Adapting strata and community title buildings for climate change

Final Report

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ADAPTING STRATA AND COMMUNITY TITLE BUILDINGS FOR CLIMATE CHANGE

Strata Title in a world of climate change: Managing greater uncertainty in forecasting and funding common property capital expenditure

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ABSTRACT

This report outlines the findings of a study that has sought to inform policy making concerned with preparing strata titled communities to deal with challenges that are expected to result from climate change. The report develops and analyses 24 recommendations designed to advance the capacity of strata titled communities to cope with climate change.

The report provides a description of five research phases that have informed the study. Initially a literature review was undertaken. This review focused on climate change impacts on buildings and also issues surrounding the management of strata titled complexes. Next a review of the most pertinent Australian legislation relating to insurance, property maintenance and the funding of common property capital expenditures in strata titled schemes was undertaken. The study’s first empirical phase involved a meeting with an eleven person industry reference group. This group met on two subsequent occasions and represented a valuable sounding board that informed the study’s evolution. Next, eighteen interviews were conducted with individuals representing a range of strata title stakeholder groups. The study’s final empirical phase involved the conduct of an on-line questionnaire survey. This survey was designed to investigate the current climate change preparedness of strata title communities and also to gauge the relative merit of sixteen recommendations developed during the interview phase. The survey was also used as an opportunity to generate further recommendations. Following an analysis and distillation of feedback provided by 450 questionnaire respondents, eight further recommendations were developed.

Analysis of data collected during the study’s interview phase resulted in the distillation of six thematic issues that should be considered when seeking to better prepare strata titled communities for a world of climate change. These six themes are: 1) Facilitating unit owner awareness of climate change implications; 2) Facilitating information availability to key decision makers; 3) Facilitating strata and community title complex decision making; 4) Funding building adaptation work; 5) Weather event emergency management; and 6) Insurance as risk management.

The 24 recommendations advanced in the report cover a wide range of facets relating to strata title building, living and management. The range of issues addressed in the recommendations include factors relating to building construction and resilience rating, improved climate change education of strata title stakeholders, insurance, emergency management, building decision making issues, and bank lending. The breadth of the recommendations is also evident from the fact that they are directed to a broad range of strata title stakeholders that include unit owners, strata managers, resident managers, state and federal governments, insurance companies, sinking fund forecasters and banks.
EXECUTIVE SUMMARY

The broad aim of this report is to inform policy making concerned with preparing strata and community title (S&CT) buildings to deal with challenges that are expected to result from climate change. The report develops and analyses 24 recommendations designed to advance the capacity of S&CT buildings to better cope with anticipated damage and disruption of services caused by an increasing incidence of severe weather events resulting from global warming.

Five main research phases have informed the report’s development. Initially a literature review was undertaken. This review focused on climate change impacts on buildings and also issues surrounding the management of strata and community title buildings. Next a review of the most pertinent Australian legislation relating to insurance, property maintenance and the funding of common property capital expenditures was undertaken. The study’s first empirical phase involved a meeting with an 11 person industry reference group. This group met on two subsequent occasions and represented a valuable sounding board for the research team. Next a series of interviews were conducted with individuals representing a range of strata and community title stakeholder groups. The study’s final empirical phase involved the conduct of an on-line questionnaire survey. This questionnaire survey was designed to gauge the relative merit of the 16 recommendations developed during the interview phase. The questionnaire survey was also used as an opportunity to generate further recommendations.

The 16 recommendations developed during the study’s interview phase are presented in ranked order below. The rankings were determined by ratings provided by the questionnaire survey respondents.
Table 1: Recommendations ranked by 450 S&CT stakeholders

<table>
<thead>
<tr>
<th>Rank</th>
<th>Recommendations</th>
<th>Stakeholder Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New S&amp;CT building construction should meet heightened standards with respect to climatic event resilience. For example, to lessen potential flood damage, significant lift, utilities and other infrastructure should be located above basement levels.</td>
<td>State Gov'ts  Developers</td>
</tr>
<tr>
<td>2</td>
<td>Developers should be provided with information and kits about climate change and its impacts on and adaptation strategies for S&amp;CT buildings and be required to provide this information to buyers of units in new S&amp;CT buildings.</td>
<td>Federal Gov't  Developers &amp; Owners</td>
</tr>
<tr>
<td>3</td>
<td>Insurers should be required to make their insurance appraisal of S&amp;CT buildings weather event risk exposure publicly available in a manner that the information can be easily accessed by owners and potential purchasers of lots in the building.</td>
<td>Insurance Sector &amp; Federal Gov't  Insurers &amp; Owners</td>
</tr>
<tr>
<td>4</td>
<td>All S&amp;CT buildings above a certain size should be legally required to develop and communicate an emergency evacuation and management plan to be implemented immediately prior to, during and in the aftermath of a significant emergency weather event.</td>
<td>State Gov't  Owners</td>
</tr>
<tr>
<td>5</td>
<td>Introduce a requirement that in S&amp;CT buildings above a certain size, the resident manager must complete a disaster management response training course to improve their capacity and powers to co-ordinate the activities of S&amp;CT buildings (evacuation, etc) in the event of an emergency weather event.</td>
<td>State Gov'ts &amp; State Emergency Services  Resident Managers</td>
</tr>
<tr>
<td>6</td>
<td>Provide information and training modules for strata managers about climate change and its impacts on, and adaptation strategies for S&amp;CT buildings.</td>
<td>Strata Managers</td>
</tr>
<tr>
<td>7</td>
<td>Establish an emergency status designation for S&amp;CT buildings that signifies a change in governance arrangements to deal with the changed circumstances confronted by owners, committees and managers during an emergency weather situation.</td>
<td>State Gov'ts  Owners, Strata Managers &amp; Resident Managers</td>
</tr>
</tbody>
</table>
### Table 1 (cont’d): Recommendations ranked by 405 S&CT stakeholders

<table>
<thead>
<tr>
<th>Rank</th>
<th>Recommendations</th>
<th>Stakeholder Group</th>
<th>Responsible</th>
<th>Targeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Similar to the energy rating system that has been developed for buildings generally, to develop a S&amp;CT buildings ‘weather event resilience’ rating system that provides an overall score based on sub-scores relating to different weather event risk exposures (eg, ‘flood resilience sub-score’, ‘fire resilience sub-score’, ‘cyclone resilience sub-score’, etc).</td>
<td>Government, PCA &amp; UDIA</td>
<td>Owners</td>
<td>Owners</td>
</tr>
<tr>
<td>9</td>
<td>Include projected expenditure on climate change building adaptation measures as a clearly defined part of forecast capital works by S&amp;CT buildings in sinking fund planning and forecasting.</td>
<td>Sinking Fund Forecasters &amp; State Gov’ts</td>
<td>Sinking Fund Forecasters</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Provide information and training modules for resident managers about climate change and its impacts on and adaptation strategies for S&amp;CT buildings.</td>
<td>Resident Managers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Acknowledge the reality that some S&amp;CT buildings may become uninsurable or be unable to obtain affordable complete insurance cover by creating a ‘lower insurance cover’ or ‘uninsurable’ S&amp;CT buildings category, subject to appropriate decisions and disclosures.</td>
<td>State Gov’ts</td>
<td>Owners</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Strata managers should be encouraged to become champions of climate change awareness and adaptation for S&amp;CT buildings.</td>
<td>Strata Managers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Establish and maintain a website and related social media outlets that provide a persuasive and authoritative rationale concerning the need for S&amp;CT buildings to invest in greater building climate change resilience.</td>
<td>Federal Gov’t,</td>
<td>Owners</td>
<td>Owners</td>
</tr>
<tr>
<td>14</td>
<td>To make it easier for S&amp;CT buildings to make decisions to invest in climate change related property upgrades, reduce the threshold vote required for such decisions from the current unanimous or special resolution (three quarter majority) to a simple majority decision.</td>
<td>State Gov’ts</td>
<td>Owners</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Create climate change adaptation awareness champions within and outside S&amp;CT buildings.</td>
<td>Owners, Strata Managers, &amp; Resident Managers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Lenders to develop an appraisal procedure to rate S&amp;CT buildings’ exposure and resilience to climate change weather events and apply the rating as part of lending criteria utilised when extending mortgage loans to unit purchasers.</td>
<td>Banking Sector</td>
<td>Banks</td>
<td></td>
</tr>
</tbody>
</table>

In addition, the following eight supplementary recommendations were distilled from comments and suggestions provided by the questionnaire respondents (Table 2). These recommendations were further refined following their consideration at a meeting of the study’s industry reference group.
Table 2: Supplementary recommendations provided by S&CT stakeholders

<table>
<thead>
<tr>
<th>Supplementary Recommendations</th>
<th>Stakeholder group</th>
<th>Responsible</th>
<th>Targeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Professional and other non-government bodies such as Strata Community Australia and Green Strata to develop a list of experienced consultants and/or recommended experts who can be engaged to advise S&amp;CT buildings that wish to undertake climate change building adaptation planning and work.</td>
<td>Strata &amp; CommunityTitle Industry Bodies</td>
<td>Owners</td>
<td></td>
</tr>
<tr>
<td>2 Government (national, state and/or local) and private sector organisations with vested interests (such as insurers and lenders) to subsidise climate change adaptation works on one or more typical S&amp;CT buildings in order to provide a model of the type of climate change adaptation works that can be undertaken and to showcase the benefits.</td>
<td>Federal &amp; State Gov’t, Insurers &amp; Banks</td>
<td>Owners &amp; Developers</td>
<td></td>
</tr>
<tr>
<td>3 Resident manager and strata manager contracts with S&amp;CT buildings to include provisions covering the type and extent of their responsibilities and authorities in the event of a weather emergency incident.</td>
<td>Resident Managers &amp; Strata Managers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Insurers should base insurance risk assessment on S&amp;CT buildings’ specific characteristics, not just their geographical location. Basing insurance premiums on S&amp;CT buildings’ specific characteristics, which incorporate climate change resilience, will provide owners with an incentive to invest in adaptation to improve a building’s climate change resilience.</td>
<td>Insurance Bodies</td>
<td>Owners</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 (cont'd): Supplementary recommendations provided by S&CT stakeholders

<table>
<thead>
<tr>
<th>Supplementary Recommendations</th>
<th>Stakeholder group responsible</th>
<th>Targeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Insurance companies to provide S&amp;CT buildings with a policy option to insure for infrastructure upgrades, in the event of a claim, not simply for replacement costs. Such upgrades could be conducted in a manner consistent with engineering greater building climate change resilience.</td>
<td>Insurance Bodies</td>
<td>Owners</td>
</tr>
<tr>
<td>6. Government and industry based training courses directed to S&amp;CT building owners, committee members, strata managers, resident managers and other stakeholders to include a ‘prepare your S&amp;CT building for climate change’ component.</td>
<td>Federal &amp; State Gov’t, &amp; Strata Title Industry Bodies</td>
<td>Owners, Strata Managers &amp; Resident Managers</td>
</tr>
<tr>
<td>7. A pro forma disaster management plan or plans for S&amp;CT buildings should be developed by government and/or non-government bodies and made available on a government and privately maintained ‘prepare your S&amp;CT building for climate change’ website.</td>
<td>Federal &amp; State Gov’t, &amp; Strata Title Industry Bodies</td>
<td>Owners, Strata &amp; Resident Managers</td>
</tr>
<tr>
<td>8. As part of the S&amp;CT building development and construction approval process, require that an evacuation plan and general disaster management plan be included in S&amp;CT buildings’ original documentation prepared by developers.</td>
<td>Developers</td>
<td>Owners, Strata Managers &amp; Resident Managers</td>
</tr>
</tbody>
</table>

Adapting strata and community title buildings for climate change
SECTION 1 — GENERAL INTRODUCTION

A grant received from the National Climate Change Adaptation Research Facility supplemented by a grant received from CHU (a specialist strata and community title insurance company) has enabled the conduct of the research detailed in this report.

1.0 Background

Strata title is a property ownership model that enables people to acquire a registered title for an individual residential unit within a complex of units and to share in the communal ownership of the common property in the complex. Such complexes can also comprise units that are used for commercial operations (eg, a shop or office). Generally, medium and high rise building complexes that are titled in this way are strata titled. Low rise, detached and semi-detached building complexes are generally community titled. While there are differences in the way boundaries are defined and precise responsibilities for parts of buildings are assigned, the key operational features of strata and community title buildings are consistent for the matters covered by the report.

In this report, all of the units and common property that constitute an individual strata or community title building complex will be referred to as a ‘strata and community title building’ or the abbreviation ‘S&CT building’.

S&CT has become an important facet of property ownership, and by implication, property maintenance and management. S&CT subdivision has become the prevalent instrument to deliver high density living in Australia and many countries overseas (e.g. Blandy et al. 2006; 2010; Easthope and Randolph 2012; Petr 2010; West 2003). It has been estimated that around three million people live in strata or community titled properties in Australia (Easthope et al. 2012). Due to the widespread adoption of an urban consolidation policy across Australia’s major cities, the proportion of Australians who will live in a strata or community title complexes can be expected to grow dramatically over the foreseeable future. Commenting on Australia’s urban densification, Forster and Hamnett (2008, pp. 248-249) state:

“All five major Australian cities have prepared revised metropolitan strategies in recent times which aim to accommodate at least 60 per cent of future urban development within growth boundaries – published or de facto – and the most recent of these aspire to even more heroic levels of urban consolidation."

This report focuses on steps that can be taken to prepare S&CT buildings to manage the greater risks of building damage and disruption to building occupancy occurring as a result of climate change. The challenge in preparing for climate change is complicated in the context of S&CT buildings, as it is an ownership model that involves unit owners with rights to individually registered property titles tied together in a legally binding relationship requiring communal upkeep of infrastructure that they collectively own. Strong testimony to the ubiquitous nature of this challenge is provided by Blandy et al’s (2010) edited book that explores the interrelationships occurring between power, law and practice in the governance of multi-owned residential developments internationally.
The increasing importance of strata and community titling as a form of property subdivision and ownership and the challenge for legislators in developing policy and legislation concerning strata and community title living and ownership is evident from the depth and breadth of issues discussed in the current ‘Strata & Community Title Law Reform Discussion Paper’ published by the New South Wales Government’s Fair Trading office (NSW Fair Trading, 2012). The complexity of issues is exacerbated considerably by the range of laws pertinent to S&CT living and management. The NSW Fair Trading discussion paper refers to 10 distinct laws and regulations applying in NSW alone and since Australian S&CT law is state based, it is evident that there are many more laws affecting strata and community title buildings across Australia. The somewhat bewildering complexity of the strata and community title regulatory environment across Australia is expounded upon in Everton-Moore et al. (2006).

There appear to be strong indications that S&CT building repair and maintenance costs will increase and become less predictable in a climate change context (Intergovernmental Panel on Climate Change (IPCC), 2007a; 2012). This presents a particular challenge for S&CT buildings, as most parts of a strata and community titled property that are exposed to climate change are typically owned in common by all unit owners (roof, exterior walls, etc). This signifies that asset protection and maintenance of this part of the property falls under the governance of the voluntary elected S&CT building committees that will have to authorise, manage and arrange the financing of a growing proportion of increasingly uncertain common property capital expenditure. Concern over the capacity of S&CT building committees and those assisting them to appropriately dispense this responsibility is central to this report.

Many S&CT buildings continue to be constructed in configurations and locations that increase their exposure to severe weather events, flooding, heat waves and high wind gusts (e.g. low lying coastal areas and floodplains, mountain slopes, bushfire-prone peri-urban spaces, urban heat islands and airspaces with greater wind speed). While this may suggest that some areas of strata and community titled property development will be more prone to the impacts of climate change than others, this study has not attempted to specifically focus on strata titled properties that are particularly prone to climate change, rather it has focused on the broad spectrum of challenges that climate change poses to Australian S&CT buildings in general.

It is notable that predicting the quantum of increased building damage and rectification costs in a climate change context is highly problematical when attempted at the individual property level. This is because of the likelihood of much weather event damage occurring in relatively localised areas. Predicting the magnitude, extent and re-occurrence of climate change induced extreme weather events at the localised level of an averaged sized city is likely to remain beyond the capacity of climate change modelling for the foreseeable future.

Even though building standards are continually being upgraded, such changes tend to be retrospectively informed, ie, they lag behind the observed changing environmental impacts and are constrained by increasing pressure to provide affordable housing. As the rate of building standard change accelerates, so too will the degree to which existing buildings (including S&CT buildings) will fail to conform with the quality of construction deemed necessary to combat the vagaries of climate change. Regulatory authorities in most Australian legislative jurisdictions have introduced statutory
provisions requiring upgrades in the quality of building repair and renovation work commensurate with higher building code standards, but they can conflict with S&CT law obligations with respect to ongoing building maintenance. The development of similar mechanisms is to be expected from the building insurance industry in connection with insurance policy renewal requirements.

1.1 Objectives of this report

Prior to collection of the data that has informed the preparation of this report, the study’s initially conceived objectives had a sinking fund orientation. A sinking fund is a fund that is contributed to by S&CT building owners over an extended period in order to accumulate funds to be expended on planned common property replacements and renewals. The word ‘planned’ is telling, as the vagaries of climate change induced extreme weather events do not lend themselves to being planned for at the highly localised level of a single property. The unpredictable nature of localised weather event building damage and the rationale of funding sinking funds on the basis of specifically planned common property expenditures signifies that it is inappropriate to view sinking funds as the primary vehicle for funding the rectification of sporadic weather event common property building damage. In essence, the sinking fund model lends itself to the funding of relatively predictable common property expenditures, but not the funding of relatively uncertain or emergency common property expenses.

Early recognition of the legally restricted scope of sinking funds and their potential integration with other approaches to managing uncertain expenditures resulted in the focus of the study being widened to more broadly address the range of actions and procedures that can be implemented to better prepare S&CT buildings for a world of climate change. The breadth of the distinct stakeholder groups involved in strata and community title, also underscores the appropriateness of broadening the study beyond merely focusing on that stakeholder group that prepares sinking fund expenditure forecasts. There are many S&CT stakeholders who have a role to play in preparing S&CT buildings to cope with climate change. An attempt has been made to maximise the contribution of this report by identifying what climate change preparedness actions should be taken by the full range of stakeholder groups who have the capacity to influence S&CT building operations.

The need to extend the study beyond a sinking fund orientation was particularly apparent from early data collection and the broadening of the Australian Government Senate inquiry into building insurance problems emanating from the 2011 flood events. Both clearly indicated that insurance is generally perceived by strata and community title stakeholders as the primary means for financing common property works that have been necessitated by a randomly occurring event, ie, a natural disaster.

Accordingly, the research team has pursued the goal of seeking to develop a range of recommendations that are directed to better preparing S&CT buildings to deal with climate change.

In this report, the rationale underscoring the development of 24 recommendations is provided, as well as a description of the empirical research steps taken to develop the recommendations and appraise their relative merit. For government policy makers, the recommendations can be seen as providing a framework for policy development that is consistent with better preparing strata title communities to deal with increasing climate
change. In addition, the study has sought to provide insights into S&CT building unit owners’ appreciation of climate change and its potential impact on building management demands, as well as the capacity of S&CT building committees to implement managerial procedures and financing measures to effectively rectify randomly occurring climate change induced building damage.

### 1.2 Structure of the report

The remainder of this report is structured as follows.

The next section provides a literature review that overviews the nature of the climate change literature, pertinent aspects of strata and community title property management, and also the 2012 governmental review concerned with S&CT building insurance issues.

The following section provides legislative context by providing a cross-state examination of required insurance provisions, infrastructure maintenance and replacement requirements and also sinking fund requirements.

Findings made in the course of conducting interviews with representatives of key stakeholder groups are then outlined and recommendations arising from these findings are posited.

The ensuing section outlines findings arising from an on-line questionnaire survey that was completed by a cross-section of 450 strata and community title stakeholders.

The report’s concluding section overviews the policy making implications of the report, summarises the study’s main findings and lists the 24 recommendations advanced by the study.
SECTION 2 — LITERATURE REVIEW

2.0 Introduction

The purpose of this section is to provide literary context to the study’s examination of how S&CT buildings can be better prepared to deal with the growing risk of climate change induced building damage.

The literature review has been structured according to the following sub-headings:

- Anticipated changes to extreme weather event patterns associated with a global rise in temperatures over the next 20 to 30 years,
- Building damage resulting from these weather extremes,
- Adaptation to extreme weather and climate events,
- The compromised decision making nature of S&CT buildings,
- Sinking funds as a source of funding S&CT building damage rectification,
- Role of insurance in managing climate related S&CT building damage risk, and

For each sub-heading, an attempt has been made to provide an insight into the extent of the literature and to provide a sense of the composition and key elements of the literature. The literature review does not purport to be exhaustive, however, for the interested reader seeking greater detail, many references are provided to more extensive literature review sources.

2.1 Anticipated changes to extreme weather event pattern associated with a global rise in temperatures over the next 20 to 30 years

Much has been written about the changes in the world’s weather patterns and the climate change phenomenon. At a global level, the Intergovernmental Panel on Climate Change (IPCC)’s Fourth Assessment Report (IPCC 2007a) provides a summary of collective knowledge and thought on the climate change issue. This report also includes some relatively detailed predictions distilled from a compilation of different climate models for Australia, including Tasmania (CSIRO & BOM 2007).

Applying the IPCC’s (2007b) working definition for climate change,¹ much work has focused on scenarios for the latter part of this century, i.e. beyond 2050, when overall changes to global and local weather patterns would become statistically verifiable. For these time frames, practically all major climatic modeling has predicted increases in the average global temperature in excess of 1°C and a further 1°C to 3°C rise in surface air temperature (SAT) by the end of this century (IPCC 2007b at 10.ES). More importantly are climate modeling convergences that point to a rise in SAT over the next 20 to 30 years, irrespective of any reductions in anthropogenic greenhouse gas emissions. Given the extended time frames required for detecting statistically significant changes in overall climate patterns, most of the more immediate impacts arising from increases in global temperature will be recorded as weather or climate extremes. This, and a, perhaps coincidentally, large number of recent extreme weather

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¹ “Climate change refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use” (IPCC, 2007b).
and climate incidences have increased interest in how these global outlooks can be translated into regional or local scenarios and, concomitantly, how appropriate transition strategies can be developed.

This is where global climate change science faces a major challenge, as reliable short-term predictions are still difficult to obtain, even at relatively large scales (e.g. Cane 2010), for example a 500-1,000 km stretch of coastline. In response, the IPCC released a special report providing further interpretation and analyses of the risks of extreme events and disasters in the wake of changing climatic conditions (IPCC 2012, SREX report). These issues are pertinent to the management of S&CT buildings as an increasingly significant component of Australia’s built environment. Most S&CT buildings are designed for a 40 to 60 year life span, which, in theory, leaves sufficient time to gradually replace current buildings with new complexes constructed according to heightened climate change resilient building standards, improved building materials and better design guidelines. These building and design issues are common to all buildings, and therefore do not create any novel issues for S&CT buildings.

At the time of a S&CT building’s construction, the standard of construction needs to comply with building standards. However, following initial owner occupation of a building, any decision to upgrade the S&CT building would need to comply with strata and/or community title laws. Even if new building standards were to be introduced that applied retrospectively, any necessary changes to S&CT buildings or complexes need to be exempt from the usually onerous voting provisions for upgrades to common property (for more details see section 3 ‘Legislative Context’). This highlights the limited capacity of building standards and development approval conditions to impact on S&CT buildings that have already been completed.

With its focus on S&CT building management and the particular relevance for the coming 20 to 30 years, this report has been drafted in a manner that recognizes the type of climate change scenarios described in the IPCC 2012 SREX report. This report alerts us to adaptation initiatives that can be taken to manage the increasing risk of extreme events and disasters.

The SREX report (IPCC 2012, p. 29) continues to define climate change as ‘an alteration in the state of the climate that can be identified by changes in the mean and/or variability of its properties and that persists for an extended period’. The IPCC’s latest analysis of its collective climate change knowledge strengthens most of its 2007 findings by stating that:

a. the change may be due to natural internal processes, external forces, persistent anthropogenic changes in the composition of the atmosphere and/or changes in land use,

b. anthropogenic changes will continue for at least the next 100 years, regardless of reductions in greenhouse gas emissions,

c. local climate change outcomes are uncertain and difficult to specifically predict, and

d. an increased frequency, intensity, spatial extent or duration of weather and climate extremes (such as heat waves, heavy precipitation, drought and tropical cyclones) is virtually assured.
The two key aspects of climate change with an immediate or longer-term effect on the built environment characterised by the kind of medium and high density housing typically found in S&CT buildings are described as:

A. Medium and long term changes in temperature and rainfall that will alter general climatic conditions.
B. Weather and climate extremes that will cause disruption and damage to built environments.

As pointed out earlier, medium to long-term changes in temperature and rainfall (category A) will certainly have a considerable effect on any built environment, however, such developments require solutions at a generic level, i.e. general urban service infrastructure (energy and water) and general changes to building designs and materials. Works by academics and practitioners in connection with these broader urban issues have not been reviewed here, due to this study's particular focus on the urban sub-component that is subject to S&CT building ownership.

Of much greater pertinence are the effects of climate change under category B. In more detail, these are considered to either directly result from or be affected by the following key predictions (IPCC 2012, p. 119):

- "It is virtually certain that increases in the frequency and magnitude of warm daily temperature extremes and decreases in cold extremes will occur through the 21st century at the global scale.
- It is likely that the frequency of heavy precipitation and the proportion of total rainfall from heavy rainfalls will increase in the 21st century over many areas of the globe.
- It is very likely that mean sea level rise will contribute to upward trends in extreme coastal high water levels in the future.
- There is high confidence that changes in heat waves, glacial retreat, and/or permafrost degradation will affect high-mountain phenomena such as slope instabilities, mass movements and glacial lake outburst floods.
- There is medium confidence that droughts will intensify in the 21st century in some seasons and areas due to reduced precipitation and/or increased evapotranspiration."

Predictions of climate change effects for events influenced by highly variable local or regional determinants are subject to lower levels of confidence (IPCC 2012, p. 119):

- "There is generally low confidence in projection of changes in extreme winds because of the relatively few studies of projected extreme winds and shortcomings in the simulation of these events.
- There is low confidence in projections of changes in monsoons (rainfall and circulation) because there is little consensus in climate models regarding signs of future changes.
- Projected precipitation and temperature changes imply possible changes in floods, although overall there is low confidence in projections in fluvial floods”.

Not all these predictions represent bad news for a continent like Australia. Its regions that are currently temperate might benefit from milder winters and moderately warmer summer temperatures. Overall, however, as the Earth’s driest continent, Australia is
likely to experience significant negative effects from climate change. Unfortunately, most information provided in the SREX report (at pp. 260 - 261) is based on Hennessy (2007) who based most of his assessment on earlier predictions contained in the CSIRO (2007) report on climate change effects for Australia (pp. 9 - 12):

- Temperatures will rise by about 1 C across Australia – a little less in coastal areas, and a little more inland. Later in the century, warming will depend on the extent of greenhouse gas emissions. If emissions are low, warming of between 1 C and 2.5 C is likely by around 2070, with a best estimate of 1.8 C. Under a high emission scenario, the best estimate warming is 3.4 C, with a range of 2.2 C to 5 C.
- There will be changes in temperature extremes, with fewer frosts and a substantial increase in days over 35 C.
- Decreases in annual average rainfall are likely in southern Australia - rainfall is likely to decrease in southern areas during winter, in southern and eastern areas during spring, and along the west coast during autumn. For 2030, there will be little annual rainfall change in the far north.
- Rainfall projections for later in the century are more dependent on greenhouse gas emissions. Under a low emission scenario, the best estimate of rainfall decrease in 2070 is 7.5 per cent. Under a high emission scenario, the best estimate is a decrease of 10 per cent.
- Although there will be more dry days, when it does rain, rainfall will likely be more intense.
- Droughts are likely to become more frequent, particularly in the south-west.
- Evaporation rates are likely to increase, particularly in the north and east.
- High-fire-danger weather is likely to increase in the south-east.
- Tropical cyclones are likely to become more intense.
- Sea levels will continue to rise.

Most of these statements point to some convergent predictions for persistent changes at a regional scale and clearly indicate that some of these changes may signify positive as well as negative implications, depending on their location and their already known weather and climatic extremes.

Greater exposure to extreme weather and climatic events does not correlate directly with greater impacts. Increased knowledge and improvements to early (weather) warning systems have led to a reduction in the loss of life from weather and climate extremes. However, some commentators believe that this knowledge and these systems have not kept up with economic and social development, signifying there is increased exposure and risk of economic loss from weather and climate extremes in most societies and the extent of such losses is outstripping economic growth. Support for this claim is provided by the United Nations International Strategy for Disaster Reduction (UNISDR) 2011 report (at p. 33)\(^2\), which indicates that the risk of wealth loss in disasters associated with tropical cyclones is increasing faster than wealth itself accumulates in those areas.

Furthermore, IPCC 2012 (at p. 34) notes recent information indicating that more disasters are associated with lesser-scale physical phenomena that are not extreme in the physical sense, but result from increases in exposure and vulnerability. This

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\(^2\) see IPCC (2012).
highlights a need for an altered focus, with a need to redirect attention away from disaster management towards disaster risk management, with its focus on exposure and adaptation.

