions and to provide information on the construction materials. Gathering data on the nature and to which of the components (thanks to the plans and technical data sheets) can provide information on the frequency, type of maintenance and replacement building components and all that of the elements which can be reused (characterised as new or for future reuse).
6.4.7.3	At the level of construction elements: Public authorities with the help of material manufacturers and research centres. At the project level: The architect and project team for the initial file, the building owner for updating the building data over time.



A roadmap to foster reuse practices in the construction sector

6.3

6.3.10 ADAPTING EDUCATION AND TRAINING PROGRAMMES

6.3.10.1	Thinking reuse can impact the way building projects are designed and built. It necessitates new offers, new methodologies and new types of knowledge. More broadly, it calls for a paradigm shift in designing and building. In this sense, construction and training programmes can have a strong impact, adapting them to integrate reuse considerations in a good way to their future practitioners.
6.3.10.2	Creating a large selection of specific examples about experimentation with reuse of building. It is not necessary to integrate these themes more systematically into the curriculum of all the actors of the construction industry.
6.3.10.3	University training centres: 6.3.10.3.1 Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.2 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.3 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.4 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.5 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.6 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.7 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.8 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.9 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.10 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.11 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.12 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.13 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.14 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.15 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.16 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.17 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.18 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.19 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.20 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.21 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.22 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.23 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.24 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.25 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.26 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.27 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.28 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.29 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.30 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.31 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.32 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.33 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.34 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.35 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.36 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.37 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.38 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.39 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.40 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.41 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.42 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.43 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.44 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.45 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.46 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.47 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.48 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.49 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.50 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.51 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.52 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.53 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.54 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.55 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.56 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.57 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.58 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.59 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.60 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.61 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.62 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.63 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.64 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.65 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.66 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.67 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.68 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.69 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.70 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.71 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.72 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.73 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.74 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.75 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.76 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.77 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.78 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.79 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.80 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.81 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.82 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.83 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.84 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.85 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.86 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.87 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.88 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.89 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.90 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.91 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.92 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.93 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.94 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.95 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.96 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.97 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.98 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.99 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse). 6.3.10.3.100 Historic Architectural Engineering: Design, historic (past and existing) and in the built environment (past architectural elements are challenged to design projects with increasing reuse).

A roadmap to foster reuse practices in the construction sector

6.2

6.2 Fostering the proper reclamation of reusable building materials

This category groups together actions that address the question of reclamation of reusable building materials. They are mostly at the level of individual projects and therefore, can be relatively easily adopted and implemented. Fostering the proper reclamation of reusable building elements is important for the following reasons:

- It is an answer to the European regulation on waste. The Waste Framework Directive makes reuse and other waste prevention approaches a priority over recycling and other waste management strategies. Reclaiming materials with a view to reuse them is therefore in line with this regulatory principle.
- It prevents waste production, saves reusable resources and therefore increases material efficiency.
- It supplies reusable materials to the restoration and salvage trade and, in addition, strengthens and expands the supply of reusable materials.
- It promotes valuable materials that can be reused for new developments (on the same site or on other elements).

6.2 FOSTERING THE PROPER RECLAMATION OF REUSABLE BUILDING MATERIALS
6.2.1 Raising private owners' awareness of reclamation procedures
6.2.2 Raising demolition contractors' awareness of possible reclamation pathways
6.2.3 Raising DfTers' awareness of possible reclamation pathways
6.2.4 Conducting systematic reclamation audits
6.2.5 Specifying dismantling for reuse
6.2.6 Establishing a list of 'protected materials'
6.2.7 Developing material passports for reclaimed building elements



CONCLUSIONS

Many obstacles

- **Regulatory**
- **Economic**

Need for a political position, not only focused on economic issue nor the short term but considering a long term vision and ambitions !

- Costs
- Supply
- Accessibility
- Availability
- Profit ??
- ...



Pavé de grès, neuf,
origine: Belgique

~90 €/m²



Pavé de grès, de
réemploi, origine:
Belgique

~50 €/m²



Pavé de grès dit
"Kandla", neuf, origine:
Inde

~25 €/m²

Source: Rotor

CONCLUSIONS

Many obstacles... - Technical and cultural

- Insurability
- Performance over time
- Certification
- Professional training/awareness
- ...
- Questioning the practices
- Changing the practices
- Developing a new shared/common narrative
- Change our relation to resources and waste ...



Brussels, 1928, démolition du Palais Granvelle, un ouvrage de 1550.

