



Fast foundations for carbon-free future





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ROTOPILE



Headquarter in Lisbon, Portugal. Side offices in Finland, Brazil, and Mozambique. Rotopile operates worldwide.



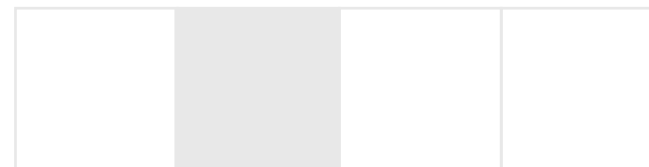
Services: 1) *Helical pile manufacturing* 2) *Foundation design* 3) *Helical pile installation*



More than 20 years of experience in manufacturing and installing helical piles. More than 40 years of experience in geotechnical investigation and geotechnical engineering. The most experienced helical piling company in Europe.



References from 15 different countries from the areas of; residential building projects, infrastructure projects; road- and rail, industrial projects; oil- and gas, energy sector; powerlines, transformer stations, and solar power, multiple projects for states and cities, and private projects.





WHAT ARE HELICAL PILES ?



Helical pile is a deep foundation that can be installed very fast with minimal noise and vibration. The pile consists of a steel shaft and one or more helices.



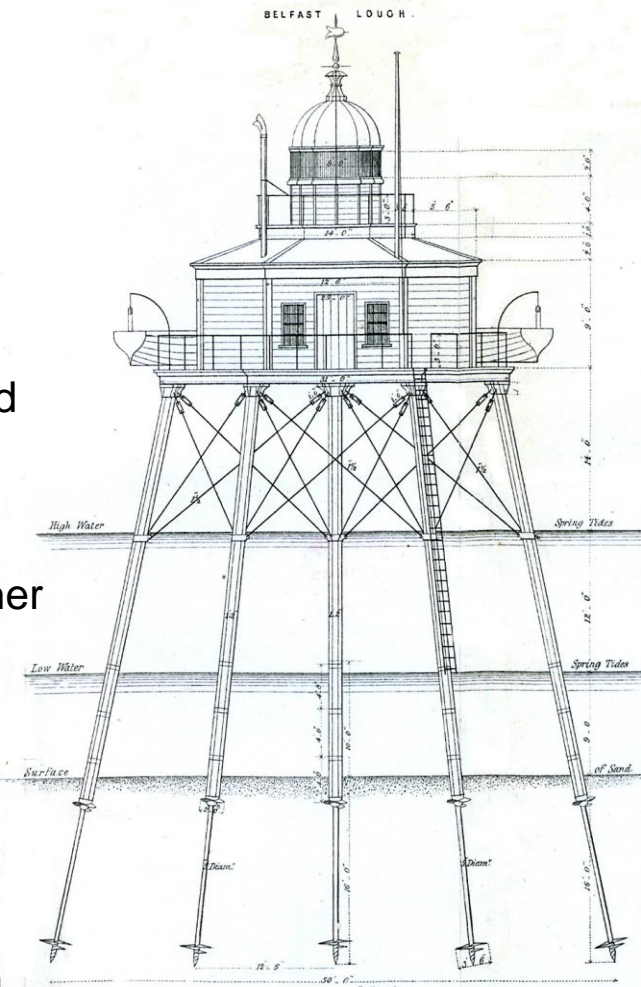
Because of wide supporting area of helical part, the helical piles typically have a higher load capacity than hammered steel piles of the same size.



