

RENOVATION AND CIRCULAR ECONOMY

Materials At The Heart Of The Transition Towards A Sustainable City

Zinneke: an Exemplary Circular Economy Project

17th of January 2024

Myriam STOFFEN
Zinneke – Roto – Ouest

PRESENTATION OF THE SPEAKER

Myriam Stoffen has been working for 13 years as a researcher and deputy lecturer at the Vrije Universiteit Brussel in the field of culture and urban studies. From 2005 to 2020, she has been the director of Zinneke, a Brussels based association which, through particular social artistic work methods, sets up projects of co-creations between artists, residents, associations, schools and all kinds of urban actors. From 2015 to 2021, she coordinated the renovation project of the Masui site for Zinneke. Actually, she is involved in various initiatives reflecting on and experimenting with commons.

In 2017, the Brussels based social-artistic organisation ZINNEKE, started a large-scale renovation project of a 4.000 m² site. The challenge was 4-fold: preserve as much as possible the existing buildings, maximise the reuse of materials at all levels of the renovation, develop the architectural concept through a process of co-creation and execute the works by construction companies in cooperation with young apprentices. Time to share some concrete methodological and procedural tips, attention points in the process and structuring principles aiming to inspire and motivate professionals and non-professionals dealing with construction works in one way or another.

PRESENTATION OBJECTIVES

Through a concrete experience of renovation with reuse materials, share some

- concrete methodological and procedural tips
- attention points in the process
- insights in structuring principles

in order to inspire and motivate professionals and non-professionals dealing with construction works in one way or another

CONTENT

I. The Masui project

- Zinneke & the Masui site
- Renovation project
- Co-creation team

II. Renovate with reuse

- #1 Preserve, care and repair
- #2 Co-create (incl. regulation)
- #3 Some examples

III. What we learned

I. The Masui project

- Zinneke & the Masui site -

Zinneke



The art of creating
shared spaces

Zinneke, in a nutshell...

- (1) An urban project
- (2) through social artistic practices
- (3) built with inhabitants of diverse neighbourhoods of Brussels
- (4) in collaboration with local network of organisations and actors
- (5) through an intensive process of 1.5 year of encounter, cooperation and co-creation with
- (6) with a Parade in public space as *the most known* result







An aerial photograph of a courtyard in an urban setting. The central focus is a three-story brick building with a grey metal roof and two skylights. The building has several windows, some with yellow curtains. A person is standing on the steps leading to the entrance. To the left of the building is a large evergreen tree. To the right is a bare tree. In the foreground, there are rooftops with grey tiles and brick chimneys. In the background, a train is visible on tracks, and industrial buildings are in the distance. The text "In 2013, Zinneke finds its homebase" is overlaid in white on the image.

In 2013, Zinneke finds its homebase



8

— MINISTÈRE DES FINANCES — ADMINISTRATION DE L'ENREGISTREMENT ET DES DOMAINES —
CONSTRUCTION D'UN ATELIER DU TIMBRE — PLACE MASUI A BRUXELLES

