

Steel screw piles - a note of caution

THE AVAILABILITY of affordable excavator-based foundation systems is both a blessing and a curse for the construction industry. The most common of these systems is the steel screw pile. On the one hand this system often lowers costs but on the other hand its affordability reduces the barriers to entry that tended in the past to keep shoddy operators out of the foundations industry. No structure, no matter how sound, can cope with poor foundations and there are unfortunately a number of cases where the 'cheapest quote' has brought long-term pain for developers and property owners.

The notes below were prepared for the Queensland Building Services Authority by David Kelly B.Eng(civil), RPEQ; an engineer with considerable experience with steel screw piles. David can be contacted at www.piling.com.au.

STEEL screw piles were first used in England in 1833. As they say..." there is nothing new under the sun..."

Since being re-invented and brought to the Australian market by Instant Foundations in 1992, various applications have been identified where time, cost and quality benefits of screw piles have seen them used in preference to traditional piling methods. Over this time, the technology has grown and been accepted and implemented in projects by all sectors of the construction Industry.

Recognition of some fundamental principles should see the screw pile used for a couple of hundred years yet. Some of these include:-

1. Know who you are dealing with and ensure that insurance protection exists.

According to Forbes magazine the decade of 2000 will be remembered as the litigation era. Any piling contractor worth their salt should be covered with professional indemnity, public liability and product liability insurance. They should also be registered with the state building licensing authority. Don't laugh - call them yourself.

Any Guarantee is (obviously) only as good as the company backing it.

The Building Services Authority has reported recently that builders, engineers and the foundation contractor are all being involved in litigation over building settlement.

2. Quality Soil reporting information is paramount

A site with inadequate-strength bearing soils that requires a piling system to be installed should have adequate soil report information from which an appropriate foundation system can be designed and build. A cheap basic soil report will generally be inadequate for this purpose.

3. Competent design criteria.

The screw pile design should observe the relevant Australian Standards and take consideration of the following:-

Effective length

Long term settlement calculations

Geotechnical strength reduction factor

Site testing and classification for sectional loss due to corrosion.

Pile/footing interface design

Design life of the structure

Eccentric loading and bending moment considerations

Structural design of pile connections

Helix bending criteria

Installation torque correlation

4. If in doubt - ASK (Self certification and standards).

The certification of the piling component of a project is provided by the contractor's engineer and only a few industry standards exist. It would therefore be prudent to ensure that reliable and experienced expertise is being used. Don't wait to discover that contractor's engineer was under-qualified and that the piles were made in the back yard. Check the background and experience of the design engineer and installation contractor, and look for references.

Source: Construction Contractor

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