



## **STRATA GUIDE TO BUILDING DEFECTS**

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An estimated *three million people* live in strata titled homes in Australia. New South Wales boasts the largest number of strata titled properties in Australia, with nearly a quarter, or approximately 1.2 million people living in strata titled homes across the state. This presents an interesting situation, as an increasing number of Sydney residents find themselves legally bound to their neighbours for the upkeep and maintenance of their property, and the surrounding community of apartments to which they belong.

With varying tiers of responsibility and accountability laced between vested parties - strata schemes, body corporates, executive committees, property agents - issues and concerns around building management and maintenance are becoming all too common.

Over the last decade in particular, *building damages and defects* have taken the centre stage as all-too frequent issues for property owners and strata managers. From water leaks, to cracks in the external facade of a building; the frequency of building faults, and the problems that occur when trying to find a reliable solution, are issues that demand further attention.

So why are building defects so common? And what can you do to repair, resolve, and avoid costly building defects in future?

## What is a Building Defect?

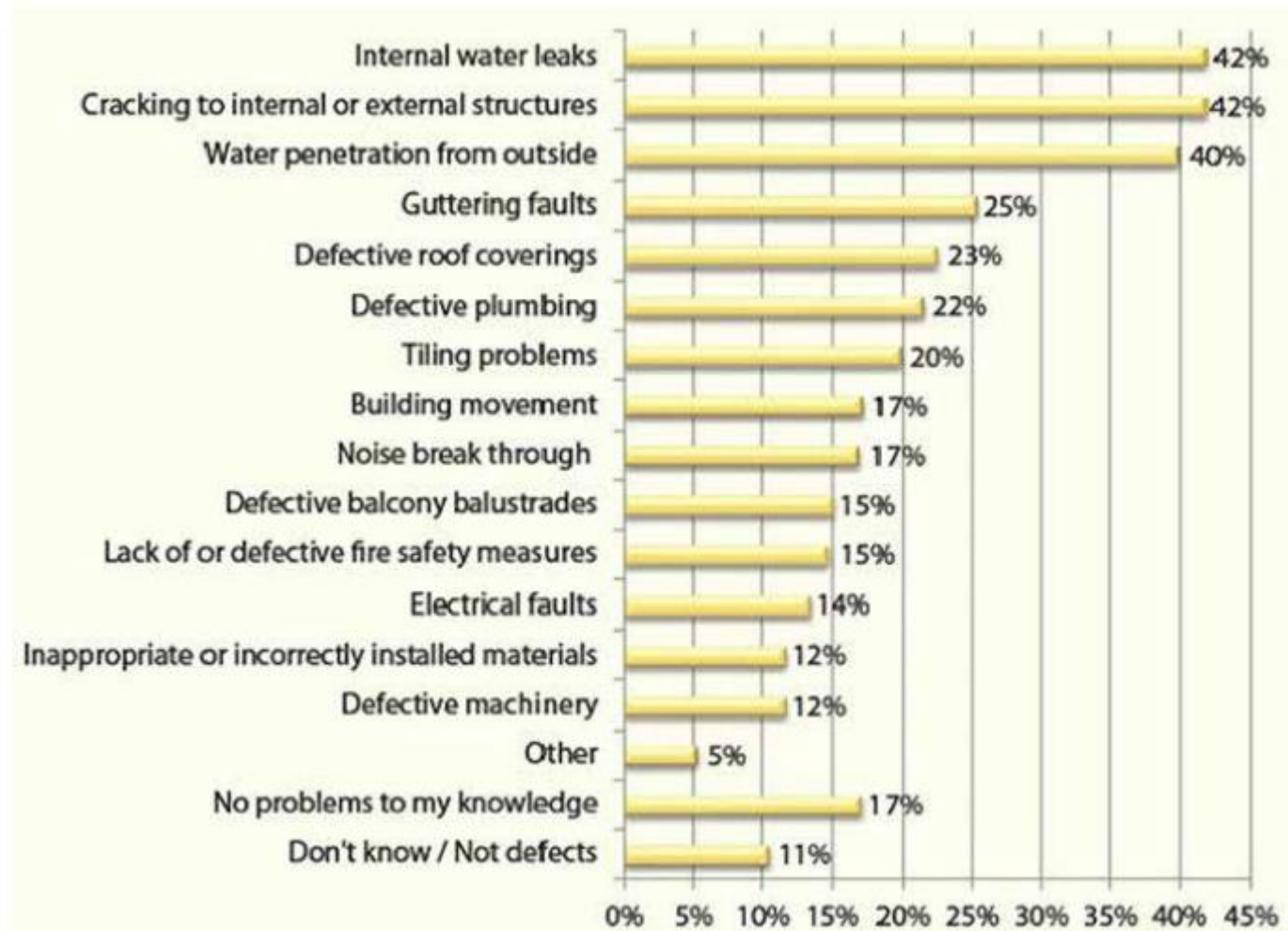
Building defects are physical problems found in the infrastructure or outer finish of a building. Such faults may have been present since the beginning, or more commonly may find their trigger later down the track due to a fault in the original construction or design of the building.

