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Design of precast piles for energy storage projects

Overview

What are precast energy piles?

Precast energy piles can be categorized into steel and concrete energy piles based on their material. The heat transfer pipes are installed inside the steel pile foundation . It is well known that the price of steel pile foundations is generally higher than that of concrete pile foundations.

What are driven precast concrete energy pile foundations?

The driven precast concrete energy pile foundations have a large worldwide market. Utilizing driven energy piles in the construction industry can save a considerable portion of money on electricity bills and reduce the CO 2 emissions associated with the heating and cooling of buildings.

Can precast concrete piles be used for deicing roads?

However, the piles in the E18 Bjørvikaprosjektet project were not energy piles, but energy piles can be used in such projects, and the harvested heat can be used for deicing roads and sidewalks. Presently there is a relatively large market for precast concrete pile foundations worldwide.

How are precast concrete energy pile foundation segments constructed?

Precast concrete energy pile foundation segments are constructed at a concrete factory. The construction process includes installing a cage in a formwork, embedding the high-density polyethylene heat transfer pipe inside the cage, and then pouring concrete into the formwork.

Are precast concrete energy piles a good investment?

Precast concrete energy piles can boost utilizing GSHPs and geothermal energy, which will speed up approaching the target EU goal for the transition toward net zero emission buildings. The market for normal driven piles is very mature and covers many countries worldwide that have their specific related standards.

What are the different types of precast concrete energy piles?

The precast concrete energy piles foundations can be categorized into two types according to their shapes: hollow cylindrical (concrete pipe pile) and quadratic energy piles (square-shaped). In the following paragraphs, the characteristics of each of these types are discussed in detail, and they are compared. 5.1.

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