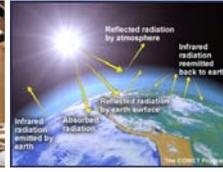


## National Energy Efficient Buildings Project Summary of Phase 1 Report

transport | community | industrial & mining | carbon & energy



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### Overview



- Terms of reference for the NEEBP were broad, with a focus on 'systemic or process weaknesses or common points of non-compliance, ', but also on strategies for achieving best practice
- We engaged intensively with over 1,000 stakeholders across all states and territories, from government, regulators and a wide range of building professions

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## Overview



- They raised an *extremely* wide range of issues and concerns
  - Not all of which are supported by evidence, but some are
  - Remarkable consistency in issues raised Australia-wide
- The report's recommendations aim to:
  - address the systemic weaknesses identified
  - encourage movement towards best practices
  - build the evidence base

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## Background



- The Government of South Australia, on behalf of the Australian, state & territory governments commissioned pitt&sherry and Swinburne University to undertake Phase 1 of the NEEBP
  - Phase 1 (Nov – Feb) was to ‘...commence investigations, make recommendations and design strategic interventions’
  - Phase 2 (Mar – Jun) ‘...will implement strategic interventions identified and scoped in Phase 1’

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## Background



- The Phase 1 project had three parts:
  1. A national review of key systemic or process weaknesses or common points of non-compliance with the energy efficiency requirements of the National Construction Code;
  2. A national review of the uniformity and effectiveness of current standards or regulations to deliver energy efficient renovations...
  3. A national industry-based information register, needs and gap analysis and strategy to develop and support the knowledge and capacity of key professions and trades to deliver best practice energy efficiency to the building industry.

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## Terms of Reference



- The TOR (scope) are broad and non-exclusive
- 'The NEEBP aims to identify key factors negatively impacting on energy efficiency wherever they occur in the construction cycle; from design, development assessment and approval, to materials specifying and supply, building and project management, to trades, final-fit, hand-over and compliance checking'

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## Terms of Reference



- The intended outcome was to develop ‘...a national strategy for best practice and compliance with the energy efficiency provisions of the NCC’ (emphasis added)
- The RFQ noted that ‘...strategic interventions identified...may include, for example, recommendations for change in policy, regulations, guidelines and compliance methods...and targeted industry and local government knowledge-sharing, training or demonstration pilots’

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## Process



- We conducted an intensive work program from early November to early February, with 15 researchers plus support staff engaged. The program included
  - Issues Paper
  - National survey
  - National workshops and one-on-one meetings
  - Report

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## Participation



- Participation was remarkably high, particularly given the time of year (Xmas) and short timeframe
  - 41 written submissions
  - 17 workshops in all states and territories, incl. some regional centres, to cover all major climate zones (except zone 8, Alpine)
  - 276 workshop attendees
  - 571 survey respondents
  - 44 meetings
- Good cross-section (self-selected), but weighted towards designers, assessors, surveyors
- Heavy weighting towards residential buildings
  - Participation was 'self-selected'...targeted approaches could be made to particular sectors if desired

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## Process



- We worked closely with the cross-jurisdictional Project Reference Group (policy makers from ABCB and government) and the SA Government Project Manager
- The project was welcomed by (almost) all stakeholders (HIA, MBA expressed reserve, but both participated, as did all other major industry associations)
- Participation was open and forthright (to say the least...)

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## Process

- The Report is long, as it aimed to be true to the diverse range of perspectives, concerns and issues raised with the review team
- A key challenge was to analyse and present the large number of issues with reference to the underlying 'system' that aims to deliver energy performance outcomes
  - which itself is large and diverse (between jurisdictions, climate zones, institutions, building types, etc)
  - picked out a 'top 10'...

## Key Issues #1

- Some stakeholders claimed Code objectives/ functional statements are confusing and inconsistent
- Many noted low ambition/standards
- Code change processes are perceived as slow and politicised, with consulting processes 'leading nowhere'
- Code administration and enforcement is viewed as under-funded and lax

## Key Issues #2

- State/territory variations and additions are considered poorly justified
- Some query the justification for EE standards at all, claiming a lack of hard evidence as to effectiveness and cost-effectiveness
- Many noted that the focus on assessing the performance of designs, rather than buildings, is fundamental to poor 'as built' performance
- Many cited low consumer awareness of EE

## Key Issues #3

- Many pointed to 'missing' performance requirements, eg, airtightness, existing buildings, commissioning, maintenance
- Some were concerned that energy performance requirements could exacerbate condensation problems, or lead to 'hot boxes'
- Many identified a lack of inspections of energy efficiency features as the core problem, saying 'without this, other reforms would be wasted'

