

# Onzichtbaar energie opwekken op monument *Ruud Derks – Q-Roof B.V.*

28 januari 2022



BRUGGE

KU LEUVEN

STICHTING Monumentenbezit

MIDDELBURG

gemeente Goes

Voo?uit

INTERLEUVEN  
ONDERNEMEND EN ONDERSTEUNEND

UNIVERSITEIT GENT

TU/e  
avans  
hogeschool

Brighton & Hove  
City Council

MIDDELBURG

UNIVERSITÉ de Picardie  
Jules Verne

m  
middelkerke

KU LEUVEN  
TECHNOLOGIECAMPUS GENT

fourmies  
UNIVERSITY OF PORTSMOUTH

flux50  
ENERGISING THE FUTURE

enercoop  
L'énergie militante  
Hauts-de-France

ZOERSEL

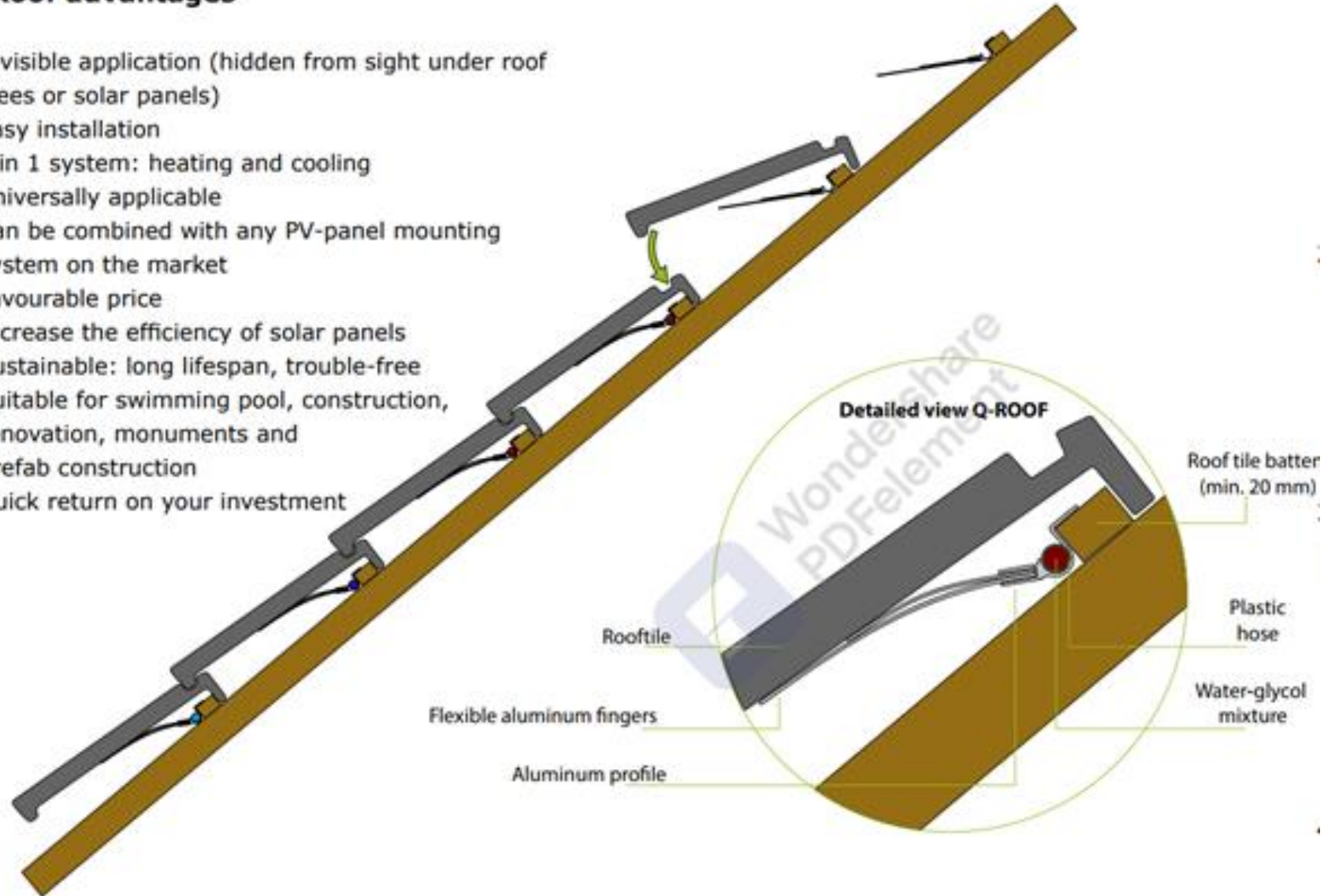
KAMP C

Heerhugowaard  
Stad van kansen

