

The Future Direction of the Australian Building Surveying Profession.

Sara WILKINSON and George ZILLANTE, Australia

Key words: Building surveying, performance regulations, building code of Australia, building regulations

SUMMARY

The introduction of a performance based approach to building regulations in 1996 with Australia marked a watershed in the way in which applications for building permits were determined. Rather than a wholesale reliance on a deemed to satisfy approach whereby designers demonstrated compliance via a fairly narrow selection of ways in which the building would achieve the minimum standards set out in the Building Code of Australia, the new approach allowed designers to submit alternate solutions. The aim was to encourage innovation and use of alternate materials and designs in buildings. However the submission of alternate solutions also involved the analysis of complex calculation especially with regards to structural matters and fire safety.

The building profession in Australia has largely been comprised of tradesmen who have supplemented their work experience with education to become building surveyors. There are concerns that the profession is unable to deal with the complex alternate solutions submitted under the new system, so much so that some say the profession is now at a crossroads. There are those who should deal exclusively with deemed to satisfy applications and an elite building surveyor needs to emerge to deal with alternate solutions. What impact would such a move have on the profession? This paper explores the issues surrounding the current situation faced by the profession in Australia. Given that performance based approaches are used in the US, UK and Canada this paper will have relevance to building surveyors in other countries.

The Future Direction of the Australian Building Surveying Profession.

Sara WILKINSON and George ZILLANTE, Australia

INTRODUCTION

This paper is partly based on a paper presented in 2006 at the Australian Building Educators Association conference in Sydney. Australian building codes historically were based on UK precedent which dates back to 1189 when agreements were made regarding party walls and related matters (LDSA & Stephenson, 2005). Initial legislation occurred after the 1666 Fire of London whereby the appointment of surveyors was set out along with the duty of ensuring the regulations were observed. In 1774 the appointment of District Surveyors for London with a scale of fees for their services was enacted however the most extensive changes occurred after 1961 in both the extent of the regulations and the methods of control. Australia has been influenced through its ties to the UK in the way in which its system of Building Regulations and enforcement has developed and this paper outlines the changes and the impact on the profession of Building Control Surveyors, or Building Surveyors as they are known in Australia.

UK REGULATORY STRUCTURE

Building Regulations are national standards across England and Wales, though similar but separate regulations apply in Northern Ireland and Scotland. The Office of the Deputy Prime Minister (ODPM) is responsible for the UK Building Regulations, which ensure the health and safety of people in and around buildings. The regulations apply to all types of buildings, from major new developments to residential extensions. They cover all aspects of construction, such as foundations, damp-proofing, the overall stability of the building, insulation, energy conservation, ventilation, heating, fire protection and means of escape in case of fire. They ensure that adequate access and facilities for people with disabilities are provided to buildings and any person carrying out building work has a responsibility to comply with the Building Regulations.

The Building Regulations promote standards, sustainability and social inclusion. For example, electrical safety was added in January 2005 to reduce the number of deaths, injuries and fires caused by faulty electrical installations. Energy efficiency in buildings, with the changes to the regulations on energy conservation is estimated to save 1 million tonnes of carbon per annum by 2010 and to combat climate change and embrace sustainability issues. The needs of all people including those with disabilities are covered by setting standards for buildings to be accessible and hazard-free where possible and embrace social equity issues.

Practical guidance on ways to comply with the functional requirements in the Building Regulations is outlined in a series of Approved Documents. Each document contains general guidance on the performance expected of materials and building work in order to comply with each of the requirements of the Building Regulations; and practical examples and solutions on how to achieve compliance for some of the more common building situations.

Importantly the change to performance based regulations was a fundamental shift in approach to UK building control. Rather than following a prescriptive set of guidelines or rules, it became possible to make an application demonstrating compliance to the Building Regulations through satisfaction of performance criteria. The intention was to facilitate the adoption of innovation in building design and this has proved to be the case. For example, buildings with large open atria would not have been permitted under the previous prescriptive regulations as the design would have compromised fire safety. In these cases designers submit calculations and drawings to provide evidence that the design meets with the performance criteria set out in the building regulations. The submission of such documentation in support of building control approval applications requires building control officers to understand complex engineering and fire safety design. Some building control surveyors find themselves examining documentation which exceeds their knowledge and skill levels requiring them to outsource aspects of the application to independent fire safety engineers, for example. The profession of fire safety engineering has grown partly as a result of the introduction of performance based assessment of building design for compliance with the building regulations.