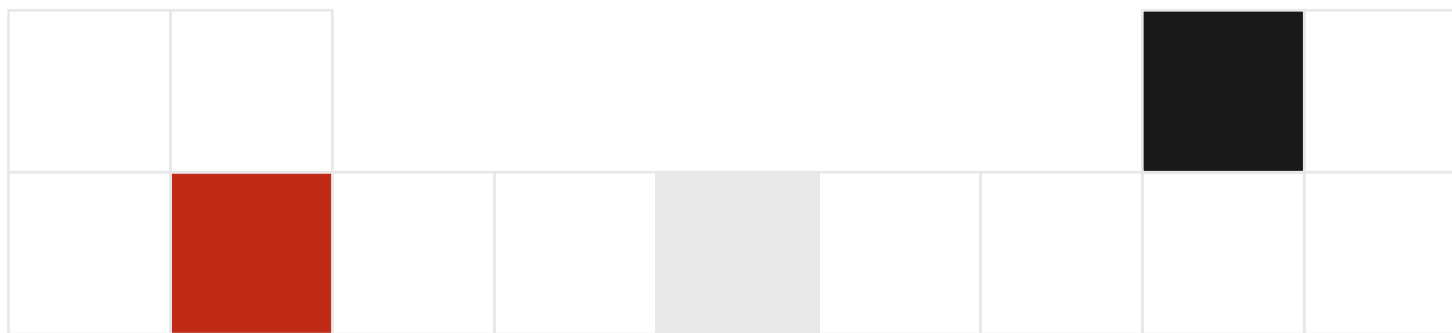
Screw Piles don't typically require excavation work, soil removal, de-watering or require any mold work or curing time like concrete.



History of helical piles goes back to 1833 when Mr. Alexander Mitchell invented them.



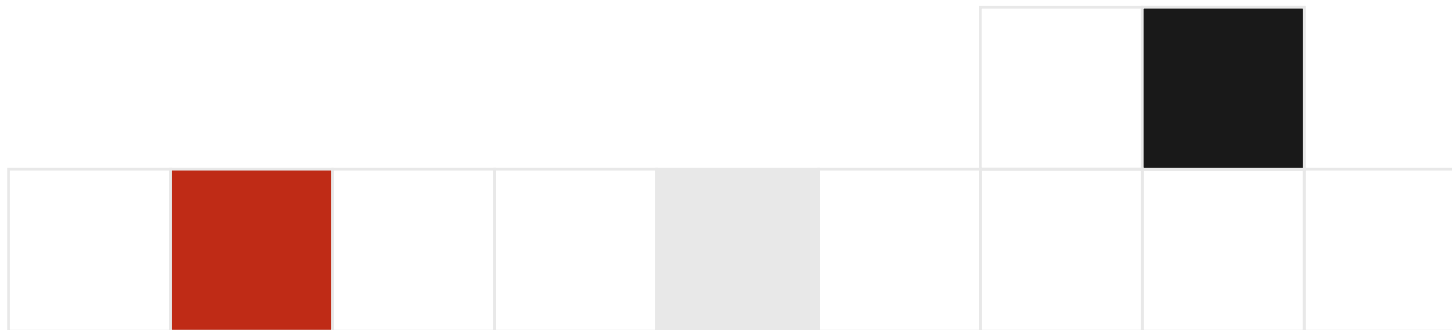
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WHAT ARE HELICAL PILES ?

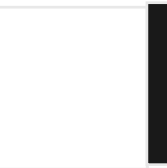
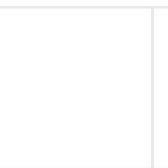
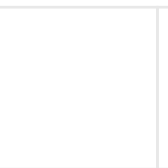
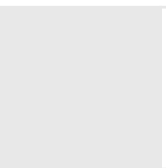
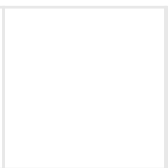
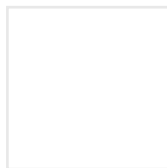
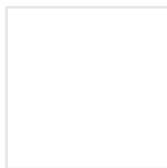
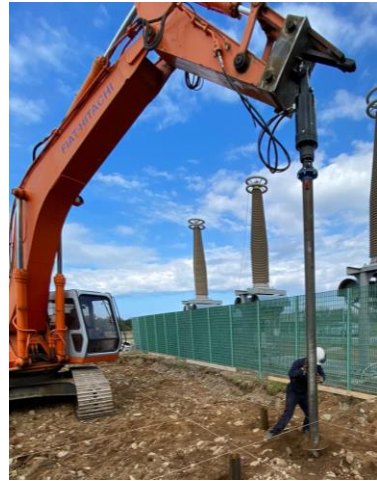
- Common helical pile tube sizes are between 60-330mm. Helice diameters can vary from 150mm up to 1 000mm.
- Sometimes helical piles are mistakenly mixed with 'ground screws'. Helical piles have better load-bearing- and tension capacity than ground screws.
- Rotopile manufactures PRO™ helical piles for professional use, and HELIX™ piles for lighter construction. Rotopile products come with 50 – 100 year warranty.