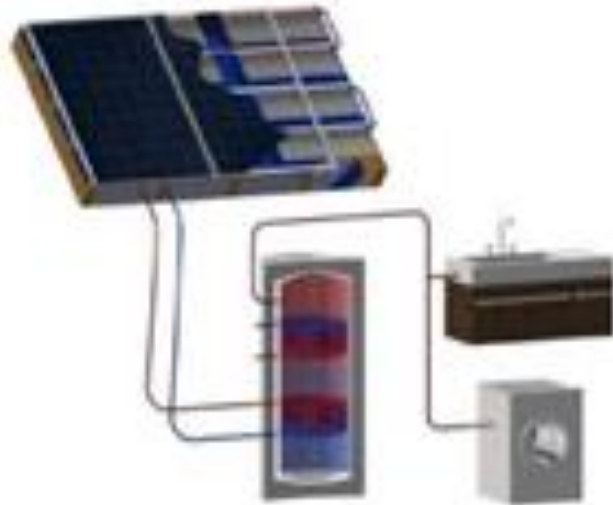
Short movie on Middelburg project

## Q-Roof advantages

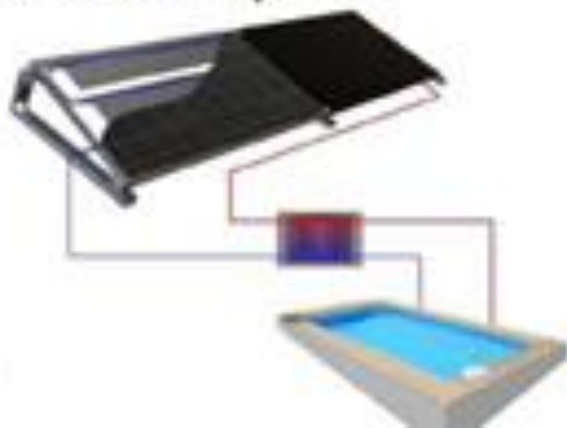
- Invisible application (hidden from sight under roof tiles or solar panels)
- Easy installation
- 2 in 1 system: heating and cooling
- Universally applicable
- Can be combined with any PV-panel mounting system on the market
- Favourable price
- Increase the efficiency of solar panels
- Sustainable: long lifespan, trouble-free
- Suitable for swimming pool, construction, renovation, monuments and prefab construction
- Quick return on your investment



