



ENGINEERS
AUSTRALIA

Managing building defects: roles, responsibilities and collaboration among owners, strata managers and engineers

March 2023



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1. Introduction

Building incidents such as the Miami Surfside condominium collapse demonstrate that communication between Owners, Strata Managers and Engineers in the post-project handover phase of residential buildings is critically important. Effective collaboration among the three parties is key to avoiding substandard outcomes over the lifecycle of assets. Commonly, the root cause of problems between the three parties arises from the parties not properly understanding the other's position, responsibilities, and problem-solving approach. It is essential that Engineers, Owners, and Strata Managers look to collaborate to achieve the best outcomes for the wider public and themselves.

This document is intended to provide high-level guidance on the obligations, responsibilities, and areas of expertise of Owners, Strata Managers and Engineers over the lifecycle of a building.

Owners Corporations are usually represented by voluntary strata committees with potentially limited technical knowledge. It is important that they are aware of their obligations. Owners need to have access to a variety of options for the provision of services that will allow them to make informed decisions about how to manage their asset most effectively. Regardless of their technical knowledge, state laws¹ stipulate that Owners are responsible for the issues regarding their asset.

Engineers' role as subject matter experts is increasingly important in assisting Owners to manage their assets from a technical standpoint. Engineers produce inspection reports which present findings and recommendations. It is essential that the advice provided by Engineers is clear, easy to understand and actionable. Where Owners do not have the level of technical knowledge to understand the Engineers' advice, they could be overwhelmed by the recommendations and associated costs/disruption to their buildings. In a worst-case scenario, they may decide to neglect these recommendations, leading to more substantial issues in the longer term, creating risks for all occupants, Owners and the wider public.

Strata Managers can help Owners maintain their asset by guiding and facilitating the communication between an Owners Corporation and Engineers, maintaining up-to-date records and ensuring that the appropriate steps are taken. Ultimately, the responsibility and decision to proceed (or not proceed) with actions such as inspections and maintenance programs rests with the Owner/Owners Corporation (in the case of residential strata schemes).

1 VIC and NSW laws for managing assets

2. The Challenges for Owners and Strata Managers

2.1 Roles of Owners, Strata Managers, and the Demarcation of Obligations

2.1.1 The Role of Owners

As the scale of residential strata properties has increased over time, so has the complexity of the buildings and associated building services. However, **all individual lot Owners (represented collectively by the Owners Corporation) are still responsible for the management of the building and all associated building services over the short and long term.**

The decisions made by Owners Corporations in the management of these assets can have long term consequences outlined in the table below. Good management and investment in necessary capital works and maintenance leads to better outcomes for both Owners and the wider public.

Good Management	Bad Management
<ul style="list-style-type: none">- Minimise building failures- Maintain building conditions- Maintain asset value	<ul style="list-style-type: none">- Deterioration of building condition- Loss of asset value- Failure of building elements compromising safety to residents and community

Table 1 – Good Management vs Bad Management

Owners Corporations are typically represented by elected Strata Committees. These committees are formed by Owners who act in a voluntary capacity and are not required to have any particular skills or training in building or asset management. Where Owners Corporations and Strata Committees do not have specialist in-house expertise, they must rely on services from specialist companies to provide the support necessary for the effective management of their asset or services equipment.

Traditionally, developers of new and larger residential properties appoint (for the first year of a building's operation prior to the 1st Annual General Meeting and occupancy of the Owners) a Building Manager and a Strata Manager, although this is not mandatory. A Building or Strata Manager can have significant influence on the establishment of proper and effective systems for the ongoing management and maintenance of the building. Owners should ensure that Building and Strata Managers are acting in their best interests as decisions made in the first few years of a building's operation will often have lasting consequences.

In addition, it is not uncommon for buildings to be affected by defective or outstanding works, and it is crucial that these matters be attended to by both individual Owners (for Owner's property) and the Owners Corporation (for common property). Failure to identify and address defective works will often have a lasting impact and impose future costs on Owners.

Common Definitions

Strata Manager

A Strata Manager (also known as Strata Managing Agent) is a licensed and qualified, professional entity (or person) appointed by the Owners Corporation or association, to manage the scheme in accordance with the strata agency agreement and within the proper regulatory framework and at the direction of the Strata Committee.

Building Manager

A Building Manager's role includes but is not limited to creating and managing the asset register and preventative maintenance schedule, organising and co-ordinating repairs and maintenance (to common property), issuing work orders and verifying invoices, and being an on-site contact for Owners, residents and contractors. If there is no Building Manager, as is the case in many smaller buildings, then the responsibility for these tasks typically falls to the Strata Manager.

Common Property

Common property includes any parts of the land, buildings and airspace that are not lots on the plan of subdivision. It may include gardens and other communal facilities, garages passages, walls, pathways, driveways, stairs, lifts and other services, foyers and fences. The common property is collectively owned by the lot Owners as tenants-in-common.

