

# Green roof rehabilitation programme

Project indicative: CJ5.2

Project type: urbanistic programme

Project starting point: 0-5

Project ending point: 10-15 y

Linkages: CJ5.1



NBS 5

FC Cluj-Napoca

Type of NBS intervention

**NBS 5 + NBS 7** Policy proposal for making green roofs a standard solution in Cluj-Napoca metropolitan area. Used for renovation of collective housing units, included in new development projects, and part of renovation works of public buildings.

## Logic/need of the policy

Green roofs are not widely adopted in Cluj-Napoca, with only a few small-scale initiatives undertaken by different stakeholders. Real-estate developers, including a premium developer in the city, have experimented with green roofs and walls, but remains uncommon. Community members have applied for participatory budgeting projects to create green roofs on collective housing units built in the 1970s and 1980s. Some practitioners such as engineers and architects have experience in designing green roofs, but demand from clients remains low.

Through proGInreg co-creation activities, several misconceptions prevalent among the general public and beyond have been identified: Green roofs lack utility, entail high costs, and pose risks to the structural bearings of buildings.

Concluding from the co-design workshops, it is evident that local policy about green roofs requires appropriate incentives and tools to facilitate a significant transition in practices. Three relevant cases were explored:

**Case 1: Existing collective housing**

**Case 2: New developments (including commercial and industrial buildings)**

**Case 3: Public buildings**

## Scenarios

### Do-it-all (best-case)

The Do-it-all scenario builds upon CJ5.1, which involves a green roof on a collective housing unit. The pilot project, constructed on Grigore Alexandrescu Street, popularized this solution. Several housing associations, whose buildings will undergo renovation works are requesting from the municipality the integration of green roofs into the project documentation and works of the building. The funds are allocated from municipality budget.

This will marginally impact the local green roofs market in terms of providers, designers, and constructors. Municipality will provide a one-stop-shop platform to ease the process of realizing green roofs.

Private investors will be aware of this new trend and will integrate green roofs as part of new developments. This initiative is supported by the municipality, by providing urban planning and bureaucratic advantages to developers.

Furthermore, structural funds are being allocated for the renovation of several public buildings. Education and health institutional buildings will accommodate extensive green roofs, positively impacting the local micro-climate.

### Do something meaningful

The municipality will promote green roofs in Cluj-Napoca by connecting different actors to create the one-stop-shop platform. This will result in mainstreaming the practice, with a focus on new developments.



Collective housing rehabilitation



Buildings in Mănăștur neighbourhood



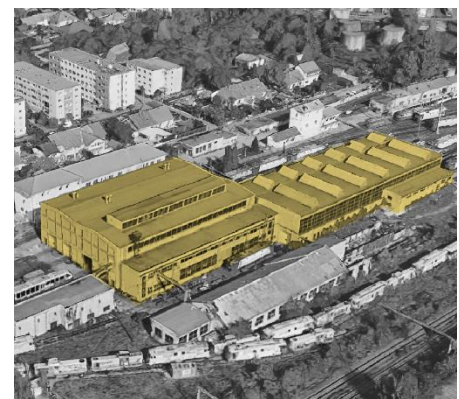
Example of typical local school

Public institutions rehabilitation projects – schools green roof



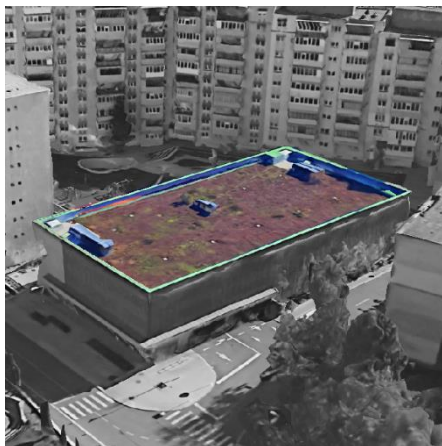
Private - Adapting green roofs on industrial buildings

Example of typical industrial building



Green roof on commercial building  
Mănăștur neighbourhood

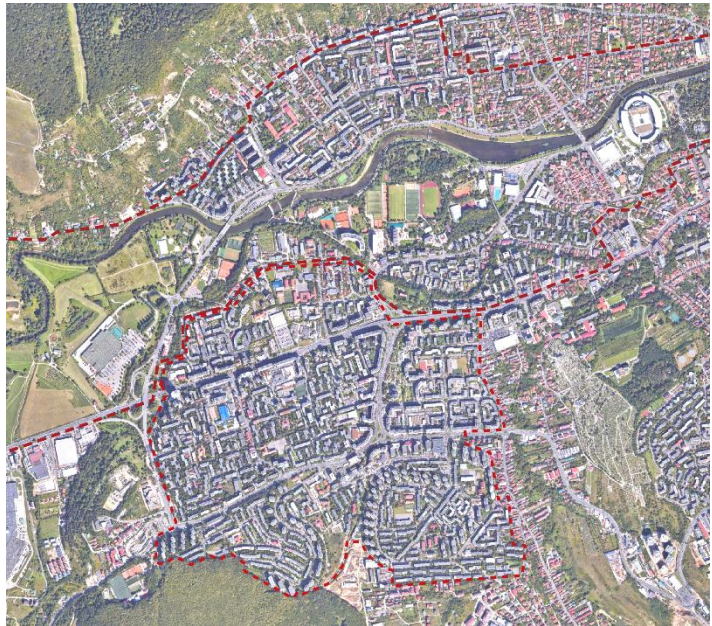
Private - Green roof BM example – km0 products for local supermarket





