Book review

ICE Specification for Piling and Embedded Retaining Walls (Third Edition)

Institution of Civil Engineers. ICE Publishing, London, UK, 2017, ISBN 978-0-7277-6157-6, £42, 248 pp.

How does one review the third edition of a specification that is probably one of ICE's most useful and most used? Indeed, if one counts its predecessor, *Specification for Piling*, published in 1988, this is the fourth edition. That document was a slim A5 booklet. The latest edition is 230 pages of A4 (slightly fewer than the second edition, but with a smaller font). Standard specifications tend to grow with time and this one is no exception. They also take account of experience from previous editions and therefore most of the material in this new edition will have been tested by its use over the years.

So, how does this new edition differ from its immediate predecessor? In his foreword, Professor Stephan Jefferis warns that 'changes have been necessary to all the sections so even experienced readers will need to study the full document'. However, I must admit to having balked at the prospect of trawling diligently through both editions looking for differences. Besides, for readers of this review, a partial list would not be useful and a complete list might be long and tedious. In fact, I suspect that reading through the whole document is not the best thing to do. This is a comprehensive document that aims to cover all aspects of piling and embedded walls, many of which will be irrelevant for particular projects. Therefore, the important thing for users to do is to study carefully the parts that they intend to use in order to identify differences of detail. These are perhaps best tested in use, and I am sure that the authors will welcome feedback to enable the improvement of future editions. In this review, I have tried to take an overview and identify only the most important matters, leaving matters of detail to individual users.

The most obvious changes from the second edition are the new sections. Two new types of pile have been added: micropiles and helical steel piles. There is also additional guidance material on the use of polymer fluids for excavation support, and the section on continuous flight auger piles now includes cased piles.

However, perhaps the main thing one notices about the new specification is that the authors have carried out two major cut-and-paste exercises. The first of these concerns the Specification Requirements (Part B) and Guidance Notes (Part C). In the second edition, all the Specification Requirements for different pile and wall types were grouped together, followed by all the different Guidance Notes. They have now been rearranged so that the Guidance Notes for each type of pile or wall immediately follow the corresponding model Specification Requirements. This change makes the contents page read rather oddly but, on balance, I consider the new arrangement an improvement: I am sure that a user, designing a particular type of pile, is actually more likely to read the Guidance Notes when they are adjacent to the relevant

Specification than when they are effectively hidden at the back of the book.

The second cut-and-paste exercise concerns Part A, General Requirements, and perhaps reflects changing priorities in the period between the two editions. In particular, Health and Safety, Quality, and Environmental Considerations now each have their own section, instead of being lumped together in one. These three sections have acquired extra material (quite rightly in my opinion) and the Health and Safety section has a very useful sub-section listing and describing some specific considerations.

On the other hand, the various sections on procurement (Enquiry, Tender Documents, Tender Evaluation, and Contract Documents) have been merged. Again, this seems to make sense: in particular, the distinction in the second edition between 'Enquiry' and 'Tender' was rather artificial and led to a somewhat eccentric distribution of the relevant material. The rearrangement now gives a much more coherent picture of the entire procurement process.

There are a few other changes that reflect changes in the industry. Account is taken of Eurocode 7 and Table B1.2 'Performance specification criteria for piles' now refers to 'Specified representative action' instead of 'Specified working load' and also to minimum partial resistance factors. In addition, the term 'engineer' has been superseded by 'contract administrator'.

In writing this review, I have tried to bear in mind a mantra that I always use when reviewing reports: 'it's easy to check what's there, but it's much more difficult to check what isn't there'. Or to put it another way, what have the authors left out that they should have included? I could think of very little. One small item that I think should have been included is the use of the Osterberg cell for static load testing. This method is becoming more popular, especially for very heavily loaded piles, and to my mind is safer and more convenient than either kentledge or the use of reaction piles. Again, I am sure that the need for further inclusions will arise from practice and that the authors will welcome suggestions for these to be included in future editions.

The matter of future changes does raise the question as to how these should be incorporated. Should these continue to be incorporated into new books, reissued every decade or so, or is it time to put the specification online, and revise it more often, as happens with the *Specification for Highway Works*? The advantages of having an online edition are that changes can be incorporated much more quickly and users can be confident of having access to the latest edition. The disadvantage is that, with the passage of time, it can be difficult to know which edition has been used in the past, unless great care is taken to define it. I rather like a book myself and I feel that this specification is sufficiently mature that changes will be necessary only every few years. I may be wrong, but I am confident that it will continue to be used and useful in whatever form. Long may it flourish.

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