2.1.2 The Role of Strata Managers

It is common for an Owners Corporation to look to a Strata Manager for guidance when it comes to maintaining common property, though this is not mandatory. A Strata Manager's responsibilities are typically divided between administration, finance, and community management. Their core duties include:

- Administration, including meeting preparation, managing correspondence, and general secretarial duties
- Accounting and financial reporting, including levy collection and arranging payment of invoices
- Maintaining all Owners Corporation records including the as built records of the building
- Legal compliance, including insurance, and the issue of notices, orders, and certificates
- Helping to organise building maintenance, specifically common property, such as gardens, pool and barbeque areas, lifts, and parking areas
- Enforcement of rules and by-laws within the Strata scheme

At the inception of a building, there are specific requirements that the Owners Corporation must fulfil. These include managing defects, checking warranty periods and commencement dates, receiving maintenance schedules, managing building bonds and fulfilling specific legislative requirements. A good Strata Manager's role is to guide the Owners and facilitate the outcomes, but the ultimate responsibility lies with the Owners.

Maintaining records (financial and operational) is a key function of a Strata Manager. This is important as having clear, well managed records gives the Owners Corporation the ability to use current plans, contracts and previous schedules of work, when responding to required works. Advice regarding levies and budgets is part of the guidance provided by a Strata Manager, however the ultimate decision on funding is made by Owners.

2.1.3 The Demarcation of Obligations

The roles of the Strata Manager and Building Managers (if there is one) are reasonably well defined for most buildings and defined within the Agency Agreement². If there is no Building Manager/Building Management Agreement, in most cases the Strata Manager is likely to accept the responsibilities outlined in Appendix A – however this is likely to be billed out as an additional fee as the Building Managers functions are not core functions of a Strata Manager. For this reason, often a willing strata committee member or an Owner will take on some or all of the Building Managers' functions as they are on site.

Whilst a good Strata Manager or Building Manager will bring some knowledge to their role through past experience, their responsibilities will not extend to functions provided by specialists. Building and Strata Managers should **not** be relied on to advise exclusively on complex issues such as:

- Defect identification and rectification
- Preparation of comprehensive maintenance strategies and plans
- Detailed and routine checks of building condition
- Identification of mandatory or recommended (reactive) remedial works in response to specific or imminent failures of building components
- Identification of recommended (proactive) upgrade works to maximise asset performance and value
- Assistance with the preparation of necessary documentation and supervision of the above items.

These specialist functions are best provided through the services of one or more specialist Engineers or Building Consultants. Strata Managers and Building Managers can assist Owners Corporations in the appointment and management of these experts, however the decision to engage specialists ultimately sits with the Owners Corporation. A typical responsibility matrix is provided in Appendix A. Whilst these appointments are not mandatory, and may in some cases not be required, this often-neglected function should at the least be carefully considered by Owners Corporations.

2.2 Management of High and Medium Rise Buildings

Over time, high-rise buildings have become more popular and more complex. Generally, high-rise buildings are not registered as a single entity. It is common that they are mixed-use buildings comprised of residential, commercial and retail areas. Each part exists under various management structures. A common management structure is known as a Building Management Committee or BMC. A BMC is a collection of representatives of all residential, commercial and retail lots and common property in a development, charged with managing a list of shared facilities, and ensuring harmony between all stakeholders. Below this structure can be various other management structures such as strata plans, stratum lots and/or community associations (CA).

² For example, in NSW it is defined under: <https://www.fairtrading.nsw.gov.au/housing-and-property/buying-and-selling-property/selling-a-property/agency-agreements>

This level of complexity requires an experienced strata management firm with an experienced Strata Manager assigned to the scheme. In addition, it is critical that medium and high-rise schemes have the support of not only an experienced Strata Manager, but also a Building Manager, an active strata committee, and relevant experts to support them navigate the challenges that arise over the life of the building.

It is critical that those charged with managing a high and medium-rise development are aware of the importance and complicated nature of the technology used within the building. It is imperative that correct maintenance plans are adopted, warranties are not voided by improper maintenance, the correct experts continue to be involved, and appropriate funds are raised to support their engagement and required works. Cashflow is essential. Ensuring that sufficient levies are budgeted and raised can prove challenging when maintaining complicated technologies such as fire safety, HVAC (Heating, Ventilation and Air Conditioning), and elevator systems.

Particularly on high-rise, large scale, complex buildings, consideration may need to be given to the appointment of Engineers not just for specific issues but on a more holistic basis. The appointment of an Engineer provides ongoing and planned services over an extended period as well as specialist reactive advice on unforeseen or unplanned events. This will assist to optimise maintenance expenditure and maintain the building's condition with lasting benefits to recurrent costs (strata levies) as well as preserving long term asset value.

3. The Role of Engineers

An Engineer's role as an independent technical specialist is ideally suited to helping Owners Corporations manage residential buildings. From developing maintenance programmes to undertaking detailed inspections, performing root cause analyses and advising on defect rectification, Engineers are exceptionally well placed to provide advice on how to maximise the long-term viability and safety of a building.

Engineers should be independent with no conflict of interest with the builder or developer and represent the needs of the Owners and the community.

3.1 Establishing Maintenance Schedules

Preventive maintenance is maintenance that is regularly performed on equipment in working condition to prevent unplanned failure or breakdown and is usually triggered based on time or usage. For example, a preventive maintenance work order should be automatically triggered for a HVAC terminal unit operated for over a year.

