

# 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.

#### 1. PERSONAL

##### 1.1 Institution

IStructE. **Annual Report** [<http://www.istructe.org/about-us/governance/annual-report-and-accounts>]

IStructE. **Code of conduct and guidance notes** [<http://www.istructe.org/about-us/governance/code-of-conduct>]

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

IStructE website [<http://www.istructe.org>]

##### 1.2 Communication

Cresswell, H.B. **The Honeywood file: an adventure in building** (Academy Chicago, 2000)

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

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

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

RIBA. **Plan of work 2013** [<http://www.ribaplanofwork.com>]

Scott, W and Billing, B. **Communication for professional engineers**. 2<sup>nd</sup> ed. (Thomas Telford, 1998)

Tunstall, G. **Managing the building design process**. 2<sup>nd</sup> ed. (Butterworth-Heinemann, 2006)

#### 2. ENGINEERING

##### 2.1 Structural solutions: conceptual design

Engel, H. **Structure systems**. 4<sup>th</sup> ed (Hatje Cantz Verlag, 2009)

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

Millais, M. **Building structures: from concepts to design**. 2<sup>nd</sup> ed. (Spon, 2005)

Popovic Larsen, O and Tyas, A. **Conceptual structural design: bridging the gap between architects and engineers** (Thomas Telford, 2003)

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

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

##### 2.2 Structural solutions: analysis and design

Arya, C. **Design of structural elements: concrete, steelwork, masonry and timber designs to British Standards and Eurocodes**. 3<sup>rd</sup> ed (Spon Press, 2009)

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

Brohn, D. **Understanding structural analysis**. 3<sup>rd</sup> ed (New Paradigm Solutions, 2005)

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

Draycott, T. and Bullman, P. **Structural elements design manual: working with Eurocodes** 2<sup>nd</sup> ed (Butterworth-Heinemann, 2009)

Garrison, P. **Basic structures**. 3<sup>rd</sup> ed (Wiley-Blackwell, 2016)

Hambly, E C. **Structural analysis by example** (Archimedes, 1994)

IStructE. **Structural design: achieving excellence** (IStructE, 2015)

Jennings, A. **Structures: from theory to practice** (Spon, 2004)

McKenzie, W.M.C. **Design of structural elements to Eurocodes**. 2<sup>nd</sup> ed (Palgrave Macmillan, 2013)

McKenzie, W.M.C. **Examples in structural analysis**. 2<sup>nd</sup> ed (CRC Press, 2014)

MacLeod, I. **Modern structural analysis: modelling process and guidance** (Thomas Telford, 2005)

Yeomans, D. **How structures work: design and behaviour from bridges to buildings**. 2<sup>nd</sup> ed (John Wiley, 2016)

### **2.3 Production of engineering documents**

Calavera, J. **Manual for detailing reinforced concrete structures to EC2** (Spon Press, 2012)  
Christy, C.T. **Engineering with the spreadsheet: structural engineering templates using Excel** (ASCE, 2006)  
Hayward, A., Weare, F. and Oakhill, A. **Steel detailers' manual**. 3<sup>rd</sup> ed (Wiley-Blackwell, 2011)  
IStructE. **Standard method of detailing structural concrete: a manual for best practice**. 3<sup>rd</sup> ed (IStructE, 2006)  
MPA – The Concrete Centre. **RC Spreadsheets V4B.2 - Single User Licence and User Guide**. (Concrete Centre, 2014)  
Omura, G. **Mastering AutoCAD 2016 and AutoCAD LT 2016** (John Wiley, 2015)  
Slade, R. **Sketching for engineers and architects** (Routledge, 2016)

### **2.4 Materials**

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

### **2.5 Environment**

Addis, W. **Building with reclaimed components and materials: a design handbook for reuse and recycling** (Earthscan, 2006)  
Ainger, C. **Sustainable infrastructure: principles into practice** (ICE Publishing, 2014)  
Beckmann, P. and Bowles, R. **Structural aspects of building conservation**. 2<sup>nd</sup> ed (Elsevier Butterworth-Heinemann, 2004)  
IStructE. **Building for a sustainable future: a summary of practical guidance** (IStructE, 2014)  
Strange, J. and Langdon, N. **Contaminated land: investigation, assessment and remediation. ICE design and practice guide**. 2<sup>nd</sup> ed (Thomas Telford, 2008)

### **2.6 Construction**

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

## **3. MANAGEMENT AND COMMERCIAL**

### **3.1 Management skills**

Fewings, P. **Construction project management: an integrated approach**. 2<sup>nd</sup> ed (Routledge, 2013)  
Fryer, B. **The Practice of construction management: people and business performance**. 4<sup>th</sup> ed (Blackwell, 2004)  
Harris, F. and McCaffer, R. **Modern construction management**. 7<sup>th</sup> ed (Wiley-Blackwell, 2013)  
March, C. **Business organisation for construction** (Spon Press, 2009)  
Naoum, S.G. **People and organisational management in construction**. 2<sup>nd</sup> ed (ICE Publishing, 2011)

### **3.2 Health and safety**

CIRIA. **Site health handbook**. 2<sup>nd</sup> ed. **CIRIA C670** (CIRIA, 2009)  
CIRIA. **Site safety handbook**. 4<sup>th</sup> ed. **CIRIA C669** (CIRIA, 2008).  
Construction (Design and Management) Regulations 2015. SI 2015/51.  
<http://www.legislation.gov.uk/uksi/2015/51>  
Fennell, D. **Investigation into the King's Cross underground fire** (HMSO, 1988)  
[http://www.railwaysarchive.co.uk/documents/DoT\\_KX1987.pdf](http://www.railwaysarchive.co.uk/documents/DoT_KX1987.pdf)  
**Health & Safety at Work Act 1974**. Ch 37. (HMSO, 1974)  
<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)  
<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**. 5<sup>th</sup> ed (Routledge, 2015)  
McAleenan, C. and Oloke, D. eds. **ICE manual of health and safety in construction**. 2<sup>nd</sup> ed (Thomas Telford, 2015)

Structural-Safety website [<http://www.structural-safety.org>]

### **3.3 Commercial awareness**

Ashworth, A. and Perera, S. **Cost studies of buildings**. 6<sup>th</sup> ed. (Routledge, 2015)

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)

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

SCI. **Comparative structure cost of modern commercial buildings**. 2<sup>nd</sup> ed. **SCI Publication 137** (SCI, 2004)

Snell, M. **Cost-benefit analysis: a practical guide**. 2<sup>nd</sup> ed. (Thomas Telford, 2011)

### **3.4 Quality systems**

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

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

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