EDUCATION AND UK BUILDING CONTROL SURVEYORS

Building Control Surveyors must hold a first degree, a Bachelor of Science, in Building Control or Building Surveying which can be taken on a full time basis over 3 to 4 years with the 4 year Programs generally incorporating an Industry sandwich year. As an alternative, students can study part time over 5 or 6 years whilst working in a Building Control workplace.

Building Control Surveyors hold membership of the Royal Institution of Chartered Surveyors (RICS). The Building Control Forum was established when members of the former Institute of Building Control took up membership of RICS in January 2001. The forum represents the building control discipline within RICS and a mechanism for those interested, involved or affected by building control issues to network. It has a membership of 4000. Graduate members have to complete an Assessment of Professional Competence after a minimum 2 years following graduation. UK Building Control Surveyors are not permitted to offer professional services of a UK Chartered Building Surveyor as the two disciplines are entirely separate in the UK

THE AUSTRALIAN STRUCTURE

Australia is comprised of 6 States and 2 Territories and divided into Local Government areas with more than 700 local governments across Australia in 2006 (Capetanakis, 2004). Building laws can be developed at all three levels of government however there is a national document that relates to the design and construction of buildings; the Building Code of Australia (BCA), produced and maintained by the Australian Building Codes Board (ABCB 2004).

The Federal Government is the top of the Australian legislative system legislating at national significance level and applying nationwide. However, at this level federal legislation does not control specific items as the Australian constitution enshrines that responsibility in the States. The ABCB sits at this level of Government and is a joint initiative of all levels of Australian government, in co-operation with the building industry. It is responsible for developing and managing a nationally uniform approach to technical building requirements, developing a simpler and more efficient building regulatory system; and enabling the building industry to adopt new and innovative construction technology and practices. A technical Building Codes Committee that advises the ABCB on the BCA content comprises of members from the States and Territories. It provides technical advice on reforming, maintaining and upgrading the technical content of the Australian building codes and standards. The ABCB has no legislative power and the BCA is given its regulatory power by legislation enacted in each of the States and Territories. (ABCB)

THE BUILDING CODE OF AUSTRALIA (BCA)

The BCA has as its goal:-

“...to enable the achievement and maintenance of acceptable standards of structural sufficiency, safety (including safety from fire), health and amenity for the benefit of the community” (BCA 2005). The BCA contains technical provisions for the design and construction of buildings and other structures, covering structure, fire resistance, access and egress, services and equipment, and certain aspects of health and amenity. The BCA is a performance document; the structure is shown in the *Figure below*.