Transitioning from predominantly reactive to mostly preventive maintenance takes time, dedication, resources and, most importantly, a plan. Achieving a successful preventive maintenance program means creating a preventive maintenance schedule and adhering to it. This leads to an improvement in safety and reductions in unplanned downtime, backlogs, miscommunication, accidents, and the costs associated with each and when implemented correctly, should ultimately save Owners' money over the long term.

Every facility is different, with different assets, goals, and resources. There is no one-size-fits-all approach to creating a preventive maintenance program. The following list should be considered when making a maintenance plan:

1. Establish and prioritise objectives

Every facility has different objectives, and those objectives influence all future decisions. It is essential to outline exactly what the maintenance plan will achieve. For example, questions such as 'Reduce downtime?' 'Increase reliability?' 'Cut costs?' can be discussed between Owners, Strata/Building Managers and Engineers to help reach consensus. These goals must then be prioritised to allow Owners to know where to focus attention.

2. Create Key Performance Indicators (KPIs) and commit to measuring them

Once goals are agreed it is important that metrics to measure performance are established. There are a variety of maintenance metrics available that Owners can use to measure performance. Some commonly used metrics include:

- Scheduled Maintenance Critical Percentage
- Planned Maintenance Percentage
- Preventive Maintenance Compliance
- Overall Equipment Effectiveness

Once these are established it is essential to build processes and procedures that ensure data is collected, analysed, understood and actioned on a regular basis. Engineers are best placed to help Owner Corporations decide which KPIs are most appropriate for their specific context, how to best measure these KPIs and what triggers are best to measure.

3. Obtain buy-in from stakeholders

Unanimous support is crucial as an effective preventive maintenance strategy requires everyone to be on board, from a technician who must input data as a part of an annual fire safety inspection to a Building Manager/Engineer who reads that data and makes decisions based on it. Getting buy-in from all stakeholders for a preventive maintenance plan includes having discussions about goals, skill sets, needs, resources and more with each member of the team.

3.2 Engaging Engineers – the Common Process

Although preventative services are recommended in this document, it is very common that Engineers are only called after the emergence of defects. Signs of defects are most often identified by Owners. Water ingress, dislodged panels, signs of cracking, audible anomalies, and equipment failures often trigger an Owners Corporation to involve an Engineer. Engineers can be engaged before any signs of defects are discovered, e.g., triggered by upcoming expiry of statutory warranty. For example, in NSW, before the 2-year warranty expires for non-major defects³, Owners may engage Engineers to do a final inspection. Once an Engineer is engaged, it is expected that defect rectification should be streamlined into a predictable process.

Finding defects in existing buildings can be troublesome and time-consuming, as there could be many latent conditions that have not yet been noticed/reported by the Owners. Engineers are expected to identify causes of existing and reported defects within buildings, as well as patterns and warning signs which could indicate possible undetected or future defects.

Desktop Research

Once engaged, Engineers typically start by gathering as-built records and conducting desktop research to understand how the building was constructed. It is critical that records of the building are obtained, maintained and updated regularly as outlined later in this document so that Engineers can work from the most up to date information. Based on the information provided by Owners and Strata Managers, Engineers determine key areas of interest and prepare plans for a first inspection.

Inspections

After establishing an overview of the building and associated issues, the Engineer conducts the first inspection, which is normally general, representative in nature and often visual. The first inspection helps the Engineer to gather necessary information that may not be captured by as-built records and identify areas for further investigation. In some circumstances, the Engineer may also sample various components such as façade or a representative set of typical apartments to infer the possibility of defects throughout the building to identify undetected and unreported issues.

From the second inspection onwards, the Engineer may start with more intrusive inspections, e.g. checking ceiling spaces, drilling through curtain walls. While these activities may cause disruption to some occupants, they will help the Engineer confirm and refine their hypotheses. This investigation process could be iterative as there may be findings after inspections that require further investigation by the Engineer.

Seeking further advice

When the Engineer identifies potential defects that do not fall under his/her expertise, the Engineer may recommend further investigation to be conducted by an appropriately qualified engineering practitioner. For example, when a façade engineer inspects a building façade and identifies an issue with the concrete structure such as cracking and dislodgement of concrete with evidence of corrosion of the reinforcement, then a structural engineer will be required to assess the observed defect.

3 <https://www.fairtrading.nsw.gov.au/about-fair-trading/our-services/resolving-issues/building-complaints>

Owners should be aware that they are entitled to seek a second opinion or independent peer review of an Engineer's advice, but shouldn't adopt a 'do nothing' approach, unless this has been recommended by the Engineer(s).

