



*Results in Brief, portraits of project innovations*



## Façade System

with multi-layer bio-composites

The façade system is a non-structural building envelope made of biobased composites. Through safe off-site production and easy on-site assembly, they provide flexible solutions customized as opaque or transparent wall elements.



### APPLICATION



Modern wooden houses convince with high living comfort, extremely short construction times through off-site prefabrication, and **low environmental impact** of the nature-based building materials. However, façade systems often lack design for disassembly needed for circular economy value chains and use mainly energy intensive materials such as aluminium.

An alternative to such conventional systems is the BASAJAUN bio-composite multi-layer curtain-wall façade system by Focchi, an Italian façade producer. Besides being a **high-quality façade system**, the main assets are due to off-site prefabrication techniques that allow for both easy and safe on-site assembly and, at the end of the building use cycle, disassembly of the biobased components for further **use in closed circular economy material loops**.

Moreover, the external cladding system allows for **aesthetic customization** of the outer building finish. From single houses to high-rise, it can be applied to various building types.

Finally, the façade combines good thermal properties with **long-term carbon sequestration** within the building material.





## ACHIEVEMENT

Opaque and vision units were developed in the BASAJAUN project. The system has been designed as a breathable facade with a **high thermal insulation** performance of 0,19 W/m<sup>2</sup>K for the opaque facade units and 0,74 W/m<sup>2</sup>K for the vision units. **Efficient off-site production** assures high accuracy and safe and fast assembly on-site.

Wooden  
cladding

Biocomposite  
profile

Fire shield  
(Plywood)



## ✓ Structure

- 1- Three-layer system
- 2- Fire shield on the building side
- 3- Fire resistant bio composite profile as efficient one-size-fits-all substructure
- 4- Customisable exterior building finish with various materials

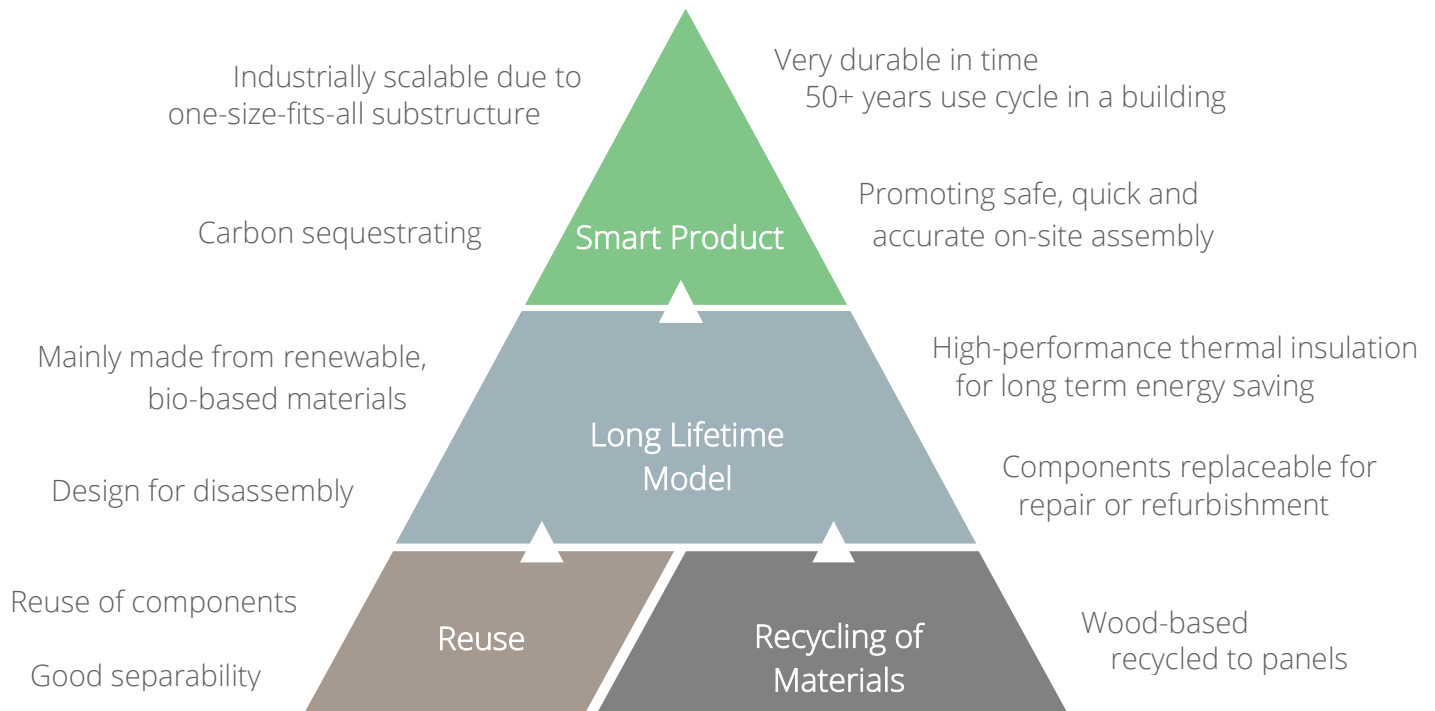
A **biocomposite material** is used for the façade profiles replacing energy intensive and heat conducting aluminum. The fixing substructure offers **aesthetic customization** options for the exterior building finish allowing for wooden lamellas, porcelain tiles, fiber cement or other types of panels for external cladding. This allows both high customer satisfaction and a **cost-efficient production process** of a one-type-fits-all substructure. After successful fire resistance tests, the façade is applied to the BASAJAUN **demo building** in southern France.

## PRODUCT BENEFITS

- Applicable to opaque and vision units of the buildings
- Breathable with high thermal insulation properties
- Safe, easy, and fast on-site assembly of the prefabricated components
- Customisable exterior finish
- Mainly made from renewable biobased materials
- Designed for disassembly either for replacements and refurbishing or for further use in closed circular economy material loops.



## CIRCULARITY



## FURTHER R&D

Focchi is currently working on optimising the product to reduce weight while increasing the number of biobased components with a focus on the used resins. Moreover, cost-efficiency will be increased by scaling up the production process.

Long-term monitoring of the façades installed in the BASAJAUN demo building will deliver further insights for improvements.



### Next Steps

- Lowering the costs
- Increase biobased parts
- Reduce weight
- Production process optimization





## CONTACT

### Focchi

Focchi Spa Unipersonale | Rimini, Italia

Alessandro Pracucci | Innovation Manager  
a.pracucci@focchi.it



focchi.it



Focchi on LinkedIn



#focchi

### TECNALIA Research & Innovation

Building Technologies Division | Bilbao, Spain

Javier García Jaca, PhD. | EU project coordinator  
T +34 943 105 300 (International calls)  
javier.garciajaca@tecnalia.com | tecnalia.com



basajaun-horizon.eu



Basajaun on LinkedIn



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The BASAJAUN project has received a 10M€ grant funding from the *EU Horizon 2020 R&I programme*. It includes 29 partners from 12 countries including 8 leading research and technology organizations, 3 universities, 14 companies and 4 other public and sectoral organizations. The team unites strong expertise in wood construction systems and buildings, innovative materials, architecture, forestry, digitalisation, environmental assessment and rural development. It covers regions in Northern, Central and Southern Europe.

