

Beyond the Concept: Structuring a Circular Roofing Model

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Our winning CBC project was Roof As A Service (Raas), this was an ongoing project at Biesmans Group. We have been exploring the idea of transforming the roofing from a one off CAPEX product into a long term service model for some years. The motivation for this restructured ownership model is it enables more effective reuse thus circularity as Biesmans Group retains ownership of the materials, and it brings benefits to the customer through 20 years of guaranteed waterproofing for their flat roofs.

During the course of the Blueprint project we were focusing our efforts on resolving the detailed feasibility of the Raas model – can this actually work in practice, technically, legally, environmentally and commercially?

Legal and Technical: Challenges along the way

Over the course of the Blueprint Project we encountered different challenges and successes. One of the more impactful challenges we experienced was legality.

Under Belgian property law, a roof is legally considered part of the building. This creates tension with one of the core principles of RaaS: retaining ownership of the roofing materials. We knew from the outset this would be complex to resolve, however we underestimated quite how structurally complex it would be.

To overcome this we have focused our efforts on integrating this solution into the existing legal frameworks. This included making a fully structured 20 year right of use agreement, integrating retention of title registration, embedding restitution clauses and aligning dismantling local with legal enforceability.

Legal barriers have slowed the implementation of the RaaS model, however it has been valuable to invest time and efforts into a legally enforceable model that is financeable and transferable.

Technically, we confirmed that circularity only works if the entire roof build up is demountable, including detailing and upstands. When the roof system is not fully demountable, reuse will inevitably result in material losses and the generation of waste. In practice, this limits viable systems significantly. Therefore it was necessary for us to engineer two fully demountable typologies, ballasted and mechanically fastened, for both renovation and new build contexts.

Furthermore, other the technical requirements were guided by the legal necessities. For instance after dismantling our demountable roof systems we must leave a building still watertight, therefore this must be designed in advance. This was another technical challenge we needed to resolve in this project.

Environmental Validation: Stronger Than Expected

We experienced some successes in the project, in the environmental credentials of the RaaS. This was in the cradle to grave Life Cycle Assessment, which is ISO 14044 compliant. The result: 26 to 27 percent lower CO² emissions compared to traditional bitumen roofing over 60 years. The impact of the end of contract reuse of the roof reduces emissions significantly.

This finding assisted making the RaaS a more robust solution due to having evidencable metrics and quantified performance, this improves its business case for real estate actors who must respond to ESG requirements.

Alongside the resolution of the RaaS model, we have been undertaking pilot projects, this has been critical to create data to build trust and confirm concept validity. These pilots were a smart leak detection in a Brussels pilot and a long-term testing with KU Leuven at the ConstrucThor Living Lab.

Market Temperature: Interested, But Careful

So far with the RaaS model development it is clear to us that there is market interest in predictable OPEX based infrastructure models, from retail chains, logistics players and listed real estate companies. However, some barriers to making this commonplace still exist, we have assessed these to be:

- Legal clarity is decisive.
- Fiscal classification, movable versus immovable, remains a key open issue.

- Large organizations require alignment between ESG, finance, legal, and technical departments, which slows decision cycles.

Commercial uptake was slower than initially anticipated. But the quality of conversations improved dramatically. Discussions are no longer “What is this?” But rather “How can this fit within our portfolio strategy?”

Next Steps

Our next steps following CBC will be to:

1. Secure fiscal clarity through a formal ruling.
2. Execute the first full commercial RaaS contract.
3. Further develop financing structures, including potential SPV models.
4. Expand toward multifunctional roofs such as green roofs, water retention systems, and photovoltaic integration.
5. Position RaaS at portfolio level for institutional asset owners.

We are confident that although RaaS is not a single perfect solution, it is possible. Barriers however, are not the technical solutions but rather the legal, financial and cultural structures around it, these are most critical to unlock in order to scale.