Co-creation and quality assurance in integrated housing renovation services

D3.3 Toolkit for activating supply-side enterprises, to support collaboration and contracting, applicable for integrated housing renovation services.

Johan Vanden Driessche - Embuild Vlaanderen

31/03/2025

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1. SUMMARY

For the successful implementation of energy-efficient renovations, various business models are viable and conceivable. In each of these models, the various stakeholders have specific roles to play, and agreements must be established in collaboration agreements.

This document provides a summary of the existing and potentially applicable collaboration models and discusses the tools, documents that are useful or necessary in these collaboration forms, and provides examples of existing documents.

The tools and documents primarily come directly from the practice of the project partners in the approach of their own IHRS1 and are supplemented with other possible models and the necessary agreements.

During the duration of the CondoReno project, the use of the sample documents is tested and adjusted as necessary. We seek missing elements and supplement where necessary.

1 Intergrated Home Renovation Services – IHRS Geïntegreerde Woning Renovatie Diensten Nl

2. INTRODUCTION

2.1 Development of a supply-side toolkit

Condominiums come in many forms and sizes. A single-family home divided into three units is an apartment building. Similarly, blocks of buildings with 200 units fall under this term. And all buildings between these two extremes fall under the same concept. It is clear that these examples require a completely different approach in a renovation process.

In the Condoreno project, we focus on blocks of buildings with 15+ apartments because we assume that from this scale onwards, a CA structure exists, and a comparable approach to the co-owners is possible.

The partners Antwerp and Mechelen are considering creating a matrix of typologies that maps out their existing building stock in an orderly manner. These typologies could possibly be incorporated into the further project development.

Similarly, TNO[1] is also promoting a so-called "contingent" approach in the Netherlands for bundling demand into specific clusters of buildings so that the same renovation solutions can always be tackled in the same way.

The Condoreno project aims to develop a toolkit for the supply side to support collaboration between stakeholders, decision-making, and contracting between parties. We specifically look at the situation of renovating apartment buildings, applicable to IHRS for the participating companies.

WNR and KERN have extensive experience in this area. Building on this experience, and further building on the practical experiences that the other project partners have already gained in initiating the renovation processes. We complement this with all available tools from other cases and research projects that will need to be adapted to the context of the IHRS.

This toolkit aims to provide information and sample documents to the participating parties and provide information on:

1 ttps://publications.tno.nl/publication/34637810/LIRIXX/mulder-2021-in.pdf

Approaching CAs/CAs, how to make and present a proposal,

- The different parties that can be involved in IHRS,
- How to establish a long-term collaboration for a IHRS,
-
- The dos and don'ts of creating partnerships, best practices,
- Possible business models (input from WP2), responsibilities of stakeholders in collaboration, liability, and guarantees.
- Models of collaboration agreements, collaboration protocols, etc.

2.2 Valorisation and application of the toolkit.

Testcases

Elements from the toolkit will be tested in case studies where possible and valorised during co-creation processes (WP5).

The toolkit will be evaluated during the second year of the project by the project partners and stakeholders involved in the delivery of IHRS for advisory services, procurement, quality assurance, etc. The partners will provide input and feedback on the concepts of this material. The toolkit will also be submitted for discussion and evaluation to the various advisory boards of the CondoReno project. The final version will then be delivered within the project by the end of March 2025.

By the project partners in the Netherlands and Flanders:

The methodology and toolkit will be disseminated to SMEs and other construction-related companies by Embuild Flanders for the Flemish Region and to SMEs by the Association DNA in Construction (DNA) and Bouwend Nederland for the Dutch region. The toolkit will be integrated into the digital resource center (WP5) later in the project and further promoted (WP7).

To support and professionalize SMEs, training and educational materials will be used and developed in line with these toolkits – see also the CondoReno Guidebook for course providers . The organization KERN already has a training program focused on the general needs of SMEs participating in integrated renovation for CAs by WNR. Based on the input from the Flemish project partners and insights gained from national advisory boards, we will tailor these tools to the various IHRSs with region-specific approaches.

Partners will develop a quality assurance plan for new IHRSs, adapting and further developing the WNR setup for quality assurance of highly energy-efficient renovations with performance guarantee contracts to the context in Flanders for general applicability to IHRSs in various local contexts and with a view to scaling up.

Application and Development of the Toolkit for Europe

The toolkit will be translated into two additional languages. Together with APC, Embuild will create a French-language version so that it can also be used in Brussels, Wallonia, and France. Together with EBC, an English-language version will be created so that it can be distributed throughout Europe.

3. POSSIBLE BUSINESS MODELS

3.1 Description Business models

Depending on the type of business model, different parties will be involved in the process, and various tools and documents for contracts and cooperation agreements will be required.

We mainly distinguish the four models discussed in D2.2..

In the document : " *Activating business models for condominium renovations - Identification of viable business models for Integrated Home Renovation Services for condominiums in the Netherlands and Flanders* ", various business models are being investigated and described, which we will further delve into afterward and illustrate with an example.

BM 1	faciliteren
BM2	coördineren
BM 3	bouwteam
BM 4	ESCO

Figure 1 Four business models

Model 1, Facilitating

In this business model, the focus is on initiating the process by informing, facilitating, and guiding the renovation process. At the point where execution needs to begin, the CA is directed towards the conventional market dynamics to continue the renovation process and carry out the works.

In the conventional construction market, a designer is appointed (usually an architect or a consulting firm) who, after preparing specifications, organizes a conventional tender where the works to be carried out are awarded to the most competitive bidding party. Another approach could be that the output of the facilitator's task results in a "performance specification" describing the desired outcome of the overall renovation. This performance specification is then used as a guide by a "project manager" who takes it forward within the framework of business models 3-4.

Wat kan het Energiehuis voor u doen?

Een Energiehuis is een gemeentelijke instelling of een samenwerking tussen verschillende gemeenten. U kunt bij het Energiehuis terecht voor:

- **informatie en advies** over hoe energie besparen of de energiefactuur verlagen: V-test®, energiepremies, kortingsbon, renoveren, energieleningen, woningpas, energieprestatiecertificaat (EPC), woningpas, digitale meter, ...
- **begeleiding en ondersteuning:** tips en advies bij renovatie, offertes aanvragen bij aannemers en ze vergelijken, premieaanvraag, uitleg over gegevens van energieprestatiecertificaat (EPC), zonnekaart, energiescan, energieleveranciers vergelijken om de beste prijs of formule te vinden en hulp bij een overstap.
- **doorverwijzing naar gespecialiseerd advies:** om uw energievragen zo nauwkeurig mogelijk te beantwoorden, verwijzen de Energiehuizen u in sommige gevallen door naar gespecialiseerde diensten. Zij werken daarvoor samen met betrouwbare en onafhankelijke partnerorganisaties.
- afsluiten van Mijn VerbouwLening.
- Mijn VerbouwBegeleiding (vanaf 2024). Hierover later meer informatie.