© KIK-IRPA, cliché A105361



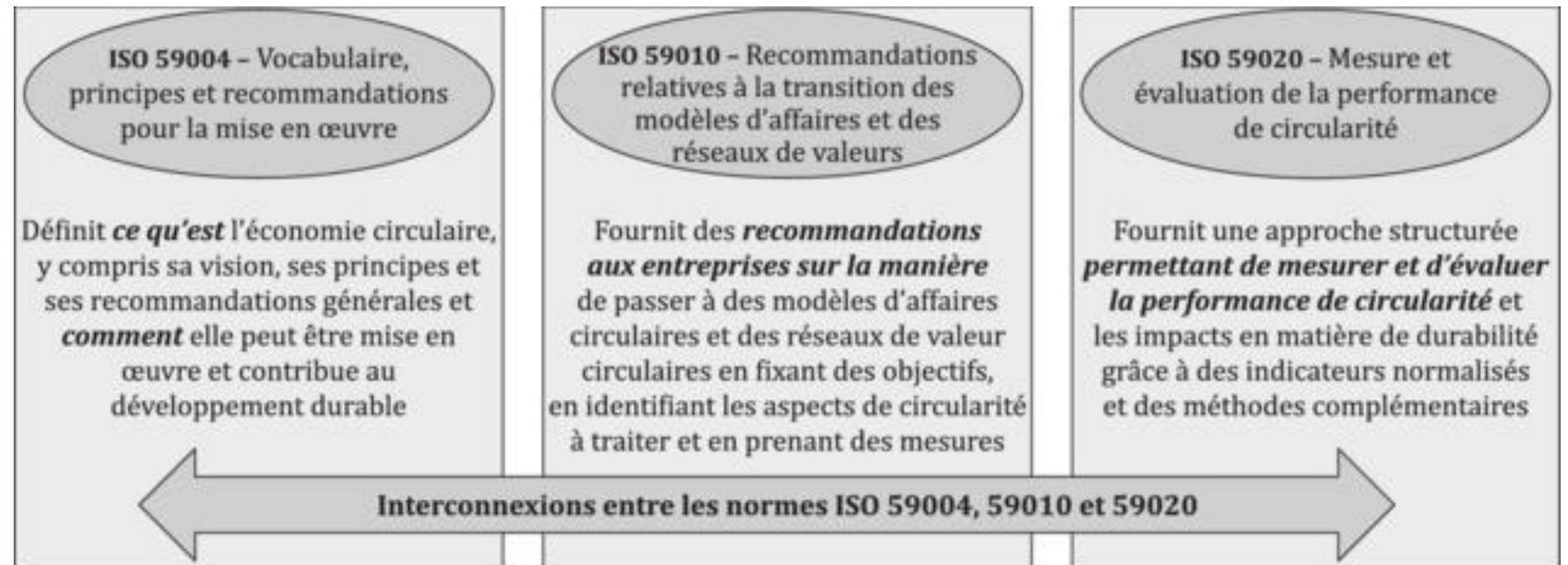
Source: démolition de la barre de Monmousseau. Photo Progrès /Richard MOUILLAUD (03 avr. 2021)

CONCLUSIONS

The framework is evolving...
- Incentives, standards, regulation

Expected or implementing regulatory developments

- **EPB Directive** [12/03/2024] ARTICLE 7 > NEW BUILDINGS Member States shall ensure that the GWP (global warming potential - climate change) throughout the life cycle is calculated in accordance with Annex III and appears in the energy performance certificate of the building: (a) from 1 January 2028 for all new buildings with a usable floor area greater than 1,000 m²; (b) from 1 January 2030 for all new buildings.
- ISO 59020 Circular Economy
- **LEVEL(s)**
- **EU Taxonomy**
- CO₂ performance ladder
- Social clauses
- Environmental clauses
- ...



CONCLUSIONS

But also Many opportunities...

- Innovations: collaborations, economic and social (investments, business models, ...)



Source: Urban - Be.Exemplary



Source: Facade Leasing Pilot Project (TUDelft)

CONCLUSIONS



« ... the reuse of products and recycling of materials **do not create a sufficient flow of building products and materials to close the circularity loop** with renovation materials alone. [...] a broader scope must be adopted such as **preventing the need for material** altogether and using **less impactful and more regenerative materials**. »

Source : Circular Buildings Coalition, 2023

“A circular economy is about **managing stocks**: assets of cultural, natural and human nature, and manufactured objects. We have to learn how to **maintain** these stocks, because in industrialised countries we have a society of abundance. We have everything we need, but **we have to learn how to look after it, and to care for it.**”

Walter Stahel in conversation with Ellen MacArthur,
26 June 2019. Via Medium.com

Source: Rotor

Pr. Émilie Gobbo

Professeure en construction et matériaux durables,
conception circulaire et environnementale

emilie.gobbo@uclouvain.be

[LinkedIn](#)

<https://uclouvain.be/en/research-institutes/lab>



<https://vb.nweurope.eu/projects/project-search/fcrbe-facilitating-the-circulation-of-reclaimed-building-elements-in-northwestern-europe/>

<https://doi.org/10.1016/j.jobe.2024.111344>

<https://doi.org/10.3390/su17020541>

<https://opalis.eu/fr>