Analysing weather and climate extreme issues requires, according to IPCC (2012; pp. 33 - 34), identifying disaster risk, exposure, vulnerability, capacity, adaptive capacity, coping and resilience. Table 3, which is adapted from the IPCC (2012), provides an overview of weather and climatic trends and likely impacts on the built physical environment.
Table 3: Overview of weather and climatic trends and likely impacts on the physical environment

<table>
<thead>
<tr>
<th>Weather and Climate Variables</th>
<th>Observed Changes (since 1950)</th>
<th>Attribution of Observed Changes</th>
<th>Projected Changes (up to 2100) with Respect to Late 20th Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Very likely decrease in number of unusually cold days and nights at the global scale. Very likely increase in the number of unusually warm days and nights at the global scale. Medium confidence in increase in length or number of warm spells or heat waves in many but not all regions. Low or medium confidence in trends as temperature extremes in some subregions due either to lack of observation or varying signals subregions</td>
<td>Likely anthropogenic influence on trends in warm/cold days/nights at the global scale. No attribution of trends at a regional scale with a few exceptions.</td>
<td>Virtually certain decrease in frequency and magnitude of unusually cold days and nights at the global scale. Virtually certain increase in frequency and magnitude of unusually warm days and nights at the global scale. Very likely increase in length, frequency and/or intensity of warm spells or heat waves over most land areas.</td>
</tr>
<tr>
<td>Precipitation</td>
<td>Likely statistically significant increases in the number of heavy precipitation events [eg 95th percentile] in more regions than those with statistically significant decreases. But strong regional and subregional variations in the trends.</td>
<td>Medium confidence that anthropogenic influences have contributed to intensification of extreme precipitation at the global scale.</td>
<td>Likely increase in frequency of heavy precipitation events or increase in proportion of total rainfall from heavy falls over many areas of the globe. In particular in the high latitudes and tropical regions and in winter in the northern mid-latitudes.</td>
</tr>
<tr>
<td>Winds</td>
<td>Low confidence in trends due to insufficient evidence.</td>
<td>Low confidence in the causes due to insufficient evidence.</td>
<td>Low confidence in projections of extreme winds (with the exception of wind extremes associated with tropical cyclones).</td>
</tr>
</tbody>
</table>
Table 3 (cont’d): Overview of weather and climatic trends and likely impacts on the physical environment

<table>
<thead>
<tr>
<th>Phenomena Related to Weather and Climate Extremes</th>
<th>Observed Changes (since 1950)</th>
<th>Attribution of Observed Changes</th>
<th>Projected Changes (up to 2100) with Respect to Late 20th Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monsoons</td>
<td>Low confidence in trends due to insufficient evidence.</td>
<td>Low confidence due to insufficient evidence.</td>
<td>Low confidence in projected changes in monsoons because of insufficient agreement between climate models.</td>
</tr>
<tr>
<td>El Nino and other Modes of Variability</td>
<td>Medium confidence on past trends towards more frequent coastal equatorial Pacific El Nino Southern Oscillation (ENSO) events. Insufficient evidence for more specific statements on ENSO trends. Likely trends in Southern Annular Mode (SAM).</td>
<td>Likely anthropogenic influence on identified trends in SAM.3 Anthropogenic influence on trends in North Atlantic Oscillation (NAO) are about as likely as not. No attribution of changes in ENSO.</td>
<td>Low confidence in projections of changes in behaviour of ENSO and other models of variability because of insufficient agreement of model application.</td>
</tr>
</tbody>
</table>

1 Due to trends in stratospheric ozone concentrations
Table 3 (cont’d): Overview of weather and climatic trends and likely impacts on the physical environment

<table>
<thead>
<tr>
<th></th>
<th>Observed Changes (since 1950)</th>
<th>Attribution of Observed Changes</th>
<th>Projected Changes (up to 2100) with Respect to Late 20th Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropical Cyclones</td>
<td>Low confidence that any observed long-term (ie 40 years or more) increases in tropical cyclone activity are robust after accounting for past changes in observing capabilities.</td>
<td>Low confidence in attribution of any detectable changes in tropical cyclone activity to anthropogenic influences (due to uncertainties in historical tropical cyclone records) incomplete understanding of physical mechanisms and degree of tropical cyclone variability.</td>
<td>Likely decrease or no change in frequency of tropical cyclones. Likely increase in mean maximum wind speed, but possibly not in all basins. Likely increase in heavy rainfall associated with tropical cyclones.</td>
</tr>
<tr>
<td>Extratropical Cyclones</td>
<td>Likely poleward shift in extratropical cyclones. Low confidence in regional changes in intensity.</td>
<td>Medium confidence in an anthropogenic influence on poleward shift.</td>
<td>Likely impacts on regional cyclone activity but low confidence in detailed regional projections due to only partial representation of relevant processes in current models. Medium confidence in a reduction in the numbers of mid-latitude storms. Medium confidence in projected poleward shift of mid-latitude storm tracks.</td>
</tr>
</tbody>
</table>
Table 3 (cont’d): Overview of weather and climatic trends and likely impacts on the physical environment

<table>
<thead>
<tr>
<th>Impacts on Physical Environment</th>
<th>Observed Changes (since 1950)</th>
<th>Attribution of Observed Changes</th>
<th>Projected Changes (up to 2100) with Respect to Late 20th Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>Droughts</td>
<td>Medium confidence that some regions of the world have experienced more intense and longer droughts in particular in southern Europe and West Africa, but opposite trends also exist.</td>
<td>Medium confidence that anthropogenic influence has contributed to some observed changes in drought patterns. Low confidence in attribution of changes in drought at the level of single regions due to inconsistent or insufficient evidence.</td>
<td>Medium confidence in projected increase in duration and intensity of droughts in some regions of the world including southern Europe and Mediterranean region, central Europe, central North America, Central America and Mexico, northeast Brazil and southern Africa. Overall low confidence elsewhere because of insufficient agreement of projections.</td>
</tr>
<tr>
<td>Floods</td>
<td>Limited to medium evidence available to assess climate-driven observed changes in the magnitude and frequency of floods at regional scale. Furthermore, there is low agreement in this evidence and this overall low confidence at the global scale regarding event sign of these changes. High confidence in trend towards earlier occurrence of spring peak thaw flows in snowmelt and glacier fed rivers.</td>
<td>Low confidence that anthropogenic warming has affected the magnitude or frequency of floods at a global scale. Medium confidence to high confidence in anthropogenic influence on changes in some components of the water cycle (precipitation, snowmelt) affecting floods.</td>
<td>Low confidence in global projections of changes in flood magnitude and frequency because of insufficient evidence. Medium confidence (based on physical reasoning) that projected increases in heavy precipitation would contribute to rain-generated local flooding in some catchments or regions. Very likely earlier spring peak flows in snowmelts and glacier fed rivers.</td>
</tr>
</tbody>
</table>
### Table 3 (cont’d): Overview of weather and climatic trends and likely impacts on the physical environment

<table>
<thead>
<tr>
<th>Extreme Sea Level and Coastal Impacts</th>
<th>Observed Changes (since 1950)</th>
<th>Attribution of Observed Changes</th>
<th>Projected Changes (up to 2100) with Respect to Late 20th Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likely increase in extreme coastal high water worldwide related to increases in mean sea level in the late 20th century.</td>
<td>Likely anthropogenic influence on via mean seal level contributions.</td>
<td>Very likely that mean sea level rise will contribute to upwards trends in extreme coastal high water levels. High confidence that locations currently experiencing coastal erosion and inundation will continue to do so due to increasing seal level, in the absence of changes in other contributing factors.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Physical Impacts</th>
<th>Observed Changes (since 1950)</th>
<th>Attribution of Observed Changes</th>
<th>Projected Changes (up to 2100) with Respect to Late 20th Century</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low confidence in global trends in large landslides in some regions. Likely increased thawing of permafrost with likely resultant physical impacts.</td>
<td>Likely anthropogenic influence on thawing of permafrost. Low confidence of other anthropogenic influences because of insufficient evidence for trends in other physical impacts in cold regions.</td>
<td>High confidence that changes in heat waves, glacial retreat and/or permafrost degradation will affect high mountain phenomena such as slope instabilities, mass movements and glacial lake outburst floods. High confidence that changes in heavy precipitation will affect landslides in some regions. Low confidence in projected future changes in dust activity.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Table Adapted from p.119 IPCC (2012)
At a global scale, the potential impacts of climate change on built structures include the following (IPCC 2007c):

- Human casualties and injuries, including deaths from heat waves;
- Permanent or temporary displacement of people from their settlements;
- Social and economic hardship;
- Damage or destruction of buildings;
- Impacts on service infrastructure;
- Financial or economic loss (including insurance loss); and
- Impacts on psychological well-being and sense of security.

2.2 Building damage resulting from climate change

Climate change implications for Australian buildings have been the subject of several commentaries. An assessment published by the former Australian Department of the Environment and Water Resources (DEWR 2007) identifies (at p. 3) the following factors:

- increased energy consumption due to higher temperatures;
- health effects resulting from over-heating;
- increased risk of damage from more intense tropical cyclones and storms and stronger winds, and from increased cracking of drier soils and from increased ground movement impacting on foundations and pipe work;
- increased damage from flooding; and
- increased bushfire risk.

Leaving aside impacts on day to day building occupation from temperature changes, the DEWR (2007) report (at p.4) emphasises the risk of structural damage to buildings, especially damage resulting from strong winds associated with more intense tropical cyclones and storms. The report also notes that residential buildings are considered to be more vulnerable to such damage than commercial buildings, a finding that has been largely confirmed by the damage incurred in the wake of cyclone Yasi (CTS 2011). A lesser risk to the structure of buildings arises from possible increased cracking as soils become drier.

The risk of bushfires is expected to increase as the climate changes and this will provide a further risk to properties located in close proximity to bush and grass lands. It should be noted, however, that the likelihood of severe bushfire returning to a particular location within a few years is diminished due to the time needed for fuel loads to rebuild.

Flooding is also expected to become more frequent as the climate changes, signifying that the risk to buildings in flood prone areas will increase. Some of these predictions were realised with the 2010-11 floods in Queensland and Victoria. Of course, these predictions have limitations and there can be little certainty about regional impacts in any particular location and difficulty in attributing and weather event to climate change.

A more recent evaluation of the potential effects of climate change on a wide range of buildings was compiled by Snow and Prasad (2011) and adopted as Environmental Design Guidelines (EDG) 66. Table 4 provides a reproduction of the risk factors for buildings identified by Snow and Prasad who claim that ‘small increases in temperature above normal levels can increase hazards dramatically’.
Table 4: Climate Change Risk and Building Impacts

<table>
<thead>
<tr>
<th>Risk</th>
<th>Possible Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising temperature</td>
<td>Impact on external surfaces; thermal performance of building</td>
</tr>
<tr>
<td>More intense rainfall</td>
<td>Greater intensity of runoff; issues of structural integrity; drainage; opportunities for capturing rainfall</td>
</tr>
<tr>
<td>More frequent / intense cyclones</td>
<td>Greater strain on building material fixtures, claddings and fasteners; greater wind loading requirements</td>
</tr>
<tr>
<td>More frequent flooding</td>
<td>Sea level rise leading to coastal and inland flooding; more coastal salt spray; water damage to building contents; contamination from sewage, soil and mud; undermining of foundations</td>
</tr>
<tr>
<td>More fire events</td>
<td>Total or partial fire damage; smoke and water damage</td>
</tr>
<tr>
<td>More hail storms</td>
<td>Impact damage (mostly roofs, guttering, windows) and subsequent rain/moisture penetration</td>
</tr>
<tr>
<td>Increased humidity</td>
<td>Mould; condensation; decreased thermal performance of building</td>
</tr>
<tr>
<td>Decreased humidity</td>
<td>Higher risk of fire</td>
</tr>
</tbody>
</table>

Table drawn from EDG 66 (Snow and Prasad 2011, p.2)

In connection with the resilience of Australia’s current building stock, DEWR (2007, p. 4) concludes that:

- “New buildings are reasonably resilient to expected changes in average climate conditions, but may not be as resilient to changes in extreme weather events such as storms and flooding.
- Some recent changes to building codes and practices, while not designed to address the impacts of climate change, have increased the resilience of new buildings. For example, higher energy efficiency standards mean that buildings are better able to cope with more frequent hot spells.
- There is considerable scope to improve the resilience of new buildings, although further research may be required before specific measures can be formulated.”

With its second assessment report (SAR), the IPCC realized the inherent difficulties of developing short-term regional forecasts and started to extend its analyses to incorporate adaptation and interpretation of social and economic dimensions of climate change (IPCC 1996 a,b).

Disaster statistics for Australia can be obtained from the following Insurance Council of Australia website: www.insurancecouncil.com.au/statistics.
2.3 Adaptation to extreme weather and climate events for the built environment

As already indicated, the vulnerability of the built environment to extreme weather and climate events can be greatly affected by modifying resilience, coping and adaptive capacity. Most commentators focus on adaptation as a strategy to deal with climate change.

IPCC 2012 (p. 36) describes adaptation as ‘a process of adjustment to actual or expected climate and its effects in order to moderate harm or exploit beneficial opportunities’. In the natural world, such adjustment occurs gradually over time, in an evolutionary sense. In the context of social systems and built environments, however, such adaptation requires human intervention.

Additionally, disaster mitigation (both as part of, and separate to, adaptation) involves actions that attempt to limit further adverse conditions in preparation for, during and after a disaster. There is a risk of maladaptation (Snow and Prasad 2011, p. 3), however, when mitigation strategies for greenhouse gas emissions compromise adaptation efforts. Hacker et al. (2005) note that a possible side effect of enhanced building winter energy efficiency is a greater incidence of summer overheating due to increased insulation and diminished ventilation.

All of these approaches co-exist and involve multi-level relationships that require consideration of a broad range of perspectives, so that positive and negative impacts of changes to the built environment are extensively examined as well as the impact of electing not to adapt a structure.

IPCC (2007) defines four forms of adaptation that are confirmed in EDG 66 (Snow and Prasad, 2011) as follows:

“Anticipatory (proactive) adaptation: Adaptation that takes place before actual climate change impacts occur. Such adaptation is a pre-emptive measure to prevent or to minimise potential climate change impacts. It weighs up the vulnerability of natural and man-made systems as well as the costs and benefits of action versus inaction.

Planned adaptation: Adaptation that is the result of a deliberate policy decision, based on an awareness that conditions have changed or are about to change and that action is required to return to maintain or achieve a desired state.

Reactive adaptation: Adaptation that takes place after impacts of climate change: for instance when new building regulations follow a severe bushfire event.

Autonomous (spontaneous) adaptation: Adaptation that does not constitute a conscious response to climactic stimuli but is triggered by ecological changes in natural systems and by market welfare changes in human systems”.

This study is concerned with the first three forms of adaptation in the context of S&CT buildings.

It is notable that the Queensland Floods Commission of Inquiry (QFCI) (2012) includes recommendations (10.20 and 10.21) that concern imposing legislative requirements that would require the location of electricity supply equipment above defined flood
levels and the sealing of equipment below these levels. This has resulted in discussion papers for implementation (Queensland Department of Energy and Water Supply (DEWS) 2012) and constitutes an example of reactive adaptation. It is notable that this proposal does not apply the same requirements to existing buildings (DEWS 2012 at p. 9).

DEWR (2007, p. 5) presents a tabular representation of climatic changes and how buildings can be adapted in light of these changes. This table is reproduced as Table 5 below.
<table>
<thead>
<tr>
<th>Climate Change Impact</th>
<th>Residential Buildings</th>
<th>Commercial Buildings</th>
<th>Health and Lifestyle needs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INCREASED AVERAGE TEMPERATURES, MORE EXTREMELY HIGH TEMPERATURES, FEWER EXTREMELY LOW TEMPERATURES</strong></td>
<td>Passive solar design:</td>
<td>Passive solar design:</td>
<td>Passive solar design:</td>
</tr>
<tr>
<td>Most of Australia (all 13 sites), less warming in some coastal areas (eg Gold Coast, Perth) and Tasmania (Hobart), greater warming north-west (Darwin)</td>
<td>- Control solar gain</td>
<td>- Decrease lighting and equipment loads</td>
<td>- Minimise use of air-conditioning systems</td>
</tr>
<tr>
<td></td>
<td>- Provide adequate ventilation</td>
<td>- Upgrade air-conditioning system (passive solar design may eliminate need for any mechanised cooling system)</td>
<td>- Use of passive ventilation methods</td>
</tr>
<tr>
<td></td>
<td>- Provide adequate insulation</td>
<td>- Use of reflective glazing and external shading</td>
<td>- Use of passive ventilation methods</td>
</tr>
<tr>
<td></td>
<td>- Add thermal mass</td>
<td>- Increase insulation and add thermal mass</td>
<td>- Use of passive ventilation methods</td>
</tr>
<tr>
<td><strong>MORE SUMMER RAIN IN NORTH AND EAST, MORE AUTUMN RAIN INLAND, LESS RAIN IN SPRINGS AND WINTER</strong></td>
<td>- Rainwater collection and use</td>
<td>- Methods for decreasing potable water consumption (both internally and externally)</td>
<td>- On-site water storage</td>
</tr>
<tr>
<td>Most of Australia but southern areas have less rain in all seasons, and Hobart has increased winter rain.</td>
<td>- Methods to reduce water demand</td>
<td>- Installation of water sub-meters</td>
<td>- More indoor sports facilities</td>
</tr>
<tr>
<td></td>
<td>- On-site water reuse</td>
<td>- Minimise use of potable water based cooling systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Stormwater control</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MORE INTENSE CYCLONES, WIND SPEEDS AND STORMS</strong></td>
<td>- Upgrade fasteners in roof structures and in sub-floor</td>
<td>- Design for increased wind loadings</td>
<td>- Improved building moisture management methods</td>
</tr>
<tr>
<td>Wind speeds, extreme rainfall events and intense local storms generally increasing over the whole continent, potentially most marked in the north-east (all 13 sites, possible more so in Darwin, Cairns and Brisbane)</td>
<td>- Weather tightness and drainage detailing</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HUMIDITY</strong></td>
<td>None identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RADIATION</strong></td>
<td>As for temperatures</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FLOODING</strong></td>
<td>- Avoid flood-prone areas</td>
<td>- Improved land-use and site management</td>
<td>- Prevention of sewerage, soil and mud contamination</td>
</tr>
<tr>
<td>Greater chance of flooding events in areas where increased rainfall and storm events likely, potentially all sites affected with possibly more risk in Cairns, Brisbane and the Gold Coast</td>
<td>- Increase minimum floor levels</td>
<td>- Use of water-resistant construction materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Use of water-resistant construction materials</td>
<td>- Higher placement of vital equipment and supplies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Installation of vulnerable services as high as possible</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HAIL EVENTS</strong></td>
<td>- Use of impact-resistant roofing materials</td>
<td>- Protection of externally fitted services and fixtures</td>
<td>- Roofs well maintained</td>
</tr>
<tr>
<td>Decreased frequency of hail events in Melbourne</td>
<td>- Designing more appropriate window protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased frequency of hail events in Sydney</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BUSHFIRES</strong></td>
<td>- Use of fire-resistant building materials</td>
<td>- N/A</td>
<td>- Increase use of other forms of natural shading where vegetation is removed due to fire risk</td>
</tr>
<tr>
<td>Increases in bushfire frequency and intensity across all of Australia</td>
<td>- Installation of domestic sprinkler systems in high risk zones</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
EDG 66 (Snow and Prasad, 2011 pp. 5 - 8) also outlines some broad building adaptation approaches that can be taken to improve resiliency to increasing temperatures, coastal storm surges and inundation, flooding, tropical cyclones and storms, as well as hail events.

Interestingly, the effects of building age on adaptation were also considered in EDG 66 (Snow and Prasad p. 9). It was concluded that the earlier in a building’s life that adaptation occurs, the better, since it will be easier and cheaper and the longer the benefits deriving from the adaptation will be enjoyed (thereby improving the benefits and/or reducing the lifecycle costs).

A broader, web-based resource that provides a city-focused tool kit has been developed by the World Bank Group (2012). This website provides an outline of methodologies and tools concerned with climate change adaptation initiatives that can be applied in the urban context.

A particular focus of this study will be to consider the nature of climate change induced risks that will be confronted by S&CT buildings, to outline what adaptation strategies should be employed to reduce these risks and increase resilience and provide recommendations with respect to how the broad range of strata and community title stakeholders can collectively implement appropriate adaptation changes.

Finally, the distinction drawn by Mendelsohn (2000) between private and joint adaptation is worthy of consideration in the context of S&CT buildings. He draws three important distinctions.

Firstly, he distinguishes between private adaptation, which is undertaken only to benefit the actor making the decision, and joint adaptation, where there are many beneficiaries from the adaptation. Secondly, he distinguishes between efficient and inefficient adaptation, which depend on whether the cost of making an adaptation is less than the resulting benefits. Thirdly, he notes some adaptation is ex-post, whereby the change is undertaken after the climate has changed, and some adaptation is ex-ante, requiring an ability to anticipate and forecast climate changes.

Mendelsohn theorises that private adaptation will (almost) always occur because self interest will motivate most decision makers and that it will tend to be efficient as a result. He believes the only issues for private adaptation are the extent and efficiency of ex-ante private adaptation because of the difficulty of making climate predictions.

Conversely, he theorises that joint adaptation will not occur at all, or efficiently, because self-interest will not motivate joint decision making. Instead, he suggests that only government action will result in efficient joint adaptation.

Mendelsohn’s theories are relevant to S&CT building adaptation for climate change in a range of ways. Whilst it can be argued that S&CT buildings are making joint adaptation decisions (since there are many beneficiaries of the adaptation) the owner members of a S&CT building are also making such decisions in the interest of their direct benefit and, therefore, as private adaptation. So, the dynamics of both decisions, namely, self-interest, difficulties predicting impacts and the need for government action, are relevant. These issues were evident in the interview responses reported on below.
2.4 Compromised decision making nature of S&CT buildings

Given the growing importance of S&CT, it appears as surprising that there have been limited empirical studies directed to examining the nature of building decision making in a S&CT context. This is remarkable given the fact that such decision making is mostly susceptible to the vagaries of volunteer management, yet the total dollar value of the assets entrusted to such volunteers is considerable and can run into millions of dollars within a single scheme. Easthope and Randolph (2009; p. 244) comment:

“… given the increasing role higher density housing is playing in urban development, it is surprising that issues surrounding the governance of strata title, the predominant ownership and management form by which higher density housing is developed and owned in Australia, have received so little academic attention.”

The extent of influence exerted by volunteer S&CT building committees should not be underestimated. The influence of S&CT buildings governance is sufficient for some to claim that it should be viewed as a fourth tier of government, ie ranking hierarchically behind the federal, state and municipal government levels (Easthope and Randolph, 2009). While many might expect that the climate change phenomenon has begun to influence decisions taken at most levels of Australian government, the extent to which it has permeated decision making at this fourth tier of Australian government appears highly questionable, given data reported below.

At a somewhat general level of abstraction, commentators such as Lujanen (2010) have highlighted factors contributing to decision making difficulties in collectively owned apartment blocks. Such decision making difficulties include minimum quorum requirements, majority (or consensus requirements) and poor skills of the elected owners’ representative committee.

Some conference papers (Bugden, 2005; Gration 2009) have also outlined general building management and owner decision making challenges arising in S&CT buildings. Of particular interest is Coleman’s (2011) examination of legal impediments to the application of environmental sustainable practices in strata title complexes. Coleman concludes that legislation is deficient in terms of requiring developers and unit owners to raise the sustainability standards of ST buildings. It is also pertinent to consider the challenge that stems from the number of stakeholders involved in S&CT building decision making. Easthope, Randolph and Judd (2009, p. 60) comment:

“… with the best strata managing agent in the world, if the owners will not agree to his good recommendations, it is unlikely that major repairs or maintenance will be managed efficiently. Similarly, with the most dedicated and knowledgeable executive committee members, if the owners in the scheme cannot come to a majority agreement to provide sufficient funds, repairs and maintenance in the scheme will not be properly managed.”

Related to decision making in S&CT complexes and the capacity of S&CT buildings to pursue a path of building adaptation is the issue surrounding the challenge of funding such adaptation work. There has been some examination of S&CT buildings’ common property expenditure funding issues explored in conference papers prepared by Morton
Adapting strata and community title buildings for climate change

Adapting strata and community title buildings for climate change (2009) and Porter (2009), however these papers provide little insights with respect to how adaptation works could be best planned for and funded.

Some comments in relation to S&CT building decision making in connection with the pursuit of ‘green initiatives’, which received legislative enactment in the Australian Capital Territory and have been discussed as an option in Western Australia, are provided in Pacifici (2011).

The collective wisdom would appear to suggest that it will be very hard for owners in S&CT buildings to initiate a proposal to adapt common property infrastructure in preparation for climate change. The passage of such a proposal would likely be fraught with challenges, as the literature suggests that a mentality of seeking to minimise expenditures on common property tends to predominate in S&CT buildings.

Also, the City Futures (2012) survey of NSW committee members in S&CT buildings found 39% of respondents indicating they had experienced problems with decision making. It is particularly noteworthy that the issues that most frequently caused disagreements in the running of a scheme related to large expenditures, including major repairs, and that such disagreements can result in highly protracted decision making processes.

This likely resistance to change signifies that an important part of this study will be to locate and analyse the views of key strata and community title stakeholders with respect to the problematical dynamics of decision making and to identify any legal, structural and cultural impediments to the passage of a decision that would enable a strata titled community to better prepare itself for the challenges of climate change.

In addition, more general concepts of collective action, information asymmetry and bounded rationality are likely to also be at play in S&CT decision making on climate change and other issues. Collective action theory has slightly different formulations across social science areas such as psychology, sociology, political science and economics and traditionally covers any action aiming to improve the group’s conditions (such as status or power), which is enacted by a representative of the group. These notions have application to decisions made by owners (and others) in relation to S&CT buildings.

Similarly, the economics and contract based information asymmetry theories have relevancy to S&CT decisions because of the proliferation of situations where one party has more or better information than the other. This creates an imbalance of power in transactions which can sometimes cause the transactions to go awry, a kind of market failure in the worst case. Principal / agent information asymmetries will exist concerning climate change information, adaptation information, cost-benefit information and future benefit information that will give rise to misinforming.

Finally, theories of bounded rationality (the idea that in decision-making, the rationality of individuals is limited by the information they have, the cognitive limitations of their minds, and the finite amount of time they have to make a decision) will be present in S&CT decision making on climate change adaptation and other issues. So, because S&CT owners (and other decision-makers) lack the ability and resources to arrive at the optimal solution, they instead apply their rationality only after having greatly simplified the choices available. Thus the decision-maker is a satisficer (or one seeking a satisfactory solution, rather than the optimal one). So, rather than assuming that
people in S&CT buildings are completely rational, the bounded rationality principle recognises that perfectly rational decisions are often not feasible in practice because of the finite computational resources available to the people making such decisions.

2.5 Sinking funds as a source of funding S&CT building damage rectification

Funds raised from unit owners and accumulated by a S&CT buildings in readiness for planned common property capital expenditure are generally termed ‘sinking funds’ in Australia and ‘reserve funds’ in the USA. The term ‘sinking funds’ will be used here.

A small amount of literature exists about the workings of sinking funds. No papers concerned with drawing on sinking funds to finance unanticipated rectification work to common property that has suffered building damage has been found, however.

While not specifically directed at sinking funds, Easthope, Randolph and Judd (2009) undertook a survey that focused on the attitudes of NSW S&CT buildings unit owners and committee members towards the way major expenditures on repair and maintenance of common property are planned and managed. Only 35% of their sample felt that their S&CT buildings or strata manager had budgeted adequately for major capital works and only 33% felt their sinking funds were adequate to cover the major repairs and maintenance required in their S&CT buildings.

The different approaches taken to raising and managing sinking funds in S&CT buildings across Australia are reviewed in Antoniades (2010). This study also highlights inconsistencies and inadequacies relating to the content, planning and implementation requirements of sinking funds. An overview of the Australian legislative requirements with respect to sinking funds is provided in the next section.

Some conference papers (Arckoll 2007 and Allard 2009) have identified practical problems associated with planning for sinking fund contributions and the potential for a dislocation between plans, the raising of contributions, sinking fund related expenditures and the adequacy of capital works in S&CT buildings. Antoniades (2008) raises a concern over the effectiveness of NSW sinking fund planning requirements to actually ensure S&CT buildings raise sufficient sinking funds to cover needed common property capital expenditures.

As already noted, this study will need to explore the difference between drawing on sinking funds to fund the repair and replacement of existing structures and the potential of using such funds in more of a contingency manner to fund upgrades and/or new structures that represent a building adaptation undertaken in light of the threat of building damage caused by climate change. Such an extension of the purposes of sinking funds would affect planning and provisioning models. Similar considerations arise in connection with the possibility of drawing on sinking funds to cover emergencies resulting from extreme weather events or insurance policy shortfalls.

2.6 Role of insurance in managing climate related S&CT building damage risk

Most commentary on the role that insurance can play in managing S&CT buildings’ exposure to weather related risks has been prepared by individuals representing the insurance sector itself, or in connection with government enquiries (see the ensuing sub-section that describes findings emanating from the Australian Government House
It is notable that in EDG 66 (Snow and Prasad p. 4), the authors maintain that “A compelling case for building owners and designers to take climate change impacts seriously is the shift in approaches by the major building insurance companies from reactive risk to rational action” based on the comments in Munich RE (2010).

This study will need to focus closely on insurance issues, as insurance has been, and will continue to be, the primary source of protection for S&CT buildings against climate induced damage and loss. Insurance for S&CT building damage is compulsory throughout Australia (see Tables 9a and 9b in the next section). Such insurance covers most (but not all) weather related damage sustained by a building, and most building structures are covered by typical S&CT building insurance policies. This is despite the recent insurance crisis in North Qld that raised some urgent issues in connection with a rapid increase in the cost of purchasing insurance coverage.

One area that does not appear to be covered in the existing literature concerns the issue of what type of reparation work should be undertaken for an insured building that has suffered building damage. Should the reparation work include a component of adaptation work in order to improve a building’s resilience to climate change, i.e., rather than simply replacing like with like? The question of how an insurance policy could be drafted to include the option of undertaking adaptation work in connection with an insurance claim does not appear to have been examined in the literature. This suggests that such work will have to be funded by the unit owners within S&CT buildings.

2.7 Residential strata title insurance affordability: 2012 Government Enquiry

Following Cyclone Lua in WA, Cyclone Yasi in Qld and severe flooding in Vic, NSW and Qld, the Federal Government House of Representatives established an enquiry into the responsiveness of insurance to the effects of these natural disasters for residential property owners, and later, and of particular significance to the current study, residential strata title schemes in North Qld.

In February 2012, the Australia Government House of Representatives Standing Committee on Social Policy and Legal Affairs enquiry (AGHRSCSPLA) (2012-1) was published and in March 2012 the Standing Committee’s second report was published (AGHRSCSPLA) (2012-2). The AGHRSCSPLA (2012-2) report contained nine recommendations. In this section we identify the key findings and relevant recommendations. The enquiry conducted four public hearings and received 448 submissions. The nine recommendations emanating from the report are provided in Appendix A.

The AGHRSCSPLA (2012-2) report provided a review of other enquiries conducted in the insurance sector between 2001 and 2011 (at pp. 2 - 6). This review carried a particular focus on the pricing of risk.

