

Uptake of an OHS Code of Practice by Construction Firms: Barriers and Enablers in an Australian Industry Context

Michael B. Charles, Craig Furneaux, Janet Pillay, David Thorpe, Cinthya Paredes Castillo, Kerry Brown

Acknowledgement: *This research has been conducted as part of a research project funded by the CRC for Construction Innovation, Brisbane Australia.*

ABSTRACT

The Australian construction industry, reflecting a global trend, is moving towards the implementation of a voluntary code of practice (hereafter VCP) for occupational health and safety. The evidence suggests that highly-visible clients and project management firms, in addition to their subcontractors, look set to embrace such a code. However, smaller firms not operating in high-profile contracting regimes may prove reticent to adopt a VCP. This paper incorporates qualitative data from a high-profile research project commissioned by Engineers Australia and supported by the Australian Contractors' Association, Property Council of Australia, Royal Australian Institute of Architects, Association of Consulting Engineers Australia, Australian Procurement and Construction Council, Master Builders Australia and the Australian CRC for Construction Innovation. The paper aims to understand the factors that facilitate or prevent the uptake of the VCP by smaller firms, together with pathways to the adoption of a VCP by industry.

KEYWORDS:

Occupational health and safety, codes of practice, SMEs

1. INTRODUCTION

A nation-wide and industry-led voluntary code of practice (hereafter VCP) for occupational health and safety (hereafter OHS) looms as a potential bridging mechanism between the currently inadequate OHS performance (Cole, 2003) and the mass of complex government legislation that presently dominates the Australian building and construction sector (Lingard and Rowlinson, 2005). By enhancing levels of communication, collaboration and engagement in the construction supply chain with respect to the procurement, design, construction and commissioning stages of a project, a VCP of this nature has the potential to promote behavioural and cultural change. The safety management framework advocated in the proposed VCP provides a simple yet effective means of summarizing best practice in construction safety for clients, project managers, designers and constructors, that is, the entire construction process from design and procurement through to commissioning. Moreover, it promotes a level of regulatory consistency among the different states and territories that has not previously been possible and, in doing so, provides a foundation on which future legislative reform could be based.

A code of this nature should thus prove invaluable with respect to improving the OHS performance of the Australian construction industry. Discussion of this in an Australian legislative and regulatory context also has relevance to other nations, especially since it is well known, at a global level, that the incidence rate for fatal accidents in the construction industry is generally higher than in any other industry (Alvez Diaz, 1995; Suraji, 1997; Suraji *et al.*, 2001). Yet the readiness of construction firms to adopt and comply with the proposed VCP appears to be largely dependent upon firm size and capacity. Whereas interview data indicates that larger firms are keen to comply with a voluntary code, SMEs seem to be more circumspect in this regard, with the main motive for improving OHS being the fear that operations could be curtailed by regulators (Wright, 1998; Gunningham, 1999).

By using data collected from a CRC for Construction Innovation project focussing on the promulgation of a VCP in the Australian construction industry, this paper outlines the barriers and enablers with regard to the adoption of an OHS-focused VCP. The paper, which also employs some results of a survey of small builders conducted in 2006, also considers the strategies required to encourage the uptake of a VCP by smaller firms. The study commences with a background into the increasing prominence of safety in the Australian building and construction industry and highlights the need for a VCP in construction OHS. It then looks at existing contracting regimes, with particular attention paid to clients and project management firms, before turning its attention to the problematic SME sector of the industry (Gunningham, 1998).

2. OHS IN THE AUSTRALIAN CONSTRUCTION INDUSTRY

It is widely recognized that OHS performance in the Australian building and construction industry is poor (Cole, 2003; Wild, 2005). Indeed, construction workers are susceptible to fatality rates three times the national workplace average and injury rates 50% higher than those experienced in other sectors (Cole, 2003; Wild, 2005). In fact, construction industry workers are 2.4 times more likely to be killed at work than those employed in any other Australian industry (Cole, 2003; Wild, 2005). In 2002–2003, poor OHS accounted for 6.3% of Australia's GDP alone (ABS, 2005a). In addition, the community benefits of prioritizing OHS are estimated to generate AUD2.3 billion annually (Department of Employment and Workplace Relations, 2005). The OHS performance of this sector is especially problematic when one takes into account that the Australian commercial building and construction industry employs in excess of 775,000 individuals and accounts for approximately 6.8% of the nation's GDP (Department of Employment and Workplace Relations, 2005).