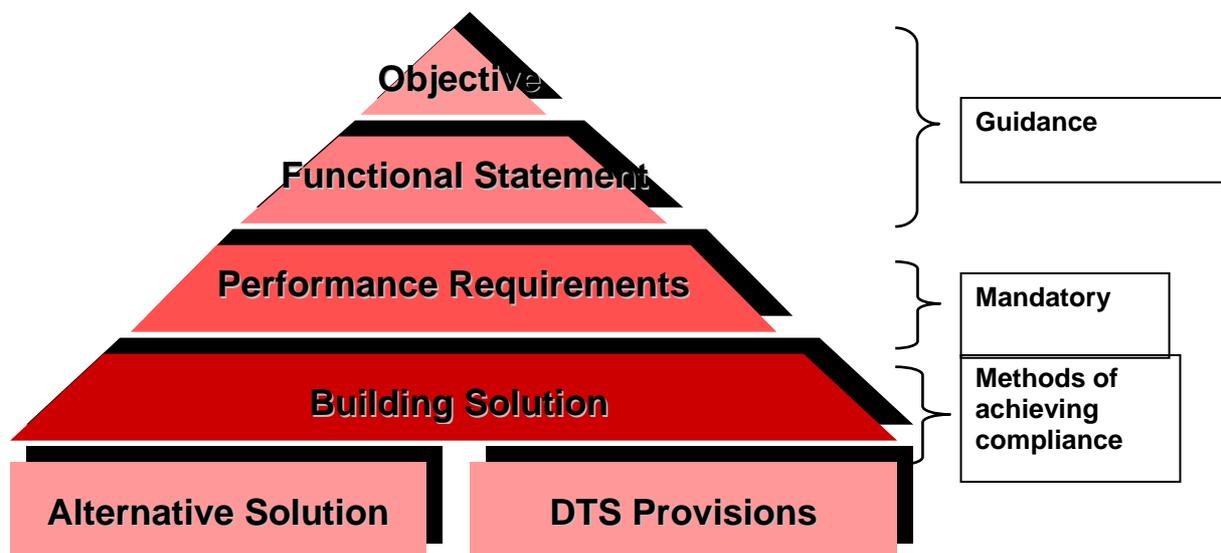


Figure 1 – Structure of the Building Code of Australia.

Source: Capetanakis G 2004.

Objectives and Functional Statements are considered guidance level provisions and represent the reason the community wants a matter regulated. They are expressed in general terms,

referring to the need to safeguard people and protect adjoining buildings or other property (Mitchell 2004). The Functional Statements set out how a building could be expected to satisfy the Objectives (or community expectations) (Mitchell 2004). The Performance Requirements outline the level of performance to meet the relevant Functional Statements and the relevant Objectives. As such Performance Requirements form the core of the BCA and are the only parts of the code requiring mandatory compliance (Mitchell 2004). Building Solutions set out the means of achieving compliance with the Performance Requirements and two methods can be used to develop a Building Solution Viz: Deemed-to-satisfy provisions (D-T-S). These include materials, components, design factors and construction methods which, if used will result in compliance with the performance requirements, and Alternative Solutions i.e. another building solution can be accepted if it can be demonstrated that the design complies with the relevant Performance Requirement (BCA 2005).

The States and Territories are responsible for enacting legislation that controls buildings. Although this legislation is different in each state it is similar in format with the BCA as the primary document. These State Acts regulate the Building Approval Systems across the country. (BAC Review papers various years).

Australian legislation also provides for Building Surveyors to work in a private capacity which is known as Private Certification though different forms of Private Certification schemes operate in the States and Territories. This is due to the different Acts and Regulations in the States and Territories applying to the building control process. Western Australia, the only State not (2006) to introduce Private Certification has been considering such legislation for some time (Capetanakis 2004). Each certification system has a common code of conduct for practitioners which places a regulatory and professional integrity obligation on private Building Surveyors (Capetanakis 2004). As a result of the differing systems, not all of the individuals and organisations involved in the building approval process are required to achieve the same level of qualification or expertise (Capetanakis 2004). This variation has led to the involvement of the ABCB who, with the Australian Institute of Building Surveyors, (AIBS) has endeavoured to develop and implement a National Accreditation Framework (NAF). (ABCB 2004, AIBS 2004)

RECRUITMENT INTO THE PROFESSION

In 2006, there are four AIBS accredited Building Surveying Degrees in Australia with one of those having RICS accreditation (AIBS 2005, RICS 2005). One is a 3 year pure Building Control Surveying Degree whereas the other three are 4 year Degrees that form part of a general Construction Degree (AIBS 2005). The three year ordinary Degree has provisional accreditation as the AIBS has asked for it to be extended to 4 years, and include a research and a work experience component (AIBS 2005). The Degree is taught externally via the distance learning model and recruits well. One of the 4 year Degree Programs that only has AIBS accreditation is struggling in terms of numbers and there is a question about viability (Anon Pers Comm 2005). It was accredited in 2003 and is not developing a market and an image within the Industry. It survives as part of a general Construction Degree and most of its courses are common with those other degrees (Anon Pers Comm 2005). The 4 year degree

that is jointly AIBS and RICS accredited is recruiting well and is taught as part of a general Construction Degree. Since 2003, Building Surveying has been the largest cohort of the 4 year Honours degree and in 2005 it produced almost as many graduates as Construction Management and Construction Economics combined (Zillante 2005). Currently (2006), it is the only Program in Australia producing RICS Chartered Building Surveyors in 2005 (RICS 2005).