As highlighted in Tables 9a and 9b, strata insurance coverage is mandatory throughout Australia and covers damage to most of the building structures in S&CT buildings that
results from most extreme weather events (but not always for flood). In Qld, where the enquiry was focused, the same principles apply.

In the five years immediately preceding the enquiry, insurance premiums for residential strata insurance increased very sharply. In some instances, the enquiry concluded that the insurance market had failed to cover strata scheme losses. AGHRSCSPLA (2012-2) reported instances of significant premium increases (exceeding 500% in some instances) (at p. vii) and the fact that these increases carried serious adverse implications for apartment owners. A table from the Insurance Council of Australia submission to the enquiry, reproduced from AGHRSCSPLA (2012-2, p. 25) is provided below as Table 6. This table documents the phenomenal increases in strata insurance in North Queensland occurring between 2010 and 2011.
Table 6: Comparison of North Queensland average strata insurance rates (2010-2011)

<table>
<thead>
<tr>
<th>City</th>
<th>Average Annual Premium ($)</th>
<th>Percentage Increase</th>
<th>Average Annual Premium Per Strata unit ($)</th>
<th>Percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cairns</td>
<td>18,310</td>
<td>98%</td>
<td>605</td>
<td>85%</td>
</tr>
<tr>
<td>Airlie Beach</td>
<td>22,068</td>
<td>180%</td>
<td>848</td>
<td>160%</td>
</tr>
<tr>
<td>Townsville</td>
<td>16,615</td>
<td>190%</td>
<td>1,007</td>
<td>110%</td>
</tr>
</tbody>
</table>

Source: ICA Submission 380, p. 5

The report notes that increased premiums have adversely affected “pensioners, retirees and other people on fixed incomes, who are most vulnerable to sharp increases in their cost of living” and discouraged “investors who are being driven away from investing in strata title schemes because of prospective negative returns and rapidly increasing outgoings” (AGHRSCSPLA 2012-2, p. 27).

It is also apparent that taxes applying to insurance premiums such as GST and stamp duty added to the burden of the increased premiums, with GST at 10% and stamp duty in Queensland at 7.5%.

The Insurance Council of Australia noted in its submission to the Standing Committee that premium and risk analysis undertaken by the insurance sector is based on five factors. These five factors are outlined in Table 7 which is reproduced from the AGHRSCSPLA (2012-2, p. 36) report.

Table 7: Insurance Council of Australia: typical building insurance premium stack

<table>
<thead>
<tr>
<th>Natural peril risk</th>
<th>Attritional claims</th>
<th>Reinsurance costs</th>
<th>Operating costs</th>
<th>Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>36%</td>
<td>30%</td>
<td>6%</td>
<td>26%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Source: Insurance Council of Australia Submission (AGHRSCSPLA (2012-2; pg 36))

The enquiry was not satisfied, however, that actual premium pricing for residential strata title insurance was being undertaken in a manner consistent with the claimed model. This position was taken in light of the withdrawal of insurers from the market (increasing the exposure of the remaining participants) and more frequent disasters which cause short term increases in loss exposures and higher re-insurance costs (AGHRSCSPLA 2012-2, pp. 339 - 340).

It was interesting to note that some submissions by insurers to the enquiry suggested that the premium increases were due to historical under-pricing (AGHRSCSPLA 2012-2, p. 46).

It was also notable that there was conflicting evidence provided to the enquiry with respect to the effect of increased excesses on premiums (AGHRSCSPLA 2012-2, pp. 75 - 76). Although the Insurance Council of Australia’s submission claimed that premiums were reduced as excesses increased, as set out in Table 8 below.
(AGHRSCSPLA 2012-2, p. 76), many S&CT building unit owner submissions did not reflect this pattern.

Table 8: A selection of various excess payments and their impact on typical strata premiums

<table>
<thead>
<tr>
<th>Excess Payment Type</th>
<th>No Excess</th>
<th>$200 Excess</th>
<th>$500 Excess</th>
<th>$1,000 Excess</th>
<th>$2,000 Excess</th>
<th>$5,000 Excess</th>
<th>$10,000 Excess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Premium Payable</td>
<td>$18,000</td>
<td>$17,820</td>
<td>$16,920</td>
<td>$16,380</td>
<td>$15,840</td>
<td>$14,940</td>
<td>$13,320</td>
</tr>
<tr>
<td>Annual Premium Payable per strata unit</td>
<td>$1,125</td>
<td>$1,113</td>
<td>$1,057</td>
<td>$1,021</td>
<td>-$990</td>
<td>$933</td>
<td>$832</td>
</tr>
<tr>
<td>Premium reduction due to excess payment</td>
<td>0%</td>
<td>-1%</td>
<td>-5%</td>
<td>-9%</td>
<td>-12%</td>
<td>-17%</td>
<td>-25%</td>
</tr>
<tr>
<td>Excess payment payable by each strata unit holder upon claim</td>
<td>0%</td>
<td>$12.50</td>
<td>$31.25</td>
<td>$62.50</td>
<td>$125.00</td>
<td>$312.50</td>
<td>$625.00</td>
</tr>
</tbody>
</table>

Source: Reproduced from ICA Submission 380, p 6

Example of impact on annual premium of selecting excess payments (varies depending on risk location and underwriting parameters). $5,000,000 is sum insured for a 16 unit residential strata property in Cairns. These levels of discount are not achievable by every insurer. It will vary depending on the underwriting model used.

Table 8 demonstrates that typical strata insurance premiums can vary from $18,000 per year with no excess payable on claims, to $13,320 if a $10,000 excess was applied. This signifies that premium reductions of up to 28% are possible by increasing the excess and strata owners were each contributing an average of $625 per claim at the highest identified excess level. In a similar fashion, the impact on premiums of excesses for cyclone damage from “named cyclones” was also examined in the report.

Claims concerning reduced competition resulting in increased insurance premiums and also insurance cover unavailability for some strata titled communities, led to a comparison to the Northern Territory’s state owned insurer: Territory Insurance Office. It was noted that this insurer was “able to deliver well-priced insurance product to the strata title market in the Northern Territory” (AGHRSCSPLA 2012-2, p. 58). The enquiry also considered extending the Australian Reinsurance Pool Corporation activities that relate to terrorism to residential strata title to provide adequate insurance cover.
The interposition of strata managers\textsuperscript{4} in arranging strata title insurance was also considered in the context of ensuring the best advice to strata titled communities, and also the provision of complete information and transparency. It was noted that commissions paid to strata managers is a further complicating issue (AGHRSCSPLA 2012-2, pp. 71-74).

The enquiry concluded that the way strata title insurance risk is assessed and priced, the availability of information about that risk assessment and the options for strata titled communities about insurance (coverage, excesses, premiums, etc) were inadequate and many of its recommendations focused on these issues.

The issues surrounding strata and community title insurance cover and the likely future changes (whether by market forces or government forces) is particularly important to this study, since insurance has been, and is likely to continue to be, the main risk management strategy adopted by strata titled communities to deal with the more severe effects of climate change and related extreme weather events.

\textsuperscript{4} Strata managers provide administrative services for S&CT buildings. Such services typically include facilitating committee meetings, record keeping, collection of levies, co-ordinating maintenance of common property, administering insurance, etc.
SECTION 3 — LEGISLATIVE CONTEXT

3.0 Introduction

This section of the report provides legislative context for the study. For a study concerned with the implications of climate change on S&CT building operations, it appears the most pertinent legislative provisions concern what actions S&CT buildings are required to take with respect to:

1. Insurance,
2. Major works, and
3. Sinking Funds.

As Australian strata and community title laws are state based, a complex array of different provisions apply to these three facets of strata and community title management. This section of the report overviews the breadth of these provisions by addressing each facet of management in turn.

3.1 Australian legislative provisions applying to insurance in S&CT buildings

All Australian states require S&CT buildings to effect building insurance. Table 9a provides a cross-state analysis of insurance provisions applying to S&CT buildings in the four jurisdictions with the highest number of S&CT complexes, ie., New South Wales (NSW), Victoria (Vic), Queensland (Qld) and Western Australia (WA). Provisions applying in the remaining jurisdictions, South Australia (SA), the Northern Territories (NT), the Australian Capital Territory (ACT) and Tasmania (Tas), are detailed in Table 9b.

3.1.1 Extent of building insurance

For all states and territories, S&CT buildings are required to take out insurance for all significant building structures. Policies have to cover for complete replacement, so that even in the case of total destruction as a result of a major natural disaster or fire incident, buildings can be completely rebuilt to their original size and functionality.

In most states (NSW, Vic, WA, SA, NT, ACT and Tas) insurance extends beyond the common property of a S&CT building, as it includes owners’ improvements and owners’ fixtures that form part of the building other than paint, wallpaper and temporary wall, floor and ceiling coverings, and any fixtures removable by a lessee or sub-lessee at the expiration of a tenancy. In Qld, insurance coverage extends to include common walls that are not part of common property.

3.1.2 Events covered by insurance

The types of event covered by insurance varies across the states and territories. Fire, lightning and explosions are covered in all states. Storms are covered in all states, but this cover is optional in NSW. Earthquake risks are covered in all states, but again this cover is optional in NSW. Riot and civil commotion, malicious damage, water damage and aircraft impact cover is only mandatory in Vic, Qld, NT, and the ACT, elsewhere inclusion of damages for these types of events is optional.

In SA the risks that must be covered are described as “all risks that a normally prudent person would insure against”, (section 30(4) of the Strata Titles Act (SA) 1985 and
section 104 of the *Community Titles Act* (SA) 1996), so there is less prescription and, as a result, arguably more insurance coverage as a wider range of risks and situations are contemplated. In Tas, the kind of risks covered depends on the requirements prescribed for each individual S&CT building.

No state or territory requires insurance for flood. However, in all states, S&CT buildings can insure for any other risk that they may wish to seek cover for and in many cases insurance policies cover more risks than the minimum required.

3.1.3 Extent of insurance cover

The extent of insurance cover also varies, because the formulae or components for the calculation of replacement values varies. In NSW, S&CT buildings need to be insured for the cost of rebuilding or replacement by a similar building, any expenses incurred in the removal of debris, the remuneration of architects and other persons whose services are required and this needs to allow for potential increases over 18 months. This amount needs to be estimated by a registered valuer or similarly qualified person at least every five years.

While other states require insurance to cover the cost of rebuilding or replacement by a similar building, this does not always extend to other associated costs such as debris removal, professional expenses, inflation, etc. For instance, WA, NT and Tas community schemes (a subset of S&CT buildings) only require building reconstruction and replacement. S&CT buildings in Vic, Qld, SA, ACT and Tas require debris removal and professional expenses to be covered, but no allowance is required to be made for inflation.

Although some exemptions from general S&CT insurance requirements are permitted in some states, these usually only apply to small S&CT buildings (2 lots or replacement values under $10,000), where there is no common property, or where all the lots are under single ownership. In many cases there are additional requirements for a unanimous resolution and/or a court or tribunal order in order for an insurance exemption to apply.

3.1.3 Replacing like with like or upgrades

All states and territories require that insurance covers the replacement of existing S&CT building structures with similar structures. No provisions exist to allow for upgrades that may or will improve the resilience of a building to future climate change effects.
Table 9a: Strata Title Mandated Insurance - NSW, Vic, Qld, WA (Pt. 1)

<table>
<thead>
<tr>
<th>Title Type</th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strata Titles Act 1988 (WA) (ST Act) and Strata Titles Regulations 2003 (ST Regs.)</td>
</tr>
<tr>
<td>Compulsory Insurance Required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>The building under a damages policy for at least the last valuation value (s.82 &amp; 83) (r.12)</td>
<td>The building under a damages policy for at least the last valuation value (s.39 &amp; 40) (r.16)</td>
<td>All buildings on common property for reinstatement or replacement (s.59, 61 &amp; 65)</td>
<td>Replacement value of any building and damage to property, death and bodily injury (s.53B, 53C &amp; 54)</td>
</tr>
<tr>
<td>Public Liability</td>
<td>($10m) (s.87)</td>
<td>($10m) (s.41)</td>
<td>($10m) (s.60)</td>
<td>($5m) (s.53D &amp; 54)</td>
</tr>
<tr>
<td>Managing Agent (note 1)</td>
<td></td>
<td></td>
<td>($10m) (r.187)</td>
<td>($5m) (s.53D &amp; 54)</td>
</tr>
<tr>
<td>Workers comp.</td>
<td>(s.87)</td>
<td>(s.41)</td>
<td></td>
<td>(s.55(1))</td>
</tr>
<tr>
<td>Prof'l Indemnity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 9a (cont’d): Strata Title Mandated Insurance - NSW, Vic, Qld, WA (Pt. 2)

<table>
<thead>
<tr>
<th>Insured Body</th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insured Body</td>
<td>Owners corporation (SSM Act)</td>
<td>Community, Precinct or Neighbourhood Association (CLM Act)</td>
<td>Owners corporation</td>
<td>Body Corporate</td>
</tr>
<tr>
<td>Insured Events</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>(s.82)</td>
<td>(s.39(1))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lightning</td>
<td>Optional</td>
<td>Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tempest/Storm</td>
<td>(s.82)</td>
<td>(s.39(1))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earthquake</td>
<td>Optional</td>
<td>Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosion</td>
<td>(s.82)</td>
<td>(s.39(1))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riot, Civil Commotion</td>
<td>Optional</td>
<td>Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malicious Damage</td>
<td>Optional</td>
<td>Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Damage</td>
<td>Optional</td>
<td>Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircraft Impact</td>
<td>Optional</td>
<td>Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compulsory Conditions Specified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of Replacement/Repair</td>
<td>(s.82(2))</td>
<td>(s.39(1))</td>
<td>(r.176)</td>
<td>(s.53)</td>
</tr>
<tr>
<td>Removing debris</td>
<td>(r.16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses</td>
<td>(s.59(1))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td>(s.59(1))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgagee Interests</td>
<td>(r.178(3))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgagee Notices</td>
<td>(s.53)</td>
<td>(s.53)</td>
<td>(s.53)</td>
<td></td>
</tr>
<tr>
<td>All Members Breach</td>
<td>(s.92)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9a (cont’d): Strata Title Mandated Insurance - NSW, Vic, Qld, WA (Pt. 3)

<table>
<thead>
<tr>
<th>Exemptions</th>
<th>NSW SSM Act</th>
<th>NSW CLM Act</th>
<th>Vic</th>
<th>Qld</th>
<th>WA</th>
<th>WA</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comprising of only two lots (s. 83(4))</td>
<td>Only to vary amount by application &amp; order (s.84)</td>
<td>No common property &amp; unanimous resolution (s.63)</td>
<td>Common property required to be insured under another provision (s.180(5))</td>
<td>If determined not to insure by strata company, individuals can insure for losses (s.53C(2))</td>
<td>No common property except cubic space without building or improvement or fence (s.53C(2))</td>
<td></td>
</tr>
<tr>
<td></td>
<td>By application &amp; order (s.86)</td>
<td>Insurance exists under another Owners Corporation (s.64)</td>
<td>Body Corporate is a subsidiary and insurance exists under another Body Corporate (s.179(6)) (r.186)</td>
<td>Building is scheme land and subject to a building management statement with existing insurance (s.179(7))</td>
<td></td>
<td>By resolution without dissent (s.53C(2))</td>
<td></td>
</tr>
</tbody>
</table>
Table 9b: Strata Title Mandated Insurance - SA, NT, ACT, Tas (Pt. 1)

<table>
<thead>
<tr>
<th>Title Type</th>
<th>SA</th>
<th>NT</th>
<th>ACT</th>
<th>Tas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strata Title (Single Tier Strata Schemes) Common Property</td>
<td>Community Title (Community Scheme)</td>
<td>Unit title</td>
<td>Unit title</td>
</tr>
<tr>
<td>Act</td>
<td>Strata Titles Act 1985 (SA)</td>
<td>Community Titles Act 1996 (SA) (CT Act) and Community Titles Regulations 2003 (CT Regs)</td>
<td>Unit Titles Act 1979 (NT) (UT Act) and Unit Titles Regulations</td>
<td>Unit Titles Management Act 2011 (UTM Act) and Unit Titles Regulation 2001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Unit Titles Schemes Act 2009 (NT) (UTS Act)</td>
<td>Strata Titles Act 1998 (Tas) and Strata Titles Insurance Regulations 2009</td>
</tr>
</tbody>
</table>

Compulsory Insurance Required

<table>
<thead>
<tr>
<th>Buildings</th>
<th>All buildings and building improvements to their replacement value (s.30)</th>
<th>All buildings and other improvements on common property to full cost of replacement (s.103)</th>
<th>All buildings and other improvements for their re-instatement value (s.53)</th>
<th>All buildings for their replacement value (s.100)</th>
<th>All buildings and improvements on common property and divided by the strata plan (s.99)</th>
<th>Insure property in accordance with requirements of the scheme (s.99(3))</th>
<th>Replacement value of any building and damage to property, death and bodily injury (s.53B, 53C &amp; 54)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Liability</td>
<td>($10m) (s.31) (r.9)</td>
<td>($10m) (s.54)</td>
<td>($10m) (s.102) (r.7)</td>
<td>($5m) (s.101) (r.3)</td>
<td>($5m) (s.101) (r.3)</td>
<td>($5m) (s.53D &amp; 54)</td>
<td>($5m) (s.53D &amp; 54)</td>
</tr>
<tr>
<td>Managing Agent (note 1)</td>
<td>(r.5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workers comp.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof'l Indemnity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insured Body</td>
<td>Strata Corporation</td>
<td>Community Corporation</td>
<td>Body Corporate</td>
<td>Body Corporate</td>
<td>Owners corporation</td>
<td>Body Corporate</td>
<td>Body Corporate</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>
### Table 9b (cont’d): Strata Title Mandated Insurance - SA, NT, ACT, Tas (Pt. 2)

<table>
<thead>
<tr>
<th>Insured Events</th>
<th>SA</th>
<th>SA</th>
<th>NT</th>
<th>NT</th>
<th>ACT</th>
<th>Tas</th>
<th>Tas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fire</strong></td>
<td>All risks that a normally prudent person would insure against (s.30(3))</td>
<td>All risks that a normally prudent person would insure against (s.104)</td>
<td></td>
<td></td>
<td></td>
<td>(s.99(2a))</td>
<td></td>
</tr>
<tr>
<td>Lightning</td>
<td>(s.80(1))</td>
<td>(s.53(1))</td>
<td>(s.100(1))</td>
<td></td>
<td></td>
<td></td>
<td>Insure property in accordance with requirements of the scheme (s.99(3))</td>
</tr>
<tr>
<td>Tempest/Storm</td>
<td></td>
<td></td>
<td>(s.99(2a))</td>
<td>(s.99(2a))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earthquake</td>
<td></td>
<td>(s.80(1))</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosion</td>
<td>(s.53(1))</td>
<td>(s.100(1))</td>
<td>(s.99(2a))</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riot, Civil Commotion</td>
<td>(s.99(2a))</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malicious Damage</td>
<td></td>
<td></td>
<td>(s.80(1))</td>
<td>(s.30(1) &amp; (2))</td>
<td>(s.103(2))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Damage</td>
<td>(s.53(1))</td>
<td>(s.100(2))</td>
<td>(s.99(2a))</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Aircraft Impact</td>
<td>(s.53(1))</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Compulsory Conditions Specified

<table>
<thead>
<tr>
<th>Cost of Replacement/ Repair</th>
<th>(s.30(1) &amp; (2))</th>
<th>(s.103(2))</th>
<th>(s.80(1))</th>
<th>(s.53(1))</th>
<th>(s.100(2))</th>
<th>(s.99(2a))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removing debris</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses</td>
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<td></td>
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<tr>
<td>Inflation</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgagee Interests</td>
<td>(s.84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgagee Notices</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Members Breach</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easements</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
### Table 9b (cont’d): Strata Title Mandated Insurance - SA, NT, ACT, Tas (Pt. 3)

<table>
<thead>
<tr>
<th>Exemptions</th>
<th>SA</th>
<th>SA</th>
<th>NT</th>
<th>NT</th>
<th>ACT</th>
<th>Tas</th>
<th>Tas</th>
</tr>
</thead>
<tbody>
<tr>
<td>All units held by one proprietor and no unit subject to contract for sale (s.29A)</td>
<td>No common property of estate development (s.80A(1))</td>
<td>No common property of estate development (s.53)</td>
<td>Replacement value less than $10,000 (s.101(1)) (r.6)</td>
<td>Unanimous resolution (s.80(3))</td>
<td>Detached buildings (s.101(2))</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes for Tables 9a and 9b

1. Insurance is required to be taken out by the strata manager, not the S&CT building.
2. This document is not legal advice and should not be relied upon other than as a guide illustrating these requirements.
3. This document is current as at 31 October 2012.
4. Blank sections signify that there is no relevant provision or requirement.
5. Sections marked ‘Optional’ signify that a strata corporation may effect insurance for those risks.
3.2 Australian legislative provisions applying to property repair and maintenance in S&CT buildings

All Australian states provide for S&CT buildings repairing and maintaining building structures and other property. Tables 10a and 10b provide a cross-state analysis of required major works provisions applying to S&CT buildings in the four major jurisdictions (NSW, Vic, Qld and WA) and the remaining States and Territories (SA, the NT, the ACT and Tas), respectively.

The following explains some of the information appearing in these tables.

3.2.1 Standard works to structures

The most common obligation is to repair and replace structures in order to keep them in ‘good and serviceable order’ (NSW, WA, QLD and Tas). Vic has a repair and replace mandate only, with no prescribed standard referred to.

In the other states and territories, varying obligations to maintain are imposed. These include:

- simply ‘maintaining’ (excluding painting) in the ACT;
- ‘maintain as appropriate’, for SA strata corporations (a subset of S&CT buildings);
- ‘maintain in good order and condition’ for SA community corporations and older NT unit title schemes (subsets of S&CT buildings);
- to manage the common property, for new NT unit title schemes (a subset of S&CT buildings).

In all jurisdictions, these obligations signify that S&CT buildings are effectively required to preserve structures and equipment to original standards, but no more. This serves to preserve the integrity and operational status quo of buildings but, over time, creates challenges for any additional measures or upgrades that could improve the performance or resilience of a S&CT building or any parts thereof.

3.2.2 Altering and adding to common property

Any alterations to building structures or the addition of new structures and equipment fall outside the regular maintenance functions of most S&CT buildings. Accordingly, particular provisions apply to property improvement decision making. Virtually all S&CT laws in Australia contain explicit provisions that require alterations and additions to S&CT building common property structures or equipment to be authorised by a special resolution which involves a three quarter majority vote of participating lot owners.

Additionally, virtually all states allow S&CT buildings to make by-laws authorising additions, alterations and new structures to be made or added to common property by the scheme and/or by lot owners. The passage of such by-laws also requires a special resolution.

The Northern Territory, has a higher voting threshold that requires a unanimous resolution (all lot owners voting in favour) to authorise alterations and upgrades in older unit title schemes, and newer unit title schemes must authorise alterations and upgrades by a resolution without dissent (no lot owner voting against).
Some states (NSW and NT) do not allow alterations to be made during the initial period (the time from the creation of the S&CT buildings to the time that the developer hands over control to lot owners).

Conversely, some states allow lower thresholds for alterations and upgrades in particular circumstances. In Vic, a S&CT building can make a significant alteration if the alteration is undertaken according to a maintenance plan or if it is required for safety or to prevent significant loss or damage. In the ACT, there is a provision that lowers the decision threshold to a simple majority vote for installing (or approving owners installing) sustainability infrastructure and utility infrastructure. Sustainability infrastructure includes things that improve the environmental sustainability or reduces environmental impacts of the S&CT building and the unit owners such as solar panels, clothes lines, rainwater tanks, etc. Utility infrastructure includes equipment necessary for, or related to, the provision of utility services.  

Since climate change adaptation work is likely to involve an upgrade to common property structures and/or involve new structures, these higher decision thresholds of either a special resolution, or sometimes a unanimous vote of lot owners, can be difficult to attain and places an additional impediment in the way of such improvements being achieved.

3.2.3 Funding upgrades and additions

If an alteration, addition or acquisition of new equipment is approved, then the source of funds for such work varies from state to state. In some states (NT and SA) there is only one fund, so all work must be paid from it. In other states, a separation of monies is made between administrative or recurrent expenditure funds and a sinking, maintenance, capital or special purpose fund. There is some variation, however, with respect to which fund should be used to pay for alterations, additions or new equipment amongst those funds.

Further, some special spending restrictions apply as follows:

1. In NSW large strata schemes (more than 100 residential lots) (a subset of S&CT buildings) must have 2 quotations for expenditures exceeding $30,000, and
2. In SA a unanimous resolution must be passed in order for a community corporation (a subset of S&CT buildings) to approve expenditure over $5,000 for any additional property.

---

5 “sustainability infrastructure”, installed in relation to a units plan—
(a) means infrastructure and equipment that—
   (i) improves the environmental sustainability of the units; or
   (ii) reduces the environmental impact of the owners corporation and the unit owners; and
(b) includes related utility service connections and equipment.

"utility infrastructure" means infrastructure and equipment necessary for, or related to, the provision of utility services.

* Dictionary to the Unit Titles Management Act 2011 (ACT)
### Table 10a: Strata Title Mandated Major Works - NSW, Vic, Qld, WA (Pt. 1)

<table>
<thead>
<tr>
<th>Title Type</th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title Type</strong></td>
<td>Strata</td>
<td>Community, Precinct, or Neighbourhood</td>
<td>Strata Subdivision</td>
<td>Community Title (Standard and Small Schemes Module)</td>
</tr>
<tr>
<td><strong>Common Property</strong></td>
<td>Must repair &amp; replace to keep in good and serviceable repair (s.62)</td>
<td>Must repair &amp; replace to keep in good and serviceable repair (s.4 &amp; 46)</td>
<td>Must repair &amp; replace to keep in good and serviceable repair (s.35(1))</td>
<td>Must repair &amp; replace to keep in good and serviceable repair (s.35(1))</td>
</tr>
<tr>
<td><strong>Other Property</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exemptions</strong></td>
<td>May exclude repair or replacement by special resolution (s.62(3))</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Upgrade Existing Structures</strong></td>
<td>Can alter common property by special resolution (s.65A)</td>
<td>Can alter common property by special resolution under by-law (s.54)</td>
<td>Can make a significant alteration by special resolution (s.53) or if it is under maintenance plan, or required for safety or to prevent significant loss or damage (s.52)</td>
<td>Can alter common property by special resolution under by-law (s.42)</td>
</tr>
<tr>
<td><strong>Add New Structures</strong></td>
<td>Can add to common property or erect new structure by special resolution (s.65A)</td>
<td>Can add to common property or erect new structure by special resolution under by-law (s.54)</td>
<td>Can add to common property or erect new structure by special resolution under by-law (s.54)</td>
<td>Can add to common property or erect new structure by special resolution (s.65A)</td>
</tr>
</tbody>
</table>
Table 10a: Strata Title Mandated Major Works - NSW, Vic, Qld, WA (Pt. 2)

<table>
<thead>
<tr>
<th>Funding Upgrade &amp; New Structures</th>
<th>NSW SSM Act</th>
<th>NSW CLM Act</th>
<th>Vic</th>
<th>Qld</th>
<th>WA</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of money</td>
<td>Sinking fund expenditure (s.75(2))</td>
<td>Administrative fund &amp; sinking fund (Sch.1.13)</td>
<td>Administrative fund &amp; maintenance fund (s.43)</td>
<td>Administrative fund &amp; reserve fund (s.36)</td>
<td>Administrative fund &amp; reserve fund (s.36)</td>
<td></td>
</tr>
<tr>
<td>Other limits</td>
<td>Large schemes (100 lots) must have 2 quotations for expenditure over $30,000 (s.80B)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Other Provisions</td>
<td>Can make by-law authorising upgrade or addition by special resolution (s.47)</td>
<td>Can make restricted property by-law authorising upgrade or addition by special resolution (s.54)</td>
<td>Can make by-law authorising upgrade or addition by special resolution (s.42)</td>
<td>Can make by-law authorising upgrade or addition by special resolution (s.42)</td>
<td>Can make by-law authorising upgrade or addition by special resolution (s.42)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No upgrades or changes to common property during initial period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title Type</td>
<td>SA</td>
<td>NT</td>
<td>ACT</td>
<td>Tas</td>
<td></td>
<td></td>
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<tr>
<td>------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Strata Title (Single Tier Strata Schemes) Common Property</td>
<td>Community Title (Community Scheme)</td>
<td>Unit title</td>
<td>Unit title</td>
<td>Strata</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Title Scheme</td>
<td>Unit title</td>
<td>Strata Titles Act 1998 (Tas) and Strata Titles Insurance Regulations 2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Act</td>
<td>Strata Titles Act 1985 (SA)</td>
<td>UT Act and Unit Titles Regulations</td>
<td>UTM Act and Unit Titles Regulation 2001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Must maintain as appropriate (s.25)</td>
<td>Must maintain in good order and condition (s.75)</td>
<td>Must maintain in good repair and renew (s.34)</td>
<td>Must manage the common property (s.27)</td>
<td>Subject to constituent documents, must repair &amp; replace to keep in good and serviceable repair (s.81(1))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Property</td>
<td>Must maintain in good repair and renew (s.34)</td>
<td>Must maintain in good repair and renew (s.34)</td>
<td>Must maintain in good repair and renew (s.34)</td>
<td>Must maintain (excluding painting) (s.24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Property</td>
<td>Must manage the body corporate assets (s.27)</td>
<td>Must manage the body corporate assets (s.27)</td>
<td>Must manage the body corporate assets (s.27)</td>
<td>Must maintain (s.24)</td>
<td></td>
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</tr>
<tr>
<td>Exemptions</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>May exclude repair or replacement by special resolution (s.25)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade Existing Structures</td>
<td>Can alter common property by varying articles by special resolution (s.19)</td>
<td>Can alter common property by special resolution (s.75(3))</td>
<td>Can alter common property by unanimous resolution (s.42)</td>
<td>Can alter common property by special resolution under by-law (s.90)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can alter common property by special resolution (s.75(3))</td>
<td>Can alter common property by resolution without dissent (s.28(3) &amp; s.35)</td>
<td>Can alter common property by special resolution - note reduced requirements for utility infrastructure in s.23</td>
<td>Can alter common property by special resolution under by-law (s.90)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can alter common property by special resolution (s.75(3))</td>
<td>Can alter common property by special resolution under by-law (s.90)</td>
<td>Can alter common property by special resolution under by-law (s.90)</td>
<td>Can alter common property by special resolution under by-law (s.90)</td>
<td>Can alter common property by special resolution under by-law (s.90)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add New Structures</td>
<td>SA</td>
<td>SA</td>
<td>NT</td>
<td>NT</td>
<td>ACT</td>
<td>Tas</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Add new structures by varying articles by special resolution (s.19)</td>
<td>Can add new structures by special resolution (s.75(3))</td>
<td>Can add new structures by unanimous resolution (s.42)</td>
<td>Can add to common property by resolution without dissent (s.28(3) &amp; s.35)</td>
<td>Can add to common property by special resolution - note reduced requirements for utility infrastructure in s.23</td>
<td>Can alter common property by special resolution under by-law (s.90)</td>
<td>Can alter common property by special resolution under by-law (s.90)</td>
</tr>
<tr>
<td>Funding Upgrade &amp; New Structures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source of money</td>
<td>Funds not separated (s.27)</td>
<td>Administrative fund &amp; reserve fund (s.116)</td>
<td>Funds not separated (s.36)</td>
<td>Funds not separated (s.39)</td>
<td>Administrative fund, sinking fund &amp; special purpose fund (s.73, s.81 &amp; s.74)</td>
<td>Recurrent &amp; capital expenditure funds (s.82)</td>
</tr>
<tr>
<td>Other limits</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Other Provisions</td>
<td>Can make by-law authorising upgrade or addition by special resolution (s.39)</td>
<td>No upgrades or changes to common property during initial period</td>
<td>No upgrades or changes to common property during initial period</td>
<td>Sustainability and utility infrastructure can be installed on common property by ordinary resolution (s.23)</td>
<td>Where a building is altered an amendment plan must be lodged (s.19A)</td>
<td>Where a building is altered an amendment plan must be lodged (s.19A)</td>
</tr>
<tr>
<td>Acquiring additional property requires special resolution if cost is up to $5,000 and unanimous resolution if cost is more than $5,000 (s.112 &amp; r.18)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 10b: Strata Title Mandated Major Works - SA, NT, ACT, Tas (Pt. 2)
3.3 Australian legislative provisions applying to sinking funds in S&CT buildings

In most Australian states and territories, a fund that is raised over an extended period to finance strata title scheme common property capital expenditure, prior to the expenditure occurring, is referred to as a ‘sinking fund’. Although some jurisdictions use the terms ‘reserve fund’ or ‘capital expenditure fund’, the term ‘sinking fund’ will be used here in a generic manner.