To further contextualize the issue, legislation in this area is dispersed among the different states and territories. While Australia is a signatory to the ILO OHS Standard (1992), individual States and Territories within the Australian federation retain responsibility for developing and enforcing OHS legislation. These regulatory authorities each adopt a three-tiered approach to OHS enforcement based on principles of broad overarching general duties, detailed provisions in regulations, and codes of practice (Royal Australian Institute of Architects, 2004, p. 10). These existing codes of practice, together with advisory standards, provide guidance on hazard identification and risk assessment processes. At a federal level, the National Occupational Health and Safety Commission (NOHSC) operates in an advisory role to Commonwealth, State and Territory governments, employer organizations and trade unions. NOHSC develops safety standards, codes of practice and guidance notes that, while not legally enforceable unless adopted as regulations by the individual States and Territories, represent a significant attempt at a national approach to OHS. This approach to OHS is underpinned by the UK-based integrated approach to accident and illness prevention through regular enforcement, advisory provisions and teamwork, as espoused by Robens (1972), Latham (1994) and Egan (1998). More recently, changes to construction-related OHS legislation have been driven by the recommendations of the Royal Commission into the Building and Construction Industry, a federal inquiry into misconduct and malpractice in the sector.

The Commission found that the Australian building and construction industry is characterized by an entrenched culture of legislative disregard and that existing laws are very much ineffective (Cole, 2003). In particular, overseas literature indicates that construction industry SMEs are less compliant with existing OHS legislation than larger enterprises (Bickerdyke and Lattimore, 1997). Four hundred separate findings of unlawful conduct

by individuals, unions and employers and potential breaches of 20 Federal and State Acts were specifically identified by the Commission (Cole, 2003). It was concluded that, in the Australian construction industry, behavioural and cultural change is fundamentally necessary and that the industry as a whole must work together in order to produce better safety outcomes (Cole, 2003). The best means to effect this change would entail the prompt implementation of a national OHS system in which safety is regarded as equally important as time and budgetary considerations (Cole, 2003). Within this process, OHS responsibility should be distributed equitably amongst all parties involved in a project, i.e., from initial design through to commissioning (Cole, 2001).

Under Australian law, employers have a duty of care to provide their workers with a safe work place. Indeed, the Supreme Court of Victoria (1992) has determined that “one of the chief responsibilities of all employers is the safety of those who work for them.” Such a duty has been held by the courts to apply not only to direct employees of a firm, but also to a firm’s subcontractors (Rozan, 2005). A common law approach, however, does little to inform employers of the specific ways in which they should go about ensuring the safety of their workers. As a consequence, many jurisdictions implemented a number of standards that specify the methods of safeguarding safety in specific workplaces. Unfortunately, a specification approach to OHS results in a mass of detailed law that is difficult to comprehend or keep up to date (Gunningham, 1996). An alternative approach was the utilization of performance-based standards that focus on achieving outcomes yet allow individual firms to determine the best means to achieve such outcomes (Gunningham, 1996). A large number of Australian and State-based codes of practice have been developed that are performance based (see NOHSC 2007 for a partial list). The plethora of international, national and state standards, codes of practice and guidance notes, together with formal regulatory instruments, result in a bewildering array of regulatory instruments with which firms must comply. Thus a VCP for OHS in the construction industry has been advanced as a way of ensuring that firms of all sizes are aware of their responsibilities under Australian law, together with practical guidance on how to implement such a safety system (Industry Commission, 1994).

3. AN OHS-FOCUSED VOLUNTARY CODE OF PRACTICE

At an international level, both practitioners and scholars acknowledge that a VCP is central to safety reform (ILO, 1992; Durham *et al.*, 2002; Cole, 2003; Kelly, 2004). Through the principles of national uniformity embedded in the proposed VCP, it is envisaged that a code of this nature has the capacity to minimize confusion with respect to the safety roles and responsibilities of different construction parties (Durham *et al.*, 2002). Durham *et al.* (2002) also argue that a homogenous, national OHS-

focussed VCP has the potential to yield economic elements, especially with respect to the time and resources expended in order to address different and often conflicting codes and regulations.

An OHS-focused VCP may also initiate greater levels of collaboration and engagement within the construction supply chain and across the industry (Ryan *et al.*, 2006). Supply chain collaboration was traditionally regarded as a low priority, especially in an industry characterized by high levels of fragmentation and adversarial relationships (Dainty *et al.*, 2001; Hampson and Brandon, 2004). What is more, the ILO (1992, p. 2) specifies that the objective of VCP would be to offer “practical guidance on the policy and standard setting in occupational safety and health for use by governments, employers, workers and any other persons involved in the construction process in order to promote safety and health at the national level and at the level of enterprise.”