From 2002 onwards Australia has experienced severe shortages of Building Surveying (BS) graduates (AIBS Skill shortage reports 2005). Australian Universities have closed BS Programs due to lack of interest from students or lack of support for the Program from University management. The first reason is surprising given the demand for BSs and the good rates of pay and may indicate a lack of marketing (Hornlund & Mehrtens 2006). The second reason supports the notion that Building Surveying is not seen as a real profession. One of the authors has personal experience where a very senior management academic advised that the University preferred to lose accreditation of its BS Program because he could transfer those quota numbers into a Program that he deemed was better for the University in terms of status.

The University that is doing well in terms of attracting BS students has a strategy that markets the Program as a degree that provides the student with a series of career options rather than locking the student into one path. In this way it has increased significantly the number of students entering the degree and, once in the Program it ensures that all students are aware of all career paths. The results of this strategy are shown in the following table:

Table 1. Increase in Building Surveying students

Course / Years	2000	2001	2002	2003	2004	2005
Building Surveying	12.8%	18.1%	21.1%	40.8%	43.5%	43.6%
Quantity Surveying	71.8%	45.9%	42.3%	40.8%	33.9%	32.7%
Construction Management	15.4%	36%	36.6%	18.4%	22.6%	23.7%

(Source Zillante, 2005).

PROFESSIONAL ROLE AND CHANGE

The evolution of professions is closely related to the development of technology and knowledge (Carr-Saunders et al. 1964). Nevertheless, recognition of professions depends on the degree of progress or development of the technology or knowledge; and upon the level of

development in social and industrial organisation. Carr-Saunders et al (1964, p. 492) argue that the speed of the evolution of professions depends on the nature of the technique in which it is based. Where a technique is specialised, the rise of a 'profession' is faster. Where techniques are more generic, it takes more time and effort to build up a bonding system among practitioners in order to increase the sense of community and common responsibility. Similarly, the rise of professions depends on customers' mass demand for professional services. Many aspiring professions, such as computer programming, have been launched by the need for more efficient production of facilities, especially within large organisations (Moore & Rosenblum 1976). Similarly, throughout the history of professions there has been a continuous fight for work-related rights and competence between professional associations and 'pseudo professionals'. For example, doctors and dentists fought against charlatans, lawyers against informal law advisers, etc. Charlatanism or quackery had been one of the oldest forms of 'pseudo professionalism'. These conflicts triggered the beginning of professional associations and social closures around occupational areas such as competency requirements (Wang 2005, NPEC 2002, Burrage et al. 1990). Against this background came the professional associations related to Building Surveying namely the RICS and the AIBS.

The education and practice requirements for Building Surveyors throughout Australia were different in each State and Territory which reflected the disjointed historical development of the States and the fact that the AIBS was not, until recently a truly National Body (AIBS 2002). In the mid 1990's some BSs began to take advantage of these differences between the States by having their right to practice enforced via the Federal Government's Mutual Recognition Legislation i.e. if a person is recognised in a State or Territory as being able to perform a particular function then that person must be recognised to carry out that same function in another State (Mutual Recognition Act 1992). In most situations, the issue involved educational qualifications and the amount of post graduate experience that the applicant possessed. Educational requirements could range from a TAFE Certificate to a University Degree and the experience from no experience after graduation up to 8 years post graduate experience (BAC of SA 1995).

The system was clearly inequitable and difficult to administer. The AIBS was not, at that time able to take on a unifying task, and the ABCB formulated a single system (BAC 1997) which became known as the National Accreditation Framework.

The NAF aims to "harmonise" the requirements throughout Australia that BSs have to meet to achieve accreditation or registration (ABCB 2004, Mitchell 2004). The document does not differentiate between Government BS Practitioners and Private BS Practitioners. Similarly, it outlines the core responsibilities of BS practitioners enabling assessments to be made on a national basis (Mitchell 2004). The NAF proposes 2 levels of BS with each supported by a set of education standards. Level 1 is underpinned by the university benchmarks and level 2 underpinned by a set of TAFE competencies.

