Energy efficient refurbishment of social housing

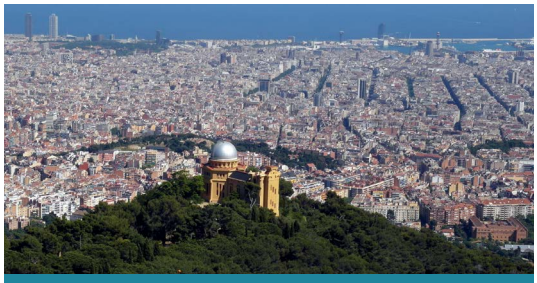
Smart solution 1
Energy retrofitting of buildings

Measured impacts

30%
gas energy savings for heating.

53%
of monitored dwellings increased thermal comfort in winter.

43%
reduction of dwellings dissatisfied due to temperature imbalance.



Barcelona

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What is it?

Energy efficient refurbishment upgrades existing properties in order to ensure a better quality of life for the residents, lower the environmental impact of the property and ensure a better safekeeping of the architectural heritage. This provides increased comfort and generates monetary savings for residents living in a social housing complex.

What did GrowSmarter do?

In Barcelona, different types of insulation were employed in the energy efficient refurbishment. Wool was used on ventilated facades while polystyrene was used on unventilated facades. This solution is designed to protect indoor spaces from outdoor weather conditions in hot and cold climates and help decrease energy leaks in the buildings that were retrofitted.

Within the scope of a broader city-wide action plan, Barcelona's Municipal

Housing and Renovation Institute included the passive energy refurbishment of a building of its property in Passeig Santa Coloma with a total of 207 dwellings and over 14,000 m2. External thermal insulation was added to the retrofitting of the deteriorated existing facade, and all blinds were replaced by more insulating blinds. The resulting impact is a proven increase of the indoor comfort of the tenants documented by survey campaigns before and after the intervention.

After the retrofitting, all baseline survey results were improved with fewer tenants being dissatisfied with indoor temperature during both hot and cold weather. The refurbishment also reduced gas energy consumption for space heating by 30%.

It is important to inform and educate tenants about the energy retrofitting value to increase social awareness and acceptance.

Lessons learnt

The Municipality gained new insights into user interaction aspects, such as the need for an early integration of neighbour-representatives into the project board in order to minimize social barriers and guarantee a majority's acceptance of the retrofitting action. Involvement of tenants also increased energy efficiency awareness among the users of the energy-retrofitted building.

Price-dumping in public tenders is a significant risk for this type of contracts. Guarantees and non-dumping strategies are recommended.

Upscaling & replication potential

It is recommended that relevant policies are adapted in advance to take advantage of the need for building structural refurbishment in the social housing sector and include energy efficiency criteria. This lowers the investment costs and fosters project replicability.

How did the measure work?

Technical feasibility ●●●

External Thermal Insulation Composite Systems is a proven technology to reduce building thermal load

Economic feasibility ●●○

Social housing owners generally cannot raise rents to balance their investments for energy savings. Reducing tenants' energy bills is a way to secure the solvability of the formers, thus limiting the amount of unpaid rents.

Replication potential ●●●

Social housing owners are key actors to be mobilized to reduce the energy consumption of the residential sector. The decision-making capacity and technical expertise in this sector is high, which facilitates reaching a very large number of dwellings with a single action.

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