

Research, Development & Education
...in the building industry

2004/05 → 2005/06 REPORT



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The second biennial Research, Development and Education Report provides a brief overview of projects undertaken during the past two years.

Building Commissioner's foreword	02
Research partners	04
Building industry transformation	05
Life cycle and embodied energy impacts of common housing options	05
Assessing performance of an unoccupied mud brick house over winter	06
Ecological footprint analysis of Aurora Estate	06
Sustainability leadership guide for local government	07
Barriers to a more profitable and sustainable building sector	07
The Terraces	08
Better consumer safeguards	09
Building disputes in Victoria	09
Future market demand for accessible housing	09
Awareness of accessible housing issues	10
Consumer and practitioner satisfaction levels	10
Level of termite infestation in Victoria	11
Way-finding in the built environment	12
Legislative reform	13
Security of Payment Act – benchmarking study	13
Efficiency of the building and occupancy permit process	13
Review of report and consent process	14
Review of protection of public legislation	14
Assessment of Indoor Environmental Quality	15
Residential building performance indicators	15
Fire hazard controls for temporary structures	16
Fire protection in bushfire-prone areas	16

Contents

Future research, development and education investment will continue to be aligned with the Commission's strategic objectives.



The Building Commission is a statutory authority that oversees building control in Victoria. Our strategic aim is to deliver industry outcomes including:

- Building industry transformation
- Better safeguards for consumers
- Legislative reform.

During 2004-05 and 2005-06, the Commission invested more than \$1 million in a wide range of research, development and education programs to foster these strategic objectives.

The second biennial *Research, Development and Education Report* provides a brief overview of projects undertaken during the past two years. Projects are designed to address specific issues or problems, raised by industry stakeholders, to provide tangible and practical outcomes.

Building industry transformation

Sustainable building practices have received heightened focus in recent times as building consumers become increasingly conscious of the impact that the buildings they work and live in, have on the environment.

Minimum sustainable building standards are now in operation across Australia for both residential and commercial buildings. The Commission partnered in a variety of sustainability projects to encourage industry transformation by improving knowledge and providing leadership.

Specific projects undertaken include investigations into the life cycle and embodied energy use of housing options, industry barriers to profitable and sustainable building, ecological footprint analysis and the development of leadership tools for local government.

Better safeguards for consumers

In an industry worth more than \$16 billion each year, ensuring building consumers have a high level of satisfaction can be challenging for industry practitioners.

The Commission partnered in a wide range of projects to assess and develop appropriate safeguards for building consumers. Projects included research on consumer and practitioner satisfaction levels, building disputes, the future demand for accessible housing, termite infestation in Victoria and way-finding in the built environment.

Legislative reform

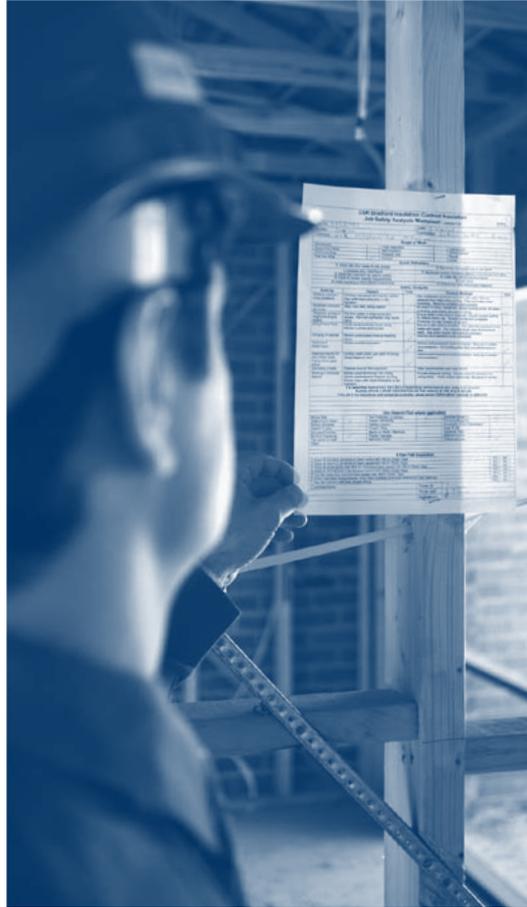
Building legislation underpins all building work in Victoria and sets minimum standards for buildings in the areas of health, safety, sustainability and amenity.