De Energiehuizen zijn een initiatief van de Vlaamse overheid.

Figure 2 Energy Houses

In Flanders, there are 20 Energy Houses.

There is nearly one Energy House for every municipality or city in Flanders. The Energy House is an initiative of the Flemish government aimed at guiding citizens through various (support) measures for energy investments and renovation works. These measures range from grants, loans, and tax benefits available for making homes more energy-efficient to information on investing in renewable energy sources.

At the end of 2024, the Flemish government included in the policy plans of the brand new Minister that the operation of these energy houses will be strengthened and that specific support for the renovation of apartment buildings will be an action point.

The Flemish Condoreno partners have drawn up a policy advice (10-point policy advice 2025 01 31) that was submitted to the Minister and on which a direct consultation is planned.

Dutch energy counters.

In the Netherlands, the initiative lies with the municipality. Many Dutch municipalities facilitate some form of an energy desk, with an increasing number of larger municipalities also providing specialized CA (Owners' Association) desks. The focus of these services is to inform and guide property owners about existing subsidies and common renovation measures, with referrals to market parties. These desks do not (yet) support or facilitate an integrated renovation approach.

Model 2, Coordinating:

In this business model, one party takes on the coordination role, overseeing the entire process and engaging various parties for additional research and execution.

The essence of this coordinating role is the integrated approach. The renovation may not necessarily be carried out all at once, but all proposed measures are evaluated in relation to each other.

In the context of the WNR approach:

The goal is optimal building performance combined with the lowest housing costs.

Quality in the execution of high-quality energy renovations is crucial. Not only for the client, the CA members, but also for the party providing financing.

Quality is ensured through a combination of training, warranty, and license, enabling an energy performance guarantee to be issued for the duration of the long-term loan (e.g., thirty years).

Figure 3 WNR-proces

The coordination-model could also be less ambitious and only involve coordinating the works decided by the CA without any additional performance guarantees being agreed.

Model 3, Construction Team:

In this business model, a team of specialists is assembled to function as a single point of contact for the client.
A working body is responsible for the advice and total supervision of the client's process, from planning to implementation. It takes care of both guiding the residents, the study (research and design), and the execution, and assumes final responsibility through a construction contract, either with a warranty of means or a performance guarantee.

> A construction team is a project-specific collaboration, from the start of the assignment (design phase) to the execution phase, involving at least the client, designers, consulting and engineering firms, and contractors, among other construction professionals, with the aim of creating added value for the client by optimizing aspects such as results, cost, time, and/or quality.
>
> (Definition from Pocket Werken in Bouwteam VCB 2016)
>
> Result-Oriented Collaboration (RGS) is a form of chain cooperation in which the client directs the contractor towards desired results. The contractor advises on the necessary activities to achieve these results. After execution, the contractor is

responsible for the agreed-upon performance for several years and demonstrates with measurements that they have been achieved.

(Description from the RGS 2023 publication)

The essence of a construction team lies in involving contractors as early as possible in the preparatory process for the realization of a building project. The client also plays an integral part in the construction team. Together with consultants and designers, the client formulates the objectives, functional analysis, budget, and success factors of the project. Based on this, one or more contractors are involved in the construction team. The (general) contractor and possibly specialized contractors actively participate in the design process from that point onward. Drawing from their expertise in construction techniques, cost estimation, and execution methods, they provide advice.

Model 4, ESCO:

This model is a variant of Model 3. In this approach, one party **also takes on the financing** of the energy renovation and is compensated based on the actual performance of the works.

Examples of this approach are numerous in the field of renovation of tertiary buildings, where it often involves upgrading the building's technical equipment.

We are exploring whether such models can also be applied in apartment buildings. In an initial approach, it appears that this may be possible with the exclusion of works on the building envelope. These works could then require separate financing arrangements, possibly through parallel financing, in consideration of the property value of the building.

We intend to further investigate this option.

An Energy Service Company (ESCO) is a company that offers a wide range of energy solutions, including designing and implementing energy-saving projects, retrofits, energy efficiency, outsourcing of energy infrastructure, energy generation, energy supply, and risk management.

A newer type of ESCO includes innovative financing methods, such as off-balance mechanisms, a range of applicable equipment configured to reduce a building's energy costs.

The ESCO begins by conducting an analysis of the property, designs an energy-efficient solution, installs the required elements, and maintains the system to ensure energy savings during the payback period. The energy cost savings are often used to repay the capital

investment of the project over a period of five to twenty years or reinvested in the building to enable capital upgrades that might otherwise not be feasible.

If the project does not yield a return on investment, the ESCO is often responsible for paying the difference.

Whitepaper 4 - Praktijkvoorbeelden en inspiratie over ESCOs in Nederland.pdf

Figuur 4 ESCO providers on the Flemish market

The following table summarises the current state of knowledge for the further development of the toolkit (ref. Flanders and the Netherlands), based on the discussion above.

Model / Toolkitonderdeel ketensamenwerking	Faciliterend	Coördinerend	Bouwteam	ESCO
Leidende partijen	Locale overheid	Private partij	Consortium Team van betrokken partijen	ESCO bedrijf
Hoe een VME/VvE benaderen?	Opstarten proces	Sturing van het volledig proces	1 aanspreekpunt voor de ontzorging van de opdrachtgever	Aanbod energieoplossingen met financiering
Hoe een voorstel voor integrale aanpak opmaken en presenteren?	Informeren, faciliteren en begeleiden van het renovatieproces	Creëren draagvlak en beoordeling van alle maatregelen in relatie tot elkaar	Begeleiden bewoners, studie en uitvoering	Analyse, ontwerp en installatie, terugbetaling kapitaalinvestering
Hoe een langdurige samenwerking opzetten?	Projectregisseur gebruikt prestatiebestek	Coördinator schakelt partijen in	Projectgebonden werkorgaan	Projectgebonden werkorgaan
Tips en goede praktijk partnerschappen voorbeelden	Model Energiehuizen Vlaanderen	WNR-model Nederland	Model Design & Build, RGS	Wattson, Tenerga Energy Services, Group VAN ROEY
Verantwoordelijkheden voor stakeholders	Geen	Energieprestatie-garantie	Eindverantwoorde-lijkheid	Rendement op investering
Modellen van samenwerkingsovereenkomsten en -protocollen	Prestatiebestek	Kwaliteitsgarantie, trainingsprotocol	Aannemings-overeenkomst (middelen of prestatie)	Investerings-overeenkomst

However, for a better understanding of the necessary tools, it is also important to assess the needs of the collaborating parties at each stage of the renovation process.

3.2 Impact and activities of the parties

In each model, certain parties will sometimes not be involved at all, be involved passively, or be very actively involved in the course of the renovation process and may have varying levels of impact.

Based on the roadmap of the renovation process, the role and impact of these four models are visualized.