The NAF also included a footnote to provide for Local Government Authorities **only** to employ individuals who fall outside of Levels 1 or 2. The footnote was added as a concession for remote councils in Queensland, who had difficulty attracting qualified individuals to work in their area and consequently were faced with the prospect of not being able to carry out

their statutory functions (Capetanakis 2004, Mitchell 2004, 2005). This footnote level was intended for a 5 year period and was designed to enable existing practitioners to upgrade to Level 1 or 2. In AIBS terms the two Levels were equivalent to BS for Level 1 and Assistant BS for Level 2. The Footnote Level was equivalent to a BS Technician, however this accreditation Level was meant to cease at the end of the 5 year interim period (Capetanakis 2004, Mitchell 2004, Anderson Pers Comm. 2005).

The AIBS has not abided strictly with the NAF and continues to accredit practitioners at the BS Technician Level (Accreditation statistics AIBS 2006). The reasoning is that some members of the AIBS see this as an entry level to the profession and feel that they should accept as many people as possible and not be restricted by the NAF that they see as advisory. They argue that there is a large demand for BSs (AIBS Demand Statistics 2005) and to prevent new entrants would be counterproductive. The corollary to this is that the continuation of this practice perpetuates the Para professional aspects of Building Surveying and makes it difficult for the peer professions of Architecture, Town Planning and Engineering to accept them as true professionals within the construction industry (Pers. Comm. Confidential Documents 2004, 2005). This has serious implications for the future of the profession.

AN AGING PROFESSION

The issue of recruiting new blood into the BS profession in Australia is compounded by the increasing average age profile of the existing membership which is approaching 50 years of age (currently 49.4) (Internal AIBS statistics 2006). Of the Universities recruiting good numbers, one recruits predominantly mature students who mainly comprise people from a trade background looking for a change in direction (Anon Pers Comm 2005). The number of teen age school leavers that are attracted to the profession is not large compared to this older group and the University that is attracting school leavers is not actually attracting them to Building Surveying but to Construction Management and Economics (UniSA 2005). The metamorphosis occurs during their 4 years of study when the marketing strategy of the department “guides” the students to choose to specialise in Building Surveying during their final year (UniSA course statistics 2000-2005).

Migration is not assisting this “age creep”. The largest number of migrants who feed into the BS profession in Australia come from the UK where they undergo similar education and training. Most UK degrees are 3 year full time courses whereas Australian Programs go for 4 years (Various UK Universities Program descriptions 2005). UK Building Surveying degrees will have a limited coverage of the Building regulations because that is not their area of professional focus in the UK. UK Chartered Building Control Surveyors, meet most of the Australian requirements for education and training but still fall short in some areas. The extra year makes a difference in terms of areas of study covered and most UK trained Building Surveyors who want to be accredited to practice in Australia find that they fall short in the areas of Geomechanics, Fire Engineering, local codes and standards (AIBS 2005). Accordingly the only UK trained BSs who choose to pursue Building Surveying in Australia

are those working in Building Control, others work more as Building Consultants where their function is more akin to the UK Building Surveyor (Knott 2004) and do not require AIBS accreditation and generally do not join (AIBS internal statistics 2006). Interestingly in 2005 the National Office of Overseas Skills Recognition did not list Building Surveying as a skills area for migration which is ironic given the shortage Australia is experiencing (NOOSR 2005).

Another factor that may affect recruitment and the age profile in Australia is that the profession is male dominated i.e.94% of all members in South Australia and Tasmania are male (AIBS Internal statistics 2006). This male domination may dissuade many female school leavers from considering Building Surveying as a career when compared with its peer professions of Town Planning and Architecture which have consistently achieved 50/50 splits between the sexes over recent years (UniSA course statistics 2006).