As the building industry regulator in Victoria, the Commission partnered in research to examine current legislation and procedures, to ensure they are effective and efficient. Projects included a benchmarking study on the Security of Payment Act as well as investigations into the efficiency of the building and occupancy permit process, indoor environment quality, residential building performance indicators and fire hazard control and protection.

Outlook

Future research, development and education investment will continue to be aligned with the Commission's strategic objectives. Sustainable building practices are likely to attract considerable attention due to the developing nature of sustainability issues. Other areas of interest may include materials performance, re-use of existing buildings, internal environments, building services, and building user requirements.

Further details and final reports on the Commission's research, development and education projects are available from our website at www.buildingcommission.com.au.



Tony Arnel
Building Commissioner

The Commission works in partnership with a number of organisations either through project contracts, joint initiatives or sponsorship.

To ensure a coordinated industry approach to research and development the Commission works in partnership with a number of organisations either through project contracts, joint initiatives or sponsorship. In the last two years the Commission has worked with the following organisations:

- Allen Consulting
- Australian Building Codes Board
- Chant Link & Associates
- City of Melbourne
- Cooperative Research Centre – Construction Innovation
- CSIRO
- Deakin University
- International Council for Local Environment Initiatives
- Jaguar Consulting
- Market Solutions Pty Ltd
- Philip Chun & Associates
- Pitt & Sherry Pty Ltd
- Queensland Department of Public Works
- Queensland University of Technology
- RMIT University, Centre for Building & Planning Studies
- Socom Consulting
- University of Melbourne
- University of South Australia.
- Warrington Fire Research

Cooperative Research Centre for Construction Innovation (CRC-CI)

The Commission is a member of the Commonwealth Government's Cooperative Research Centre program, the CRC for Construction Innovation. The CRC-CI is an alliance of leading industry, government and research bodies carries out applied research and development focused on the needs of the property, design, construction and facility management sectors.

The Building Commission contributed a total of \$100,000 to the CRC-CI during 2004-05 and 2005-06. Research projects focused on the core areas of business and industry development, sustainable built assets and delivery and management of built assets.

The CRC-CI aims to encourage innovation and deliver significant industrial, commercial and economic benefits, develop science and software tools that improve industry work processes, make workplaces safer, and help reduce water and energy use.

Project:

Life cycle and embodied energy impacts of common housing options

Researcher/s: RMIT University,
Centre for Design

Building Commission contribution
(actual and in-kind): \$14,170

Description:

Life cycle and embodied energy research has shed light on the energy consumed by newly-built Victorian houses over their entire life cycle. The research investigated the impacts of differing housing construction methods and technologies on life cycle energy by modelling typical examples of five different housing types under Victorian climatic conditions:

- Brick veneer house built on concrete slab
- Brick veneer house built on timber sub-floor
- Weatherboard house built on timber floor
- Weatherboard house built on concrete slab
- Mud brick house built on concrete slab.



Concentrating on the life cycle, embodied and operational energy of the five housing types, the research utilised modelling software including SimaPro LCA to evaluate embodied energy impacts, and both FirstRate and AccuRate to measure operational energy. The same house plan was used for all construction types, based on a two storey house with four bedrooms, three bathrooms, kitchen, dining room, family room, lounge room and double car garage. House energy ratings ranged from 4 Stars to 5.5 Stars.

For the purposes of the research, life cycle energy is defined as the total direct and indirect energy used by a house. Embodied energy refers to the energy used to create the building materials for the construction and maintenance of a house. Operational energy refers to the energy consumption to provide thermal comfort for occupants by means of space heating and cooling.

Outcomes:

Overall the research indicates that operational energy consumption dominates the pattern of energy use across the life cycle of a typical contemporary house design, regardless of construction type. However, it is forecast that embodied energy will become more significant as design energy ratings increase and the level of operational energy is proportionately reduced.