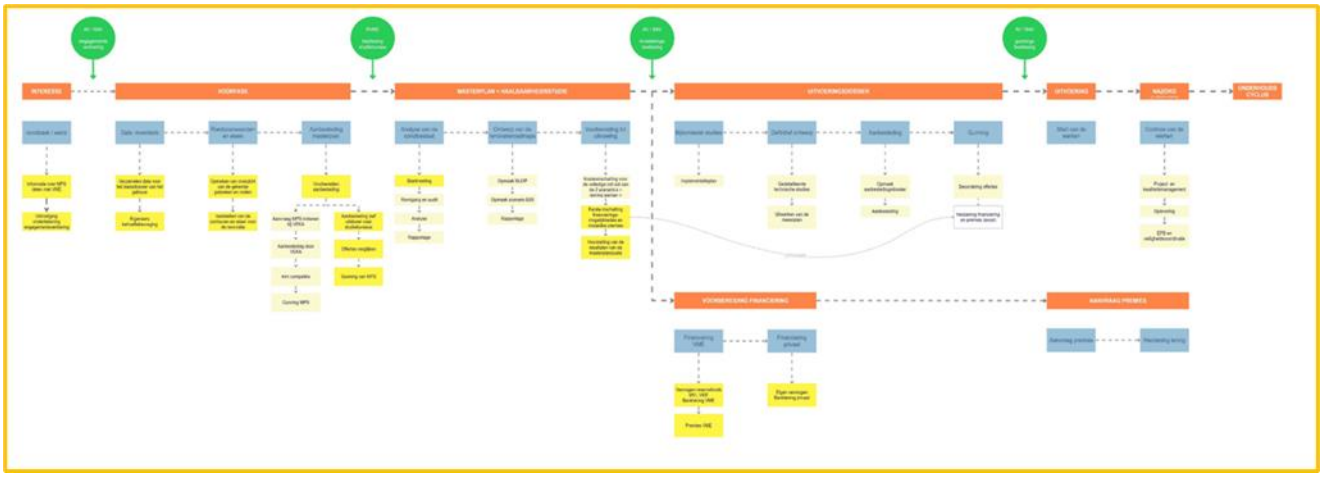


Figure 5: ROADMAP IHRS

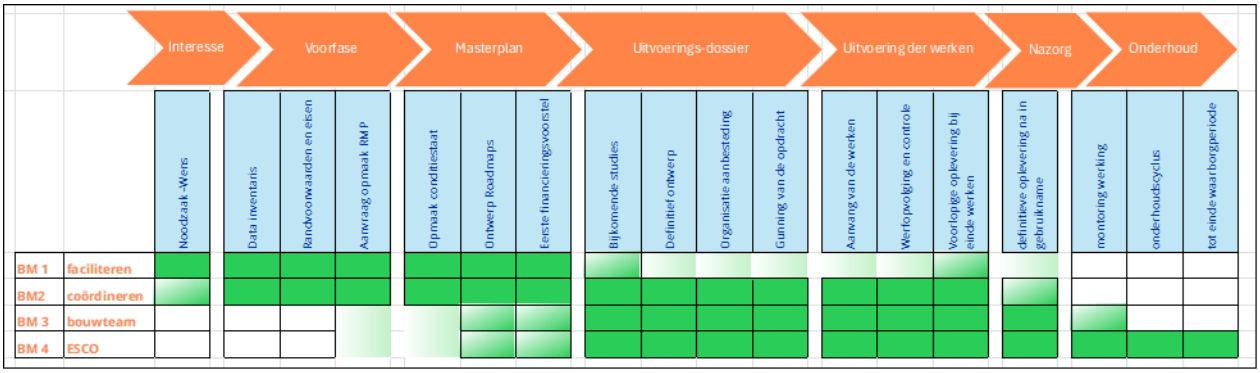


Figure 6: Role and Impact of Parties in the Renovation Process

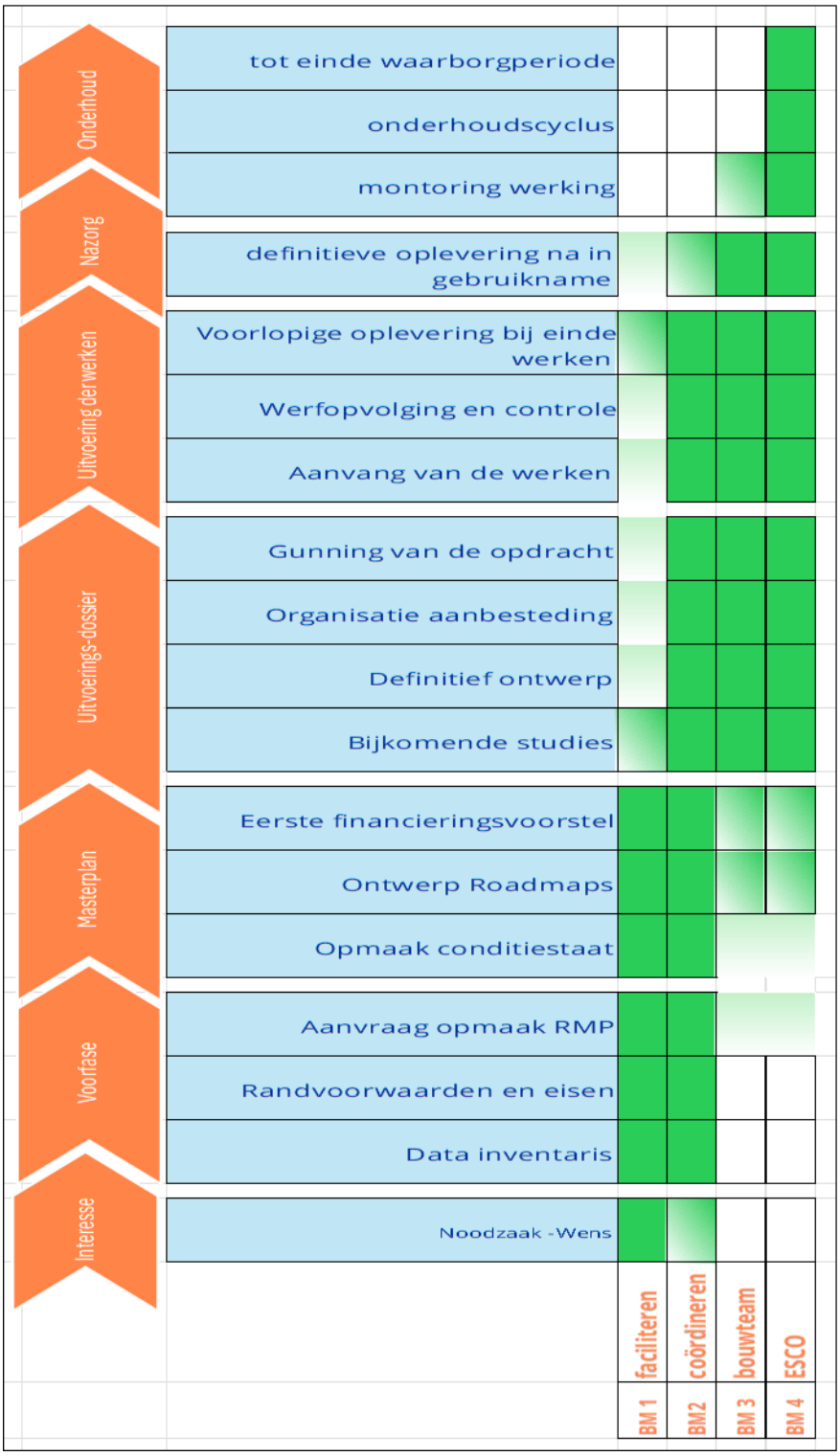


Figure 6bis : Role and Impact of Parties in the Renovation Process

4. TOOLS and DOCUMENTS in each phase of the Process

In each phase of the process, we can distinguish the various tools and sample documents as follows:

