

Chapter 84

National Construction Codes and Their Inadequacies: Australia's Arrangements and Difficulties

Mark Burgess and John Douglas Thomson

Abstract Research on building code development shows that there are critical factors relating to their development, and highlights that code development involves key trade-offs. In this research, we provide new insight into a condition that many countries face and where there is virtually no research. How should countries handle building code development when key trade-offs need to be made between the possible impacts of new technology, changes in the environment and social and cultural issues, and the systems and processes by which these challenges are met. A comprehensive empirical case study of Australia's building code arrangements and difficulties is presented. This unique data provides insight on the strategies used and difficulties faced by Australia in the review and development of its building codes. Implications for innovative new building code development success are identified.

Keywords Building code · Regulation · Standard setting · Trade-offs · Code development · Critical factors · Decision making · Public interest

84.1 Introduction

A building code, or building regulation, is a set of rules that specify the minimum acceptable level of safety for constructed objects designed to protect public health, safety and general welfare with respect to the construction and occupancy of buildings and structures (Australian Building Codes Board 2012c). A building code becomes law when enacted by the appropriate authority.

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While anecdotally termed ‘building regulation’, Australia’s National Construction Code is in effect a codification, or standardization document developed by the Australian Building Codes Board (2012c). This code is brought into regulation through adoption of a range of parallel State, Territory and Commonwealth legislation. The National Construction Code is revised annually with the latest version coming into effect each May. For practicality, the National Construction Code is published as separate volumes for the Building Code of Australia and Plumbing Code of Australia. This research examines only the Building Code of Australia, through an analysis of change processes used for each year’s revision and whether there are any opportunities for process improvement or refinement.

Australia’s nationally applied building code developed through transition from a series of disparate State based systems (Knox 1989). This evolution started in 1964, with the current code and its associated administrative processes the outcome of nearly 50 years of evolutionary and transitional development, including addition of requirements for energy efficiency, sustainability and disabled access provisions to be added to the original scope of safety, health and amenity (Australian Building Codes Board 2013). National unification was formally achieved with an Intergovernmental Agreement establishing the Australian Building Codes Board (ABCB) in 1994 (Australian Building Codes Board 2013). This Agreement provided for development of a uniform national building code, creation of a body to administer that code and a commitment by all Australian States and Territories to enact legislation adopting the resulting code (Australian Building Codes Board 2012b).

The establishment of Australia’s National Construction Code was paralleled by the development of administrative policy and decision making processes for its ongoing maintenance, revision and amendment. These are implemented through the formalised Proposal for Change process (Australian Building Codes Board 2012a) and driven, in part, by a broader government focus on deregulation (Productivity Commission 2006), and regulatory practices applied by the Office of Best Practice Regulation (Commonwealth of Australia 2007).

The academic study of regulation has not been restricted to the legal fraternity. Baldwin et al. (1998) identify academic study from disciplines as diverse as sociology, economics, political science, anthropology, social administration, psychology and geography. However, there has been little translation of theoretical work to the regulation of building and construction. In surveying five leading journals over ten years, Van der Heijden and de Jong (2009, p. 1038), found only 15 articles dealing with building regulation from 2800 published. In generalizing those articles, the authors found little attention given to ‘theory-building’.

84.2 Purpose

The purpose of the research is to extend understanding of the drivers of change to building regulation as technological, environmental, economic and cultural relationships develop synergistically and compete for recognition.

The scope of analysis is limited to the policy and processes used by the Australian Building Codes Board to facilitate the development of, and changes to the Building Code of Australia. This paper examines the philosophy of building code development and reform, and the Australian Building Codes Board's use of policy guidelines provided by the Council of Australian Governments (COAG). This Council is the peak intergovernmental forum in Australia, with members including the Prime Minister, State Premiers, Territory Chief Ministers and the President of the Australian Local Government Association (Council of Australian Governments 2014). They meet as needed, usually once or twice a year, with the role to promote policy reforms of national significance, or those which need coordinated action by all Australian Governments.

