

Quantities And Specification In Civil Engineering

This Specification includes associated Schedules and a Bill of Quantities, and is intended for general application to ground investigation work. The Bill of Quantities is presented as a preamble and a comprehensive list of work items, which conveniently cross-relate to the Specification items.

Ying-Kit Choi walks engineers through standard practices, basic principles, and design philosophy needed to prepare quality design and construction documents for a successful infrastructure project.

While the construction process still requires traditional skills, the dynamic nature of construction demands of its managers improved understanding of modern business, production and contractual practices. This well established, core undergraduate textbook reflects current best practice in the management of construction projects, with particular emphasis given to supply chains and networks, value and risk management, BIM, ICT, project arrangements, corporate social responsibility, training, health and welfare and environmental sustainability. The overall themes for the Eighth Edition Modern Construction Management are: Drivers for efficiency: lean construction underpinning production management and off-site production methods. Sustainability: reflecting the transition to a low carbon economy. Corporate Social Responsibility: embracing health & safety and employment issues. Modern contractual systems driving effective procurement Building Information Modelling directed towards the improvement of collaboration in construction management systems

Contracts and equivalent internal orders are link the design and construction of all civil engineering projects. They should state who is who, what is to be constructed, where, when and how much payment will be due and what is to happen if these intentions are frustrated. This title is useful for engineers working in design or construction.

The book begins by considering the general backcloth to civil engineering works and contracts, including funding, preliminary investigations and the preparation of engineer's reports. The form and purpose of the various contract documents are examined and the principal requirements of the ICE Conditions summarised and explained. The principal tendering arrangements are described and compared, together with the more commonly practised approaches to estimating the cost of civil engineering works. Site organisation and supervision are covered in sufficient depth to illustrate the means by which a civil engineering project can be effectively planned, managed and controlled, and having regard to such important aspects as productivity, plant usage and safety of operatives. The method of measuring and valuing civil engineering works is explored and this encompasses the use of daywork, issue of interim certificates, settlement of final accounts, valuation of variations and financial control of contracts. Finally, the book examines the background to contractors' claims and how they should be presented by the contractor and dealt with by the engineer.

Civil Engineering Quantities Macmillan International Higher Education

The revised and updated comprehensive resource for Quantity Surveyors working with a construction contractor The second edition of Construction Quantity Surveying offers a practical guide to quantity surveying from a main contractor's perspective. This indispensable resource covers measurement methodology (including samples using NRM2 as a guide), highlights the complex aspects of a contractor's business, reviews the commercial and contractual management of a construction project and provides detailed and practical information on running a project from commencement through to completion.

Today's Quantity Surveyor (QS) plays an essential role in the management of construction projects, although the exact nature of the role depends on who employs the QS. The QS engaged by the client and the contractor's QS have different parts to play in any construction project, with the contractor's QS role extending beyond traditional measurement activities, to encompass day-to-day tasks of commercial building activities including estimating, contract administration, and construction planning, as well as cost and project management. This updated and practical guide: Focuses on the application, knowledge and training required of a modern Quantity Surveyor Clearly shows how Quantity Surveying plays an essential central role within the overall management of construction projects Covers measurement methodology, the key elements of the contractor's business and the commercial and contractual management of a construction project The construction industry changes at fast pace meaning the quantity surveyor has a key role to play in the successful execution of construction projects by providing essential commercial input. Construction Quantity Surveying meets this demand as an up-to-date practical guide that includes the information needed for a Quantity Surveyor to perform at the highest level. It clearly demonstrates that quantity surveying is not limited to quantifying trade works and shows it as an important aspect of commercial and project management of construction projects.

Willis's Elements of Quantity Surveying has become a standard text in the teaching of building measurement – a core part of the degree curriculum for quantity surveyors. The book will be fully updated to follow the guidance given by RICS NRM 1 & 2. As in previous editions the focus remains a logical approach the detailed measurement of building elements and copious use of examples to guide the student. The text has been fully revised in line with the NRM guidance and includes many new and revised examples illustrating the use of NRM. The hallmarks of previous editions – clarity and practicality – are maintained, while ensuring the book is fully up to date, providing the student of quantity surveying with a first class introduction to the measurement of building elements.

