

Key figures

Location: Middelburg.

Size: thermal power 3,400 W (170 Watt per m²).

Annual energy production: 2,780 kWh (= 10 GJ/year).

Energy-use: domestic hot water.

Technology: Q-roof – invisible sunheat/energy.

Attention points

- Implementing sustainable measures in monumental buildings or in a historical area is usually quite a challenge. The regulations aimed at preserving historical character often limit the possibilities to make them more sustainable.
- The Performance of a solar energy collector system depends on the consumption of the heated water in the building. Within this project, it has been decided to use 2 “shower” moments as a hot water consumption profile.

Contact

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Useful links

Thermal solar technology: <https://www.q-roof.nl/>

Gemeente Middelburg : www.middelburg.nl/solarise

Boiler and control technology: <https://www.croonwolterendros.nl>

Project website: <https://www.interregsolarise.eu/>,

Specialised roofing contractor: <https://www.jobsebv.nl/>

Interreg



EUROPEAN UNION

2 Seas Mers Zeeën

SOLARISE

European Regional Development Fund



Middelburg - Solar on historic buildings: De Helm Middelburg



www.interregsolarise.eu



TOTAL PROJECT BUDGET:

4,18 M €

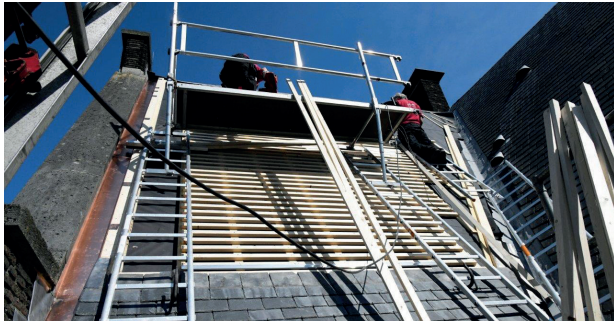
INCLUDING AN ERDF BUDGET OF:

2,51 M €



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Budget

€ 35,348 of total partner budget € 599,000.

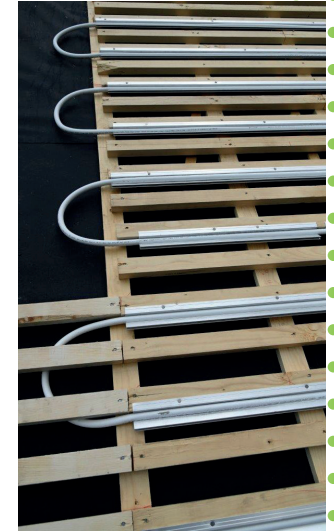
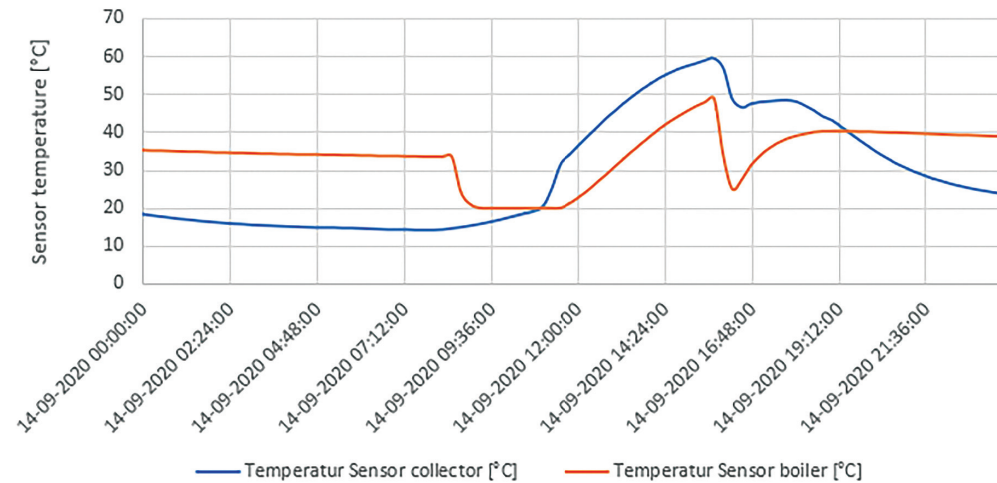
Goal

Harvest thermal solar energy without affecting the esthetical appearance in a historical city.

Description

The City of Middelburg aims to be energy-neutral by 2050. The use of roofs for the utilisation of solar energy has the highest priority in historic Middelburg. This is challenging due to the large number of monumental buildings in the town centre and the protected townscape, which is subject to strict regulations.

Example reheating boiler by collector



In the heart of the historic center of Middelburg we have implemented an innovative technology to harvest heat in an invisible way.

Q-Roof is a system consisting of tubes that are placed in a circuit right under the roof. The heat from rooftiles, or slates in this case, heated by the sun, is transferred through metal sheets connected to the tubing system. The tubes contain an anti freeze liquid, which transfers the heat into a boiler that contains water. A small electric pump ensures that the water circulates.

This system is implemented under the roof of an out-building of the monumental city hall of Middelburg called "De Helm". The building hosts the Middelburg Observatory (Volkssterrenwacht).

The Q-roof system has already been used under roof tiles. In this case the roof of De Helm is covered with slates, where even a higher efficiency was expected.

Slates are very dense and can therefore heat up quickly.

The Q-Roof system at this monument is in place since June 2020 and the boiler is installed in August 2020. Since end of August 2020 the control technology for monitoring has been activated. The performance is online available

