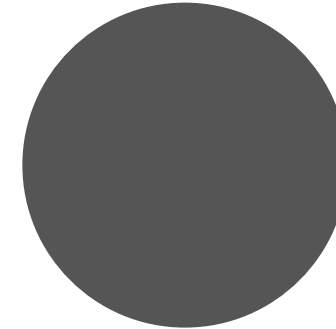


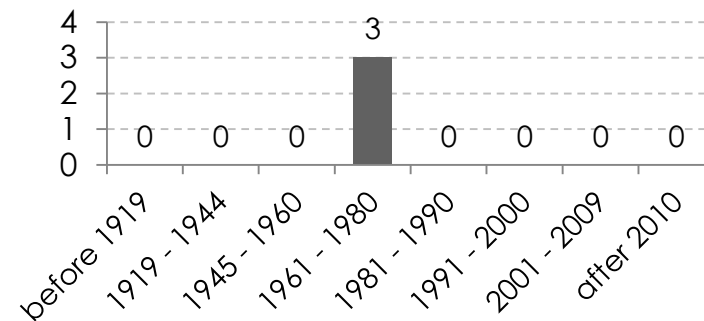
- no. of buildings: 3
- total heated floor area: 3661m²

– building typology:

- residential



– years of construction:



- renovation measures already carried out: **yes**
- implementation period: **2015-17**

Overall aim and objective

The aim is the major energy renovation of 3 residential (social housing) buildings within a district placed in Varese (Northern Italy).

Next activities will regard the monitoring of consumptions and indoor temperatures of the 3 buildings after retrofit during the period 2018-19.

Involved stakeholders

- **ALER (Lombard Companies for Residential Construction) is a Regional level public body engaged to meet the social housing demand: owner and funding**
- **Lombardy Region: funding**
- **Politecnico di Milano (prof. Giuliano Dall'Ò and prof. Luca Sarto): design and monitoring**

– **What kind of renovation measures were/are being carried out?**

- renovation of the thermal envelope
- renovation of the existing heating systems (decentralized in buildings)
- new central district heating
- modification of the existing district heating

– **heating demand before renovation: 824.3 MWh/y**

– **heating demand after renovation: 191.9 MWh/y**

– **cooling demand existing: no (x % of heating demand)**

– **energy supply system(s) before the renovation:**

- heat pump
- natural gas
- oil
- biomass
- district heating
 - renewables
 - fossil
 - mix
- other....

– **renewable energy generation before the renovation:**

- none
- PV
- solar thermal
- other....

– **energy supply system(s) after the renovation:**

- heat pump
- natural gas
- oil
- biomass
- district heating
 - renewables
 - fossil
 - mix
- other....

– **renewable energy generation after the renovation:**

- none
- PV
- solar thermal
- other....

Why is this intervention worth studying? / Why should it be part of the Case Studies?

Concerning the starting situation, it is an urban residential district connected to a district heating network with a high share of fossil fuels.

Concerning the energy improving measures, both energy efficiency measures implementation and renewable energies integration have been accomplished.

further information:

<http://www.alervarese.com/home/cantieri/nouve-costruzioni-recuperi-demolizioni.html>