84.3 Critical Factor: Consultation

The Australian Building Codes Board (2013) has found that a policy of consultation is necessary to create a contemporary and relevant construction code that delivers good societal outcomes for safety, health, amenity and sustainability in the built environment. There are benefits to all stakeholders in a truly collaborative approach to considering key issues affecting building (Lovegrove et al. 1991). Meaningful consultation can promote trust between industry, the community and government, while transparency allows stakeholders to see and judge the quality of government actions and regulatory decisions (Croley 2008). Consultation also provides an opportunity for stakeholders to participate in the development of policy solutions and encourages broad ownership of solutions (Council of Australian Governments 2007). A proper consultation process can also lead to the revision and modification of preliminary recommendations before a final decision is made, thereby delivering better outcomes for all (Croley 2008).

It should be noted that a consultative approach is not always a straightforward pathway towards good regulatory process. Croley (2008) explains the challenge where consultation from parties representing broad interests is outnumbered by a disproportionate influence from interest groups. Accordingly, while consultation can lead to a better outcome, it can also introduce decision bias.

The National Construction Code draws input from consultation with government and industry stakeholders, while seeking advice and assistance from building professionals, research communities, industry peak bodies, local governments, special interest groups and the community. This feedback covers the breadth of strategic, policy, technical, administrative and societal issues. Key stakeholders are identified and approached for inclusion in relevant project-specific committees and working groups.

Early consultation is instrumental to the technical amendment processes and broader regulatory reform matters. Consultation assists in ensuring a clear understanding of 'what the problem is' and consideration of alternatives to regulation (Council of Australian Governments 2007). The Best Practice Regulation Handbook

(Council of Australian Governments 2007) identifies aspects of consultation including, trust promoted between stakeholders and decision-makers by allowing regulatory decision-making processes to be monitored; enhanced relationships with stakeholders by providing greater opportunities to participate in the development of regulations; input of specialist knowledge and timely involvement of stakeholders; and effective and transparent stakeholder engagement, communications and reporting arrangements.

84.4 Proposals for Change

The initialising step for any change to the National Construction Code is the preparation of a Proposal for Change document using a standardised question-answer template published by the Australian Building Codes Board (ABCB 2013). The Proposal for Change process is used by the Australian Building Codes Board to consider proposals to change the National Construction Code Series. The process is consistent with the Council of Australian Governments regulatory principles to ensure appropriate rigour is used in the assessment of proposals (ABCB 2013).

A Proposal for Change requires proponents to provide justification to support their proposal. This justification should be proportionate to the size of the proposed change or its potential impacts, and includes a description of the proposal; an explanation of the problem it is designed to resolve; evidence of the existence of the problem; how the proposal is expected to solve the problem; what alternatives to regulation have been considered, and why they are not preferred; who will be affected and how they will be affected; and any consultation that has taken place (ABCB 2013). This common proposal document is used by all proponents for initiation of any proposed changes to the published building code, whether from an individual, an industry or the Australian Building Codes Board itself. Once submitted, all proposals follow a common review and approval process (Fig. 84.1).

84.5 Translating Policy to Practice

Rein (1983, p. 113) explores the ‘politics of implementation’, providing perspective on the trade-off processes for translating policies into action. He argues that implementation must account for three competing imperatives, what is legally required, what is rationally defensible, and achieving agreement among parties who have a stake in the outcome (Rein 1983, p. 118). Sheehy and Feaver (2013), define regulation policy as ‘a collective social political response to a problem’, noting that whether the problem is important enough to warrant action is the result of complex socio-psychological phenomena, rather than a political task. It is therefore necessary to note that decisions to regulate, although driven by policy, are often not self evident, with Rein (1983) observing that purposes can be redefined through the process of implementation.

