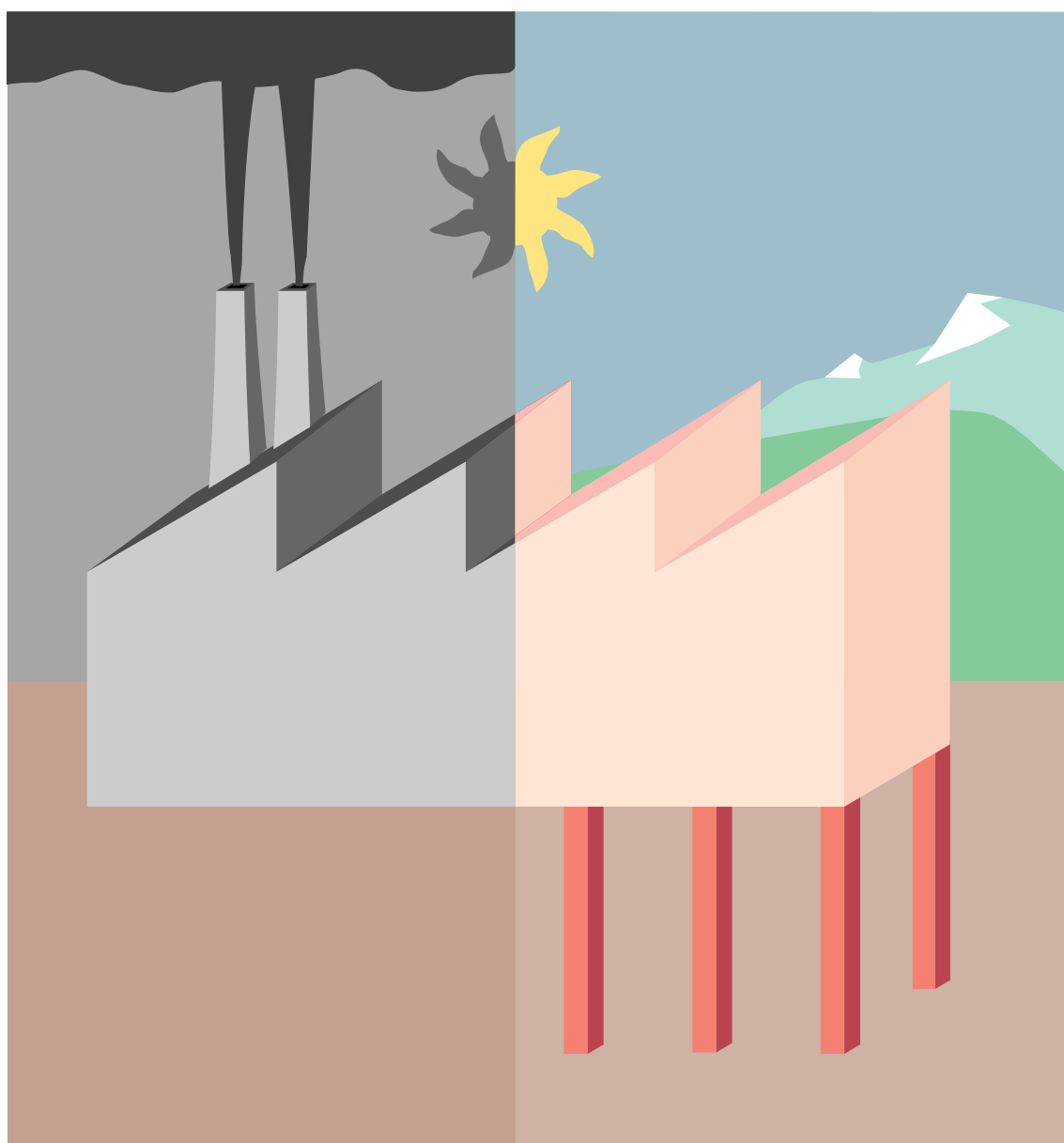


Thermo-Active Foundations

The Environmentally friendly way of cooling and heating buildings using concrete structures to obtain energy from the ground and ground water



enercret[®]

nägele

energie- und haustechnik gmbh



Technology provides energy for heating and cooling

How enercret heating and cooling systems work

Concrete structures such as piles, diaphragm walls, retaining walls, foundation slabs etc. are used to absorb thermal energy from the ground and ground water (ground temperature is approx. 13 °C in central Europe).

The energy is absorbed and transported by means of fluid-filled pipe systems incorporated inside the foundation elements which are needed for structural reasons.

