

Reconditioning raised floor panels - MOBIUS

Industrialise the reconditioning process in order to increase the reliability of reuse



Image source: <https://www.mobius-reemploi.fr/>

- **Context:** Mobius has created a reconditioning activity of raised floor panels after the Pulse pilot operation. The latter has led the start-up to specialise in consulting on reuse and the production of reclaimed building materials. Reconditioning raised floor panels allows for the reuse of standardised products, highly present in many commercial buildings and which can represent up to 3% of the carbon footprint of a new construction, according to the founder of Mobius.
- **The challenge:** launch and industrialise a reconditioning activity in order to increase the reliability of the reuse of common sources.
- **Reclaimed material:** raised floor panels.

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The origin of the reconditioning of the panels: the PULSE project

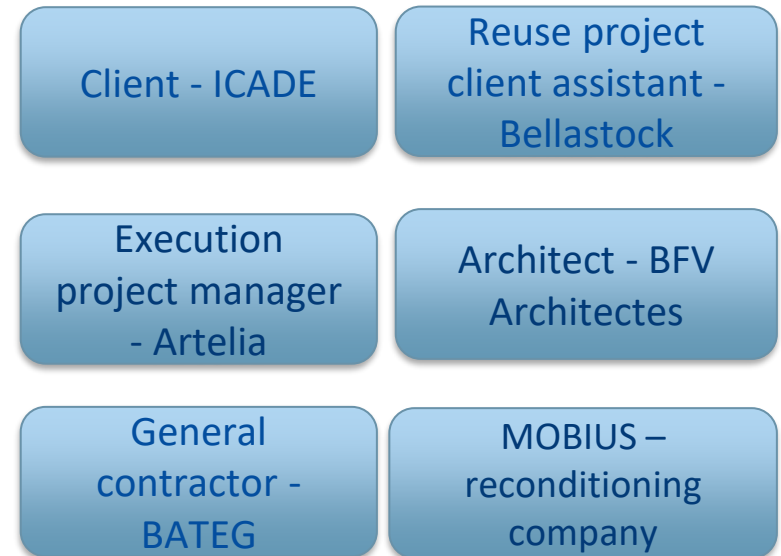
MOBIUS has launched its reconditioning activity of raised floor panels following its intervention during the PULSE operation.

PULSE: construction operation, by ICADE, of a wood/concrete structure office building. The constructed building has a superstructure as F+7 of 30,000 m². This was ICADE's first operation in which reuse was set up.

Mobius was contacted by ICADE to support the company in identifying sources of raised floor panels and their required reconditioning

Following a sourcing phase for reclaimed panels which began 9 months before the first delivery and was continued for 5 months until the end of the operation, Mobius recovered approximately 25,000 m² of panels and reimplanted them over 22,500 m² (15% loss).

The stakeholders in the PULSE project



The reuse approach in PULSE: the panels available for reclamation

- **Origin of the reclaimed panels:** various buildings
- **Typologies:** several different typologies
 - Steel sheet 5 faces, crude coating – 30 and 38 mm thick
 - PVC rims, crude coating – 38 mm thick
 - PVC rims, laminated coating – 38 mm thick
 - 6 faces with steel sheet – 26 mm thick
- **Dimensions:** 600*600 mm
- **Thickness:** 38, 30 or 26 mm (for wooden tiles encapsulated in steel sheet)
- **Quantity:** 25,000 m² were recovered for Pulse, of which 5,000 m² came from the ICADE stock.



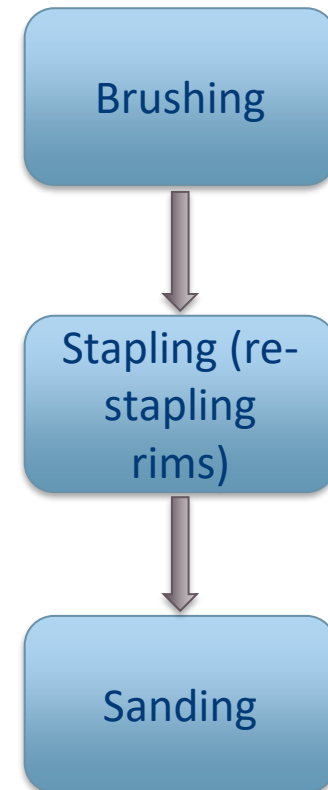
Photographs in the Pulse building (Image source: CSTB)

The process of controlling technical-insurance risks

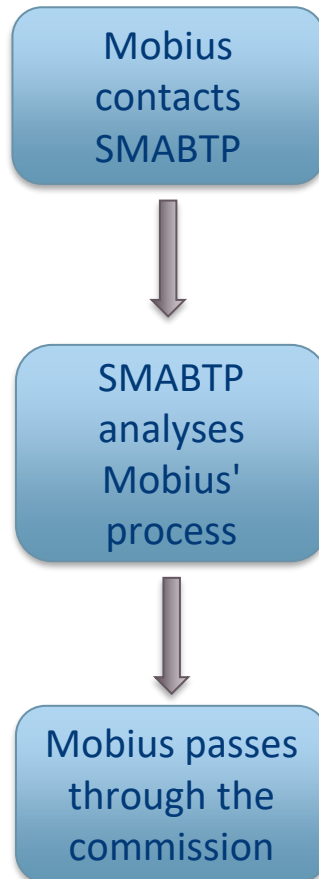
1/ Experimental reconditioning of panels

- The reconditioning of the panels took place in a dedicated space made available by ICADE on the construction site.
- The laminated panels are the easiest to recondition because a simple cleaning of the surface and the verification of the rooms are enough.
- Mobius applied a sanding process that made it possible, using a machine, to calibrate the thickness and the flatness of the panels (each 30 mm thick).
- This approach initiated for this pilot project was then used again in the Mobius workshops during the development of the industrial reconditioning activity.

