

## **Barriers and solutions for homeowners' associations undertaking deep energy renovations of condominiums**

In order to address the obstacles faced by condominium associations during the implementation of their deep renovation project, we have identified several barriers through literature review, EU projects, and partner questionnaires. Our goal is to propose solutions that enable each partner to reflect on their business model and determine what changes are necessary to develop a new, more viable model.

Each partner need to reflect on their current initial business model (the BMC that you have already) and identify **necessary changes** (part of the assessment that each partner shall do for WP2.2) to develop a new, more **viable business model** that can overcome the barriers encountered during the deep renovation project. The suggested solutions can guide your reflection process and develop a **plan of action** to implement the changes.

**Impact definition:** The impact of solving a barrier refers to how much it will affect the entire process of renovation

**Priority definition:** priority refers to the relative importance of solving a particular barrier compared to the other barriers. Priority also determines which barrier should be addressed first.

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Technical barriers				
Barrier	Suggested Solutions	Reflection	Impact 1-5	Priority 1-5
<b>Lack of quality assurance</b> Lack of insight about possibilities of high level retrofit Lack of understanding value of certification Lack of cooperation and integration of the chain Lack of feasible high quality components Lack of qualified advisors	<ul style="list-style-type: none"> <li>• Paradigm shift</li> <li>• Good assessment of the needs of the CA and co-owners</li> <li>• Framing of the professionals role</li> <li>• Quality guarantee for energy performance, financial performance, construction quality</li> <li>• Definition of the buildings functional requirements</li> <li>• Building condition assessment</li> <li>• Quality label A</li> <li>• Assurance of health, comfort and affordability</li> <li>• Change the law in the EU</li> <li>• Definition of the functional demand of the building</li> <li>• Integral approach</li> </ul>	The most crucial one Difficulty to have an integral quality assurance	5	5
<b>Lack of consistent and standardized solutions</b>	<ul style="list-style-type: none"> <li>• Quality label A</li> <li>• Assurance of health, comfort and affordability</li> <li>• Obligatory building maintenance</li> <li>• Development of standardized and regular solutions for each building type</li> <li>• Integral approach</li> </ul>	Regular solutions before legalization	4	4
<b>Lack of skilled workers</b>	<ul style="list-style-type: none"> <li>• Trainings for Condominium managers</li> <li>• Generate trust</li> <li>• Development of standardized and regular solutions for each building type</li> <li>• Quality/certification process</li> <li>• Condominium association management training</li> <li>• Proper training for construction workers and maintenance of knowledge</li> </ul>	Quality/certification process> needs to be developed further	5	5

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	<ul style="list-style-type: none"> <li>Promote collaboration in different scales</li> </ul>			
<b>Shortcomings in technical solutions</b>	<ul style="list-style-type: none"> <li>Develop solutions in a collaborative way</li> <li>Defining the problem and their integrated solutions (HVAC)</li> <li>Supply chain integration</li> <li>Hands-on knowledge</li> <li>Collaborative development of solutions in the EU</li> </ul>		3	4
<b>Safety and seismic risk</b>	<ul style="list-style-type: none"> <li>Inventory asbestos</li> </ul>	Shall be split into two barriers	5	1
<b>End users lack of technical expertise</b>	<ul style="list-style-type: none"> <li>Hands on knowledge</li> <li>Training of the home owners</li> <li>Manuals and instructions (guidelines)</li> <li>Condominium association management training</li> </ul>		2	3
<b>Building physical defects</b>	<ul style="list-style-type: none"> <li>Inform the association about current problems in the building</li> <li>Building condition assessment</li> <li>Long term and proper planning of the renovation</li> <li>Voorlopige en definitive oplevering NAZROG</li> </ul>	Those solutions Should be after ensuring that the building can be renovated	5	1
<b>Impossibility to renovate the building</b>	<ul style="list-style-type: none"> <li>Demolish and rebuild</li> </ul>		5	1

CA shall also be part of the communication process

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Social barriers				
Barrier	Suggested Solutions	Reflection	Impact 1-5	Priority 1-5
<b>Collective decision-making process last long and are complex</b>	<ul style="list-style-type: none"> <li>Developing communication strategies</li> <li>Process management</li> <li>Communicate the milestones of the renovation process to the whole parties</li> <li>Clarify the roadmap step by step</li> <li>Create an inventory of solutions</li> <li>Certified and standardized renovation process</li> </ul>		4	5
<b>Lack of awareness and information</b>	<ul style="list-style-type: none"> <li>Information and communication in all levels</li> </ul>		5	5
<b>Disturbance during site works</b>	<ul style="list-style-type: none"> <li>Highlight the benefits and framing management of the expectations</li> </ul>		3	2
<b>Lack of dialogue between different stakeholders</b>	<ul style="list-style-type: none"> <li>involve the municipality</li> <li>Raise awareness of all stakeholders</li> <li>Role distribution in each phase</li> </ul>		3	4
<b>Homeowners behaviour towards renovation (different interests)</b>	<ul style="list-style-type: none"> <li>Point out the benefits</li> <li>Align the different quality aspects</li> </ul>		4	3
<b>CA's are volunteers or not engaged /active</b>	<ul style="list-style-type: none"> <li>Point out the benefits</li> <li>Education</li> <li>Develop communication strategies</li> </ul>		2	3