BENEFITS OF HELICAL PILES

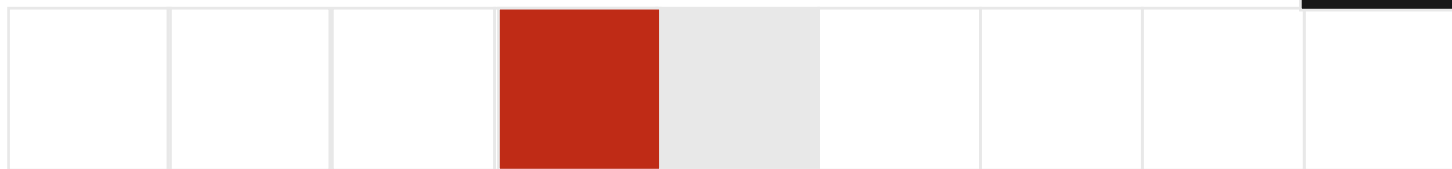
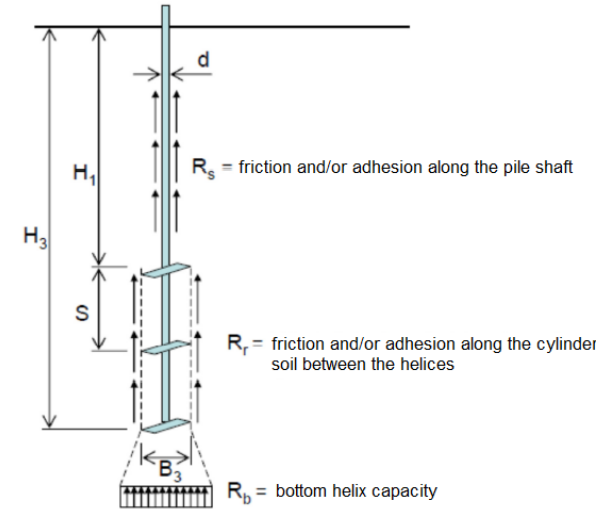
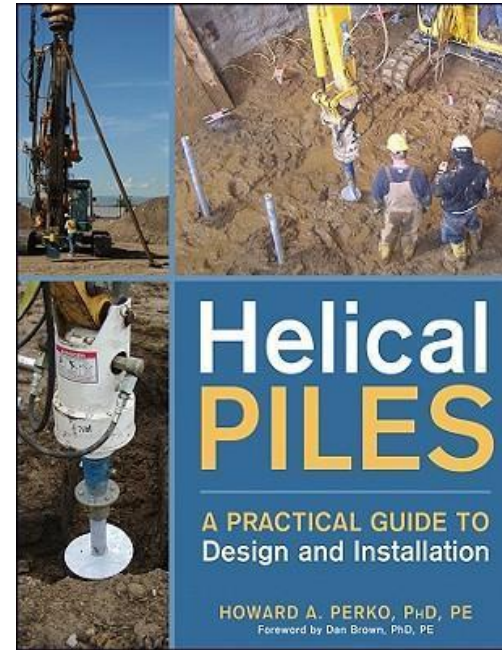
-  **SPEED** - Fast installation without excavation-, soil removal- or concrete works
-  **COST**- Installation speed, small equipment, and fewer work phases provide savings.
-  **STRONG** - Superior load capacity and functions well also with poor soil conditions.
-  **ENVIRONMENT** - Less unwanted impact on worksite and environment, low CO2, and the possibility to recycle.
-  **AGILITY** - Requires small equipment which is easy to transport can access to remote locations.
-  **RELIABILITY** – Helical piles are a long-lasting solution and their capacity can be verified in a reliable way.