Finally, a VCP that is industry-developed would help to define, in a court of law, what would be regarded as ‘reasonably practical’, i.e., the general standard required under duty of care (Gunningham, 1996). In other words, a VCP, developed *by industry for industry*, would *de facto* have the force of law since, “when the courts consider whether the duty of care has been met, they will turn to such codes as representing industry custom and practice” (Industry Commission, 1995, p. 50). Still, it is unclear whether such a code should be broad principles-based or prescription-based.¹

4. DRIVING THE CODE: GOVERNMENT’S ROLE

Government, especially at a federal level, has already signalled its intention to push construction site OHS further forward on its agenda (Andrews, 2006), although the means to do so have not been finalized. Thus it is important to think about what place a VCP could have, and what its long-term intention might be. As intimated above, this paper posits that a VCP, if it achieves the requisite traction, could be an important driver of change with respect to the way that OHS is addressed and monitored by industry stakeholders, and government in particular. Indeed, a rigorous government enforcement of supply-chain-wide OHS principles by means of legislation and/or regulation would not be practicable at present, particularly when a) such a regime would result in significant drain on government resources with questionable results (Gunningham, 1996), and b) is likely to acquire *de facto* force of law on its own (Industry Commission, 2004).

¹ Research on this topic is currently being undertaken by Australia’s CRC for Construction Innovation. Other aspects of the proposed VCP are also uncertain; for instance, the specific components that should be included, the means by which the code will be developed, and the way in which the effectiveness of such an instrument should be measured. This is particularly so with respect to the twin goals of achieving greater industry collaboration on OHS-related matters, and producing better safety outcomes for construction projects.

A sudden move towards a prescriptive supply-chain-wide OHS regulatory regime would have the potential to curtail the overall performance and growth of the industry. Moreover, failure to abide by these principles on the part of construction industry practitioners would perhaps lead to plethora of legal actions. Aside from this, an additional set of legislation cum regulation might also serve to stifle confidence and, without the normative accord of the industry, would probably prove ineffective (Gunningham and Kagan, 2005). Data from the CRC for Construction Innovation's *Construction 2020* survey suggests that construction industry stakeholders 'red tape' as a significant barrier to a more profitable industry (Hampson and Brandon, 2004). Thus, if government-led reform of OHS is to ensue, there is a manifest need to move towards greater industry led self-regulation, which would serve to integrate OHS into global supply chains (Pearson and Seyfang, 2001). The best means to achieve this would be to ensure that a supply-chain-wide VCP made a significant impact on industry OHS performance. Thus the VCP needs to gain support throughout the *entire* industry, from major public or private sector clients down to small owner-operators (Gunningham and Kagan, 2005).

5. A READY MARKET?: THE IMPORTANCE OF VISIBILITY

Interview data suggest that an OHS VCP for the Australian construction industry would find a ready 'market' within certain existing procurement regimes. For example, interview data gleaned from representatives of peak industry associations, government agencies and major constructors demonstrate that the main stakeholders are already aware of the importance of OHS within the construction industry and the benefits that a VCP could bring, e.g., "a national code will be one step towards having to stop saying the same thing in every state" (designer). In the interviews, for instance, it became clear that designers have become more aware that their role in OHS must go beyond what is currently regulated, e.g., "the code will be the first one overarching all the players and will include designers' responsibilities" (designer).

As noted above, aside from the more obvious benefits of a supply-chain wide VCP, such as reduced incidence of construction-related injury and death, more fully integrated supply chains will potentially result (Ryan *et al.*, 2006). This is considered especially important since 80% of contract expenditure in OECD nations relates to subcontracting (Packham *et al.*, 2001), and because the promotion of more rapid harmonization between project constituents will reduce time currently lost on adjusting to new work conditions (Miller *et al.*, 2001; Stewart *et al.*, 2003). It is argued that greater supply chain integration would lead to projects being completed on-time, more satisfactorily, and with less re-work (Engineers Australia, 2005).

A VCP that leads to better outcomes for clients will obvious find support among those agencies or organizations that procure built

infrastructure. A VCP can be used by constructors to demonstrate to clients that they comply with industry best practice (Gunningham and Rees, 1997). Indeed, more clients will presumably modify their selection criteria in order to include safety alongside more traditional criteria such as price and quality (Adetunji *et al.*, 2003), particularly if a VCP had become accepted as the industry norm (Gunningham and Rees, 1997). The landmark "Rethinking Construction" report also emphasised the requirement for the industry to educate and help its clients to differentiate between best value and lowest price (Egan, 1998). Thus project management firms, it follows, will increasingly be selected by clients on account of their ability to mandate adherence to a VCP. As (Wong *et al.*, 1999) have suggested, there is growing change from "lowest-price wins" to "multi-criteria selection," which could include OHS performance. Sub-contractors working for the client's principal agent will therefore need to demonstrate their commitment to an agreed-upon VCP in order to work on a project since contracted workers can legally be considered to be 'employed' by the lead agency, in the broadest sense of this term (Johnson and Quinlan, 2006).