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Financial barriers				
Barrier	Suggested Solutions	Reflection	Impact 1-5	Priority 1-5
<b>High-upfront costs</b>	<ul style="list-style-type: none"> <li>- Combination of public &amp; private financial instruments (subsidies, loans..) which cover all components of renovation (e.g. including windows)</li> <li>- Creation of collective upfront funds</li> <li>- Increase share of reserve funds</li> <li>- Clear communication (with homeowners) of long-term benefits of investment, including the timeframes.</li> <li>- Conduct renovations with scale-neighbourhood approach, when there is e.g. an infrastructure upgrade, renovate houses with same typologies in the area at the same time.</li> <li>- Planning support of (semi)-public institutions (in VL=VEKA, Expert Flemish Energy and Climate Agency)</li> </ul>	<p>Make retrofit plans accessible for future projects and include it in the contract with the CA</p> <p>Living costs should be neutral if multi-year maintenance plan is sufficient → increase % of reserve fund (if needed)</p>	5	5
<b>Long payback period</b>	<ul style="list-style-type: none"> <li>• (increase percentage of revenue fund)</li> <li>• Scale NBH approach,</li> </ul>	Group did not consider it as a barrier for CA.	4	
<b>Insufficient upfront funding</b>	<ul style="list-style-type: none"> <li>• Create and stimulate the financial market (private banks) to offer an attractive offer (long-term payback periods, low interest rates etc.) + tackle risk management</li> <li>• - Offer incentives of government for ambitious label improvements (higher incentives for better energy label)</li> <li>• - creating trust between market (private banks) and CA</li> </ul>		4	4
<b>instable long term funding</b>	<ul style="list-style-type: none"> <li>• Public long term planning support</li> <li>• Keep loan of renovation on buildings</li> <li>• Long-term planning support of public sector/government</li> </ul>		2	2
<b>Lack of attractive financing for homeowners</b>		similar to other barriers		

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<b>Difficult collection of funds</b>	<ul style="list-style-type: none"> <li>Subsidise process guidance or pre-finance (asking the public sector to involve more in the process)</li> <li>Create CA's of individual homeowners (e.g. CA of a street) to be able to provide IHRS approach (not the case for CondoReno)</li> </ul>			
<b>Split incentives (subsidies that are only collected separately, eg. subsidy for the change of water boiler, solar panels...)</b>	<ul style="list-style-type: none"> <li>Motivation is the increase of property value and offering loans/grants for homeowners who rent out</li> </ul>		4	3
<b>Building physical defects</b>	<ul style="list-style-type: none"> <li>Demolish &amp; rebuild (temporary housing solutions need to be provided, not discussed in detail)</li> <li>Setting up cooperation with (social) housing companies (ask what do they actually mean with cooperation)</li> <li>integrated approaches needed (considering infrastructure upgrade, social questions, ethical questions in case of demolishing, etc.)</li> </ul>	Applies to buildings for which the lifetime cannot be extended more than 40-50 years. □ (almost) no examples yet (in NL/Flanders), but will become urgent in coming decades (post-war housing stock).	4	1
<b>Business case of CA managers adversely affecting complete renovation approach</b>	<ul style="list-style-type: none"> <li>make retrofit plans accessible for future projects, include in the contract with CA</li> </ul>			
<b>Higher service costs are not affordable for homeowners</b>	<ul style="list-style-type: none"> <li>CA to foster collaborations with public authorities and social work institutions (to help the 'blockers')</li> <li>Social policy formulation of CA (extra subsidies for vulnerable groups)</li> </ul>	Is considered a social barrier costs may be compensated for other measures after renovation e.g. heat grid connection	5	5

findings:

integration of several solutions for process fragmentation and building fragmentation

involvement of the public sector is important to gain the trust from the market and CAs and act as a mediator

government can give incentives for market and CA

Elgendy, R., Mlecnik, E., Visscher, H., & Qian, Q. (2024). Barriers and solutions for homeowners' associations undertaking deep energy renovations of condominiums. In T. Laitinen Lindström, Y. Blume, N. Hampus, & L. Hampus (Eds.), *Proceedings of the ECEEE 2024 Summer Study on Energy Efficiency: Sustainable, Safe & Secure Through Demand Reduction* (pp. 541-554). (ECEEE 2024 Summer Study Proceedings). European Council for an Energy Efficient Economy (ECEEE).

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scalability of projects in the neighbourhoods or block renovations would decrease the costs

Policy and legal barriers				
Barrier	Suggested Solutions	Reflection	Impact 1-5	Priority 1-5
Insufficient regulations for deep renovation	<ul style="list-style-type: none"> <li>- include comfort &amp; health in building codes</li> <li>- integrate regulation 'future proof'/'2050 proof'</li> <li>- Communicate now/early policy regulation updates to CAs</li> </ul>			
Limited access to financing		Group considered this barrier too general and referred to financial barriers (above)		
Limited enforcement of regulations	<ul style="list-style-type: none"> <li>- Set clear period/mandate for CAs</li> <li>- Proper handover if new CA manager takes over</li> <li>- CA shall include 2 persons and/or roles: 1) Information/communication manager, 2) Project implementation</li> <li>- Introduce building masterplans which include the specific needs to maintenance/deep renovation of buildings</li> </ul>	- In NL: mandate of CA management only 3 years [in BE]/not regulated at all		
Building codes and regulations for renovations (eg. building heritage)		Need to be complemented online (not enough time during WS)		
Complex ownership structure		Need to be complemented online (not enough time during WS)		
Policy for financing schemes		Need to be complemented online (not enough time during WS)		
Extensions of buildings (topping-up)		Need to be complemented online (not enough time during WS)		

general finding:

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developing proper communication strategies that connects different stakeholders across different levels is a key strategy to cope with different social and legal barriers