MECHANICS AND DESIGN PRINCIPALS

- Helical pile capacity follows the same design principles as steel pile design in general – the biggest difference comes from the larger tip area and the ability to act as an anchor
- Torque-to-capacity method provides a reliable way to perform on-site quality control during installation
- Design relies on Eurocode – only the anchor pull-out capacity under tension load relies on the relevant literature and design principles used by anchor manufacturers. Rotopile offers complete foundation design services.





APPLICATIONS



Helical piles can be used in both compression- and tension applications.



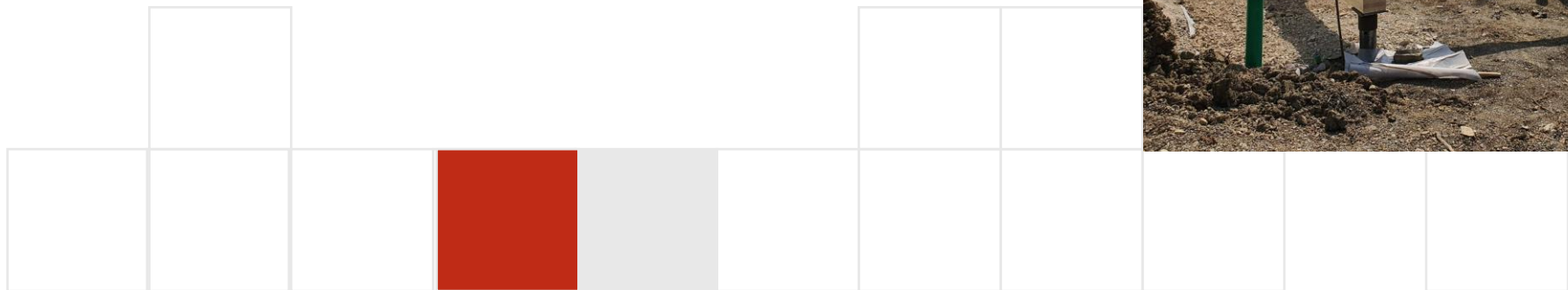
Typical small construction applications: terraces, fences/gates, stairs, small houses, garages, solar panels, walkways, traffic signs etc.



Typical large construction applications: houses, industrial halls, powerline masts, noise barriers, bridges, gantries, air domes, concrete slabs etc.



Helical piles can also be used in underwater applications.



