



Rijksvastgoedbedrijf  
Ministerie van Binnenlandse Zaken en  
Koninkrijksrelaties



## *Visit School for military police with climate system with ice buffer*

Kees Wierenga, RVB  
[Kees.Wierenga@rijksoverheid.nl](mailto:Kees.Wierenga@rijksoverheid.nl)

Vincent Berkhout, Solareis  
[v.berkhout@solareis.nl](mailto:v.berkhout@solareis.nl)

24 november 2022



- 2013 start project School for military police
- 2015 final design completed
- 2017 finishing specifications
- 2018 start building
- 2018 add ice buffer to the project
- February 2020 building completion
- December 2022 finishing the optimization of the climate installation



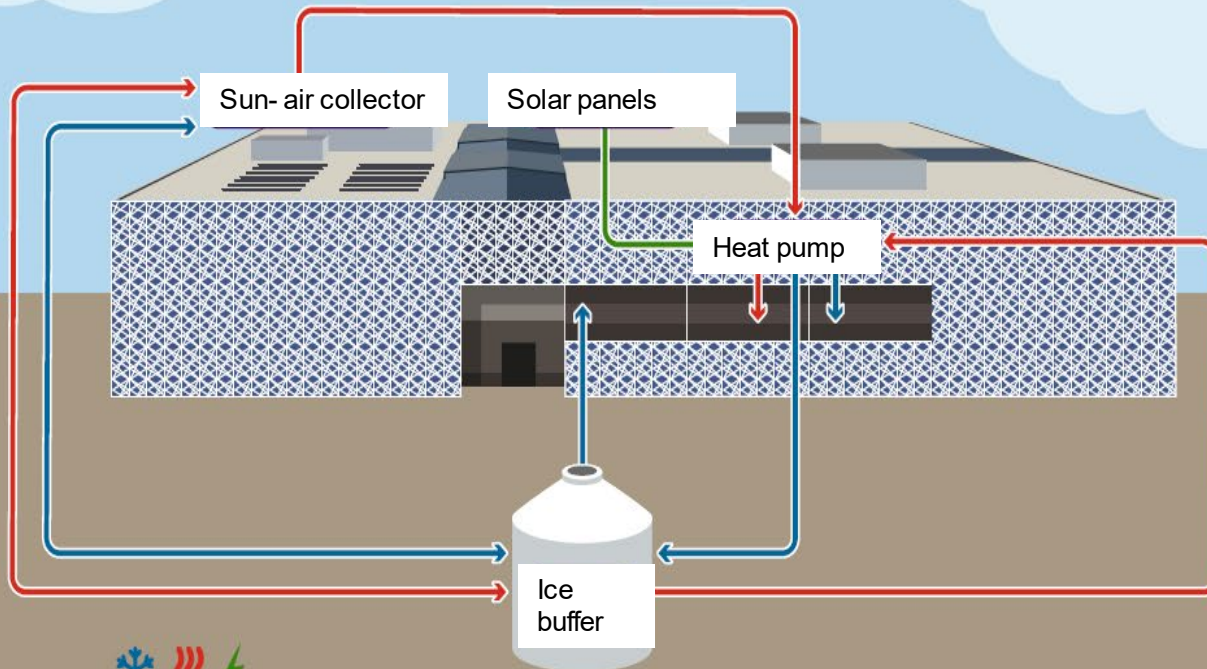






## Free from gas with ice buffer

Ice buffer in Apeldoorn for heating and cooling building



The teaching building for the Royal Netherlands Marechaussee in Apeldoorn is the first building within the Central Government Real Estate Agency and Defense to be equipped with an innovative ice buffer installation. With this ice buffer, the building can be cooled and heated in a sustainable way!





## Why an Ice buffer?

- In the 5 years between the start of the project and the start of implementation, there are adjustments in the sustainable principles of the government;
- New techniques have become available;
- Difference in practicality of the ice buffer and geothermal energy.

## Benefits seen by RVB within this project:

- Less outdoor space;
- Flexible use (there is always an operating mode that can supply the required heat or cold);
- Energetically better (this will be monitored in the coming years);
- No energy balance or additional permit required;
- System can start immediately at requested power.

## Disadvantages seen by RVB within this project:

- System was not yet known to the government;
- New technology for RVB, never before applied within our organization;
- Higher investment costs compared to original design.