## Key Issues #4

- Builders in particular focused on the lack of clarity in requirements, including a lack of climate-specific DTS solutions, diagrams, etc
- The cost of access to the Code and Australian Standards contributes to a 'make do' culture (*this has been rectified*)
- Lack of detail in drawings and construction documentation
- Lack of 'how to' diagrams in Code itself
- A lack of 'why', to explain the 'what'

## Key Issues #5

- scepticism was expressed regarding ratings tools, with key issues including:
  - Excessive 'flexibility' allowing assessors to find inherently poor designs to be compliant
  - Variability in ratings outcomes, including a suggestion that 'shopping around' for compliant ratings is common
  - Missing or out-of-date parameters (window files and climate files were cited often) and 'known bugs' not being addressed
  - Other complained that parameters change too often
  - A lack of accountability to industry, industry participation in governance
  - Concerns about under-funding in research and development
  - Suggestions (not substantiated) about poor performance of ratings tools in hot, humid climates

## Key Issues #6

- Post-approval design changes, and substitution of high-performance for low-performance elements, were described as common-place
- Backed by some audit findings in some jurisdictions, with up to 94% non-compliance, 70% in other cases...although many of these are not energy-related and may be trivial
- Some suggested tacit collusion by assessors/ designers in non-compliance, by specifying high performance glazing or other 'unbuildable' features, knowing that they are likely to substituted post-approval (and not discovered)

## Key Issues #7

- While these issues appear to raise serious consumer protection concerns, manufacturers and suppliers of high-performance equipment and services also see this system as undermining those businesses that are trying to do the right thing
- A lack of product certification, mandatory product performance testing, missing or non-enforced labelling requirements, or non-policed 'false and misleading claims', and a lack of responsiveness from consumer protection agencies were cited as issues

## Key Issues #8

- One contributory factor highlighted was a lack of access to appropriate information/guidance, even if others noted that such information abounds
  - Key need is improved 'accessibility' as well as access
  - One line, mobile devices, case studies, field days, etc
- Some materials/courses appeared to underplay efficiency/sustainability knowledge
  - Need to develop entrenched culture of energy efficiency, ensuring 'functional proficiency'
- Training the trainers – including compulsory CPD

## Key Issues #9

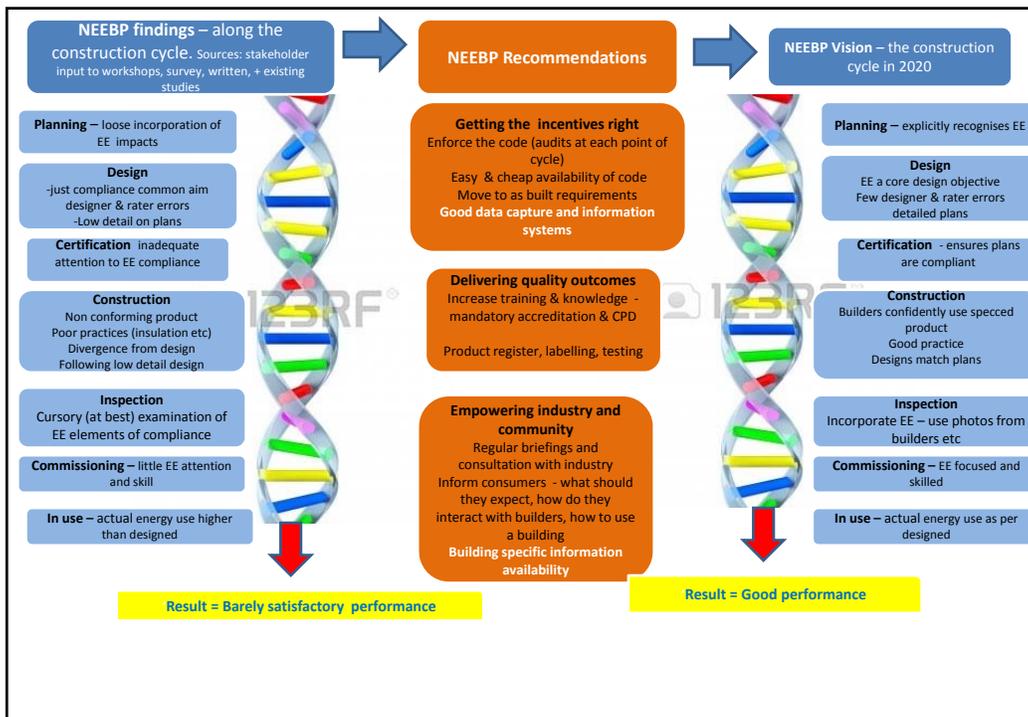
- For renovations, additions, extensions, the key issues appear to be:
  - A lack of clarity about when whole buildings/systems are required to comply with current Code requirements, and a lack of consistency in thresholds around Australia
  - A lack of clarity about the application of modelling/rating tools to extensions...although to varying extents this is being addressed by Building Commissions