### ***Building Defects are the number one concern for apartment owners***

The recent national survey on strata-titled property - conducted by Queensland's Griffith University, has found that building defects are the **number one issue** facing apartment owners in 2015.

More surprising still, is the number of building defects that occur in strata schemes. A study by the *UNSW City Futures Research Centre* found that - excluding ongoing repairs and maintenance issues - [85 per cent of strata owners](#) reported some kind of building defect in the last decade to 2012.

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*1,011 owners of strata title properties were asked "To your knowledge, have any of the following defects ever been present in your strata scheme?" (multiple responses permitted)*

[Source](#)

## Common Types of Building Defects

The most common building defects reported in the aforementioned UNSW City Futures Research Study were internal water leaks, cracking to internal or external structures, and water penetration to the building's exterior. Following, some of the most common types of building defects include:

### **Concrete Cancer: defective concrete, concrete spalling or loose plaster**

[Concrete Cancer](#) is one of the most common types of building defects, caused by degradation due to the presence of contaminants, water damage and/or weather issues.

When used in construction, concrete needs to be reinforced with steel. When this supportive steel is exposed to contaminants - such as air or water - it expands, causing the surrounding concrete to crack and flake.

As concrete cracking increases, the strength of the building becomes jeopardised, leaving the building susceptible to more water entering the affected area.

If left untreated, the cracked concrete will further expose the steel to the atmosphere. This will allow the 'cancer' to spread, which may lead to costly, lengthy and intrusive repairs. In older buildings especially, defective and degrading concrete is common as the structure deteriorates over time.

## Concrete Cracks

If the alkalinity of a concrete surface reduces, the reinforcement will corrode. The structure will begin to deteriorate as cracks begin to appear, allowing rainwater to penetrate.

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## Water Damage and Rusting

[Water damage](#) can cause the concrete reinforcement to rust and expand, which adds pressure on the surrounding concrete.

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## Concrete Spalling

The concrete begins to flake and break away – otherwise known as spalling. Corrosion of reinforcing steel bars can also cause expansion then spalling.

- Water and rust stains from water damage
- Water leakage
- External patterned cracking
- Concrete patches that are falling off; leaving exposed reinforcements
- Crumbling or falling off plaster or tiles.



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## Structural cracks in walls

Structural defects are flaws in the structure of a building - retaining walls, columns, beams and flat slabs - commonly attributable to defective design, workmanship or materials.

To a lesser extent, concrete cracking and structural defects can occur due to general deterioration, wear and tear and poor maintenance over time.

- Cracking concrete or bricks; cracks in foundations, floor or slabs and walls
- Long, continuous cracks across the width of a wall
- Diagonal cracks at corners of the window or door
- Cracks lined with rust stains.

## Non-structural cracks in walls

Non-structural defects are flaws in non-structural elements, such as in the brick work itself and plaster defects.

- Hairline cracks
- Cracks moving in opposing directions
- Cracks between panel walls and structural elements; brick wall and beams/columns.

## **Water leaks and water penetration**

Water can seep through in many ways, including cracks on the external wall of a structure, defective seals on windows and defective waterproofing membrane on the roof.

- Water and rust stains from water damage
- Peeling paint
- Water leakage and dripping
- Fungal growth
- Defective concrete, plaster or tiles

## **What causes concrete cancer or spalling?**

Of the apartment owners who reported a building defect over the life of their strata scheme, 75% were still dealing with defects *hadn't been fixed*. Here is where a major part of the issue lies: apartment owners and strata managers are having trouble resolving and rectifying defects in the first place.

One of the most common problems apartment owners face is property developers and builders delaying the repair of building defects - often resulting in concrete cracks and spalling worsening over time. Or developers and builders are no longer in operation, making them unable to rectify the damage as expected.

## **Building defects leading to concrete cancer in the construction stage**

In NSW in particular, building defects are largely attributable to problems occurring during the building's construction phase. Rushed development, and cost-cutting measures in particular, have proven to have huge impacts on the structural integrity of many buildings being erected.

### **Poor placement of steel in the concrete**

If poor workmanship is observed during the initial stages of forming reinforced concrete or if materials of poor quality are used, this may result in inadequate cover around the reinforcement, causing the reinforcement to commence the corrosion process, which, in turn, leads to the concrete cracking. Cracked concrete leads to water ingress and subsequent exposure and contamination with chlorides, which eventually ends in premature concrete deterioration.

### **Failed waterproofing**

Concrete cancer is becoming an increasingly common problem in buildings and other structures that have not been sufficiently waterproofed due to cost-cutting exercises or just general degradation, resulting in water ingress. If inadequate waterproofing is done during the construction stage of the

structure, the structure will likely require continual maintenance during its lifetime to ensure that the extent of the damage is not so much that it is unsalvageable.

## **Unrealistically low, fixed-price quotations leading to failed repairs**

Low price quotes can encourage some contractors to carry out only a part of the required repairs. Less ethical contractors will fail to mention or fix hidden, latent damage discovered during the repair process. Unethical contractors can reduce expense by using less reinforcement, by not tying or welding reinforcement or by using lower grade concrete mix. They may not remove all contaminated concrete or sufficient steel, do not prime the steel bars or do not cure the specialised repair mortars. Sometimes only superficial surface patching is attempted. This merely hides the problem for a more expensive repair later.