4.1 Interest phase – Initiation phase

Goal: Raise awareness and assess needs, sharpen interest.

BM 1: government FED/REG/LOC - ENERGY HOUSES and Municipalities take the lead and play a crucial role.

Documents: No contractual agreements

Tools : Various tools and communication materials,

- ⇨ **Overview in the communication matrix Condoreno**
- ⇨ Awareness and Sensitization - Overview | Rise 360 (articulate.com)
- ⇨ VEKA Renovation Plan Triptych
- ⇨ VEKA: EPB requirements 2024
- ⇨ Tools Government, Construction, and Energy: Energy Label
- ⇨ Various trainings Knowledge Institute KERN (for residents such as 'Het belang van een goed CA-bestuur'; for social process facilitator such as 'Acquisitiegesprek woonlastengestuurde renovatie'', for CA managers Verduurzamen doe je zo')
- ⇨ Guide for CA members: Step by step to a successful integral renovation of your CA apartment building (available soon via KERN)
- ⇨ EnerPHit-Policy guide – Aanbevelingen voor ondersteunende beleidsstrategieën
- ⇨ Guide for assessing a sound recording and MJOP (Development WNR/KERN)
- ⇨ Guide for drawing up integral scenarios for renovation advisors. Training. (Development WNR/KERN)
- ⇨ Guide for creating a program of requirements for the scenario sketches including a list of possible consultants (Development WNR/KERN).
- ⇨ V&V plan
- ⇨ https://vtcb.nl/bijeenkomst/CA-campagnebox/

Preliminary Phase - Orientation Phase

Goal: Determine the conditions and inventory all available building data, detect residents' needs, assess the condition of the building, provide information about support measures, etc.

Depending on the BM, studies will be conducted in this phase or in the next one.

BM 1: The Flemish energy houses are committed to this in the daily approach and are taking the initiative in collecting the necessary data. All available data of the building are collected, as far as possible and available, including the consumption data of the residents of the building block.

In Flanders, a CSM and MJOP are not mandatory and therefore very rarely present. To the extent that these documents do exist, they must also be included in this phase.

However, the processing of this data takes place in the next phase.

Description orientation phase for energy houses

In this phase, the energy houses will collect all available data. This concerns the dates of the building, plans, information about the technical installations, etc. But also the possibly available data on the energy consumption of the residents. As far as collective installation is concerned, this is an easy one, if the installations are individual it is less obvious to gain insight into the actual measured consumption.

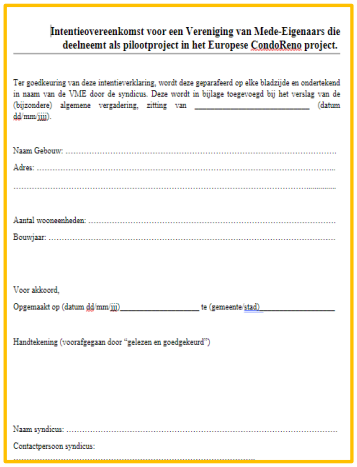
A systematic survey is conducted among the residents to identify their concerns and to better understand what they need and what insights they have about the works on their building. The real study work then takes place in the next phase when it is the turn of the engineering firms.

BM 2: WNR also takes an active role in this phase: Professionalizing clientship and creating support at WNR.

Description of the orientation phase WNR:

In this phase, the Maintenance Plan (MJOP) and Multi-Year Maintenance Budget (MJOB) are reviewed. The maintenance plan with its associated budget will be used in a later phase as a basis for comparing the financial consequences of renovation. However, the maintenance plan under unchanged policy (i.e., without renovation) must be realistic. Many CAs have MJOBs that do not take into account the recent cost increases in construction. If the MJOP/MJOB is not of sufficient quality, the CA will address this in this phase. This is part of the initial dossier. The sustainability committee provides an initial overview of residents' wishes and needs, and an independent advisor assesses the possibilities for sustainability. These are elaborated into scenarios with an estimate of the associated costs and benefits/living expenses. At the end of this phase, the ALV (General Members Meeting) decides to commission further development of one or more scenarios.

Document: This phase is formalized by a declaration of commitment or an agreement of intent.



Intentieovereenkomst voor een Vereniging van Mede-Eigenaars die deelneemt als pilootproject in het Europese CondoReno project.

Ter goedkeuring van deze intentieverklaring, wordt deze geparafeerd op elke bladzijde en ondertekend in naam van de VME door de syndicus. Deze wordt in bijlage toegevoegd bij het verslag van de (bijzondere) algemene vergadering, zitting van _____ (datum dd/mm/jjjj).

Naam Gebouw: .....
Adres: .....
.....
Aantal wooneenheden: .....
Bouwjaar: .....

Voor akkoord,
Opgemaakt op (datum dd/mm/jjjj)_____ te (gemeente/stad)_____

Handtekening (voorafgegaan door "gelezen en goedgekeurd")

Naam syndicus: .....
Contactpersoon syndicus: .....

Intentie overeenkomst VvE <naam VvE>
Datum: concept

INTENTIEOVEREENKOMST SAMENWERKING

Partijen:
Stichting WoonlastenNeutraal Renoveren, statutair gevestigd te Ede (6717 LT) aan het Horaplantsoen 20, ingeschreven bij de Kamer van Koophandel onder nummer 78333962, rechtsgeldig vertegenwoordigd door de heren de Jong, Egbertus Lambertus Maria Johannes Theodorus Cornelis, en Bouwstra, Harmen, hierna te noemen WNR';

en

Vereniging van Eigenaars (VvE) <naam VvE>, statutair gevestigd te <plaats> <PC> aan de <adres>, ingeschreven bij de Kamer van Koophandel onder nummer <KvK>, rechtsgeldig vertegenwoordigd door <naam CP> (<functie>)

Aangaande:
De integrale renovatie en verduurzaming van appartementencomplex <naam VvE> in <plaats>, hierna te noemen het 'renovatieproject'.

