

These municipalities did it, when will you?



Co-designing the retrofitting process, the Sharing Cities method

**Milan,
ITALY**

1,35 million inhabitants
60% of buildings
are class G or F

Timeframe:
was launched
1st January 2016

+ Quick tour: what's in it for you?



The city of Milan has developed a comprehensive and innovative energy building retrofitting programme in the Porta Romana/Vettabia district. Based on public-private collaboration, the district has renovated 24 000 m² of private buildings and 4 000 m² of public housing through a co-design approach. The aim of this project has been to enable citizens to be engaged and play an active role in the transformation of their community from the beginning and strengthen their trust in their municipality.

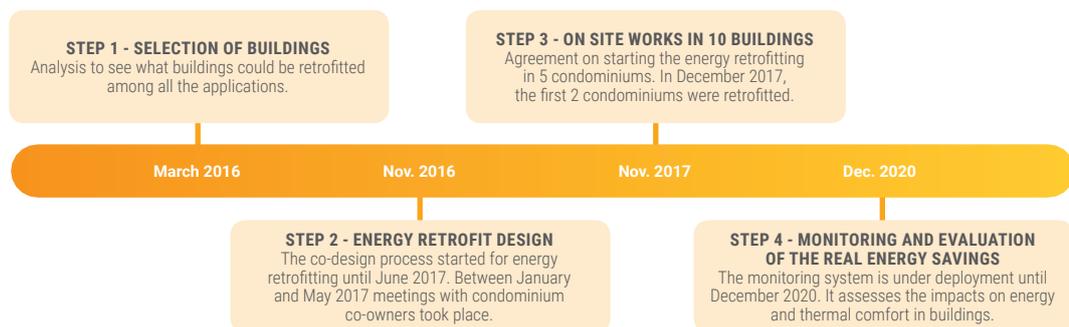
This project is part of the Sharing Cities “lighthouse” programme, a European project funded by Horizon 2020 and launched in six European cities (3 “lighthouse” and 3 “follower” cities). This programme aims to make smart cities a reality by offering new tools and methods to overcome cultural and economic barriers.

In this case study, you will learn about the co-design approach used by Sharing Cities partners in Milan that can be used as an inspirational example by other cities that want to launch or further their energy retrofitting dynamic.

+ Accelerating Condominium Energy Retrofitting: how Milan ACed it

To achieve the deep retrofitting work for 300 private apartments, the partners involved in this project have provided condominium co-owners with **tailored packages** to improve energy efficiency and air quality according to the characteristics of the building they are living in. To reach a complete energy efficiency package for each building, four phases took place.

+ Planning scheme



52 buildings applied for the public call launched by AMAT (*Agenzia Mobilità Ambiente Territorio*, Agency of the Municipality of Milan) to have an energy retrofit. After a feasibility study, 24 of them were chosen to participate in the energy retrofit process but only 20 agreed on that proposal via an official vote by the owners' assemblies.

An energy package has been developed in the 20 buildings selected. The design used was based on:

- + A complete **energy audit**
- + A **co-design process** with the participation of the flat owners
- + A **digital monitoring system**
- + **Financial and economic** analysis

Before starting any intervention, the project was submitted to the flat owners' assemblies. Only 5 condominium gave a positive answer. As a result, 4 condominiums have been already renovated in 2018 and 1 done in June 2019.

Through the **co-design approach**, condominium co-owners and residents participated actively in the project both in the decision-taking and in the financing from the outset and were also able to evaluate its effectiveness. It led co-owners to consider their flat as a part of the urban infrastructure and to foster their will to invest in energy retrofitting.

This approach served to **link the demand and supply sides**. There were three meetings and one extra meeting in order to discuss and deal together with the co-owners and professionals the retrofit works that the building will undertake and to explain to the other residents what would be done in the building.