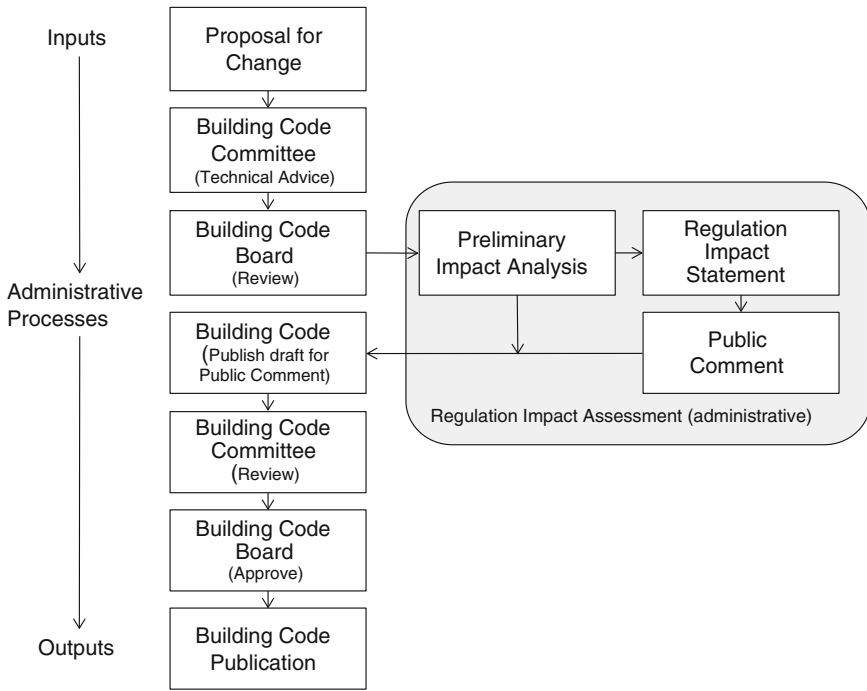


Fig. 84.1 Summary of the proposal for change process. *Source* Adapted from (Australian Building Codes Board 2012a)

In the case of building regulations, the process of translating policy to practice could be argued as being both complex and political, with its complexity necessitating spectrum of regulatory solutions. Breyer (1982) defines such a range of regulatory options, with a similar range reflected by the Australian Office of Best Practice Regulation, placing solutions from ‘self regulation’ through to ‘explicit government regulation’ along a spectrum (Commonwealth of Australia 2007) (Fig. 84.2).

Taking the example of bushfire protection, at one extreme, explicit government regulation places responsibility on government for defining and then taking responsibility for construction methods that will protect buildings and occupants in a bushfire (Commonwealth of Australia 2004). At the other extreme, self regulation provides flexibility and reduced implementation costs, but leaves open the

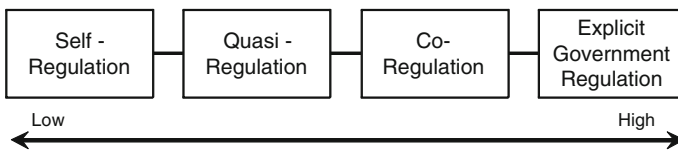


Fig. 84.2 A simplified spectrum of regulation. *Source* Adapted from Office of Best Practice Regulation Handbook (Commonwealth of Australia 2007)

possibility that individuals will assume a level of building and personal safety when little may in fact exist, or for charlatans in the market place to make false claims about the suitability of buildings.

84.6 Societal Risk

Rayner and Cantor (1987) discuss the concept of dealing with risk as a two stage process comprising the assessment of facts and then the evaluation of facts in a socio-political context. They argue that societal risk revolves around social relations as much as around evaluations of probability—conflict rather than probability is the chief focus of societal risk management. Their research indicates that procedures through which collective consent is obtained for a course of action must be acceptable to those who bear its consequences, that the principle used to apportion liabilities for an undesired consequence must be acceptable to those affected, and institutions that make the decisions to manage and regulate be worthy of fiduciary trust (Rayner and Cantor 1987).