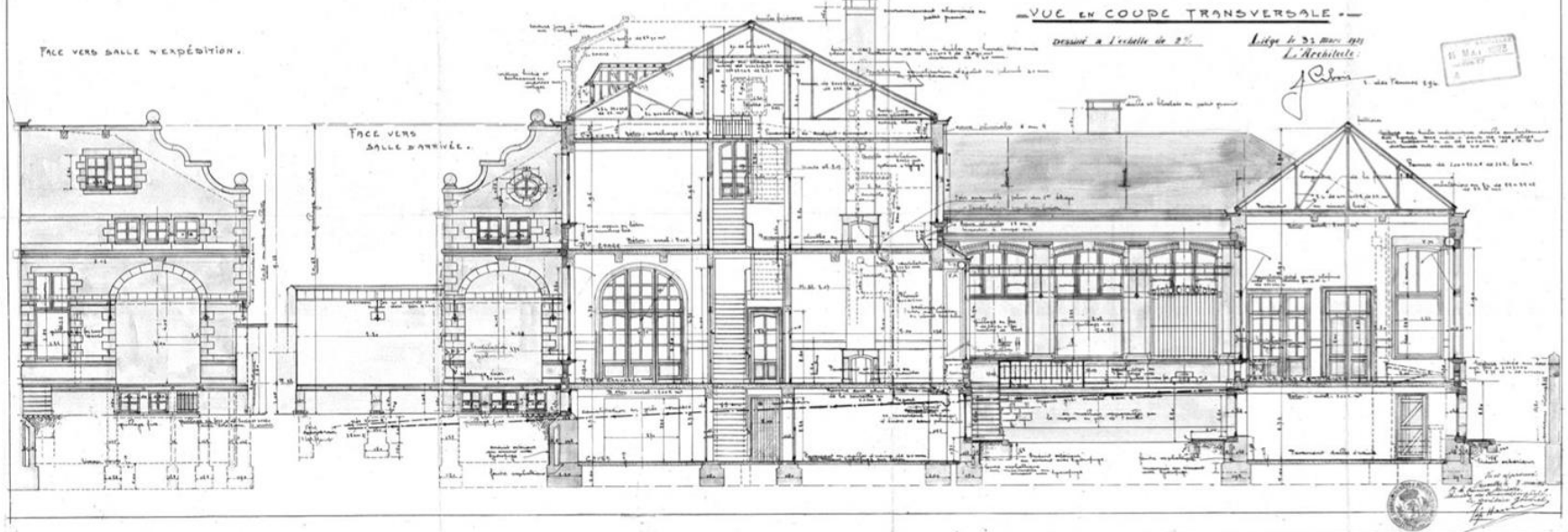
VUE EN COUPE TRANSVERSALE

dessiné à l'échelle de 1/20

Léopold 25 mars 1901

L'Architecte

1 des Travaux 1901

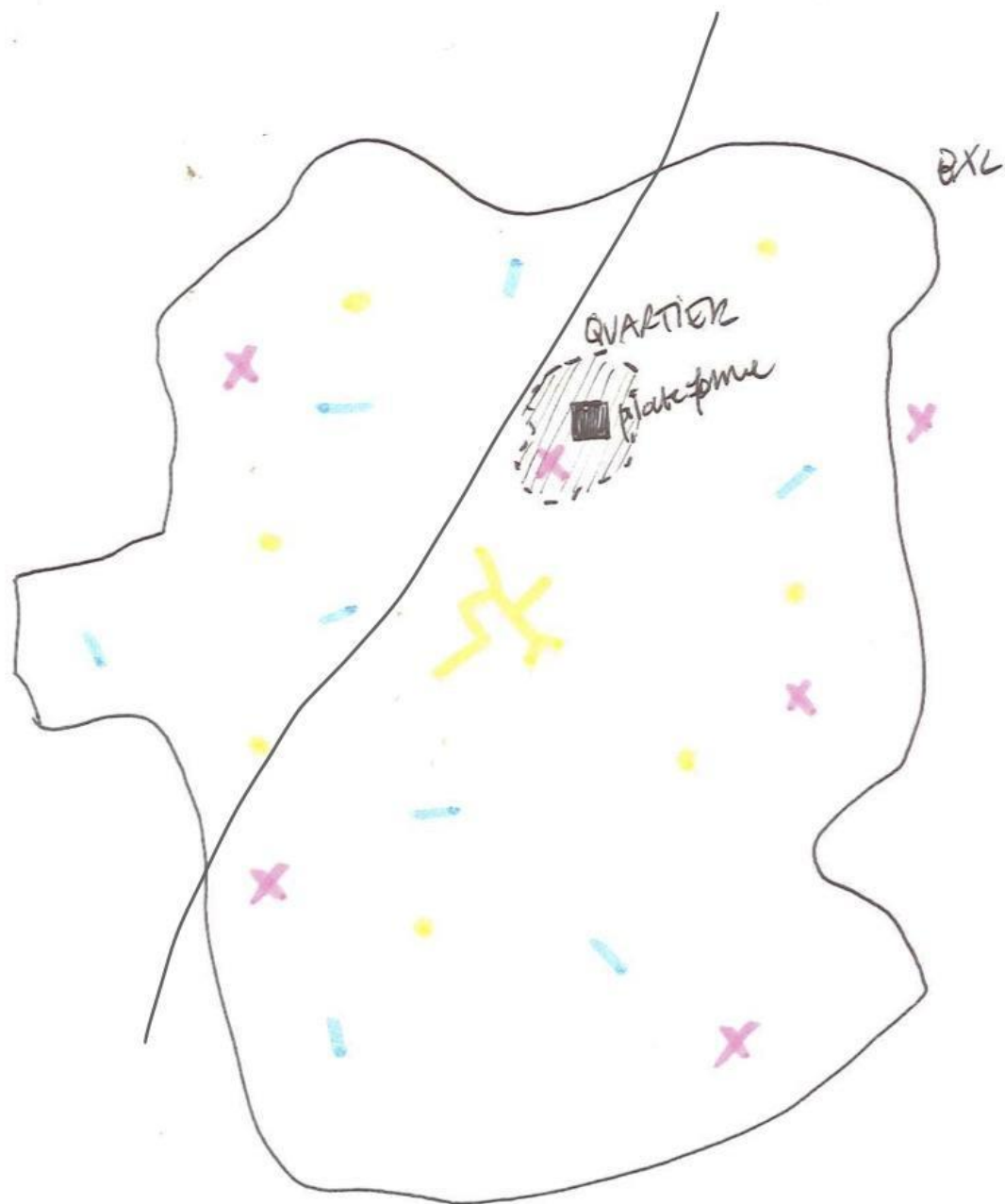


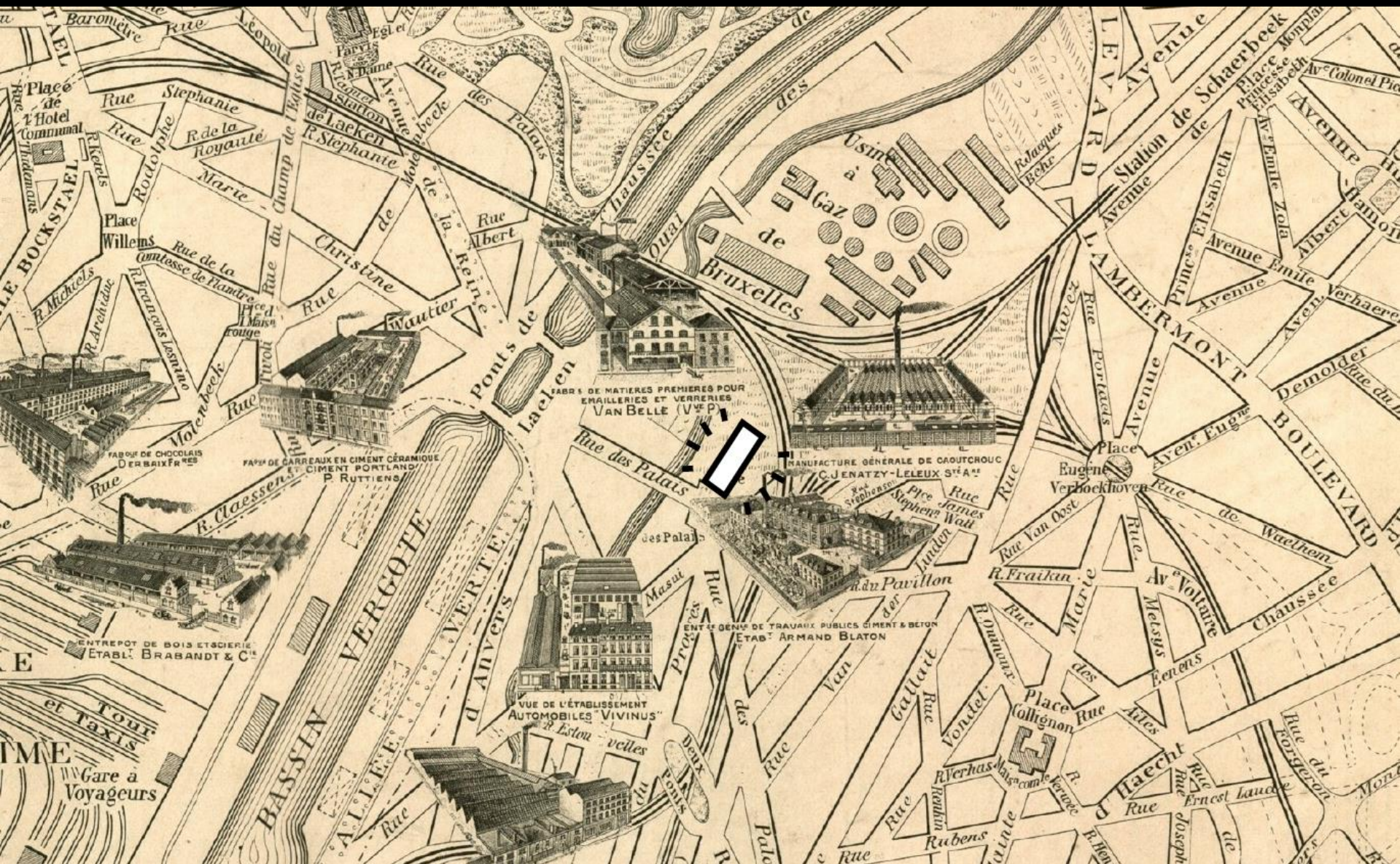
MASUI

(aka "le château")

former printing office tax stamps Ministry of Finances
"Atelier du Timbre"

TERRITOIRES









- Renovation project -



1 site, 6 buildings



Z centre, social artistic incubator, *third space*

Challenges

1. Maximum preservation of the existing (reincarnation design)
2. Foster reused materials in large-scale renovation works
3. Explore the integration of reuse in Public Procurements (PP's)
4. Co-design (and co-execute) the project (pluridisciplinary team)
5. Open programme, in constant evolution & reversible over time
6. Execute a part of the works by the Z teams (a.o. in training)
7. Maintain of activities and Z teams on site during the works

- Co-creation team -



Brussels, 1928, materials are carefully salvaged during the demolition of the Palais Granville. The demolition site as a salvage yard... © KIK-IRPA, cliché A105361

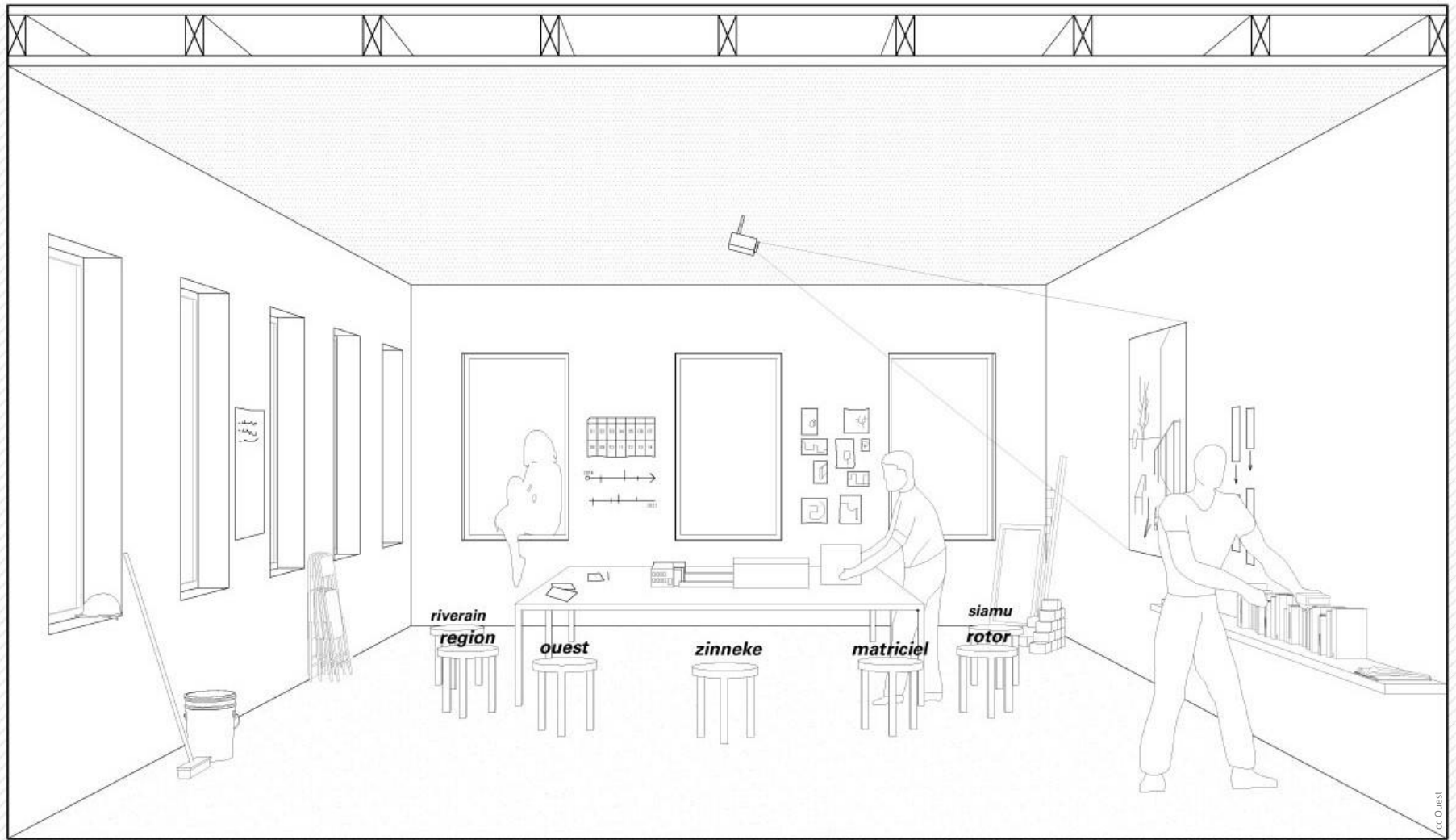
Zinneke teamed up with ROTOR,
a Brussels based organisation of reuse experts



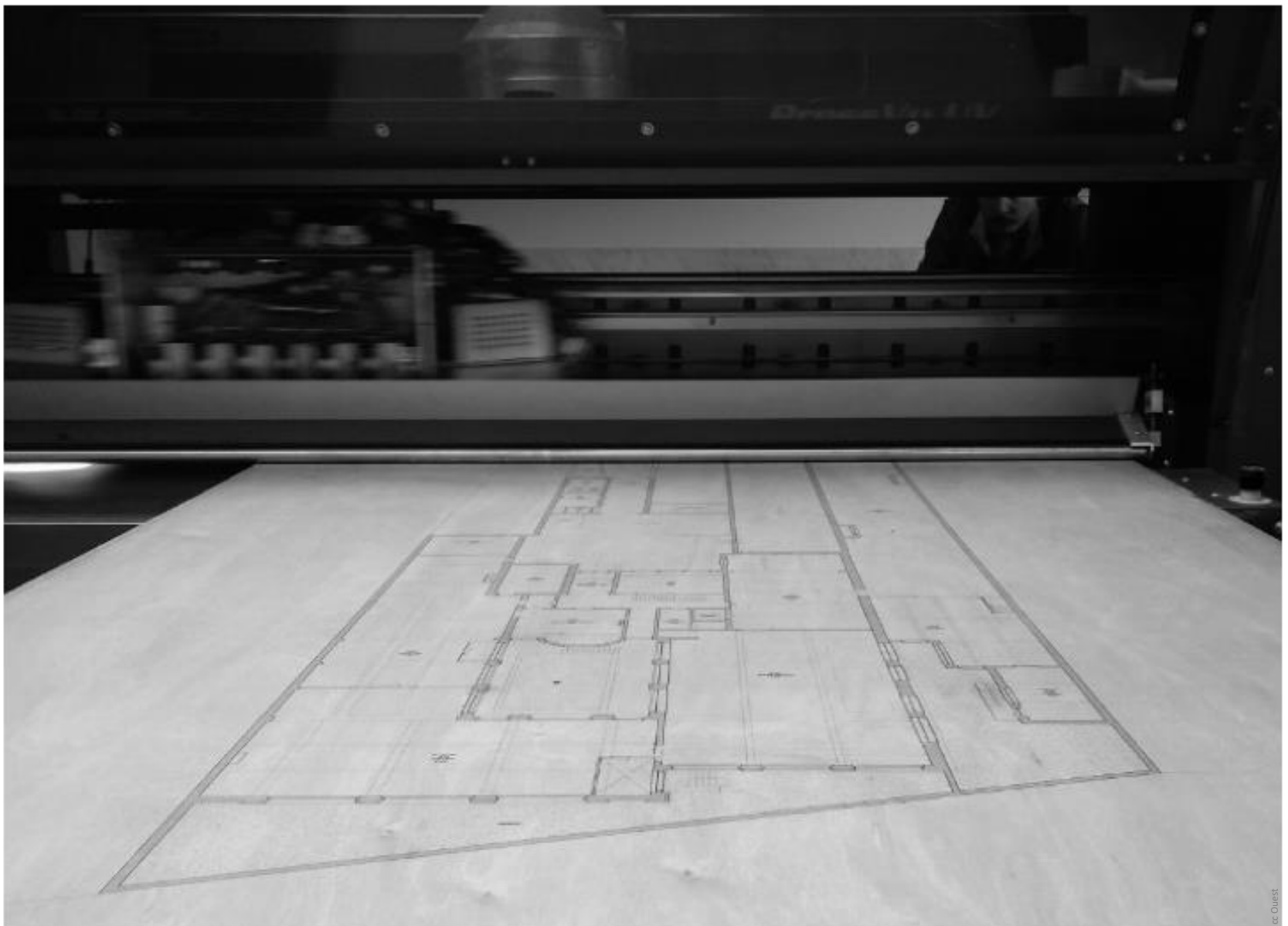
After an open call,
OUEST Architecture was selected as third partner