## **What could concrete cancer cost you?**

If building defects are left untreated, they can represent a significant long-term cost to property owners, strata managers and body corporates. These include the costs to cover emergency repairs, investigate damages and damage claims, the costs of legal advice and proceedings, and the cost to find residents alternative living arrangements.

Building damages can also greatly impact on a property's value if left untreated. What could have been a simple initial problem to fix could end up costing up to double or triple the cost once occupants have moved in - versus rectifying the issue during the construction phase.

The real impact of concrete cancer occurs when the problem isn't rectified in a timely manner, leading to further ongoing damage and property degradation. The sooner the defect is found, and effectively repaired, the lower the potential cost to owners.

### **If left untreated, concrete cancer can:**

- Impact on the health and safety of residents
- Reduce the quality and liveability of homes and occupants' quality of life
- Lead to conflict over funds and responsibilities for defects

## **Risk factors that contribute to concrete cancer or spalling**

If you are a property owner, strata manager or body corporate concerned about the strength and durability of your apartment or apartment block, it pays to become acquainted with the common factors that might signal a present or future defect.

To avoid the cost of faulty building construction or repairs, here are some common things to look for to help you heed the warning signs:

## **Location: buildings located in coastal areas**

Recent reports from the Gold Coast, Sunshine Coast and Brisbane attest to the [million-dollar concrete cancer problems](#) currently wreaking havoc on a slew of apartment blocks. These landmark coastal cities in Australia's north-east illustrate the effect of salt water spray zones - with those blocks located within one-kilometre of the coast the most affected.

With over [85 percent of Australians](#) opting to live close to the coast - residing 50km or less from the ocean, more cities in Australia will need to address the rising issue of concrete cancer in years to come.

As salt deteriorates into the concrete structure, some of the most common issues that arise include:

- Brick surface deterioration
- Mortar disintegration leading to rusting, cracking and deteriorated wall tiles
- Roof tile deterioration
- Awning rusting and structural damage
- Balcony failure

## **Year Built**

What effect does the year your apartment built have on the building's structural integrity? In addition to the risks posed by homes by the sea, the same goes for older homes - as the raw material inputs used in older style apartments increase risks of rusting and deterioration. Typically speaking, the concrete and steel supports used in older apartments were often mild steel - a material prone to rusting.

## **Signs of Spalling exist already**

As a building ages, it is standard practice to complete regular maintenance and surveillance to ensure that the structural integrity of the building is maintained. Most buildings will require at least minor remedial efforts during their lifetimes as a result of damage, age, or use.

### **What to look for:**

- Brown discolouration surrounding cracked concrete
- Reddish-brown stains running down the building
- Concrete lifting, or falling-off a building's surface
- Cracks with signs of moisture; often showing white crystals



## Strata Building Insurance and changes to the HBA

The [new laws](#) of the Home Building Act, which came into effect September of last year, are designed to increase consumer protection and reduce the number of construction companies with a track record of issues. Through increasing the rights and responsibilities of builders' liabilities, the new act serves to reduce building defects by demanding greater integrity from qualified tradespeople. But changes to the statutory warranties act could pose costly implications for strata managers and construction companies alike.

### Major changes to Managing Building Disputes

Changes to the Home Building Act have been released in two-parts. The first set of changes were introduced on 15 January 2015, and concern alterations to the statutory warranties scheme and the concept and legal application of structural defects.

The second round of changes were introduced on 1 March 2015, and relate to the remainder of the amendments predominantly surrounding residential contracts that commenced on or after this date.

For property owners and managers who have dealings with the building and construction industry, part one of the amendments concerning structural defects and statutory warranties on structural defects will concern you most.

### The major changes to the statutory warranties scheme include:

- Building defects must be identified and compensation sought within two years
- Flaws that make a building uninhabitable or likely to collapse are classified as a *major* defect
- There is a six year warranty for major defects
- Builders and traders face one year in prison for repeated unlicensed contracting work
- Minor work worth under \$5000 can now be carried out without a licence
- The act was designed in partnership with a *strata and home insurance amendment act*, the contents of which has been delayed.

## From a six-year claim period to 2: How do you manage building defects in half the time?

Henk van den Heuval from Andersal reflects: ***“This is a very short time frame in which owners corporations have to act. Owners may have to look for more reputable companies that have a good track record of returning to fix defects in order to feel more secure”***.

## Looking for reliable treatment for concrete cancer and spalling?

Effective building repair services should strive to design for a long-term solution to constructing and repairing structures that require minimal maintenance in future.

Water repellents such as silanes, surface conditioners such as *Dry-Treat*, buried anode protection for steel reinforcement, rust inhibitors and many other techniques to extend the life of the concrete where this is financially advantageous for you.

[\*\*Find out more\*\*](#) about how Andersal can treat concrete cancer early, and have it restored to last the life of your building.