

# THE PRINCIPAL CONTRACTOR'S ROLE UNDER CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2007: AREAS FOR FURTHER RESEARCH BASED ON A QUALITATIVE INQUIRY

Dingayo Mzyece, Issaka Ndekugri, Nii Ankrah and Felix Hammond

*University of Wolverhampton, School of Technology, Built Environment Department, Wulfruna Street, Wolverhampton, WV1 1LY, UK.*

The dissimilarity between principal contractor and contractor organisations under CDM 2007 can often be over measured. In an effort to clearly distinguish the two, so as to understand the role of principal contractor as part of an on-going study, inevitable gaps emerge which invite further research into practice and procedure. Based on a desk research and three (3) focus group meetings with industry experts, it is established through a qualitative inquiry that the principal contractor contributes considerably to the successful implementation of CDM regulations during and after the construction phase. Crucial to this process are the legal and contractual obligations stipulating health and safety requirements before and during the construction phase – *regulation 23(1)(a)*. In order to successfully deliver the construction phase plan, critical to this process yet underestimated are key procedures such as appointment criteria, performance measurement and liability for instance which are hardly mentioned in the CDM 2007 or the practice guidance notes. Clearly, contractors are bound to coordinate numerous activities on construction sites let alone managing health, safety and welfare of employees in accordance with section two (2) of the Health and Safety at Work Act (HASAWA)1974 and part 4 of the CDM 2007 – *duties relating to health and safety on construction sites*. Providing explicit terms of engagement and carefully executed procedures such as appointments can enhance overall health and safety management through construction phase plans. The conclusions of the study therefore suggest further areas of research alluded to above consistent with the literature review and regulation 4(1)(b), 5(1)(2), 6 and 22 - 24.

Key words: CDM regulations, construction phase plan, health and safety management, principal contractor.

## INTRODUCTION

Successfully delivered planned construction phase plans are bound to have significant benefits on overall health and safety management (Shiplee *et al.* 2011; Hare and Cameron 2012). Identified as a key duty undertaken by the principal contractor (see regulation 16(a), 23(1)(a), 23(2)) (HMG 2007), this role is crucial for implementation of CDM regulations. Given the subjectivity of the process for appointing principal contractor organisations under CDM regulations due to project type, size and complexity (Bennett 2006); inevitable gaps emerge such as appointment criteria,

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terms of engagement and fee structure. For instance, demonstrated in earlier studies (e.g., Beal 2007; Dalby 2009; Pye tait consulting 2010), the role of principal contractor requires a clear distinction from that of the main contractor or contract administrator. This study therefore provides an insight into understanding the principal contractors' role, thereby identifying areas for further research in practice and procedure as part of an on-going study.

Overwhelming evidence in the recent past suggests uncertainties surrounding implementation of CDM regulations in practice (ICE, 2011; Löfstedt, 2011; Frontline Consultants, 2012) due to commercial pressures *inter alia*. Consistent with these findings, the principal contractor is identified as crucial not only in executing his roles but overall CDM regulations implementation. Clearly, the cruciality aligned with a well-executed construction phase plan cannot be overstated and therefore raises the question of understanding principal contractor obligations. In order to achieve this objective, a distinction is drawn between principal contractor roles from that of contractor under Construction (Design and Management) Regulations 2007 (CDM 2007).

Furthermore, motivation for this study stems from an on-going research which investigates the implementation of CDM regulations in practice due to uncertainties. For instance, out of 3237 sites inspected by the Health and Safety Executive (HSE), 1 in 5 failed safety checks (HSE 2012), demonstrating an inevitable link with CDM regulations particularly the construction phase plan prepared by the principal contractor. Consistent with this argument, Griffiths and Griffiths (2011) seems to suggest that the two roles are likely to operate independently although in practice this may not be feasible, given the nature of the duty to oversee the construction phase plan (i.e.) implied dependency rather than independency.

## **THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2007: THEIR APPLICATION IN PRACTICE**

It is well documented that the CDM regulations 1994 failed to meet their intended purpose due to a whole host of reasons, most of which hinge on bureaucratic circumstances resulting in too much paper work and ambiguity of duties (Summerhayes, 2008; Donaghy, 2009; Griffiths and Griffiths, 2011). It is therefore unsurprising that this led to the CDM1994 regulations being revoked and introduction of the Construction (Design and Management) Regulations 2007 (Joyce 2007). The genesis behind these regulations stems from an EU directive 92/57ECC - *the management of health and safety requirements at temporary or mobile construction sites* (Baxendale and Jones, 2000; Griffith and Phillips, 2001; Joyce 2007), hence their introduction on 31<sup>st</sup> March 1995.