To demonstrate the process, a flow chart is shown below:

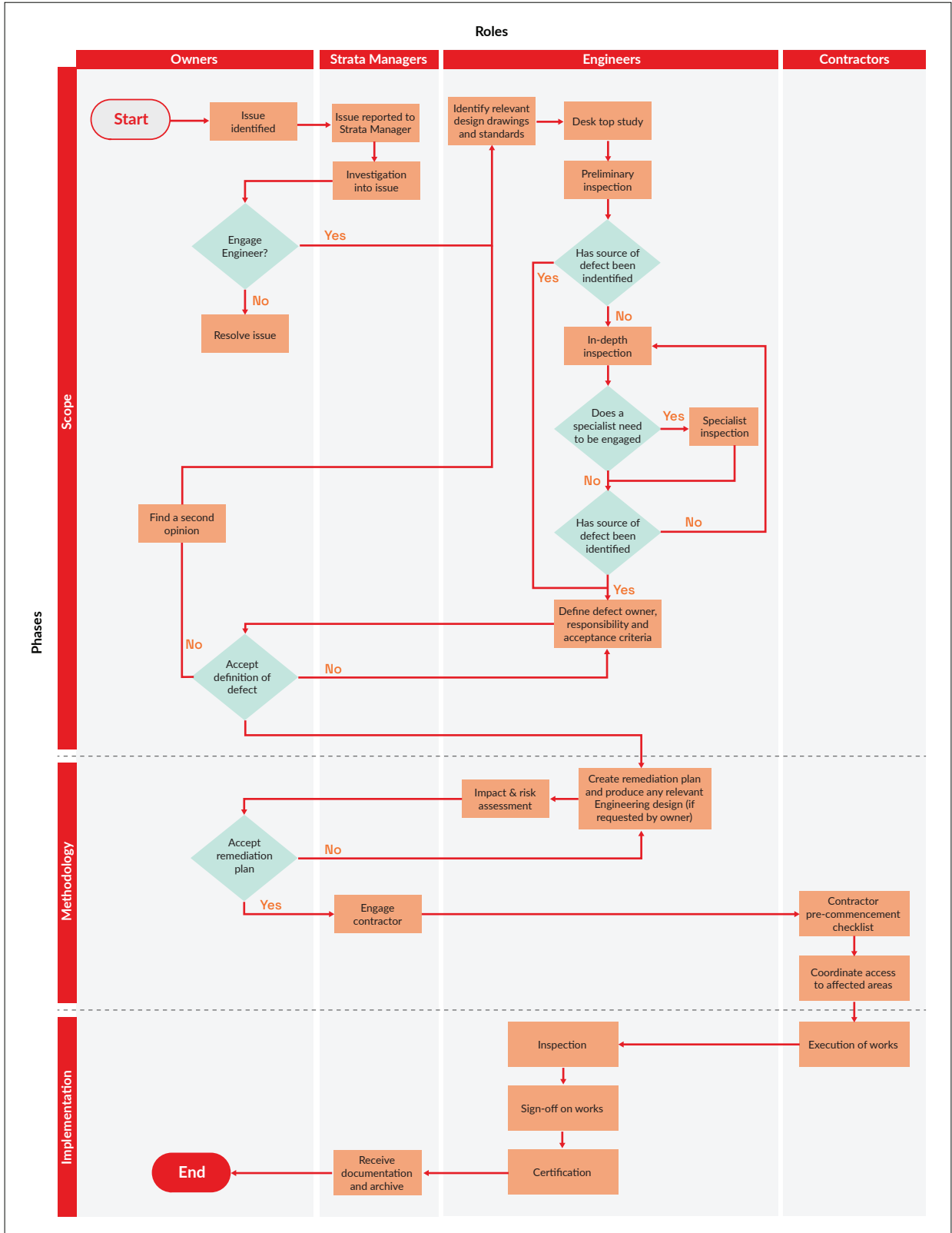


Figure 1. Defect Rectification Flowchart

3.3 Risk Based Approach

Sometimes, a one-size-fits-all approach may not help all stakeholders understand risk, and some installed systems may have prescribed methods of risk assessment. Depending on the quality and age of the building, it is possible that multiple defects could be identified across various disciplines. Often, Owners may not be able to remedy everything from the defects list. Therefore, it is important for the Engineers to help their clients (in this case Owners Corporations) create a risk-based approach to prioritise the remediation work required and understand what regulations may affect them.

Within the risk-based approach, it is also important for Engineers to consider the timelines for certain rectifications as well as the funding and cash flow required for each stage of remediation. These are key concerns for Owners and Strata Managers and play major roles in the sequencing of rectification work.

3.3.1 Visualising and Communicating Risk

While it is common for Engineers to deal with risk evaluation daily, Owners are often unfamiliar with the process. To aid in communicating with clients, certain tools can be used. For example, AS ISO 31000: Risk Management Guidelines outlines a two-dimension table to calculate risk based on likelihood and consequence, and visualises the result through risk rating and corresponding colour-codes, as shown in Table 2 below:

		Consequence				
		Low	Minor	Moderate	Major	Severe
Likelihood	Almost Certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	High	Extreme
	Possible	Low	Medium	Medium	High	High
	Unlikely	Low	Low	Medium	Medium	High
	Rare	Low	Low	Low	Medium	Medium

Table 2: Risk Rating Table

Tools such as this help clients in the decision-making process, effectively identifying risks and communicating which rectifications to prioritise. Naturally, when limited by budget, clients would start with extreme ratings and then make their way through the risk ratings to the low-risk items. Some low-risk items may not require any action at all if decisions and known consequences are properly documented and understood. This helps to increase the protection of their assets within a limited budget.