THE FUTURE DIRECTION OF BUILDING SURVEYING

Building Surveying in Australia is affected by the impacts of globalisation, environment, economics and new technology (Ellyard 2005, Petzold and Donath 2004). Similarly, Woudhuysen (2003) argues that there are some significant drivers that are pushing Building Surveyors towards initiatives that may, in the long term actually result in self displacement. Other authors take a more conventional view, arguing that these are actually challenges and will provide BSs with opportunities to increase and enhance their profession (Wilkinson & Russell 2005, Chan et al 2002, Adams 1997). Globalisation and mutual recognition legislation, for example has led, in part to a freeing up of the European market for Building Surveyors and, in time may have a similar impact in Australia (Wilkinson & Russell 2005, Barnyard, et al 2003, Plimmer 2003). Similarly, the sustainability debate is raising awareness about our planet and its ability to support life (Ellyard 2005) and the information revolution is changing the shape and tools that BSs use in their everyday work (2005) (Petzold and Donath 2004, Donath and Weferling 2003). Given the above there are some new areas of Building Surveying that are beginning to make their presence felt in Australia, namely sustainability, access and fire safety engineering..

From 2006 the energy performance provisions of the BCA will be extended so that all commercial buildings in Australia will also be required to comply with energy provisions pursuant to section J of the BCA (Draft BCA 2006). This has introduced a new complexity in the role of the BS in Australia. Apart from simple and generally smaller structures where a deemed to satisfy (DTS) design approach may be justified, most commercial buildings will require a performance assessment as client requirements generally mean that they fall outside of the DTS provisions (Kennedy 2005, SAMFS 2005). The performance assessment required by Section J is quite complex and falls outside the competence of most BSs thereby creating a situation where a specialist consultant designs a system that is beyond the competence of the assessing BS and has the potential to lead to a new profession with some States already establishing a register of people capable of undertaking this work (SA Register 2005).

In recent years access for people with disabilities has assumed a higher level of importance in building design in Australia. This has been predominantly due to a court decision that effectively ruled that the access provisions in the BCA were inadequate (Innes 2005, Bretherton 2003). The ABCB spent several years trying to achieve a standard that would meet the requirements of the DDA and be acceptable to people with disabilities. To date (2006) this has not proven successful. To assist approving authorities to undertake their disability assessment function effectively and in a way that was as far as possible consistent with the concept of unjustifiable hardship, an administrative access protocol was developed and accepted in principle. This has resulted in several people setting themselves up as Access consultants (Innes 2005, Andruchowycz 2005). Because of the high potential for litigation and economic loss, many BSs are opting out of this aspect of their practice and asking for and relying on reports from access consultants as a means of mitigating their risk. In so doing they are clearly acting in the form predicted by Woudhuysen in 2003 and are slowly losing another aspect of their practice.

With the fire engineering guidelines and the 1996 performance requirements in the BCA, came a whole series of new solutions for the fire engineering aspects of large and complex buildings. BSs were found wanting as the great majority did not have the fire engineering skills to carry out the assessments and had to rely on specialist consultants (England Pers Comm 2005). Some Universities, (Victoria University of Technology and the University of Western Sydney) established Post Graduate Programs in Fire Engineering and have produced several graduates over the years. Many students come from a BS and not an engineering background, however their qualifications are not recognised at the professional level by Engineering Australia and they are recognised as Engineering Associates (E A 2005). The reason is that Engineering Australia, bound by the Washington accord, requires all professional level members to have all the generic engineering skills (EA 2005), hence these people are recognised as fire specialists by the BS but not by Engineering Australia (AIBS 2005, EA 2005). Clearly there is an opportunity for the AIBS to create a new section for Fire Engineering Surveyors amongst its professional membership. If it fails to do so, it will be another part of Professional Practice that has been lost by Building Surveyors.

Finally Section B of the BCA deals with structural provisions. BS receive basic structural education in their BS Degrees (CQU 2005, QUT 2005, UWS 2005, UniSA 2005) and, with the advent of more complicated structural standards, the BS is not competent to undertake complex structural checking or assessment and must rely on specialist advice. With the increase in performance solutions, this situation will be exacerbated and brings into question whether the BS has any role to play in Structural assessment.

The response to change is for education to change to incorporate all the evolving functions. However it is not that simple as each of the above areas is becoming a profession in itself and the body of knowledge required is too great to fit into any BS Degree. Furthermore each of the above is predominantly based on science and technology yet most of the authors who write about the future for BS say that the skills required for them to survive lie predominantly in the social, economics and humanities areas (Woudhussen 2003, Woudhuysen and Abley

2004, Lynch 2005, Ellyard 2005, Enmark 2002, Banyard et al 2003, Carsberg 2003). Perhaps the time has come for BSs to undergo a generalist first degree and then specialise via a post graduate qualification (Zillante, Bevan & Freeman 2006)?