Since CDM clients have the overall responsibility for duty holder appointments (see regulation 4(a)), principal contractors are appointed after the CDM coordinator in accordance with regulation 14(2) while contractor appointments remain inexplicit (HMG 2007).

Although it is reasonable to suggest that CDM coordinator and principal contractor appointments are explicitly expressed as additional duties for the client (i.e.) - where a project lasts for more than 30 days or 500 person days of construction work (see

regulation 14(2) and 15(b)), glossing over other appointments leaves much to be desired.

Essentially, the principal contractors' initial duty will be to prepare the construction phase plan (Ashworth 2012), at which point, it is most certain that client organisations would have engaged other duty holders according to the practice guidance notes (L144) (HSE 2007) although this may not always be the case (i.e.) timing of appointments (CIOB, 2010). Prior to project commencement, project particulars are therefore notified to the Health and Safety Executive (HSE) through the F10 form providing details such as duty holder contact details (HMG 2007; HSE 2007).

## **APPOINTING THE PRINCIPAL CONTRACTOR**

The Principal Contractor is only appointed if the project is notifiable to the HSE through the F10 form. Once appointed by the client in accordance with regulation 14(2), the principal contractors' main duty is to prepare the construction phase plan before the start of the construction phase (CIOB 2010). Once in place, it is a legal requirement and obligation for the client according to regulation 16(a) and 16(b) to ensure that the principal contractors' construction phase plan complies with regulation 23(1)(a) and 23(2). It has widely been acknowledged that the client has the legal obligation of appointing the principal contractor (e.g., Williams 2007; Perry 2010; ICE 2011; Frontline consultants 2012), although in practice, one off and occasional clients are likely to delegate this duty (Bamber 2011). The client is not required to appoint the main contractor as principal contractor according to Joyce (2007) since their role involves management duties rather than actual construction (*ibid*), although this will depend to a large extent on the project type (e.g., Shiplee *et al.* 2011).

## **ROLE OF THE PRINCIPAL CONTRACTOR**

The Principal Contractor has the overall responsibility to coordinate health and safety in accordance with their construction phase plan by planning, managing and monitoring – *regulation 22(1)(a)* (HMG 2007). In order to take up this role the client must ensure competence of the duty holder according to regulation (4)(1)(a) and in the same vein a duty holder should not accept such an appointment – regulation 4(1)(b); without overlooking adequacy of resources. Table 2 defines regulation 22, 23 and 24 applicable to this role under CDM 2007. Clearly, out of the 27 regulations that apply to each role, the regulations that distinguish the role of contractor are 13, 15 and 19, while regulations 22 to 24 expressly apply to principal contractors (Summerhayes 2008). Arguably though, the principal contractor is likely to execute and comply with regulations distinctive to contractors. This is consistent with the HSE (2007) in which it states under paragraph 146 that: "Principal contractors must also comply with the duties placed on all contractors under the regulations". For instance regulation 22 (1)(c) suggests that the principal contractor ensures welfare facilities to comply with schedule two (2) of the CDM 2007; a clear replica of regulation 9(1)(b) and 13(7) applicable to the client and contractor organisations respectively.

Clearly from the literature review, inevitable areas which invite further research are established in order to convincingly identify lines of responsibility, liability, performance indicators and other procedures in practice. It therefore reasonable to suggest that providing site induction and training will apply to contractors in practice as detailed in regulation 22 which only apply to principal contractors.

Table 2: Duties of the Principal Contractor (HMG, 2007; Summerhayes, 2008)

Regulation	Description
	<ol style="list-style-type: none"> <li>1. Plan, manage and monitor (i.e. co-operation and co-ordination, general principles of prevention);</li> <li>2. Liaise with CDM Coordinator (Regulation 20 (2)(d));</li> <li>3. Ensure welfare facilities comply;</li> <li>4. Draw up rules which are appropriate to the construction site activities;</li> <li>5. Give reasonable directions;</li> <li>6. Inform contractor about minimum amount of time allowed for planning and preparation before he begins construction work;</li> <li>7. Consult with contractor;</li> <li>8. Access to construction phase plan;</li> <li>9. Give further information;</li> <li>10. Identify information to health and safety file;</li> <li>11. Display F10;</li> <li>12. Prevent access by unauthorised persons;</li> <li>13. Provide site induction, information and training, any other further information and training.</li> </ol>
22	14. Ensure compliance with welfare facilities – schedule 2
23	Prepare Construction phase plan
24	Cooperation and consultation