Key findings revealed:

- There are no clear differences in total life cycle energy consumption between building on a concrete slab or on a timber floor, for either weatherboard or brick veneer houses
- Brick veneer houses consume more energy initially than weatherboard construction but perform better in terms of operational energy
- Embodied energy use is relatively high for brick veneer houses built on slabs compared with mud brick and weatherboard designs
- Mud brick houses perform well in terms of embodied energy but not in terms of total life cycle energy consumption.

A fact sheet is available on the Building Commission's website to inform consumers about the embodied energy impacts of housing design options.

Project:

Assessing performance of an unoccupied mud brick house over winter

Researcher/s: Deakin University and CSIRO

Building Commission contribution (actual and in-kind): \$40,000

Description:

Following the introduction of minimum energy efficiency ratings for all new houses built in Victoria in 2005, mud brick homes have consistently struggled to comply with 5 Star requirements. In contrast, anecdotal evidence from occupants suggests that mud brick houses provide a comfortable indoor environment with modest heating and cooling energy requirements.

To better understand the differences between energy rating software and occupant perceptions of mud brick performance, research was undertaken in two areas: performance assessment of a mud brick house, undertaken by Deakin University, and a comparison of AccuRate predictions with measured data from a mud brick house, undertaken by the CSIRO.

Performance assessment of a mud brick house involved monitoring a mud brick house during winter to evaluate its energy and thermal performance. The data was then utilised in the NatHERS, FirstRate and AccuRate house energy rating software programs.

Comparison of AccuRate predictions with measured data from a mud brick house involved intensively monitoring the performance of a mud brick house for one week during winter.

Outcomes:

The performance assessment revealed:

- The level of thermal comfort within a mud brick house, according to the ISO 7730 standard, is only acceptable during daylight hours
- Application of a low-emissive paint coating could significantly improve the heat retention of the mud bricks
- The mud brick house is very responsive to solar heating
- Infiltration was very limited in the mud brick house.

The comparison of AccuRate predictions with measured data found no evidence that the AccuRate house energy rating software is incorrectly accounting for the physical behaviour of mud bricks.

It was recommended that further investigation be undertaken into the discrepancies between occupant perceptions and energy ratings.

Project:

Ecological footprint analysis of Aurora Estate

Researcher/s: RMIT University

Building Commission contribution (actual and in-kind): \$10,000

Description:

Aurora Estate, in Melbourne's north, is a leading edge residential development utilising sustainable design principles to reduce the environmental impact of the development.

The ecological footprint analysis of Aurora Estate, undertaken by RMIT University on behalf of the Building Commission, VicUrban and EPA Victoria, assessed how well the sustainable design principles used in the development compare with conventional residential developments.

Aurora consists of a mix of terraced, semi-detached and detached homes with an anticipated population of 25,000. At the time of research a small number of homes had been constructed.

The ecological footprint, a measure of human demand on ecosystems, was selected as the assessment tool because of its scientific credibility and established international use as a sustainability metric.



Outcomes:

The research revealed that design features used at Aurora will yield significant ecological footprint savings in the construction and operation of the homes, when compared with conventional residential developments. Key findings revealed:

- Aurora homes use 60 per cent less energy as a result of the 6 Star energy design rating
- Aurora's water consumption is reduced by 45 per cent due to the use of recycled water
- The ecological footprint of Aurora residents is substantially less than that for residents of conventional residential developments and that of an average Victorian.

Once Aurora is completed and populated a follow-up study will make it possible to confirm the predicted savings.

Project:

Sustainability leadership guide for local government

Researcher/s: International Council for Local Environmental Initiatives

Building Commission contribution (actual and in-kind): \$20,000

Description:

Local government will play a key role in stimulating the future growth of green building in the commercial sector. It was identified that research and education was required to:

- Assist in creating the business case for green building at the local level
- Increase local government practitioners' understanding of the positive impact of green building
- Learn from local government experience to expand the knowledge base of green building.

The research and education project utilises literature reviews, case studies, workshops and consultation.

