

# Program of Requirements

## Multi-Family Homes

### *SUSTAINABILITY*



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# 1 Introduction

This Program of Requirements (PoR) has been prepared by Reggeborgh Vastgoed. It provides clear preconditions for designing and developing parties, contractors and anyone else involved in the realization of rental and owner-occupied apartments. In this PoR we indicate the performance/quality standard of the materials and design principles to be used. All materials and products to be applied must be sampled for approval.

Central to this PoR are the three spearheads of Reggeborgh Vastgoed: adaptive building, health and chain cooperation. These themes are central to the conditions described in the document. Reggeborgh Vastgoed expects all cooperating parties to contribute and think along in optimizing the spearheads both before, during and after the development of the property. Reggeborgh Vastgoed understands the three spearheads as follows:

## **Adaptive building**

Adaptive building means applying Industrial, Flexible and Demountable (I.F.D.) principles in the design so that building materials and raw materials can be used again and no waste is created. This preserves the value of building materials and raw materials.

## **Health**

Healthy real estate is climate-neutral real estate that contributes to the well-being of people, animals and the environment. The focus here is on the use of healthy materials, reducing the environmental impact, creating a pleasant living and working environment and fitting real estate ecologically into its surroundings.

## **Chain cooperation**

Real estate is developed together. Reggeborgh Vastgoed believes in achieving optimal results through the close involvement of all its partners. Crucial to this is good communication, a common goal with measurable performance agreements, a transparent process, and the division of tasks and responsibilities.

The remainder of this PoR explains the standards and requirements that form the preconditions for achieving Reggeborgh Vastgoed's spearheads.

## 1.1 Area determination

In determining the surface area, the NEN 2580 is normative. The GFA of the general areas must also be determined and included in this. The required outdoor areas in accordance with the application for the environmental permit, such as loggias, do not count towards the GFA of the house.

## 1.2 Electricity transmission capacity

The supply of the necessary transport capacity of the electricity (totals desired capacities) must be guaranteed in the projects for all necessary connections, and (if applicable) contracted. Also those of third parties.

## 1.3 Mock-up

In each project, a Mock-up home is realized. In consultation with the builder, at least one representative home will be pulled ahead in the finishing phase to establish the quality level of the finishing of the homes.

## 1.4 Model home

In consultation with the builder, it will be determined which homes will be used as model homes. The builder's planning takes into account the furnishing of these houses. These houses must be ready before the first scheduled visit of the future residents.

## 1.5 Automated External Defibrillator

In consultation with the client, a (power) facility must be provided at a publicly accessible location on the outside of the complex (to be determined in consultation with the client) for the placement of a heated outdoor unit for the purpose of an AED.

## 2 Sustainability

Reggeborgh attaches great importance to sustainability. This contributes to adaptive and healthy real estate in a liveable and high quality environment. This Programme of Requirements fulfils the objective of developing sustainable housing. Sustainability includes energy consumption and CO2 emissions, use of raw materials and biodiversity, but also health and community.

We expect from the parties we work with an active, proactive attitude to realize these ambitions as much as possible and to apply innovations where possible.

We challenge our partners to give maximum substance to the following sustainability ambitions in their tender. The most sustainable alternative for installations, equipment, materials, etc. should in any case be offered as a standard alternative option.

### 2.1 Overall project scores

From the beginning of the design process, the GPR Gebouw score is actively managed. In the SO/VO phase, the calculation should already be made by a GPR Gebouw Expert, so that it is always possible to optimize the design and to meet the requirements below:

- Quality of use  $\geq 7$ .
- Future value  $\geq 8$ .
- Health  $\geq 9$ .
- Environment & Energy, these must jointly score  $\geq 9$  on the Sustainability Performance of the Building (DPG), the DPG is a weighted average between the sustainability and environmental components.

At the end of the TO phase, all changes (As Build) that have taken place during the process should be processed in a final GPR calculation, made by a GPR Expert, so that a GPR Building Certificate can easily be applied for.

### 2.2 Energy and CO2 emissions

The design of the houses is energy efficient and meets requirements beyond the minimum legally required BENG standard:

- For (thermal) Energy Requirement BENG 1, a 20% lower requirement than the established standard applies.
- For Primary Fossil Energy Consumption BENG 2, the starting point is  $\leq 25$  kWh/m<sup>2</sup>/yr.
- For the share of Renewable Energy BENG 3, the starting point is  $\geq 48\%$ .

