LookUpStrata

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Conquering Concrete Cancer

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Topics

- What is concrete cancer?
- What causes concrete cancer?
- Other concrete defects
- What to look for?
- Preventative measures
- Addressing concrete cancer

What is concrete cancer?

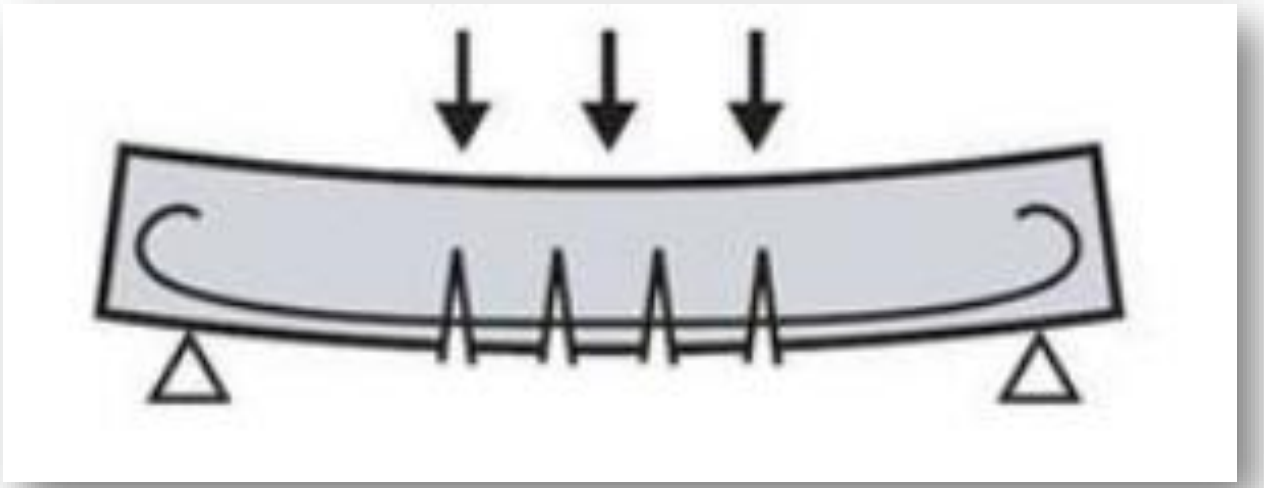
Technical name “Concrete Spalling”

Spalling is a failure of the concrete surface and can be identified by signs including

- ✓ Cracking, delamination, dislodging
- ✓ Flaking and/or peeling
- ✓ Visible bulging or deformity of surface
- ✓ Visible reinforcement steel

Reinforced Concrete – Basic Principles

Reinforced Concrete Components	Advantage	Disadvantage
Concrete incl aggregate, cement, sand, water, additives	High Compressive strength	Low tensile strength
Steel reinforcement	High tensile strength	Cost



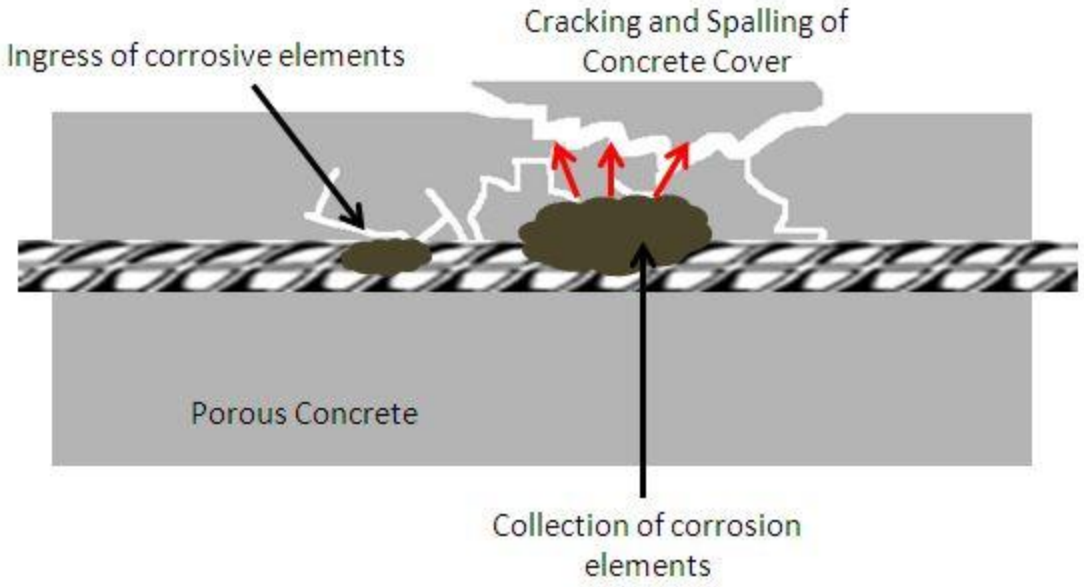
Reinforced Concrete

Important Factors on its Success

- ✓ Correct concrete mix / ingredients, water ratio to achieve design strength
- ✓ Correct reinforcement installation / cover
- ✓ Placed correctly including vibration to remove air
- ✓ Environmental such as weather impacting curing process

All factors contribute to success or failure

What is concrete cancer ?



1. Reinforcing steel exposed to moisture and environment (oxygen) as a result of concrete failure
2. Reinforcing steel corroding / rusting causing expansion that can be over 5 times its original size
3. Expansion causes damage to concrete
4. Corrosion causes failure of steel and loss of tensile strength
5. Integrity of structure impacted leading to failure

What causes concrete cancer ?