Steps of reconditioning raised floor panels



2/ Exchange with the insurer



The insurance was not an issue during the PULSE operation.

During its analysis, SMABTP (the insurance) examined the various steps proposed by Mobius (removal, transportation, storage, reconditioning, reinstallation) and the risks that they could carry.

Laboratory tests showed that the properties of the Mobius tiles in terms of mechanical (breakage, load), fire and acoustics resistance, were identical to new products.

After validation by the commission, SMABTP recognised the activity of Mobius in the same way as a practice involving standard or common techniques.

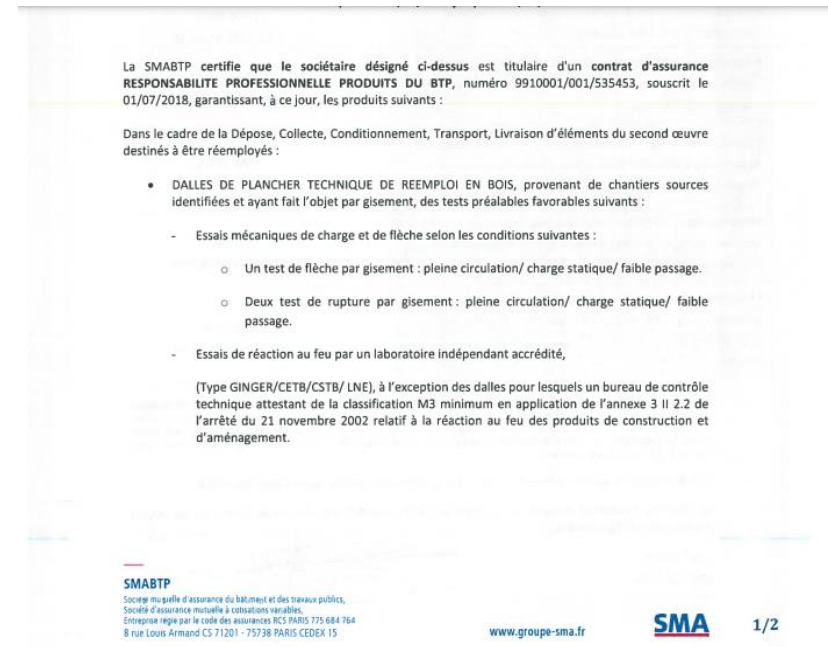
3/ Industrialisation of the experimental process

After the PULSE operation, Mobius' activity developed substantially and the methodology set in place for the reuse of raised floor panels during the pilot operation, was continued and refined to meet the needs of the market and the insurer's expectations. The adopted process comprises the following steps:

- Identification and qualification of the source by a reclamation audit
- Dismantling carried out by gutting/demolition companies
- Making the tiles available by the companies
- Storage: The raised floor panels are stored on pallets in a large warehouse.
- Transport: The tiles are transported by truck.
- Restoring: The process for reconditioning tiles has become industrialised with the development of a mechanised chain where the tiles are brushed and sanded so as to remove traces of glue and carpet and obtain a look that is equivalent to a new product. These various actions lead to recalibrating, re-standardising and reinsuring the panels, that were already used, are still suitable for another use.

4/ The insurance recognition

- In 2020, which is one year after delivery of the works on PULSE, Mobius obtained an insurance certificate from SMABTP for its entire reconditioning process that covers the activities of removing, collecting, conditioning, transporting and delivering wooden raised floor panels.
- This certificate specifies that the sources recovered by Mobius will undergo mechanical load and deflection tests, and reaction to fire tests.



Source: Mobius, insurance certificate proposed by SMABTP

Assessment

Mobius has developed a reconditioning process of which the various steps have been validated by its insurer.-The company is one of the first stakeholders to have developed an industrialised process that increases the reliability of reuse of raised floor panels.

Actions are underway to develop an equivalent standardised requalification process for other product families in construction: low-voltage modular protection, sanitary white ware, carpet tiles and bricks.

Although Mobius' activity has developed, some difficulties remain prevalent:

- Major construction and rehabilitation projects are about three times less substantial than those linked to new construction. The source therefore remains limited and procurement timeframes are often uncertain. Clients are not always aware of this context and that they may not be able to carry out all of their operations with reused raised floors.
- The timeframes between gutting and reconstruction for the same operation entail extra costs linked to very long periods of storage. The situation is not always well accepted and understood by clients.
- Clients and cutting companies tend to overestimate the gains that they can draw from the sale of removed raised floors. This results in an increase in prices.
- On-site storage initiatives are not always conducted correctly, which results in degradation to the source and renders a large part of the materials unsuitable for reuse.

In a sector which is becoming structured, these various elements show that currently, the supply in reclaimed building materials is not large enough to respond to the needs of projects that require substantial volumes. Faced with high needs, a supplement of new products is necessary in most projects. For the manufacturers of new products, reuse could thus be an advantage.

Conclusion on good practices related to insurance

- The complete activity of requalifying raised floor panels is based on a process that covers the reclamation audit, dismantling, collection, reconditioning, transportation and delivery activities.
- The partially mechanised chain formed for this activity of reconditioning leads to recalibrating and standardising the tiles and to proposing re-use products for sale that are equivalent to new products but with a limited carbon footprint.
- The quality of the process implemented has been recognised by an insurer. Thus, Mobius can be identified as a potential qualifier for the sector. This has resulted in the drafting of a professional liability insurance contract for construction products that offers coverage like those established for the suppliers of new construction products.

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