Despite the above, it seems reasonably clear that, at present, only a certain type of client will select project management firms according to their ability to mandate a VCP for project constituents. Public sector organizations will undoubtedly number among these clients (Andrews, 2005). With the public increasingly interested in the promotion of effective OHS strategies, government looks set to embrace innovations that have the potential to lead to better health and safety outcomes. Indeed, safety in the workplace might be considered an increasingly salient public value (Wong *et al.*, 1999). In view of this, government will expect that, if an industry-wide VCP is both practicable and available, public sector organizations (especially those procuring highly visible infrastructure) should modify their selection criteria accordingly (Gunningham, 1996).

Public sector organizations, it seems likely, will understand the value of a VCP with regard to ensuring the provision of quality, on-time and on-budget constructed facilities. This is especially the case given the high visibility of public works (especially critical infrastructure such as roads, bridges and railways) and the very real possibility of intense media scrutiny should OHS performance standards go awry (Cole, 2003; 2004). Thus a VCP readily fits into the short-term mindset of incumbent governments—a very important consideration when modern public sector organizations embrace a whole-of-government perspective.

Aside from public sector clients, adherence to a VCP for OHS would also conceivably be expected by leading private sector organizations. This would especially be the case in public-private partnerships (PPPs), whereby arrangements are made that serve the interests of both the private sector and the government (van Ham and Koppenjan, 2001; Hodge and Greve, 2005). This is an especially important consideration since allied government organizations could potentially demand adherence to a VCP during the negotiation phases of a partnership concerning infrastructure

provision. Aside from this, public sector clients may view a VCP as a mechanism to improve their public image (Gunningham and Rees, 1997). Adherence to a VCP might thus form part of an organizational corporate social responsibility (CSR) strategy. In particular, highly visible clients procuring infrastructure may wish to avoid injury or death on their construction site in order to avoid reputational crises, even if construction is far removed from their core business. This theme is closely tied to the concept of relational capital, which has the potential to lead to sustained competitive advantage and even differentiation (Sveiby, 1997; Petrick *et al.*, 1999; Rodgers, 2003).

Enhanced reputational capital could also be an attractive proposition to many of the larger project management firms operating in high-profile construction environments. Interview data certainly suggest this, e.g., “OHS is a very important issue from a client’s perspective” (constructor), although one respondent stated that “[the] ... reality is that most clients don’t differentiate in competition between organisations that have a good approach to safety” (constructor). From the interviews, it becomes clear that, for constructors and designers, the client’s perception relates directly to their reputations, e.g., “they are more focused on what the general public will think” (constructor); “global clients and regional clients increasingly recognize that whether you can deliver on the safety aspect is in fact more important than the price and all the other aspects” (constructor). General contractors such as the John Holland Group (JHG) and Bovis Lend Lease have affirmed their commitment to improving OHS. For example, John Holland has adopted a vision of “no harm” (Stewart, 2006), while Bovis Lend Lease desire to operate “incident and injury free” (Bovis Lend Lease, 2006). Firms such as these, which have adopted safety as a core organizational value, are likely to buy into a VCP. Furthermore, the expectation of improved project outcomes could also be a factor with regard to private sector clients promoting a VCP. If a more integrated supply chain delivering substantial benefits with respect to price, completion time and quality ensues, a VCP that facilitates the formation and maintenance of harmonized relationships among project constituents should earn substantial private sector support. Finally, larger firms conducting business on an international scale are generally keen to comply with global standards in quality, environment and safety (Reed Business Information, 2006).

Thus, it could be argued, there are numerous high-profile clients from both the public and private sectors that would be interested in a VCP. What is more, private sector organizations accustomed to manage projects on behalf of these clients would also see potential. From a purely business perspective, project management firms would seek to operate according to a VCP with a view to ingratiating themselves with important clients, especially if adherence to a VCP were factored increasingly into contractor selection criteria formulated by clients.

6. SME UPTAKE OF A VOLUNTARY CODE

In the section above, it was emphasized that clients will largely drive the implementation of a VCP, and that the larger project management firms acting as agents for these public and private sector clients will also express interest in a VCP, both for financial and CSR purposes. Interview data already collected shows a strong interest in a VCP for OHS among the larger project management firms: "I think for the larger more responsible client organizations, the BHPs, the Rios [Rio Tinto], Mobils, Shells ..., if you're not doing this stuff [OHS] you're not working for them" (designer). However, it is difficult to be sure about whether clients operating outside the sorts of procurement regimes outlined previously would be interested in pursuing a VCP for OHS. These include SMEs.

It is necessary to provide a brief definition of what constitutes an SME. While the definition varies according to the context, one reasonable definition of an SME in the Australian context might be a firm with less than 100 employees, or with an income of less than AUD5. This definition broadly fits with the size groupings of firms used by the Australian Bureau of Statistics in its 2003 survey of innovation in Australian business (ABS, 2005b, p. 14).