Outcomes:

The ongoing project will result in:

- A publication for the public that describes local government experiences with green building
- A report that provides a series of recommendations for how local government can best be encouraged to promote green building principles in a way that complements the building regulatory regime.

It is anticipated that the research will be completed in mid 2007.

Project:

Barriers to a more profitable and sustainable building sector

Researcher/s: University of Melbourne

Building Commission contribution (actual and in-kind): \$20,000

Description:

Research has identified established technologies and design principles that could improve the economic and environmental performance of the building industry in Victoria, whilst also improving the profitability of individual builders. There is also emerging evidence that better design could improve the comfort and amenity of the built environment, with gains of up to 15 per cent in worker productivity through better occupational health and safety.

The research project investigated why these technologies and principles are not being widely implemented in the Victorian building industry. The project undertook original research into the performance of the industry on major projects to identify the cultural barriers to uptake of technology, design and management practices and suggest strategies for improvement.

The research involved a staged approach including, focus groups and interviews, monitoring and supporting a trial project to assist in overcoming barriers and investigating ways to encourage wide adoption of improved industry practices, including cultural change, education and regulatory change.

Outcomes:

The project resulted in:

- Detailed identification of the critical barriers to the uptake of profitable sustainability practices, as seen by the industry practitioners
- An analysis of the impact of the Building Code of Australia on these processes
- Design of a new model that has the support of industry, government and unions
- Identification of a potential project where the new model can be trialed and agreement of the participants to take part in the trial
- Initial recommendations on directions for the Building Code of Australia so that it can support industry change to more sustainable practices.

Project: The Terraces

Researcher/s: City of Melbourne

Building Commission contribution (actual and in-kind): \$50,000

Description:

The Terraces was a major demonstration project of two terrace houses in the inner-Melbourne suburb of Carlton, showcasing best-practice design and construction. The project was the result of a unique partnership between the Building Commission, the City of Melbourne and Archicentre.

The project aimed to showcase good architectural design, stimulate the public's imagination, and provide an in-depth look at the design and construction process, helping people prepare for their next home improvement project.

Outcomes:

The Terraces website, www.archicentre.com.au/TheTerraces, provided visitors with access to a range of fact sheets on topics including different stages of the building process and sustainability. The website also provided a ten-stage timeline, photos, an architect's diary and a 24 hour web cam with live streams showing every step of the building process. Channel 7's Today Tonight also featured a behind the scenes episode series on the project.



Project: Building disputes in Victoria

Researcher/s: Allen Consulting

Building Commission contribution
(actual and in-kind): \$93,300

Description:

Building disputes between owners and builders are estimated to cost Victorians in the order of \$500 million every year, creating an issue of significant concern for both consumers and the building industry.

The Building Commission funded independent quantitative research to investigate the number and type of disputes in both the domestic and commercial building sectors. Factors investigated included the nature, scope and costs of disputes.

Following the initial research on the impact of building disputes in Victoria, further research was undertaken to identify policy areas to reduce levels and costs of disputes.

Outcomes:

Generally, the research findings indicate a high level of customer satisfaction, with 78 per cent of building projects completed without issue. Of the remaining 22 per cent of cases, less than four per cent resulted in a dispute.

The main cause of disputes from the owners' perspective was considered to be quality of work, while from the practitioners' perspective contractual and price issues were the cause. On average, disputes cost \$20,500 for each domestic dispute and \$92,500 for each commercial dispute.

The research also revealed that the cost and length of building disputes is significantly reduced when a neutral third party is engaged to assist either through mediation, conciliation, legal advice or other services. The research also supports the need for builders to use the contract and other documents to comprehensively communicate with consumers about the scope and quality of work.

Following the research, the Building Commission has enhanced its domestic builder audit program and revised its publication Guide to Standards and Tolerances which was distributed free of charge to all registered domestic building practitioners and architects to assist them to build quality homes and prevent disputes. The new 2007 Guide applies to domestic building contracts entered into from 1 January 2007.

