Civil Engineering Procedure

Seventh edition

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Institution of Civil Engineers

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Preface to the seventh edition

‘Dad. What do you teach the students at the university?’ asked my 6-year-old son on the way to school one morning. ‘Civil engineering’ I replied. ‘What is civil engineering?’ he further enquired. I mused on the fact that we had only 3 minutes between his question and the school gate so brevity was essential. ‘Bridges, roads, canals, et cetera’ I replied. My son looked at me with his enthusiastic smile and said ‘and what else?’ Maybe my answer was a little too brief. ‘Civil engineering is the art of directing the great sources of power in nature for the use and convenience of man’ I proclaimed. My son looked bemused. The answer seemed to satisfy his curiosity though, and he ran off to his class with a skip in his step armed with his new knowledge.

Earlier in the year, my wife, a Girl-Guiding leader, had asked me to accompany her patrol on a trip to a local civil engineering project at Leeds railway station (see Chapter 5 of this book). The trip was part of a ‘civil engineering badge’ that my wife and her fellow Guider had devised, inspired, no doubt, by the array of construction and civil engineering literature scattered about our home. During the visit, one of the Girl Guides asked the same question that my son had posed. Her response was ‘umm, sounds boring’ ... ‘tell me something exciting about civil engineering.’ I mused briefly on the famous Yellow Pages entry ‘for Civil Engineering, *see Boring*’ before recounting the 2012 Olympics, the Large Hadron Collider, Crossrail, the Channel Tunnel and so on. Then, in a moment of inspiration, I pointed vaguely in the direction of the Pennines and explained to her that the tallest piece of infrastructure in the UK is the Emily Moor television transmission mast, and that it was located right here in Yorkshire. ‘Without civil engineering you wouldn’t be able to watch your favourite TV programmes!’, I asserted. She looked at me and said, ‘Huh, TV is boring these days too!’.

Times change rapidly; the construction industry is perhaps one where change tends to be much faster than elsewhere. This updated edition of a text that

spans back many decades reflects this dynamic landscape. It emphasises the central role of the discipline in building sustainable economies and stable governments. The target audience remains the same; students of civil engineering and the allied disciplines and those entering professional practice. The text was prepared at a time of major change in the construction sector; the advent of the new CDM 2015 Regulations, the ramp-up to building information modelling (BIM) Level 2 readiness and the 2015 UK General Election, which witnessed significant lobbying by the Institution of Civil Engineers through its ‘Manifesto for Infrastructure’.

Academic staff from the Management of Projects’ research and teaching group at the University of Manchester School of Mechanical, Aerospace and Civil Engineering have prepared this text, drawing on support and guidance from a group of experienced practitioners. We inherited the text from the Management Panel of the Institution of Civil Engineers and we are grateful to them for providing us with a solid foundation to work from.

The University of Manchester and NEC3 have a strong connection in Martin Barnes CBE, who read for his doctorate at the former University of Manchester Institute for Science and Technology (UMIST) under the supervision of Stephen Wearne. His work demonstrated the value of integrating the project control areas of time, cost and quality, known today as the ‘iron triangle’. His research at Manchester led him to pioneer the New Engineering Contract, which is known globally for its unique, project management centric approach to project execution. In our revisions, the most noticeable change is the treatment of the New Engineering Contract, third edition (NEC3), replacing the ICE Conditions of Contract as the endorsed form of the Institution.

Richard Kirkham
Summer 2015

Drafting panel

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Acknowledgements

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