It is important that Engineers providing the services should ensure the clarity of their recommendations both for present and subsequent Owners where possible, e.g., through clear documentation and record keeping. Any detailed plan should provide sufficient context and outline possible future consequences if the defects are not addressed by the current remediation scope. Although clients may not have the budget to complete all recommended actions immediately, Engineers should clearly articulate what the consequences of the defects are, if not addressed promptly, and highlight any known associated statutory requirements where applicable.

4 Nature of Defects

The root cause of building defects can vary significantly. For example, some common defects are caused by design, fabrication, and construction processes, such as non-complying design, use of poor-quality material, and incorrect installations. Different contracts and procurement methods may also lead to increased number of defects if the team does not have sufficient experience/willingness to manage each process properly.

Once the building has been completed and handed over, new defects may arise over the lifetime of the building. Under this category, defects may be caused by lack of maintenance or equipment approaching end of service life.

Sometimes changes to legislation/standards may result in new defects being identified in existing buildings. Some examples include asbestos and combustible claddings. Most frequently, standard updates do not require retroactive building updates. Hence it becomes a challenge for Owners to be informed of the changes and plan for any required works.

The evidence in NSW from the Fair Trading Occupation Certificate (OC) audits is that many apartment buildings have significant defects, related to general quality as well as safety. Research commissioned by the NSW Office of Building Commissioner and Strata Community Association NSW found that 39% of Strata buildings in the sample had experienced serious defects in the common property. A breakdown of these is shown in Figure 2 below. Most of these defects (51%) were identified through independent assessment by experts⁴.

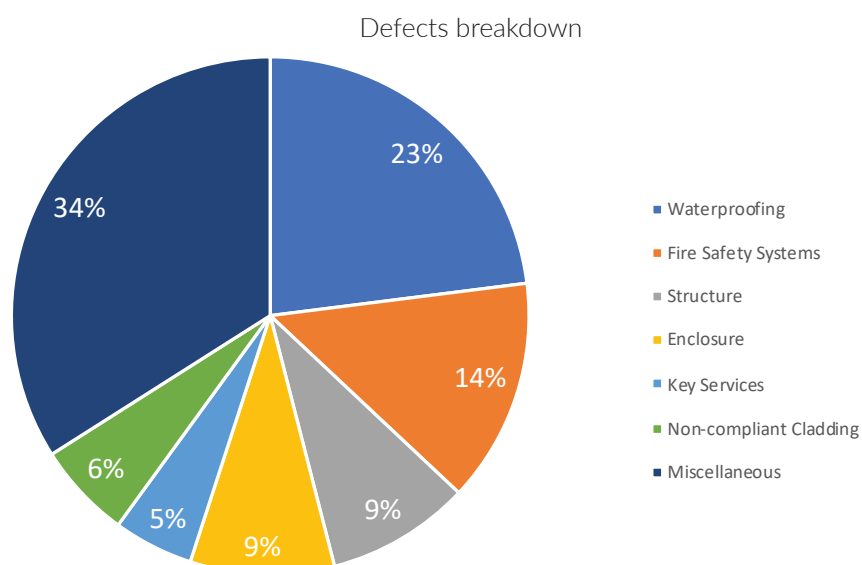


Figure 2. Defects breakdown

Owners and Owners Corporations face challenges when identifying, quantifying and resolving defects. Most significantly, most Owners and Owners Corporations may not have the technical skills or knowledge to identify anything other than superficial defects. The individual Owners will almost certainly not have access to, or an understanding of, the multiple documents, legal provisions and standards that define the obligations of the developer and builder and hence should consult with a specialist in this area.

⁴ Construct NSW, Improving Consumer Confidence, Research report on serious defects in recently completed strata buildings across New South Wales at September 2021

5 Recommended Guidance

5.1 Guidance for Owners and Strata Managers

The ability of the Engineers to identify and suggest remedial works for defects will be enhanced if Owners Corporations (with appropriate advice from Strata and Building Managers), through their Strata Committees, take a pro-active approach to maintenance, inspection, testing, defect identification and the preparation of the scope of work for any further investigation. This could include consideration of the following:

- 1. Act collectively:** Builders and developers may not take the initiative to analyse reported defect trends or take the initiative to roll out remedial works to other similarly affected but unreported apartments due to their own commercial interests. Collective action by Owners, particularly with the support of engineering expertise, will help to maximise the identification and resolution of defective works, particularly systemic defective works.
- 2. Maintain control over defects lists:** Builders and / or developers may mark defect rectifications as “complete” in their defects database without informing the Owners. Defects may be closed and deleted without providing Owners with a record of resolution. Owners should carefully consider how they record and monitor defects so that they can always maintain appropriate records. Ideally these should be held independently of anyone with an interest in closing them out.
- 3. Ensure Common Property defects within apartments are not overlooked:** Owners and Owners Corporations often fail to recognise that there are many areas within buildings that are the responsibility of the Owners Corporation to maintain. Strata Managers can assist with this, however Owners may not always be present, leaving tenants to report. Owners Corporations should carefully consider the potential risks for such defects and the most appropriate way of identifying and resolving these issues under the various building warranties available to them. One suggestion is to survey Owners of similar properties within the building about reported problems. A single report of noisy bathroom ventilation or, heavy bathroom condensation, may lead to identification of a systemic ventilation issue that needs to be addressed.
- 4. Identify potentially repetitive defects:** Owners should be aware that multiple lots reporting similar defects may be an indicator of a more wide-spread issue and could be an indicator that similar defects may exist but remain unreported in other lots.
- 5. Analyse the Root Cause:** Many observed defects are signs of different underlying defects: for example, peeling paint may be an indicator of an underlying water leak; mould in bathrooms may be an indicator of inadequate ventilation. Engineering reviews may often identify many unforeseen contributors to reported defects.
- 6. Obtain and review as-built drawings, reports and specifications:** In most states, Owners Corporations are by law entitled to receive complete and accurate as-built drawings and specifications (or reports in the case of fire safety systems)⁵. Review of these documents by qualified experts will potentially help to identify any significant areas of non-compliance or defect for further investigation and action. Strata and Building Managers also have an important role to play in keeping and maintaining records which is further explored below.