Project: Future market demand for accessible housing

Researcher/s: Jaguar Consulting

Building Commission contribution
(actual and in-kind): \$73,000

Description:

Building accessibility issues face one in five Australians, with the figure likely to grow to one in three by the year 2020. With such wide reaching impact, research was required to assess the market demand for accessible housing in the future.

The Building Commission funded research on accessible housing to provide an authoritative and comprehensive report to be used by government and industry to better plan for the future supply of accessible housing.

The research utilised data collection, a literature review, consultation and workshops to establish information and data on:

- The current and future community needs
- Current supply in the market
- Stakeholder opinions
- Current initiatives and interventions.

Outcomes:

A research report will be released when agreement is reached by all funding parties.



Project:

Awareness of accessible housing issues

Researcher/s: Socom Consulting

Building Commission contribution (actual and in-kind): \$23,600

Description:

Assessing awareness in the market on accessible building issues was required to form the foundation of a communication strategy to promote a greater understanding of accessibility issues.

The market research aimed to explore the level of awareness and knowledge that providers, users, educators and regulators of the built environment have about accessibility and each other.

The research focused on collecting qualitative data on awareness, knowledge and attitudes of key stakeholders to accessibility issues.

Outcomes:

Key findings of the research included:

- Information on design solutions, product suppliers and access consultants is needed for stakeholders
- Accessibility terms, such as accessible, universal design, adaptable and visitable, are not well understood
- Peak bodies have an important role to play as a point of reference for accessibility issues
- An education and awareness program is needed for stakeholders
- There are general misconceptions about the needs of people with disabilities
- Consumers are not well informed about accessibility design choices when designing a new home or renovating
- Builders believe there is a lack of market demand for accessibility features
- Local government is aware of the issues surrounding accessibility and have prepared disability action plans, however their major concern is a lack of power to enforce accessible design
- Educators agreed that access is vital to the design and construction of the built environment, however, they conceded it does not occupy a place of prominence within the curriculum.

Project:

Consumer and practitioner satisfaction levels

Researcher/s: Chant Link & Associates

Building Commission contribution (actual and in-kind): \$170,000

Description:

The Building Commission conducts yearly research survey to evaluate and compare satisfaction levels of consumers and practitioners in the Victorian building industry.

The quantitative and qualitative research focuses on assessing consumer perceptions of the building industry, expectations, satisfaction levels with building quality, process and product, advisory and information services and their experience with disputes and dispute processes. The research also measures practitioner perceptions of the building industry, expectations, satisfaction levels with employment, building surveying processes and their experience with disputes and the dispute processes.

Outcomes:

The survey data revealed important trends on consumer and practitioner behaviours, experiences and views.

Building practitioners have a confident outlook for their businesses and are satisfied with the work that they are doing. Practitioners value Continuing Professional Development and their knowledge of sustainable building is increasing. Their use of modern technology, such as computers, is also on the rise. Of the practitioners surveyed, 82 per cent said they had seen some improvement in the quality of practitioners in their industry.

Consumer satisfaction levels are very high across Victoria in both domestic and commercial building sectors. Confidence in builders is high, as is the understanding of the Registered Building Practitioner brand. It is expected that as awareness of sustainable building grows further, the discussions and inclusion of sustainable building elements will also increase. Consumers with a good understanding of their contract and expectation are generally more satisfied with their overall building project.

Project:

Level of termite infestation in Victoria

Researcher/s: Pitt & Sherry Pty Ltd

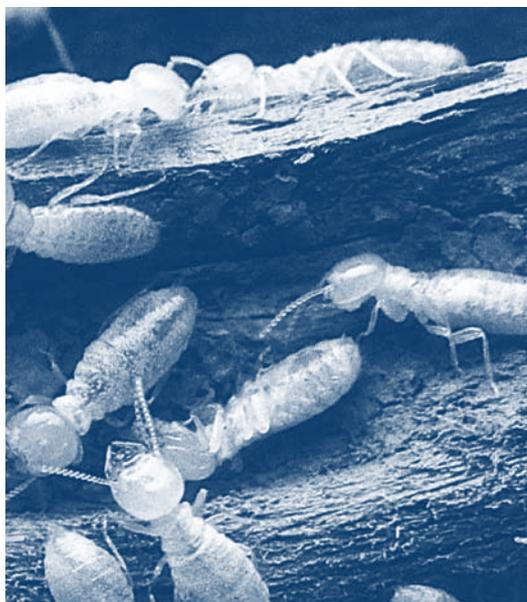
Building Commission contribution (actual and in-kind): \$23,050

Description:

Following anecdotal claims that termite infestation in Victoria was increasing, the Building Commission funded independent research into the real extent of termite infestation in Victoria.

