

INSTITUTION OF STRUCTURAL ENGINEERS

TECHNICIAN MEMBERSHIP IPD CORE OBJECTIVES

BACKGROUND READING LIST

This reading list has been prepared by the IStructE Library Manager and is intended to be helpful for candidates preparing for their IPD professional review. It is intended to provide suggestions for background reading for each of the core objectives and does not constitute recommended reading formally approved by IStructE. It is not a prescribed list and having read everything on the list in itself does not demonstrate an understanding of each of the objectives.

There may be parts of the list that are aimed primarily at engineers in the UK. The Library Manager welcomes suggestions for variations to the list to suit members based in other countries.

**Key: L = Loan copy available in IStructE Library. R = Reference copy available in Library.
E = E-book available in E-Library.**

Visit the Library web page for service information, online catalogue & E-Library access
<https://www.istructe.org/resources-centre/library>

1. PERSONAL

1.1 Institution

IStructE. **Annual Report**. Available at: <https://www.istructe.org/about-us/governance/annual-report-and-accounts>

IStructE. **Code of conduct and guidance notes**. Available at: <https://www.istructe.org/about-us/governance/code-of-conduct>

IStructE. **Royal charter, bye-laws, regulations, standing orders**. Available at: <https://www.istructe.org/about-us/governance/royal-charter-and-bye-laws>

IStructE **Website** <https://www.istructe.org/>

1.2 Communication

Cresswell, H.B. **The Honeywood file: an adventure in building** (Academy Chicago, 2000) [L&E]

Emmitt, S. and Gorse, C.A. **Construction communication** (Blackwell, 2003) [L]

Fairhead, R. (2015) **Information exchanges: RIBA Plan of Work 2013 guide** (RIBA Publishing, 2015) [L]

IStructE. **Structural design: the engineer's role**. (IStructE, 2011) [R]

RIBA. **Plan of work 2013**. Available at: <https://www.ribaplanofwork.com/>

Scott, W and Billing, B. **Communication for professional engineers**. 2nd ed. (Thomas Telford, 1998) [L]

Tunstall, G. **Managing the building design process**. 2nd ed. (Butterworth-Heinemann, 2006) [L&E]

2. ENGINEERING

2.1 Structural solutions: conceptual design

Engel, H. **Structure systems**. 4th ed (Hatje Cantz Verlag, 2009) [L]

Miles, J. 'Conceptual design: how it can be improved'. *Structural Engineering International*, 15(3), August 2005, pp122-128 [R]

Millais, M. (2017) **Building structures: understanding the basics**. 3rd ed. Abingdon: Routledge. [L&E]

Popovic Larsen, O. (2016) **Conceptual structural design: bridging the gap between architects and engineers**. 2nd ed. London: ICE Publishing. [L]

Schierle, G.G. **Structure and design** (Cognella, 2010) [L]

Wilson, R. 'Conceptual design'. *The Structural Engineer*, 82 (4), 17 February 2004, pp17-19.

Available at: [https://www.istructe.org/journal/volumes/volume-82-\(published-in-2004\)/issues/issue-4/articles/conceptual-design](https://www.istructe.org/journal/volumes/volume-82-(published-in-2004)/issues/issue-4/articles/conceptual-design)

2.2 Structural solutions: analysis and design

Arya, C. **Design of structural elements: concrete, steelwork, masonry and timber designs to British Standards and Eurocodes**. 3rd ed (Spon Press, 2009) [L&E]

Barnes, P. and Davies, N. **BIM in principle and in practice** (ICE Publishing, 2014) [L]

Brohn, D. **Understanding structural analysis**. 3rd ed (New Paradigm Solutions, 2005) [L]

Brooker, O. **Concrete buildings scheme design manual: a handbook for the IStructE chartered membership examination, based on Eurocode 2** (MPA - The Concrete Centre, 2009) [L]

Draycott, T. and Bullman, P. **Structural elements design manual: working with Eurocodes** 2nd ed (Butterworth-Heinemann, 2009) [L&E]
Garrison, P. **Basic structures**. 3rd ed (Wiley-Blackwell, 2016) [L&E]
Hambly, E. C. **Structural analysis by example** (Archimedes, 1994) [L]
IStructE. **Structural design: achieving excellence** (IStructE, 2015) [R]
Jennings, A. **Structures: from theory to practice** (Spon, 2004) [L]
McKenzie, W.M.C. **Design of structural elements to Eurocodes**. 2nd ed (Palgrave Macmillan, 2013) [L&E]
McKenzie, W.M.C. **Examples in structural analysis**. 2nd ed (CRC Press, 2014) [L&E]
MacLeod, I. **Modern structural analysis: modelling process and guidance** (Thomas Telford, 2005) [L]
Yeomans, D. **How structures work: design and behaviour from bridges to buildings**. 2nd ed (John Wiley, 2016) [L]