Not all Australian states require S&CT buildings to maintain a sinking fund. As for previous sections, Tables 11a and 11b provide a cross-state analysis of sinking fund provisions applying to S&CT buildings for the two groups of jurisdictions. There are no sinking fund requirements in the NT and they are optional in Tas, WA and SA and in smaller S&CT buildings in Vic and the ACT. In Vic, sinking funds are required for S&CT buildings of more than 100 lots or with annual levies exceeding $200,000 and in the ACT all S&CT buildings over 4 lots must have a sinking fund.

3.3.1 Sinking fund usage

Sinking funds do not operate in exactly the same way across all states. Whilst all sinking fund provisions require S&CT buildings to deposit sinking fund levies into a sinking fund, some states and territories also require the following additional revenues to be paid into a sinking fund:

- insurance payouts (NSW, Vic and Qld);
- transfers from administrative funds (ACT, SA community schemes) (a subset of S&CT buildings);
- interest earned on any sinking fund investments (NSW, Vic, and Qld), and
- miscellaneous (non-administrative fund) receipts (NSW).

Similarly, in some states, the permitted expenditures are also detailed. These cover things like painting, personal property replacement or acquisition, and common property repair or replacement (NSW, ACT, and Qld). The remaining states simply require expenditure to be for the purposes of the fund, or even fail to specify the nature of expenditures.

3.3.2 Sinking fund plans

Only three states and territories require S&CT buildings to prepare longer term capital works expenditure forecasts. Such expenditure forecasts are widely referred to as ‘sinking fund forecasts’. Although the legislation in some states does not specifically refer to a long term forecast, all states require S&CT buildings to prepare a one year capital expenditure budget for annual meetings and the preparation of this budget involves consideration of longer term capital expenditures (QLD is a case in point).

NSW and ACT require all S&CT buildings to prepare a 10 year plan of expected capital expenditure and this plan is to be presented at an AGM at least every 5 years. In the ACT, this plan must cover the expected sinking fund expenditure and must be approved. Once approved, all capital expenditures must be in accordance with the plan. In NSW, that plan must cover anticipated major expenditure, but it does not require approval and must simply be taken into account when setting sinking fund levies.
In Victoria a 10 year maintenance plan must be prepared by all S&CT buildings that are larger than 100 lots or raise annual levies in excess of $200,000 per annum. This maintenance plan must identify all major capital items, document their current condition and expected life, and identify estimated replacement costs. Other S&CT buildings can elect to prepare a maintenance plan. Once approved, a maintenance fund must be established that is consistent with the plan and expenditure must be in accordance with the plan, except for urgent matters or expenditures that have special resolution approval.

3.3.3 Exemptions from sinking fund provisions

Some states provide exemptions from the sinking fund requirement.

NSW allows 2 lot S&CT buildings with no attached buildings and no common property buildings to not maintain a sinking fund, should they so determine by way of a unanimous resolution.

WA allows S&CT buildings with 5 lots or less to unanimously resolve not to have a sinking fund (or administrative fund).
Table 11a: Strata Title Sinking Funds - NSW, Vic, Qld, WA (Pt. 1)

<table>
<thead>
<tr>
<th>Title Type</th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sinking Funds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required or Not</td>
<td>Yes (s.69)</td>
<td>Yes (Sch 1, cl 12(1))</td>
<td>Yes, if more than 100 lots, or annual fees exceed $200,000 or if scheme elects to prepare a maintenance plan (s.36, s.40 &amp; r.5)</td>
<td>Yes (r.146)</td>
</tr>
<tr>
<td>Details</td>
<td>Must pay in sinking fund levies, insurance payouts and money not allocated to administrative fund (s.70)</td>
<td>Must pay in sinking fund levies, insurance payouts (discretionary) and money not allocated to administrative fund (Sch 1, cl 12(3))</td>
<td>Must pay in maintenance fund fees, insurance payouts and interest (s.42)</td>
<td>Must pay in sinking fund levies, insurance payouts for destruction of major capital items and interest (r.146(3))</td>
</tr>
<tr>
<td>Permitted Expenditures</td>
<td>Painting, personal property replacement or acquisition, common property repair or replacement, other capital expenses (s.75(2))</td>
<td>Painting, personal property replacement or acquisition, association property repair or replacement, other capital expenses (Sch 1, cl 13(2))</td>
<td>As specified in the maintenance plan &amp; ordinary resolution (s.41 &amp; s.43)</td>
<td>Capital or non-recurrent replacements of major items and other reasonably connected items (r.148(1))</td>
</tr>
<tr>
<td>Fund Planning &amp; Budgeting</td>
<td>NSW SSM Act</td>
<td>NSW CLM Act</td>
<td>Vic</td>
<td>Qld</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Must prepare a 10 year plan of anticipated major expenditure at least every 5 years and take into account when setting sinking fund levies (s.75(4) &amp; s.75A).</td>
<td></td>
<td></td>
<td>No plan required, but, must annually estimate and budget amounts for painting, acquiring or replacing personal and common property and other capital expenses (sch 1, cl13(2)).</td>
<td>Must prepare a maintenance plan if more than 100 lots, annual fees exceeding $200,000. Maintenance plan must cover 10 years, identify major capital items for repair or replacement with current condition, expected life, when work needed and estimated cost. Must be approved. (s.36, s.37, s.38 &amp; r.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Provisions</th>
<th>2 lot schemes that do not have attached buildings or buildings in common property can avoid a sinking fund if passed by unanimous vote (s.69(2))</th>
<th>Transfers from sinking fund must be repaid within 3 months (Sch 1, cl 13(7))</th>
<th>Non planned payments can be made from maintenance fund by special resolution or urgent matters (s.45 &amp; s.46)</th>
<th>1 to 5 lot schemes can decide by unanimous resolution not to have administrative or sinking funds</th>
<th>1 to 5 lot schemes can decide by unanimous resolution not to have administrative or sinking funds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transfers from sinking fund must be repaid within 3 months (s.71(3))</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 11b: Strata Title Sinking Funds: SA, NT, ACT, Tas

<table>
<thead>
<tr>
<th>Title Type</th>
<th>SA</th>
<th>NT</th>
<th>ACT</th>
<th>Tas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strata Title</td>
<td>Community Title (Community Scheme)</td>
<td>Unit title</td>
<td>Unit</td>
</tr>
<tr>
<td>Act</td>
<td>Strata Titles Act 1985 (SA)</td>
<td>CT Act &amp; CT Regs.</td>
<td>UT Act and Unit Titles Regulations</td>
<td>Unit titles Act and Strata Titles Insurance Regulations 2001</td>
</tr>
<tr>
<td></td>
<td>Strata Titles Act 1985 (SA)</td>
<td>CT Act &amp; CT Regs.</td>
<td>UT Act and Unit Titles Regulations</td>
<td>Strata Titles Act 1998 (Tas) and Strata Titles Insurance Regulations 2009</td>
</tr>
</tbody>
</table>

#### Sinking Funds

<table>
<thead>
<tr>
<th>Required or Not</th>
<th>Optional to establish a reserve fund (s.27(1))</th>
<th>Yes (s.116)</th>
<th>No</th>
<th>Yes. A sinking fund if more than 4 units (s.81) and/or a special purpose fund (s.74)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details</td>
<td>If no reserve fund established then capital works are part of general fund</td>
<td>Must pay in sinking fund levies, asset sale proceeds &amp; transfers from administrative funds (s.116(4), 116(5) &amp; 117)</td>
<td>Not applicable</td>
<td>Must pay in determined levies (s.83)</td>
</tr>
<tr>
<td></td>
<td>For purposes of the reserve fund levies (s.27(2))</td>
<td>Non recurrent expenditure (s.116(2))</td>
<td>Not applicable</td>
<td>Must pay in determined levies (s.83)</td>
</tr>
<tr>
<td></td>
<td>For purposes of the reserve fund levies (s.27(2))</td>
<td>Non recurrent expenditure (s.116(2))</td>
<td>Not applicable</td>
<td>Must pay in determined levies (s.83)</td>
</tr>
<tr>
<td>Fund Planning &amp; Budgeting</td>
<td>No plan required. No specific budgeting required.</td>
<td>No plan required. No specific budgeting required.</td>
<td>No plan required. Must make regular estimates of required amounts (s.36(1)).</td>
<td>Must approve a 10 year plan of expected sinking fund expenditure at least every 5 years (s.82 &amp; s.85).</td>
</tr>
<tr>
<td></td>
<td>Must approve a 10 year plan of expected sinking fund expenditure at least every 5 years (s.82 &amp; s.85).</td>
<td>Must approve a 10 year plan of expected sinking fund expenditure at least every 5 years (s.82 &amp; s.85).</td>
<td>Must approve a 10 year plan of expected sinking fund expenditure at least every 5 years (s.82 &amp; s.85).</td>
<td>Must approve a 10 year plan of expected sinking fund expenditure at least every 5 years (s.82 &amp; s.85).</td>
</tr>
</tbody>
</table>

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SECTION 4 — INTERVIEW FINDINGS AND DEVELOPMENT OF RECOMMENDATIONS

4.0 Introduction

This part of the report is primarily concerned with documenting observations made during the study’s exploratory interview phase and also the development of recommendations that derive from the interview observations.

In this section of the report, initially an overview is provided of the research team’s formation of, and engagement with, an industry reference group. A description is then provided of the research method employed in connection with the study’s exploratory interview phase. This is followed by an overview of the exploratory interview findings.

4.1 Industry Reference Group

The empirical phase of the study commenced with the establishment of an industry reference group (IRG). As the research team has built an extensive base of contacts in the strata and community title sector, it was well-placed to develop a reference group comprising individuals who have extensive strata title experience. Selection of prospective IRG members was influenced by a desire to ensure representation of a broad range of strata title stakeholder perspectives. The composition of the IRG, that met on three occasions, was as follows:

- IRG member 1: prominent strata and community title legal specialist
- IRG member 2: quantity surveyor with extensive sinking fund consulting experience
- IRG member 3: senior figure in a company that provides sinking fund consulting services
- IRG member 4: senior figure in an insurance company that has developed a strata and community title insurance specialism
- IRG member 5: senior figure in an insurance company that has developed a strata and community title insurance specialism
- IRG member 6: planner who has held senior positions in the Planning Institute Australia
- IRG member 7: senior manager of a large strata and community title management company
- IRG member 8: senior official in the Australian Resident Managers Association
- IRG member 9: senior official in Strata Community Australia
- IRG member 10: representative of the Urban Development Industry Australia
- IRG member 11: senior representative of the Owners Corporation Network.

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Three members of the research team sit on the organising committee of the Strata and Community Title in Australia for the 21st Century conference organising committee. This conference has met biennially since 2005 and attracts in excess of 200 delegates that represent a broad range of strata title stakeholder perspectives. The nature of these research team members’ engagement with the sector is also evident from the fact that they have all provided several presentations at national and state based conferences hosted by organisations representing key strata title stakeholder groups.
The purpose of the first IRG meeting was to seek feedback concerning the appropriateness of the study’s focus and *modus operandi*. The main focus of the second IRG meeting was to validate the appropriateness of recommendations developed as a result of data collected during the exploratory interview phase. The primary focus of the third IRG meeting was to validate the appropriateness of recommendations that were distilled from suggestions provided in the study’s survey phase.

### 4.2 Interview Research Method

Consistent with the formation of the study’s IRG, selection of the sample of subjects to be interviewed was influenced by a desire to ensure representation of views that span the distinct perspectives of different strata and community title stakeholder groups. Two approaches were taken to developing a sample of 18 interviewees.

The sample’s selection was informed by prior research of the principal investigators, the contact base of research team members and further suggestions provided by members of the IRG.

Table 12 provides an overview of the interviewee sample with an identifying code for each interviewee provided in column one. This code will be referred to whenever an interviewee comment is cited. The table’s second column provides a brief description of the nature of each interviewee’s strata and community title background.

It is evident from the preceding section of the report that no closely related research has been found in the literature. This factor underscored the importance of applying a relatively unstructured data collection approach designed to enable the probing of issues of interest at the time the issues were raised by interviewees.

All of the interviews were fully transcribed. Thematic analysis of the collected data was undertaken by the same researcher who conducted the interviews and the two chief investigators. The analysis of the interview findings that is presented below has been structured in accordance with the results of the thematic analysis.

While considerable care was taken to approach the data analysis in an objective manner, it should be acknowledged that, like any research based on qualitative data, a researcher’s background is bound to introduce some biases in the way that themes in the collected data are determined and interpreted (Mertens, 2004).
Table 12: Role and background of interviewed strata and community title experts

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Nature of Interviewee’s Engagement with Strata Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Senior Manager with one of Australia’s largest strata and community title management companies that specialises in the establishment of large schemes.</td>
</tr>
<tr>
<td>B</td>
<td>Senior executive in a company that specialises in the provision of strata and community title insurance.</td>
</tr>
<tr>
<td>C</td>
<td>Executive member of the Sydney-based Owners Corporation Network that lobbies and provides advice for unit owners.</td>
</tr>
<tr>
<td>D</td>
<td>Business development manager of a large multi state strata and community title management company.</td>
</tr>
<tr>
<td>E</td>
<td>Senior academic with a research background in high density residential planning, urban design and strata and community title management issues.</td>
</tr>
<tr>
<td>F</td>
<td>Senior executive in a large building safety and compliance consulting company that specialises in S&amp;CT buildings.</td>
</tr>
<tr>
<td>G</td>
<td>Senior Manager in one of Australia’s largest franchised strata and community title management businesses.</td>
</tr>
<tr>
<td>H</td>
<td>Senior Manager in one of Australia’s leading sinking fund forecasting businesses.</td>
</tr>
<tr>
<td>I</td>
<td>Environmental building specialist working for the Urban Development Industry Association.</td>
</tr>
<tr>
<td>J</td>
<td>Senior officer in Strata Community Australia, the peak body for strata and community title stakeholders in Australia.</td>
</tr>
<tr>
<td>K</td>
<td>Senior executive in a specialist strata law firm and former senior manager in a publicly listed strata and community title management company.</td>
</tr>
<tr>
<td>L</td>
<td>Senior executive in a strata and community title insurance specialist company.</td>
</tr>
<tr>
<td>M</td>
<td>Senior executive of a company that specialises in lending to S&amp;CT buildings.</td>
</tr>
<tr>
<td>N</td>
<td>Executive member of the Sydney-based Owners Corporation Network that lobbies and provides advice for unit owners.</td>
</tr>
<tr>
<td>O</td>
<td>Senior manager in the Sydney-based Owners Corporation Network that lobbies and provides advice for unit owners.</td>
</tr>
<tr>
<td>P</td>
<td>General Manager of the Australian Resident Accommodation Managers Association, the peak body for on-site managers in Australian S&amp;CT buildings.</td>
</tr>
<tr>
<td>Q</td>
<td>Owner, resident and committee member of a Queensland S&amp;CT building.</td>
</tr>
<tr>
<td>R</td>
<td>Research Manager and former specialist strata lawyer working across Australia for S&amp;CT buildings and strata and community title stakeholders.</td>
</tr>
</tbody>
</table>
4.3 Interview Observations

Commentary concerning the interview observations has been structured according to the following sub-headings:

- Owner awareness of weather damage risks
- Information availability to key decision makers
- S&CT building decision-making
- Funding S&CT building adaptation work
- Weather event emergency management
- Insurance as risk management

4.3.1 Owner awareness of weather damage risks

It was noted that owner awareness of S&CT building matters in general was widely perceived by the interviewees to be low. Interviewee C felt that people involved in S&CT buildings had little understanding or awareness of what she described as the “strata beast” saying that:

“most owners don’t get involved, they don’t understand what’s in their buildings”.

Consistent with this perspective, this interviewee felt that information and education was critical to increasing general and specific awareness of strata and community title issues. She commented on how she focused substantial efforts on educating owners and committees, as well as managers, regulators and suppliers to S&CT buildings.

Interviewee E distinguished between S&CT building owners’ (and others) awareness of issues versus having an appropriate focus on issues. He felt that in many cases unit owners know about issues, however, they are often not motivated to find out more or do something about an issue. He asserted:

“I think in both cases, you really need an ‘in your face’ public campaign to get to those people”.

Having readily accessible information about climate change impacts and what adaptation works could be undertaken by S&CT buildings was identified as a key factor in generating awareness. Interviewee E commented:

“I think that what strata schemes need is some assistance in identifying what could be done, how much that would cost and what the payback period would be, and perhaps what some of the other benefits would be of doing that.”

These comments led the research team to conclude that web-based technology should be drawn on as a powerful medium to disseminate information to unit owners. This form of information delivery has a permanent accessibility quality that is not evident in printed materials. This ‘permanent accessibility’ factor is believed to be important as the stock of people living in S&CT buildings is constantly changing as new owners and residents move in and out. The interviewees’ comments provided above support a widely-held view that S&CT building residents generally have a minimal appreciation of important issues affecting them and their building and often they do not know where to find information. Being able to gain ready access to relevant information and resources, that are kept up to date, could greatly facilitate unit owner understanding of issues, and in particular, what climate change adaptation initiatives can be adopted in a
strata and community title context. The interviewees also commented on the considerable challenge associated with convincing S&CT buildings to expend on enhanced infrastructure, even when a very strong case has been prepared by a building expert. It appears a range of approaches need to be employed to counter a widespread and pervasive “expenditure minimisation” culture held by lot owners in S&CT buildings and one potential approach is to educate via well designed web sites.

**Government Recommendation 1:** Establish and maintain a website and related social media outlets that provide a persuasive and authoritative rationale concerning the need for strata title complexes to invest in greater building climate change resilience.

It should be acknowledged, however, that any education campaign should be approached with the long-term in mind. Over the longer-term, one benefit of a well-designed education campaign is that it can affect not just those owners who directly engage with the campaign by visiting the website. The capacity of web sites to generate more informed word of mouth communication should not be under-estimated, particularly given the web site would be starting to inform from a relatively low base of strata title knowledge. Interviewee D commented:

“I think like most things it will be a very slow process of education of owners and I think that the government has an obligation to incentivise, legislate and try and promote people to be a bit more forward thinking with that type of evolution of their mindset and we need to encourage and foster those champions in the buildings to be able to take on the mentor and get the support that they need and at the moment the legislation does it in part but I think it could be stronger”.

Another way to promote owner awareness of weather damage risk is to capitalise on the initial purchase of a unit as an opportunity to raise owner awareness of climate change and its impacts on S&CT buildings. The purchase of a unit would appear to represent a time when owners are highly receptive to information about their new investment. When developers sell apartments in S&CT buildings they usually provide new owners with a range of information about their apartment and the complex. Much of this may be operational information, however there is no reason why this cannot be broadened to include climate change matters. Since new owners have paid significant amounts for their apartments and are reliant on key information provided by a developer, this may be a powerful way to promote owners thinking about climate change matters.

**Developer Recommendation 1:** Developers should be provided with information and kits about climate change and its impacts on and adaptation strategies for strata titled complexes and be required to provide this information to buyers of units in new strata title complexes.

### 4.3.2 Information availability to key decision makers

In the conventional S&CT building context, those who make upgrade and maintenance related decisions for an existing building are generally committees, owners or strata and resident managers with delegated authority. It is therefore notable that Interviewee
F felt that there is an increasing incidence of higher level, all inclusive, maintenance contracts that relate to particular elements of a S&CT building’s infrastructure (eg, lifts, fire services, etc). These contracts typically provide for replacement with the latest equipment, effectively signifying unfettered access to upgrades of recently constructed complexes. This type of contractual arrangement is remarkable in the strata and community title context, as it moves infrastructure related decision making outside the conventional decision making process involving committees, strata managers, resident managers and owners.

Interviewee R saw a parallel between building adaptation decisions and decision-making challenges currently faced in many S&CT buildings as a result of changing building standards. He noted that as building standards are raised, owners in existing S&CT buildings find themselves needing to invest in upgrades. Good examples of such upgrades include the installation of safety glass and the achievement of minimum balustrade height thresholds. The conditioning of strata and community title stakeholder groups to the need to upgrade S&CT buildings in line with increasing building standards highlights the potential of a government using building standard codes as a vehicle for requiring climate change building adaptation works.

Several interviewee comments highlighted the key role that resident managers play in influencing capital works decision making. Resident managers are appointed to assist S&CT buildings manage the day to day operation of their buildings and therefore play an important role in identifying physical issues warranting attention and proposing specific changes in a building’s infrastructure. Resident managers are strongly placed to influence such matters as, not only do they have high levels of knowledge and understanding of building structure and condition, in addition they frequently live in the building that they manage, signifying that they are highly visible to unit owners and residents. If a resident manager fails to develop an understanding of climate change, the resident manager will not be alert to the potential impact that climate change can have on S&CT buildings and the opportunity to capitalise on his significant position within a S&CT building will be squandered. This rationale underscores the importance of resident managers having easy access to information and training with respect to climate change.

**Resident Manager Recommendation:** Provide information and training modules for resident managers about climate change and its impacts on and adaptation strategies for strata title complexes.

An issue that some interviewees saw as impeding the undertaking of appropriate climate change building adaptation work was the high cost of investigating, reporting and designing adaptation strategies tailored to a particular building. Interviewee D drew on the analogy of the Sydney Green Apartments pilot programme that was developed by the City of Sydney for 50 S&CT buildings in order to showcase possible environmental sustainability programmes. Interviewee D noted that the cost of designing such a programme would generally be prohibitively expensive for any one building. Once the adaptation ideas had been funded by government, however, these ideas could be adopted, maybe with some adjustments for local circumstances by any strata building. This idea of show-casing S&CT building adaptation works was evident in some of the comments provided by respondents to the survey that is described in
this report’s next section. These comments have resulted in the distillation of a further recommendation that will be described in the next section.

4.3.3 S&CT building decision-making

A number of interviewees felt strongly that a short-term thinking philosophy predominates amongst S&CT building owners. This results in owners being resistant to spending money today in order to save money in the future.

Some interviewees felt that even if owners were to have a stronger appreciation of the high return on investment that would accrue from a particular expenditure made today, they would still likely be resistant to supporting the expenditure. This appears to be partially attributable to the fact that some owners will be planning to sell their unit in the short term. Interviewee D provided this observation:

“It’s difficult to get owners who typically have a very transient view of their property, as in I want to do as little as possible at the moment to retain whatever value I can to be able to sell, therefore it’s difficult to actually make them forward think”.

Interviewee L provided comments supportive of this challenge surrounding a short-term outlook, however he also noted the potential for there to be a clash of time frames affecting the thinking of different owners:

“You know with any building, given the residents or the owners at the time and given also the committee at the time being of making decisions, they’ve all got different time horizons, they’ve all got different objectives with this common asset that they share, and for those that have got short term horizons, they’re not really interested in doing a lot of capital expenditure, green or otherwise and those who are in the long term, they can be quite motivated towards it.”

While this comment highlights the potential for different time horizons amongst owners affecting S&CT buildings decision making, evidence uncovered in the interviews suggests a strong propensity for a short-termist philosophy to pervade significant parts of S&CT buildings. This is a noteworthy issue as such short termism represents a significant impediment to initiatives designed to promote unit owner investment in climate change building adaptation. Interviewee M commented:

“If you ask the question, do you think it’s a good idea that we prepare ourselves for climate change? I’m sure a large number of Australian’s will say yes, what a wonderful thing. If you ask that of people in a strata building, is it a good idea to prepare ourselves for climate change? Yes what a wonderful idea. Should we do X, Y, and Z, oh that sounds pretty good, now put your hands in your pocket and pay for it. No”.

Several interviewees spoke about the need for advocates to champion initiatives in those S&CT buildings requiring a significant capital outlay on common property. Interviewee F added:

“We found that you really need someone who is an advocate, who is passionate about it and they can influence the people on the board”.

There was a lack of consensus, however with respect to who might serve best in this champion role. Interviewee C felt strongly that strata managers would not be strong champions. She felt that too frequently they failed to understand their own business model, and that they had insufficient resources to devote to managing S&CT buildings
which results in them trying to provide a one-stop shop solution for all strata title issues. She commented:

“Well you know there’s this thing of doing something is better than nothing, but they’re not putting any, they don’t have the bandwidth to do any of this stuff. When have they got the time to do it?”.

This somewhat disparaging view of managers received some support from the following comments provided by Interviewee K:

“They’re not exercising leadership in this area, converse – sorry, worse than not exercising leadership, they’re afraid of it. They’re afraid of it being additional work for no additional fee and I think they’re also afraid of the politics of it within a strata, where they’re meant to serve the whole and may fall out with some because they choose to back a particular proposition”.

In addition, Interviewee R commented that strata managers:

“tend to have a mindset of looking for the simplest and cheapest and most routine solution to any problem”.

These comments suggest a need to strengthen a strata manager’s skill set, particularly when it is recognised that a strata manager is placed in a strong position to influence owner committee decision making. A strata manager is generally viewed as facilitating a S&CT building committee’s decision making. Other roles assumed by a strata manager include facilitating committee planning, budgeting and forward financial planning as well as organising insurance. As strata managers have a potential to influence decision making across their entire client base, it appears appropriate to direct resources to raising strata managers’ awareness of climate change and also what building adaptation steps can be taken in light of climate change. This rationale motivated the formulation of the following recommendation.

Strata Manager Recommendation 1: Provide information and training modules for strata managers about climate change and its impacts on, and adaptation strategies for, strata title complexes.

Although some interviewees expressed negative views with respect to the notion of strata managers acting as champions in S&CT building decision making, others saw the strata manager’s role as placing the strata manager in a strong position to act as a climate change champion. It appears many owners view strata managers as ‘the strata titled property management expert’, which is certainly the case for smaller S&CT buildings of up to a dozen lots with an economic scale of operations that prevents the appointment of a resident manager. This would appear to place the strata manager in a strong position to champion particular causes in S&CT buildings, particularly as strata managers are generally contracted to S&CT buildings for an extended period of time. This rationale resulted in the formulation of the following recommendation.

Strata Manager Recommendation 2: Strata managers should be encouraged to become champions of climate change awareness and adaptation for strata and community title complexes.
It should nevertheless be noted that Interviewee D, who was an experienced strata manager, commented on the constrained power of strata managers to lead S&CT building committee decision making. He provided this view:

“Can the Strata manager be a champion on their own? I’d suggest we can direct but we can’t be the champion and nor should it fall on us to be the champion because it’s – I’m always happy to provide options for owners about going down certain paths and giving them all the information they can or the assistance they can but ultimately either if they do or don’t go with a certain option – is out of my control completely”.

Interviewee E described the need for champions of initiatives by saying:

“Look, if you really want to get something done over and above the bare minimum in a strata scheme, then what you need is you need someone who is dynamic and who can present the case at the annual general meeting. And there, in the scheme she was talking about, and in many other schemes, there’s not necessarily someone who has both the motivation and the skills to do that”.

It should also be recognised that the power of a champion will likely be blunted by the problem of apathy that is evident in many S&CT buildings. Many owners take little interest in the affairs of their building and rarely attend meetings. Interviewee E noted:

“In nine years we’ve had one AGM where we’ve had a quorum .... In the six years or so that I, seven years I think, I was chairman, I had one email, one comment from an owner, and he was a fellow who was a body corporate manager, onsite manager just quite locally who had an investment unit here, and he was the only person who contacted me and with very intelligent questions”.

This suggests that in some S&CT buildings champions may struggle to get heard, regardless of the quality and extent of their efforts and the value of their information.

One could take the view that committees represent the elected champions of S&CT buildings, however several interviewee comments highlighted the shortcomings of committees and their capacity to direct S&CT buildings in an appropriate manner. Interviewee A commented:

“The same inherent problem that we’re having with other management issues of these committees or boards is that just because you bought a unit and you’re still alive, why is that the only qualification of someone to go onto a committee?”.

In a similar vein, Interviewee L added:

“It’s a bit like the levels of competence, it’s the committees are on this, unconscious incompetents, they don’t know what they don’t know and we just wanted to get them less consciously incompetent.”