The research was undertaken to assist local councils which, under regulation 803 of the *Building Regulations 2006*, can designate areas in their municipalities in which buildings are likely to be subject to termite attack. Building work in a termite declared area is generally required to comply with the termite provisions of the Building Code of Australia.

The research project aimed to establish the incidence of building termite infestation in undeclared municipalities, 30 in total, over the past five years.



Outcomes:

The research concluded that there is reasonable evidence of termite infestation in municipalities within metropolitan Melbourne. However, it is difficult to draw conclusions regarding the level of hazard presented by termites. The research does not support the state-wide declaration of termite-prone areas.

While the research has made further information and data available to undeclared municipal councils to assist their decision-making, it is noted that:

- Absence of evidence does not mean evidence of absence
- Applying Office of Housing data to the broader population of domestic and residential buildings may provide more conclusive results for municipalities
- Data from Powercor and City Power based on municipal boundaries may also provide valuable information for council decision-making
- Councils should weigh up the economic burden of termite infestation when considering designating termite-prone areas.

Project:

Way-finding in the built environment

Researcher/s: CSIRO, Queensland University of Technology, Queensland Department of Public Works, Australian Building Codes Board and Building Commission (on behalf of the Cooperative Research Centre – Construction Innovation)

Building Commission contribution (actual and in-kind): \$38,000

Description:

The Building Commission participated in research to identify technologies and systems to assist blind and vision impaired people to better navigate large public areas.

The project incorporated three phases:

- **Phase 1** comprised a comprehensive review of available systems/technology
- **Phase 2** evaluated way-finding systems/technology uncovered by Phase 1 and developed specification for a proposed trial system/s
- **Phase 3** evaluated, implemented and tested the trial way-finding system/s at a site associated with the 2006 Commonwealth Games in Melbourne, and using segments of a large building in Brisbane.

The Melbourne way-finding trial investigated an innovative broadcast/receive system making use of new City of Melbourne infrastructure. The infrastructure was put in place just prior to the Commonwealth Games in March 2006 and was based around the city and known as information hubs (or iHubs). A proof-of-concept trial was undertaken, aimed at delivering tailored or location-specific information about key basic facilities and services for users with vision impairment.

The Melbourne-based trial involved temporarily adding suitable (Bluetooth) transmission ability at selected central city iHubs, upgrading the software for each hub server and the receiver to handle suitable messages specific to each particular location, and monitoring feedback of the use of the system by project affiliates.

The short-range Bluetooth transmission protocol (widely used to link mobile phones, headsets, MP3 players and similar devices in close proximity) allowed a link from iHubs to a device worn or held by a traveler with vision impairment. As a user came into range of an iHub they could (discreetly) receive a selection of relevant audio messages (prerecorded, but specific to the particular locale).

The Brisbane trial used segments of a large office building to develop a series of guidance documents for assisting designers with way-finding concepts.



Outcomes:

The Phase 1 project report identified systems and technologies that could be utilised to assist people with a sensory impairment to navigate buildings and large public areas. The report also made recommendations on how these technologies and systems may be incorporated, by law or otherwise, into Australia's building and construction practice.

The phase 2 and 3 report evaluated and trialed systems identified in Phase 1, and detailed the development and potential use of a series of guidance documents for assisting designers with way-finding concepts. These include:

- A Way-finding Design Guide, for use by designers when considering way-finding issues in a building
- A Way-finding Audit Checklist that can be used by owners, building managers, designers and building practitioners when assessing existing buildings for way-finding matters
- A Way-finding Systems Matrix which lists all systems/technologies found in Phase 1 and where they are most likely to be used in a built environment.