## ROLE OF THE CONTRACTOR

In so far as their application is concerned, CDM regulations safe guard lives on construction sites as alluded to earlier. It is therefore reasonable and unsurprising to identify contractors to be in a riskier position than other duty holders as a result of direct contact with construction activities. For instance Griffiths and Griffiths (2011) argued that CDM regulations can succeed when perceived as a tool for protecting the construction industry workforce, particularly so for contractors.

Perceived as an employer according to section 2(1) and 3 of HASAWA 1974, the contractor therefore has a huge responsibility to safeguard the employees' work environment (construction site) and ensure that all risks are dealt with accordingly. It has been established on numerous occasions that contractors play a key part in dealing with health and safety issues on site (e.g., Ndekugri and Rycroft 2009) where for instance Joyce (2007) identifies the main contribution of contractors to be safety, planning, control and operational management while further acknowledging the constraints and actions to be taken on board from designers as well as the client or the clients' project team severally (Hare *et al.* 2006; Perry, 2009; CIOB 2010; Hare and Cameron 2012). Undoubtedly, such a scenario presents greater risk exposure to the contractor unlike other project team members, who to a great extent will operate from their offices and visit the site occasionally, inevitably leaving contractors exposed to safety matters in real time mode (Joyce 2007; SEC 2010; ICE 2011) in implied terms. Arguably, it is during the actual construction phase that planning construction procedures and activities in a safe manner remain paramount. For instance, Joyce

(2007:140) explicitly argues that accidents do not happen in the clients' boardroom or in the design office, but rather onus will be on the contractor after the planning and design is complete, at which point it becomes the principal contractors' responsibility for safe execution of construction works (*ibid*).

Depending on the magnitude and complexity of a project, the contractor is always likely to subcontract part or most of this work (Griffiths and Griffiths 2011); again presenting a different dynamic in the construction supply chain, particularly when dealing with health and safety matters (Manu *et al.* 2011).

Despite managing overall project management duties under CDM regulations 2007, where for instance regulation 13(2) states that (HMG 2007):

*“Every contractor shall plan, manage and monitor construction work carried out by him or under his control in a way which ensures that, so far as is reasonably practicable, it is carried out without risks to health and safety,”* it is reasonable to suggest a critical alignment between the contractors' obligations and the construction phase plan prepared by the principal contractor.

Clearly the principal contractor will have a role to play in the overall control of construction work – *regulation 19(1)(b)*, therefore inviting further areas of research on procedural matters in practice such as performance monitoring, liability, basis of payment and the like. Table 1 describes regulations 13, 15 and 19 applicable to the role of contractor as detailed below. Inevitably though, these regulations will apply to principal contractors and the same can be said for table 2 vice-versa. Previously the contractor had the overall responsibility for managing all health and safety related matters (Baxendale and Jones, 2000); however under CDM 2007, all duty holders have a role to play; accountable for their actions and decisions. This can only be achieved through effective teamwork and planned coordinated activities where duties are explicitly detailed (Shiplee *et al.* 2011).

Table 1: Duties of the Contractor (HMG, 2007; Summerhayes, 2008)

Regulation	Description
13	Inform Client, Plan manage and monitor, information and training (suitable site induction, risks to health and safety, measures taken, any site rules, emergency procedures, identity of nominated person), Training as per the Management of Health and Safety at Work Regulations 1999.
15	Pre-construction information from the client/CDM Coordinator
19	1. Provided with: (i) names of CDM Coordinator and principal contractor; (ii) access to relevant parts of the construction phase plan; (iii) notice to HSE. 2. Provide principal contractor with information: (i) affecting health and safety; (ii) justifying review of construction phase plan; (iii) for inclusion in health and safety file. 3. Identify appointed contractors to principal contractor. 4. Comply with: (i) directions of principal contractor; (ii) site rules which are appropriate. 5. Report any accident and incidents to principal contractor. 6. Notify principal contractor of significant findings and alterations to construction phase plan.