“ The interventions were designed jointly with condominiums through a co-design process ”
Cecilia Hugony,
Teicos Group

Meeting 1: Open discussion. Co-owners from the 5 condominiums participated together in different groups to identify the weaknesses and strengths of their buildings and to discuss what improvements they expected to achieve via retrofitting.

Meeting 2: Sharing the technical aspects. Each owner community worked with one engineer who made the audit of the building. Co-owners discussed the building scenarios that would be supported by their communities, taking into account the binding targets for every scenario (e.g. energy savings of 50%).

Meeting 3: Sharing the scenarios. Each owner community with 1 engineer discussed the retrofitting scenarios, including all the technical and economic aspects that the retrofitting project requires.

Extra meeting: Presentation to the condominium. Condominium co-owners shared with all the neighbours what was going to be done in the building through the retrofitting.

As a consequence of these meetings co-owners did not see the process as a supply side business to make money. They could give their opinion and be informed during the entire process. The council of Milan played a key role to ensure that none of the businesses from the supply sector had an advantage over another.



Last but not least, Teicos group and Legambiente (two of the project developers, as explained below) in collaboration with Enel X and Rockwool Italia led a campaign called “Condominium efficienti” through which they wanted to highlight the importance of actively involving condominium co-owners in the energy retrofitting. They organised a meeting on 4th December 2018 where they showed some Sharing cities cases studies and co-owners shared their experience and level of satisfaction in relation to the energy retrofit that they have already undertaken. With this campaign and the co-owners’ feedback, partners aimed to stress the importance of being energy efficient and to encourage other condominium co-owners to start energy retrofitting.

+ How much does it cost?

Sharing cities cost

The total amount of Sharing Cities project has been **€24 million**. Of this budget about **€8,6 million** was allocated to the local partnership, of which about **€2,1 million** for the municipality of Milan and its third parties.

Financial support available

The council of Milan in collaboration with private financial institutions (*BBC Milano, Credito Valtellines Banco BPM and UnitCredit*) provided condominium co-owners with subsidies, tax deductions and favourable conditions for private building retrofitting through the announcement of the **Bando Efficienza Energetica (BE2)**.

The council of Milan allocated **€23 million** non-refundable for the energy retrofitting (facade and roof insulation, boiler change and green roofs) and the amount of the contribution granted depended on the type of intervention:

- + 5% of the costs incurred for the interventions to replace diesel boilers
- + 15% to increase the efficiency of the building envelope (at least 40% of external surfaces) also combined with the replacement of heating systems
- + Up to 20% if the intervention includes a green roof

National tax deductions were compatible with the BE2 (from 50 to 75% of the total cost). Also banks offered loans under favourable conditions, such as:

- + Long term: 10 years duration including 2 years of pre-amortization
- + Low rates: Subsidised fixed rate of up to 4 per cent
- + Credit agreed by all the condominium

+ And how is the project organised?

There is a **mixed partnership** composed of the Council of Milan, TEICOS group, Legambiente, Politecnico de Milan and Future Energy. There is not a "lead" partner heading the project, but they are all working together in order to create a good and reliable partnership.

The co-design approach methodology was developed by Politecnico de Milano, Legambiente and TEICOS group. Politecnico de Milano and Future Energy were in charge of implementing the monitoring system.

Both co-owners and engineers were planning from the outset the works on the project through small discussion groups.