The start of a (sometimes) difficult,
but (very) exciting collaboration



With a project room



the plan printed on a table



a roughly crafted maquette



lots of organised & spontaneous reflections



and an on-site metal workshop & workers

II. Renovate with reuse

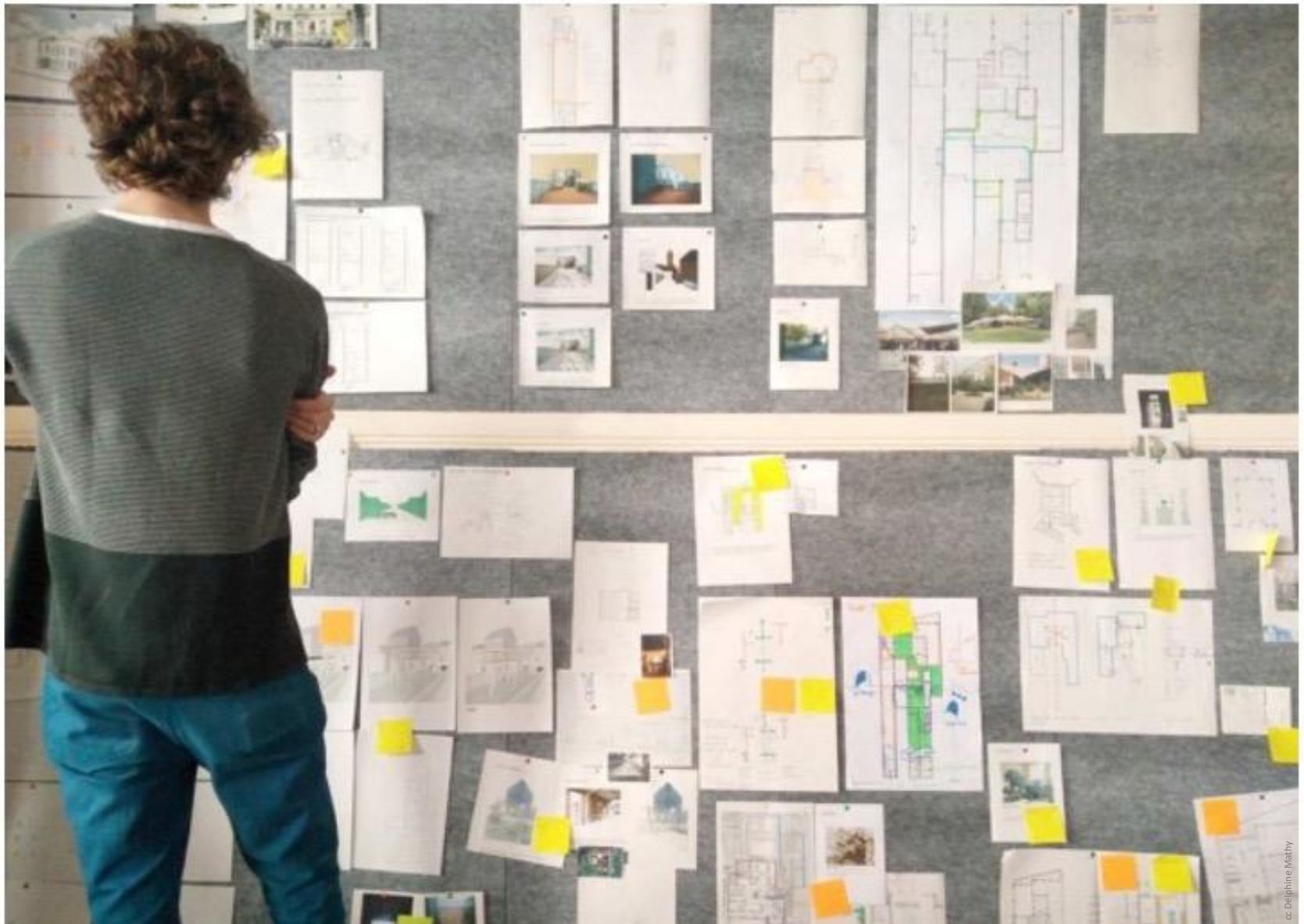
- #1 Preserve, care, repair & source materials -



94% maintained

6% of out-flux
= external reuse,
recycling, waste

12% of in-flux =
reuse



Explore and know your building

Legend

Reuse ability	Dismounting difficulty	Toxicity	Dismounting phase	Packing	Other
★★ Certainly ★ Likely ◇ Possibly ⚡ Problematic	⚡ Test necessary 🔧 Simple 🔧 Advanced 🔧 Hard	? Unknown 🌿 Not toxic ⚠ Toxic risk ☠ Toxic	I Before strip-out II Main strip-out III After strip-out	🚫 No Packing 📄 Plastic wrapping 📦 Plastic crate 📦 Carton box 📦 Pallet 📦 Wood crate 📦 Container 📦 Other	📍 Possible destination 📍 Original location 📏 Item dimensions 📎 Joined data

Item Number
Lot Number

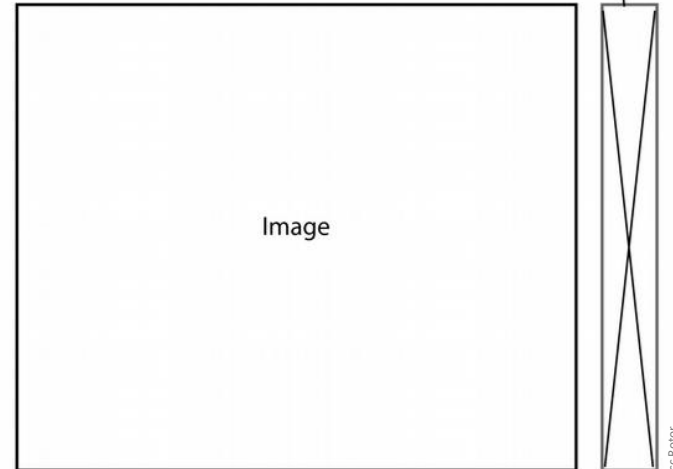
NAME OF THE LOT
CATEGORY

Quantities

This section is explaining the reasons that brings us to think that a re-use is recommended for this lot. We eventually propose opportunities for a second life for this kind of object and we could share our knowledge about previous reuse.

Dimensions
Cumulated Weight

LOT n°000



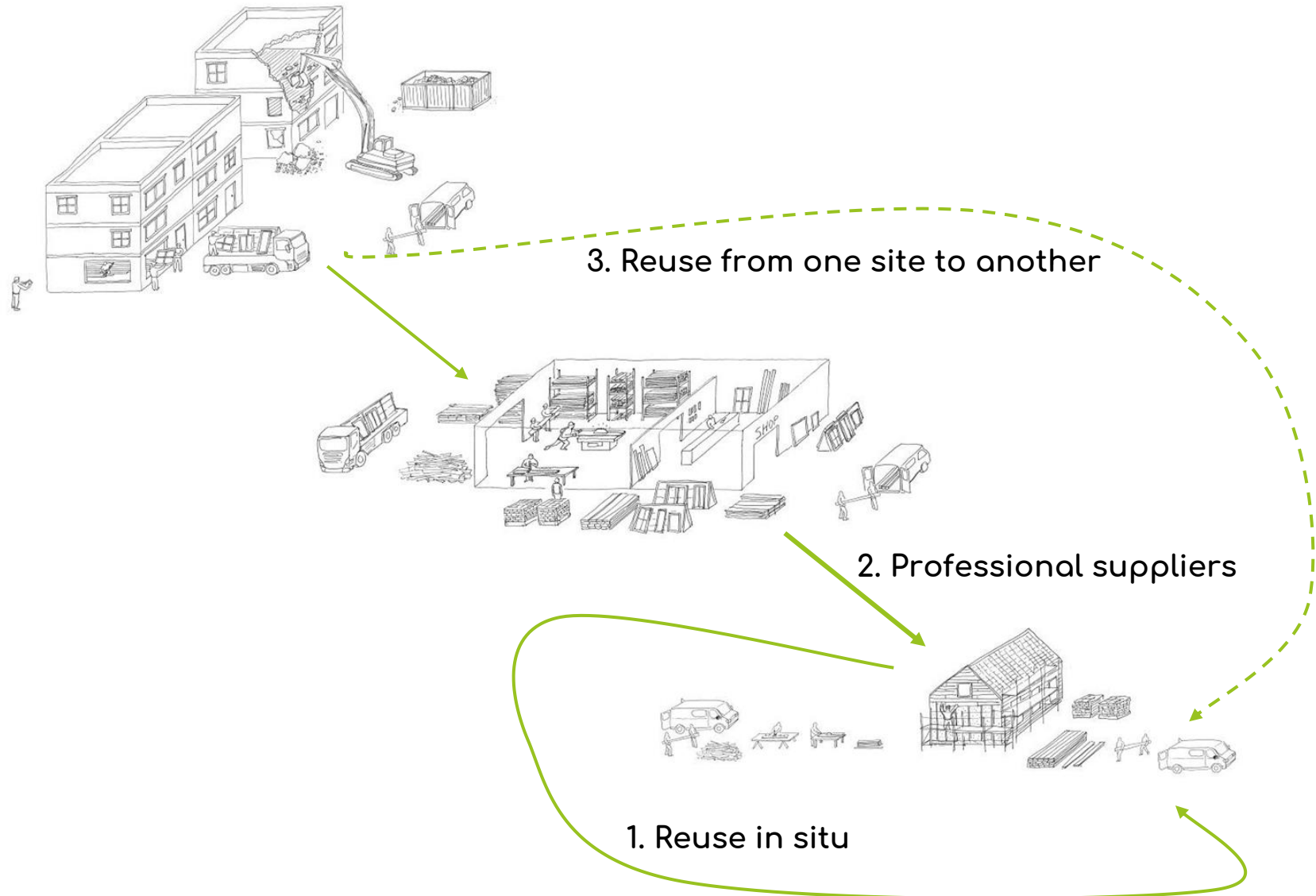
... in detail



cc Delphine Matthy

Care and repair

Where to source materials ?



- #2 Co-create, also with regulation -

“ In our time, measurement means nothing more than precision and objectivity. Our ideal exchange is impersonal. Consumers rarely lay eyes on the owner or producer of the items they buy; traders and brokers may never even see the products they are dealing in. **Interpersonal trust** is an important element of some of these transactions, but they are **even more dependent on faith in impersonal technological and regulatory mechanisms** that ensure that scales read the right weight and boxes are honestly labelled.”

Theodore M. Porter. La confiance dans les chiffres. La recherche de l'objectivité dans la science et la vie publique [Trust in Numbers: The Pursuit of Objectivity in Science and Public Life]. Paris, Les Belles Lettres, 2017 (1995 pour l'éd. originale en anglais), p. Xxiii.