Aside from the concern over the competency of committee members, concern was also expressed with respect to whether committee members act altruistically. Interviewee M commented:

“So there might be a champion as a person or a champion as a ginger group, but it doesn’t happen because of an upwelling of fellow community feeling amongst owners specifically or people in general that they should do good things.”
It was apparent from these and other comments that many interviewees felt that the committee based decision making process of S&CT buildings resulted in near impossible odds to get S&CT buildings to do something that is not mandatory or critical, without having one or more champions of the project in the S&CT buildings. Whether a project relates to making a cosmetic upgrade, making improvements to save energy or adapting a building to better handle climate change, someone needs to organise and prepare the necessary actions, advocate for decisions with owners and at meetings, and follow up on implementation. This suggests that finding, encouraging, recognising and rewarding champions in S&CT buildings for climate change adaptation is a necessary precursor to adaptation. A champion could be an owner, resident, committee member or manager.

**Committee Recommendation:** Create climate change adaptation awareness champions within and outside strata title complexes.

This recommendation could be facilitated through training workshops provided by an organisation such as ‘Green Strata’.

Interviewee K felt that environmental initiatives would be hard for champions to achieve unless there is a financial incentive. He commented:

“They’re quite passionate about environmental issues, which is why there’s the drive for them to be the leader within their community about a particular issue. Unless they then go about harnessing support of key people and running a good campaign, they do well and generally speaking they’ll do well only where they’ve got an economic argument to run.”

However, even the best champions can fail or abandon their work because of negative targeting by owners who oppose the initiative, the people involved or the expense. Interviewee D claimed:

“Unfortunately the champions in a lot of buildings do get targeted because they’re the ones who are a little bit louder, they want to put their position forward, and they get more passionate about it which means in Strata, they make themselves an easier target”.

This comment highlights the importance of the inter-owner relations dynamic, which was also in particular evidence in the following comment provided by Interviewee A:

“The fear that people have is that they’re sitting in a lift going down to the ground floor and there’s an offended lot owner there and says, you’re the one that voted yes to us to have this $20,000 expense that I’m still trying to work out how I’m paying my mortgage, now you’ve just added another $1,000 onto my levies a year. Explain yourself because I’m going to stop this lift and I’m going to give you the eyeball”.

Another decision-making factor identified by interviewees concerns the resolution threshold required to pass a decision to upgrade some aspect of S&CT buildings. Such a decision typically require a special (75% support) or unanimous resolutions. Interviewee F explained that;

“To the extent it’s an upgrade or it’s an improvement of the building, it needs a higher level of resolution, so straight away it’s harder to do than day to day repair and
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I have a situation that just happened recently in a building that I own, and it was an upgrade of the pool, but we wanted to change the shape of the deck which was going to save about $30,000 in construction. If we replaced the deck, which needed replacing and kept the existing shape, we didn't need a special resolution to get it through. So, because we had people resisting, it actually cost them $30,000 more to build the deck the way it was, but if we changed the shape, they would have voted it down; just amazing”. As noted in the preceding section, S&CT buildings are required to repair and maintain common property. As just noted, however, upgrading common property is a very different matter. A motion to upgrade common property will not pass unless it has the support of more than a majority of owners. This represents a barrier to climate change adaptation, as it allows 26% of owners (or less when there are lower meeting quorums) to prevent a proposed climate change adaptation project being approved. Reducing the decision threshold for climate change adaptation work would make it easier to approve such work and therefore increase the likelihood of the work occurring.

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A precedent for making this type of provision can be found in the ACT legislation which contains special provisions designed to facilitate environmental upgrades. Commenting on the ACT, Interviewee K noted:

“(The ACT) has come up with a unique way of addressing this where provisions in relation to sustainability and the environment can be coupled together and labelled as such to the purpose of an owners corporation meeting and the threshold for any such proposition to get up is then just an ordinary resolution so that’s cutting through other restrictions about special resolutions and resolutions without descent, that might otherwise block such a proposal”.

The following recommendation has been formulated in a manner consistent with this rationale.

**Government Recommendation 2**: To make it easier for body corporates to pass a decision to invest in climate change related property upgrades, reduce the threshold vote required for such decisions from the current unanimous or special resolution (three quarter majority) to a simple majority decision.

Interviewee Q had direct experience of the Brisbane floods in 2010. He expressed the view that obvious weather related exposure for S&CT building infrastructure should be avoided by better placement of that equipment:

“It almost should become mandatory that in any future development, particularly whether it has any possible potential of flooding, much more consideration should be given to the placement of all electrical service controls well above the potential reach of even a catastrophic flood.”

These comments point to the fundamental importance of decisions taken by developers. Decisions taken by a developer have a long lasting impact that live for the entirety of a S&CT building’s life. Given the onset of climate change, it appears to be of paramount importance that new buildings are constructed to higher standards in a manner designed to promote climate change resilience. It is much cheaper to engineer heightened building standards during the construction phase of a building than by
conducting retrofit construction following a building’s initial construction phase. The importance of ‘getting it right first time’ as a fundamental principle in engineering climate change resilience is evident in the following recommendation.

**Developer Recommendation 2:** New building constructions should meet heightened standards with respect to climatic event resilience. For example, to lessen potential flood damage, significant lift infrastructure should be housed above basement levels.

Strata and community title laws in Australia are state based. This signifies cross-state variations in the relative power and autonomy of S&CT building committees. Commenting on these variations, Interviewee K stated:

“The extent of restrictions and constraints placed on executive committees varies across the country from sort of quite restrictive powers to do things and spend money in Queensland to quite unrestricted and comparative freedom in say Victoria”.

Talking more generally about the power of committees, Interviewee K added:

“I think the executive committees have already got the responsibility but they don’t have the freedom to move, so I think if we’re going to ask executive members to serve and to act responsibly, we need to invest them with further powers so that they can make decisions as a board of a company might and the power of the shareholders is to remove the board”.

This perspective raises the possibility of providing committees with particular powers in connection with making decisions relating to climate change adaptation investment. Interviewee R spoke about the tendency of S&CT building owners and committees to do things that defer or avoid harder decisions:

“to revisit, question, any decision or question the process that they want, more analysis, more discussion, further quotes, there will always be a question that essentially derails or at least delays the implementation of a decision”.

This again appears to represent an impediment to the initiation of a decision concerned with any fund expenditure on climate change adaptation.

Interviewee E described how decisions in S&CT buildings are being driven from the bottom up by the most resistant owners:

“It is often that it gets down to the lowest common denominator. So it’s always, it’s not necessarily that there aren’t people in the building who want to maintain the building to a high standard, it’s that there are people in the building who don’t. And that means that it’s not maintained to a high standard”.

Associated with this view, many of the interviewees felt that the decision making challenges signified that mandating actions in S&CT buildings was the best way to ensuring key issues are addressed by owners, committees and managers (view expressed by Interviewees C, H and M). Interviewee C described this need in the following way:

“Well someone like me who can put an airtight case together that no one can break through, then the only way that things happen without stupid delays and
waffling and carrying on or non interest or something, is to mandate it and to go well, this is the rules and here’s a panel then just do it, it’s important”.

Supporting this view, Interviewee M commented:

“So whether it’s a strata building or an office block, or a commercially owned building or a suburb of Torrens Title houses, there are only going to be two things, which I think will affect change. One is for somebody, like a council or a government to say you must do this and this is the time by which you must do it, or for somebody, those same people, to spend an enormous amount of money in advertising campaigns to change people’s attitudes”.

This perspective suggests that significant climate change building adaptation work will only occur in S&CT buildings, if such work is specifically mandated.

As a final comment on S&CT building decision making, Interviewee E held the view that climate change adaptation work proposals should be initiated in conjunction with budget decision making. Immersing a climate change adaptation work proposal in the context of the budget formulation exercise is a decision making approach that can circumvent some of the impediments noted above. Interviewee E commented:

“I mean one of the ways you can focus it is you can focus it on decisions around budgeting and specifically decisions around budgeting for building maintenance and upgrades, because that actually cuts out a lot of the other stuff. So those decisions about budgeting and building maintenance and upgrades will obviously be affected by the relationships between people and the building, which will be affected by all of the other issues that they’ve got going on”.

4.3.4 Funding S&CT building adaptation work

As noted in the preceding section, legislation in several Australian states requires S&CT buildings to prepare a common property capital expenditure forecast (widely referred to as a “sinking fund forecast”) spanning the forthcoming 10 years. Several interviewees saw this period as too short, as it is less than the lifecycle of much common property infrastructure. Interviewee F noted that this means that many owners and committees fail to recognise the real long-term costs of building maintenance and, as a result, poor decision making can occur with respect to provisioning for capital works. It is notable that many states in the USA require such planning to be made for longer periods that take into account the whole life period of common property infrastructure. A further concern expressed in connection with the sinking fund legislation in some Australian states relates to a dislocation between a requirement to forecast common property capital expenditure, but no requirement to ensure funds are raised in line with this forecast. As Interviewee E pointed out quite elegantly:

“It is obviously a gap in the legislation that you’re required to have a sinking fund plan, but you’re not required to put money against it”.

Interviewees felt that the financial impact of a proposal was a significant factor affecting whether the proposal is approved. Owners show much greater interest in the affairs of S&CT buildings if an increase in levies is being considered. Interviewee C commented:

“You know you’ll get 20 million people turn up to a general meeting if there’s an increase in levies”.

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Interviewee D also highlighted the fundamental importance of financial issues to S&CT building owners:

“Being involved with like-minded people who are owners and advocates within buildings, they find it very difficult to get the majority of the decision makers to actually see reason unless there’s a compelling financial argument and that’s not whether you’re a climate change sceptic or not, it just comes down to the straight economics of it”.

Interviewees noted that owners apply a payback mentality when considering common property capital expenditure proposals, with many interviewees noting surprisingly short payback periods being required for a proposal to be approved. Requisite payback periods referred to by the interviewees ranged from 2 to 5 years. Interviewee A commented:

“I’m saying basically always is that if there’s any capex to put any of these utility saving devices or measures in, it must have a three year payback cycle and the reason being is that the owners and committees don’t believe they’re going to be in a building for more than three years and they don’t necessarily want to pay for it but the next owner gets the benefit”.

Whether climate change building adaptation works can deliver, or be shown to deliver, requisite paybacks was not clear to the interviewees. Interviewee E thought that reduced insurance premiums resulting from building adaptation work was the most obvious way to conceive of the payback resulting from a climate change building adaptation investment. Interviewee E observed:

“So if you could get insurers to provide reduced premiums, if you did X, Y and Z in your building, then you could start helping buildings to cost; what it would cost to do X, Y and Z and what the payback period would be on their insurance savings over time. And then based on those two things, they can make a decision on whether to do that or not, taking into account all the other nonfinancial benefits of it”.

A potentially more compelling payback rationale relates to enhanced property value resulting from a climate change building adaptation investment. But as Interviewee R surmised:

“The choice to spend or not doesn’t normally reflect itself in any value proposition. Either from the increase in value of the property or high returns or anything like that, so there’s not sufficient economic imperatives manifesting themselves”.

Another way to conceive of financial benefits stemming from an investment concerns the potential for cost savings (reduced levies) resulting from a capital outlay.

A key problem with both of these ways of conceiving of future financial benefits resulting from a financial outlay is whether the market (future potential unit purchasers) will attribute a higher value to a unit as a result of an enhancement made to common property. For example, if old windows in a S&CT building have been replaced with more resilient windows, would a potential purchaser have the capacity to recognise the resultant enhanced property value? Interviewee A’s view was that:

“They cannot translate, as far as we have seen this, into a marketing advantage when they go to sell their property and in fact, often they’d rather not even talk about body corporate levies at all or sinking fund obligations or even the condition of the building”.

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Interviewee comments suggest most purchasers of S&CT building units do not have a strong capacity to appraise the standing of a building’s general maintenance and technical service status, let alone resilience to extreme weather conditions. As a result, they may unknowingly purchase a unit in a S&CT building that is particularly prone to extreme weather event damage. To mitigate this lack of understanding, a building ‘weather event resilience’ rating system could be instituted. A likely result of such a system would be that demand for units in S&CT buildings that suffer from poor weather event resilience would decline, signifying that the value of such units would also decline. It follows that a ‘weather event resilience’ rating system would cause developers to take steps to avoid their buildings being given a low ‘weather event resilience’ rating. Also, it would give a stronger ‘payback’ incentive for unit owners to initiate and support climate change adaptation investment proposals in their S&CT buildings.

**Government Recommendation 3:** Similar to the energy rating system that has been developed for buildings, to develop a building ‘weather event resilience’ rating system that provides an overall score based on sub-scores relating to different weather event risk exposures (eg., ‘flood resilience sub-score’, ‘fire resilience sub-score’, ‘cyclone resilience sub-score’, etc).

With respect to this recommendation, it is noteworthy that the Australian Resilience Taskforce (an initiative of the Insurance Council of Australia intended to promote increased resilience in Australian communities), is pursuing a similar initiative. It is developing a ‘Building Resilience Rating Tool’ (BRRT) that is concerned with rating the ability of a building to withstand extreme weather events. The BRRT is designed to encourage homeowners, homebuilders and property professionals to adopt improved material selection and design.7

This notion of a ‘weather event resilience’ rating system would also appear to be pertinent to banks. As mortgagees, banks have a significant interest in the physical resilience of many S&CT buildings since a complex’s physical resilience can impact on a unit owner’s liability exposure and therefore their capacity to repay a loan. As a consequence, banks are also exposed to risk when a S&CT building is highly vulnerable to the threat of climate change induced damage. It follows that such risk should be appropriately priced into the cost of loans. Banks taking such steps would raise owners’ awareness of the need to ensure their S&CT building has high climate change threat resilience. If acted upon, the following recommendation would provide banks with a more informed assessment of a building’s physical vulnerability, and, by implication, the financial risk assumed by unit owners.

**Banking Recommendation:** Banks to develop an appraisal procedure to rate a strata title complex’s exposure and resilience to climate change weather events and apply the rating as part of lending criteria utilised when extending mortgage loans to strata title unit purchasers.

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It was apparent that not all financial outlay decisions revolve around whether a target payback period can be achieved. Interviewee E commented on how some owners would fight against any additional capital outlays, simply because their financial situation precluded them from making additional expenditures:

“So it’s not just people being tight with their money, it’s people who have to be tight with their money, because they’re over leveraged and they can’t actually spend any more money.”

This highlights a need for capital expenditure to be financed through funds raised from owners over an extended period. As Interviewee E considered:

“I think people get that when they buy a strata, they know that they have to pay quarterly levies and they count that in their calculations, ‘can I afford this?’; Yes, I can afford it. I could afford it if it went up by 5 or 10% a year, that’s fine’. The problem is that when it then goes up by 20% a year or 50% a year, it’s not fine anymore and people push back.”

While it was noted above that most Australian states require S&CT buildings to prepare plans for capital replacement works to common property, it should be recognised that this requirement relates only to the replacement of existing structures with equivalent structures. Adaptation for climate change will usually involve changes to existing structures, upgrades to materials and additional structures or equipment. Due to their ‘upgrade’ nature, such expenditure is not included in the legislatively mandated planning and forecasting process. Inclusion of infrastructure upgrades in the sinking fund forecast cycle would increase the chances of climate change adaptation works being considered, funded and undertaken. This view prompted formulation of the following recommendation.

**Sinking Fund Recommendation:** Include projected expenditure on climate change building adaptation measures as a clearly defined part of forecast capital works by strata title complexes in sinking fund planning and forecasting.

From her surveys and interviews of unit owners, Interviewee E identified high levels of owner misunderstanding about the nature of funds collected and held by S&CT buildings. This signifies that if sinking funds are to be used as the basis for funding climate change adaptation works, strata managers and S&CT building committees should take care to ensure this factor is highly visible in any sinking fund related documentation circulated to owners. To quote Interviewee E:

“It’s hard to ask people to spend more money when they’re already upset about paying out money that they don’t know what it’s for, and they don’t know whether they’re getting good value for money for what they’re paying for”.

An alternative to funding adaptation works through raising a sinking fund, is to raise a loan over, say, a 10 year period to effectively amortise the cost over time and over multiple owners. Whilst this approach can be justified on a user-pays basis, some interviewees raised concerns with respect to the management of exposure over time. Interviewee D offered these thoughts about loans taken out by a strata scheme:

“You’re basically saying we won’t have a sinking fund, we’ll just borrow from a pool of funds and our sinking fund in effect becomes our interest payments to do that. Look,
there’s nothing wrong with the concept, it doesn’t deal though with the liability as a whole and it could get out of control and you just keep pouring costs on costs on costs”.

Interviewee M described the loan model in the following manner:

“There are only two types of levies in strata. When money is needed for something, either you have a large number of small levies or a small number of large levies. And in doing so, you’re either saving in the so called sinking fund and eventually, at some future time, you’ll have accumulated enough money and you’ll spend it on whatever it is required. Or, you’ve done the work up front by borrowing and that large number of small levies are being used to service the loan and reduce that over time.”

Interviewee J expressed a preference for borrowing with appropriate disclosures over the current approach, ‘or lack of approach’ to managing building works. He commented:

“I would argue that from my personal view, and I know this isn’t necessarily a consensus of the industry, a long way from it, but my personal view is that that’s a more transparent way of doing it at the moment, where it is far more difficult to find out what the contingent liability of buying in to in terms of maintenance coming down the track at you, than if there’s a borrowing on the books”.

These views highlight the potential of S&CT buildings raising a loan to finance climate change building adaptation works.

In closing this section concerned with funding building adaptation work, it appears pertinent to note an atypical perspective held by one of the interviewees. While some comments provided above give support to the view that financial issues are fundamental to S&CT building’s decision making, Interviewee M held an alternative view based on his experience as a senior executive of a company that provides loans to bodies corporate. He claimed:

“I think there is an enormous furphy and an enormous amount of misconception when it comes to capital works in strata or medium high density buildings and enormous misconceptions and red herrings. There’s an assumption that the problem is the money and in our experience, rarely is the problem the money. .... The next furphy which comes in is the notion that the availability of funds is the thing which prevents people doing things in strata and from our experience over nine years, that’s totally irrelevant. What makes people do or makes people not do things in strata is not related to the cost of funds or to the availability of funds. It’s purely related to what they want to do”.

4.3.5 Weather event emergency management

Perceptions of the current standing of emergency management procedures appeared to be dependent on an interviewee’s main geographical area of interest.

Some interviewees reported that S&CT buildings in Queensland had a high level of compliance with fire safety requirements for evacuation plans in most S&CT buildings (except Class 1A buildings). Other interviewees felt that only larger S&CT buildings and those with on-site management were likely to have evacuation and/or emergency management plans in place. Interviewee D, who worked primarily in NSW, commented:
“Usually with larger buildings, a requirement now is for some sort of an emergency plan, whether that be evacuation, if they’ve got an on-site building manager or some sort of regime of how to get the residents out. But the emergency plan may well also be in the event of a black out, in the event of a number of disasters, a number of sort of recovery sort of options”.

Interviewee F identified a new Australian Standard (AS 3745) for emergency management in buildings that was being promoted to S&CT buildings, but that there was limited interest in creating detailed emergency management plans in most states. He commented:

“We haven’t been bowled over in the states outside Queensland”.

It was generally felt, however, that emergency management is not seen to be a high priority item. Interviewee A claimed:

“Basically the emergency situation is, is a dormant activity until it’s raised and then they say, well I don’t think it’s a high priority, yes we know that a fire or other disaster that could come our way would make us think about it and we would probably be vulnerable about it, but I’m sure the other lot owners aren’t too concerned that we don’t spend a thousand dollars this year on doing another report or a fire drill”.

This view of emergency management not representing a high priority underscores the need to consider to what extent the development and adoption of emergency management plans should be mandated. Supporting this view, Interviewee D commented:

“I think until, like anything, until it is mandated and legislated, we’re not going to see the extent that we require and there’s no reason it shouldn’t be legislated and we’ve got a very convenient mechanism at the moment with the sinking fund where you could simply just add a line there to say the sinking fund should also include for an evacuation plan or an emergency plan, whatever it entails and you can do like with the sinking forms and bring them in over a number of years”.

Conversely, Interviewee K was opposed to the mandating of emergency plans. He suggested:

“I’m against additional legislation but perhaps one of the industry bodies could propose a simple plan for adoption. It might give some clarity as to what people do exercising common sense in these circumstances”.

Interviewee K’s perspective on this matter appeared relatively atypical, however.

Interviewee Q commented on his experience with the extreme Brisbane flooding that occurred in January 2011. He described how damage exposure in his S&CT building related more to building contents than building structures and noted how prompt action by owners and residents to remove vulnerable equipment and property immediately prior to the flooding significantly reduced the value of the losses that would have otherwise been incurred. He explained:

“I think there are close to 100 cars garaged there, one alone was lost and that was because the owner was in Rhodesia and it was fortunately an old car of little value, and he had the keys and nobody knew where to contact him”.

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But this kind of action depends on awareness of the impending risk and the ability to communicate with owners and residents. Some interviewees commented that modern lifestyles and psyches operate to reduce owner interaction, which increases the challenge of managing an emergency when it occurs. It was notable that Interview Q only knew a few of the people in his S&CT building.

“I’m familiar with the eight people living on, including the tenants, living on our floor, but as to the other two floors of each down below me, I would know very few people”.

The communication challenge was commented on by several interviewees. In many situations owners and residents don’t know who to call and/or their contact details. Interviewee E observed:

“I’ve been asking people that, ‘do you know who to call when there’s an issue?’ And often people don’t. They don’t know who to call, they don’t know what their number is, who’s responsible for what. And you can imagine that in a disaster situation”.

Some interviewees spoke about the use of electronic communication methods by owners and residents during emergencies. These methods include SMS messaging, emails and social media. There was a perception of limited take up of some of these modes of communication by strata managers and older owners and that it was too late to try to establish such forms of communication at the time of an emergency. Interviewee D commented:

“With most things in Strata it usually takes the consumer asking for it before it actually becomes something that becomes an agreed service. The manager and we fiddled with SMS reminders and the like and bits and pieces but the software hasn’t been sufficiently efficient for us to be able to do it easily, but what we’d like to do is to do the same thing. Send out a blurb saying reminder that X is happening, reminder that Y is happening, reminder that this is happening”.

He also observed:

“There’s the building, Signature Apartments in Redfern who has their website, their facebook page and they use that quite actively and promote things in their building. Now that would be the perfect vehicle when it was all set up to run things through, however ninety-nine percent of buildings wouldn’t have that infrastructure in place and would need to put it in place during the point of an emergency. Now the last thing you want to do in an emergency is establish that. You want to have a forewarning system in place”.

Comments suggesting a need for mandating an emergency plan that would include the establishment of appropriate modes of communication prompted formulation of the following recommendation.

**Disaster Management Recommendation 1:** All strata title complexes above a certain size should be legally required to develop and communicate an emergency evacuation and management plan that is to be implemented immediately prior to, during and in the aftermath of a significant emergency weather event.

A potentially valuable resource for the interested reader is the Green Cross Australia website: [www.hardenup.org](http://www.hardenup.org). This site provides information, news, interactive tools and
guides for people in Queensland to better prepare for extreme weather events. Especially pertinent to the recommendation above is the following site that has tools that take into account location and unique property features:

http://hardenup.org/prepare-yourself/harden-up-plan/what-is-a-harden-up-plan.aspx

Some interviewees expressed concerns for S&CT buildings that don’t have a strata manager or resident manager to deal with emergency situations. Interviewee A commented:

“Now what concerns me is these other buildings that do not have a quality strata manager or have a caretaker or other maintenance supervisor, they are oblivious and they’ll just wander in the sea like the titanic until they hit an iceberg”.

Supporting the view that a resident manager can play a key role in an emergency situation, Interviewee Q spoke about the hard work undertaken by the husband and wife resident management team in his S&CT building at the time of the Brisbane floods. He recalled:

“They just continued working around about 16, 18 hours a day here managing this place while the flood was on. So we really were extraordinarily fortunate”.

It also appears that, of the range of stakeholders involved in a S&CT building, resident managers generally hold the most extensive knowledge with respect to all infrastructure associated with their S&CT buildings, as well as the identity of owners and residents. This signifies they are well-placed to play a lead role in managing an emergency situation. Interviewee R summarised this by pointing to:

“The onsite manager in most buildings will be familiar with the physical infrastructure of the building, they’ll know how things work”.

and Interviewee Q observed:

“They also know everybody, and they know most people’s quirks and they know who they can rely on”.

The key role that can be played by a resident manager in a S&CT building emergency management situation resulted in formulation of the following recommendation.

**Disaster Management Recommendation 2:** Introduce a requirement that in strata title complexes above a certain size, the resident manager must complete a disaster management response training course to improve their capacity and powers to co-ordinate the activities of a building (evacuation, etc) in the event of an emergency weather event.

Funding unexpected expenses resulting from an extreme weather event also poses a particular challenge, as work needs to be undertaken urgently, and in many cases insurance cover is not available (for events like floods), or inadequate because of cover or policy limits. In the S&CT building caught up in the Brisbane floods, described by Interviewee Q, there was a sinking fund that was available for the repairs but no insurance. As Interviewee Q detailed:

“We opened for business on the, about the middle of January 2003 and I’d managed to have $300,000 saved up for our big paint up, we had to do an external and common
area paint up. So that when all this happened, $270,000 of that went down the gurgler, as to whether or not we will ever get any insurance that is questionable”.

But not all S&CT buildings will have access to a sizeable sinking fund, because they may be new or have not built up a sinking fund due to ignorance or deliberate decisions. Interviewee Q described some of his own personal resistance to building up a sinking fund in the following way:

“I was fighting to try and keep the levies to what I considered a reasonable level. She (the strata manager) took me aside and she gave me a real, not a dressing down, but she gave me a very, a lot of cogent reasons as to why I was wrong and convinced me, even much against my, what I thought was my better judgement. Turned out to have been better judgement to take her word, which it meant that we increased our sinking fund levies by 50% over three years, which was a fairly steep one”.

Decision making powers in emergencies were the subject of a number of comments made by interviewees who recognised that urgent and critical decisions were often required to be made by people without strict authority to do so and/or without the time or mechanisms to call properly convened meetings of committees or owners. In some instances, interviewees felt that those who were available and active in S&CT buildings should ignore the rules, make the best decisions possible and, if necessary, justify their actions at a later date. Interviewee R saw this as follows:

“If we were operating as the managers in that instance we would advocate acting immediately and in effect going around what the legislation says and we have to be confident that we could support such a position at the CTTT in the event that they said well you didn’t give the 72 hours notice. .... You don’t want the scenario of everyone crossing their arms and watching the building burn to the ground when someone says ‘Well I’m not going to decide to turn the tap on’”.

This highlights a problem with the highly regulated nature of governance procedures in S&CT buildings. Adherence to such procedures can slow down decision-making, as adequate notice has to be provided to affected parties. Usually, in S&CT buildings no single person can make any decision unilaterally and/or immediately, without the risk of challenge, invalidity or personal exposure. When an emergency arises, however, speedy decision-making can be of the essence. Resources may not be available for meetings and owners may not be contactable, yet decisions have to be made immediately. Particular powers could be assigned to a specially trained owner or a resident manager who is likely to have knowledge of the physical infrastructure, how the S&CT building’s facilities work and how things can be shut down. So, defining when there is an emergency in a S&CT building and changing normal governance protocols during that time may facilitate faster and more effective decision making that can save money, preserve property, limit damage, minimise conflicts and, maybe, save lives. The following recommendation has been formulated in light of this rationale.

Disaster Management Recommendation 3: Establish an emergency status designation for strata titled complexes which would signify a change in governance arrangements to deal with the changed circumstances confronted by owners, committees and managers during an emergency weather situation.
circumstances need to be met in order to justify an emergency status designation being invoked. A second challenging aspect of this recommendation concerns what governance arrangements should come into force when a complex carries an emergency status designation.

It should be noted that this ‘emergency status designation’ idea was viewed somewhat sceptically by some interviewees who held a fear that it could be abused. Interviewee D stressed that:

“If you provide legislation that restricts or provides extra authority, it is only a matter of time before it’s misused or it’s used for the wrong reasons, and I know of countless cases of people who would seek to utilise such a clause and wrap it around their own working. .... I did it with a number of cases now with management statements that have the provision for emergency meetings and the amount of times that the facts are construed to fit an emergency meeting and because they’re sufficiently broad when it comes to the essential services or the functionings or the finances even of the scheme”.

4.3.6 Insurance as risk management

Several interviewees felt that S&CT buildings that had taken steps to reduce their risk exposure should enjoy reduced insurance premiums and/or better coverage (comments made by Interviewees C, D, and E). However, it does not appear that such premium reductions were being made available or likely to be made available to S&CT buildings. Interviewee D felt that the kind of insurance premium differentiators that would make a difference do not currently exist. He inferred:

“They’d like to see it, but they’re not providing the driver for buildings to do it by saying here’s your $12,000 premium and here’s your $8,000 premium if you have the following things in play”.

A further problem with the ‘insurance as risk management’ model is that once downside uncertainty has been off-loaded to an insurance company, there appears to be a diminished incentive for owner committees to take any further steps to lessen the downside uncertainty. Interviewee J commented:

“One of the really weak flaws in a pure market-based insurance model, as we’ve seen in a lot of other areas, is the outsourcing of sort of responsibility for risk”.

This view was supported by Interviewee D who claimed:

“I think insurance is overly used and it’s used as a little bit of a disincentive sometimes to proper maintenance and comprehensive maintenance and I think the insurers need to become far more stringent around comprehensive maintenance contracts for all types of plant and repair and everything of the sort and that would significantly reduce the frequency of claims and also the intensity of the amounts within those claims. .... I think there should be a penalty for those buildings who don’t put in place the proper preventative maintenance and comprehensive service regimes”.

Another issue concerns what extent of insurance is legislatively mandated and the extent of insurance cover that S&CT buildings should purchase. Interviewee K added:
“The Queensland floods bringing people’s attention to this is that there’s a gap in the statutory obligations to insure in some places and the insurance that’s available in the marketplace including insurances with excesses.”

Somewhat relatedly, Interviewee M commented:

“I think another way of thinking about that is, insurable events and non insurable events. Because from a capital works perspective, if it’s insurable, then the problem goes away, it’s insured and that’s it and insurance basically brings back to original position. So the interesting question is will there be a change in the things which insurance companies do, i.e. what do they insure for. So it’s the second order issues of insurance that are important here, not the first order issues of importance. .... Should there be legislation or some kind of compulsion in order to either decrease the amount of insurable events, or expand the scope of insurable events, or to prevent insurance becoming more expensive, which is presumably what will happen with insurable events”.