In aanmerking nemende dat:
Partijen het belangrijk vinden om de intentie van deze samenwerking goed vast te leggen. Deze intentieovereenkomst beoogd de beschrijving van de samenwerking, vandaar dat vanuit deze intentieovereenkomst geen kosten kunnen worden verrekend.

VvE <naam VvE> heeft de wens haar appartementencomplex te verduurzamen, het energieverbruik voor verwarming te minimaliseren en (op termijn) de woningen volledig fossielvrij te verwarmen, waarbij het uitgangspunt is om deze renovatie uit te voeren zonder dat de woonlasten van de individuele eigenaren stijgen en daarbij gebruik te maken van het WNR-model zoals omschreven in de offerte <nummer offerte> dd <datum offerte>.

Engagementsverklaring
voor de opmaak van een renovatiemasterplan

De Vereniging van Mede-Eigenaars engageert zich om haar appartementsgebouw toekomstbestendig en energie-efficiënt renoveren. Dit wordt gedaan aan de hand een renovatiemasterplan voor het gebouw. Het traject wordt doorlopen in samenwerking met een renovatiecoach van Stad Antwerpen. Deze engagementsverklaring legt bekrachtigen van deze samenwerking vast.

Het renovatiemasterplan wordt opgemaakt door een extern studiebureau, aangesteld door de VME. De renovatiecoach van Stad Antwerpen ondersteunt de VME, de syndicus en het studiebureau tijdens dit traject.

De VME stelt een projectteam samen dat het begeleidingstraject aanstuurt en opvolgt. Het projectteam vormt het aanspreekpunt voor de mede-eigenaars: het informeert hen en geeft toelichting bij het verloop en de resultaten van het traject.

Het projectteam is ook het aanspreekpunt voor het studiebureau. Het informeert het studiebureau over het gebouw, organiseert een rondgang in het gebouw en verzekert de toegang tot het gebouw waar nodig voor de conditiestaatmeting van het gebouw. Het projectteam volgt alle werkzaamheden op.

Daarna werkt het extern studiebureau een meerjarenonderhoudsplan (MJOP) en een energetisch renovatiescenario uit. Hierbij nemen ze de minimale vereisten rond vochtigheidsgraad en energie-efficiëntie, zoals voorgesteld door Vlaanderen, als leidraad. De VME, het studiebureau en de renovatiecoach van Stad Antwerpen beoordelen samen de (financiële en technische) haalbaarheid van deze renovatiescenario's.

De VME engageert zich om de resultaten van de conditiestaatmeting, het voorstel van het meerjarenonderhoudsplan en het renovatiescenario aan de Av voor te leggen in een (bijzondere) Algemene Vergadering en, waar mogelijk, voor een of meerdere renovatie-ingrepen een investeringsbeslissing te nemen.

Figure 7: model documents

Tools :

- ⇨ Needs assessment forms
- ⇨ Resident preferences form from the city of Ghent
- ⇨ VEKA brochure on renovation master plan
  The Flemish Energy and Climate Agency (VEKA) promotes and provides financial support for the creation of a Renovation Master Plan. It has entered into a framework agreement with six engineering firms. Based on the CA's request, a mini-competition is organized among three engineering firms, which submit their proposals to the CA. The aim of the renovation master plan is to provide comprehensive renovation advice to the CA, enabling them to make the building future-proof through a well-founded approach.
- ⇨ Research cost guarantee fund / Kick-back fund (Development WNR / National Steering Committee)
- ⇨ Basic course on cost-effective renovations with guaranteed building performance (Development WNR / KERN)
- ⇨ Standard and target values
- ⇨ Presentation of RMP for information session or General Meeting of CA
- ⇨ EPC common parts of the Building.

*In Flanders, the creation of an **EPC for common areas has been mandatory since January 1, 2022.***

This indicates the improvement points of the building. 2 EPCs for the common areas of an apartment building. This indicates how energy-efficient the common areas (floors, walls, roofs, etc.) and collective installations are.

It also includes recommendations for improving energy performance. By January 1, 2024, all apartment buildings must have a 'Common Areas EPC'. In an apartment building, there are

floors, walls, roofs, collective installations, and openings in the common areas managed by one owner or often by multiple owners together. In the case of multiple owners, they must decide together on the renovation of these common areas.
Purpose of the Common Areas EPC: The Common Areas EPC provides the owner(s) with insight into the energy performance of these collectively managed areas (= the building) and also indicates how the owner(s) can improve those performances.

Energy Performance Certificate Common sharing, an example of this in the appendix.

From Condoreno, we have expressed our wish to VEKA and the Flemish administration to make even better use of this document to sensitize the co-owners to the global renovation of their building (see point 1 of the policy recommendations in attachment)

4.2 Renovation Masterplan Development Phase / Deepening Phase

Purpose: Establish a long-term vision and plan for maintenance, renovation, and energy efficiency improvements of the apartment building

This involves creating a renovation master plan consisting of three parts:

1. a comprehensive condition assessment;
2. a multi-year maintenance plan (MJOP) based on the condition assessment;
3. an economically optimal and sustainable renovation scenario towards the 2050 goal.

Prior to developing energy renovation scenarios for the building:

- ⇨ Assess the structural quality of the main structure of the building, terraces, etc.
- ⇨ Determine necessary measures for fire safety and adequate escape routes according to current standards.
- ⇨ Identify any presence of asbestos-containing materials that need removal during extensive renovation.
- ⇨ Consider additional regulations associated with urban planning permits for renovation, such as rainwater management and separate sewer systems.
- ⇨ Evaluate the potential for integrating district heating networks, existing or planned, and the feasibility of collective installations versus individual installations.

The presentation of potential renovation scenarios includes cost estimates for the intended works and a calculation of the total renovation's impact, developed as Total Cost of Ownership (TCO) for the different renovation scenarios.

Additionally, an estimation of financing options for the various co-owners (e.g., through a CA loan from the Flemish government or a banking institution / the Nederlandse Warmtefonds) and the support measures available to them is provided.

BM 1: The Flemish Energy Houses facilitate, upon request, in the selection of the appropriate consultancy firm. They simulate the financing costs for an average type apartment for the co-owners using a financial calculation tool.

BM 2: WNR takes an active role in this phase, carries out the study itself or outsources it to specialised cooperation partners. The study consists of drawing up a master plan that describes how to achieve an optimal renovation of housing costs, a calculation of the financial data and an inventory of the needs of the owners/residents (survey).

In this phase, experts develop the preferred scenario. They first establish the functional requirements from which they derive the technical specifications. These specifications are then calculated and adjusted until they meet the functional requirements. Additionally, they initiate the necessary permit and financing applications. When calculating the resulting monthly expenses, the experts consider the available resources, the financing method, and the subsidies, aiming to achieve the optimal level of housing cost investment.

BM3 en BM4 : are likely not actively involved in this phase yet.