What causes concrete cancer ?

✓Concrete cracking, allowing moisture to penetrate into slab

What causes concrete cancer ?

✓Lack of vibration creating air pockets

What causes concrete cancer ?

✓Lack of steel cover exposing steel to elements

What causes concrete cancer ?

✓Damage such as impact or fire as examples

What causes concrete cancer ?

- ✓ Disturbance of concrete such as cutting, drilling fixings where exposure of steel occurs

Other concrete defects

Other defects that can be related, and are often confused with concrete cancer include

- Render coating cracking and delamination’s
- Efflorescence / salt leeching
- Masonry spalling

What to look for

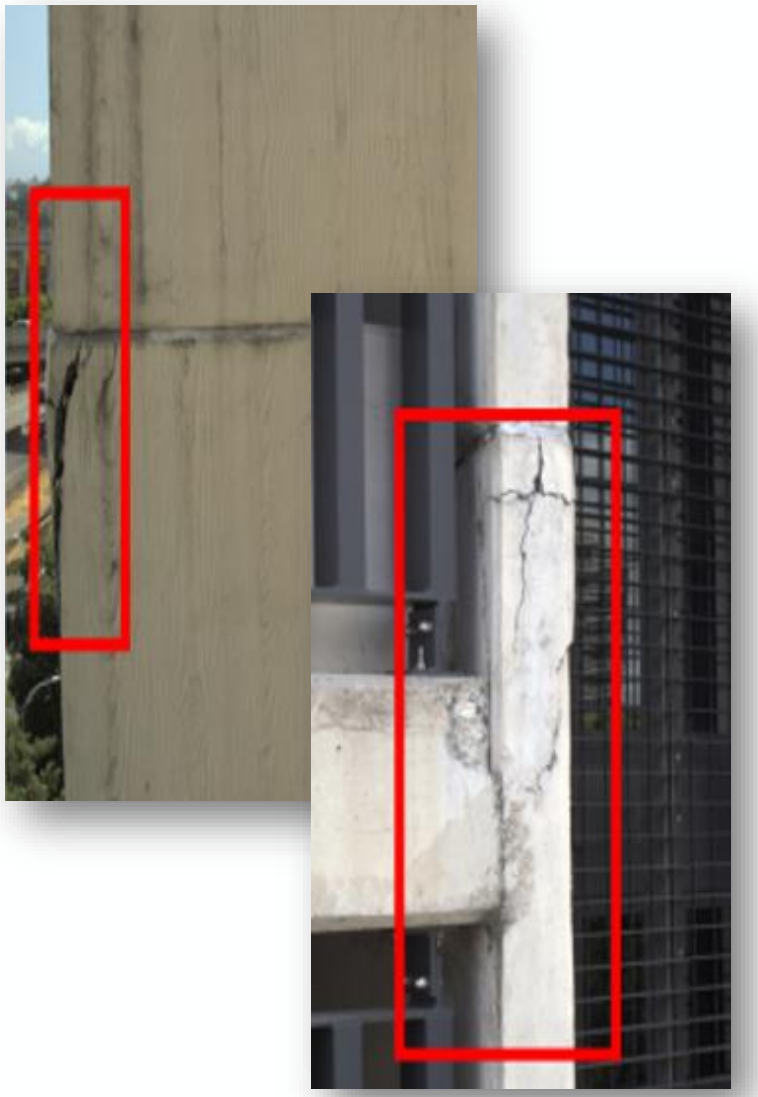
?

Signs that concrete cancer is present include

- Rust stains or marks
- Cracking
- Bulging or deformity
- Delamination
- Breaking and failure

Preventative Measures

AWARENESS	Be aware of the tell-tale signs and report these to building managers / strata managers
INSPECTIONS	Perform regular, routine inspections of your building by an expert.
EARLY INTERVENTION	Treat problems early to mitigate further growth and damage before it gets serious
MAINTENANCE	Ensure building is properly maintained and routine. Eg Sealants, coatings, fixings
PROPER FIX	Temporary fixes do not prevent reoccurrences and mask the issue. Get expert advice, treat the cause.



What happens if it is left untreated or we wait?

- Damage can progress slowly however the extent of damage is often masked beneath the surface.
- The cost to rectify early-stage Concrete Cancer can be significantly less than advanced Concrete Cancer
- Advanced Concrete Cancer becomes a safety risk if detached. Liability for owners corporations

Addressing Concrete Cancer

“Properly addressing Concrete Cancer is a multi step process.

It is crucial to get the right advice and not shortcut”

Inspection and Assessment

Thorough visual inspection, thermal review, exploratory works if required by experts.

Extent of Damage

Determine area affected, severity, cause

Addressing Concrete Cancer

Extent of Work

Must have a clear defined scope of work and specifications on remediation

Rectification

Only use Experienced, Qualified Contractors

Supervision

Ensure an expert can supervise and verify work has been completed to requirements to prevent reoccurrence and rework

Addressing Concrete Cancer

Stages can include

Removal of damaged concrete

- Mechanical and/or hydro demolition

Steel reinforcement treatment

- Removal, replacement and/or cleaning and treatment

Concrete Reinstatement

- Approved materials including primers for bonding, grouts, mortar

Protective Coatings

- Approved coating or membrane if required.

Questions ?

Sedgwick strata landing page

https://aumarketing.sedgwick.com/acton/media/44302/helping-the-strata-community

Take a closer look

Learn how Sedgwick can help the strata community navigate their building concerns