As a generalisation, unit owners do not appear to have a good understanding of insurance matters relating to their S&CT buildings. Interviewee E reflected on this by stating:

“I’m not convinced that all the people in strata schemes understand the different kinds of building insurance that they have or don’t have. .... I would imagine that there’s a lack of clarity about what insurance covers what in strata, because there is quite a few different kinds of insurance that are required”.

In a similar vein, Interviewee K commented:

“One of the things that I’m really interested in is how do you make people understand what the insurance covers because people will believe what they want to believe and the buildings insured I don’t have to worry about this”.

Interviewee A supported this view of poorly informed unit owners, claiming that part of the problem stems from strata managers failing to provide effective communication with respect to insurance. He commented:

“What we do at our group is that we actually now actively go out and talk to our clients before we get the renewals and say, ‘what excess do you want if it reduces the premium or holds the premium etcetera’ and we’re asking them to start thinking about that because we think the more they think about it at the right time, the more they will accept what is actually given to them. .... I can assure you that ninety five percent of strata managers who are involved with this through brokers or through their own arrangements are very poor communicators on this subject”.

This lack of owner appreciation is not helped by the fact that the insurance industry appears unlikely to voluntarily make their premium insurance determination model publicly available. Such a model would enable S&CT building unit owners to calculate coarse estimates for their insurance. It would also alert unit owners to specific steps, eg, climate change adaptation investment, that they could take in order to lessen their insurance premiums. It appears reasonable to propose that unit owners should be provided with a capacity that would enable them to determine the reasonable cost of mandated insurance cover for their S&CT building. Such a step would place S&CT building committees in a much stronger position to identify excessive estimates for their
insurance coverage and should help to increase the quality of insurance related discussion between committee members (and/or their ‘champions’) about insurance issues. At the same time, this step would raise potential problems with respect to the disclosure of valuable commercial information. This issue would be ameliorated if the disclose were to be limited to disclosing generally applicable information to assist S&CT unit owners understand risk factors associated with their building.

**Insurance Recommendation:** Insurers should be required to make their insurance appraisal of a strata title complex’s weather event risk exposure publicly available in a manner that the information can be easily accessed by owners and potential purchasers of lots in the building.

Some interviewees felt that the extent of S&CT building insurance cover was not sustainable and had spoilt S&CT building owners. Interviewee D explained:

“I think unfortunately strata owners have been spoilt by a traditionally very low insurance premium for their product”.

It could well be that recent significant rises in the cost of S&CT building insurance premiums, particularly in Northern Queensland, will not be of a temporary nature, but signal a permanent change in the structure of S&CT building insurance premiums. This factor can be expected to give rise to increased unit owner scrutiny of the extent and nature of insurance coverage. Interviewee A commented:

“We just pay X premium and we’re a hundred percent covered and I think the insurance companies are starting to say, well that’s becoming too costly, it’s too hard to do it and we see these large increases”.

This comment appears to raise the notion of a S&CT building insurance model that sees less than 100% coverage. Given differences in the risk taking profiles of individuals, it follows that some will seek extensive insurance coverage while others are comfortable with less insurance coverage. As Interviewee J commented:

“There’s a variety of reactions, and to some extent, it reflects the heterogeneity of the sector”.

Some interviewees raised the issue of a clash between mandating insurance coverage and the affordability of such coverage, with some claiming that if S&CT building insurance is compulsory, it should be more accessible. Interviewee J summarised this by asking:

“The weight of opinion is about if compulsion is legitimate, what is the obligation of government to ensure its availability and its affordability?”

The mandating of insurance in S&CT Buildings that are becoming increasingly exposed to weather related damage due to climate change poses a particular problem. This problem concerns the fact that insurance in such a high-risk building can only be purchased at prohibitively expensive insurance premiums. Accordingly, a case could be made for allowing such S&CT buildings to be designated as a class of “no insurance” or “low insurance” buildings. The alternative may be for such S&CT buildings to be deserted by owners as a result of the mandatory insurance being only available at a price that is beyond their capacity to pay. Such a provision would allow S&CT buildings designated as uninsurable to operate within the current law while
having no insurance coverage (see Tables 9a and 9b). A significant benefit that might derive from creating a special class of uninsurable S&CT buildings would be the considerable media attention that would be triggered by the introduction of such legislation. Stemming from this, one can expect S&CT building unit owners and committees to attach greater importance to ensuring their S&CT buildings undertake appropriate climate change adaptation investment to avoid being down-graded to an ‘uninsurable’ status. The following recommendation has been drafted in a manner consistent with this rationale.

The precise formulation of this new category should be based on an appropriate analysis of the risk to owners and other interested parties arising from the reduced insurance cover. Additionally, monitoring mechanisms for building status in such categories would need to be designed, costed and funded.

**Government Recommendation 4:** Acknowledge the reality that some strata title complexes may become uninsurable or be unable to obtain affordable complete insurance cover by creating a ‘lower insurance cover’ or ‘uninsurable’ building category, subject to appropriate decisions and disclosures.

### 4.4 Overview of Recommendations

In finalising the recommendations, an effort was made to ensure that the range of key stakeholders that engage with S&CT buildings are addressed. This stems from the view that involvement of all stakeholder groups in climate change preparedness efforts is consistent with heightening the degree of preparedness achieved.

Accordingly, to demonstrate the breadth of strata and community title stakeholders that are addressed by the recommendations posited, Table 13 has been developed. This table provides a summarised overview of the recommendations and also highlights the broad ranging nature of the recommendations by cross referencing each recommendation to the broad issue that it most closely relates to (captured in the columns) and also the main stakeholder group affected by the recommendation (captured in the rows). ‘Recommendation’ has been abbreviated to ‘Rec’ throughout the table. ‘Banking Rec’ refers to the ‘Banking recommendation’, ‘Strata Mgr Rec 1’ refers to the first strata manager recommendation, etc.

As some recommendations affect more than one stakeholder group, they appear in more than one cell. The table highlights the degree to which the 16 recommendations advanced achieve extensive coverage with respect to the breadth of issues addressed and also the breadth of key strata and community title stakeholders. The table also suggests that the stakeholder group that is most extensively addressed by the recommendations is the owners. This is perhaps unsurprising, as unit owners have an equity stake in S&CT buildings. Further, if they reside in their S&CT building unit, they have a heightened and intimate engagement with the property.

Table 14 parallels Table 13, however, instead of the table’s rows focussing on ‘stakeholder affected’, they focus on the stakeholder group that would need to take action in order for a recommendation to be implemented. Somewhat unsurprisingly, this table reveals that the main stakeholder that would need to take actions to implement the suggested recommendations is government.
It should be acknowledged that these recommendations will need a detailed consideration of implementation details and an estimate of the costs (internally and externally) of implementing the recommendation as well as the value of the likely benefits deriving from the change. Further consideration of how the recommendations can be implemented is warranted as it could be found that some recommendations are un-economic, due to the benefits being insufficient to outweigh the costs.
Table 13: Summary of Recommendations Matrix 1 - Referenced to stakeholder affected and issue addressed

<table>
<thead>
<tr>
<th>Owner awareness</th>
<th>Information availability to key decision makers</th>
<th>S&amp;CT building decision making</th>
<th>Funding building adaptation work</th>
<th>Weather event emergency management</th>
<th>Insurance as risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banking</td>
<td></td>
<td></td>
<td></td>
<td>Banking Rec</td>
<td></td>
</tr>
<tr>
<td>Sinking fund forecasters</td>
<td></td>
<td></td>
<td></td>
<td>Sinking Fund Rec</td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
<td>Insurance Rec</td>
<td></td>
</tr>
<tr>
<td>Owners</td>
<td>Government Rec 1; Developer Rec 1</td>
<td>Strata Mgr Rec 1; Strata Mgr Rec 2; Committee Rec; Government Rec 2</td>
<td>Government Rec 3</td>
<td>Disaster Mgmt 1; Disaster Mgmt 3;</td>
<td>Government Rec 4</td>
</tr>
<tr>
<td>Strata Manager</td>
<td></td>
<td>Strata Mgr Rec 1</td>
<td></td>
<td>Disaster Mgmt 3</td>
<td></td>
</tr>
<tr>
<td>Resident Manager</td>
<td></td>
<td>Resident Mgr Rec</td>
<td></td>
<td>Disaster Mgmt 2; Disaster Mgmt 3</td>
<td></td>
</tr>
<tr>
<td>Developer</td>
<td>Developer Rec 1</td>
<td>Developer Rec 2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The columns in this table refer to the main stakeholder that would be affected if a recommendation were to be implemented.
- The rows in this table refer to the main party that would need to take action in order for a recommendation to be implemented.
Table 14: Summary of Recommendations Matrix 2 - Referenced to stakeholder to take action and issue addressed

<table>
<thead>
<tr>
<th>Owner aware</th>
<th>Information availability to key decision makers</th>
<th>S&amp;CT building decision making</th>
<th>Funding building adaptation work</th>
<th>Weather event emergency management</th>
<th>Insurance as risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Government Rec 1; Developer Rec 1</td>
<td>Developer Rec 2</td>
<td>Government Rec 3</td>
<td>Disaster Mgmt 1; Disaster Mgmt 2; Disaster Mgmt 3</td>
<td>Government Rec 4</td>
</tr>
<tr>
<td>Banking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Banking Rec</td>
</tr>
<tr>
<td>Sinking fund forecasters</td>
<td></td>
<td>Sinking Fund Rec</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Insurance Rec</td>
</tr>
<tr>
<td>Owners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strata Manager</td>
<td></td>
<td>Strata Mgr Rec 1; Strata Mgr Rec 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident Manager</td>
<td></td>
<td>Resident Mgr Rec</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The columns in this table refer to the primary issue that each of the recommendations most closely relates to.
- The rows in this table refer to the main party that would need to take action in order for a recommendation to be implemented.
SECTION 5 — QUESTIONNAIRE SURVEY

5.0 Introduction

This section initially describes the design of the on-line questionnaire survey. Next the approach taken to generate a survey sample is explained. The quantitative findings emanating from the survey are then described followed by a description of the 8 additional recommendations that have been distilled from suggestions provided by the survey respondents.

5.1 Questionnaire Design

An on-line questionnaire was developed by drawing on the observations and recommendations emanating from the study’s interview phase. The questionnaire is presented as Appendix B. The questionnaire comprised an information cover page and four data collection sections.

The background information cover page described the focus of the questionnaire, stating “the aim of this research is to develop recommendations that will cause strata titled communities to be better prepared to deal with climate change”. The background information page also described the procedure that was adopted in running a $200 JB Hi Fi gift certificate draw that was used as an incentive to encourage participation in the study. In addition, this page provided participants with the option of accessing an “ethics” page that described the manner in which the study was being conducted and indicated that the study had received approval from the Griffith University Research Ethics approval committee.

The questionnaire’s first data collection section collected background information on factors such as the strata and community title stakeholder group with which the respondent was most closely aligned, the number of years the respondent had been involved with the sector and the average size of the strata titled schemes with which the respondent has been involved. This section also sought to determine each respondent’s perspective on whether climate change is occurring, and their perspective on the overall preparedness of S&CT buildings to deal with climate change.

The questionnaire’s second data collection section collected data concerning respondents’ attitudes to a series of recommendations concerned with better preparing S&CT buildings to deal with a world of more extreme weather events associated with climate change. Respondents were asked to indicate whether they felt each recommendation was strong or weak by recording their perspective on a 7-point Likert scale. The low end of the scale was anchored by the term “Very weak recommendation” and the high end of the scale was anchored by the term “Very strong recommendation”. The recommendations were structured according to the strata title stakeholder group that they most closely relate to. Following each set of recommendations pertaining to a particular stakeholder group, respondents were provided with the opportunity to initiate further recommendations directed to that particular stakeholder group.
The questionnaire’s third data collection section was designed to collect Likert scale data concerning respondents’ attitudes to a series of recommendations relating to disaster management in S&CT buildings. Again, these recommendations were structured according to the strata and community title stakeholder grouping that they most closely related to. Following each recommendation, respondents were given the opportunity to provide a further disaster management recommendation directed to the particular stakeholder group in question.

The questionnaire’s fourth data collection section comprised a series of open ended questions designed to yield insights with respect to climate change issues confronting S&CT buildings. They were also designed to secure the names of parties who would be willing to share insights gleaned from exposure to any significant weather event damage occurring to S&CT buildings.

5.2 The Survey Sample

The questionnaire was pilot tested through circulation of a series of draft iterations amongst the research team and also the study’s 10 member industry reference group. The on-line questionnaire survey was made available to the public from 16th May to 12th July 2012. 595 individuals accessed the file.

A range of approaches was used to promote the online questionnaire to individuals representing the full cross-section of strata and community title stakeholders. The approaches included:

- Emailed the 220 delegates who attended the 2011 Strata and Community Title in Australia for the 21st Century conference.

- Delivery of a presentation highlighting the study and promoting completion of the questionnaire at the Strata Community Australia national conference in Adelaide on 28th May 2012. A postcard promoting completion of the questionnaire was also circulated at the conference. The conference was attended by around 350 delegates.

- Unit Owners Association of Queensland promoted the survey in their newsletter.

- The Sydney based Owners Corporation Network promoted the survey on their website.

- The Queensland Body Corporate Association promoted the survey on their website.

- The survey was promoted on the Strata Experts blog site.

- Teys Lawyers promoted the survey on their website.

- Body Corporate Services promoted the survey in their newsletter.

- CHU Insurers promoted the survey on their website and at their trade booth at the May 2012 Strata and Community Association conference.
The promotion of the survey to S&CT groups and stakeholders resulted in promoting higher degrees of engagement from the respondents.

5.3 Analysis of Questionnaire Findings

As noted above, 595 individuals accessed the file, however only 450 respondents completed 80% or more of the questionnaire. To avoid problems of incomplete data sets, the data analysis reported below is based on those respondents who completed 80% or more of the questionnaire.

The strata and community title stakeholder groups represented in the sample is provided in Table 15.

Table 15: Stakeholders represented in the survey

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Frequency</th>
<th>Percentage of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit owners</td>
<td>223</td>
<td>49.6%</td>
</tr>
<tr>
<td>Committee members</td>
<td>92</td>
<td>20.4%</td>
</tr>
<tr>
<td>Resident managers</td>
<td>46</td>
<td>10.2%</td>
</tr>
<tr>
<td>Strata managers</td>
<td>36</td>
<td>8.0%</td>
</tr>
<tr>
<td>Insurance services</td>
<td>17</td>
<td>3.8%</td>
</tr>
<tr>
<td>Professional Advisory services</td>
<td>15</td>
<td>3.3%</td>
</tr>
<tr>
<td>Government/regulator</td>
<td>8</td>
<td>1.8%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>1.6%</td>
</tr>
<tr>
<td>Repair &amp; Maintenance services</td>
<td>2</td>
<td>0.4%</td>
</tr>
<tr>
<td>Researcher</td>
<td>2</td>
<td>0.4%</td>
</tr>
<tr>
<td>Banking Services</td>
<td>1</td>
<td>0.2%</td>
</tr>
<tr>
<td>Tennant</td>
<td>1</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

The survey asked respondents to indicate “how many lots there are in your strata titled complex, or the approximate average number of lots in the strata title complexes that you work with”. For the main stakeholder groups represented in the sample, the mean and also standard deviation of the data collected from this question is provided in Table 16. The data reported for ‘Unit owners’ and ‘Committee members’ relates to the number of units in the complex where they own a unit. The data reported for the other stakeholder groupings relates to the average number of lots in the S&CT buildings that they work with.
Table 16: Average number of lots represented by respondents

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Mean number of lots</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit owners</td>
<td>35</td>
<td>59.89</td>
</tr>
<tr>
<td>Committee members</td>
<td>62</td>
<td>92.40</td>
</tr>
<tr>
<td>Resident managers</td>
<td>395</td>
<td>2227</td>
</tr>
<tr>
<td>Strata managers</td>
<td>553</td>
<td>2528</td>
</tr>
<tr>
<td>Insurance services</td>
<td>115,396</td>
<td>416,021</td>
</tr>
<tr>
<td>Professional Advisory services</td>
<td>147</td>
<td>251.06</td>
</tr>
</tbody>
</table>

5.3.1 Questionnaire Section 1 Findings: Generic Issues

Bar charts showing frequency distributions of the data reported on in this section are provided in Appendix C1.

Respondents were asked: “What is your view about claims that climate change (regardless whether man-made or not) is occurring and will cause a greater incidence of building damage”. Responses were recorded on a 7-point Likert scale where “1” corresponds to “Strongly believe in no increasing damage from climate change”, ‘4” corresponds to “No strong view either way”, and “7” corresponds to “Strongly believe in increasing damage from climate change”.

This question yielded a mean score of 4.46 for the whole sample. This is above the mid-point of the scale, suggesting a leaning towards belief in an increasing incidence of S&CT building damage from climate change. The standard deviation for this variable is 1.91 (12% of the sample recorded the lowest end of the scale and 18% recorded the highest end of the scale), underscoring the extent to which respondents held widely varying views on this issue. An analysis of mean scores for those stakeholder groupings that constitute more than 3.5% of the sample is provided below. It is notable that resident managers are statistically significantly more sceptical about greater S&CT building damage resulting from climate change than most other respondents. There is also a suggestion that committee members have a relatively high expectation of increasing damage resulting from climate change.

<table>
<thead>
<tr>
<th>Greater building damage resulting from climate change?</th>
<th>Owners</th>
<th>Committee Members</th>
<th>Strata Managers</th>
<th>Resident Managers</th>
<th>Insurers</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.39</td>
<td>4.89††</td>
<td>4.36</td>
<td>3.72*</td>
<td>4.82</td>
<td>4.46</td>
</tr>
</tbody>
</table>

*: Statistically significantly lower than the remainder of the sample (Mann-Whitney U; p < 0.01).
††: Statistically significantly higher than remainder of the sample (Mann-Whitney U; p < 0.05).

Question 1.6 asked respondents to rate the extent of their knowledge and understanding of strata title operations. Responses were recorded on a 7-point Likert scale where “1” corresponds to “Very little knowledge and understanding”, ‘4”
corresponds to “Average level of understanding “ and “7” corresponds to “Very high level of knowledge and understanding”.

Unsurprisingly, strata managers felt they had the highest understanding of strata title operations (mean: 6.08) and owners had the lowest level of understanding (mean: 4.89).

<table>
<thead>
<tr>
<th>Extent of strata title knowledge</th>
<th>Owners</th>
<th>Committee Members</th>
<th>Strata Managers</th>
<th>Resident Managers</th>
<th>Insurers</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.89 *</td>
<td>4.99</td>
<td>6.08 †</td>
<td>5.41</td>
<td>5.47</td>
<td>5.13</td>
</tr>
</tbody>
</table>

*: Statistically significantly lower than remainder of the sample (Mann-Whitney U; p < 0.01).

†: Statistically significantly higher than remainder of the sample (Mann-Whitney U; p < 0.01).

Question 1.7 asked respondents to rate the extent that S&CT building owners have an appreciation of climate change and its potential impact on S&CT buildings operations and management. Responses were recorded on a 7-point Likert scale where “1” corresponds to “No appreciation, and “7” corresponds to “Very high appreciation”.

The whole sample yielded a mean score of “2.81” for this variable, suggesting owners have a limited appreciation of climate change and its potential impact on S&CT building operations.

<table>
<thead>
<tr>
<th>ST owners appreciation of CC &amp; potential impact on ST operations</th>
<th>Owners</th>
<th>Committee Members</th>
<th>Strata Managers</th>
<th>Resident Managers</th>
<th>Insurers</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.94</td>
<td>2.55 **</td>
<td>2.86</td>
<td>2.85</td>
<td>3.00</td>
<td>2.81</td>
</tr>
</tbody>
</table>

**: Statistically significantly lower than remainder of the sample (Mann-Whitney U; p < 0.05).

Question 1.8 asked respondents how much the increasing risk of damage to property as a result of climate change is being discussed at S&CT building committee meetings or owners meetings. Responses were recorded on a 7-point Likert scale where “1” corresponds to “Not at all”, ‘4” corresponds to “To some extent “ and “7” corresponds to “High extent”.

The most notable thing about this variable is the low scoring by respondents that it stimulated. The whole sample yielded a mean score of “1.92”, suggesting that, typically, negligible discussion of climate change is occurring at owners’ meetings.
Question 1.9 asked respondents to indicate the extent that they believed that S&CT buildings have a disaster and/or emergency management plan covering weather events. Responses were recorded on a 7-point Likert scale where “1” corresponds to “Not at all”, ‘4” corresponds to “To some extent” and “7” corresponds to “High extent”. The whole sample’s mean score for this question is low (2.65). This suggests that most S&CT buildings do not have a disaster management plan, or, the existence of such a plan is not appreciated amongst stakeholders. It is notable that Resident Managers, who have a relatively intimate knowledge of the workings of S&CT buildings scored relatively high on this variable.

<table>
<thead>
<tr>
<th></th>
<th>Owners</th>
<th>Committee Members</th>
<th>Strata Managers</th>
<th>Resident Managers</th>
<th>Insurers</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion of CC property damage impact at owners' meetings</td>
<td>1.74*</td>
<td>1.93</td>
<td>2.06</td>
<td>1.93</td>
<td>2.71‡†</td>
<td>1.92</td>
</tr>
</tbody>
</table>

*: Statistically significantly lower than remainder of the sample (Mann-Whitney U; \( p < 0.01 \)).
††: Statistically significantly higher than remainder of the sample (Mann-Whitney U; \( p < 0.05 \)).

Question 1.10 asked respondents to rate the capacity of S&CT building committees to implement managerial procedures and financing measures to effectively rectify randomly occurring climate change induced S&CT building damage. Responses were recorded on a 7-point Likert scale where “1” corresponds to “Very low capacity” and “7” corresponds to “Very high capacity”.

The whole of sample’s mean score for this question is low (2.88). This suggests that S&CT building committees are somewhat compromised with respect to their capacity to rectify climate change induced building damage.

<table>
<thead>
<tr>
<th></th>
<th>Owners</th>
<th>Committee Members</th>
<th>Strata Managers</th>
<th>Resident Managers</th>
<th>Insurers</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST committees’ capacity to rectify CC induced building damage</td>
<td>2.93</td>
<td>2.58</td>
<td>2.58</td>
<td>2.96</td>
<td>3.18</td>
<td>2.88</td>
</tr>
</tbody>
</table>

Adapting strata and community title buildings for climate change
5.3.2 Questionnaire Section 2 Findings: Climate Change Preparation Recommendations

Bar charts showing frequency distributions of the data reported on in this section are provided in Appendices C2 – C5.

Section 2 of the questionnaire assessed the strength of recommendations concerned with better preparing S&CT buildings for a world of climate change. Respondents were presented with 13 recommendations. The strength of each of these has been gauged on a 7-point Likert scale, where “1” connotes a “Very weak recommendation” and “7” connotes a “Very strong recommendation”.

Table 17 provides all 13 recommendations ranked in sequence from those viewed by the whole sample as the strongest recommendations to those viewed as the weakest. Designing new S&CT buildings to meet heightened standards with respect to climatic event resilience ranked as the most strongly supported recommendation and banks rating S&CT buildings’ resilience to climate change weather events and applying this rating as part of lending criteria when determining whether to extend a mortgage loan to a S&CT building purchaser was accorded the lowest ranking. 11 of the 13 recommendations yielded means above the mid-point of the measurement scale, suggesting that overall the respondents appeared fairly favourably disposed to most of the recommendations.

It is notable that the two highest ranked recommendations are directed to developers, suggesting a ‘get it right first time’ philosophy predominates amongst the sample. In the remainder of this section a further analysis of the data collected with respect to these 13 recommendations is provided by undertaking a cross stakeholder group analysis of the mean scores for each recommendation.
<table>
<thead>
<tr>
<th>Stakeholder addressed</th>
<th>Recommendation</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developers</td>
<td>New building constructions should meet heightened standards with respect to climatic event resilience. For example, to lessen potential flood damage, significant lift infrastructure should be housed above basement levels.</td>
<td>5.80</td>
<td>1.65</td>
</tr>
<tr>
<td>Developers</td>
<td>Developers should be provided with information and kits about climate change and its impacts on and adaptation strategies for strata titled complexes and be required to provide this information to buyers of units in new strata title complexes.</td>
<td>5.29</td>
<td>1.89</td>
</tr>
<tr>
<td>Insurers</td>
<td>Insurers should be required to make their insurance appraisal of a strata title complex’s weather event risk exposure publicly available in a manner that the information can be easily accessed by owners and potential purchasers of lots in the building.</td>
<td>5.28</td>
<td>1.80</td>
</tr>
<tr>
<td>Strata managers</td>
<td>Provide information and training modules for strata managers about climate change and its impacts on, and adaptation strategies for, strata title complexes.</td>
<td>4.69</td>
<td>1.95</td>
</tr>
<tr>
<td>Government</td>
<td>Similar to the energy rating system that has been developed for buildings, to develop a building ‘weather event resilience’ rating system that provides an overall score based on sub-scores relating to different weather event risk exposures (e.g., ‘flood resilience sub-score’, ‘fire resilience sub score’, ‘cyclone resilience sub-score’, etc).</td>
<td>4.46</td>
<td>1.90</td>
</tr>
<tr>
<td>Sinking fund specialists</td>
<td>Include projected expenditure on climate change building adaptation measures as a clearly defined part of forecast capital works by strata title complexes in sinking fund planning and forecasting.</td>
<td>4.45</td>
<td>1.91</td>
</tr>
<tr>
<td>Resident managers</td>
<td>Provide information and training modules for resident managers about climate change and its impacts on and adaptation strategies for strata title complexes.</td>
<td>4.38</td>
<td>2.00</td>
</tr>
<tr>
<td>Government</td>
<td>Acknowledge the reality that some strata title complexes may become uninsurable or be unable to obtain affordable complete insurance cover by creating a ‘lower insurance cover’ or ‘ uninsurable’ building category, subject to appropriate decisions and disclosures.</td>
<td>4.30</td>
<td>1.82</td>
</tr>
<tr>
<td>Strata managers</td>
<td>Strata managers should be encouraged to become champions of climate change awareness and adaptation for strata and community title complexes.</td>
<td>4.26</td>
<td>2.01</td>
</tr>
<tr>
<td>Government</td>
<td>Establish and maintain a website and related social media outlets that provide a persuasive and authoritative rationale concerning the need for body corporates to invest in greater building climate change resilience.</td>
<td>4.12</td>
<td>1.85</td>
</tr>
<tr>
<td>Government</td>
<td>To make it easier for body corporates to pass a decision to invest in climate change related property upgrades, reduce the threshold vote required for such decisions from the current unanimous or special resolution (three quarter majority) to a simple majority decision.</td>
<td>4.04</td>
<td>1.99</td>
</tr>
<tr>
<td>Owners committee</td>
<td>Create climate change adaptation awareness champions within and outside strata title complexes.</td>
<td>3.87</td>
<td>1.99</td>
</tr>
<tr>
<td>Banks</td>
<td>Banks to develop an appraisal procedure to rate a strata title complex’s exposure and resilience to climate change weather events and apply the rating as part of lending criteria utilised when extending mortgage loans to strata title unit purchasers.</td>
<td>3.56</td>
<td>1.89</td>
</tr>
</tbody>
</table>
Table 18 provides a cross-stakeholder analysis of the four recommendations that relate to government. The most strongly supported of these recommendations concerns developing a building ‘weather event resilience’ rating system. Of the different stakeholder groups, resident managers scored this recommendation the lowest. This is a recurring theme in Table 18, as resident managers were the lowest raters for three of the four recommendations. It is also apparent that insurers tended to rate the recommendations relatively highly, with two of the four recommendations rated statistically significantly highest by the insurers. It is also notable that the highest score for resident managers and the lowest score for insurance personnel was accorded to the recommendation concerning the creation of a low insurance or ‘uninsurable’ S&CT building category. These patterns in the collected data highlight that views held on adapting to climate change are heavily influenced by perspectives resulting from the distinctive nature of the interaction that each stakeholder group has with S&CT buildings.

**Table 18: Cross stakeholder analysis of mean scores for government related recommendations**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Owners</th>
<th>Committee Members</th>
<th>Strata Managers</th>
<th>Resident Managers</th>
<th>Insurers</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a building ‘weather event resilience’ rating system.</td>
<td>4.45</td>
<td>4.28</td>
<td>4.47</td>
<td>3.74*</td>
<td>5.18</td>
<td>4.46</td>
</tr>
<tr>
<td>Create low insurance or ‘uninsurable’ S&amp;CT building category.</td>
<td>4.18</td>
<td>4.36</td>
<td>4.72</td>
<td>4.46</td>
<td>4.59</td>
<td>4.30</td>
</tr>
<tr>
<td>Establish website to disseminate information on climate change &amp; S&amp;CT buildings.</td>
<td>3.97</td>
<td>4.28</td>
<td>4.83††</td>
<td>3.35*</td>
<td>5.06††</td>
<td>4.12</td>
</tr>
<tr>
<td>Reduce voting threshold required for property upgrades.</td>
<td>3.81</td>
<td>4.67</td>
<td>4.22</td>
<td>3.65</td>
<td>5.47†</td>
<td>4.04</td>
</tr>
</tbody>
</table>

*: Statistically significantly lower than remainder of the sample (Mann-Whitney U; p < 0.01).
†: Statistically significantly higher than remainder of the sample (Mann-Whitney U; p < 0.05).
††: Statistically significantly higher than remainder of the sample (Mann-Whitney U; p < 0.05).
Table 19 provides a cross-stakeholder analysis of the ratings accorded to the remaining recommendations concerned with preparing S&CT buildings for greater climate change. One generalizable theme running across these remaining nine recommendations is that for each recommendation, resident managers have provided the lowest mean score (statistically significant for eight of the nine recommendations). It is also notable that, with only two exceptions, insurers have provided the highest mean scores for the recommendations (although it should be acknowledged that the strength of their high scoring is only statistically significant for the “Strata managers as champions of climate change awareness strategies” recommendation). The high scoring by insurance representatives likely results from their extensive exposure to risk which inculcates a relatively high perceived need to manage the risk.