Document: In Flanders, this phase is initiated by signing **an order for the preparation of an RMP or a feasibility study**. After approval from the CA, a contract is signed between the consulting firm and the CA, and the preparation of the renovation master plan begins

Under the VEKA subsidy framework, this plan is delivered up to a maximum of 6 months later. The cost of preparing an RMP is partially subsidized in Flanders, with the remainder borne by the CA. In the Netherlands, this cost is entirely borne by the CA.

Tools :

- ⇨ Various tools specific to the engineering firms
- ⇨ DesignPH

- ⇨ nZEB-tool/PHPP
- ⇨ AZEB-TCO-tool, Quality worksheet - guide for drafting an integrated requirement specification.
- ⇨ KES Format (Client Requirement Specification)
- ⇨ Quality Assurance Manual WNR- Klanteisenspecificatie en Verificatie- & Validatieplan
- ⇨ TCO calculation tool WNR
- ⇨ TCO calculation tool "DuboLimburg"
- ⇨ Vlisog model for condition assessments
- ⇨ https://www.nen.nl/bouw/beheer-en-onderhoud/conditiemeting
- ⇨ Buildwise tools
- ⇨ LCC calculation tool
- ⇨ Financing matrix from Flemish partners
- ⇨ Step-by-step renovation plan EuroPHit
- ⇨ Handboek 3Encult - Energy Efficiency Solutions for Historic Buildings
- ⇨ Trainings such as Passive House Design & Construction, Quality Assurance for Renovations with Building Performance Guarantees, …
- ⇨ EnerPHit-certification
- ⇨ BCCA certification of experts who perform a condition state measurement according to the NEN standard.
  From the learning network, we have come to the conclusion that this approach is not the most appropriate for apartment buildings and we are starting the exercise towards a light approach, better tailored to the situation of residential buildings. We do this under the guidance of the BCCA.

4.3 Preparation of an Execution File/Transaction Phase

Purpose:

The selection of a particular renovation scenario leads to the preparation of specifications describing the direction the CA wants to take with the renovation works and, possibly driven by financial constraints, the potential phasing of the works. The CA formally decides in a General Meeting to proceed with the process.

From here, multiple paths are conceivable, and we discuss the different BMs based on the further steps that need to be taken:

- ⇨ Possible additional in-depth studies to refine technical issues
- ⇨ Elaboration of details specific to the building or installations
- ⇨ Determination of material choices and construction techniques
- ⇨ Final preparation of specifications, either performance specifications or tender documentation
- ⇨ Evaluation of quotations

- ⇨ Fine-tuning of financing by the CA / co-owners, taking into account the reserve fund's capacity, possible bank loans to the CA, grants, and government support measures for the CA and individuals, private financing from owners.

BM 1: The Energy Houses can assist the CA in appointing a design firm that will take further steps in the renovation process, namely the preparation of specifications and specifications.

VEKA will soon also provide support for the appointment of a "renovation coordinator" who can take on this role. This may be a continuation of the assignment given to the agency to prepare an RMP.

VEKA is also soon to support the appointment of a "renovation supervisor" to take on this role. The party taking on this role may be various, possibly a continuation of the assignment the agency has been given to draw up an RMP, or another party such as VLABO, which currently carries out such assignments in the context of small-scale project developments with a social dimension.

Documents:

- ⇨ **Decision of the General Meeting**

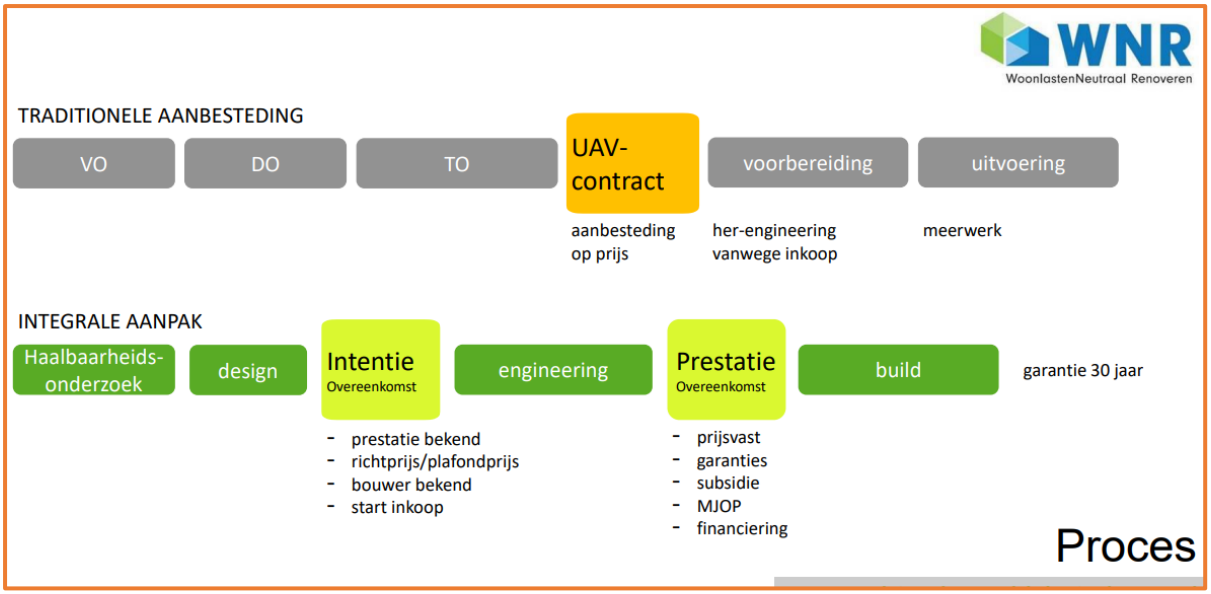
Tools:

- ⇨ Appointment of a design firm tasked with preparing an execution file
- ⇨ Financial calculation tools 2.0

BM 2: The coordinator will assemble a project team and ensure coordination between the design firms, main and subcontractors.

Description of the Transaction Phase by WNR:

In this phase, the CA selects the renovation provider. They assemble the design/build team that develops the technical specifications into an execution design. They also submit final applications for permits, subsidies, and financing. Finally, the General Meeting makes a decision on the final execution design and the associated financing plan.