As part of the process of obtaining an industry viewpoint on such issues, the authors undertook a survey (by interview) of innovative practices, including OHS, in 20 small building contractors in South East Queensland, Australia, in 2006. It was found that the main factors that would persuade such firms to adopt or follow a code of practice for OHS would be government legislation (not helpful with regard to a VCP) and its endorsement by industry associations. It was also noted that the firms themselves desired to adopt good OHS practice, especially on account of its potential to reduce incidence of injuries, lost time and exposure to risk. A number of the builders did express concerns that whatever legislation was imposed should be good practice and not onerous.

Whereas larger construction companies appear keen to embed safety as a priority, as the interview data suggest, smaller firms have traditionally been more reluctant to do so. Indeed, these firms are much less likely to comply with existing legislation (Westwick-Farrow, 2006). A number of factors appear to preclude the uptake of better OHS practices. Smaller contractors are reported to feel inhibited by small profit margins and a lack of financial reserves (Gillen *et al.*, 2004). Indeed, construction industry SMEs can generally be characterized as "price takers" (O'Farrell and Hitchens, 1988; Miller *et al.*, 2001). In addition, they lack the human resources and management commitment necessary to improve OHS performance (Mayhew *et al.*, 1997; Lin and Mills, 2001; Hasle and Limborg, 2006). Smaller contractors also generally have minimal onsite involvement on construction projects. They are thus generally less committed to safety (Holmes *et al.*, 1999). This is especially the case for self-employed persons, who are two times more likely to suffer from work-related deaths

than others in the industry (Mayhew *et al.*, 1997). Furthermore, smaller construction companies often do not focus on safety because they a) fail to recognize the economic returns of OHS, b) generally suffer from poor scheduling of work, and c) hold that workers are capable of protecting themselves (Mayhew and Quinlan, 1999). Smaller firms also adhere more to the widely reported “culture of cost cutting” inherent in the construction industry (Ferguson, 2004, p. 3).

Not all clients procure high-cost and highly visible constructed facilities. One might consider the case of a master builder hired by a future homeowner to coordinate the construction of a suburban dwelling. Although a small project, it is a construction project nevertheless, with a designer, client's agent (project management), the principal agent's employees, and various subcontractors. The client presumably has little interest in mandating improved safety. The client may thus assume that OHS is up to the individual or the principal contractor. This sort of client, unlike those introduced previously, may not know what CSR is, let alone have any active interest in pursuing it. What is more, the client would surely list cost, quality and completion time far ahead of safety.

By the same token, the principal agent hired by the client may feel that adherence to the sort of VCP espoused herein makes little business sense. That is not to say that this agent is totally unconcerned with ensuring acceptable standards of OHS onsite. The likelihood, however, is that this would not be one of the agent's principle concerns. Practitioners and scholars generally agree that the operating context of smaller firms is such that limited economic and human resources are available with respect to implementing OHS management systems over and above what is currently required by law and regulation (Kim, 2004). Moreover, it is plausible that adherence to the principles of a health and safety VCP would be viewed as an additional burden by smaller enterprises. Perhaps adherence to a VCP would even be regarded as another operational element that diverts the business from its core competencies. This is especially so when much attention is focused on short-term performance, instead of long-term gains (Gunningham and Rees, 1997).

This view is supported by the results of the survey of 20 small building firms previously mentioned, in which several referred to what they felt were quite onerous requirements imposed by legislation (as opposed to good practice). Examples quoted by the builders included perceived over-emphasis on scaffolding (one firm claimed that the cost of scaffolding can be as much as AUD30,000, or more, for certain residential houses) and the need to re-examine electrical leads every three months.

While there is some debate regarding the degree to which low margins prevent SMEs from innovating (Ryan *et al.*, 2006), what does seem relatively clear is that SMEs, even though they might desire to innovate (Lefebvre *et al.*, 1997; O'Farrell and Hitchens, 1988), do not always have the financial or human resources capability to do so (Industry Commission 1995; O'Farrell and Miller, 2002). This could also be perceived

as a barrier to introducing the principles of a VCP for OHS, especially if compliance to these principles results in added cost, an increased expenditure of time, and unwanted complexity, all of which concerns were voiced by the smaller constructor interviewed as part of this research. According to Gunningham (1999, p. 27), SMEs fail to view health and safety as an investment; rather, they view health and safety as a cost.

Now, if SMEs do not generally (if at all) work with the larger project management firms dealt with previously, or else work for public sector clients keen to mandate leading practice, it will conceivably be difficult to 'sell' the VCP to this industry sector. Yet, without that sector effectively engaged in a VCP, there is a good chance that, if the principles of the code do eventually become mandated, problems that may have a detrimental effect on the entire industry could ensue. This is especially the case since, according to figures provided by the Australian Bureau of Statistics, 90% of Australian construction firms have an annual turnover of less than AUD1M (ABS, 2003; 2005a).

