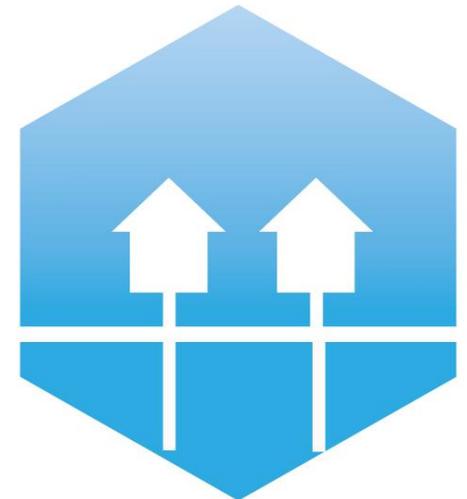
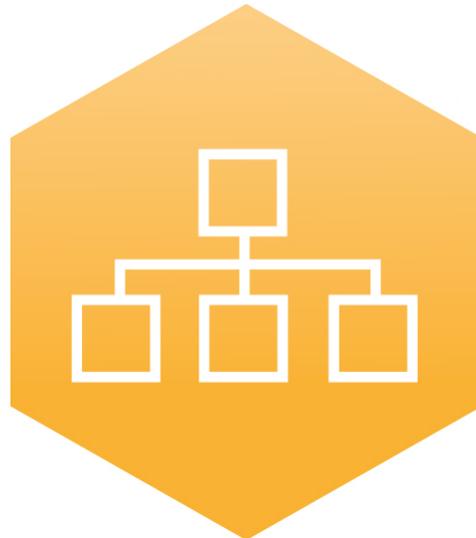


International Conference on Smart Energy Systems and 4th Generation District Heating
Copenhagen, 25-26 August 2015