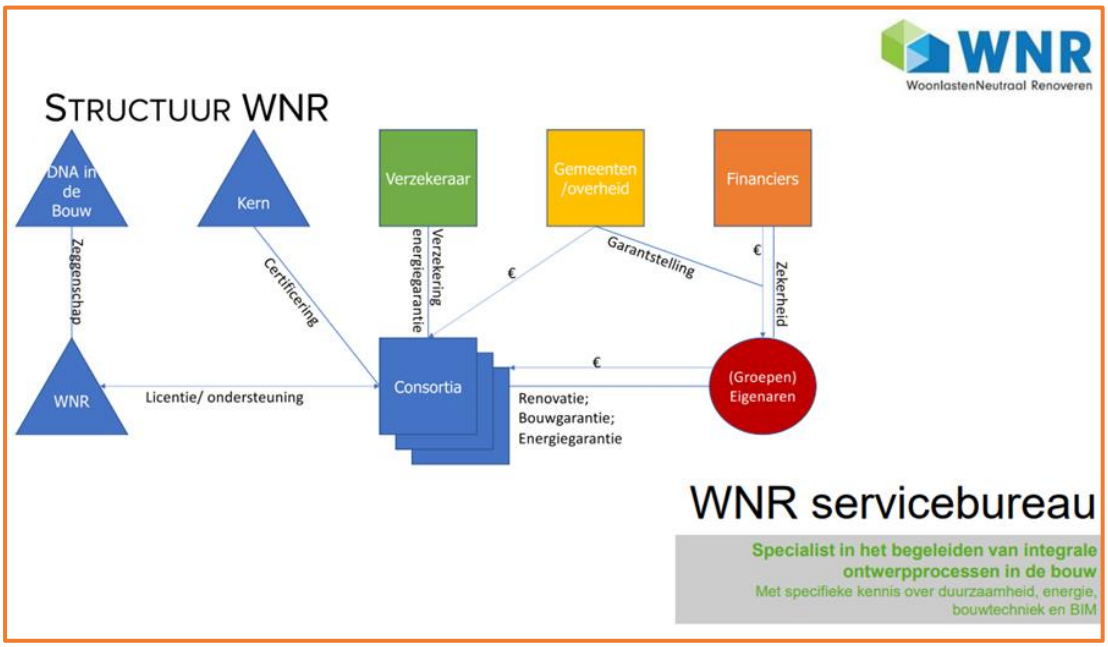


Figure 8: WNR-process

Documents:

- ⇨ **Consortium agreement** for the renovation itself: This is a 'standard' collaboration contract of the main contractor that is customized to the specific situation, tailored to the project's needs. It's important that all agreements and commitments to the CA during the relocation process are included, such as a section on energy performance guarantee.

Tools

- ⇨ Validation & Verification Plan

- ⇨ Renovation approach agreement (Preliminary and final, including building performance agreement, concluded between the CA and the renovation provider)
- ⇨ Change and configuration management plan
- ⇨ AZEB cost database for transparent cost specification, specifically necessary for the Netherlands due to differences between cost estimates (first element budgeting, then work-related budgeting)
- ⇨ Training for professionals; including Praktijkcursus Energieneutraal bouwen en renoveren

BM3:

If it follows from the piste of BM1 that the CA decides to carry out an integral renovation then moving to BM3 may be a not necessary but logical step.

The essence of a construction team lies in involving contractors as early as possible in the preparatory process for the realization of a construction project. The client also integral part of the construction team. Together with advisors and designers, the client formulates the objectives, functional analysis, budget, and success factors of the project. Based on this, one or more contractors are involved in the construction team. The (general) contractor and possibly specialized contractors then actively participate in the design process. Drawing from their expertise in construction techniques, cost calculation, and execution techniques, they provide advice.

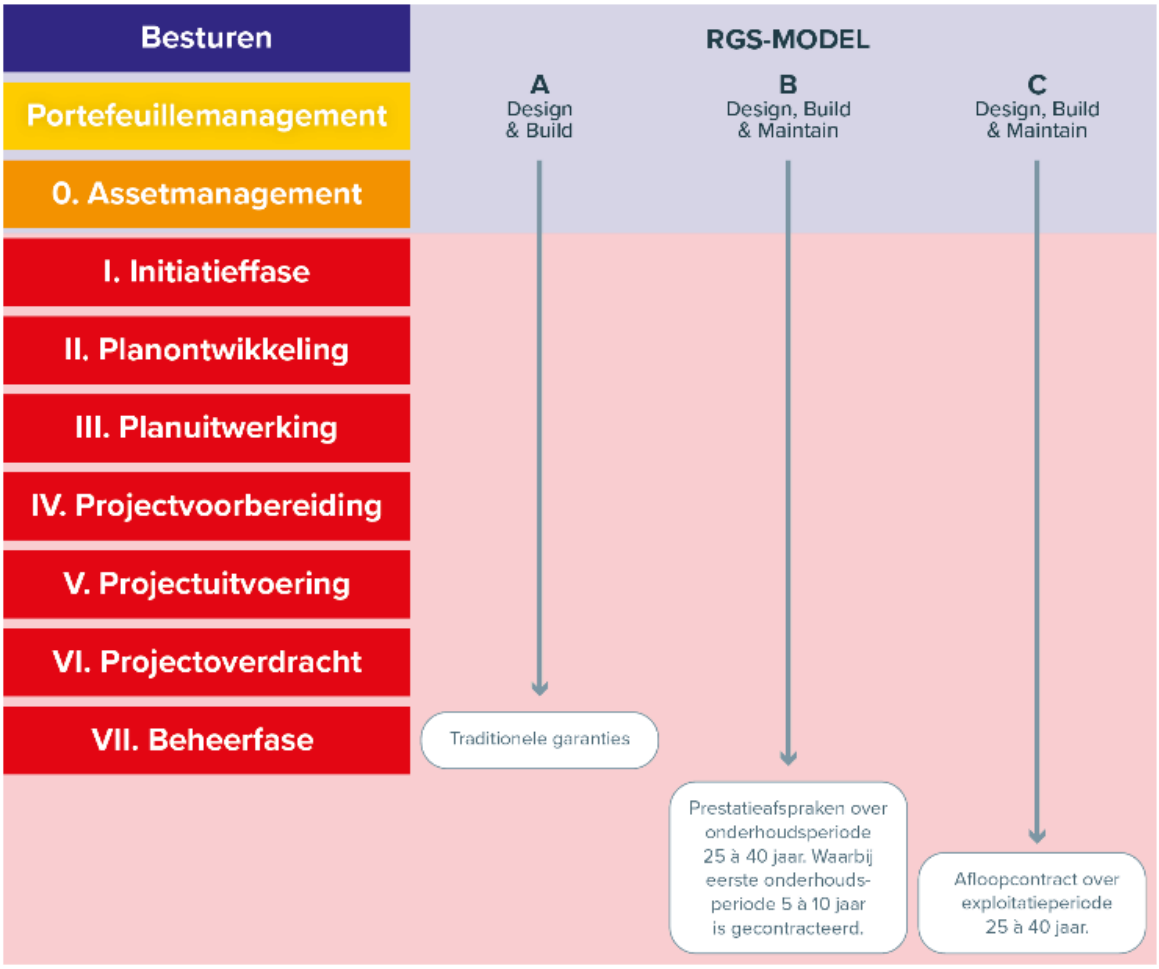


Figure 9 : Guide to model contracts RGS ,Aedes – OnderhoudNL (June 2022),

Tools and documents:

- ⇨ **A memorandum of understanding** between the various construction partners, whereby each construction partner has entered into their own agreement with the client, and between the construction partners (with or without the client), a memorandum of understanding is concluded to facilitate practical cooperation.
- ⇨ **A collaboration agreement** between the various construction partners organizing themselves to jointly submit a bid/commitment to an individual to carry out a specific work on behalf of the client beneficiary (Design-Build or Design-Build-Operate form).
- ⇨ Framework agreement for Construction Team.
- ⇨ Framework agreement for Result-Oriented Collaboration

BM 4: ESCO-model (or Energy As A Servive)

In practice, there are plenty of known applications of this model in public buildings, museums, offices, schools, etc., but not yet in private apartment buildings. The intention of our project is to explore the possibilities of this model together with the members of our advisory board, such as WATTSON.