Study area is represented by collective housing neighbourhoods within the URA, but it can apply to other areas in the city. The current policy proposal specifically targets collective housing blocks in the URA identified for renovation. However, recommendations and policy rationale can be applied to various other case studies. It is suggested to evaluate potential approaches for the integration of green roofs beyond the study area (refer to suggestions mentioned later in this document).

Green roofs policy can be extended outside de URA limit



## Local planning frameworks

No strategic and regulatory frameworks promote the creation of green roofs at local level. But given the development motto GREEN CLUJ of local politics, the municipality is highly likely to support green roofs initiatives as part of improving green infrastructure development, if proper instruments are elaborated.

At national level, the guideline for building green roofs, approved by the Ministry of Regional Development and Public Administration - Guide for design and execution of green roofs to new and existing buildings (MDRAP/MDALP – Ministry of Reg. Development and Public Admin.) GP 120-2013. The guide addresses architects, engineers, project verifiers, technical experts, constructors and service providers, owners, users and administrators of buildings, public administration, and control organisations. The guide provides technical information for different types of green roofs – adapted to local climate and specific building architecture. It can be accessed [here!](#)

- Substrat vegetal
- Strat filtrant - material geotextil
- Strat retentie apa si drenaj
- Membrana anti-radacini
- Hidroizolatie
- Bariera contra vaporilor
- Strat difuzie
- Beton de panta + sapa de egalizare
- Placa de beton armat

- Dalez pietonal
- dalez prefabricate din beton
- Strat drenant - pietris spalat

- Dalez carosabil
- dalez prefabricate din beton
- Strat drenant - pietris spalat
- Structura beton armat

Source: Info extracted from Green Roofs Guide

# Are green roofs relevant for Cluj-Napoca?

Relevance of Green Roofs, from the perspective of main stakeholders



## Case 1 Existing collective housing.

Target group: housing associations.

The interests of this group lie in improving air quality, enhancing energy efficiency, and creating a cooler environment during the summer. Additionally, green roofs can serve various social and recreational purposes for local residents. Given the fact that important percentage of the buildings with go under rehabilitation works, it is considered optimal to explore ways of including green roofs in the project budget. Local communities have to be informed and consulted by the benefits of green roofs, and potentially to co-finance the intervention, if the state budget is not sufficient.

## Case 2: New developments.

Target group: Private investors.

Private investors are motivated by presenting attractive real estate offering. Green roofs can add a unique selling point that helps expedite sales or achieve higher prices. To generate greater interest in green roof systems among investors, suitable drivers could include tax incentives or streamlined bureaucratic processes for obtaining building permits. Like the tax reduction policy for energy-efficient "green buildings" of Class A efficiency, raising awareness about the insulation benefits of green roofs is crucial in capturing the attention of private investors.