PRODUCTIEDATUM DATE DE PRODUCTION	ORDERNR N° DE LOT	PAKNR N° PAQUET
24-04-17/7	200459	0025

ARTIKELNUMMER N° D'ARTICLE	VERPAKT DOOR EMBALLE PAR
-------------------------------	-----------------------------

1201 A630 2000

AANDACHTTEGEL MET NOPPEN 30x30x6
VLAK WIT

DALLE A PASTILLES 30x30x6 PLANE
BLANC



05
EN 1336-2003
Betontegels 870x870
Voor buitengebruik en dekbeddekking
DoP: EB1336-001

Uitwendig brandgedrag:
Breeksterkte:
Olie-olijvenstand:
Duurzaamheid breeksterkte:
Duurzaamheid olie-olijvenstand:

voltoet
voltoet
voltoet
voltoet
NPD

05
EN 1336-2003
Cafés en Beton DBAExT
Paves en Beton pour les applications en
extérieur et toitures
DoP: EB1336-001

Performance au feu en intérieur:
Résistance à la rupture:
Résistance à la glissance / dérapage:
Durabilité résistance à la rupture:
Durabilité résistance à la glissance ou au
dérapage:

satisfait
satisfait
satisfait
satisfait
NPD

211 BENOR 122

IIIa
R-L-D-U-7

KOMO K2339

NL BSB K20292



DoP:
www.ebema.be/dop/EB1336-001



N.V. EBEMA S.A.

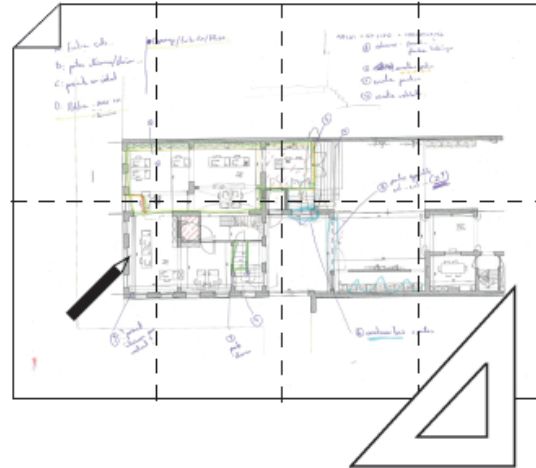
DUKSTRAAT 3 - B-3690 ZUTENDAALE (België)
TEL +32 (0)89 61 00 62 FAX +32 (0)89 61 31 43

Verkoopprijsvoorwaarden/Conditions de vente: www.ebema.be

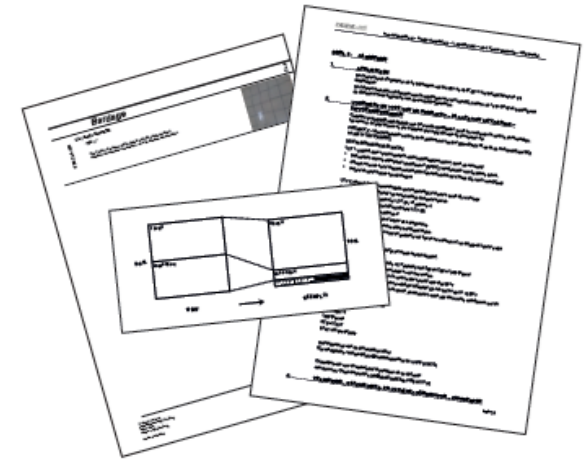




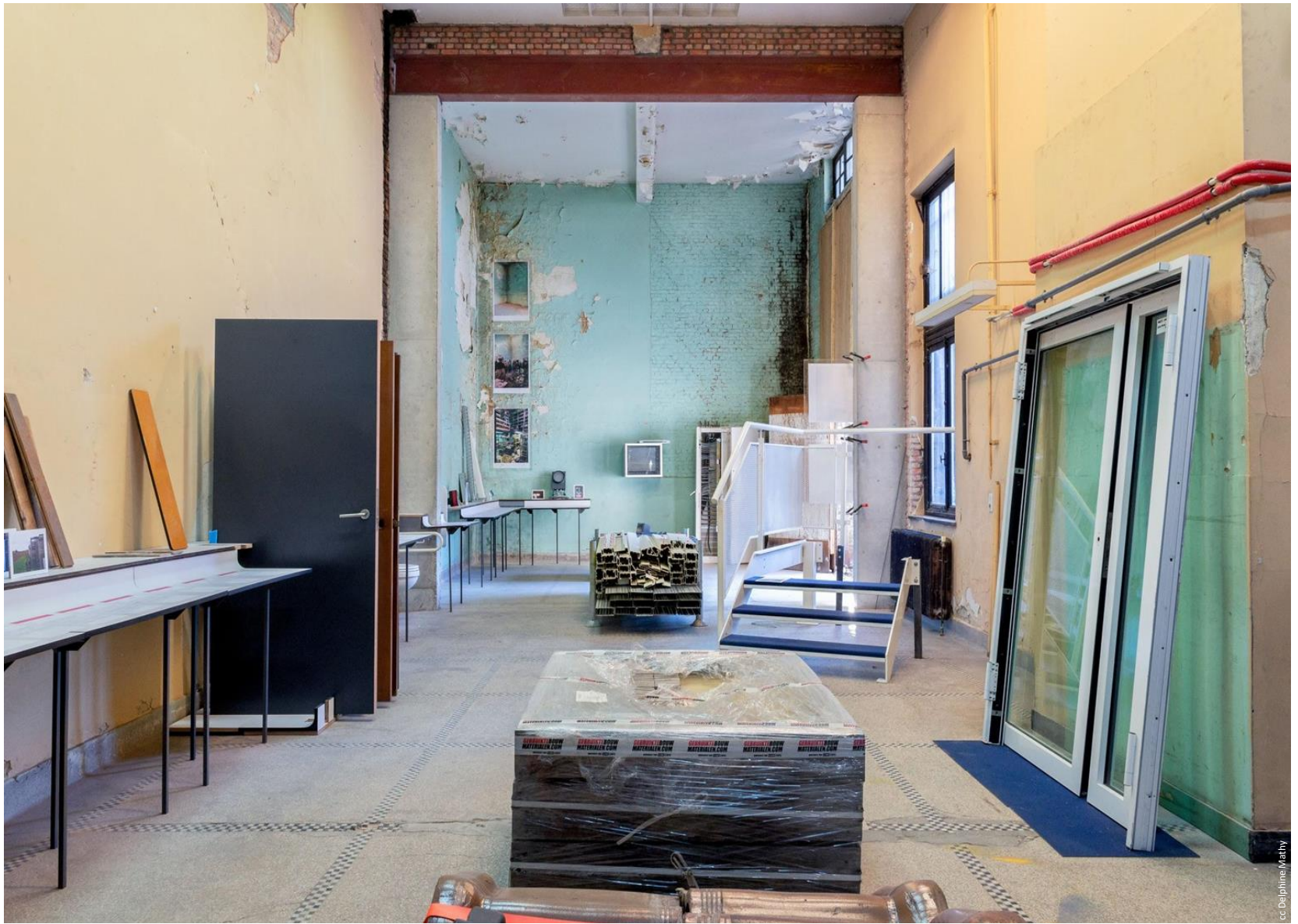
ON-SITE INVENTORY
A detailed inventory of the elements and materials already present on the site was drawn up.



RE-USE PLAN
We identify generic materials that recur in the project or materials that are very specific to the layout plan or building in which they are located.



DESIGN OF NEW WORK PROTOCOLS
(Specifications, technical sheets, logistics concept, etc.)



Make things concrete and tangible

Supply and
installation of
materials from
the stable
professional
reuse sector

Removal and
installation on
site

Use of materials
purchased by the
the client

with a small exhibition



[illegible]

TYPE	QUANTITE		UNITE		OFFRE			
	HH	EH	MATERIEL	POSE	M+P	SUBTOT		
QP / VH	1,00	m2			- €	- €		
PM	0,00							
PM	0,00							
PM	0,00							
QP / VH	4186,76	kg	- €	- €		- €		
QP / VH	340,05	kg			- €	- €		
QP / VH	36,61	kg	- €	- €		- €		
QP / VH	201,37	kg	- €	- €		- €		
QP / VH	122,80	mc			- €	- €		
QF / FH	47,79	m3			- €	- €		
QP / VH	1,00	mc			- €	- €		
QF / FH	20,40	mc			- €	- €		
QF / FH	69,10	m2			- €	- €		
QP / VH	40,24	m2			- €	- €		
QP / VH	25,80	mc			- €	- €		
QP / VH	9,00	pc			- €	- €		
QP / VH	6,00	pc			- €	- €		
0								
QP / VH	5,00	pc			- €	- €		
QP / VH	5,00	pc			- €	- €		
QP / VH	10,00	pc			- €			
QF / FH	59,94	m2			- €			
QF / FH	173,10	m2			- €			
QP / VH	200,05	m2			- €			
QP / VH	17,00	m2			- €			
QF / FH	97,90	m2		- €				
QF / FH	55,84	m2			- €			
QF / FH	281,03	m2		- €				
QF / FH	22,54	m2		- €				
QF / FH	64,10	m2	- €	- €	- €			
QP / VH	141,80	mc		- €				
QP / VH	541,06	mc			- €			
FF / SOG	1,00	pc			- €			
FF / SOG	1,00	pc			- €			
QF / FH	4,00	pc			- €			
FF/SOG	1,00	pc		- €				

48

1.5 Methode voor de bepaling van de prijzen - Elementen inbegrepen in de prijs

1.5.1 Algemene beginselen

Onderhavige opdracht is een gemengde opdracht:

- een deel van de werkzaamheden tegen prijslijst voor posten met de vermelding "Verwachte hoeveelheid" (V.H.);
- een deel tegen globale prijs voor wat de andere posten betreft, vergezeld van de vermelding "forfaitaire hoeveelheid" (FH).

De aard van de desbetreffende posten wordt vermeld in de samenvattende opmetingen.

Elke meetpost maakt ook onderscheid tussen:

- de kosten van de levering (exclusief alle andere kosten);
- de kosten van installatie, met inbegrip van arbeid, alle mogelijke bijkomende diensten en leveringen (bekabeling en buizen, leidingen, afsluit- of regelklep, enz.), transport, aansluiting, inbedrijfstelling en alle andere kosten, met inbegrip van algemene en financiële kosten en winst (deze laatste worden verdeeld over de verschillende posten in verhouding tot hun belang).

De uit hoofde van deze opdracht gegunde prijzen zijn uitgedrukt in euro.

Overeenkomstig art. 29 van het K.B. van 18 april 2017, omvatten de prijzen alle belastingen van welke aard dan ook, met uitzondering van de btw (het tarief wordt afzonderlijk vermeld in de offerte van de inschrijver).

De prijzen omvatten alle andere kosten, maatregelen en lasten van welke aard ook, die inherent zijn aan de uitvoering van het opdracht (in het bijzonder deze bedoeld in art. 32 van het K.B. van 18 april 2017).

1.5.2 Bijzondere bepalingen inzake hergebruik

Met betrekking tot hergebruikte goederen wordt de samenvattende opmeting georganiseerd volgens de volgende beginselen:

- (i) Bepaalde posten hebben betrekking op hergebruikte goederen die niet door de opdrachtnemer zullen worden verworven en waarvoor bijgevolg geen aankoop prijs in de opmeting hoeft te worden vermeld. Dit zijn leveringen die:

- hetzij van de gerenoveerde gebouwen afkomstig zijn, zullen worden ontmanteld³ en hergebruikt op de site;

In dat geval mag de inschrijver alleen de prijs van de installatie van de betrokken leveringen vermelden.