At the Embuild Energy Cogres 2024 and 2025, two companies will share their vision on this and we will look for concrete cases where the liveability of this model can be investigated.

4.4 Execution of the works / Construction phase

Objective: In this phase, what has been discussed and studied in all previous phases comes to fruition. Therefore, contractual agreements must also be concluded to initiate this phase. In most cases, a building permit will also need to be obtained to commence the works.

The various tasks required by law must be assigned to qualified individuals, such as the EPB (Energy Performance of Buildings) reporter, ventilation reporter, health and safety coordinator, etc.

Quality controls are legally regulated for certain aspects in Flanders by organizations such as VEKA and BCCA.

BM 1: The homeowners' association (CA) is assisted by the appointed design firm, which coordinates the works and supervises them within the legal framework where tasks, responsibilities, and obligations are defined.

Tools and documents:

- ⇨ Standard agreements for private works by Embuild on 08.05.2023
- ⇨ Model of a contract agreement B2B on 26.05.2023
- ⇨ Model documents for site supervision and work completion by Embuild

BM 2: The coordinator facilitates the process from the sidelines; the main contractor takes the lead along with the project consortium.

Tools en documenten:

- Last planner method
- LEAN
- AZEB Commissioning Guidelines
- KES (Change and Configuration Management Plan)

BM 3 and BM 4:

Tools and documents:

Given the speed and duration of our project, we will not be able to provide tools and documents from the cases.

4.5 End of works, aftercare, and maintenance

Goal : Unless specified in the agreements, there are no maintenance obligations. Of course, the contractors remain responsible for the works carried out within the framework of the statutory 10-year liabilities.

BM 1: The direct relationships and responsibilities come to an end upon the final completion of the works. The energy houses may still be involved in overseeing the formalities of the grants for the CA and individual owners.

Tools and documents:

- ⇨ PV of completion of works
- ⇨ End of Breyne Act warranty

BM 2: After completion, an evaluation takes place regarding the process and outcome of the renovation. From here, the process of aftercare and monitoring of energy performance begins.

Description of the aftercare phase by WNR

During the aftercare phase, the renovation provider ensures optimal operation of the building after renovation for at least two cold seasons and one warm season. They handle complaints from residents to their satisfaction. Customer satisfaction and building performance are monitored.WNR organizes a post-calculation and evaluation during this phase and uses the results for process optimization for other subsequent renovation projects.

Tools and documents:

Minutes of provisional (at end of works and final acceptance, one year later.

BM 3 and BM 4:

Tools and documents:

Given the speed and duration of our project, we will not be able to provide tools and documents from the cases.

5. OUTLOOK

5.1 Contractual documents.

It is important to understand which party has ultimate responsibility vis-à-vis the VME/VvE. As responsibility increases and guarantees run over a longer period, contracts and agreements will increase in importance and content.

Since every project is structurally unique and so is the nature and composition of the contracting parties, the preparation of the documents will always require a bit of customization.

5.2 Tools and resources.

All the tools and example documents cited will be able to be tested in practice and used in the concrete cases we deal with in our project. This experience will allow us to refine and focus on best practices.

When looking at the existing material in Flanders, we find that all tools were designed with the individual home as a target group. The renovation of group housing and the ACO structure as a client are systematically left out in the cold. To illustrate this, attached is the action to the BUILD YOUR HOME site of Embuild and the adjustments we have made to it.

5.3 Building typology.

The partners Antwerp and Mechelen are thinking of drawing up a matrix of typologies that clearly maps out their existing building stock. Possibly these typologies can be included in the further project.

We have been able to observe the lack of data on the existing building stock of apartments on several occasions, unfortunately we cannot remedy this during our project, but this has been addressed in a number of policy recommendations to the cabinet of Flemish Minister of Housing, Energy and Climate Melissa Depraetere. See the 10-point action plan in attachment.

5.4 Construction team model

To arrive at the appointment of a construction team, a project director will be given the role of organising a tendering competition in the name and on behalf of the VME. We intend to

test this BM during our project with partners who are successfully implementing this in Flanders in other market segments.

In this regard, a DEEP DIVE will be organized (June 2025) to discuss these aspects with the stakeholders and bring them further to the market.

5.5 ESCO model or EaaS

This usually involves renovating also the technical equipment of the building.

We are investigating whether such models can also be applied in flats.

In a first approach, this appears to be possible with separation of the works on the building envelope. These works can then be financed in parallel, with the property value of the building being viewed separately and in parallel with the energy performance and running costs.

In practice, enough applications of this model are known in public buildings, museums, offices, schools, ...but not yet in private apartment buildings.

We intend to investigate the possibilities of this during our project together with the members of our advisory board.

Attachments

Documents in attachement

1. VEKA Renovatieplan_Drieluik.pdf

2. modeldocumenten engagementsverklaring en intentieovereenkomst

3. Model van een EPC gemene delen.

4. Verslag van het Lerend netwerk

5. 10 verbeterpunten plan naar het Vlaamse beleidsniveau

Links and references:

- EPB eisen 2024 01 webversie.pdf
- BEReel stappenplan in Renovatie.pdf
- Leerpaden opleiding 1: Bewustzijn en Sensibilisatie - Overview | Rise 360 (articulate.com)
- https://www.vlaanderen.be/bouwen-wonen-en-energie/bouwen-en-verbouwen/een-appartement-verbouwen/renovatiemasterplan-voor-appartementsgebouwen
- Model van aannemingscontract B2B - d.d. 26.05.2023.docx
- Typeovereenkomst van onderaanneming private opdrachten - d.d. 08.05.2023_0.docx
- pocket_bouwteam.pdf
- prentatie GSJ advocaten.pdf
- Vlisog certificaten.pdf
- RGS Een stabiele werkstroom dankzij Resultaatgericht Samenwerken.pdf
- RGS Leidraad Resultaatgericht Samenwerken - Duurzaam samenwerken bij onderhouden en investeren in vastgoed.pdf
- Leeswijzer Modelovereenkomsten RGS 2022 Aedes OnderhoudNL versie juni 2022.pdf
- Model Aannemingsovereenkomst RGS Aedes - OnderhoudNL versie juni 2022.docx
- Build Your Home tool - Embuild