Larger project management firms would obviously prefer to see as many SMEs as possible buying into the VCP. This is because, if public and private sector clients begin to give equal weighting to safety as to price, quality, prestige, etc., i.e., it becomes the industry norm (Gunningham and Rees, 1997; Adetunji *et al.*, 2003), then project management firms acting as agents of their clients will naturally desire a large pool of potential sub-contractors that have demonstrably adhered to the kinds of best-practice encapsulated in the code. This is obviously important with respect to competition. Thus the means to demonstrate that adherence to a VCP would bring about considerable benefits need to be established. It will be difficult to argue a case for short-term benefits, especially if the SME operates outside the more high-profile regimes discussed previously. Yet it seems clear that the essential principles of a supply-chain-wide VCP would have value to this sector. For instance, less compensation claims and legal actions may provide benefits over time.

7. CONCLUSION

It is likely that, when clients mandate adherence to a VCP for OHS, it will be necessary for potential subcontractors to demonstrate their adherence to the code to project management firms. This would thus constitute a kind of pre-qualified arrangement and would need to be carried out via formalized arrangements rather than word of mouth. The means to achieve this in a highly visible fashion need to be developed. To do otherwise would merely negate the benefits that a VCP could provide with respect to rapid harmonization of project constituents onsite. From a long-term viewpoint, even though the SME does not presently deal with project management firms that acting on behalf of high-profile clients, the firm should leave itself open to the possibility of entering these regimes if deemed appropriate.

Moreover, at another level, the smaller firm may desire to coordinate a project for local government units, which, for public accountability reasons, promote the VCP for OHS. In view of this, it would make sense for the SME, and indeed the owner-operator, to abide by the voluntary code, if only for strategic rather than day-to-day business reasons.

References Used:

- Adetunji, I., A. Price, P. Fleming and P. Kemp, 2003, Trends in the conceptualisation of corporate Sustainability. In *Proceedings of the Joint International Symposium of CIB Working Commissions*, Singapore, 22–24 October, Vol.2, 187–199.
- Alves Diaz, L.M., 1999, Construction safety coordination in Portugal. In *Proceedings of the Conference on Construction Safety Coordination in the European Union*, CIB Publication 238, CIB Working Commission W99, Lisbon, Portugal, edited by Alves Dias, L.M. and Coble, R.J. 153–163.
- Andrews, H.K., 2006, A construction safety competency framework: improving OH&S performance by creating and maintaining a safety culture project. Employment and Workplace Relation Media centre, available at:
<<http://mediacentre.dewr.gov.au/mediacentre/AllReleases/2006/September/AConstructionSafetyCompetencyFrameworkImprovingOHSPerformancebycreatingandmaintainingsafetyculture.htm>> (accessed January, 2007).
- ABS – see Australian Bureau of Statistics
- Australian Bureau of Statistics, 2003, *8777.0* (Canberra: Australian Government).
- Australian Bureau of Statistics, 2005a, *5206.0* (Canberra: Australian Government).
- Australian Bureau of Statistics, 2005b, *8158.0* (Canberra: Australian Government).
- Bickerdyke, I. and Lattimore, R., 1997, Reducing the regulatory burden: does firm size matter? Staff Research Paper, Industry Commission, December.
- Bovis Lend Lease, 2006, Health and Safety: Incident & Injury Free. Bovis Lend Lease, available at:
<http://www.bovislendlease.com/iweb/bl/main.nsf/toprint/au_healthcommitment> (accessed December, 2006).
- Cole, T., 2001, *Overview of Private Meetings Held between the Honourable TRH Cole QC and Participants in the Building and Construction Industry* (Canberra: AGPS).
- Cole, T., 2003, *Final Report of the Royal Commission into the Building and Construction Industry: Summary of Findings and Recommendations Volume 1* ((Canberra: AGPS).
- Dainty, A., Briscoe, G. and Millett, S., 2001, Subcontractor perspectives on supply chain alliances. *Construction Management and Economics*, **19**, 841–848.
- Department of Employment and Workplace Relations, 2005, Reforming the Building and the Construction Industry. Australian Government, Department of Employment and Workplace Relations, available at: <<http://www.workplace.gov.au/building>> (accessed February, 2006).
- Durham, B., Culvenor, J. and Rozen, P., 2002, *Workplace Health and Safety in the Building and Construction Industry: Discussion Paper 6* (Canberra: AGPS).
- Egan, J., 1998, *Rethinking Construction: The Report of the Construction Taskforce* (UK: HMSO).
- Engineers Australia, 2005, *Getting it Right the First Time: A Plan to Reverse Declining Standards in Project Design Documentation within the Building and Construction Industry* (Brisbane: Engineers Australia, Queensland Division Task Force on the Quality of Documentation).
- Ferguson, A., 2004, Improving occupational health and safety in the building and construction industry: trade unions and safety. *National Occupational Health and Safety Commission National Conference Address*, available at:
<<http://www.cfmeu-construction-nsw.com.au/pdf/OHSNationalConferenceSpeech.pdf>> (accessed February, 2007)
- Gerking, S., De Haan, M. and Schulze, W., 2004, The Marginal Value of Job Safety: A contingent