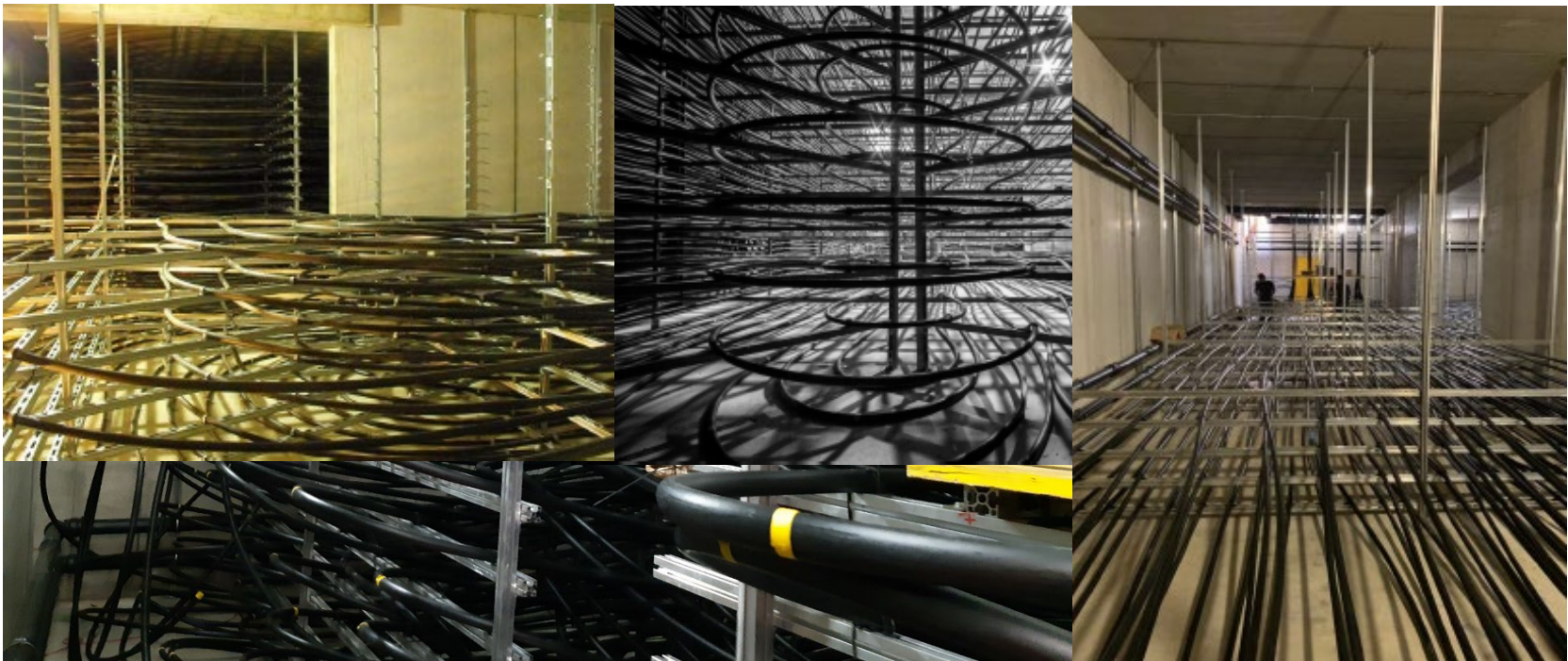


## Some numbers

Water content 809 m<sup>3</sup>, ice content 623 m<sup>3</sup>, 18 km PE pipe and dimensions 22x11x4m

Heat supply: 135,388 kWh and a maximum of 445 kW

Cold delivery: 169,185 kWh and a maximum of 412 kW

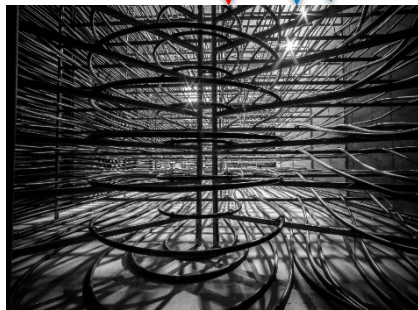




# Ice buffer



## Build-up installation



# Question?