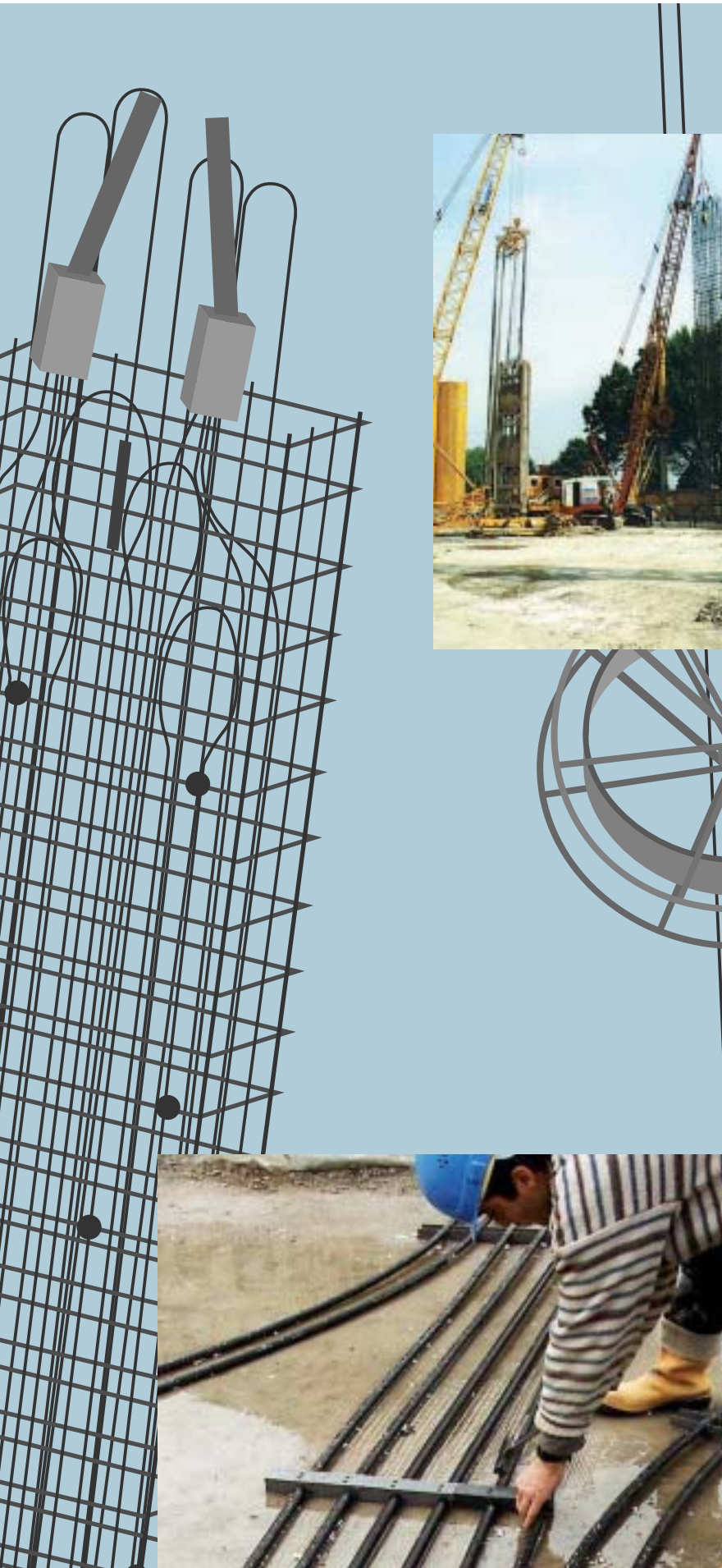
A building can be cooled for next to nothing by using the cooling fluid. In the case of heating the same system can be used to extract energy by means of a heat pump. The ground provides an intermediate storage facility for excess energy - the warmth disposed during cooling period can be absorbed for heating and vice versa.

An economic and emission-free heating and cooling system using proven technology

By pumping the cool liquid through the low temperature heating system up to fifty kW of cooling capacity can be obtained for the building using only one kW pump capacity. For each kilowatt of electricity consumed by the heat pump up to four kW of thermal energy are produced as a bonus for the heating system.

If the electric power is generated by a hydroelectric power station, the environmental impact is virtually zero. enercret systems are clearly economic.





Symbiosis of energy and construction Engineering

Design Requirements

The use of enercret technology does mean extensive planning requirements, and not just with regard to heating and cooling considerations. In particular, an investigation of the soil mechanics, hydrological and foundation requirements of the proposed site will be needed in order to establish its suitability.

It is important to involve an experienced energy and installation specialist at an early stage of the planning proceedings.

To determine the best type of energy extraction to be used and the expected capacities, it is necessary to look at simulation of the dynamic conditions in the 3-dimensional ground.

The team of Naegele Energy and Construction Ltd. is experienced enough to cope with all these requirements and to optimize a project from the technical and economic point of view.

We can offer

- Know-how transfer
- Consulting and Engineering
- Simulation of absorber system with software TRNSPILE/TRNSSLAB
- Supervision and testing of installation
- Economic evaluations
- Contracting

Selection of References

Since 1980 about 400 buildings have been fitted with alternative energy systems from Naegelebau and offer impressive benefits:

- virtually emission-free
- renewable energy source
- energy independency
- safe, reliable system
- low investment and running costs
- „direct cooling“
- one system for heating and cooling

Examples of buildings which benefit from the use of enercret technology:

PAGO Etikettierfabrik, Grabs – CH,
600 kW heating and cooling capacity

Norddeutsche Landesbank Hannover – D
500 kW heating and cooling capacity

Primarschule Triesenberg - FL,
320 kW heating capacity

Kunsthhaus Bregenz – A,
100 kW cooling capacity

Kongresshaus Salzburg – A,
350 kW heating and cooling capacity

University of Koblenz – D
40 kW cooling capacity

Medienhaus Vorarlberg, Schwarzach – A,
230 kW cooling capacity

EA-Generali, Wien – A
400 kW cooling capacity, 600 kW heating capacity

Messehalle Dornbirn – A
800 kW cooling capacity

Reha – Zentrum Bad Schallerbach, A
270 kW heating capacity

Wohnanlage Malerva Sargans - CH
70 kW heating capacity

*Norddeutsche
Landesbank*



*Autohaus
BMW Schifferer*



*Messehalle
Dornbirn*



*Reha-Zentrum
Bad Schallerbach*



enercret®

nägele energie und haustechnik gmbh

Bundesstraße 24

Austria – 6832 Röthis

Tel. ++ 43 5522 3627-404

Fax ++ 43 5522 3627-400

e-mail - info@enercret.com

www.enercret.com