Project:

Security of Payment Act – benchmarking study

Researcher/s: Market Solutions Pty Ltd

Building Commission contribution
(actual and in-kind): \$41,350

Description:

The Victorian Government introduced the *Building and Construction Security of Payment Act (SOP) 2002* to provide legal recourse for payment owing to building contractors who carry out building work and/or the supply of materials under construction contracts.

Research was undertaken to identify awareness and uptake of the Act and to evaluate whether the Act has led to improvements in payment practices within the building industry in Victoria. Telephone interviews were undertaken with building and construction industry participants to gather quantitative and qualitative responses about their payment experiences, contractual relationships and awareness of the Act.

Outcomes:

Generally the results indicated:

- Low awareness of the Act - less than 40 per cent of respondents aware of the Act (14 per cent awareness for trade subcontractors)
- Late payment practices - 52 per cent receiving payments two-three weeks late and 12 per cent receiving payments more than two months late
- Low use of the Act - 70 per cent of respondents who were aware of the Act did not use it
- Reasons – 50 per cent of respondents did not know how to use the Act, 21 per cent of respondents did not feel they needed to use the Act and 11 per cent felt using the Act may have a negative impact on their business.

The research report has been used as a basis for developing a communication strategy to improve the awareness and uptake of key features of the amended Security of Payment Act, effective from 30 March 2007.

Project:

Efficiency of the building and occupancy permit process

Researcher/s: Warrington Fire Research
and Pitt & Sherry Pty Ltd

Building Commission contribution
(actual and in-kind): \$91,300

Description:

Following the sun-setting of the Building Regulations in 2004, research was undertaken to assess the efficiency of the building and occupancy permit process.

The project aimed to identify efficiencies in legislation and administrative procedures, which would relate to real time savings for building owners, developers and practitioners. The project also aimed to provide clarity for practitioners when dealing with building and occupancy permits.

The project included market research, a literature review and analysis of issues including roles and responsibilities of relevant water, fire and drainage authorities, roles of private and municipal building surveyors and documenting the current system.

Outcomes:

Overwhelmingly, respondents agreed that the structure of current building legislation was necessary and robust. The majority of criticisms raised through the research related to minor amendments, largely due to changes and advances in technology.

The final research report made a number of recommendations to amend the Building Regulations. Most were seen as machinery changes that were considered in the development of the *Building Regulations 2006*. Recommendations were also made to review or amend items from the *Building Act 1993*, which will be considered in future proposals to amend the Act.

The report also recommended non-regulatory solutions to some issues, including the development of new, or amending existing, practice notes and/or Ministers Guidelines, providing community information on specific topics and additional training for industry and consumers in the form of seminars and workshops. The Building Commission has implemented a number of these recommendations and others will be considered in the future.

Legislative reform

Project:

Review of report and consent process

Researcher/s: Philip Chun & Associates

Building Commission contribution (actual and in-kind): \$22,500

Description:

Recommendations made as part of research into the efficiency of building and occupancy permit processes indicated the need for additional research on the report and consent process.

Processes for obtaining report and consent from reporting authorities is currently prescribed under Building Regulations. The research aimed to consider commentary and concerns including:

- Reporting authorities and building surveyors understanding their obligations
- Substantial delays recorded in obtaining reporting authority reports and consents
- Legislating response time frames
- The requirement for demolition report and consent where a planning permit has already been issued
- Restricting authorities from requiring conditions on matters not related to the item specifically being considered
- Regulation 308 provisions to be available during and after the construction process and as part of the building notice and order system.

Outcomes:

Results from the research project will be considered by the Building Regulations Advisory Committee for incorporation as amendments to the *Building Act 1993* and *Building Regulations 2006*.

Project:

Review of protection of public legislation

Researcher/s: Pitt & Sherry Pty Ltd

Building Commission contribution (actual and in-kind): \$16,500

Description:

Recommendations made as part of research into the efficiency of building and occupancy permit processes also included a review of protection of public legislation.