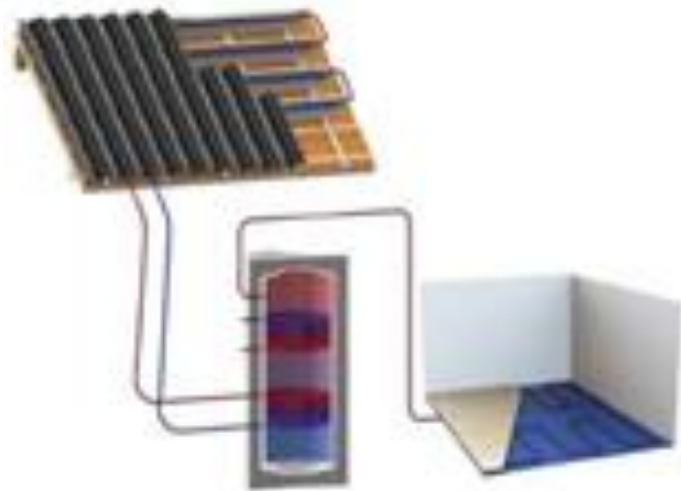
1. Solar panel system



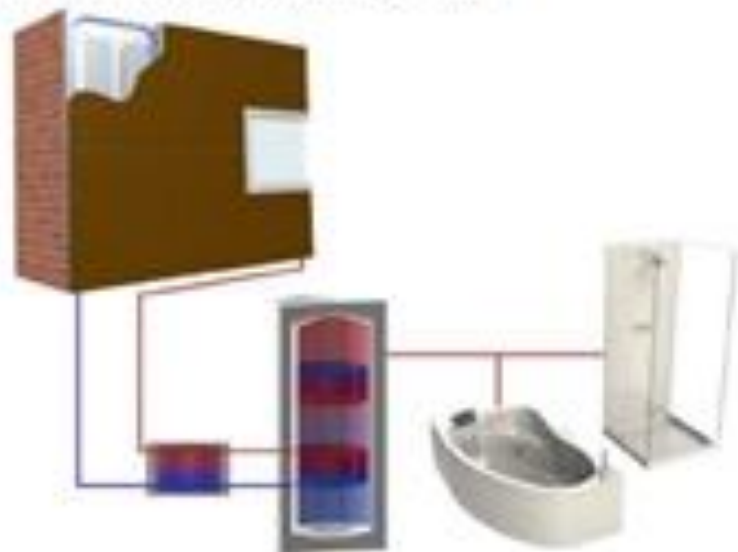
2. Flat roof system



3. Roof tile system



4. Facade panel system

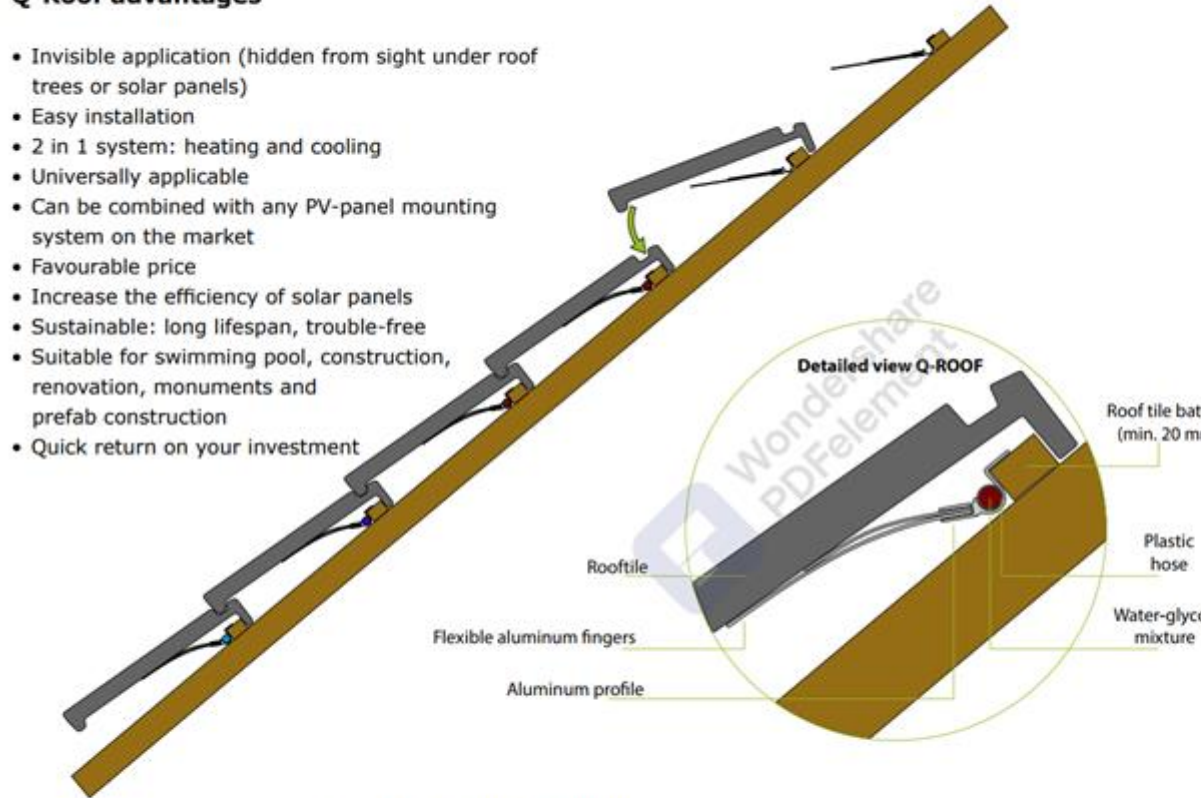


# Our invisible Q-Roof system is suitable for every roof and produces sizeable solar heat

Terms: 20 mm space needed between rooftop (for example: tile or solar panel) and substratum

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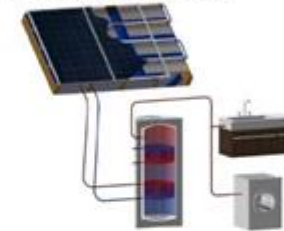


## Q-Roof Facts and numbers

170 watt output per square meter  
Maximum yield 4.9 GJ for 6 square meter in an optimal system  
Calculation basis: yearly average of 1.600 hours of sunshine in the The Netherlands

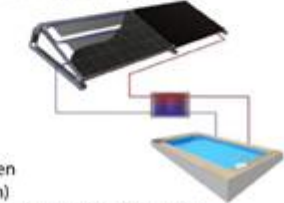