5 Refer local state laws: Strata Schemes Management Act 2015 (NSW) s. 16, Owners Corporation Act 2006 (VIC) s. 67, Strata Titles Act 1985 (WA) s. 78, Unit Titles (Management) act 2011 (ACT) schedule 3 s. 3.4, Strata Titles Act 1988 (SA) s. 38.3, Body Corporate and Community Management (Standard Module) Regulation 2020 (QLD) s. 96, Unit Titles Regulation 2002 (NT) s. 14.3.

7. **Obtain and review all testing and commissioning data:** Project delivery documentations, including Design and Construct Contracts which are prevalent procurement methods for residential buildings, require several tests and reports to be issued across a range of services. If appointed, Engineers can assist Owners Corporations to review the adequacy of the information provided and identify any potential areas of concern; if not provided, Engineers can advise on the potential need for sample testing to verify that building services are likely to meet the specified performance criteria.
8. **Do not ignore the risk of latent (hidden) defects:** Hidden defects can be extremely challenging to identify, particularly in the absence of any indicators. Furthermore, latent defects may not become apparent for some significant period after the expiry of any applicable warranties. It may therefore be necessary for Owners Corporations to consider engagement of engineering expertise to undertake a risk assessment based on a desk-top review of design drawings, and a representative investigation (including localised intrusive or destructive testing) to identify or rule out high-risk latent defects if appropriate.
9. **Terms of Engagement for Engineering Inspections:** The needs of every building with respect to identification and rectification of defective works will vary according to the circumstances facing each Owners Corporation. Careful consideration needs to be given to an appropriate scope that balances the cost of engineering inspections with the current and future needs of Owners. The appointment of an Engineer after the completion of works is not a substitute for the necessary quality control that should be applied throughout construction.
10. **Acceptance of Remedial Works:** For more significant defects, Owners should carefully consider whether they require specialist advice to determine whether the remedial works being proposed or undertaken by the builder are sufficient to rectify the issue to the required standards. Some builders may have a commercial incentive to undertake only a minimum or sub-standard level of rectification that may temporarily resolve the symptom, but not the underlying cause, of a significant defect. Independent expert advice is essential to confirm works are both properly scoped and completed to avoid future, potentially much more expensive problems.

Without the necessary technical advice, Owners Corporations run the risk of failing to identify many defects in their buildings, some of which may have significant long-term consequences and financial liability. Notwithstanding the many provisions contained in current legislation to protect Owners against poor workmanship, there will inevitably be a need for individual Owners Corporations to review the circumstances and potential risks associated with their building and consider the need for appropriate professional advice in the short term to ensure their long-term interests are protected. Appendix B has a list of questions that Owners can use as a starting point when consulting with the appropriate Engineer/Building Consultant.

5.2 Guidance for Engineers

Engineers should, at all times, work in the best interests of Owners and the wider public and avoid situations where critical issues are not reported, rectified and remediated. On a high-level, key information such as the following should be communicated with Owners:

- Budget consideration
- Time required for rectification
- Risks of rectification
- Risks of failing to rectify

- Possible disturbances to residents; and
- Ongoing Maintenance requirements.

In order to achieve the best outcome when communicating with Owners and Strata Managers, Engineers should consider the following:

Know Your Purpose and Audience

It is imperative that when addressing Owners and Strata Managers, that Engineers consider the expertise of those they are writing for. Often Owners and Strata Managers will have little to no knowledge of the technical requirements or specifications required for the rectification of a defect. It is essential that the contents of documents are presented in a manner befitting the priorities of the particular client.

When proposing a remediation plan, or any other similar documents for Owners, the use of technical language that is not further explained may confuse these groups more, masking the importance of critical issues and deterring them from taking necessary remedial action. If a specific technical term is required, make sure it is thoroughly explained and understandable. The use of graphics, tables or matrices can also help refine and illustrate points.

Understanding the Desired Outcome

An Engineer's role is to support Owners to make appropriately informed decisions and take the best, most practical course of action for a particular situation. For this to happen, Owners must have a sound understanding on not only the problem but the potential solutions. It can be useful to outline the pros and cons of several different solutions to give Owners a range of options to choose from. Owners can then choose the one most appropriate for their budget and risk appetite.