## Key Issues #10

- Many attributed poor efficiency outcomes to low (efficiency) knowledge and skills in many professions
- A lack of mandatory accreditation and continuous professional development in most jurisdictions
- Smaller, older builders were viewed as resistant to change, discouraging innovation

## Key Issues - Summary

- Some comments neatly summarised the big picture:
  - A 'lack of accountability' throughout the system, from governments and regulators, through to industry professionals, trades and planning authorities
    - Not everyone is tarred with the same brush, but most groups of stakeholders were prepared to acknowledge shortcomings within their own ranks (except some senior industry association officers)
    - Even if there was much finger-pointing between groups...
  - A long-standing culture of low standards and 'getting way with it' (non-compliance), summarised by one (regulator) as "...no-one cares and no-one's looking"
  - Issues occur right along the supply chain, from policy/regulatory environment through to post-occupancy (attempted to capture in 'infographics'...)



**National Energy Efficient Building Project – Phase 1 findings on a crowded page**

**Energy and money is being wasted**

Stakeholders report failings all along the construction cycle that result in energy waste in new and altered buildings. There are common instances of:

- Poor planning
- Non compliant designs & dubious design quality
- Variance from design to actual construction
- Use of non compliant product
- Poor construction practices – insulation, air sealing etc
- Poor commissioning
- Poor as built performance
- Poor operational practices



**Waste is occurring because of system weaknesses – not just a few bad apples**

Stakeholders report multiple areas of system weakness – so failings are commonplace.

- Underfunding and lack of political support for the regulators and NCC requirements has created a culture of *'not all the code really matters and the energy efficiency bits don't'*.
- One quote from a state regulator sums it up *'No one cares and no one is looking'*
- Insufficient drivers for industry to achieve compliance and very little system incentive to go beyond compliance
- Certifiers have insufficient time and ability to properly check plans for EE compliance
- Mandatory inspections (where they are required) don't check EE provisions in practice
- Accountability is unclear and not enforced
- The NCC is expensive, complicated, varies from jurisdiction to jurisdiction
- Accreditation and CPD is rarely mandatory (only in a handful of states and professions)
- The availability of construction products that do not meet standards is a problem for builders
- The substitution of products at the last minute by suppliers is another challenge for builders
- The code is focused on 'design performance' – not final, actual performance
- Disconnect between certifiers, councils, commissions, customers – inadequate information collection, sharing and access



**There are solutions: enforce the code, improve the code, enhance the capacity of industry and consumers**

Three areas of activity will improve building energy efficiency – and bring other benefits.

**Getting the incentives right.** Enforce – starting with in-depth audits, enlist the enforcement support of the ACCC, make the code free, move to 'as built' requirements – starting with air-tightness, clarify rules for renovations, pin point accountability

**Delivering quality outcomes.** Develop better guidance and tools, build a products register (attacking non conformance) introduce mandatory, high standard accreditation and CPD for all professions, better collection, control, and use of data (electronic building passport)

**Engaging industry and the community.** Boost understanding of energy efficiency benefits among both industry and customers, educate customers on their role, encourage excellence



## Translating Issues into Recommendations and Actions



- We are conscious that not all stakeholder views are well-founded; indeed, myths abound
- Also, much evidence (to prove or disprove allegations and myths) is missing
  - *insufficient research and auditing of outcomes*
- What evidence does exist (NatHERS Benchmarking, Vic Auditor Generals' Report, CSIRO) is taken as proof the system is broken...even if this (necessarily) is not the case

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## Translating Issues into Recommendations and Actions



- Given the large number of issues and recommendations, it is challenging to distil them without losing information, but we perceive three broad priorities:
  1. *Getting the incentives right* (policy, Code and regulatory changes)
  2. *Delivering quality outcomes* (enforcing the law, changing the culture, upskilling)
  3. *Empowering industry and the community* (information, consumer protection, supporting innovators)

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## Summary and Conclusions



- A large number of stakeholders are disaffected with the current building energy efficiency 'system'
  - Some are actively seeking to undermine it, others trying to get it fixed, and a large group in the middle appear resigned to poor outcomes
- Consumer welfare and public policy outcomes appear to be suffering, even if the extent of this is not fully documented
  - Yet there are practical steps - many of them - that could be taken to engage stakeholders and begin the reform process

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## Summary and Conclusions



- The missing evidence base must be addressed by governments, and myths countered with fact
  - Priority to capture empirical evidence via audits, research, and 'make the case' to industry, consumers
- Finally – we believe there is an onus on governments to complete the communication circle with stakeholders, and soon
  - by publishing the report and continuing to engage them in determining and designing next steps
  - Otherwise the 'no-one cares and no-one's looking' culture will be further reinforced

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