## Case 3: Publicly-owned buildings.

Target group: Municipality, Public institutions

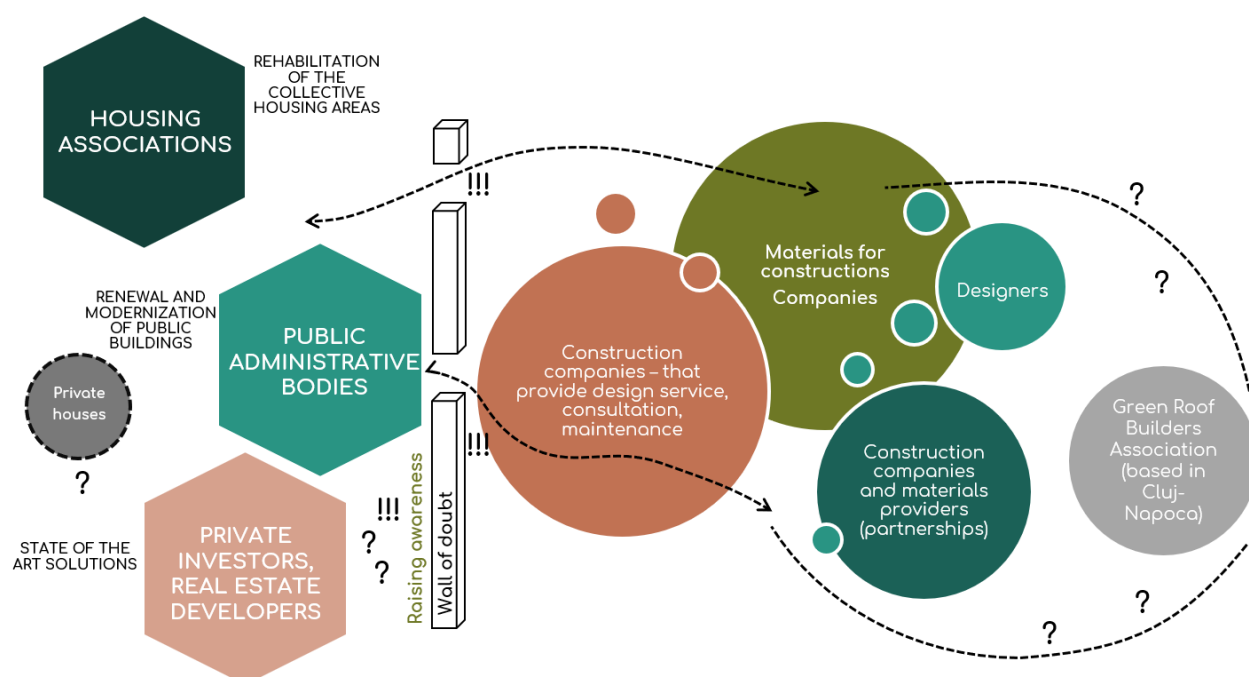
The primary objectives for publicly owned buildings include the enhancement of environmental conditions and the promotion of biodiversity within the urban environment. The revitalization of public structures, encompassing hospitals, schools, kindergartens, and other institutions, holds substantial importance. The municipality should recognize the extensive advantages of adopting an integrated approach to green roofs. Public policy must serve as the cornerstone for forthcoming investments, harmonized with strategies for managing and maintaining public buildings.



## Policy objectives

- **Rehabilitation of outdated collective housing stock:** Renovation process can be approached in two ways. Firstly, rehabilitation programs financed by the municipality in cooperation with housing associations. Secondly, bottom-up, where housing associations choose to implement green roofs with support from the municipality. To encourage the adoption of community-managed green roofs, the public administration should provide housing associations with a toolkit and roadmap for implementing green roofs.
- **Sustainable development and mitigation of urban heat island effect:** Cluj-Napoca is undergoing rapid urbanization, leading to the conversion of green fields and potential environmental repercussions. It is crucial to view additional green spaces as mandatory rather than optional, as they foster biodiversity and regulate the local climate.
- **Renewal programs for public buildings:** Publicly owned buildings present an excellent opportunity to increase green areas in Cluj-Napoca. While historic buildings may pose challenges, there are numerous buildings with flat roofs that can accommodate green roofs. These interventions can be funded through public funds, and additional financial support can be accessed from regional and national funding structures for the period of 2021-2027.

## The missing links?



Underdeveloped market for green roofs.

Low level of collaboration between different actors.

Low level of awareness concerning benefits and impact of green roofs.

## Solutions

### 1 stop shop / GUIDE

A "1-stop shop" or guide, serving as a networking and informative platform, managed by the municipality, aims to connect various relevant stakeholders for collaborative efforts and facilitate easy communication for the joint realization of green roofs. Transparency and clear explanations of the necessary implementation steps are essential. In instances where the municipality provides financial support for the initiative, the bureaucratic process is streamlined. For housing associations planning independent implementation of green roofs, the platform offers guidance through the displayed steps and processes. The concept of the "1-stop shop" is inspired by Acoperișul Verde, a non-profit initiative. (link [here](#))

### Local regulations for new buildings

The best option for new buildings is to have updated local regulations and renegotiate urbanistic indicators. The first option is to adopt a green roofs policy in the regulation plan (PUG) to regulate green roofs based on urbanistic indicators. Another mechanism of negotiation discussed is the increase of urbanistic indicators (total surface build or building height) if developers build green roofs or roof gardens (a concrete set of criteria and maintenance requirements have to be established). The third negotiation option is to reduce the time-frame for receiving building permits if developers include implementing green roofs.

### Structural funds for public buildings renovation

Several public buildings, such as schools, kindergartens, clinics, and hospitals, need renovation. It is considered optimal to include green roof solutions to contribute to the energy performance of the buildings (NZEB being the new standard), to mitigate climate change conditions, and to improve thermal comfort in urban environments. Green roofs also ensure the better use of rainwater and support local biodiversity and the health of local ecosystems. Structural funds are open for these investments at the regional and national levels. The inclusion of green roofs in renovation projects will increase the chances of receiving funds due to compliance with New European Bauhaus principles and DNSH.

## Drivers

Cluj-Napoca is one of 100 Climate Neutral Cities. There are elaborated 7 strategic directions for ensuring the reduction of GHG emissions of 80% by 2030. Relevant for deployment of the green roofs programme are:

1. integrated urban regeneration of apartment block neighbourhoods (where 77% of Cluj-Napoca residents live)
2. renovation of public and commercial buildings (responsible for half of GHG emissions from buildings) and brownfield redevelopment