

Helical Piles: An Overview, Design Theory and Applications

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Helical piles and anchors have been used in construction applications for over a century. The first recorded use of helical piles was in 1836 by Alexander Mitchell when he used helical piles to underpin the well-recognized Maplin Sands Lighthouse in England. In the last 30 to 40 years, Helical piles have gained in popularity to the extent they are more frequently recommended by design professional engineers, compared to many other deep foundation types. In 2009, the International Building Code (IBC) was revised in reference to past International Building Codes and included the addition of helical piles. The presentation will discuss the main components of a helical pile, pile installation process, various applications, mechanical and soil pile capacities, and the methods used to determine them. It will also include the design of helical pile using theoretical methods that are based on traditional soil mechanics and the well-known capacity-torque correlation, which is probably the most significant attribute of helical pile.