[WWW.Q-ROOF.NL](http://WWW.Q-ROOF.NL)

### 1. Solar panel system



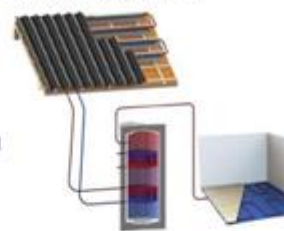
Swimming pool area = Q-roof area

### 2. Flat roof system



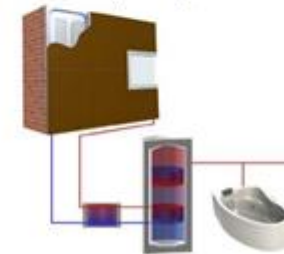
100% of floor heating area requires 50% of Q-roof collector area

### 3. Roof tile system



6 square meter Q-roof is sufficient for a family of 4 persons

### 4. Facade panel system



# Voorbeelden gerealiseerde projecten

- Rijksmonument Grathem Q-Roof onder dakpannen, warm water voorziening
- Hoeve Nieuw Ehrenstein Q-Roof samen met WKO om bron in zomer op te warmen
- Stadhuis Utrecht Q-Roof onder dakpannen, warm water voorziening
- Stadhuis Middelburg Q-Roof onder lei, warm water voorziening