- Valuation Study. *Journal of Risk and Uncertainty*, 1(2), 185-199.
- Gillen, M., Kools, S., Sum, J., McCall, C. and Moulden, K., 2004, Construction workers' perceptions of management safety practices: a qualitative investigation. *Work*, 23, 245-256.
- Gunningham, N., 1996, From compliance to best practice in OHS: the roles of specification, performance and systems-based standards. *Australian Journal of Labour Law*, 9(3), 221-243.
- Gunningham, N., 1999, CEO and supervisor drivers: review of literature and current practice. National Occupational Health and Safety Commission, Australia, available at: <<http://www.nohsc.gov.au/Pdf/OHSSolutions/CEOSupervisorDrivers.pdf>> (accessed January 2007).
- Gunningham, N. and Kagan, R.A., 2005, Regulation and business behavior. *Law and Policy*, 27(2), 213-218.
- Gunningham, N. and Rees, J., 1997, Industry self-regulation: an institutional perspective. *Law and Policy*, 19(4), 363-414.
- Hampson, K. and Brandon, P., 2004, *Construction 2020. A Vision for Australia's Property and Construction Industry* (Brisbane: CRC for Construction Innovation).
- Hasle, P. and Limborg, H.J., 2006, A review of the literature on preventative occupational health and safety activities in small enterprises. *Industrial Health*, 44, 6-12.
- Hodge, G and Greve, C., 2005, *The Challenge of Public Private Partnerships. Learning from International Experience* (Cheltenham: Edward Elgar).
- Holmes, N., 1995, *Workplace Understandings and Perceptions of Risk in OHS* (Melbourne: Monash University).
- Hood, C.C., 1983, *The Tools of Government* (London: Macmillan).
- ILO – See International Labour Office
- Industry Commission, 1995, *Work, Health and Safety: Inquiry into Occupational Health and Safety*. Vol.1 – Report. V.2. Appendices. Report No. 47 (Canberra: AGPS).
- International Labour Office, 1992, *Safety and Health in Construction Code of Practice* (Geneva: International Labour Office).
- Johnstone, R. and Quinlan, R., 2006, The OHS regulatory challenges posed by agency workers: evidence from Australia, *Employee Relations*, 28(3), 273-289.
- Kelly, M., 2004, National safety codes set to move few steps closer, *The Australian*, September 8, 2004.
- Kim, J.-A., 2004, *The Role of Legislation in Driving Food Occupational Health and Safety Management Systems: A Comparison of Prescriptive-based Legislation*, unpublished PhD Thesis.
- Latham, M., 1994, *Constructing the Team – Joint Review of Procurement and Contractual Arrangements in the United Kingdom Construction Industry. Final Report* (London: HMSO).
- Lefebvre, L., Mason, R. and Lefebvre, E., 1997, The influence prism in SMEs: the power of CEOs' perception on technology policy and its organisational impacts. *Management Science*, 43(6), 856-878.
- Lin, J. and Mills, A., 2001, Measuring the occupational health and safety performance of construction companies in Australia, *Facilities*, 19(3-4), 131-138.
- Lingard, H. and Rowlinson, S., 2005, *Occupational Health and Safety in Construction Project Management* (New York: Spon Press).
- Mayhew, C., Quinlan, M. and Ferris, R., 1997, The effects of subcontracting/outsourcing on occupational health and safety: survey evidence from four Australian industries. *Safety Science*, 25 (1-3), 163-178.
- Mayhew, C. and Quinlan, M., 1999, The effects of outsourcing on occupational health and safety: a comparative study of factory-based workers and outworkers in the Australian clothing industry, *International Journal of Health Services*, 29(1), 83-107.
- Miller, C.J.M., Packham, G.A. and Thomas, B.C., 2001, Harmonisation and lean construction: acknowledging the role of the small subcontracting firm – WEI Working Paper 15. Pontypridd: Welsh Enterprise Institute/University of Glamorgan Business School.
- NOHSC – see National Occupational Health and Safety Council