- (ii) sommige posten hebben betrekking op hergebruikte goederen die door de aannemer moeten worden verworven en geïnstalleerd. Deze situatie heeft alleen betrekking op perceel 1.

In dat geval vermeldt de inschrijver zowel de aankoop prijs als de prijs voor de installatie van de leveringen.

De aanbestedende overheid heeft de prijsmarge vermeld waarbinnen de betrokken leveringen over het algemeen op de markt voor hergebruik worden verkocht. De vermelding van de veronderstelde kosten van dergelijke hergebruikte goederen is niettemin indicatief. Het staat de inschrijvers dus vrij de prijs te bepalen van de hergebruikte goederen die zij willen aanschaffen, zonder gebonden te zijn aan de door de aanbestedende overheid ter informatie vermelde prijsmarge.

De door de aanbestedende overheid verlangde leveringen voor hergebruik zijn op ieder moment van het jaar algemeen beschikbaar op de markt voor hergebruik voor een prijs binnen de door de aanbestedende overheid aangegeven marge. De aanbestedende overheid wenst de opdrachtnemer echter niet het risico op te leggen dat verbonden is aan de onmogelijkheid om tijdens de uitvoering van de opdracht leveringen voor hergebruik te verkrijgen tegen een prijs die binnen de door de aanbestedende overheid aangekondigde marge ligt. De aanbestedende overheid heeft daarom een herzieningsclausule opgenomen (zie 2.11).

using administrative specs allowing flexibility
during the works

- #3 Examples & tips -

Case reuse #1 – The rear façade



Reuse, a professional suppliers' market

Ramen

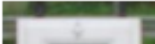
Breedte ⁱ(cm): Hoogte ⁱ(cm): Materiaal soort: Kleur Binnen: Kleur Buiten:

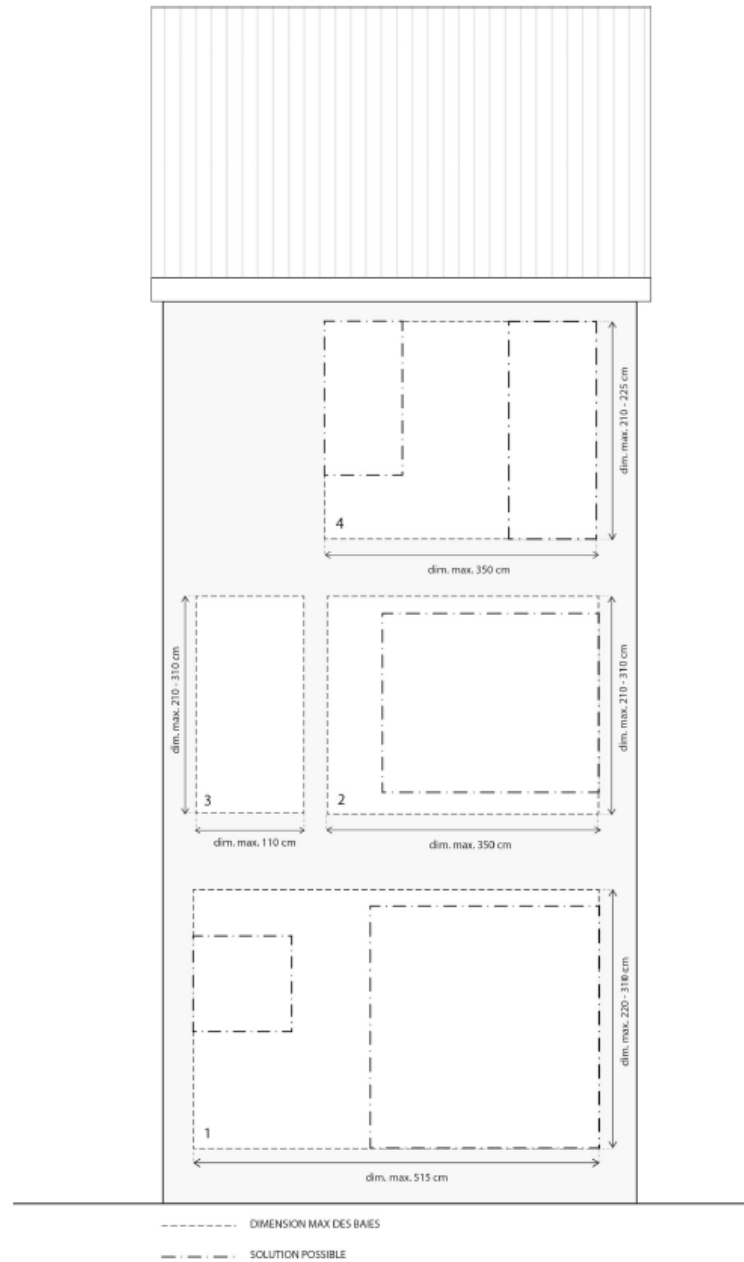
ⁱ Breedte en hoogte: geeft alle resultaten weer met een marge van 5 cm in de breedte en 5 cm in de hoogte.

Zoeken

Reset

Aantal gevonden: 1116

nr.	Afbeelding	Breedte ↕	Hoogte ↕	Materiaal soort	Kleur binnen	Kleur buiten	Toestand	Aantal beschikbaar	Prijs/stuk ↕
4200		170	119	aluminium	grijs	grijs	2dehands	1	€ 250
4196		55	69	PVC	wit	grijs	nieuw	1	€ 175
4195		111	187	PVC	bruin	bruin	nieuw	1	€ 350
4194		168	37	PVC	wit	grijs	nieuw	1	€ 175
4193		175	37	PVC	wit	grijs	nieuw	1	€ 175
4192		144	59	PVC	grijs	grijs	nieuw	1	€ 175
4189		90	95	hout	wit	wit	2dehands	1	€ 200
4188		48	66	hout	wit	wit	2dehands	1	€ 125



The drawing... in dotted lines

Menuiseries extérieures (lot 6)

Nous recherchons des **menuiseries extérieures** en **aluminium ou en bois**.

Les châssis seront placés sur la façade arrière d'une maison d'habitation bruxelloise orientée au nord. C'est pourquoi nous cherchons les solutions capables de garantir la **plus grande surface vitrée possible**, dans les gammes dimensionnelles reprises ci-dessous.

Nous n'avons pas d'exigence particulière sur la **couleur** des châssis.

Nous cherchons un produit compris dans une gamme de prix aux alentours de **200 €/m²**.

Dimensions

Nous cherchons des solutions de vitrage pour combler **quatre baies**, dont les dimensions et caractéristiques essentielles sont décrites ci-après.

BAIE 1 :

- Présence au minimum d'une double porte fenêtre de largeur min. 250 cm
- Ouverture de cette porte vers l'intérieur
- Système de fermeture à clé
- Largeur : max. 515 cm
- Hauteur : entre 220 et 310 cm

Baie 2 :

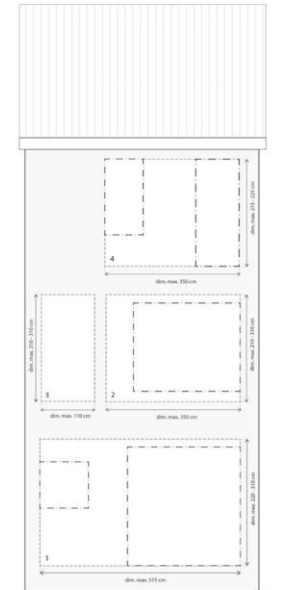
- Présence d'une fenêtre coulissante
- Largeur : max. 350 cm
- Hauteur : entre 210 et 310 cm

Baie 3 :

- Fenêtre oscillo-battante
- Ouverture vers l'intérieur
- Largeur : max. 110 cm
- Hauteur : entre 210 et 310 cm

Baie 4 :

- Présence au minimum d'une fenêtre oscillo-battante de largeur min. 90 cm
- ouverture vers l'intérieur
- Largeur : min. 350 cm
- Hauteur : entre 210 et 225 cm



Pour des explications sur ce schéma, n'hésitez pas à contacter M. Renaud Haerlingen (Rotor), au +32 495 49 50 55.

Color :
no requirements

Dimensions :

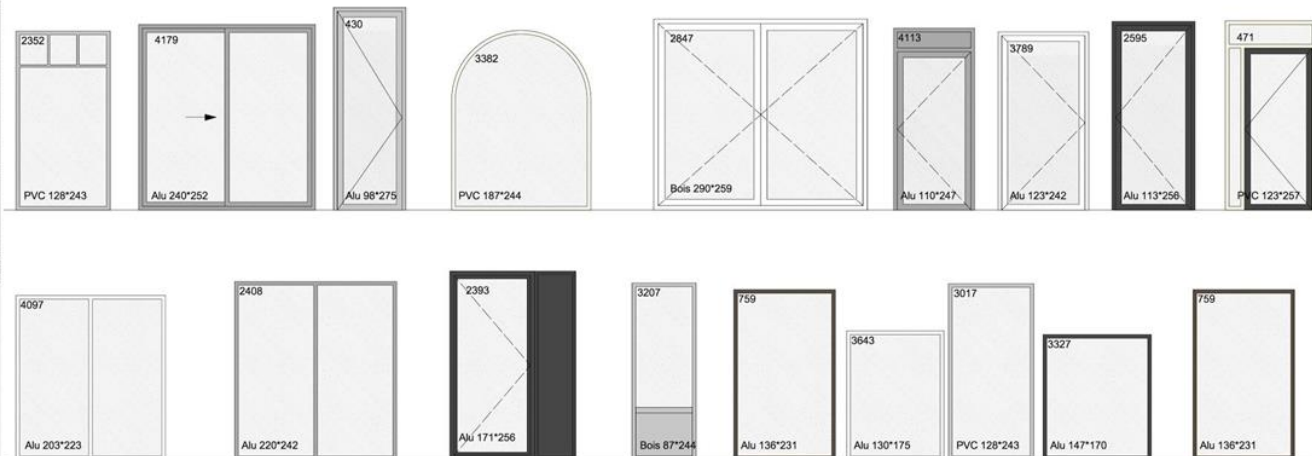
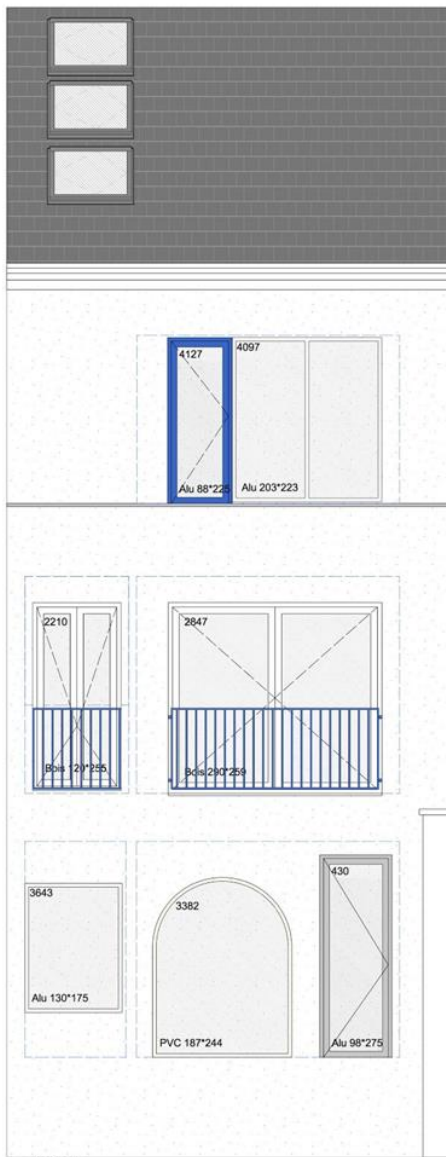
- Minimum 1 double window door, width $\geq 250\text{cm}$
- Opens inwards
- Lockable
- Height: between 210 & 310cm
- Width: max. 515cm