The change processes employed by the Australian Building Codes Board provide for these multiple levels of review, including opportunities for technical, stakeholder, and public scrutiny. The first review stage is with the Building Codes Committee, a technical group comprised of representatives from industry stakeholders, specialist technical organisations, community stakeholders and State/Territory government representatives. This committee's recommendations are passed to the Australian Building Codes Board for review and approval. At this stage, the proposed change can take three pathways, depending on the impact of the change (Australian Building Codes Board 2011) (Fig. 84.1). Those with minimal impact, such as minor and editorial corrections may progress directly through to public comment stage. All others undergo Preliminary Impact Analysis, and in cases where this preliminary analysis identifies substantial impact, consultation with the Office of Best Practice Regulation. Where a Regulation Impact Statement is required, it is developed and subjected to a further series of Building Codes Committee review and public comment processes. The Office of Best Practice Regulation plays a central role in delivering the Australian Government's best practice regulation requirements by providing a 'one stop shop' to assist departments and agencies with regulatory impact analysis requirements, and monitors and reports on their performance (Office of Best Practice Regulation 2013).

In considering administrative regulatory decisions, Croley (2008) notes that citizen participation is rare, drawing his conclusion from the distance between the administrative agency making decisions and the elected representatives that provided the agency's authority. The processes to ensure consistency with the Council of Australian Government guidelines (Council of Australian Governments 2007), require all proposed changes to be provided in a draft of the Building Code and made

available for public review and comment. It can be argued that the open nature of the Proposal for Change process and this opportunity for public review do much to address Croley's concerns for citizen participation and the management of risk.

It should be noted that consistent with the Proposal for Change methodology, a similar process is repeated at public comment stage, with a standard template used for all comments, whether originating from Government, industry or private individuals. All comments received are reviewed by the Building Code Committee, with recommendations made to the Building Code Board for final societal risk management, review and approval.

84.7 Trade-Offs Between Impact Assessments

A Regulatory Impact Assessment (RIA) is a formal process called for by the Council of Australian Governments and directed by the Office of Best Practice Regulation (Commonwealth of Australia 2007). This assessment calls for the drafting of a Regulatory Impact Statement (RIS) to explore regulatory options, categorising costs, benefits and risks of each. Requirements for this analysis are not restricted to regulatory decisions, or black letter law, but apply across the spectrum of regulation where societal impact is expected.

Table 84.1 Summary of results of illustrative quantitative model

Variable	Status quo	Non-mandatory information guidelines	Proposed BCA amendments
Value of a life	\$3 880 000	\$3,880,000	\$3,880,000
Years to bushfire event	20	20	20
Net present value of a life	\$1,003,000	\$1,003,000	\$1,003,000
Average number of people per shelter	3	3	3
Probability of survival without a shelter	0.97	0.97	0.97
Probability of a fire in the region	0.80	0.80	0.80
Probability of needing to rely on the shelter for survival	2.40 %	2.40 %	2.40 %
Financial costs of the shelter	\$5 000	\$10 000	\$15,000
Probability of correct use	25 %	35 %	50 %
Probability of the shelter being structurally sound	40 %	65 %	90 %
Probability of survival in a shelter	10 %	23 %	45 %
Benefits of the shelter	\$7 220	\$16,430	\$32,500
Actual benefit cost ratio	1.44	1.64	2.17
Net present value of shelter	\$2 220	\$6430	\$17,500

Source Adapted from Bushfire RIS (Centre for International Economics 2011, pp. 68–74)

The Regulation Impact Statement is neither new, peculiarly Australian nor specific to building regulation. Breyer (1982) cites their requirement under an Executive Order by President Carter in 1978, specifying the Impact Statement to set about alternative ways of achieving an objective and justify the action as better than any alternative.

Proposed changes to the Building Code of Australia are subject to Regulatory Impact Assessment requirements. Implementation is usually an analysis through economic modelling of regulatory options, arriving at a Net Present Value (NPV) for each. An example is the proposal to include requirements for private bushfire shelters in the Building Code of Australia (RIS 2010-3). A range of alternative policy options were considered, with three subjected to economic modelling. The first was for no amendments to be made; the second for implementation of non mandatory information guidelines; and the final for the decision to construct a private bushfire shelter to be voluntary, but if constructed, must be in accordance with codified performance requirements. Table 84.1 summarises results from this quantitative modelling exercise.