- National Occupational Health and Safety Council, 2005, Index of National Standards Codes of Practice and Related Guidance Notes, available at: <<http://www.ascc.gov.au/ascc/AboutUs/Publications/NationalStandards/IndexofNationalStandardsCodesofPracticeandrelatedGuidanceNotes.htm>> (accessed February, 2007).
- O'Farrell, P.N. and Hitchens, D.M.W.N., 1988, Alternative theories of small firm growth: a critical review. *Environment and Planning*, **20**, 1365–1383.
- O'Farrell, M. and Miller, C.J.M., 2002, The barriers to new technology diffusion in the construction industry of South Wales. In *Current Issues in Small Construction Enterprise Development*, Welsh Enterprise Institute Monograph No. 4, edited by Miller, C.J.M. and Packham, G.A., Thomas, B. (Pontypridd: University of Glamorgan Business School), 123–137
- Packham, G.A., Thomas, B. and Miller, C.J.M., 2001, Partnering in the Welsh construction industry: a subcontracting perspective – WEI Working Paper 19 (Pontypridd: Welsh Enterprise Institute/ University of Glamorgan Business School).
- Pearson, R. and Seyfang, G., 2001, New hope or false dawn?: voluntary codes of conduct, labour regulation and social policy in a globalizing world, *Global Social Policy*, **1**(49), 49–78.
- Petrick, J.A., Scherer, R.F., Brodzinski, J.D., Quinn, J.F. and Fall Ainina, M., 1999, Global leadership skills and reputational capital: intangible resources for sustainable competitive advantage, *Academy of Management Executive*, **13**(1): 58–69.
- Reed Business Information, 2006, How to Make a Profit with OHS, available at: <<http://www.ferret.com.au/articles/16/0c041516.asp>> (accessed July, 2006).
- Robens, A., 1972, *Report of the Committee on Safety and Health at Work 1970–1972* (London: HMSO).
- Rodgers, W., 2003, Measurement and reporting of knowledge-based assets. *Journal of Intellectual Capital*, **4**(2): 181–190.
- Royal Australian Institute of Architects, 2004, Options to improve OHS outcomes in Australia, Submission to the Office of the National Occupational Health and Safety Commission, available at: <http://dev.architecture.com.au/i-cms_file?page=4104/RAIASubmission_NOHS_Feb2004.pdf> (accessed February 2007).
- Ryan, N., Charles, M. and Hampson, K., 2006, Government policy and promoting collaboration in the Australian construction industry. In *Clients Driving Innovation: Moving Ideas into Practice*, edited by Brown, K., Hampson, K. and Brandon, P. (Brisbane: IconNet), 267–274.
- Stewart, R.A., Miller, C.J.M., Mohamed, S. and Packham, G.A., 2003, Sustainable development of small construction enterprises: IT impediments focus – WEI Working Paper 32 (Pontypridd: Welsh Enterprise Institute/University of Glamorgan Business School).
- Stewart, D. 2006. *Health and Safety Policy*. John Holland Web site, available at: <<http://www.johnholland.com.au/SiteDocuments/doc73029.pfd>> (accessed July, 2006).
- Supreme Court of Victoria, 1992, in *Holmes v R.E. Spence and Co Pty Ltd* 5 VIR 119 at 123.
- Suraji, A., 1997, Analysis of labour accidents in the construction industry: the Indonesian experience, *J. Teknika*, **8**(1), 16–20.
- Suraji, A., Duff, R. and Peckitt S.J., 2001, Development of the causal model of construction accident causation, *Journal of Construction Engineering and Management*, **127**(4), 337–344.
- Sveiby, K.E., 1997, *The New Organisational Wealth: Managing and Measuring Intangible Assets* (San Francisco, CA: Berrett Koehler).
- van Ham, J.C. and Koppenjan, J.F.M., 2001, Building public-private partnerships: assessing and managing risks in port development, *Public Management Review*, **3**(4), 593–616.
- Westwick-Farrow Pty Ltd, 2006, *OH&S Compliance: No Longer an Option*. Safety Solutions Web Site, available at: <http://www.safetysolutions.net.au/safety/feature_article/item_032006a.asp> (accessed July, 2006).
- Wild, B., 2005, Occupational health and safety – the caring client. In *Clients Driving Construction Innovation: Mapping the Terrain*, edited by Brown, K., Hampson, K. and Brandon, P. (Brisbane: Icon.Net), 22–39.

- Wright, M., 1998, *Factors Motivating Proactive Health and Safety Management: Contract Research Report for the Health and Safety Executive* (London: HMSO).
- Wong, C.H., Holt, G.D. and Cooper, P.A., 1999, *Lowest Price or Value? Investigation of UK Construction Clients, Tender Selection Process*, Built Environment Research Unit, School of Engineering and the Built Environment, University of Wolverhampton.