To prevent heat and energy loss, air permeability must be limited. Houses smaller than 250 m<sup>3</sup> have a maximum qv:10 of 0.25 dm<sup>3</sup>/s\*m<sup>2</sup>. Homes with a volume >250 m<sup>3</sup> have a maximum qv:10 of 0.2 dm<sup>3</sup>/s\*m<sup>2</sup>. In each situation it is checked whether the building meets the requirements for air permeability by means of a Qv10 measurement or blower door test.

Possibilities for applying renewable energy are investigated. The roof is designed in such a way that it is structurally suitable for the (future) application of solar panels. Lighting will be provided as standard in low-energy LED and in communal areas will be provided with twilight, motion or time switches to prevent unnecessary energy consumption. Applied systems such as mechanical ventilation with heat recovery, elevators must have the highest possible energy label according to the new scale (A to G).

The 'building-related' CO2 emissions (of the air conditioning systems, heating and cooling, hot water, auxiliary energy) is calculated according to the BENG methodology and is not higher than 6.8 kg CO<sub>2</sub> / m<sup>2</sup> /GMO (CO<sub>2</sub> emission / user surface). The CO<sub>2</sub> emissions are demonstrated by means of the BENG calculation.

## 2.3 Dutch government green project regulation

Green banks and green funds can apply for a green certificate for their customers. The green certificate offers a tax advantage for green investments or savings. A lower interest rate applies if your customer invests in a green project. The following is included in our program of requirements:

At the request of the client, the project must comply with the Green Project Regulations. The project will be carried out sustainably and is therefore eligible for a green certificate within category 9a 'Sustainable new-build homes'. Receiving a green certificate ensures that part of the costs can be financed green.

For a green certificate, the following two requirements must be met in any case:

- The project must comply with BENG 1 and 3. BENG 2 is being tightened. The primary fossil energy consumption of the house must be less than or equal to 25 kWh/m<sup>2</sup>/yr.
- All the wood used is laid down in the STABU specifications and has a quality mark officially recognized as sustainable by the Timber Procurement Assessment Company (TPAC). The quality mark must be accepted by the Dutch government.

For a complete overview of the technical requirements, please refer to the 'Handbook 9a New Building Houses' which can be found on the site of the Netherlands Enterprise Agency.

## 2.4 Materials

The use of materials in the project is sustainable and circular. Contractors provide information about the environmental performance of the materials used, in the form of a well-founded LCA calculation (Life Cycle Analysis). This calculation must show that the project achieves an MPG score with a maximum limit of € 0.48 shadow costs per m<sup>2</sup> GFA/yr. (Per 1 July 2021 the Buildings Decree requirement is € 0,8 shadow costs per m<sup>2</sup> GFA/yr. Shadow costs are costs of preventive measures with which a certain environmental burden can be avoided).

The BIM model is set up so that it can be entered in the Madaster portal and that it meets level 2 in accordance with the 'Madaster Building Passport Step Plan'. The passport must be delivered.

## 2.5 Health

The project encourages and facilitates the health of its residents. Physical activity is encouraged by providing at least 4m<sup>2</sup> of space per dwelling for storing mobile vehicles. The design encourages primarily the use of stairs or staircases and secondarily the use of the elevator. Internal or external facilities for fitness are considered.

Air quality is measurable and of excellent quality. This means that the ventilation system is adjusted so that the CO<sub>2</sub> concentration is no more than 950 ppm and that ventilation is demand-driven on the basis of CO<sub>2</sub> and/or moisture content by means of continuous monitoring. Air filters (e.g. HEPA, carbon) are placed in the building.

Internal and external noise nuisance is minimized, the noise requirements are 20% stricter than the relevant Building Regulations requirements.

Materials used are healthy. This is demonstrated by an LCA (Life Cycle Analysis), EPD (Environmental Product Declaration) or other health evidence. The VOC emissions and formaldehyde are zero and no more than category E1 in accordance with the existing EN standards.

## 2.6 Thermal comfort

A weighted temperature exceedance (GTO) calculation demonstrates that excessive indoor air temperatures are prevented. The number of PMV > 0.5 hours of exceedance may not exceed 300 hours.

The starting point for these calculations is the reference year T01 from NEN 5060. The GTO calculation is required at all times, regardless of the result of the TOjuli.