For the variable, “Include expenditure on climate change adaptation in sinking fund forecast”, there is a fairly marked difference between the low mean score provided by owners compared to the relatively high mean scores provided by strata managers and insurers. It is perhaps unsurprising that the only recommendation where the mean score for the insurers sub-group falls below the mean score for the whole sample concerns strata and community title insurance appraisals being made publically available. While this recommendation ranks highly overall, some resistance to its implementation might be expected from stakeholders representing the insurance sector. Resident managers appear particularly ill-disposed to the creation of climate change champions within and outside S&CT buildings. This may be because they feel such championing has the potential to create ill-feeling in S&CT buildings. It is also notable that strata managers appear fairly favourably disposed to climate change training modules for strata managers, yet resident managers appear relatively adversely disposed to climate change training modules for strata managers. Despite this, both strata managers and resident managers appear to be more favourably disposed to the introduction of climate change training modules for strata managers than climate change training modules for resident managers.
Table 19: Cross stakeholder analysis of mean scores for non-government focused recommendations

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Owners</th>
<th>Committee Members</th>
<th>Strata Managers</th>
<th>Resident Managers</th>
<th>Insurers</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks to link ST exposure to CC to lending criteria.</td>
<td>3.56</td>
<td>3.74</td>
<td>3.53</td>
<td>3.07</td>
<td>3.82</td>
<td>3.56</td>
</tr>
<tr>
<td>Include expenditure on CC adaptation in sinking fund forecast</td>
<td>4.32</td>
<td>4.85</td>
<td>5.14</td>
<td>4.00**</td>
<td>5.24</td>
<td>4.54</td>
</tr>
<tr>
<td>ST insurance appraisals to be made publically available.</td>
<td>5.29</td>
<td>5.27</td>
<td>5.86</td>
<td>4.89</td>
<td>4.71</td>
<td>5.28</td>
</tr>
<tr>
<td>Create CC adaptation awareness champions in and outside ST complexes.</td>
<td>3.71</td>
<td>4.20</td>
<td>4.17</td>
<td>2.96*</td>
<td>4.76</td>
<td>3.87</td>
</tr>
<tr>
<td>CC training modules for strata managers.</td>
<td>4.54</td>
<td>5.02</td>
<td>5.33</td>
<td>3.63*</td>
<td>5.41</td>
<td>4.69</td>
</tr>
<tr>
<td>Strata managers as champions of CC awareness strategies.</td>
<td>4.20</td>
<td>4.60</td>
<td>4.31</td>
<td>3.22*</td>
<td>5.29††</td>
<td>4.26</td>
</tr>
<tr>
<td>CC training modules for resident managers.</td>
<td>4.18</td>
<td>4.75</td>
<td>4.92</td>
<td>3.48*</td>
<td>5.12</td>
<td>4.38</td>
</tr>
<tr>
<td>Developers provide CC kits to unit purchasers.</td>
<td>5.25</td>
<td>5.58</td>
<td>5.75</td>
<td>4.70*</td>
<td>5.44</td>
<td>5.29</td>
</tr>
<tr>
<td>Higher standards of CC resilience for new buildings.</td>
<td>5.79</td>
<td>5.99</td>
<td>6.14</td>
<td>5.13*</td>
<td>6.25</td>
<td>5.80</td>
</tr>
</tbody>
</table>

*: Statistically significantly lower than remainder of the sample (Mann-Whitney U; p < 0.01).
**: Statistically significantly lower than remainder of the sample (Mann-Whitney U; p < 0.05).
††: Statistically significantly higher than remainder of the sample (Mann-Whitney U; p < 0.05).
5.3.3 Questionnaire Section 3 Findings: Disaster Management Recommendations

Bar charts showing frequency distributions of the data reported on in this section are provided in Appendix C6.

Section 3 of the questionnaire focused on disaster management plans in S&CT buildings. Three recommendations relating to disaster management plans were developed for appraisal by the respondents. The findings arising from this investigation are reported in Table 20 in a manner consistent with the format employed in the preceding section. The theme of resident managers scoring relatively lowly is again in evidence. It is particularly notable that resident managers’ lowest scores were recorded for the recommendation that concerned their profession, ie, “Introduce a requirement that in S&CT buildings above a certain size, the resident manager must complete a disaster management response training course to improve their capacity and powers to co-ordinate the activities of a building (evacuation, etc) in the event of an emergency weather event”.

For the whole sample, all three recommendations scored relatively highly. This becomes particularly apparent when it is recognised that the lowest ranking disaster management recommendation yielded a mean score higher than 9 of the 13 “preparing for CC” recommendations reported on in the preceding section. The highest ranking recommendation was worded in the questionnaire as follows: “All S&CT buildings above a certain size should be legally required to develop and communicate an emergency evacuation and management plan that is to be implemented immediately prior to, during and in the aftermath of a significant emergency weather event”.

Table 20: Cross stakeholder analysis of mean scores for disaster management recommendations

<table>
<thead>
<tr>
<th>Owners</th>
<th>Committee Members</th>
<th>Strata Managers</th>
<th>Resident Managers</th>
<th>Insurers</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop emergency evacuation and management plan.</td>
<td>4.92</td>
<td>5.40††</td>
<td>4.92</td>
<td>4.22*</td>
<td>5.63</td>
</tr>
<tr>
<td>Resident manager to complete a disaster management course.</td>
<td>4.69</td>
<td>5.29†</td>
<td>5.06</td>
<td>3.76*</td>
<td>5.44</td>
</tr>
<tr>
<td>Establish emergency status designation for ST complexes.</td>
<td>4.46</td>
<td>5.03††</td>
<td>5.14</td>
<td>4.39</td>
<td>4.56</td>
</tr>
</tbody>
</table>

*: Statistically significantly lower than remainder of the sample (Mann-Whitney U; p < 0.01).
†: Statistically significantly higher than remainder of the sample (Mann-Whitney U; p < 0.01).
††: Statistically significantly higher than remainder of the sample (Mann-Whitney U; p < 0.05).
5.4 Development of Supplementary Recommendations from Respondent Suggestions

As is evident from Appendix B, the questionnaire was structured in a manner that was designed to elicit suggested recommendations directed to the main strata and community title stakeholder groups. Recommendations were categorised in accordance with the main strata and community title stakeholder groups, and following the appraisal of recommendations that related to a particular stakeholder group, respondents were encouraged to offer any further S&CT building climate change adaptation recommendations that they would like to see directed to that group. This structure was employed in the questionnaire in order to ensure the respondents considered each stakeholder group in turn when making S&CT building climate change adaptation suggestions.

Eight supplementary recommendations have been distilled from the suggestions provided by the questionnaire respondents and these supplementary suggestions were the subject of a specific meeting of the study’s industry reference group. The following text identifies each recommendation and provides a supporting rationale for each recommendation.

**Supplementary Recommendation 1:** Professional and other non-government bodies such as Strata Community Australia and Green Strata to develop a list of experienced consultants and/or recommended experts who can be engaged to advise owner committees that wish to undertake climate change building adaptation planning and work.

**Rationale for Supplementary Recommendation 1**

Since owners in S&CT buildings, strata managers and also resident managers are unlikely to have particular climate change building adaptation expertise, they will need advice and guidance. If seeking climate change advice, these key stakeholders are likely to seek information from experts in the field. This is particularly so, given that climate change advice represents a relatively new expert discipline. Since the expertise is developing as both a discrete discipline and also part of more general building technology disciplines, a dual expertise identification approach should be taken.

Comments made by a representative of Green Cross Australia suggest that relative to the potential demand for this type of advice by S&CT buildings, there is likely to be a shortage of experienced people available at the time of preparing this report. We see this factor as providing additional support for this recommendation, as increased visibility given to experts in the field would likely result in more professionals seeking to develop a climate change S&CT building adaptation expertise. This signifies that in the early years in particular, the list would need to be updated regularly.

In addition to providing details of appropriate consultants and experts, the list could also provide information on the kind of experience advisors should have and also the types of questions that S&CT building committees and managers could ask potential advisors.

**Supplementary Recommendation 2:** Government (national, state and/or local) and private sector organisations with vested interests (like insurers and lenders)
to subsidise climate change adaptation works on one or more typical strata title buildings in order to provide a model of the type of climate change adaptation works that can be undertaken and to showcase the benefits.

**Rationale for Supplementary Recommendation 2**

Since awareness levels about climate change, climate change impacts, appropriate adaptation works and the resultant benefits appear to be low amongst strata and community title stakeholders, information and examples to help them understand what adaptation works can be undertaken are particularly important. The existence of examples of what climate change adaptation works can be achieved would be a valuable resource that could be drawn upon by any climate change adaptation champions working or living in S&CT buildings.

It is notable that the creation of model examples of S&CT building actions and options have already been pursued by government in connection with ecologically sustainable development and other environmentally sustainable initiatives. It is notable that further support for this recommendation was evident in some of the interviewee comments provided above in Section 4.

**Supplementary Recommendation 3:** Resident manager and strata manager contracts to include provisions covering the type and extent of their responsibilities and authorities in the event of an emergency incident.

**Rationale for Supplementary Recommendation 3**

Enquiries made by the research team suggest that it is rare for current strata manager and resident manager contracts to contemplate weather emergencies. The absence of such provisions creates unnecessary uncertainty with respect to who is responsible for what actions, should such an emergency event occur. Emergency event management can be expected to proceed more smoothly and in a more expeditious manner should clarification be given to the obligations of strata managers and resident managers, with specifications given with respect to what actions they should and should not take. If such matters are contracted for, a provision should also be made for a manager receiving appropriate remuneration for emergency event responsibilities undertaken.

Developing a set of pro-forma provisions for strata manager and resident manager contracts is recommended. Such provisions could then be adopted or modified to suit individual S&CT buildings, strata manager and resident manager situations. Such provisions should include mechanisms that would allow changes to be made to some of the more specific details of the emergency actions, in light of evolving technologies and knowledge.

**Supplementary Recommendation 4:** Insurers should base insurance risk assessment on a building’s specific characteristics, not just its geographical location. Basing insurance premiums on a building’s specific characteristics, which incorporate climate change resilience, will provide unit owners with an incentive to invest in adaptation to improve a building’s climate change resilience.
Rationale for Supplementary Recommendation 4

Since insurance premiums are not being based (in most cases) on specific S&CT buildings’ resilience, there is a diminished incentive for owners to invest in improving S&CT buildings’ resilience. Requiring more building specific risk assessment by insurers would result in a fairer building resilience assessment, more appropriate and equitable premium allocations, as well as greater clarity for S&CT building owners with respect to how investment in building adaptation can result in decreased insurance premiums. Ideally, any building resilience investments and climate change adaptation works that reduce insurance premiums should, ideally, have universal insurance sector approval, so that S&CT buildings that have undertaken such works would have the benefits recognised in premiums quoted, regardless of the insurance provider.

Challenges associated with implementing this recommendation include identifying the infrastructure characteristics that affect building resilience from an insurance risk perspective, ensuring that adaptations are universally recognised by insurers and the additional costs incurred by insurers in connection with conducting building specific insurance assessments.

The development of any new risk assessment guidelines should be made in conjunction with the work of the Australian Resilience Taskforce, which is an initiative of the Insurance Council of Australia that is intended to provide a platform for collaboration, and alignment across government, industry and non-government organizations to enable increased resilience in Australian communities (www.buildingresilience.org.au).

Supplementary Recommendation 5: Insurance companies to provide strata title schemes with a policy option to insure for infrastructure upgrades, in the event of a claim, not simply for the cost of replacement. Such upgrades could be conducted in a manner consistent with engineering greater building climate change resilience.

Rationale for Supplementary Recommendation 5

Currently, like for like replacement policies for S&CT buildings and the strata and community title law obligations to ‘keep in good and serviceable repair’ signify that S&CT buildings will almost invariably install equivalent replacement structures following weather damage. So, an opportunity for improvement and engineering better climate change resilience is lost.

A challenge in implementing this recommendation would likely stem from an apparent widely held insurance industry culture that is opposed to ‘betterment’. A second problem in implementing this recommendation concerns how ‘betterment’ could be handled in a S&CT building insurance policy. One way of dealing with this issue could be to include a policy clause that allows replacement of infrastructure with infrastructure that is (say) up to 25% more expensive than a ‘like for like’ replacement.
Supplementary Recommendation 6: Government and industry based training courses directed to strata title unit owners, committee members, managers and other stakeholders to include a ‘prepare your strata title building for climate change’ component.

Rationale for Supplementary Recommendation 6

As part of a wider effort to promote strata and community title stakeholder education, training on climate change issues and challenges should be made available to all key stakeholders. Since the knowledge in question is largely universal to all stakeholders, a generic training module that is appropriate for owners, committee members, strata managers and resident managers could be developed.

Supplementary Recommendation 7: A pro forma disaster management plan or plans for strata title communities should be developed by government and/or non-government bodies and made available on a government and privately maintained “prepare your strata title building for climate change” website.

Rationale for Supplementary Recommendation 7

There are already many resources concerning weather emergencies and other disasters, but in only very limited situations do S&CT buildings adopt them. It appears that even when adopted in the S&CT building context, they are for limited kinds of emergencies.

Yet much of the information and knowledge is universally applicable. So, developing pro-forma disaster and emergency management plans that can simply be adopted or modified to suit individual S&CT buildings’ needs is recommended. Similarly, associated information for owners, residents and other stakeholders can be prepared to inform them of possible plans and important details.

It is notable that Green Cross Australia’s www.hardenup.org website contains pro forma information for tenants about extreme weather preparedness. This was developed in conjunction with the Residential Tenancies Authority. This resource would provide valuable input to the design of any government initiated pro forma disaster management plan that is tailored to the S&CT context.

Supplementary Recommendation 8: As part of the building development and construction approval process, require that an evacuation plan and general disaster management plan be included in a scheme’s original documentation prepared by developers.

Rationale for Supplementary Recommendation 8

Associated to the recommendation about pro forma disaster management plans is this recommendation that developers should prepare and include such plans as part of the original documents for S&CT buildings. Implementation of this recommendation would result in all new S&CT buildings having such a plan and the plan should be made
readily available to all owners and residents. If pro forma plans are available (as per the previous recommendation) then developers could simply adapt them to the particular needs of each building that they develop. This practice would also focus developer attention on climate change and weather emergencies before S&CT buildings are completed. Over time, this can be expected to influence the design of S&CT buildings in a manner consistent with better preparedness for climate change.
SECTION 6 — CONCLUSION

6.0 Study background

The widespread adoption of an urban consolidation policy ensures that an ever increasing proportion of Australians will live in strata and community titled accommodation. This is because the S&CT form of property ownership has, for all intents and purposes, become the default ownership model in high rise apartment and medium density dwelling living. It has been estimated that around 10% of Australians live in S&CT complexes (Easthope, Randolph and Judd, 2012) and urban consolidation policies suggest these numbers will continue to rise.

The S&CT buildings ownership model manifests several idiosyncratic characteristics. These idiosyncrasies include:

- S&CT buildings are run by an elected volunteer committee that may well be relatively poorly trained and many have little experience in business or property management.
- There is a need to develop procedures and mechanisms that will support the maintenance of infrastructure that is owned in common by all owners in S&CT buildings.
- There is a high propensity for antagonism and disputes to arise between owners within a single S&CT building. This propensity stems from S&CT buildings generally involving relatively close quarter living and the need for owners to collaborate with one another in order for their S&CT buildings to operate.
- A complicating factor in the running of S&CT buildings stems from the large number of stakeholders involved. This group of stakeholders can include the committee, individual owners, a strata manager, a resident manager and tenants. There can be considerable disparity in the views of owners with respect to aspirations for S&CT buildings and how S&CT buildings should be run. This problem is exacerbated when it is recognised that similar disparities can arise across stakeholder groups.

When this range of idiosyncratic factors associated with S&CT building living is considered in the context of the size of the Australian strata and community titled housing stock, it becomes apparent that this subset of the Australian housing market warrants the tailoring of policy that recognises the particular needs of the sector. This perspective underscores the significance of this report.

6.1 Government Policy Making insights arising from the study

Analysis of data collected during the study's interview phase has resulted in the distillation of six thematic issues that should be considered when seeking to better prepare strata titled communities for a world of climate change.

These six themes are:

1. Facilitating unit owner awareness of climate change implications
2. Facilitating information availability to key decision makers
3. Facilitating S&CT building decision making
4. Funding S&CT building adaptation work
5. Weather event emergency management
6. Insurance as risk management

These six themes can be usefully drawn upon as a framework that can inform the design of a comprehensive government policy response to the challenge of better preparing S&CT buildings for a world of climate change.

With respect to the first theme ‘facilitating unit owner awareness of climate change implications’, it should be noted that many interviewee comments pointed to a lack of S&CT building owner awareness in connection with strata and community title issues in general. Further, in data collected during the questionnaire survey phase, the question “To what extent do strata title unit owners have an appreciation of climate change and its potential impact on strata title complexes operations and management?” yielded a very low mean score. This highlights the presence of a significant stumbling block that will likely impede efforts to promote climate change preparedness amongst S&CT buildings. This is because, in order for climate change preparedness in S&CT buildings to progress, there needs to be conviction and commitment exhibited by owners. It is the owners that will need to ratify any adaptation works for S&CT buildings and it is the owners that will need to fund such works. Further, disaster management plans cannot be expected to be effective should they fail to secure the support of S&CT building residents (many of whom will be owners). These factors strongly suggest that S&CT buildings will be ill-prepared for climate change should a large proportion of owners remain unaware of the potential impact of climate change on S&CT buildings. This highlights the importance of government policy directed to facilitating owner awareness of climate change implications.

With respect to the second theme ‘facilitating information availability to key decision makers’, it has already been noted that several different kinds of stakeholders are involved in S&CT buildings. Stakeholders with significant potential to influence key decisions in a S&CT building include the elected committee that represents the owners, the strata manager and also the resident manager. As these individuals are highly influential in a S&CT building’s decision making process, it follows that government policy should be directed to ensuring such individuals have a strong appreciation of climate change implications for S&CT buildings and be equipped with tools and approaches that can combat the vagaries of extreme weather events associated with climate change.

With respect to the third theme ‘facilitating S&CT building decision making’, it needs to be recognised that the S&CT decision making procedures and the authority of particular stakeholders are highly regulated by state statutes. For instance, in many states, 75% of owners in S&CT buildings must support a proposed common property infrastructure upgrade for this type of decision to be approved. There are also statutory requirements in connection with the calling of committee meetings and also owners’ meetings. Yet, in an emergency situation that might result from an extreme weather event, a more flexible approach with respect to decision making processes in S&CT buildings may be needed. Accordingly, government policy should be directed to ensuring S&CT buildings have the scope to implement decision making procedures that recognise the realities of managing in a climate change context.

Two factors conspire to make the fourth theme ‘funding S&CT building adaptation work’, a factor worthy of particular consideration. Firstly, a fundamental issue in S&CT
buildings concerns the need to achieve consensus surrounding what common property building works should be undertaken. Secondly, in many S&CT buildings, this type of decision has to be made in the context of a strongly-held cost minimisation culture. The confluence of these factors highlights the importance of government policy directed to facilitating the approval and funding of S&CT building adaptation work.

With respect to the fifth theme ‘weather event emergency management’, it is apparent that distinct emergency management challenges arise in S&CT buildings. In a single title property scenario, we give little consideration to the issue of who will be making key decisions in the event of an emergency situation. Either one or two people generally own the dwelling in question and decision making occurs in line with the dynamics existing between these owners, who will usually be part of the same nuclear family. The strata and community title context is much more complicated. Firstly, there are many more people living in the typical S&CT building. There can be a mix of owners, tenants, a strata manager and a resident manager involved. Who is to take charge and what particular decision making processes are to be invoked in an emergency situation? In S&CT buildings, the increased number of people and the much more complicated dynamics of human interaction signify the importance of government policy that recognises and addresses the particular challenges presented by an emergency weather event occurring in the context of S&CT buildings.

Finally, with respect to the theme ‘insurance as risk management’ the need for government policy to address this issue has recently been recognised. Earlier this year the Australian Federal Government conducted an enquiry into strata and community title insurance and subsequently published its report: “In the Wake of Disasters Volume Two: The affordability of residential strata title insurance” (2012). As insurance is viewed as a fundamental mode of asset risk management by strata and community title stakeholders, government policy should be directed to exploring how strata title insurance practices can be modified to best facilitate climate change preparedness in S&CT buildings.

One further insight that has become apparent from this research is that many of the identified issues concerning S&CT building climate change preparedness exhibit extensive commonalities with other governance and management issues confronting S&CT buildings. The challenges of building owner and manager awareness, championing initiatives, getting requisite decisions ratified by owners and implementing actions are similar to other S&CT building management challenges. This signifies that many of the research outcomes carry potentially broader beneficial implications for the S&CT sector.

6.2 Specific Recommendations arising from the study

The thematic framework just described has given structure to the development of a set of recommendations. The recommendations have been purposely designed to cut across the broad range of strata and community title stakeholders to promote greater reach for the ‘need to prepare for climate change’ message.

The nature of this broad reach is apparent from Tables 13 and 14 that highlight the range of stakeholders affected by the recommendations and also the range of stakeholders that would be involved in implementing the recommendations. As noted in the preceding section, the relative merit of a significant proportion of these
recommendations was appraised by way of a survey completed by 450 individuals involved in the strata and community title sector. None of the recommendations was accorded a mean score that was sufficiently low to warrant the recommendation being withdrawn from consideration. Accordingly all of the recommendations are reproduced here and commended to government as worthy of policy consideration. While the first four recommendations are specifically directed to government policy, it is believed all of the recommendations carry the potential to provide insights that can inform government policy.

6.3 Other findings and recommendations

With respect to the originally conceived objectives of this study, as noted in the introductory section of this report, at its outset the study had a sinking fund orientation. This focus was broadened substantially, however, following the observation that sinking fund levies are determined by planned levels of expenditure. Sinking funds do not lend themselves to raising levies from owners in order to fund uncertain future common property expenditures. Talking of climate change related rectification work, Interviewee H commented:

“It might happen, it could happen today, it could happen in 10 years, it could be only $4,000 or it could be $400,000. Trying to put those into a cash flow modelling accounting exercise, which is what a sinking fund budget and sinking fund forecast is, don’t sit very well.”

Rather than sinking funds, insurance is widely-perceived to be the primary vehicle for managing uncertainty in connection with common property expenditure. Comments made by insurance specialists suggest there is nothing specific to the risk encountered in the insurance of S&CT buildings that distinguishes it from the risk encountered when insuring any other properties. As a result, no specific models for managing risk when extending insurance cover have been developed by strata and community title insurance specialists. For the reader interested in issues surrounding the insurance of S&CT buildings in areas affected by extreme weather events, we recommend a review of the 2012 Australian Government report “In the Wake of Disasters, Volume Two: The affordability of residential strata title insurance”.

In addition to examining stakeholder attitudes to the recommendations noted above, the questionnaire survey was deployed to determine:

(a) S&CT building owners' appreciation of climate change and its potential impact on building management demands, and
(b) the capacity of S&CT building committees to implement managerial procedures and financing measures to effectively rectify randomly occurring climate change induced building damage.

A 7 point Likert scale measurement item was developed to measure each of these factors. The question concerned with S&CT building owners' appreciation of climate change and its potential impact on building management demands yielded a low mean score of 2.81 (on a 7 point Likert scale where '7' corresponds to “Very high appreciation”), suggesting owners have a low appreciation of climate change and its potential impact on strata title operations. Somewhat similarly, the question concerned with the capacity of S&CT building committees to implement managerial procedures and financing measures to effectively rectify randomly occurring climate change
induced building damage yielded a low mean score of 2.88 (on a 7 point Likert scale where ‘7’ corresponds to “Very high capacity”). This suggests that S&CT building committees do not have a strong capacity to rectify climate change induced building damage.

The questionnaire was also used to elicit recommendation suggestions from the survey respondents. As the survey phase of the study cast a data collection net to a relatively wide S&CT audience, compared to the exploratory interview phase of the study, the recommendations coming out of the survey phase can be viewed as influenced by some more ‘grass root’ perceptions of S&CT living. The subjects informing the exploratory interview findings can be characterised as being “industry experts”. Such a claim could not be made of the survey respondents, however, as a large proportion of the respondents are unit owners in S&CT buildings. While such individuals have accumulated S&CT unit ownership experience, this does not signify that their views on climate change adaptation are necessarily well-informed or sophisticated. Accordingly, many of the ‘supplementary recommendations’ have more of an ‘every day’ applied orientation than the recommendations that emanated from the exploratory interview phase of the study. This comment is not made with any derisory intent, more to flag that the supplementary recommendations have a slightly distinct, more ‘hands-on’ orientation. This distinctiveness can be viewed as furthering the comprehensiveness of the issues addressed by the recommendations, when viewed in their entirety.

### 6.4 An alternate classification of the recommendations

Urwin and Jordan (2008) promote the notion of integrating climate change adaptation measures across inter- and intra-government policy-making and regulatory frameworks. Suggested changes to existing systems can be usefully considered in terms of their contributions towards the three principal, and frequently overlapping (Gallopin 2006), pillars of climate change adaptation discourse: (general) resilience, (adaptive) capacity and vulnerability (for further discussion across different disciplines see Smit and Wandel 2006; Folke 2006; Engle 2011). Applying this rationale to the current study, Tables 21 - 23 provide a classification of all of the study’s recommendations according to whether they are primarily focused on resilience (Table 21), adaptive capacity (Table 22), or vulnerability (Table 23). Within these three tables, an attempt is also made to further analyse the recommendations in accordance with the manner of their imposition, ie., recommendations that constitute either:

1. Regulatory change
2. Change in industry codes or standards
3. Change in stakeholder practices
4. Other form of change.

It should be acknowledged that the classifications provided in Tables 21 – 23 should not be viewed in absolute terms, as subjectivity is bound to be exercised in undertaking this type of categorisation. Some measures, such as raising champions, are likely to have effects across all three tables, however in light of feedback provided during the interview phase of the study, it appears that the role of champions would be most significant in connection with initiating upgrades to existing buildings and therefore the recommendations concerning the development of champions have been categorised with recommendations aligned to adaptive capacity. Despite this caveat, it is believed
the tables are useful as they provide some insights into relationships between the
different recommended measures provided in this report.

This classification of the recommendations into Tables 21 to 23 can also be seen to be
highlighting differences across the temporal dimension. The recommendations
classified in Table 21 largely require ‘soft’ measures based on education and
responsive planning. These actions can be implemented comparatively swiftly and
broadly, i.e. with little effort and minimal capital investment across a large number of
relevant schemes. Recommendations classified in Table 22 are targeting ‘harder’
measures such as physical upgrades of existing parts of common property for existing
buildings. To make such upgrades will require the development of a business case,
navigation through a decision-making process and accumulation of funds, which in turn
will take more time. If not mandated, such upgrades will only occur in schemes that
have the foresight and willingness to address their extreme weather event vulnerability.
The recommendations classified in Table 23 relate to the most drawn out process, i.e.
the gradual replacement of existing buildings with new developments capable of
withstanding more severe weather impacts with little disruption to their operations and
service provisions.