CONCLUSIONS

The Building Surveying profession in Australia is at a crossroads caused by the lack of new recruits, the increasing age profile and the fragmentation of the profession into specialist areas. The implication is that the days of the generalist Building Surveyor are probably numbered. For the profession to survive it must develop a new mindset to control its destiny. To leave things as they are would almost certainly give credence to Woudhussen's prediction and Building Surveyors as we know them, would cease to exist.

Education may well be the key to this future however it will not be possible to teach all these new skills to a Building Surveyor in a 4 year degree and the most likely scenario is for the Building Surveyor to expand into a Building Consultancy role that includes Building Control advice as one part of his/her service or that he/she undertakes a generalist 4 year building Surveying Degree and then chooses to specialise in one or more of the new professions via post graduate studies (Zillante, Bevan & Freeman 2006).

REFERENCES

- Banyard S H, Wilkinson S J & Turrell P, (2003), *The Impact of Globalisation on Building Surveying in Europe* In Conference Proceedings from FIG Working Week 2003, Paris, France. Paper TS9.2 New Professional Tasks – Developing the Profession
- Bevan M J M, (2004), *Competency-based Registration with reference to APEC Engineer Registration*, Engineers Australia, Canberra, Australia.
- Burrage M & Torstendahl, R (1990), *Professions in Theory and History: Rethinking*
- Capetanakis G (2004), *Building Surveying in Australia*, Paper delivered at the ICBC Dar 04 International Conference, Dar Es Salaam, Tanzania, October 2004
- Donath D and Weferling U, (2003), *Digital Building Surveying and Planning*, Bauhaus-Universität Weimar, Faculty of Architecture.
- Ellyard P, (2005), *Creating a 21st Century Sustainable Society*, Background Paper for the Address to the Global Policy Summit International Jurisdictional Regulatory Collaboration Committee, In Conference Proceedings from Building Australia's Future 2005, Surfers Paradise, Queensland, Australia.
- Enemark S, (2002), *International Trends in Surveying Education*, In Conference Proceedings from FIG XXII 2002, Washington D.C., USA., Paper TS2.2, Virtual Academy and Curricula Contents.
- Evetts J, (1999), *Regulations of Professions in Global Economies*, Joint session of Professions and Knowledge, Economy and Society Networks, Madison, Wisconsin, USA
- Evetts J, (2003), *The Sociological Analysis of Professionalism- Occupational change in the modern World*, International Sociology, Vol 18(2), PP 395-425
- Grabar, S & Dailey, C 2003. Environmental Sustainability in Building Construction. Swinburne University of Technology.