Highly prefabricated, tailor made District Heating and Cooling networks

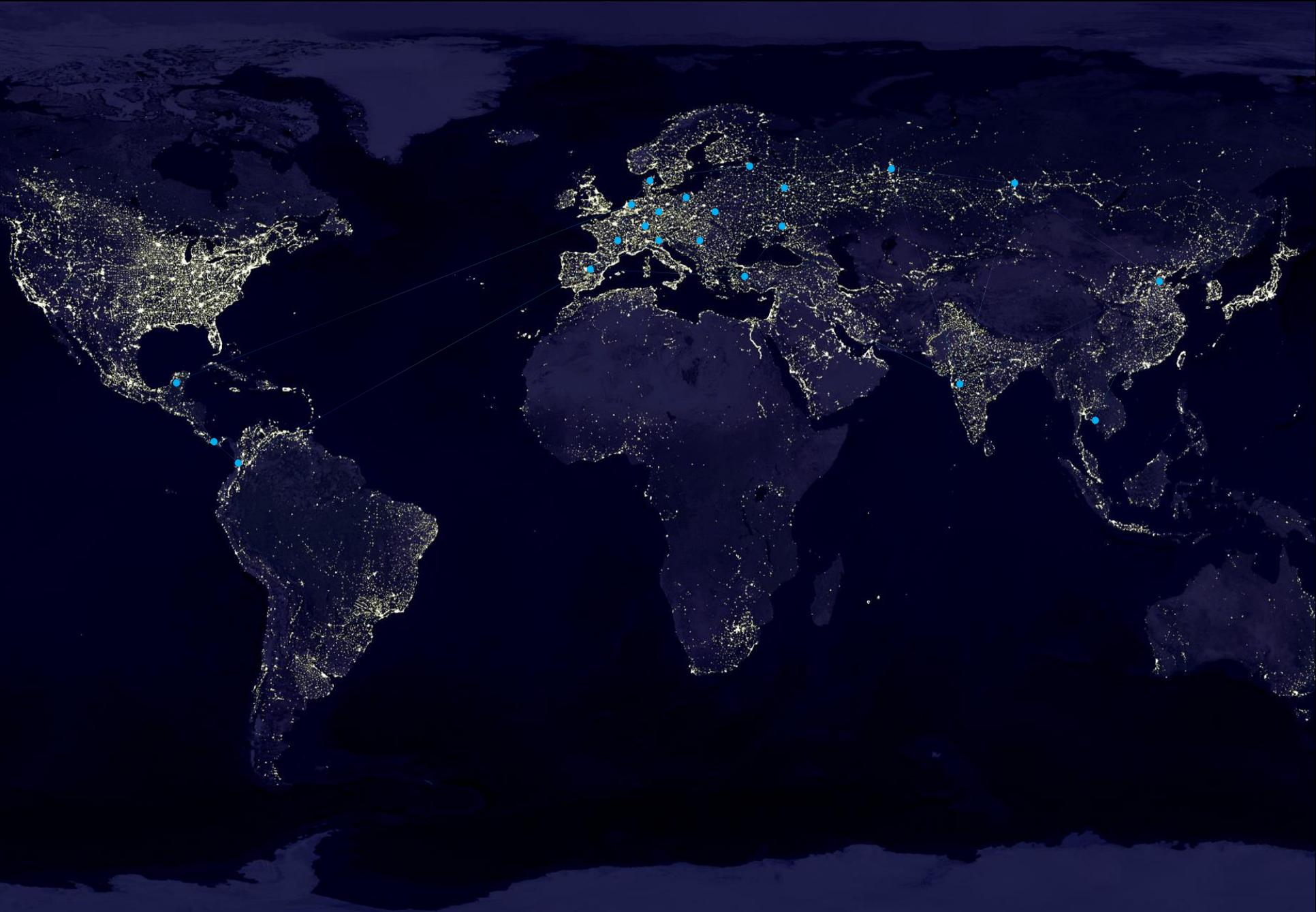
Christian Engel / Thermaflex



AALBORG UNIVERSITY
DENMARK

4DH

4th Generation District Heating
Technologies and Systems



t a k i n g c a r e o f e n e r g y a n d t h e e n v i r o n m e n t

FUTURE GENERATIONS



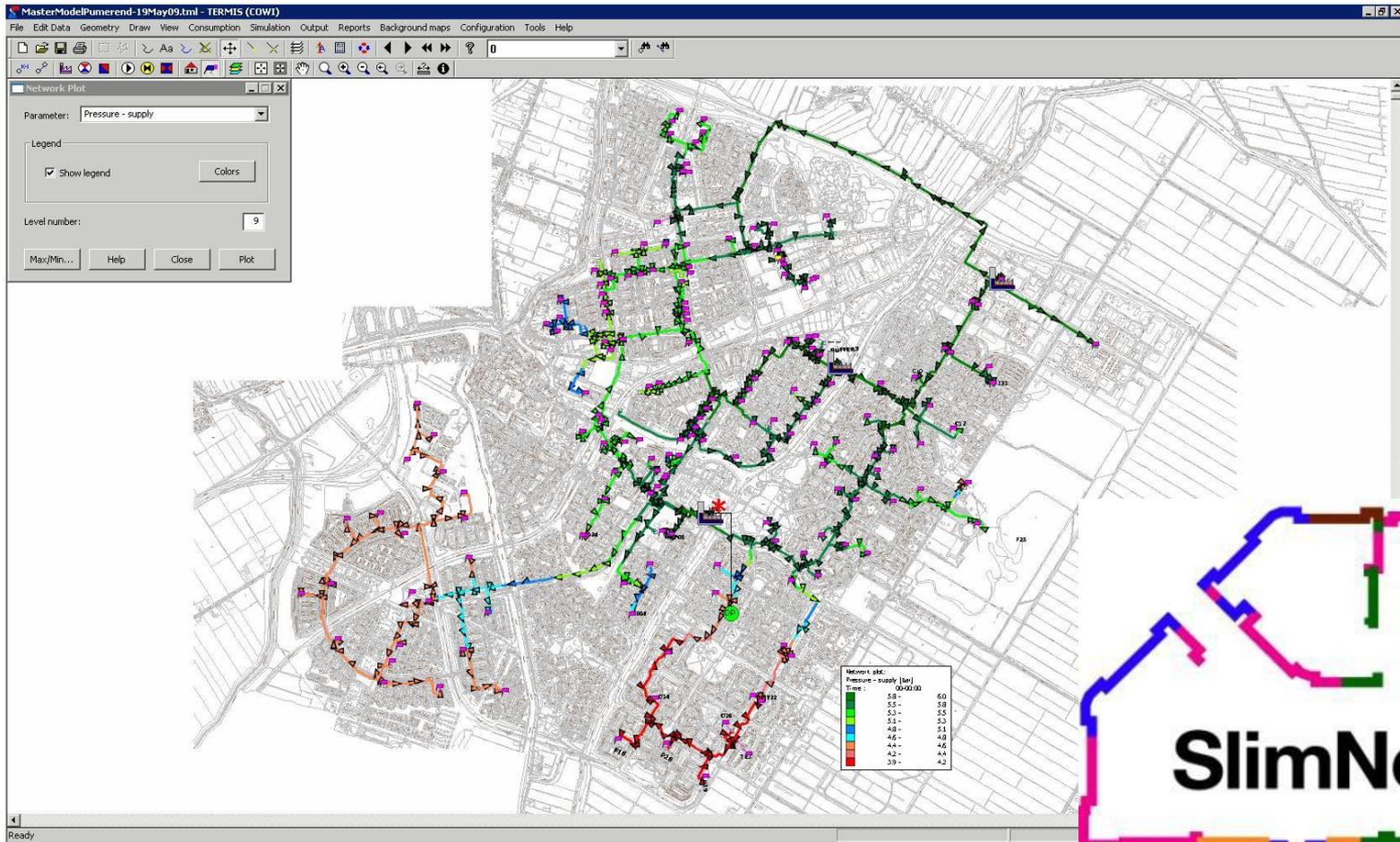


Purmerend



City north of Amsterdam
Serving 25.000 customer

SlimNet: the network upgrade



Purmerend partner

DH 2.0 European partners:

➤ COWI (Denmark):

- Network redesign
- Design specifications biomass plant
- Implementation production assets

 COWI

➤ Thermaflex (Netherlands/Austria):

- Supplier SlimNet concept

 thermaflex®
taking care of energy and environment

➤ A. Hak (Netherlands):

- Constructor SlimNet concept

 a.hak

➤ Weiss (Denmark):

- Supplier biomass plant

 WEISS

Renovation with FlexaLink

District Heating
Purmerend:

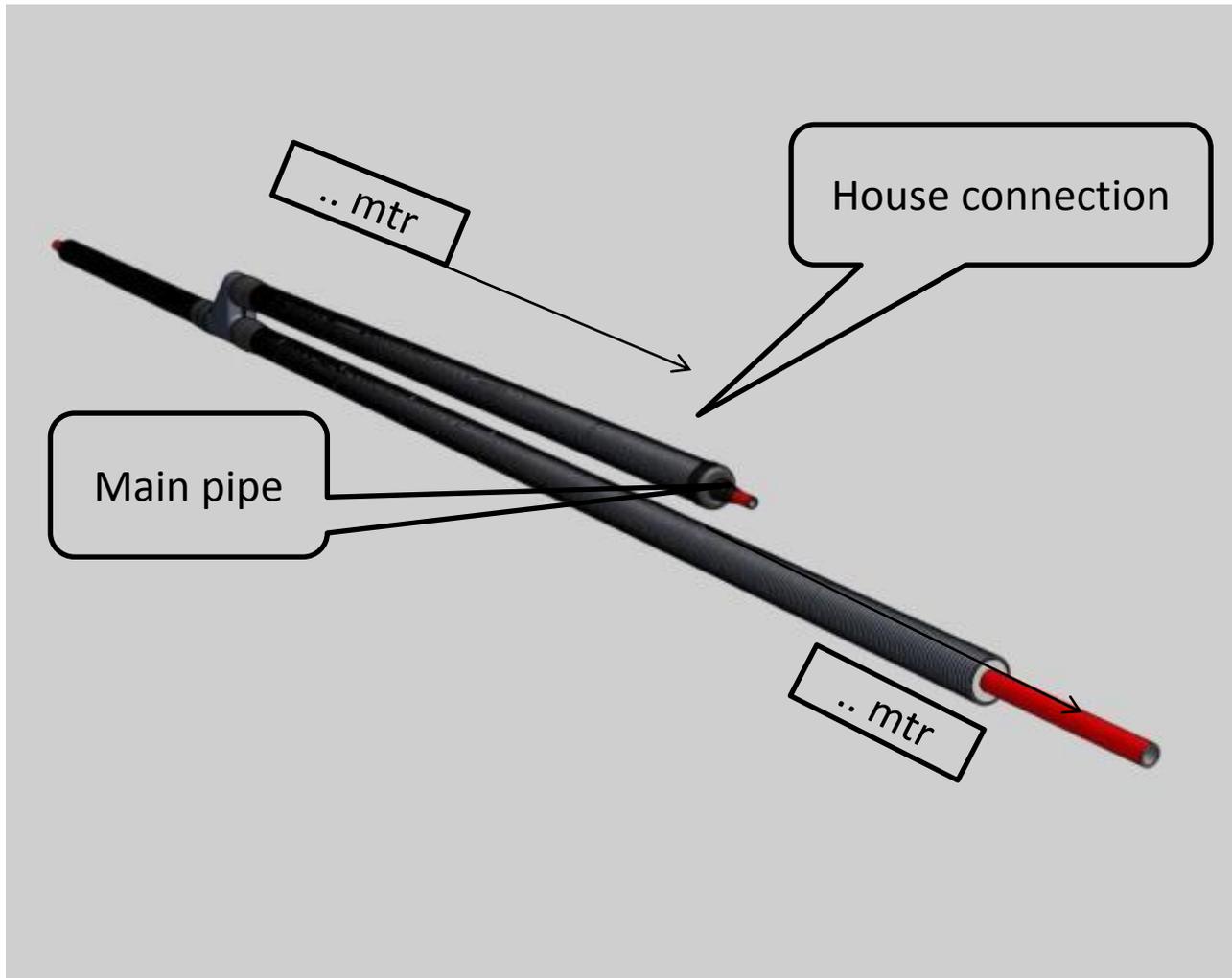
2010-2015: 4.000





PIONEERING TECHNOLOGY

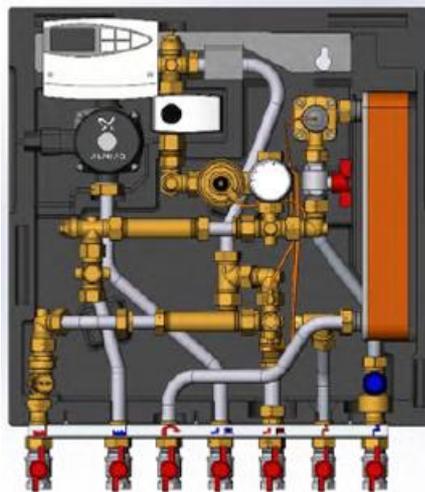
The basic idea of tailor made network parts - the flexible house connection