The economic modelling results supported Option 3. This provided a non-mandatory option to install bushfire shelters related to a private dwelling, but where installed, requiring those shelters to conform with the performance requirements in the Building Code. This selected option reinforces the concepts of the regulatory spectrum and aligns with a policy of minimal acceptable standards.

84.8 Minimum not Optimum Acceptable Standards

When considering administrative processes to be employed by the Australian Building Codes Board, the Intergovernmental Agreement (2012) included a stated aim to provide *minimum* not *optimum* acceptable standards. This policy context is captured in the recitals of the Agreement, requiring a ‘National Construction Code setting the minimum necessary requirements for the design, construction and performance of buildings’ (Australian Building Codes Board 2012b, p. 2). Notwithstanding this requirement, the Chairman of the Productivity Commission’s regulation taskforce criticised the Building Code of Australia for setting standards above minimum levels (Banks 2006). Meacham’s (2010, p. 32) review of performance based building codes also notes this risk, offering a reminder that building regulations should not ‘represent levels of performance to which industry, society or the public aspire’. The compromise along the continuum between ultimate safety and minimum acceptable levels of safety will always represent a challenge for standards setting bodies, requiring vigilance by committee members when considering new proposals or changes to any regulatory code. This is particularly the case for bushfire regulation example—what is the minimum safety standard for a bushfire shelter and what is the optimum?

In light of the call for minimum requirements, the Australian Building Codes Board’s administrative system has the flexibility to opt for action outside direct

regulation and prescriptive requirements in the National Construction Code. These options cover the regulatory spectrum (Fig. 84.2), implementing alternatives which can affect market behaviours, from low regulatory involvement through to explicit codification, and include industry notification, publication of handbooks or adoption of existing standards.

84.9 Policy Guidelines and Regulatory Solutions

In general, the Australian Building Codes Board's implementation of the Council of Australian Government's policy guidelines has arrived at a regulatory solution that is well suited to the needs of Australia's building sector. A fundamental aspect is the National Construction Code, now accepted across all States and Territories, providing efficiency benefits to building practitioners and building product suppliers. This success has been evidenced economically by a recent study finding the national code leading to attributable benefits of \$1.1 billion annually (Centre for International Economics 2012).

The process claims to be open and balanced (Commonwealth of Australia 2004). Proposals for Change can be instigated by any party, including the general public, and pass through identical administrative review processes regardless of the proponent. Multiple avenues are provided for public input and stakeholder feedback. Additionally, the system allows change proposals to be satisfied using a range of non-regulatory options to affect market behaviours.

Regulatory Impact Analysis is integrated into the Proposal for Change process, with Productivity Commission (2012) benchmarking specifically citing the Australian Building Code Board as one of the standard setting bodies to have embedded the essential elements of this process.

The separation of technical and administrative review committees arguably provides a balanced forum for both engineering and value based decisions. The two committee process also provides forums for representative input from industry stakeholders and Government, including avenues for the sometimes diverse needs of the States and Territories to be debated.

84.10 Legal Implication of Informative Material

In line with the concept of minimum standards and the regulatory spectrum, a common policy alternative to strict codification in the Building Code of Australia has been the inclusion of informative materials in the Guide to Volume One of the Building Code. This Guide is a companion volume to the National Construction Code, intended to provide clarity to the normative Building Code of Australia provisions (Australian Building Codes Board 2010). However, industry and practitioner reliance on this informative companion has now been questioned by a New

South Wales (NSW) Supreme Court decision (*The Owners—Strata Plan No 69312 v Rockdale City Council & Anor; Owners of SP 69312 v Allianz Aust Insurance* 2012), which in a particular circumstance determined that ‘...the Guide is not relevant to a determination of the proper construction of the definition of effective height in the Building Code of Australia...’. This finding falls within the jurisdiction of the State of NSW and so that State (as do all States and Territories), has the authority to question the ability of a building practitioner or other entity to rely on the informative Guide to Volume One of the Building Code to ascertain conformity to the Building Code of Australia. Ramifications of this decision and further legal testing of the Guide to Volume One of the Building Code’s status may impact on the currently understood and accepted regulatory spectrum.