TYPICAL APPLICATIONS

TERRACES/PATIOS



FENCES



PIERS



TYPICAL APPLICATIONS

GARDEN HOUSES / GARAGES



COTTAGES / HOUSES



ADVERTISING DISPLAYS / PYLONS



TYPICAL APPLICATIONS

FOUNDATION- AND FLOOR STRENGTHENING



AIR DOMES AND SPORT HALLS



SOLAR PANELS



TYPICAL APPLICATIONS

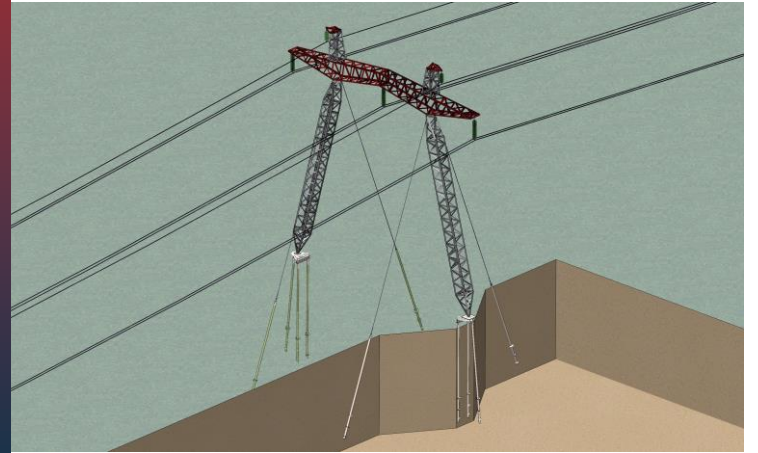
NOISE BARRIERS



OIL- AND GAS PIPELINES



ELECTRIC POWERLINES



TYPICAL APPLICATIONS

WALKWAYS



AGRICULTURE

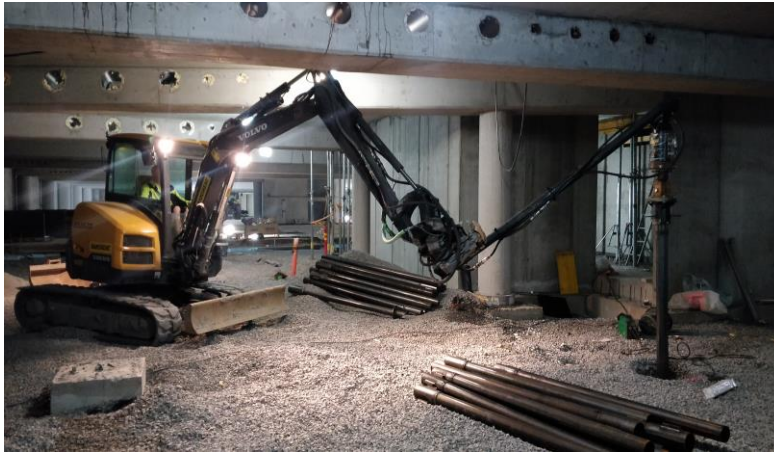


DIY



TYPICAL APPLICATIONS

SITES WITH LIMITED ACCESS



SITES ON RAILS



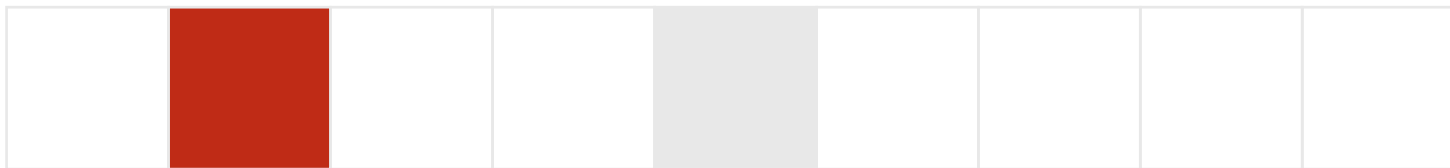
SITES NEAR- OR IN THE WATER





INSTALLATION

- The typical installation speed is about 30-80 piles per day depending on the soil and the size of the piles. Load capacity is verified during installation from installation torque.
- Most common installation machine is an excavator, but also the front loader, telehandler or truck crane can be used.
- Compared to the hammered piles, helical piling does not cause noise and the installation can be done at any time of the day.
- By request, Rotopile can provide only the installation equipment together with installation training. Rotopile can also provide small-scale excavation works by request.