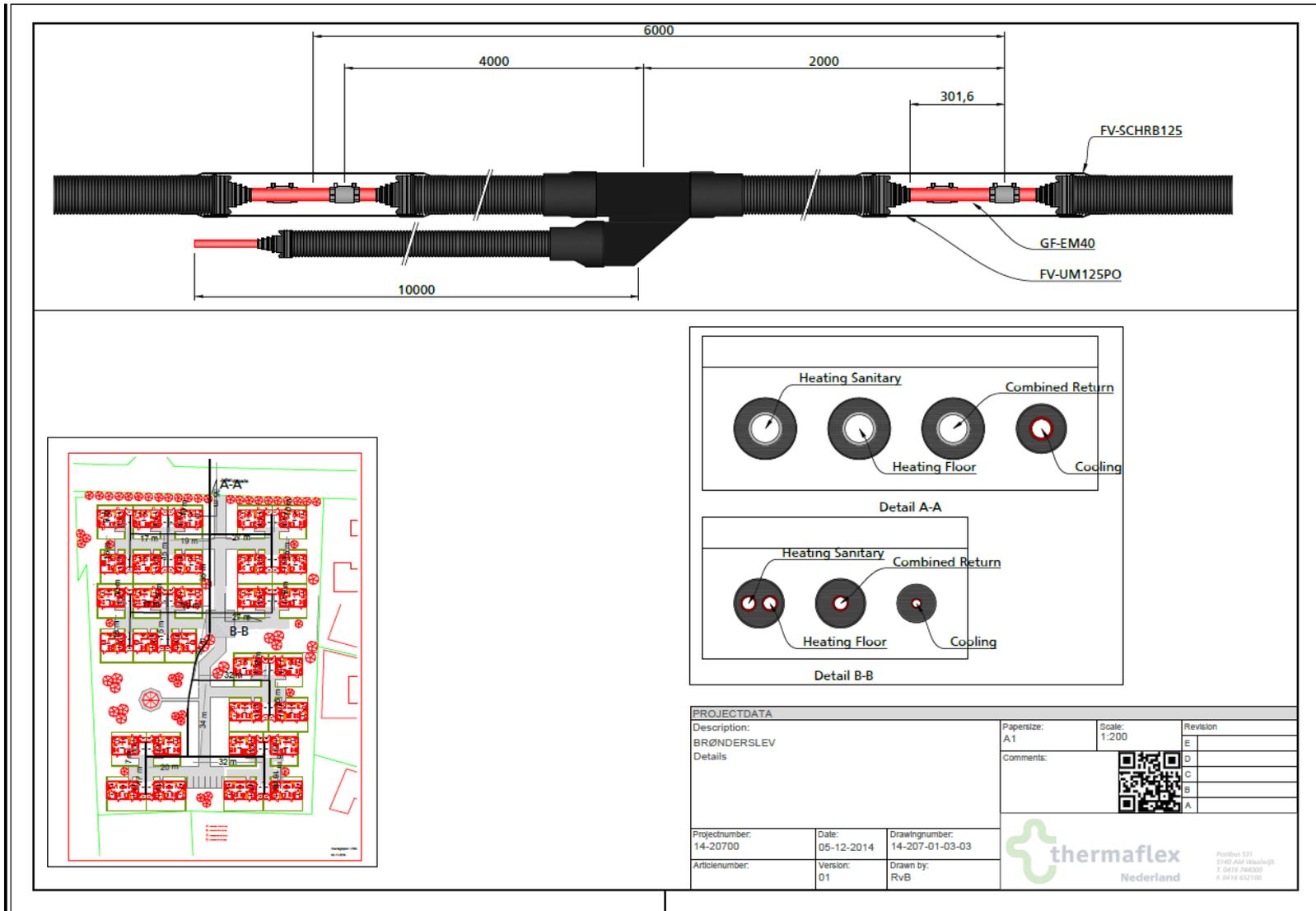
Low temperature DH



- ❖ New 28 houses area
- ❖ Heat pump for hot water
- ❖ 60°C/40°C
- ❖ Plug and play system
- ❖ 4 lines



Plug & Play





TAYLOR MADE SOLUTIONS

Hengelo, NL – a dynamic city



Industrial waste heat for
5.000 new apartments

Example: Park Veldwijk

70°C/40°C



Source: <http://www.parkveldwijkhengelo.nl/>

Hengelo - Street in a Day:

10 house connections within 1,5 hours



Significant lower impact on the citizens

Low Energy houses: Wörgl in Tyrol/Austria



Carefree Heat
for low temperature
houses

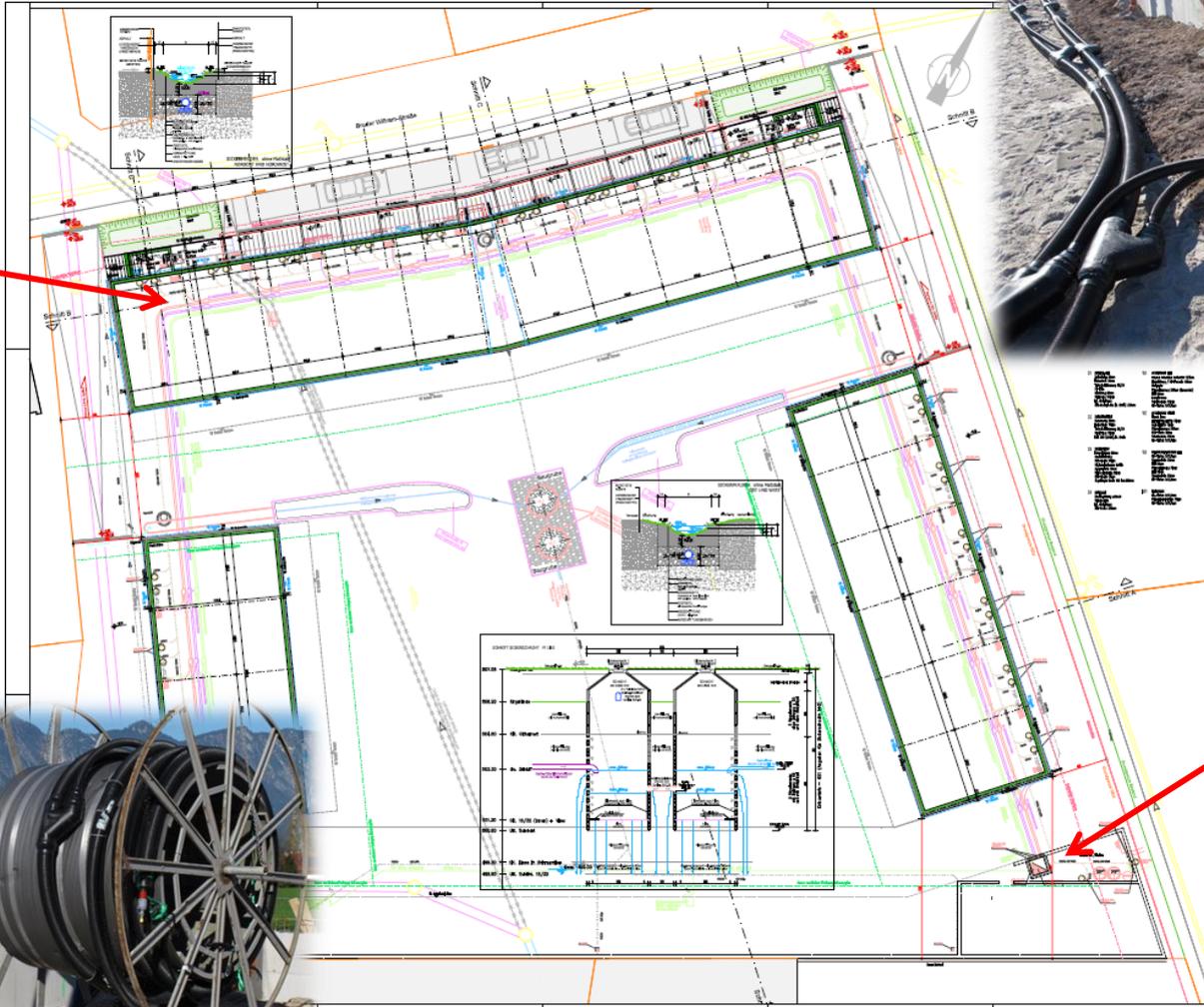
Affordable
houses

Designed for a
social housing
developer



Low Energy houses

DH
70°C/40°C



Connection to
DH Wörgl



Results & Experiences

Highly prefab DHC networks mean:

- ✓ Street in a Day – the faster DH installation
 - ✓ Tailor made - to specific local needs
 - ✓ Successful applications in low temp systems
-
- and....

A hand is shown holding a small green seedling with a red seed pod. The seedling has two leaves and a thin stem. The seed pod is red and has a small opening at the top. The roots are visible and are covered in a blue, glowing, geometric pattern that resembles a network or a digital overlay. The background is a bright, cloudy sky.

CRADLE TO CRADLE CERTIFICATION

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Jan Hønning – Thermaflex Nordic
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turning your infrastructure
into environmental capital