



Complete System of Reusable Partitions

Background

The company is specialized in carpentry, design and realization of spaces. It works in particular for museums by currently realizing partitions in smooth plasterboard painted generally in white.

These partitions must support works (sometimes quite large and heavy) of very high value, for relatively short periods of time: 4 to 6 months.

The company, therefore, has to dismantle the partitions and recreate new ones. The system currently used does not allow the reuse of the basic materials (metal profiles and plasterboard).





Objectives

A complete system that takes into account materials designed in the idea of circular economy, i.e. to design a solution that aims to eliminate the concept of waste.

To achieve this, the solution must be :

- Can be disassembled and reassembled at will
- Can be adapted to your needs, in height and length
- With maximum recovery
 - Constructive elements :
 - Plasterboard (or other)
 - Metal profiles
- Finally, if reuse of the elements is not possible, the solution must allow separability of the materials in order to allow good recycling.

In addition the solution must meet the following quality requirements:

- 100% smooth final surface
- Allow to fix heavy objects (a number must be given)

Examples of possible solutions

Possible solutions (non-exhaustive list) :

- Built-in solutions that do not require nail or screw fixing
- Solutions including elements masking the imperfections of reused plates
- Solutions using drapes to "dress" a facade damaged by reuse
- Solutions using innovative fastening systems for the "cladding". For example, instead of being glued together, the individual facade layers of the "facade4zeroWaste" System use Velcro surfaces and a specially developed fixing dowel.



Technical constraints

The proposed solution must respect several constraints:

- **Modular**
 - Adaptable to customer measurements (height and length)
- **Reusable**
 - Dismountable, remountable solution
 - Quick to install and uninstall
 - Maximum 5% waste (if a raw material can be reused by another industry, it is not considered as waste)
- **Materials**
 - The partitions will a priori use plasterboard or panels of any type.
 - This system will be specific to be used in the museum.
 - But for possible reuse in a company, it would be better to obtain acoustic values compatible with reuse in temporary office partitions (for 6 months, 1 year, 3 years, etc.).
 - In the same way for fire-stop standards
- **Aspect**
 - Smooth finish with no visible structure
 - Seamless finish between plates
 - Can be painted, possibly seamless, glueless, removable and repositionable wall covering
- **Pose**
 - Self-supporting if needed
 - Only load resistance, like the usual partitioning systems.
 - Partitions must support a maximum load of 100 kg on 2 or 3 fasteners.

Economic constraints

The proposed solution must respect one main economic constraint:

- The additional cost of the new system is less than 30% of the cost of traditional solutions on the market.

Reward

For solutions that respect all of the above elements

	Theoretical solution ⁽¹⁾	Successfully tested solution ⁽¹⁾
The additional cost of the new system is less than 15% of the cost of traditional solutions on the market	10 000€	20 000€
The additional cost of the new system is less than 30% of the cost of traditional solutions on the market	5 000€	10 000€

If the proposed solutions correspond to a waste rate between 5% and 10% (see definition above), the premium will be divided by 2.

(1) The solution has been the subject of a study demonstrating the possibility of industrial exploitation in compliance with the stated constraints or by means of a prototype. A study will have to demonstrate the efficiency of the solution. An efficiency report and / or a publication on the problem will be required from the Solver.