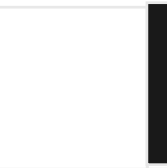
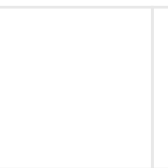
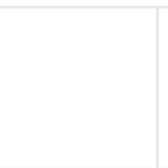
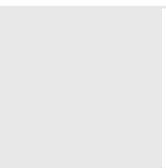
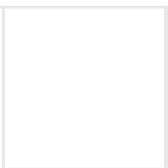
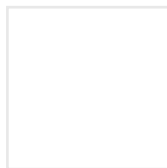
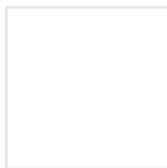


ECONOMICAL ASPECTS

- No large size excavation or earth removal is needed. Neither are many contractors needed, Rotopile alone can take care of everything related to foundation works.
- 5-10 x faster process than making the concrete foundations
= lower project costs and better ROI for your project
- No risk of delays caused by weather, as helical piles are possible to install in all weather conditions.
- Compact equipment and a small team of operators save in mobilization- and work costs. Less site preparation works are needed compared to other piling methods implemented with bigger machinery. Also, less work is needed to restore the site to its former state after installation.



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ECOLOGICAL ASPECTS



Helical piles have about 50% smaller carbon footprint than a concrete foundation of the same size.



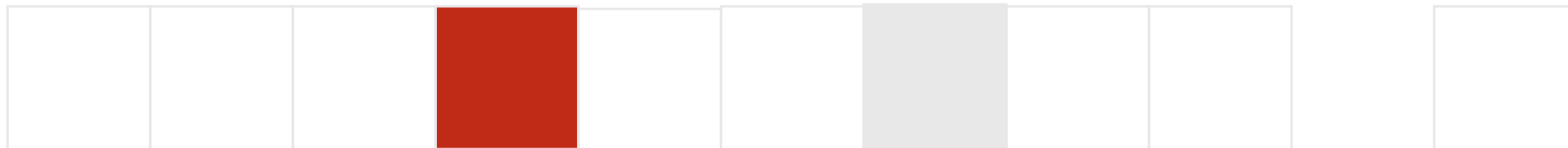
Because of small installation equipment and lack of excavation the installation site stays undamaged and clean. Possible to preserve trees and other vegetation.



Helical piles can be recycled, the pile can be unscrewed and used again.



Possibility to use piles as a source of geothermal cooling and create significant savings in cooling energy. With energy optimization the carbon-free projects are possible.



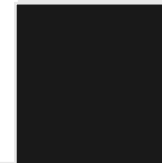


ENERGY PILES



Helical piles can work as a source of heating and cooling by embedding geothermal collectors inside the piles.

- 1) Saves the drilling costs of a Geothermal well
- 2) Long piles can save customers' costs by being a source of free heating and cooling, instead of being an 'unpleasant expense'.
- 3) Only total 150m piling meters are required to take care of the heating and cooling of the normal 100m² household in Northern Europe. Usually, fewer piling meters are required when only cooling is applied.
- 4) Plenty of small- and large size references in Finland





LOAD VERIFICATION AND LOAD TESTS

- Helical pile load capacity verified can be verified on-site during installation by monitoring the installation torque.
- Possibility to perform both compression- and tension static load tests.
- Piling report including data of each pile installed provided from each site.

PAALUPISTE English

PILINGSHEET

Päivämäärä (en): Asemus päivämäärä (en): Tilausnumero (en):

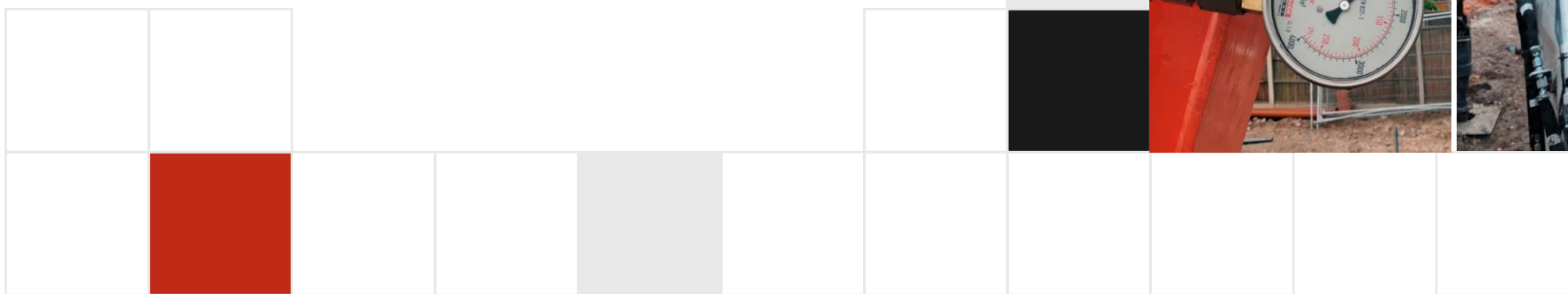
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Kohteen nimi (en): Kohteen osoite (en):