2.3 Production of engineering documents

Calavera, J. **Manual for detailing reinforced concrete structures to EC2** (Spon Press, 2012) [L]
Christy, C.T. **Engineering with the spreadsheet: structural engineering templates using Excel** (ASCE, 2006) [L]
Hayward, A., Weare, F. and Oakhill, A. **Steel detailers' manual**. 3rd ed (Wiley-Blackwell, 2011) [L&E]
IStructE. **Standard method of detailing structural concrete: a manual for best practice**. 3rd ed (IStructE, 2006) [R]
MPA – The Concrete Centre. **RC Spreadsheets V4B.2 - Single User Licence and User Guide**. (Concrete Centre, 2014) Available to purchase at: <http://www.concretecentre.com/Publications-Software/RC-Spreadsheets-v4B-2.aspx>
Omura, G. and Benton, B.C. (2017) **Mastering AutoCAD 2018 and AutoCAD LT 2018**. Indianapolis, Indiana: Sybex / Wiley. [E]
Slade, R. **Sketching for engineers and architects** (Routledge, 2016) [L&E]

2.4 Materials

Cobb, F. **Structural engineer's pocket book: Eurocodes**. 3rd ed (CRC Press, 2015) [*Ensure you get the corrected version 20150619*] [L&E Note our editions are uncorrected 2014 versions]
Doran, D. and Cather, R. eds. **Construction materials reference book**. 2nd ed (Routledge, 2014) [L&E]
Forde, M. **ICE manual of construction materials**. 2 vols (Thomas Telford, 2009) [L]

2.5 Environment

Addis, W. **Building with reclaimed components and materials: a design handbook for reuse and recycling** (Earthscan, 2006) [L&E]
Ainger, C. **Sustainable infrastructure: principles into practice** (ICE Publishing, 2014) [L]
Beckmann, P. and Bowles, R. **Structural aspects of building conservation**. 2nd ed (Elsevier Butterworth-Heinemann, 2004) [L&E]
IStructE. **Building for a sustainable future: a summary of practical guidance** (IStructE, 2014) [R]
Strange, J., Langdon, N. & Large, A. (2017) **Contaminated land guidance: the route to sustainable economic solutions**. 3rd ed. London: ICE Publishing. (ICE Design and Practice Guide). [L]

2.6 Construction

Cooke, B. **Construction practice** (Wiley-Blackwell, 2011) [L&E]
Doran, D. ed. **Site engineers manual**. 2nd ed (Whittles, 2009) [L&E]
Grant, M. and Pallett, P. **Temporary works: principles of design and construction** (ICE Publishing, 2012) [L]
Illingworth, J.R. **Construction methods and planning**. 2nd ed. (Spon, 2000) [L]
Pitman, P. **External works and drainage: a practical guide** (Spon, 2001) [L]

3. MANAGEMENT AND COMMERCIAL

3.1 Management skills

Fewings, P. **Construction project management: an integrated approach**. 2nd ed (Routledge, 2013) [L]
Fryer, B. **The Practice of construction management: people and business performance**. 4th ed (Blackwell, 2004) [L]
Harris, F. and McCaffer, R. **Modern construction management**. 7th ed (Wiley-Blackwell, 2013) [L&E]
March, C. **Business organisation for construction** (Spon Press, 2009) [L]

Naoum, S.G. **People and organisational management in construction**. 2nd ed (ICE Publishing, 2011) [L]

3.2 Health and safety

CIRIA. **Site health handbook**. 2nd ed. **CIRIA C670** (CIRIA, 2009) [L]

CIRIA. **Site safety handbook**. 4th ed. **CIRIA C669** (CIRIA, 2008). [L]

Construction (Design and Management) Regulations 2015. SI 2015/51. Available at: <http://www.legislation.gov.uk/ukSI/2015/51>

Fennell, D. **Investigation into the King's Cross underground fire** (HMSO, 1988) Available at: http://www.railwaysarchive.co.uk/documents/DoT_KX1987.pdf

Health & Safety at Work Act 1974. Ch 37. (HMSO, 1974) Available at: <http://www.legislation.gov.uk/ukpga/1974/37>

HSE. **Managing health and safety in construction: Construction (Design and Management) Regulations 2015. Guidance on regulations. L153** (HSE Books, 2015) Available at: <http://www.hse.gov.uk/pubns/books/l153.htm>

Hughes, P. and Ferrett, E. **Introduction to health and safety in construction: for the NEBOSH national certificate in construction health and safety**. 5th ed (Routledge, 2015)

McAleenan, C. and Oloke, D. eds. **ICE manual of health and safety in construction**. 2nd ed (Thomas Telford, 2015) [L]

Structural-Safety (Incorporating CROSS and SCOSS) Website <http://www.structural-safety.org>

3.3 Commercial awareness

Ashworth, A. and Perera, S. **Cost studies of buildings**. 6th ed. (Routledge, 2015) [L]

Goodchild, C.H., Webster, R.M. and Elliott, K.S. **Economic concrete frame elements to Eurocode 2: a pre-scheme handbook for the rapid sizing and selection of reinforced concrete frame elements in multi-storey buildings designed to Eurocode 2** (The Concrete Centre, 2009) [L]

March, C. **Finance and control for construction** (Spon Press, 2009) [L]

SCI. **Comparative structure cost of modern commercial buildings**. 2nd ed. **SCI Publication 137** (SCI, 2004) [L]

Snell, M. **Cost-benefit analysis: a practical guide**. 2nd ed. (Thomas Telford, 2011) [L]

3.4 Quality systems

March, C. **Operations management for construction** (Spon Press, 2009) [L]

Oakland, J and Marosszeky, M. **Total quality in the construction supply chain** (Butterworth-Heinemann, 2006) [L]

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