Homogeneity
of the lot

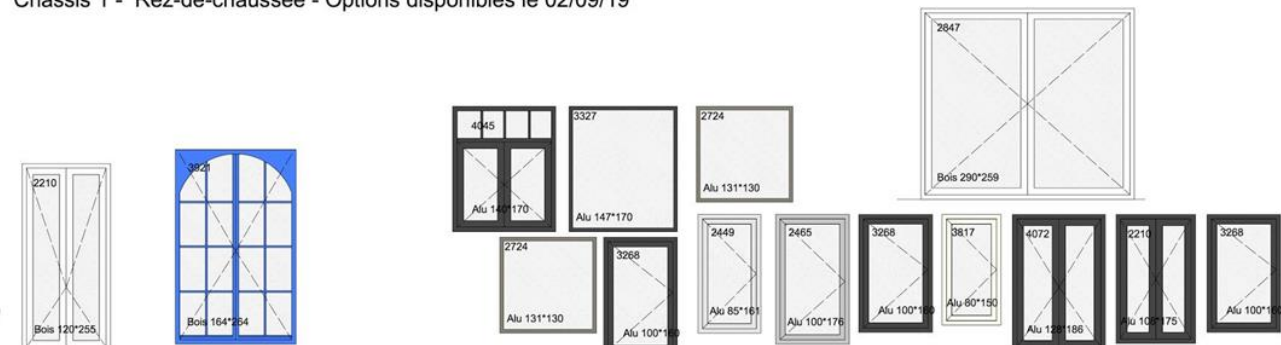
Performance
energy

Condition :
acceptable
surface wear

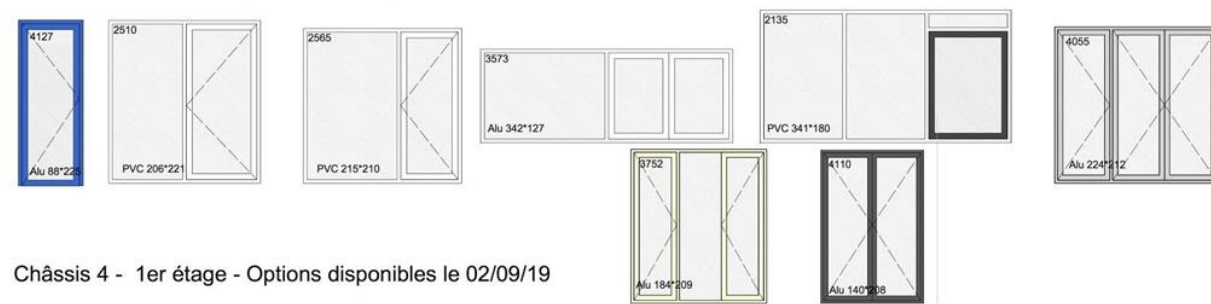
Definition of the required qualities > everything is possible



Châssis 1 - Rez-de-chaussée - Options disponibles le 02/09/19

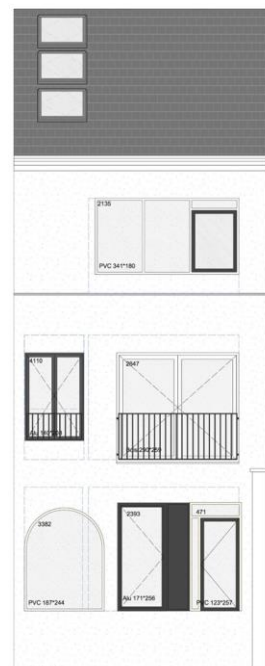


Châssis 2 et 3- 1er étage - Options disponibles le 02/09/19

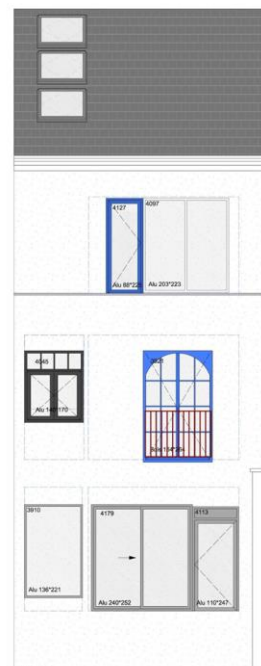


Châssis 4 - 1er étage - Options disponibles le 02/09/19

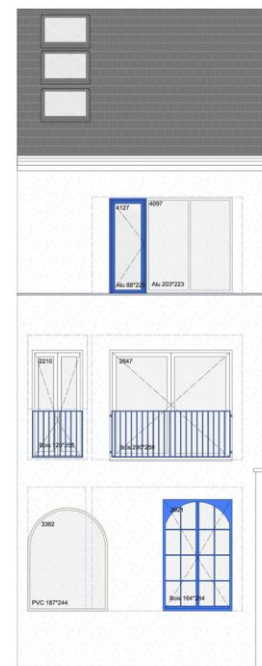
Diversified offer, opening up to surprises