## SCOPE OF STUDY AND RESEARCH METHOD

Based on the literature review, grey areas in practice and procedural matters emerge. The role of principal contractor is identified as crucial for the management of health and safety on construction sites and the level of influence it has for successful implementation and delivery of CDM regulations. As revealed in the critical review of

literature, this duty holder is instrumental in not only preparing the construction phase plan but also the actual management and execution. It is in this context that understanding the role of principal contractor can have significant benefits thereby identifying areas for further research as part of an on-going study. Given the exploratory nature of this question, a qualitative inquiry is deemed fit as a research strategy or approach (Fellows and Liu, 2008; Creswell, 2009); for instance it is argued that research questions emanating from 'how' are often best answered by a qualitative inquiry (Ankrah, 2007; Creswell, 2009; Maxwell, 2009) and therefore this option is chosen as viable.

Primary data was collected using focus group discussions with informed leading industry experts; for instance the facilitator in group 'C' has been identified by Chambers UK 2012 as a leading individual in construction, while group 'A' and 'B' facilitators had over 20 years of experience in the construction industry; particularly working with leading contracting organisations and clients. Qualitative data was recorded using a digital device, after which transcribing, memoing and coding were carried out as part of the analysis process (Bailey 2007); organised into themes summarised in table 1, without the predominant logic of empirical representation as is the form in a quantitative inquiry (Mason, 2002); but rather onus was on the ability to achieve reliability and triangulation with primary data obtained from the literature review.

Focus group meetings have been identified as a viable option for carrying out qualitative research, using purposefully selected participants with 'certain experience' (Bryman 2008; Creswell, 2009). Professional organisation affiliation was sought as a key criterion for the selection of focus group meetings attended. Both structured and semi structured interviews formed the larger part of the discussions with the majority of the participants getting fully involved. The advantage of the focus group as identified by Bryman (2008: 475) "offers the opportunity of allowing people to probe each other's reasons for holding a certain view."

The discussion with group 'A' predominantly surrounded management arrangements that are put in place to ensure H&S aspects on construction sites by players in the construction supply chain with a view to identify the role of principal contractor while group 'B' discussed the various roles in practice. Group 'C' meeting focused on contractual obligations with intent to establish standard practice and procedure.

## **FINDINGS AND DISCUSSION**

The construction phase plan is identified as an important tool to safe guard lives on construction sites. For instance group 'A' identified 'choices' and 'decisions' made by duty holders as crucial in the successful implementation of the construction phase plan. Emphasis was placed on awareness of the fact that all duty holders had a role to play in successfully implementing the of construction phase plan although others suggested the need for clearer lines of communication in order to easily access information from various parties when preparing the construction phase plan. The client and the end users were identified as crucial in the process as one participant in group 'A' pointed out that:

*"Always have the client and the end-user in mind...what are their needs...remember that the plan is for the present while the file is for the future."*

It may seem inappropriate to think of the end user during the construction phase, but the whole point is have the whole building life span in mind as whatever happens

during construction is bound to affect its life cycle, be it during maintenance or demolition. The discussion summary for group ‘A’ as indicated in table 3 is consistent with the fundamental principles on which CDM regulations are based identified by Baxendale and Jones (2000) suggesting that all members who contribute to the health and safety of a project are to be accountable. This can be achieved to a large extent by making roles of various parties explicit with a view to design-in checks and balances as noted by one participant below:

*“You need to have a mechanism internally to check that you are complying with the regulations and most importantly to check that the contractor is complying with the construction phase plan.”*

Table 3: Focus group discussion meetings

Group	Participants	Theme(s)	Discussion summary	No.	Type of meeting
A	Clients, Consultants (H&S, Architects, Engineers and Quantity Surveyors) and Contractor organisations.	Management (i.e. timing - <i>decision making</i> ), prevention, competence, contractual obligations, risk.	Managing health and safety is everyone’s responsibility in the supply chain. Appropriate appointments and competence checks are crucial for overall health and safety management on construction sites.	15	Semi structured
B	Clients, Principal Contractors and CDM coordinators	Prevention, competence requirements.	It is the duty holders’ responsibility to ensure safety of buildings and other forms of infrastructure. Imbalance of liability can be viewed as a threat to overall health and safety management.	19	Structured
C	Consultants, Principal Contractors, specialist contractors and CDM coordinators	Contractual obligations, contract, practice, statute.	Terms and timing of appointment are crucial for the successful delivery of the construction phase plans.	17	Semi structured