Kaupunki (en): Kaupunginosa tai rakenne (en): Tontti/Rno (en):

Paalutusurakoitsija (en): Paalutuskalusto (en): Peräkalusto (en):

Paalutuskoneen kuljettaja (en): Puhelin (en): Sähköposti (en):





ECO-HOUSING



Helical piles are the fastest, most cost-efficient, and environmentally friendly foundation method for ecological residential projects.

That's why helical piles are the perfect foundation for residential eco-housing projects where fast project lead times, high ROI of investment, keeping the environment untouched, recyclability, and low carbon footprint are the main selection criteria.

With energy piles and – optimization, even completely carbon-free projects are possible.

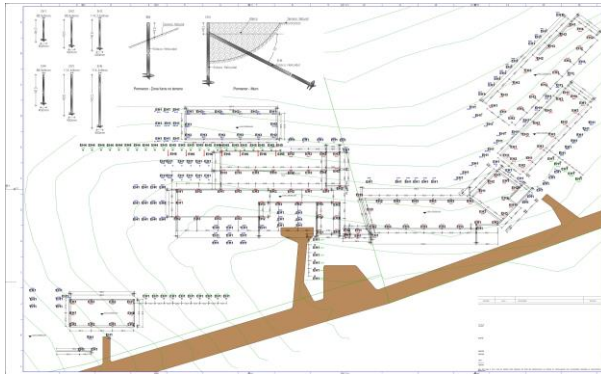




CASE: SANTA KATHARINA, COMPORTA PORTUGAL

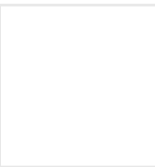
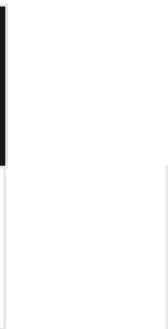
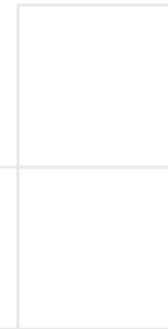
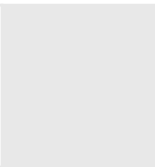
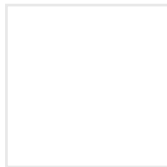
PROJECT SPECS:

- CLT-panel Eco-villa project in Comporta Portuga 1/2022
- More than 300 pcs. Rotopile PRO™ helical piles used in sizes 88.9 – 114.3mm



GAINED BENEFITS:

- Major cost-savings in the price of foundations
- Significant project time savings
- Trees and the rest of the site stayed undamaged
- Notably decreased CO2-footprint