In any case, the following measures will be taken:

- An optimal orientation shall be aimed for. This takes into account the sunlight and surrounding buildings.
- The starting point is to apply a aquifer thermal energy storage system with underfloor cooling. It must be possible to sell the ATES to a third party.
- Possibility of, and preparation for, application of electrically operated exterior blinds. (Note the choice of the ventilation system). Use switches that do not need to be pressed to operate the external blinds. Secure installation using wind detection. Include maintenance switch (screens permanently up for facade washing).
- Solar control glazing (requirement applied frames with windows and doors is  $UW/UD \leq 1.0 \text{ W/m}^2\text{K}$ ) where required (g-value = 0.40 avoiding color differences, previously ZTA value).
- The ventilation system is designed so that in summer the building structure can be cooled by ventilating with cool air at night. This delays the moment of overheating of the building.
- General traffic areas are designed so that they can be properly ventilated and undesirable heating is prevented, for example, by means of roof hatches that are sent up at high temperatures.

## 2.7 Waste

The waste supply will be fulfilled by smart, public underground containers that monitor the remaining space in the containers. If, instead, a container space is realized in the building, it should be large enough for 1 container per waste stream per 15 households. As many as possible separated waste streams are facilitated as much as possible (paper, PMD, glass, VGF, rest).

## 2.8 Water

Applied equipment and systems are very economical in terms of water use. Taps and shower heads are water-saving and preferably have a KIWA 'Low-Consumption' quality mark. Toilets are flushed with rainwater and/or graywater and are equipped with a flush interrupter and a selection button for a large or small flush. Within the building, water is reused in a grey water circuit where water is treated locally with a purification plant. Drinking water quality does not have to be achieved. Rainwater is disconnected from the sewer system and collected for reuse or infiltration. Flat roofs are equipped with a delayed water drainage system and are structurally able to temporarily bear the weight of a the temporary weight of a large amount of water.

## 2.9 Biodiversity

In consultation with an ecologist, the principles of 'Building nature inclusive' will be applied in the design and during implementation. Green roofs, facades and/or walls will be applied in the project. When applying greenery, a mix of native plants will be used to promote biodiversity. Provisions will be made for animals, including insects, birds and bats.

## 2.10 Community

The buildings are easily accessible to wheelchairs and disabled persons from the parking lots/main entrance to the residences. In addition, the project contributes to the sharing economy by making a minimum of 2 products and/or facilities available within the project to all residents. For example, in the form of shared E-Mobility (bicycle, scooter, car, etc.), washing machines and dryers or shared roof gardens and guest apartments. Social cohesion is promoted by creating meeting places such as seating areas, playgrounds and a communal garden/roof garden.

## 2.11 Safety

The buildings comply with the 'Politiekeurmerk Veilig Wonen' and a certificate of this will be made available. The quality mark sets safety requirements at the urban level, for the public space, the plots, the building and the homes themselves. The NEN 3569 'Risk reduction of bodily harm by breaking and falling glass' applies.

## 2.12 Monitoring

Smart meters are applied as standard for energy and water, which allow remote reading of consumption. In the homes, a clear display will be placed in the living room, providing information on energy consumption, humidity, temperature and CO2 emissions of the household.

## 2.13 Construction

To stimulate the chain cooperation, the executing party should explain how it ensures a sustainable execution and construction process whereby the emission of CO2 and NOx is limited. The construction equipment and transport of building materials will preferably be carried out using electrical equipment. The party must also demonstrate how this contributes to Reggeborgh Vastgoed's spearheads. Having a company-wide certification for sustainability or CSR is a requirement. 'Bewuste Bouwers' will be included as an obligation in the standard construction contract. A webcam will be installed during construction so that construction progress can be monitored remotely. At least 5% (as a percentage of the project's wage bill) is carried out by means of Social Return.

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# 3 General areas

## 3.15 Roofs

The roofs are equipped with fall protection according to the valid regulations. When applying PV panels attention for the (fire) insurance, the installation and also the substrate (the roof) meets the conditions set by the insurers. The NEN 7250 'Solar energy systems - integration in roofs and facades - architectural aspects' applies.

The design should take into account the maintenance of the PV panels by facilitating access to the panels without inconvenience to the occupants. Lightning protection is applied when the building is the tallest building in the area (radius approx. 100m): Have a risk analysis performed in accordance with the NEN-EN-IEC 62305 standard. Part 2, NEN-EN-IEC 62305-2, describes the methodology for determining the risk of lightning strikes and lightning protection. In the project, this method will be applied if a risk is present.

The possible application of a green roof is investigated for each building. The application must be in line with the flora and fauna in the immediate surroundings and make a positive contribution to biodiversity and water accumulation. To this end an ecologist will be consulted who will draw up a proposal for planting on the roofs.