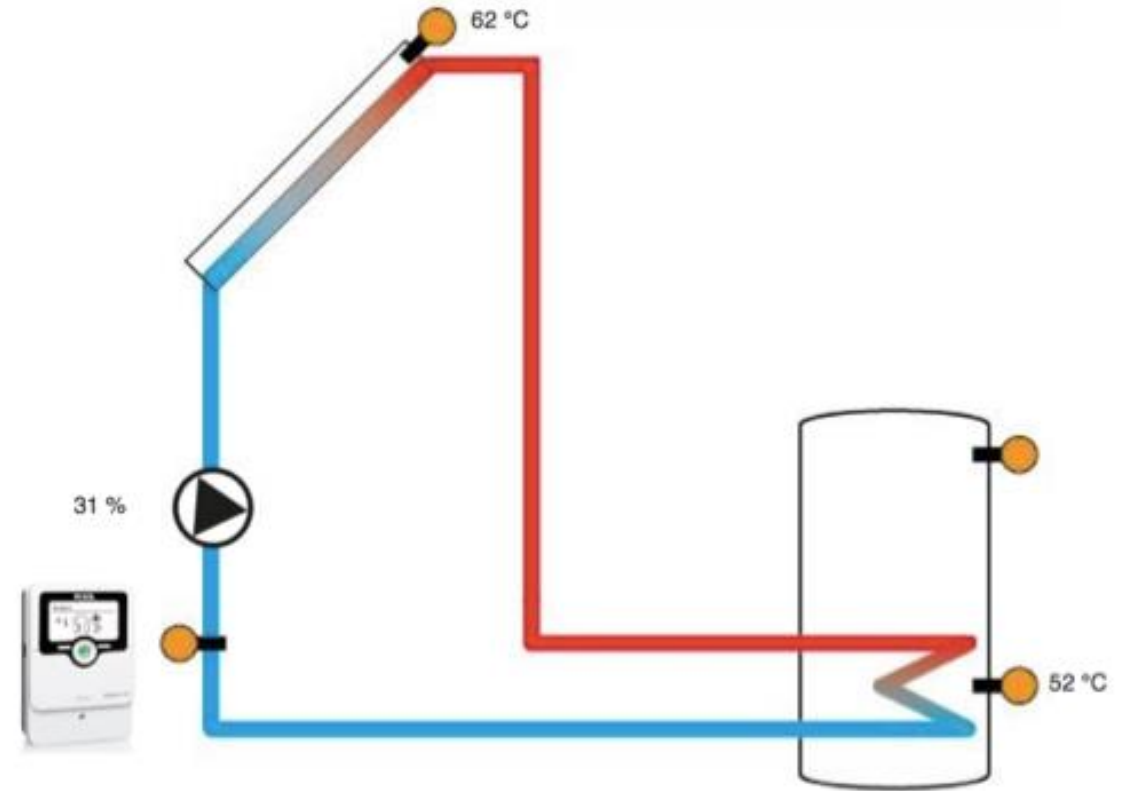


# Q-Roof onder lei op monumentaal stadhuis Middelburg

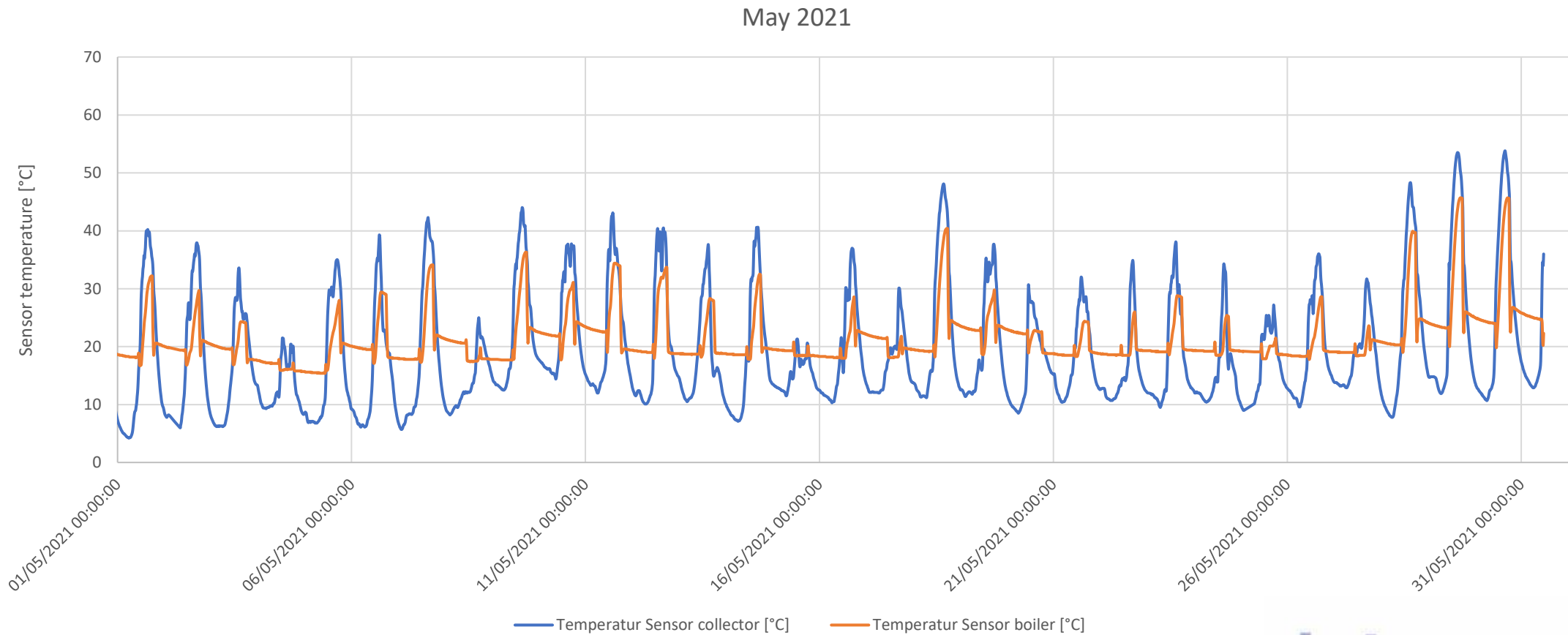