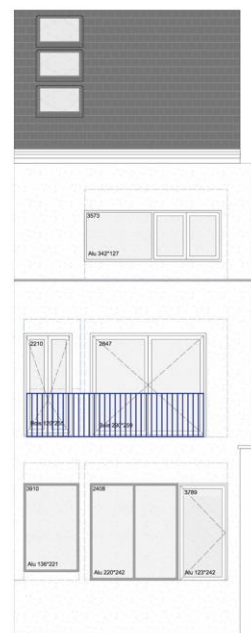
TEST 4



TEST 5



TEST 6



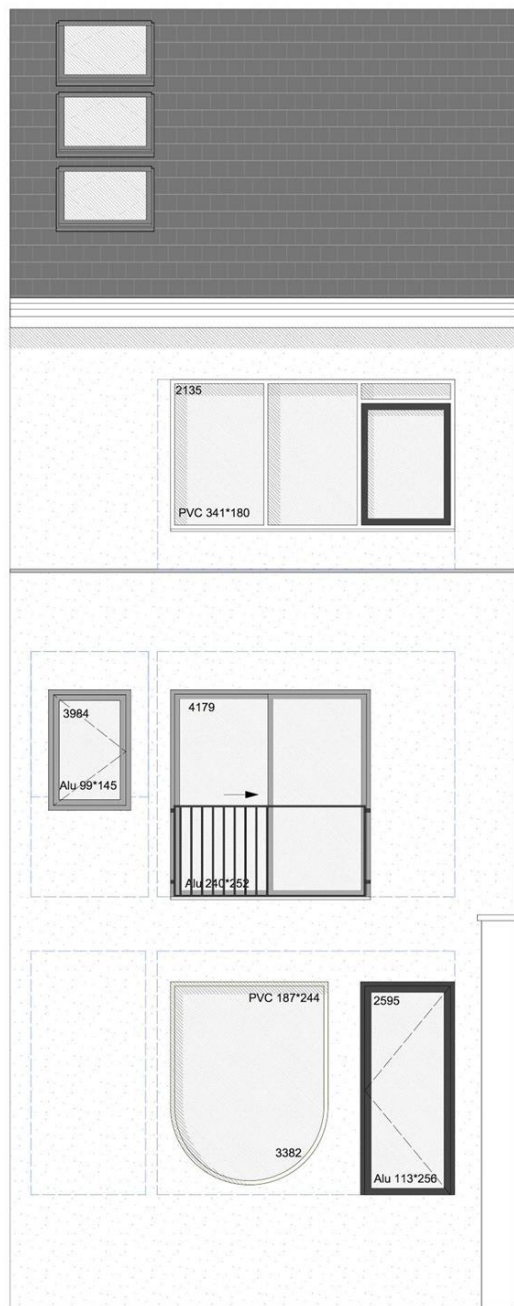
TEST 1



TEST 2



TEST 3



Façade Définitive - Option vitrage 3 WC R+1 à valider



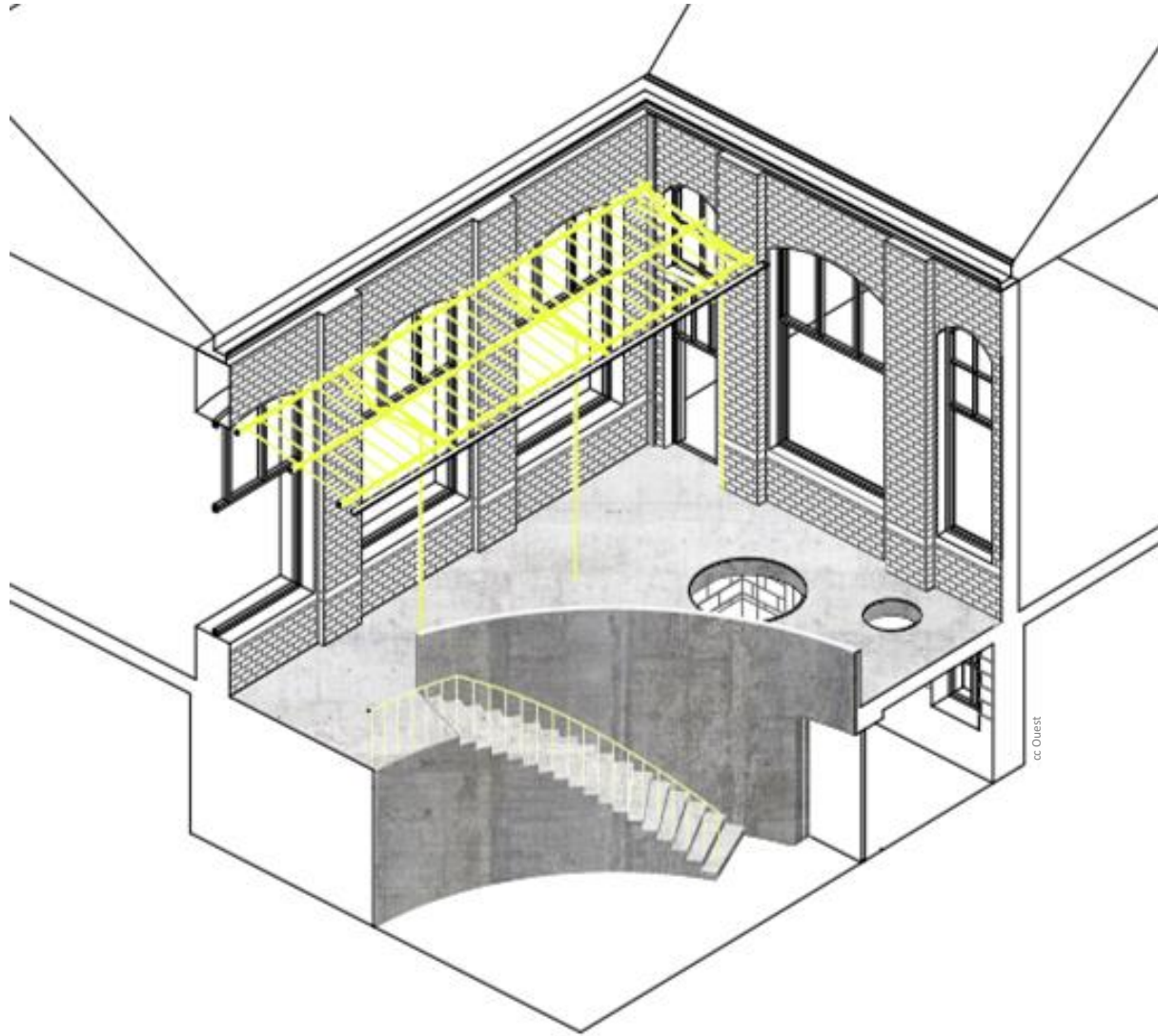


Material defines the drawing

Case reuse #2 - Staircase of the inner courtyard

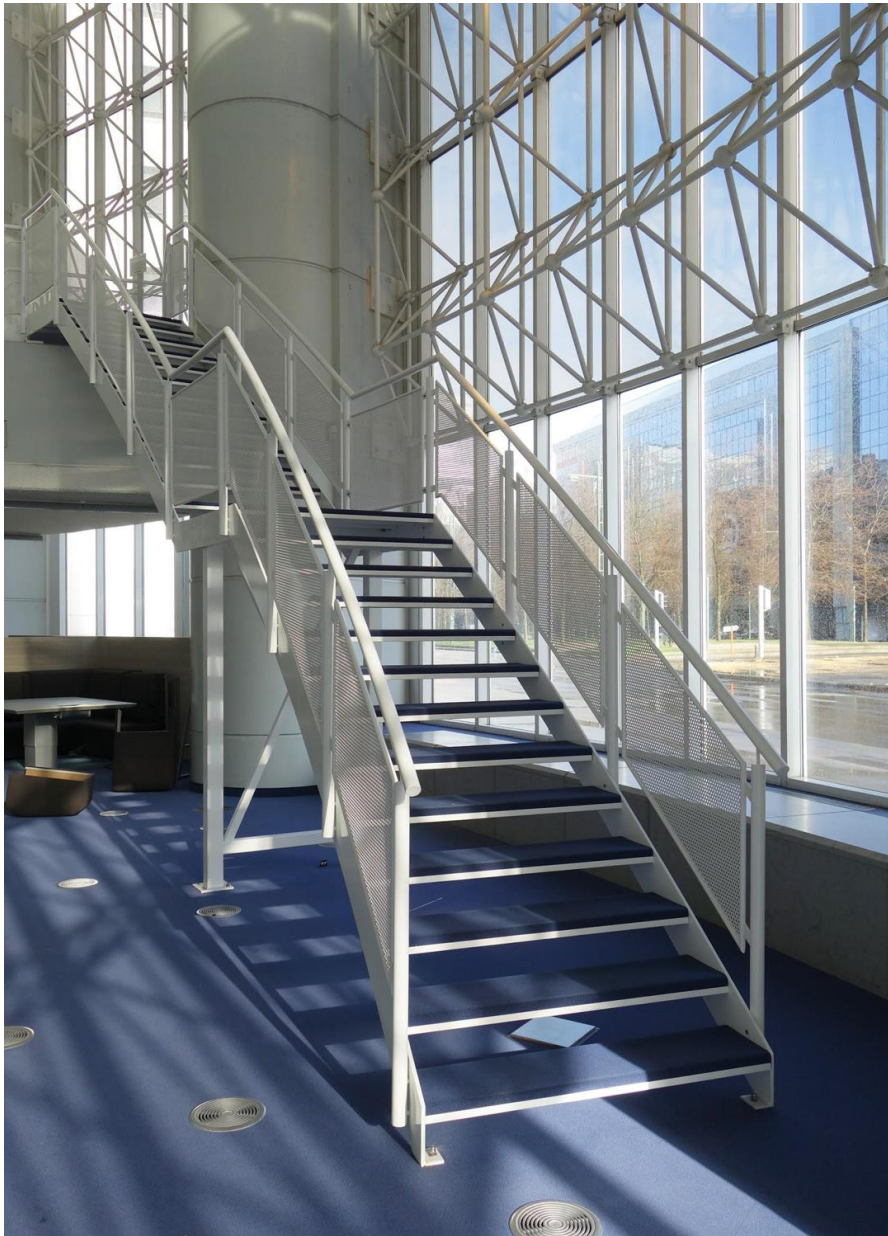


Inner patio, situation before the works in 2016



Representation of the situation as conceived for the urban planning permit in 2017

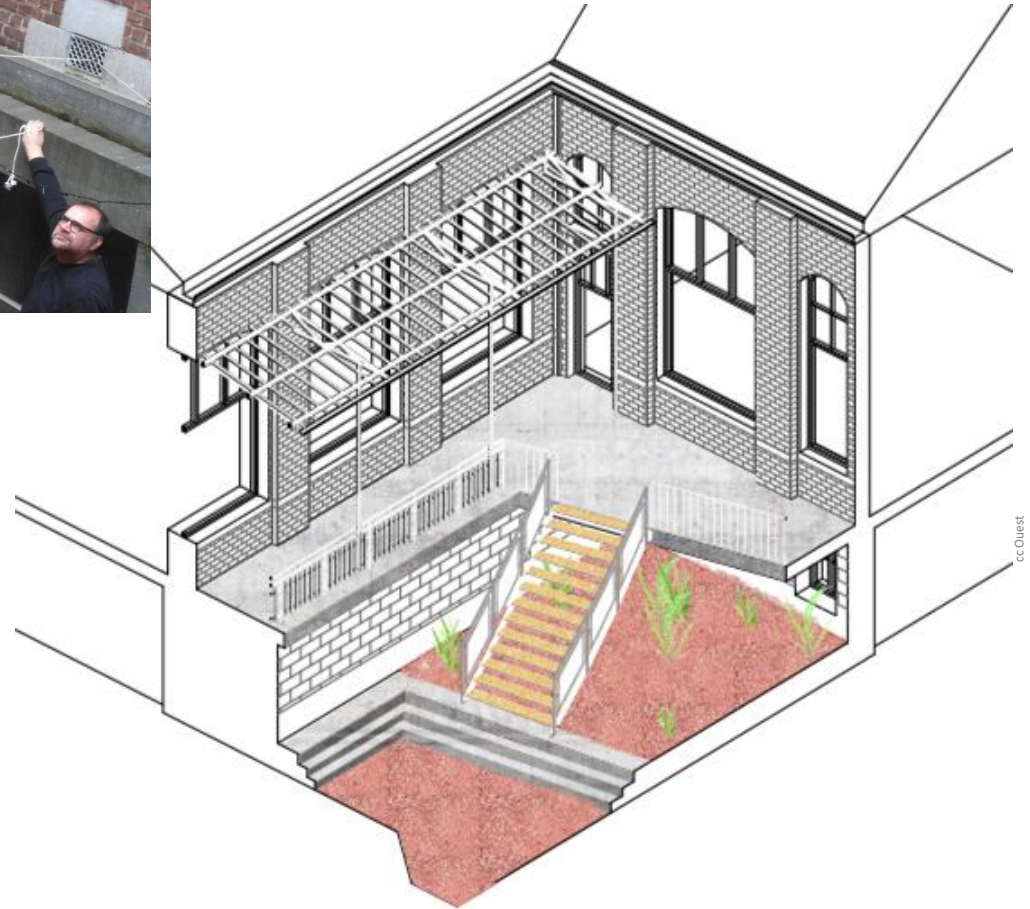
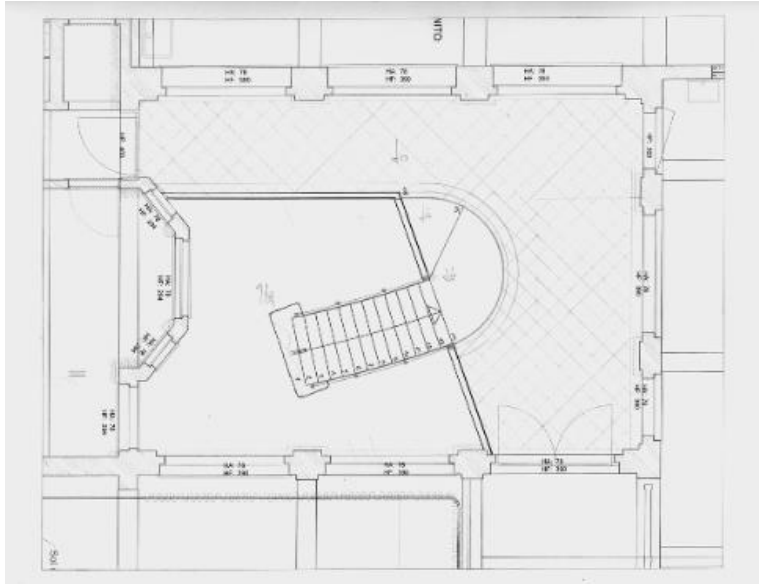
Staircase hall administration Vlaamse Gemeenschap (02 2018)