While it was acknowledged by group ‘B’ and ‘C’ that the current regulations have been in force for just over five years, making the roles of various parties explicit removes the assumptions made in practice on who is to perform a particular task; for instance regulations 5(1)(a), 5(1)(b), 5(2), 6(a) and 6(b) – relating to regulation 20(2)(d), states that:

*“to take reasonable steps to ensure cooperation between designers and principal contractor during the construction phase in relation to any design or change to a design,”* require cooperation and coordination by all parties concerned on a project on whom duties are placed by the regulations (HMG 2007), however in practice this may not be possible as indicated by practitioners in group ‘C’:

*“90% of the time, we are appointed after the designer...it is not our responsibility to check whether they comply with the regulations or not as this would increase our*

tasks...in practice this is not possible,” while another participant argued in group ‘B’ that:

*“There’s need for a clear distinction of duties for instance the principal contractor is required under the CDM regulations to comply with welfare facilities but clearly that is the role of a contractors’ organisation.”*

In line with the above statement, the suggestion made by the facilitator in group ‘C’ was that:

*“The principal contractor should liaise with other duty holders if any changes are made...and it’s important that everything is put in writing as an audit trail since you are not in contract with them.”*

For instance, there a concern was raised by one participant in group ‘C’ initially appointed as CDM coordinator and later asked to prepare the construction phase plan. Clearly, this demonstrates areas that invite further research into appointments and terms of engagement to cover additional services.

Depending on the type of project, the role of principal contractor can normally be taken up by the main contractor. Where a design and build project is commissioned, the contractor on paper takes up all the roles as was established by one participant working on specialist type of builds. Consequently, the type of client (i.e.) private or public will have an influence on who does what in practice. Where clients are occasional, bespoke type of contracts and procedures are drawn up such as the London 2012 (Shiplee *et al.* 2011) inviting inevitable areas for further research. Interestingly, others suggested that designers alone should not be liable for design decisions, but rather principal contractors should be accountable for how they manage and incorporate construction activities in the construction phase plan, while contractors are liable for constructability and workmanship if H&S standards are to be upheld.

## **AREAS FOR FURTHER RESEARCH AND CONCLUSION**

From the foregoing findings and discussion, CDM regulations have provided proactive mechanisms which call for accountability by various parties with CDM contractual obligation. The principal contractor without a doubt is central to achieving a planned construction phase although the extent to which independence is achieved regarding choices and decisions made invites further debate. Clearly, timing of appointments and the subsequent execution of duties in practice in accordance with the regulations is far-fetched due to commercial pressures. In practice, an appointment to the role of principal contractor largely depends on the procurement routes, type of contract, complexity and scope of project. On large and complex projects for instance, (i.e.) bespoke one-off commercial projects, where autonomy is fully exercised rather than occasional projects where the main contractor assumes the role of principal contractor may provide explicit responsibilities. Eminent features for the implementation of the construction phase plan linked to the role of principal contractor emerge; therefore inviting further research into procurement procedures, liability, criteria for appointment and practical procedures for implementation. The extent to which these issues are clearly stipulated as part of the role of principal contractor distinctive from other duty holders such as the contractor leaves much to be desired.



## CONTRIBUTION OF THE STUDY

Given the nature of the construction industry; fragmentation at many levels – (e.g. procurement procedures and the like); arguably this demands clarity in the expression of duties, bound to have significant benefits to the construction supply chain. It is therefore unsurprising that there has been a growing demand for accountability by ‘players’ in the supply chain and the same can be said for ‘duty holders’ under CDM 2007. Despite being in an eminent position to produce the construction phase plan and monitor its execution thereafter, principal contractors are likely to carry out additional services although this will hinge on *inter alia* industry commercial pressures. Notably, the study demonstrates and provides insight into ‘grey areas’ that invite further research when executing the role of principal contractor which sought clarity from a legal context in accordance with regulation 22 to 24.