Systemdatum 09/15/2020 15:34:34

Dagen actief 85



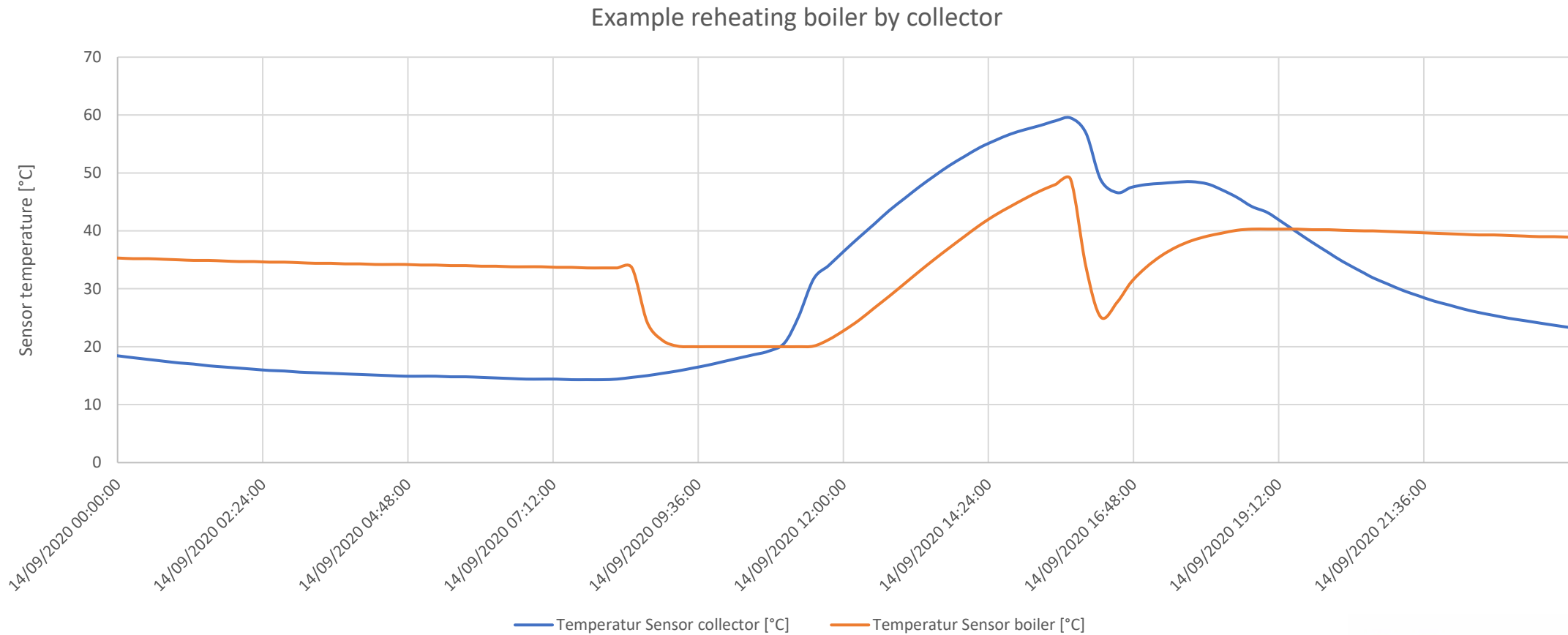
# Verloop temperaturen over een maand mei