Building stock is renewing at the rate of around 1-2% per annum (Ravetz 2008,
Deilmann et al. 2009, Bladh 2012). This signifies that by 2050, the year when global
temperatures will have increased by at least 3º C under very conservative assumptions
(IPCC 2007a), only 25% to 60% of buildings will achieve a level of compliance that
applied in or before 2012. This concerning scenario is exacerbated when it is
recognised that changes in building standards tend to occur in a reactionary manner
(i.e., after extreme weather event experiences) not in a prospective manner (i.e., in
advance of an anticipated change in the incidence of extreme weather events). In other
terms, most buildings planned and developed over the next five to ten years are likely
to be built by lagging standards influenced by what has happened today and in the
past, rather than by the need to ensure resilience to conditions projected for 2050 and
beyond. Lagging building standards is not a particular concern if the environment is
stable, however, it becomes a significant issue should the world be entering a period of
accelerating climate change.
Table 21: The nature of change promoted by recommendations most closely relating to resilience

<table>
<thead>
<tr>
<th>Regulatory change (acts, regulations)</th>
<th>Change to industry codes or standards</th>
<th>Change in stakeholder practices</th>
<th>Other form of change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disaster Management R - 1 (S&amp;CT State law)</strong>: All strata title complexes above a certain [size should be legally required to develop and communicate an emergency evacuation] and management plan that is to be implemented immediately prior to, during and in the aftermath of a significant emergency weather event.</td>
<td></td>
<td><strong>Strata Manager R</strong>: Provide information and training modules for strata managers about climate change and its impacts on, and adaptation strategies for, strata title complexes.</td>
<td><strong>Supplementary R - 6</strong>: Government and industry based training courses directed to strata title unit owners, committee members, managers and other stakeholders to include a ‘prepare your strata title building for climate change’ component.</td>
</tr>
<tr>
<td><strong>Disaster Management R - 2 (S&amp;CT State law)</strong>: Introduce a requirement that in strata title complexes above a certain size, the resident manager must complete a disaster management response training course to improve their capacity and powers to co-ordinate the activities of a building (evacuation, etc) in the event of an emergency weather event.</td>
<td></td>
<td><strong>Resident Manager R</strong>: Provide information and training modules for resident managers about climate change and its impacts on and adaptation strategies for strata title complexes. <strong>Supplementary R - 3</strong>: Resident manager and strata manager contracts to include provisions covering the type and extent of their responsibilities and authorities in the event of an emergency incident.</td>
<td><strong>Supplementary R - 7</strong>: A pro forma disaster management plan or plans for strata title communities should be developed by government and/or non-government bodies and made available on a government and privately maintained “prepare your strata title building for climate change” website.</td>
</tr>
<tr>
<td><strong>Disaster Management R - 3 (emergency management and public safety FEDERAL &amp; STATE law and disaster management plans/response systems)</strong>: Establish an emergency status designation for strata titled complexes which would signify a change in governance arrangements to deal with the changed circumstances confronted by owners, committees and managers during an emergency weather situation.</td>
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</table>

Adapting strata and community title buildings for climate change
Table 22: The nature of change promoted by recommendations most closely relating to adaptive capacity

<table>
<thead>
<tr>
<th>Regulatory change (acts, regulations)</th>
<th>Change to industry codes or standards</th>
<th>Change in stakeholder practices</th>
<th>Other form of change</th>
</tr>
</thead>
</table>
| **Government R - 2 (S&CT State law):** change current S&CT provisions to make it easier for body corporates to pass a decision to invest in climate change related property upgrades, reduce the threshold vote required for such decisions from the current unanimous or special resolution (three quarter majority) to a simple majority decision. | *Banking Sector R (Banking Act 1959 (Cth)):* Introduce provisions to require banks and other lending institutions to develop an appraisal procedure to rate a strata title complex’s exposure and resilience to climate change weather events and apply the rating as part of lending criteria utilised when extending mortgage loans to strata title unit purchasers. | *Committee:* Create climate change adaptation awareness champions within and outside strata title complexes.  
*Strata Manager:* Strata managers should be encouraged to become champions of climate change awareness and adaptation for strata and community title complexes.  
*Supplementary R - 5:* Insurance companies to provide strata title schemes with a policy option to insure for infrastructure upgrades, in the event of a claim, not simply for the cost of replacement. Such upgrades could be conducted in a manner consistent with engineering greater building climate change resilience. | *Government R - 1:* Establish and maintain a website and related social media outlets that provide a persuasive and authoritative rationale concerning the need for strata title complexes to invest in greater building climate change resilience.  
*Supplementary R - 1:* Professional and other non-government bodies such as SCA and Green Strata to develop a list of experienced consultants and/or recommended experts who can be engaged to advise owner committees that wish to undertake climate change building adaptation planning and work.  
*Supplementary R - 2:* Government (national, state and/or local) and private sector organisations with vested interests (like insurers and lenders) to subsidise climate change adaptation works on one or more typical strata title buildings in order to provide a model of the type of climate change adaptation works that can be undertaken and to showcase the benefits. |
| **Government R - 4 (S&CT State law):** introduce provisions that acknowledge the reality that some strata title complexes may become uninsurable or be unable to obtain affordable complete insurance cover by creating a ‘lower insurance cover’ or ‘uninsurable’ building category, subject to appropriate decisions and disclosures. | *Insurance R (Insurance Contracts Act 1984 (Cth)):* Insurers should be required to make their insurance appraisal of a strata title complex’s weather event risk exposure publicly available in a manner that the information can be easily accessed by owners and potential purchasers of lots in the building. | *Supplementary R - 4:* Insurers should base insurance risk assessment on a building’s specific characteristics, not just its geographical location. Basing insurance premiums on a building’s specific characteristics, which incorporate climate change resilience, will provide unit owners with an incentive to invest in adaptation to improve a building’s climate change resilience. | *Government/Development Industry R - 3 (Green Building Council Australia or UDIA):* Similar to the energy rating system that has been developed for buildings, to develop a building ‘weather event resilience’ rating system that provides an overall score based on sub-scores relating to different weather event risk exposures (e.g., ‘flood resilience sub-score’, ‘fire resilience sub-score’, ‘cyclone resilience sub-score’, etc.). |
Table 22 (cont’d): The nature of change promoted by recommendations most closely relating to adaptive capacity

<table>
<thead>
<tr>
<th>Regulatory change (acts, regulations)</th>
<th>Change to industry codes or standards</th>
<th>Change in stakeholder practices</th>
<th>Other form of change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sinking Fund R - (S&amp;CT State law):</strong> Include provisions that require projected expenditure on climate change building adaptation measures as a clearly defined part of forecast capital works by strata title complexes in sinking fund planning and forecasting.</td>
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<td></td>
</tr>
</tbody>
</table>

Table 23: The nature of change promoted by recommendations most closely relating to vulnerability abatement

<table>
<thead>
<tr>
<th>Regulatory change (acts, regulations)</th>
<th>Change to industry codes or standards</th>
<th>Change in stakeholder practices</th>
<th>Other form of change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Developer R - 2</strong> (Building Standards Australia): New building constructions should meet heightened standards with respect to climatic event resilience. For example, to lessen potential flood damage, significant lift infrastructure should be housed above basement levels.</td>
<td></td>
<td><strong>Supplementary R - 8:</strong> As part of the building development and construction approval process, require that an evacuation plan and general disaster management plan be included in a scheme’s original documentation prepared by developers.</td>
<td><strong>Developer R - 1:</strong> Developers should be provided with information and kits about climate change and its impacts on and adaptation strategies for strata titled complexes and be required to provide this information to buyers of units in new strata title complexes.</td>
</tr>
</tbody>
</table>
6.5 Gaps and Future Research Directions

The breadth of strata title property building, living and management issues that have been addressed in this report signify there is a wide range of opportunities for further research to capitalise on the research initiative reported on herein. The suggestions for further research highlighted here expound on just a few of these many opportunities. One potentially revealing avenue of research would be to investigate what legislation and other initiatives are being implemented internationally to address the particular challenges that climate change poses to strata titled communities. The multi-titling of properties globally has expanded dramatically in the recent past and it appears reasonable to expect that much could be learnt from examining what initiatives are being trialled overseas. Building further on this perspective, an international review could be made of websites that are designed to disseminate pragmatic advice on what climate change adaptation steps can be taken in high rise living and multi-titled property situations. To give greatest scope for uncovering useful insights, this investigation of sites should not be restricted to those written in English.

A significant factor that lies behind many of the issues discussed in this report is the widely applied governance model in strata titled buildings. This model sees volunteer committees charged with managing assets and infrastructure that can have a value well in excess of $100 million. Given the significance of this task, should an alternative governance model be developed for large schemes? For instance, a scheme could engage a Chief Executive Officer to oversee the day to day operating facets of a scheme in order to introduce greater professionalism to this facet of management and also to alleviate the owner committee work load in large schemes. Such a person would directly integrate the work of resident and strata management service providers and should have the necessary business training to objectively evaluate business cases in the best interest of the body corporate. Naturally, this would make a S&CT CEO a prime candidate for climate change adaptation training or even nomination as the S&CT scheme’s climate change adaptation champion. Further research into whether alternative governance structures are warranted and also what form such alternative structures might take is to be welcomed.

In light of the limited prior research concerned with climate change implications for strata titled buildings and communities, several of the study’s recommendations have been drawn up at a somewhat generic level of abstraction. For instance the recommendations concerned with implementing an emergency management plan do not detail what exact facets of management should be covered in such a plan, what contingencies need to be considered when drafting such a plan and how such plans should be integrated with already existing fire emergency evacuation procedures. Further work directed to raising the specificity of such issues should be viewed as a matter of exigency.

It was noted in the report’s introductory section that at the outset of the research, the study’s initially conceived objectives had a sinking fund orientation. Recognition of the legally restricted scope and also narrow focus of sinking funds resulted in the focus of the study being broadened to more broadly address the range of actions and procedures that could be implemented to better prepare S&CT buildings for a world of climate change. Further research could probe into whether the regulations applying to sinking funds could be modified to enable the funds to be used more flexibly. For
instance, in the event of significant common property damage, should an owners committee be allowed to draw on its sinking fund to pay for insurance excess payable in connection with the filing of a large insurance claim? Such an approach has intuitive appeal, as it may well be that the sinking fund has accumulated a large amount of funds in preparation for replacing that part of the common property that has suffered the damage that has given rise to the insurance claim. Such a scenario would signify the creation of a sinking fund surplus following the insurance funded replacement of the damaged common property. Could such a surplus be used to partially finance the replacement of damaged infrastructure with higher quality infrastructure that has heightened climate change resilience qualities? Also, greater sinking fund flexibility would allow S&CT schemes to contemplate the negotiation of insurance policies with lower premiums due to the capacity to introduce higher amounts of excess payable in connection with the policies. The capacity to use sinking funds in a more flexible way would appear to imbue a sinking fund with greater value to the owners of a building and may well lessen the apparent resistance to maintaining sinking funds at levels sufficient to ensure the timely replacement of common property infrastructure (Easthope et al 2012). This is another issue that could be further explored in future research.

6.6 Getting quick results

From a practical perspective, one might like to initially focus on which of the recommendations are likely to provide quickest results and carry minimal cost set up implications. From this perspective we feel that the recommendations that focus on improved awareness and the provision of information should be the first recommendations to consider adopting. More specifically we recommend that the following recommendations be considered for adoption first:

- **Developer Recommendation 1:** Developers should be provided with information and kits about climate change and its impacts on and adaptation strategies for strata titled complexes and be required to provide this information to buyers of units in new strata title complexes.

- **Government Recommendation 1:** Establish and maintain a website and related social media outlets that provide a persuasive and authoritative rationale concerning the need for strata title complexes to invest in greater building climate change resilience.

- **Strata Manager Recommendation:** Provide information and training modules for strata managers about climate change and its impacts on, and adaptation strategies for, strata title complexes.

- **Resident Manager:** Provide information and training modules for resident managers about climate change and its impacts on and adaptation strategies for strata title complexes.

- **Supplementary Recommendation 1:** Professional and other non-government bodies such as Strata Community Australia and Green Strata to develop a list of experienced consultants and/or recommended experts who can be engaged to advise owner committees that wish to undertake climate change building adaptation planning and work.
Supplementary Recommendation 3: Resident manager and strata manager contracts to include provisions covering the type and extent of their responsibilities and authorities in the event of an emergency incident.
SECTION 7 — REFERENCES


Australia Government House of Representatives Standing Committee on Social Policy and Legal Affairs enquiry. (2012-1). In the wake of disasters: inquiry into the operation of the insurance industry during disaster events. Australian Government, Canberra.


Easthope, H., Randolph, B. & Judd S. (2012). *Governing the Compact City: The Role and Effectiveness of Strata Management*. City Futures, Faculty of the Built Environment, University of New South Wales.


APPENDIX A — RECOMMENDATIONS FROM SCSPLA 2012-2

Recommendation 1
The Committee recommends that the Australian Government liaise with the Queensland government and urge them to implement a 12 month moratorium on Stamp Duty charged on strata title insurance for properties north of the tropic of Capricorn.

This moratorium should be implemented for the 2012-13 financial year, and extended for as long as strata insurance premiums continue to rise at a higher rate than the average for general insurance.

Recommendation 2
The Committee recommends that the Australian Prudential Regulatory Authority conduct a review of the risk assessment methodologies used by insurance companies to accurately price risk for strata title insurance coverage.

The review should particularly focus on strata insurance premium calculations in north Queensland in the last five years to determine whether the major driver for premium increases was:

- a failure to consider changes in building codes,
- the costs of reinsurance,
- historically inaccurate or inadequate assessment and pricing of risk, or
- the result of market forces, including heavy discounting.

This review should be completed by 1 October 2012 and provided to the Minister for Financial Services and the Australian Competition and Consumer Commission to determine if further investigation is required.

Recommendation 3
The Committee recommends that the Australian Competition and Consumer Commission conduct a review to identify the cost drivers, relative profitability and competition in the strata title insurance industry with a focus on the north Queensland market. This review should be completed by 1 October 2012.

Recommendation 4
The Committee recommends that the Australian Government investigate the feasibility of requiring insurance companies which provide types of mandated insurance (such as residential strata title) to offer this type of cover to all regions of Australia as part of their permit to operate in Australia.

The Committee further recommends that this investigation take into account the methodology for risk assessment and pricing for mandatory strata title insurance and how this pricing is applied equitably throughout regions of Australia.

This investigation should be completed by 1 October 2012 and provided to the Minister for Financial Services.

Recommendation 5
The Committee recommends that the Australian Government investigate and report on the expansion of the Australian Reinsurance Pool Corporation created to provide terrorist risk reinsurance for application to residential strata title schemes.
The investigation should consider the likely impact of the availability of this reinsurance on strata title insurance premiums. The report should be completed by 1 October 2012.

Recommendation 6
The Committee recommends that the Australian Competition and Consumer Commission undertake an investigation into the use of intermediaries to negotiate strata title insurance cover, in order to determine whether there is evidence of improper or anticompetitive behaviours taking place.

The investigation should focus on the Queensland market and indicate whether there is evidence to suggest a more thorough investigation is required. The report of the preliminary investigation should be made public by 1 October 2012.

Recommendation 7
The Committee recommends that the Australian Government, through the Australian Consumer Law framework, work with the Insurance Council of Australia and the Queensland Commissioner for Body Corporate and Community Management to improve the information and education resources available to Body Corporates and better equip them in the management of strata title affairs, with a focus on:

- understanding the cost components specific to strata title insurance, such as unlimited liability, Stamp Duty and GST, and valuations based on full replacement costs,
- consumer awareness of the contractual obligations to disclose fees and commissions, and the responsibilities pertaining to the contractual relationships between Body Corporates and their appointed managers or management companies, and and/or insurance brokers, and
- recognition of the factors that may contribute to the risk profile of a strata title complex and in particular factors which may assist in negotiating decreased premium pricing, such as varying the agreed excess.

The Minister for Financial Services should be provided with a summary of the measures undertaken to address these needs by 1 December 2012.

Recommendation 8
The Committee recommends that the Attorney-General conduct a review of state and territory legislative and regulatory requirements relating to strata title insurance. The review should consider:

- options to provide strata title complexes with greater flexibility in their choice of insurance arrangements, including the availability of tailored arrangements that may offer capped insurance cover on non-essential assets or infrastructure,
- the need to expand the role of the Financial Ombudsman Service to encompass strata title insurance issues,
- regulatory requirements to increase transparency in the disclosure of commissions and fees taken by intermediaries, such as insurance brokers and Body Corporate managers, and mechanisms to simplify the legal process for the dissolution of strata schemes.
The review should be completed by 1 October 2012. The findings and recommendations of the review should be raised with the Standing Committee of Attorneys-General.

**Recommendation 9**
The Committee recommends that the Australian Government outline the plan of reforms it will undertake, in conjunction with relevant State and Territory governments where necessary, in order to establish a competitive and affordable insurance market for residential strata title insurance.

The plan should be announced before 1 December 2012, be informed by the reviews and investigations recommended in this report, and have a particular focus on the north Queensland area.

**APPENDIX B — ON-LINE QUESTIONNAIRE SURVEY INSTRUMENT**

**Climate Change Adaptation for Strata and Community Title Complexes**

Hello and thanks for your interest in participating in this survey, which concerns preparing strata title communities for a world of increased climate change. The survey takes approximately 15 minutes to complete and is part of a research project conducted through Griffith University and the National Climate Change Adaptation Research Facility. The aim of this research is to develop recommendations that will cause strata title communities to be better prepared to deal with climate change. Your responses are valuable so please provide us with honest answers. Your participation will also enable you to enter a prize draw where you could win a $200 JB Hi Fi Gift Voucher.

Tip: if the image on your screen is too small, Control and “+” to increase size, or Control and “-” to decrease size.

If you would like to view this survey’s ethical clearance and prize draw information please indicate below. Otherwise, please indicate your willingness to participate below and begin the survey by clicking on the forward arrow at the bottom of the page

- I agree to participate
- Review Ethics Information & Terms and Condition of Entry

This survey is in the form of a questionnaire and is part of a research project conducted through Griffith University and the National Climate Change Adaptation Research Facility. It takes approximately 15 minutes to complete. The aim of this research is to develop recommendations that will promote strata titled communities being better prepared to manage the implications of a greater incidence of extreme weather events associated with climate change. Entry to a prize draw is on offer to all survey participants. This prize consists of: one $200 JB Hi Fi gift voucher. You will be entered in the prize draw simply by completing this survey and providing an email address for contact. Your email is required for contact purposes only and will not be used to personally identify you in any other manner. Ethics Information - Your participation is voluntary. Your IP address will not be visible to the researchers, stored or disclosed at any stage. The anonymity of your participation is assured by our procedure, in which the questionnaires are anonymous and only the combined results will be made known.
- Data will be stored securely on a removable memory stick used for the solitary purpose of this research. As such, access to the data will only be given to the investigators identified below. - The research has Griffith University Ethics Approval (HSL/15/12/HREC). - Griffith University conducts research in accordance with the National Statement on Ethical Conduct in Human Research. If you have any concerns or complaints about the ethical conduct of this research project please contact: The Manager, Research Ethics on 3735 5585 or email research-ethics@griffith.edu.au - If you have any questions or require further information on the research contact Prof. Chris Guilding (Chief Investigator) on 07 5552 8790. If you would like to see the results from the survey please contact the research team after 31 August 2012. Terms and Conditions of Prize Draw Entry 1. When you enter the competition, you accept these terms and conditions of entry. 2. Employees of Griffith University (“the University”) and their immediate families are ineligible to enter. 3. Entry into the competition is by completing this questionnaire and providing a valid email address for contact. 4. The first completed, randomly drawn entry will receive a $200 JB Hi Fi voucher. Winners must be able to collect their voucher from the Griffith University Gold Coast Campus or arrange a suitable, alternate delivery method. 5. The decision of the University is final and no correspondence will be entered into. 6. The prize is not transferable and cannot be redeemed for cash. The prize is not refundable. 7. The winner releases the University from any and all causes of action, losses, liability, damage, expense (including legal expenses) cost or charge suffered, sustained or in any way incurred by the winner as a result of any loss or damage to any physical property of the winner, or any injury to or death of any person arising out of, or related to or in any way connected with the University or the prize. 8. Any winner drawn for the prize who is unable to fulfil all of these terms and conditions will forfeit the prize and another winner will be drawn. 9. The winner will be notified by email by no later than 13 July 2012 at 5pm. 10. The competition opens to entries on 16th May 2012 at 10am and the competition closes at 5pm on 6th July 2012. The competition will be drawn at the Griffith University Gold Coast Campus on the 9th of July 2012. You do not have to be present at the draw to win. 11. The prize will be available for collection by the winner at the Griffith University Gold Coast Campus, or will be posted on 13th July 2012. Continuing with the survey will indicate your willingness to participate and acceptance of the terms and conditions of participation. Alternatively, you are free to close your browser window. Thank you for your time and support. Remember to print a copy of this information sheet should you require a copy for future reference. Thank you very much for your time and support.

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Part 1 - General Background Information

For ease of exposition, the term ‘strata title’ is used throughout this questionnaire to refer to strata and community title.

1.1 What is the nature of your primary engagement with the strata title sector?
- Unit Owner
- Strata Manager
- Insurance Services
- Professional Advisory Services
- Committee Member
- Resident Manager
- Banking Services
- Repair and Maintenance Services
- Tenant
- Developer
- Government / Regulator
- Researcher
- Other

1.2 In which state do you own a strata title lot OR which is your main State/Territory of strata title operations?
- ACT
- NT
- NSW
- QLD
- SA
- TAS
- VIC
- WA
- International

1.3 Please indicate (in numbers) how many years you have owned a strata titled unit or how many years you have worked in the strata title sector.
1.4 Please indicate (in numbers) how many lots there are in your strata titled complex, or the approximate average number of lots in the strata title complexes that you work with.

1.5 What is your view about claims that climate change (regardless whether man-made or not) is occurring and will cause a greater incidence of building damage?
- Strongly believe in no increasing damage from climate change
- 2
- 3
- No strong view either way
- 5
- 6
- Strongly believe in increasing damage from climate change

1.6 Please rate the extent of your knowledge and understanding of strata title operations:
- Very little knowledge and understanding
- 2
- 3
- Average level of understanding
- 5
- 6
- Very high level of knowledge and understanding

1.7 To what extent do strata title unit owners have an appreciation of climate change and its potential impact on strata title complexes operations and management?
- No appreciation
- 2
- 3
- 4
- 5
- 6
- Very high appreciation
1.8 To what extent do you believe the increasing risk of damage to property as a result of climate change is being discussed at strata title committee meetings or owners meetings?

- Not at all
- 2
- 3
- To some extent
- 5
- 6
- High extent

1.9 To what extent do you believe strata title complexes have a disaster and/or emergency management plan covering weather events such as flood water inundation, cyclone, storm, etc?

- Not at all
- 2
- 3
- To some extent
- 5
- 6
- High extent

1.10 How would you rate the capacity of strata title committees to implement managerial procedures and financing measures to effectively rectify randomly occurring climate change induced building damage?

- Very low capacity
- 2
- 3
- 4
- 5
- 6
- Very high capacity
Part 2 - Recommendations Concerning Improved Strata Title Preparation for Climate Change

For each of the recommendations provided below, indicate the extent to which they represent a strong or weak recommendation. The objective of each recommendation is to prompt better preparation of strata titled complexes for a world of increased building damage resulting from a greater number of extreme weather events. Recommendations will be addressed to eight stakeholder groups: government, banking sector, sinking fund forecasters, insurance sector, committees, strata managers, resident managers and developers.

Recommendations directed to Government

2.1 Establish and maintain a website and related social media outlets that provide a persuasive and authoritative rationale concerning the need for strata title complexes to invest in greater building climate change resilience.
   - Very weak recommendation
   - Very strong recommendation

2.2 To make it easier for body corporates to pass a decision to invest in climate change related property upgrades, reduce the threshold vote required for such decisions from the current unanimous or special resolution (three quarter majority) to a simple majority decision.
   - Very weak recommendation
   - Very strong recommendation
2.3 Acknowledge the reality that some strata title complexes may become uninsurable or be unable to obtain affordable complete insurance cover by creating a 'lower insurance cover' or 'uninsurable' building category, subject to appropriate decisions and disclosures.

- Very weak recommendation
- 2
- 3
- 4
- 5
- 6
- Very strong recommendation

2.4 Similar to the energy rating system that has been developed for buildings, to develop a building 'weather event resilience' rating system that provides an overall score based on sub-scores relating to different weather event risk exposures (e.g., 'flood resilience sub-score', 'fire resilience sub score', 'cyclone resilience sub-score', etc).

- Very weak recommendation
- 2
- 3
- 4
- 5
- 6
- Very strong recommendation

If you have a further strata title climate change adaptation recommendation that you would like to be directed to Government, please type it in the box below.

**Recommendations directed to the Banking Sector**

2.5 Banks to develop an appraisal procedure to rate a strata title complex’s exposure and resilience to climate change weather events and apply the rating as part of lending criteria utilised when extending mortgage loans to strata title unit purchasers.

- Very weak recommendation
- 2
- 3
- 4
- 5
- 6
Very strong recommendation

If you have a further strata title climate change adaptation recommendation that you would like to be directed to the Banking Sector, please type it in the box below.

Recommendations directed to Sinking Fund Forecasters

2.6 Include projected expenditure on climate change building adaptation measures as a clearly defined part of forecast capital works by strata title complexes in sinking fund planning and forecasting.

Very weak recommendation

Recommendations directed to the Insurance Sector

2.7 Insurers should be required to make their insurance appraisal of a strata title complex’s weather event risk exposure publicly available in a manner that the information can be easily accessed by owners and potential purchasers of lots in the building.

Very weak recommendation

Recommendations directed to Committees

2.8 Create climate change adaptation awareness champions within and outside strata title complexes.

Very weak recommendation
If you have a further strata title climate change adaptation recommendation that you would like to be directed to Committees, please type it in the box below.

**Recommendations directed to Strata Managers**

2.9 Provide information and training modules for strata managers about climate change and its impacts on, and adaptation strategies for, strata title complexes.

- Very weak recommendation
- 2
- 3
- 4
- 5
- 6
- Very strong recommendation

2.10 Strata managers should be encouraged to become champions of climate change awareness and adaptation for strata and community title complexes.

- Very weak recommendation
- 2
- 3
- 4
- 5
- 6
- Very strong recommendation

If you have a further strata title climate change adaptation recommendation that you would like to be directed to Strata Managers, please type it in the box below.

**Recommendations directed to Resident Managers**

2.11 Provide information and training modules for resident managers about climate change and its impacts on and adaptation strategies for strata title complexes.

- Very weak recommendation
Very strong recommendation

If you have a further strata title climate change adaptation recommendation that you would like to be directed to Resident Managers, please type it in the box below.

**Recommendations directed to Developers**

2.12 Developers should be provided with information and kits about climate change and its impacts on and adaptation strategies for strata titled complexes and be required to provide this information to buyers of units in new strata title complexes.

Very weak recommendation

2.13 New building constructions should meet heightened standards with respect to climatic event resilience. For example, to lessen potential flood damage, significant lift infrastructure should be housed above basement levels.

Very weak recommendation

If you have a further strata title climate change adaptation recommendation that you would like to be directed to Developers, please type it in the box below.
Part 3 - Disaster Management Plans

For each of the following recommendations, indicate the extent to which, if they were acted upon, they would facilitate better management of a strata title complex that is confronting a weather event that has the potential to inflict significant building damage.

**Recommendations directed to Government**

3.1 Establish an emergency status designation for strata titled complexes which would signify a change in governance arrangements to deal with the changed circumstances confronted by owners, committees and managers during an emergency weather situation.

- Very weak recommendation
- 2
- 3
- 4
- 5
- 6
- Very strong recommendation

Do you have any other strata title disaster management plan related recommendations you would direct to Government, if so, please insert in the box below.

**Recommendations directed to Committees**

3.2 All strata title complexes above a certain size should be legally required to develop and communicate an emergency evacuation and management plan that is to be implemented immediately prior to, during and in the aftermath of a significant emergency weather event.

- Very weak recommendation
- 2
- 3
- 4
- 5
- 6
- Very strong recommendation

Do you have any other strata title disaster management plan related recommendations you would direct to Committees, if so, please insert in the box below.
Recommendations directed to Resident Managers

3.3 Introduce a requirement that in strata title complexes above a certain size, the resident manager must complete a disaster management response training course to improve their capacity and powers to co-ordinate the activities of a building (evacuation, etc) in the event of an emergency weather event.

- Very weak recommendation
- 2
- 3
- 4
- 5
- 6
- Very strong recommendation

Do you have any other strata title disaster management plan related recommendations you would direct to Resident Managers, if so, please insert in the box below.

Do you have any other strata title disaster management plan related recommendations you would direct to any other stakeholder group, if so, please insert in the box below.
Part 4 - Other Issues

4.1 What do you see as the main obstacle(s) to strata titled complexes becoming better prepared to deal with an increasing potential for climate change induced building damage risk?

4.2 What do you see as the main issues and challenges with respect to the threat that climate change poses to strata title complexes?

4.3 Have you had first hand experience of an extreme weather event affecting a strata title complex that you live or work in?
   ♦ Yes
   ♦ No

4.4 For the extreme weather event affecting the strata title complex that you experienced, could you please indicate how well the damage caused by the event was managed in the complex?

4.5 Would you be willing to be interviewed in connection with the event you just described? If yes, please enter your preferred method of contact (email address / phone number) so that we can contact you.

Thank you for completing this questionnaire!

Do you have any other feedback that you would like to provide to the “Strata Title Climate Change Preparedness” research team?

If you would like to enter the $200 JB Hi Fi gift voucher prize draw, please enter your email address and / or phone number below. Any information entered here will not be used for any purposes other than contacting you should you win the prize.

If you would like to be sent an executive summary of the findings emanating from this survey, please record your email address below.
What is your view about claims that CC (regardless whether man-made or not) is occurring and will cause a greater incidence of building damage?

To what extent do strata title unit owners have an appreciation of CC and its potential impact on building management?

To what extent do you believe the increasing risk of damage to property as a result of CC is being discussed at committee meetings or owners meetings?

To what extent do you believe strata title complexes have a disaster and/or emergency management plan covering weather events?
How would you rate the capacity of B/C committees to implement managerial procedures and financing measures to effectively rectify randomly occurring CC induced building damage?
APPENDIX C2 — GRAPHICAL PRESENTATION OF GOVERNMENT RECOMMENDATIONS FINDINGS

(a) Establish and maintain a website and related social media outlets that provide a persuasive and authoritative rationale concerning the need for bodies corporates to invest in greater building climate change resilience.

(b) Lower the decision threshold for approving climate change adaptation (improvement) works in strata titled complexes from 75% or 100% to a majority decision.

(c) Acknowledge the reality that some strata title complexes may become uninsurable or be unable to obtain affordable complete insurance cover by creating a ‘lower insurance cover’ or ‘uninsurable’ building category, subject to appropriate decisions and disclosures.

(d) Similar to the energy rating system that has been developed for buildings, to develop a building ‘weather event resilience’ rating system that provides an overall score based on sub-scores relating to different weather event risk exposures, eg, ‘flood resilience sub-score’, ‘fire resilience sub score’, ‘cyclone resilience sub-score’, etc.
APPENDIX C3 — GRAPHICAL PRESENTATION OF FINANCE AND INSURANCE FINDINGS

(a) Develop an appraisal procedure to rate a strata title complex's exposure and resilience to climate change weather events and apply the rating as part of lending criteria utilised when extending mortgage loans to strata title unit purchasers.

(b) Include projected expenditure on climate change building adaptation measures as clearly defined part of forecast capital works by strata title complexes in sinking fund planning and forecasting.

(c) Make their insurance appraisal of a strata title complex's weather event risk exposure publicly available in a manner that the information can be easily accessed by owners and potential purchasers of lots in the building.
APPENDIX C4 — GRAPHICAL PRESENTATION OF IDENTIFYING AND TRAINING CC CHAMPIONS FINDINGS

(a) Create climate change adaptation awareness champions within and outside strata title complexes.

(b) Strata managers should be encouraged to become champions of climate change awareness and adaptation for strata and community title complexes.

(c) Provide information and training modules for resident managers about climate change and its impacts on and adaptation strategies for strata title complexes.

(d) Provide information and training modules for strata managers about climate change and its impacts on, and adaptation strategies for, strata title complexes.
APPENDIX C5 — GRAPHICAL PRESENTATION OF RECOMMENDATIONS TO THE PROPERTY DEVELOPMENT SECTOR FINDINGS

(a) Developers should be provided with information and kits about climate change and its impacts on and adaptation strategies for strata titled complexes and be required to provide this information to buyers of units in new strata title complexes.

(b) New building constructions should meet heightened standards with respect to climatic event resilience. For example, to lessen potential flood damage, significant lift infrastructure should be housed above basement levels.
APPENDIX C6 — GRAPHICAL PRESENTATION OF DISASTER MANAGEMENT PLANNING FOR S&CT COMPLEXES FINDINGS

(a) Establish an emergency status designation for strata titled complexes which would signify a change in governance arrangements to deal with the changed circumstances confronted by owners, committees and managers during an emergency weather situation.

(b) All strata title complexes above a certain size should be legally required to develop and communicate an emergency evacuation and management plan that is to be implemented immediately prior to, during and in the aftermath of a significant emergency weather event.

(c) Introduce a requirement that in strata title complexes above a certain size, the resident manager must complete a disaster management response training course to improve their capacity and powers to co-ordinate the activities of a building (evacuation, etc) in the event of an emergency weather event.