While the policy of public consultation is identified as a benefit, it highlights potential conflict between the Intergovernmental Agreement’s objective of minimum standards, and the public perception that conformity with standards implies a level of ultimate surety. This can lead to a mismatch between a change proposal and the public perception of that proposal. This confusion is compounded with evidence of the legal system using voluntary standards as a benchmark of compliance in establishing civil liability (Commonwealth of Australia 2004). This problem is not limited to the public, with the Productivity Commission (2004) also identifying widespread confusion among consumers and builders regarding the regulatory status of Australian Standards.

84.11 Regulating Industry Behaviours and Subsequent Administrative Risks

Breyer’s seminal work on regulation (Breyer 1982) identifies standard setting, or codification in the case of the Building Code, as a classical policy for regulating an industry’s behaviour. However, Breyer (1982) also warns that considering this solution from an idealised world may be misleading, citing a range of subsequent problems from sourcing information through to anticompetitive effects. Heeding Breyer’s (1982) warning, this research would not be complete without considering potential failure modes within the current process. While not an exhaustive analysis, the following discussion highlights a number of potential administrative risks, with the aim of prompting further discussion and research.

In the area of building regulation, Cross (1952) is often quoted for his view that ‘standardisation is a check on the fools and rascals’. Cross’s quote can provide clarification with respect to potential failure modes by summarising them into two categories—those caused by ‘fools’ and those caused by ‘rascals’.

Taking ‘rascals’ first, the transparency of the Proposal for Change process leaves it open to external influence. This influence could take the guise of simple lobbying to Building Code Committee members and administrators, or the longer term process of biasing the membership of committees. In discussing ‘participation in

administration', Croley (2008) highlights this risk of influence by interest groups. Additionally, direct influence on decisions either by, or through Government may allow interests to bypass the two committee process, forcing unilateral decisions at the Board level. While the effect of these 'rascal' actions is offset by the public comment and Regulatory Impact Assessment processes, the administrators of the system need ongoing vigilance against potential risks.

When considering Cross' (1952) concept of 'fools', the list of potential risks is much broader. The first risk would be the well intentioned, who drive Codification beyond the Board's objective of establishing minimum levels (Australian Building Codes Board 2012b). The extension of this drive would be to overreach the aim of translating policy into practice, leading to the potential for bottom-up policy making. A second risk is overzealous use of secondary reference standards, where adoption commits the industry to mandatory conformance against those standards. Where drafted outside the administrative processes applied to the Building Code, referenced standards may not be subject to appropriate levels of stakeholder consultation, public review and regulatory impact analysis.

Another risk arising from the well intentioned is the 'serial pest' bombarding the process with Proposals for Change. Driven by good intention, it would be unreasonable to consider this vexatious. Nevertheless, an unrelenting volley of proposals could bias the work or waste the time of the Building Codes Committee and administrating agency.

A final risk falls neither to 'fool' nor 'rascal', but impacts the concept of evidence based decision making. In its recent benchmarking of the Regulatory Impact Assessment process, the Productivity Commission highlighted the importance of an *ex post* review of actual outcomes, compared to those predicted by the analysis (Productivity Commission 2012). The Commission also highlighted the need for this analysis in cases where Regulatory Impact Assessment was deemed unnecessary. The extended construction times and long cycles in the building industry present challenges for this *ex post* analysis, where impact of changes in codification could be masked by economic cycles, technology change or other external factors. Notwithstanding these challenges, it would be a risk to continue making change without an evidence based approach to evaluate the resultant impact of that change.