The opportunity from a demolition site



1:1 scale architecture



Design in evolution

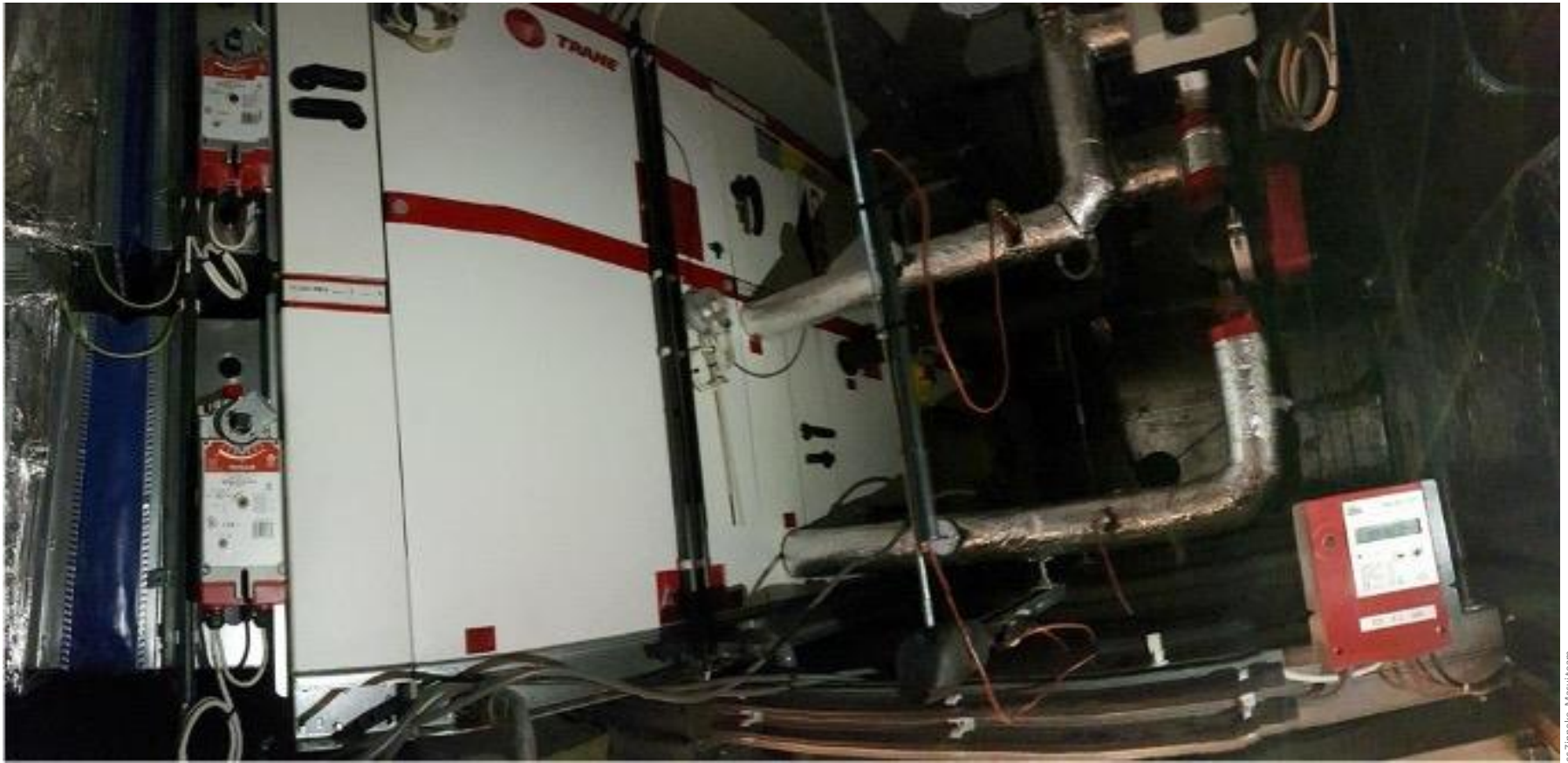






Keep an open mind
for surprises

Case reuse #3 – Ventilation unit

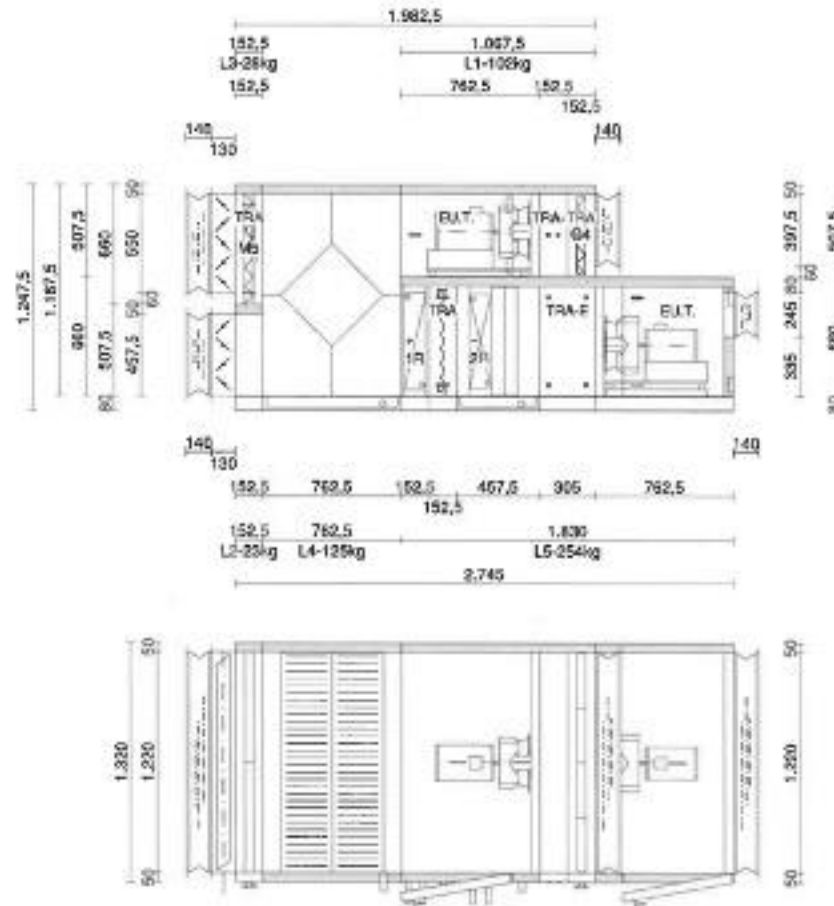


Another opportunity from a demolition site

Unit delivered in 2 parts

1) L1 + L3

2) L2 + L3 + L4

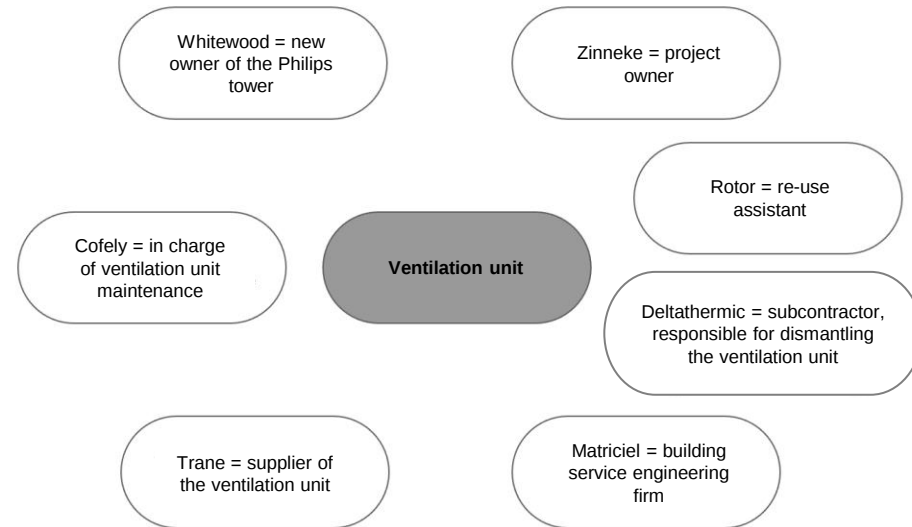


Supply air		Exhaust air		Airflow control and distribution				Accessories		Trane		Trane		D	
Airflow	m³/s	5.214	Airflow	m³/s	5.255	Water	l/s	PA1	g/s	REFERENCE	800000	Trane	Trane	Trane	Trane
Ext. pressure	Pa	250	Ext. pressure	Pa	200	Exhaust	l/s	PA2	g/s	REFERENCE	800000	Trane	Trane	Trane	Trane
Int. pressure	Pa	301	Int. pressure	Pa	009	Exhaust	l/s	PA3	g/s	REFERENCE	800000	Trane	Trane	Trane	Trane
Motor power	kW	2.25 / 7	Motor power	kW	3.25 / 7	Exhaust	l/s	PA4	g/s	REFERENCE	800000	Trane	Trane	Trane	Trane
Power supply	kW	4.000/3.000/4	Power supply	kW	4.000/3.000/4	Exhaust	l/s	PA5	g/s	REFERENCE	800000	Trane	Trane	Trane	Trane
P-W heating	kW	18.12				Exhaust	l/s	PA6	g/s	REFERENCE	800000	Trane	Trane	Trane	Trane
P-W cooling	kW	11.85				Exhaust	l/s	PA7	g/s	REFERENCE	800000	Trane	Trane	Trane	Trane

Crucial technical requirements



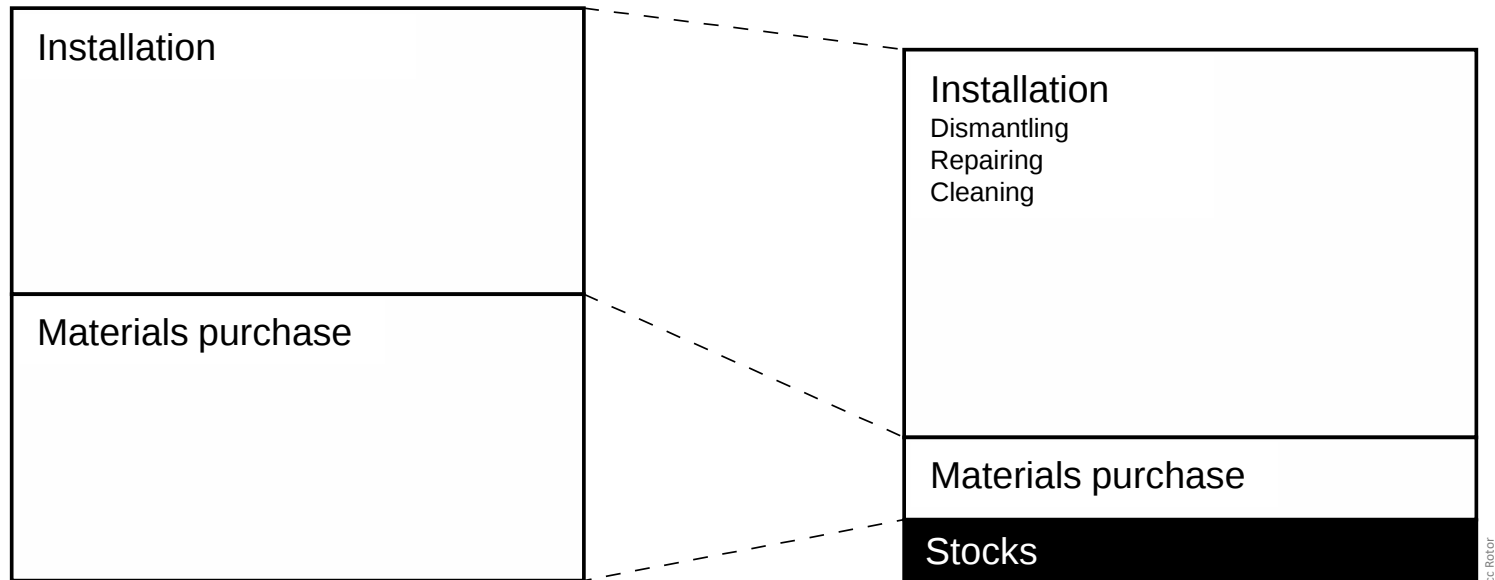
Cartographie des acteurs



cc Zinneke_Nasui team

Aligning many actors
... coordination & commitment





Reallocate resources from production to local labour

III. What we learned

Conclusions

- 1/ The building as raw material
- 2/ Diverse sources = mastering and planification is possible
- 3/ Mix defined requirements and opening to surprises
- 4/ Dynamic design = flexible conception
- 5/ Creation throughout the process (idea >< execution)
- 6/ Reuse = one team = shared expertise & co-creation (DIT)
- 7/ Back to craftsmanship
- 8/ Important organisational and logistical issues

➔ Circular economy = circular governance & reframing regulation

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