Uphold Code of Ethics

Engineers who are members of Engineers Australia have an ethical obligation to demonstrate integrity, practise competently and display leadership when dealing with issues within their area of technical expertise. Ethical engineering practice requires judgement, interpretation and balanced-decision making in context. At a fundamental level, Engineers, in the fulfilment of their professional duties must hold paramount the safety, health and welfare of the public and as such should abide by [Engineers Australia's Code of Ethics](#).

There may be cases where an Engineer's advice or guidance is challenged. When this occurs, it is essential for all parties to take a measured approach going forward to ensure the best possible outcome.

If an Engineer has concerns with their clients and deems that the situation is a threat to the safety and welfare of the public, it is the Engineer's responsibility to report those concerns to the appropriate building authority.

5.3 Importance of Record Keeping

It is important throughout the life cycle of a building that building records are appropriately kept, maintained, and updated. This role is usually undertaken by the appointed Strata Manager (if there is one) but is the responsibility of the Secretary if the scheme is self-managed. It is often a requirement that all financial and operational records for an Owners Corporation are retained for a certain period of time. For instance, in NSW, it is a requirement of the Strata Schemes Management Act 2015 (the Act) that all such records are retained for a period of seven years⁶.

⁶ Strata Schemes Management Act 2015 (NSW) s. 180.1 (Austl.)

There are key documents that must be provided at the First Annual General Meeting. While each state will have its own law, the below section from NSW is a good starting point for most strata. The relevant section of the Act is as follows:

Strata Schemes Management Act 2015 – Section 16

1. *An original owner or lessor of a Strata scheme required to convene a meeting under this Division must, not later than 48 hours before its first annual general meeting, deliver to the Owners corporation the following:*
 - a. *all plans, specifications, occupation certificates or other certificates, diagrams, depreciation schedules and other documents (including policies of insurance) relating to the parcel or any building on the parcel,*
 - b. *without limiting paragraph (a), all planning approvals, complying development certificates and related endorsed plans, approvals, “as built” drawings, compliance certificates (within the meaning of the Environmental Planning and Assessment Act 1979), fire safety certificates and warranties relating to the parcel or any building, plant or equipment on the parcel,*
 - c. *the Strata roll and any notices or other records relating to the Strata scheme,*
 - d. *the initial maintenance schedule,*
 - e. *any interim report or final report of a building inspector prepared under Part 11 and relating to any building on the parcel,*
 - f. *any other document or item relating to the parcel or any building, plant or equipment on the parcel that is prescribed by the regulations for the purposes of this section.*

It is imperative that the Strata Manager ensures that these records are provided at the commencement of the First Annual General Meeting as these documents will be relevant and integral to the on-going operation and maintenance of the scheme. A list of all documents, with unique identification numbers, should be noted in minutes and their presence signed off by the Secretary of the Owners Corporation.

5.3.1 Maintaining Records

Once a scheme is established, all books and records must be maintained and kept on file. This is a key function of a Strata Manager, if appointed, and appropriate systems are a must in maintaining organised and functional records. Although records can be maintained in paper form, it is recommended that records are maintained digitally, and properly indexed to access with ease. Digital records also provide both an opportunity for data recovery and a clear audit trail in case of disputes. Documents prepared for defects identification and remediation should also be kept in a consistent manner. As-built drawings and specifications for any defects addressed by the Owners should also be obtained and appropriately filed upon the completion of any rectification.

Records can be relied on as evidence for the purposes of mediation and legal disputes. In NSW, the Strata Schemes Management Act ensures access for review of the books and records. This is commonly done prior to a sale of a lot, where the Strata Manager is required to make available all books and records for them to be reviewed. It is common practice that this 'Strata Search' is done by a professional and that they provide a report to the purchaser of their findings.

The importance of good record keeping cannot be underestimated. Strata Managers, Owners, and Engineers all must work together to ensure that the records are stored in a centralised place and ensure that they are continually kept up to date.

6. Conclusion

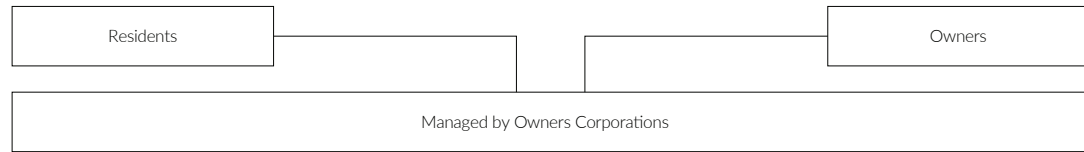
Currently 1 in 5 Australians live in Strata⁷. With the current rate of population growth, it is inevitable that a greater proportion of Australians will live in apartment buildings and accordingly the quality of apartment buildings requires an increased amount of focus, attention and diligence. Engineers can play a more supportive and significant role in the post-handover phase of a building's life to support Owners in minimising the impact of building component failures, maintaining building conditions and managing asset value. Strata Managers will also play a key role in facilitating communication and helping to guide Owners through the decision-making process when it comes to their buildings.

Collaboration between Owners, Strata Managers, and Engineers is key to ensuring the best outcomes for a building, the residents within, and the public. With clear communication, planning and prioritisation these three groups can help each other to overcome the challenges in managing Strata schemes.