84.12 Further Work Required

The Proposal for Change policy process has evolved in step with the development of Australia's national construction code, informed by Council of Australian Government guidelines and a number of Productivity Commission reviews in the last decade (Commonwealth of Australia 2004; Productivity Commission 2006), but the system is not flawless. The Council of Australian Governments has reinforced a view that further work is required, agreeing to establish an independent review panel to investigate costs in the construction industry (Council of Australian

Governments 2012). The terms of reference for this review panel include the administrative areas of regulation and compliance.

While this research supports the rigour of the Proposal for Change process used by the Australian Building Codes Board, it has identified an issue in the timing of those steps through the process. In reviewing a Proposal for Change, the various technical and administrative committees amass a range of information to inform the decision process. This is especially relevant when the decision is to be subject to formal Regulatory Impact Analysis, for example that of the requirements for safe private bushfire shelters (RIS 2010-3). The later a decision is made through the process, the higher the cost of decision making may be (Commonwealth of Australia 2004). This becomes an issue for status quo decisions, those where the outcome is to do nothing. Procedurally stepping through a formal process in these cases, while rigorous, may be inefficient. Following the submission of a Proposal for Change, the stages of committee debate and review will add information for decision makers. The Proposal will collect data which informs and strengthens the eventual decision.

Sometimes information collection can bias a decision rather than inform it. The Productivity Commission review of building regulation identified the risk that a Regulation Impact Statement 'becomes more an advocacy document than a balanced assessment' (Commonwealth of Australia 2004, p. 252). This position is reiterated in benchmarking work eight years later, observing cases where the Regulatory Impact Statement becomes an ex post justification rather than a decision making tool (Productivity Commission 2012).

84.13 Summary

Australia's national policy approach to building regulation has been in place since 1994. Since then it has been subjected to a number of reviews (Commonwealth of Australia 2004, 2006; Productivity Commission 2012), and reaffirmed through a new Intergovernmental Agreement (2012b). The continued support of this administrative arrangement by the Commonwealth along with all States and Territories provides evidence of a successful implementation. Annual revision and publication has both proven and refined the robustness of the process developed for management of the Code. These processes have been adapted to guidelines from the Office of Best Practice Regulation (Commonwealth of Australia 2007) and Productivity Commission reviews (Commonwealth of Australia 2004, 2006) while maintaining a system allowing input from governments, industry and the Australian public. When compared with other standardisation processes, the formal Proposal for Change process provides a transparent methodology for amendment. Wide stakeholder involvement, a robust public comments procedure and the volume of comments received indicate a high level of stakeholder participation in the process.

The Intergovernmental Agreement's aim to achieve 'minimum acceptable standards' is acknowledged by implementation of an impact analysis process, which incorporates formal application of the Office of Best Practice Regulation's

Regulatory Impact Analysis. The demonstrated application of these procedures (RIS, 2010-3) is evidenced by the Productivity Commission's (2012) recognition that the Regulatory Impact Analysis is firmly embedded in regulation development by the Australian Building Codes Board. However, this policy process can be lengthy and ambiguous in achieving outcomes, with little supporting evidence of *ex post* review of effectiveness. On this basis it could be argued that the process would benefit from further refinement.

84.14 Conclusion

The current policy and processes have been tested over 19 years of relatively calm and successful operation as measured by annual economic benefits exceeding \$1 billion (Centre for International Economics 2012). While some may be of the view that the administrative processes have allowed the uniform building code to keep abreast of changing societal values, which has included the addition of energy efficiency, sustainability and disabled access provisions, the challenge remains—is the balance between scientific and economic analysis, environmental and technological change properly represented in the application of public perception and societal expectation in meeting the needs of Australian stakeholders?

Each annual revision of the building code highlights the delicate balance between scientific and societal mores. As yet, the decision making processes have not been subjected to extensive study, and decision making challenges remain unanswered. Improved understanding depends upon the extension of building knowledge and human interaction research of our changing environment. Further study, based on a case study review of Proposals for Change could serve to qualify key decision points through the process, balancing efficiency against rigorous, transparent process.

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