+ Key figures

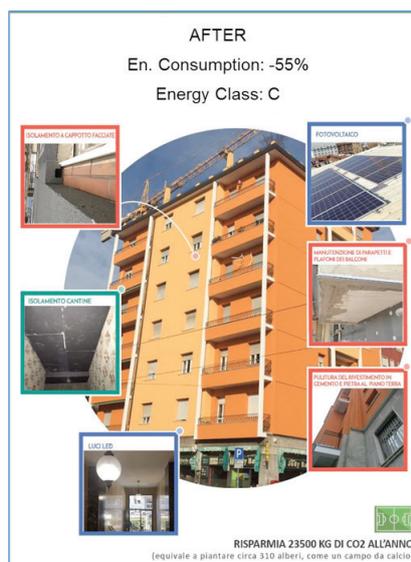
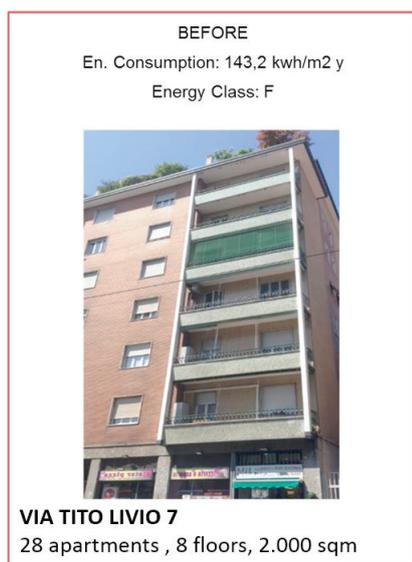
Since the project started, **942 families** have been involved. They have actively participated through **12 co-design meetings** and supported by **7 institutional visits**. The project had a **85 per cent of women's** participation.

24 000m² have been retrofitted (3 000m² more than initially expected) which has involved a total **reduction of 470 000 kg CO₂** equivalent to 50 forests and a total **energy savings of up to 52%**.

Also the building retrofitting had a great impact on the local economy and new local jobs were created. e.g. in Via Tito Livio **3,14 jobs per year** and in Via Verro **3,67 jobs per year**. In addition, the project has achieved greater comfort, building security and behaviour change.

In some retrofitted condominiums

- + **Via Tito Livio 7**: from class F to class C, its real estate value increased by 12%, energy savings 57% (€8 550 per year), and gains are seen after 5 years
- + **Via Fiamma 15/1**: from class F to class C, energy savings of 40%
- + **Via Verro 78BC**: from class F to class B, its real estate value increased by 12%, energy savings of 58% in heating costs and 30% in electricity costs (in total €11 700), tax deductions 70% and expected return time of 10 years



Here is some advice if you'd like to do it in your city

It is crucial to develop and follow a **participatory methodology** to ensure that condominium co-owners are involved in the project. The methodology used by Sharing Cities in Milan can be an inspiring example:

- + **Informal atmosphere**
- + **Reduced participants** in working groups (4-5 people)
- + Recognized and **institutional place** (provided by the city council)
- + Meetings always took place the **same day** and the **same hour**
- + **Different types of condominiums**
- + Special **communication tools** (numbers and graphics). e.g. An ingenious image to underline the importance of reducing the greenhouse gas emissions through the energy retrofit by showing that 60 000 kg CO₂ are equivalent to 800 trees or almost 3 football fields.

Also you have to pay attention to the financial aspects as in general, most of the costs are taken by condominium co-owners. Make them attractive to co-owners (such as credit cession, subsidized loans with banks...) and integrate them with existing national incentives as Milan did.

Any question?



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Information



Sharing Cities programme in Milan: <https://sharingcities.wixsite.com/milano>
Sharing Cities buildings in Milan: <https://www.teicosgroup.com/progetti-per-categoria/?cat=29>
Smart City baseline reports <http://nws.eurocities.eu/MediaShell/media/Sixcitybaselinereports.pdf>

You too are facing the challenge of the energy retrofitting of privately-owned condominiums in your city?

The ACE-Retrofitting project aims to develop a governance model facilitated by cities linking owners and building professionals to accelerate condominium energy retrofitting. The French CoachCopro tool will be upgraded and adapted to other countries.

The consortium is composed of Agence Parisienne du Climat (France), Maastricht University (the Netherlands), Energy House Antwerp (Belgium), the City of Liège (Belgium), Aberdeen City Council (UK), Frankfurt Energy Agency (Germany), the City of Maastricht (the Netherlands), Changeworks (UK) and Energy Cities (coordinator). Study visits are organised in the partner cities of the consortium.

www.nweurope.eu/ace-retrofitting



This case study has been drafted by



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