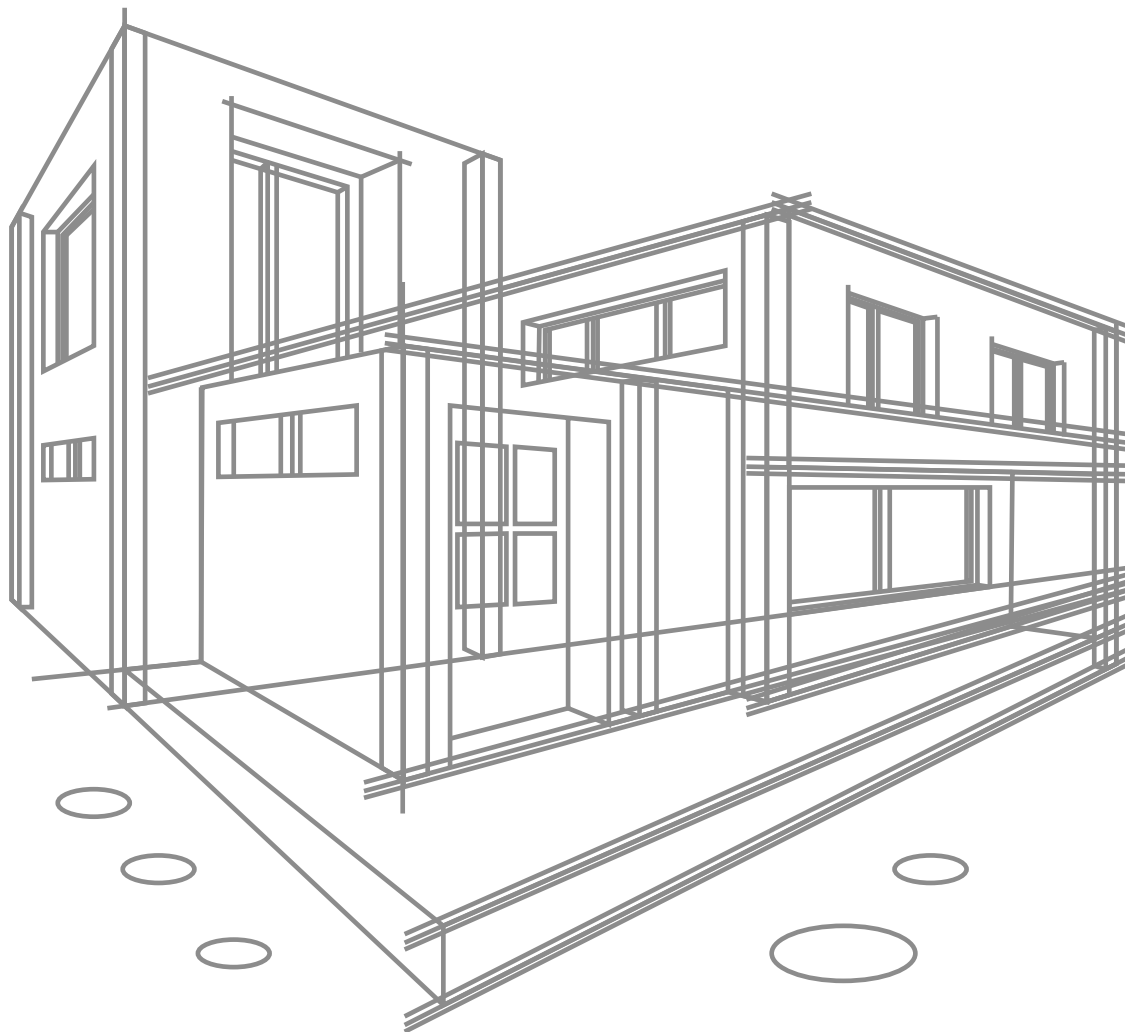
PROCESS OF THE PILING PROJECT

- 1) Initial data: Geotechnical investigation + specs of the building/structure
- 2) Foundation Design
- 3) Piling quote based on the design
- 4) Order and contract of the work
- 5) Setting the installation date
- 6) Pile manufacturing process and site preparations (topographer)
- 7) Pile installation
- 8) Delivering piling report and material certificates for the client








YOU HAVE A PROJECT WHERE HELICAL PILES COULD BE USEFUL
...BUT NOT SURE HOW TO PROCEED?



CONTACT US:



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**WE WANT TO KNOW MORE
ABOUT YOUR PROJECT**