Offers quantity surveyors, engineers, building surveyors and contractors clear guidance on how to recognise and avoid measurement risk. The book recognises the interrelationship of measurement with complex contractual issues; emphasises the role of measurement in the entirety of the contracting process; and helps to widen the accessibility of measurement beyond the province of the professional quantity surveyor. For the busy practitioner, the book includes: Detailed coverage of NRM1 and NRM2, CESMM4, Manual of Contract Documents for Highway Works and POM(I) Comparison of NRM2 with SMM7 Detailed analysis of changes from CESMM3 to CESMM4 Coverage of the measurement implications of major main and sub-contract conditions (JCT, NEC3, Infrastructure Conditions and FIDIC) Definitions of 5D BIM and exploration of BIM measurement protocols Considerations of the measurement risk implications of both formal and informal tender documentation and common methods of procurement An identification of pre- and post-contract measurement risk issues Coverage of measurement risk in claims and final accounts Detailed worked examples and explanations of computer-based measurement using a variety of industry-standard software packages.

This book covers methods adopted for undertaking the design and construction of civil engineering projects. The options for separate design and construction are compared with design and build projects,

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construction management, and management contracting. The salient differences are shown between the various conditions of contract used. The roles of the engineer, employer's project manager or his representative under different forms of contract are compared. Requirements for the production of contract documents, specifications, tendering procedures and choice of contractor are set out. The engineer's powers and the duties of his resident engineer on the site of construction are considered in detail. Records, filing systems, programme and progress charts used by the resident engineer are illustrated, and advice is given on the handling of safety problems and difficult situations on site. Problems of measurement and billing of quantities according to the civil engineering standard method are described. Correct procedures for setting rates for varied work, payment for method-related items, and handling claims for unforeseen conditions under ICE Clause 12 are given. Difficulties with delay claims and situations where the contractor submits quotations before undertaking varied work are discussed. The approach is essentially practical throughout and covers many actual problems met on site, including measures that are advisable in relation to site surveys and investigations, construction of earthworks and pipelines, and the production and placing of concrete.

It deals in a practical and reasonable way with many of the estimating problems which can arise where building and civil engineering works are carried out and to include comprehensive estimating data within the guidelines of good practice. The early part of the book has been completely rewritten to contain chapters useful to students and practitioners alike for the development of the estimating process resulting in the presentation of a tender for construction works. The second and major part of the book contains estimating data fully updated for the major elements in building and civil engineering work, including a new chapter on piling, and a wealth of constants for practical use in estimating. The estimating examples are based on the current edition of the Standard Method of Measurement for Building Works (SMM7). The comprehensive information on basic principles of estimating found in 'Spence Geddes' are still as valid today as the first edition. In this edition the prevailing rates of labour and costs of materials are taken whenever possible as a round figure. Readers will appreciate in the construction industry that prices are continually changing, rise and fall, and that worked examples should therefore be used as a guide to method of calculation substituting in any specific case the current rates applicable to it. In the case of plant output dramatic increases have been experienced in productivity over recent years and again estimators with their own records should substitute values appropriate to their work.

A long established text that aims to meet the needs of students studying building measurement in the early years of quantity surveying and building degree courses. It contains a careful selection of 28 worked examples embracing all the principal building elements and including alternative constructional methods to illustrate a range of approaches.

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This book has been prepared by the Conditions of Contract Standing Joint Committee (CCSJC) specifically to assist users of ICE Conditions of Contract with the procedures between the start of the tender process and the award of the contract. It does not purport to provide legal interpretation but does represent the view of the CCSJC on what constitutes good practice in the conduct of civil engineering projects.

Historically employed to estimate and measure the likely material requirements for any building project, the role of the modern quantity surveyor is diverse, with a wide range of employers and geographical locations to match. Change continues to be a feature in quantity surveying practice, with the New Rules of Measurement, the RICS Black Book and Building Information Modelling (BIM) all adding to the already dynamic environment in which the Quantity Surveyor operates. This new edition of Practice and Procedure for the Quantity Surveyor reflects that dynamic environment, addressing changing practices and procedures in the profession, whilst focussing on the core skills which are essential to success. The 13th edition of this classic text, originally written by three generations of the Willis family (all quantity surveyors) continues to provide a thorough introduction to the work of the quantity surveyor in private practice, in public service and in contracting organisations.