## REFERENCES

- Ankrah, N (2007) “An investigation into the impact of culture on construction project performance”. Unpublished PhD thesis, University of Wolverhampton.
- Ashworth, A (2012) “Contractual procedures in the construction industry”. Harlow: Prentice Hall.
- Bailey C A (2007) “A guide to qualitative field research”. 2ed. California: Pine Forge.
- Bamber, L (2011) CDM 2007: duty calls. (Construction Design and Management regulations). “Health & Safety at Work”, pp. 23.
- Baxendale, T and Jones, O (2000) Construction design and management safety regulations in practice - progress on implementation. “International Journal of Project Management”, **18**(1), pp. 33-40.
- Beal, A N (2007) CDM regulations: 12 years of pain but little gain. “ICE”, **160**(2), pp.82-88.
- Bennett, L (2006) “The commercial case for applying CDM case studies”. HSE research report 467. Her Majesty’s Stationery Office.
- Bryman, A (2008) “Social research methods”. Oxford: Oxford University Press.
- Chamber UK (2012) “Ranked individuals” [online]. London: Chambers and partners. [Accessed on: 4 May 2012]. Available at: <http://www.chambersandpartners.com/UK/Firms/140-47536>.
- CIOB (2010) “Code of practice for project management for construction and development”. Chartered Institute of Building, Oxford: Wiley-Blackwell.
- Creswell, J W (2009) “Research design: qualitative, quantitative, and mixed methods approaches”. London: SAGE.
- Dalby, S CDM 2007 two years on: survey reveals widespread misunderstanding. “ICE”, **162**(4), p.149.
- Donaghy, R (2009) “One death is too many-An inquiry into the underlying causes of construction fatal accidents”. The Stationery Office (TSO).
- Fellows, R and Liu, A (2008) “Research methods for construction”. Oxford: Wiley-Blackwell.
- Frontline Consultants (2012) “An evaluation of Construction (Design and Management) regulations 2007”. London, United Kingdom: HSE.
- Griffith, A and Phillips, N (2001) The influence of the Construction (Design and Management) Regulations 1994 upon the procurement and management of small building works. “CME”, **19**(5), pp. 533-540.

- Griffiths, O V and Griffiths, A V (2011) "Understanding the CDM 2007 regulations". Spon Press.
- Hare, B Cameron I and Duff, A R (2006) Exploring the integration of health and safety with pre-construction planning. "Engineering, Construction and Architectural Management", **13**(5), 438-450.
- Hare, B and Cameron, I (2012) Health and Safety Gateways for Construction Project Planning. "Engineering, Construction and Architectural Management", **19**(2), 5-5.
- HMG (2007) "Construction (Design and Management) Regulations 2007". London, United Kingdom: Her Majesty's Government.
- HMG (1974) "Health and Safety at Work Etc. Act of 1974". London, United Kingdom: Her Majesty's Government.
- HSE (2012) "One in five construction sites fail safety checks" [online]. London: HSE. [Accessed 4 May 2012]. Available at: <<http://www.hse.gov.uk/press/2012/hse-constructionresults.htm>>.
- HSE (2007) "Managing Health and Safety in Construction 2007". Approved Code of Practice, London, United Kingdom: HSE.
- HSE (2011) "The Health and Safety Executive Annual Reports and Accounts 2010/11". HC 1066, the Stationery Office.
- ICE (2011) "CDM 3 years on". Institution of Civil Engineer, report UK.
- Joyce, R (2007) "CDM Regulations 2007 explained". UK, ICE Publishing.
- Löfstedt, R (2011) "Reclaiming health and safety for all: An independent review of health and safety legislation". The Stationery Office Limited: Department of Works and Pensions (DWP).
- Manu, P Ankrah, N Proverbs, D and Suresh, S (2011) Briefing: The adverse health and safety influence of subcontracting. "ICE", **164**(4), 169 - 171.
- Mason, J (2002) "Qualitative researching". United Kingdom: Blackwell Science.
- Maxwell, J A (2005) "Qualitative research design: an interactive approach". Thousand Oaks, California: Sage Publications.
- Ndekugri, I E and Rycroft, M E (2009) "The JCT 05 standard building contract: law and administration". Amsterdam: Butterworth-Heinemann.
- Perry, P (2010) One CDM fits all. (Focus on Construction)(Construction Design and Management Regulations). "Health & Safety at Work", pp. 28.
- Pye Tait consulting (2010) "Research into the Construction (Design and Management) Regulations-The Client voice". Pye Tait Consulting Royal House, 110 Station Parade, Harrogate, HG1 1EP.
- SEC (2010) "Experience of working with Construction (Design and Management) regulations 2007". London, United Kingdom: Specialist Engineering Contractors Group.
- Shiplee, H Waterman, L Furniss, K Seal, R and Jones, J (2011) Delivering London 2012: health and safety. "ICE", **164**(5), 46-54.
- Summerhayes, S (2008) "CDM Regulations 2007 Procedures Manual". Wiley.
- Williams, A (2007) CDM legislation means new responsibilities for all parties. "The Architects' Journal", **226**(5), 40.