The research aimed to provide sufficient information to allow the Building Commission to determine whether changes to protection of public building legislation are necessary.

The research involved:

- Identifying any overlap between building legislation and Worksafe requirements
- Considering if there is a need for hoarding permit fees to be prescribed
- Evaluating a system where building surveyors issue a permit for protection of public measures, similar to a building permit
- Evaluating appeal mechanisms where a relevant building surveyor determines protection of public measures are not required
- Advising whether protection of public requirements should be dealt with via building legislation, local laws, other legislation or a combination of different legislation
- Consideration of matters related to pedestrian access adjoining building sites
- Advising on any other changes required to the protection of public legislation/process.

Outcomes:

The report provided discussion and recommendations in relation to all of the issues identified. Recommendations related to the development of new practice notes and the consideration of amendments to legislation.

Project:

Assessment of Indoor Environment Quality

Researcher/s: University of Melbourne

Building Commission contribution (actual and in-kind): \$11,000

Description:

Indoor Environment Quality (IEQ) can significantly affect the health and well being of building occupants leading to potential injury and productivity loss. IEQ refers to the quality of the air and environment inside buildings. It is based on pollutant concentrations and conditions that can affect the health, comfort and performance of occupants, including temperature, humidity, light, sound and other factors.

Research undertaken by the University of Melbourne to investigate IEQ is being assessed to decide whether the findings can form the basis for regulating IEQ. It is anticipated that any IEQ measures would be incorporated into the Building Code of Australia.

Outcomes:

The assessment report, to be completed in mid 2007, is expected to provide rationale for why and how IEQ measures may be regulated through the Building Code of Australia.

Project:

Residential building performance indicators

Researcher/s: RMIT University

Building Commission contribution (actual and in-kind): \$10,000

Description:

Development of residential building performance indicators in Victoria, the rest of Australia and other relevant countries.

The research analysed regulatory frameworks which address sustainability issues in residential building performance, with particular focus on water use, storm water, greenhouse gases, materials use and indoor environment quality. The project compared Australia's experience with other relevant countries and focused on the development of regulation.

The project aims to inform policy discussion about the further development of residential building performance indicators in Victoria.

Outcomes:

The research concluded that a sustainable house in Victoria today should provide high thermal comfort, cater to the health and wellbeing of users, consume minimal non-renewable energy, incorporate efficient eco-design measures, and involve low life-cycle environmental impact and cost. Achieving this standard was found to be a challenge for regulators, the building industry, and materials manufacturers.

The research found that the current rating tools that set and measure the environmental performance of residential buildings do not address all of the requirements for long term sustainable goals. The information available on the environmental and health implications of residential housing is rapidly developing and improving. Rating tools must keep pace with this development in order to set effective regulatory standards and provide the intended environmental outcomes.

The regulation of residential building environmental performance indicators should consider responsibility and cost as they relate to the government, building industry, public, environment and other stakeholders.

Project:

Fire hazard controls for temporary structures

Researcher/s: Warrington Fire Research
Building Commission contribution (actual and in-kind): \$9,500

Description:

The Building Commission funded research to review the methodology for determining an appropriate measurable level of fire safety of tensile membrane fabrics used to clad marquees. The research involved a review of current test methods to determine suitability for industry use.

Outcomes:

The research identified that testing mechanisms under Clause C1.10 or C1.10a of the Building Code of Australia are not appropriate for application for temporary structures. Further research will be conducted to prepare a detailed report regarding test methodologies including recommendations.

Project:

Fire protection in bushfire-prone areas

Researcher/s: Warrington Fire Research, Centre for Building & Planning Studies and the University of South Australia

Building Commission contribution (actual and in-kind): \$15,000

Description:

Research was undertaken to fast track the development of relevant performance criteria, test procedures and cost effective building solutions for fire protection in bushfire-prone areas.

The research investigated performance criteria, appropriate test protocols, the effect of secondary fires (spot fires) and the performance of typical housing stock.

Outcomes:

The results of the research are being used as a basis for deliberations on the development of a revised Australian Standard (AS 3959) – Construction of buildings in bushfire-prone areas.

Need more information?

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