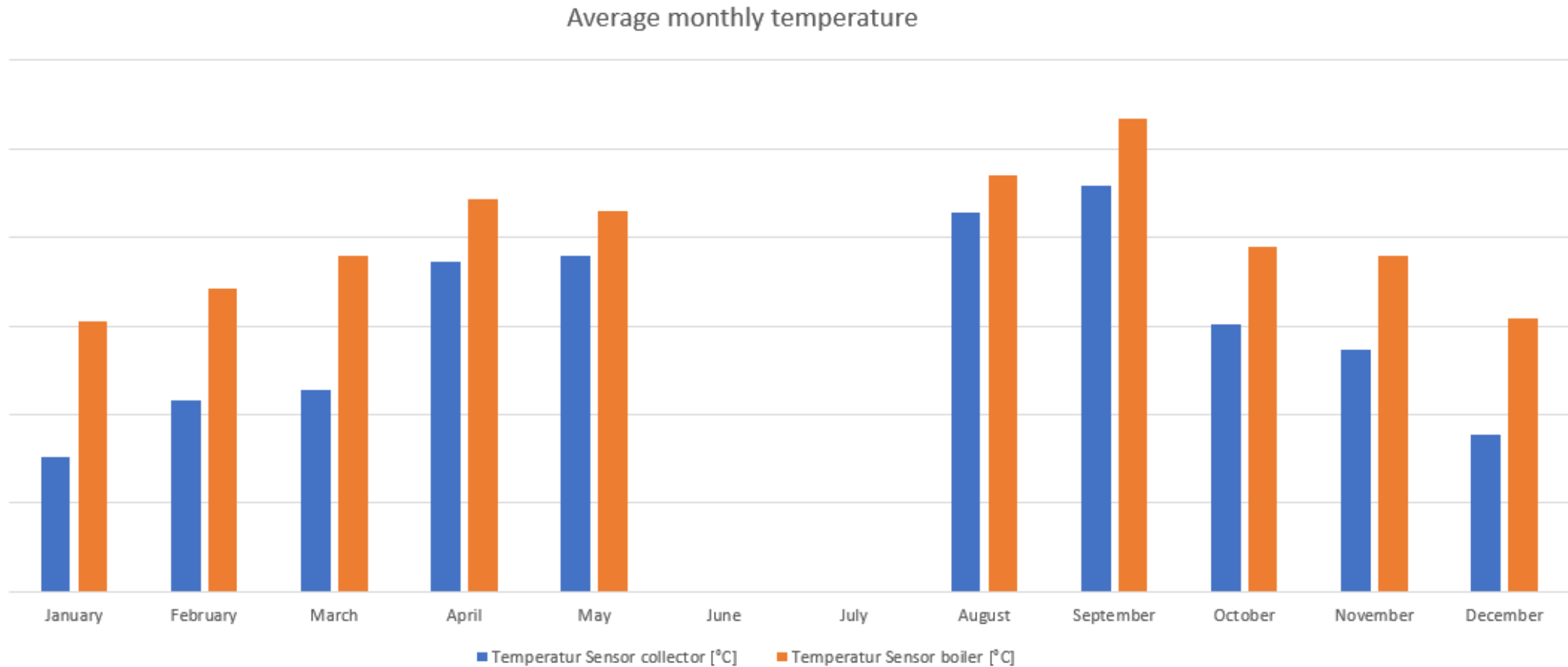


# Voorbeeld opwarming op een dag in september

(afname warm water om 09.00 en 15.30 uur)



# Verskil gemiddelde T van boiler en buiten sensor



# Q-Roof onder lei op monumentaal stadhuis Middelburg



Systemdatum 09/15/2020 15:34:34

Dagen actief 85

## Samenvatting:

- Werking onder lei > onder dakpannen
- Zelfs bij -5 buiten, kan collector naar 35 graden
- Weinig wind en scherpe zon zijn ideaal
- In zomer kan vloeistof opwarmen tot 82 graden
- Opbrengst sterk afhankelijk van afname patroon
- Bij gebruik van meer warm water -> grotere besparing
- Zeer geschikt voor opwarming “bron” in zomer bij WKO