Civil Engineering Contracts: Practice and Procedure, Second Edition explains the contract procedures used in civil engineering projects. Topics covered include types of contract in civil engineering, general conditions of contract, insurances, and tender procedures. The powers, duties, and functions of the engineer and his representative are also considered. This book is comprised of 14 chapters and begins with an overview of the philosophy underlying the contract system in civil engineering, followed by a discussion on the promotion of civil engineering works. The reader is then introduced to types of civil engineering contracts; contract risk and contract responsibility; the application of contract documents; and general conditions of contract. The remaining chapters focus on contract specifications; bill of quantities and methods of measurement; principles and types of insurance; procedures for competitive bids or tenders; cost estimates, methods of pricing, and rate fixing; and claims on civil engineering contracts. The final chapter is devoted to arbitration and related procedure for the settlement of contract disputes. This monograph will be useful to practicing civil engineers who are involved with contract administration and to younger engineers who are aspiring to obtain professional qualifications.

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A comprehensive, up-to-date and illustrated exposition of building maintenance in all its aspects, to serve the needs of building surveyors and other professionals involved in this activity and building, surveying and architectural students. It shows the great importance of properly maintaining buildings and the advisability of providing adequate feedback to the design team. All the main building defects are described and illustrated and the appropriate remedial measures examined. Alterations and improvements to buildings and the specifying, measurement, pricing, tendering and contractual procedures are all examined, described and illustrated. In addition, the planning and financing, execution and supervision of maintenance work receive full consideration.

This new edition updates and revises the best practical guide for on-site engineers. Written from the point of view of the project engineer it details their responsibilities, powers, and duties. The book has been fully updated to reflect the latest changes to management practice and new forms of contract.

A textbook for HNC/HND students of civil engineering. Covers contract administration, control and programming, safety, ground water control, excavation, foundations, retaining walls and deep basements, superstructures and road pavements.

This book was written to provide a quick guide to welding inspection that is easy to read and understand. It is difficult to find books specifically covering weld inspection requirements. This book will give you a basic understanding of the subject and so help you decide if you need to look further. In many cases the depth of knowledge required for any particular welding-related subject will be dependent on specific industry requirements. In all situations, however, the welding inspector's role is to ensure that welds have been produced and tested in accordance with the correct code specified procedures and that they are code compliant. Code compliance in this sense means that the weld meets all the requirements of the defect acceptance criteria specified within the code.

The book fully explains the principles contained in the third edition of the Civil Engineering Standard Method of Measurement (CESMM3) and shows how they are implemented in practice. The contractual background to the measurement and valuation of civil engineering works is described in detail, as are the value and use of method-related charges. All aspects of the measurement of civil engineering work, from taking-off to bill preparation are covered; these are illustrated by some twenty-two worked examples containing working drawings and clear handwritten dimension sheets with fully explanatory notes. In addition to being completely revised and reset, the coverage is also extended with a further chapter on the measurement of the renovation of sewers and water mains.

Estimators need to understand the consequences of entering into a contract, often defined by complex conditions and documents, as well as to appreciate the technical requirements of the project. Estimating and Tendering for Construction Work, 5th edition, explains the job of the estimator through every stage, from early cost studies to the creation of budgets for successful tenders. This new edition reflects recent developments in the field and covers: new tendering and procurement methods the move from basic estimating to cost-planning and the greater emphasis placed on partnering and collaborative working the New Rules of Measurement (NRM1 and 2), and examines ways in which practicing estimators are implementing the guidance emerging technologies such as BIM (Building Information Modelling) and estimating systems which can interact with 3D design models With the majority of projects procured using design-and-build contracts, this edition explains the contractor's role in setting costs, and design statements, to inform and control the development of a project's design. Clearly-written and illustrated with examples, notes and technical documentation, this book is ideal for students on construction-related courses at HNC/HND and Degree levels. It is also an important source for associated professions and estimators at the outset of their careers.

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