- Hornlund S & Mehrstens V (2006), *Factors influencing students' Choice to study construction management at University*, Conference paper, Bear Conference Hong Kong (April 2006). <http://www.odpm.gov.uk/index.asp> Office of the Deputy Prime Minister.
- Inter-jurisdictional Regulatory Collaboration Committee (IRCC). 2003. Global policy summit on the role of performance based building regulations in addressing societal expectations, international policy and local needs. Summit Report.
- Inter-jurisdictional Regulatory Collaboration Committee (IRCC). Performance based codes impact on international trade. www.ircc.
- Kennedy J (2005), *The Final Packages or is it a Case of Never-Say-Never-Again*, In Conference Proceedings from Building Australia's Future 2005, Surfers Paradise, Queensland, Australia.
- Knott Judith, 2005, "What does a Building Surveyor do in this region?" RICS Oceania Faculty Board Report, RICS, London, United Kingdom
- London District Surveyors Association & Stephenson, J. 2005. 7th ed. Building Regulations Explained. 2004 Revision. Spon Press, Oxon, UK ISBN 0 415 30862 3.
- Petzold F and Donath D, (2004), *Digital Building Surveying and Planning in Existing Buildings*, 1st ASCAAD International Conference, e-Design in Architecture, KFUPM, Dhahran, Saudi Arabia
- Platts J (2003), *Developing Confidence and trust: maintaining the heart of a profession*, Professional Ethics, Vol11, No 1 pp 3-18
- Plimmer F & Sayce S (2003) *Ethics and Professional Standards for Surveyors towards a Global Standard?* In Conference Proceedings from FIG Working Week 2003, Paris, France. Paper TS9.1. New Professional Tasks – Developing the Profession
- Plimmer F (2003), *Mutual Recognition of Professional Qualifications- The Next Stage*, In Conference Proceedings from FIG Working Week 2003, Paris, France. Paper TS18 Knowledge Sharing
- Polley, S. Understanding the Building Regulations 2nd Edition. Spon Press Oxon, UK ISBN 0 419 24742 3.
- Scott, J. G., 1997. Architectural Building Codes. J Wiley & Sons, NY, US. ISBN 0 471 28655 9.
- Torstendahl R & Burrage M, (1990), *The Formation of Professions*, Sage, London.
- Wang X, (2005), *Competency Based Education*, Baylor University Texas, USA
- Wilkinson S J & Russell G, (2005), *The Emergence of the Global Workplace: Opportunities and Barriers for Building Surveyors in Oceania*, In Conference Proceedings from QUT Research Week International Conference, (a collaboration of COBRA, AUBEA and CIB) QUT, Brisbane Australia, P 979-991.
- Woudhuysen J, (2003), *The future for building surveyors*, in RICS Building Surveying Faculty, Issue 7 June/July 2003, RICS, UK.
- Yatt, B, D, 1998. Cracking the codes: An architects guide to Building Regulations. John Wiley & Sons Inc, NY, US. ISBN 0 471 16967 6.
- Zillante G, Bevan M & Freeman D (2006), *Fire Safety Engineering, BCA compliance and alternative designs, A discussion paper* Engineering Australia, Canberra Australia.
- Zillante, G & Wilkinson S.J. 2006. Building Surveyors in Australia: an emerging profession? AUBEA Conference proceedings Sydney July 2006.

BIOGRAPHICAL NOTES

Sara J Wilkinson

Sara joined the University of Melbourne in 2005 from Sheffield Hallam University in the UK. She is a Chartered Building Surveyor and a Fellow of the Royal Institution of Chartered Surveyors (RICS). Sara completed an MPhil in 1995 examining conceptual understanding of green buildings within the UK construction industry and in 2002 an MA in Social Science Research Methods. She has published numerous refereed conference and journal papers and co-edited an RICS/Blackwell Science book on Best Value in Construction. Her research interests include energy efficiency, environmental issues, education and gender issues. Sara is a member of the editorial board of Structural Survey journal and Vice Chair Commission 10 Construction Management Construction Economics of FIG.

George Zillante

George Zillante is Associate Professor and Head of Building at UniSA. He has qualifications in Architecture, Urban & Regional Planning, Building Surveying and Business Administration and has worked (and continues to work) at the professional level in those fields. Over the years George has done a lot of work in the field of Building Legislation and this has resulted in his appointment to many Government Committees including, inter alia, Chair of the South Australian Building Advisory Committee, member of the South Australian Development Policy Advisory Committee, member of several Australian Building Codes Board Committees as well as representing the Australian Construction Industry on the International Association for the Professional Management of Construction. This interest in Building Legislation led George to establish the Centre for Building & Planning Studies at UniSA in 1993 and has resulted in several research projects dealing with the impacts of legislation on development and, more recently on Bushfires and Government Policy responses to the impact of Bushfires. George is also a member of several Professional Bodies (RICS, AIBS, AIQS, AIB etc) and serves on a number of Education & Accreditation Committees.

CONTACTS

Sara J Wilkinson

University of Melbourne, Faculty of Architecture, Building & Planning,
Melbourne,
AUSTRALIA

Tel. + 61 3 8344 8733

Fax + 61 3 8344 0328

Email: saraw@unimelb.edu.au

Associate Professor George Zillante,
School of Natural and Built Environments,
University of South Australia,
Adelaide,

AUSTRALIA

Tel: + 6 1 8 8302 2379

Fax: + 6 1 8 8302 2252

Email: george.zillante@unisa.edu.au