⁷ Johnston, N., Lee, A., Mishra, S., Powell, K., BowlerSmith, M and Zutshi, A. (2021) A data-driven holistic understanding of strata insurance in Australia and New Zealand. Deakin University

Appendix A Responsibility Matrices

This matrix is a sample only, and is not exhaustive



	Issues	Owners Corporation / Strata Committees	Strata Management	Building Management	Engineers / Specialist Consultant	Builder / Remediation Contractors
Post Handover (Defects Liability Period)	Defect Management Identification	Determine strategy for dealing with outstanding and defective works; appoint experts as required; report defects to building management	Provide advice and options for defect investigation	Collate defects observed by the Building Manager or reported by owners/residents	Undertake detailed defects inspections and reports	Undertake handover inspections
	Defect Management Resolution		Preparation and communication of defects list	Co-ordinate defect management access (common property and lots) and subsequent sign off	Advise on defect rectification status; Sign off on completion	Attend to all outstanding and defective works
	Handover Documentation	Review handover documentation for adequacy; follow up any missing or inadequate items	Ensure handover documentation is provided	Receive, review and file handover documentation	Check handover documentation for adequacy (accuracy of as built drawings, suitability of manuals)	Provide all necessary building documentation (as-built drawings, manuals, etc.)
	Maintenance Manuals	Appoint experts to review adequacy of manuals; upgrade as required to suit agreed objectives	Ensure maintenance manuals are provided	Receive, review maintenance manuals	Review maintenance manual for appropriateness	Provide all necessary building documentation
	Maintenance Program				Develop Long term building and inspection and maintenance program	
Ongoing Responsibilities	Management	Attend meetings and determine strategy for management of the building	Management of Strata Committee Meetings, General Meetings	Compile and issue reports to Owners, attend meetings and follow up actions arising		
	Budget	Approve budget at AGM	Manage budget preparations	Assist with budget preparations	Input into budget preparations as required	Provide review on remediation budget scope and cost
	Statutory Inspection			Develop program for statutory inspections		Conduct inspections, e.g. Annual Fire Safety Statement (AFSS) inspections
	Maintenance Programs		Assist with development of maintenance programs	Develop maintenance programs	Provide input into maintenance programs	
	Capital Works	Commission and regularly review/update 10 year capital works plan	Assist with development of capital works programs	Develop capital works programs	Input into structure and detail of capital works requirements	
	Workplace Health and Safety	Commission and act on regular workplace health and safety inspections (where needed)		Implement actions arising from workplace health and safety inspections	Undertake regular workplace health and safety inspections and identify required/recommended remedial works (as needed)	
Building Inspections and Maintenance	Condition Inspections		Assist with arranging scheduled building inspections		Undertake scheduled building diagnostic inspections (to agreed scope)	Planned inspections
	Planned (pro-active) Maintenance	Ensure completion	Assist with arranging preventative maintenance program			Preventative maintenance program
	Unplanned (reactive) Maintenance /Repairs	Ensure timely rectification	Assist with arranging reactive maintenance services		(If required) Undertake root cause investigation to identify cause; recommend prevention strategies	Reactive maintenance services

Appendix B Common Questions for Experts

It is highly recommended that Owners inquire about the following when engaging an independent and appropriate expert.

1. Qualifications and conflicts of interest:
 - a. Is the specialist qualified?
 - b. How experienced is the specialist?
 - c. Do they comply with the state's statutory requirements? (Is the specialist registered?)
 - d. Has the specialist been recommended by other Owners?
 - e. Does the specialist have any conflict of interest with Owners, Strata Managers or Developers?
2. The level of compliance required when assessing whether an item is a defect:
 - a. Does it comply with current National Construction Code (NCC) or the NCC current at the time of issue of Construction Certificate?
 - b. Does it comply with relevant Australian Standards (AS)?
 - c. Does it comply with manufacturer's installation instructions? (This is particularly important for elements such as waterproofing membranes)
 - d. Does it comply with the contractual documents (Principal's Project Requirements, PPR)?
 - e. Does it comply with Additional Design Documents?
Forms such as AS4902 General conditions of contract for the provision of asset maintenance and services (Principal's version) can be used as a form of contract. These may outline specific terms for variations to the design which may be atypical.
3. Outcomes to be agreed when identifying a defect:
 - a. Defect identification. (i.e., what is the defect?)
 - b. Defect definition
Definition may differ from identification in instances where the initial defect identified was merely symptomatic of a larger underlying issue. E.g., a crack in a wall may be symptomatic of sinking foundations.
 - c. Agreed acceptance criteria
 - d. Quantification
(i.e., how frequently does the defect occur or how often could it potentially occur)
 - e. Rectification proposal (including redesign scope if required).
4. Options regarding rectification scope:
 - a. Make good to original design standards
 - b. Make good to an alternative design standard
(i.e., where full compliance to the original design is not practical and formal approval of an alternative design can be established)
 - c. Do not rectify at all
This option should only be taken if the rectification cost vastly exceeds the benefit and the consequence of 'no action' is acceptable to all parties.
5. Prioritisation (refer section 3.3.1 Table 2):

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