

What you need to know about concrete cancer

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What you need to know about concrete cancer

- What is it
- What causes it
- How do you know you have got it
- Internal
- External
- Case studies



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What you need to know about concrete cancer

- Responsibilities
 - Lot owners
 - Executive Committee
 - Concrete spalling specialist
- What to expect of the concrete spalling specialist
- Treatment options
- Some practical tips
- Early intervention



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What is it

- Correct term is concrete spalling
- Breaking away of concrete surface
- Top of slab
- Slab edge
- Soffit
- Facade



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What causes it

- Numerous causes
- All are contaminants
- Including atmospheric, imbedded and infused
- Aggravated by lack of cover, poor quality concrete
- All result in electrochemical activity
- Corrosion is the end product
- Corroded steel expands 8 to 10 times



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How do you know you have got it

- Steel sticking up out of slab
- Concrete fallen off & corroded steel exposed
- Swollen concrete
- Delaminated concrete
- Rust stain to concrete
- Crack
- No obvious visual sign



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Internal or External

- Internal
 - Magnesite
 - Ingress of moisture
 - Free chlorides
 - Lack of cover
- External
 - Lack of cover
 - Carbonation
 - Chlorides – coastal



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Case Studies

- Internal
 - Denial
 - Cantilever balconies
 - Unexpected structural complications
 - Cover ups
- External degradation



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Denial

- Cause
 - ingress of moisture
 - windows
 - doors
 - flashings
- EC reluctant to acknowledge damage
- Early intervention, appropriate repair strategy and treatment result in minimal expenditure



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Denial



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Denial



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Denial



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Denial



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Denial



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Denial



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Denial



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Denial



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Denial



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Cantilever balconies

- Cause
 - Magnesite
 - Ingress of moisture
 - Leaking windows
 - Lack of cover
 - Poor quality concrete
 - Poor design poor implementation
- Early intervention will result in major cost savings



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Cantilever balconies



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Cantilever balconies



Cover up



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Cover up



Cover up



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Renovation



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Renovation



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Renovation



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What you need to know about concrete cancer

- Responsibilities
 - Lot Owners
 - Executive Committee
 - Concrete spalling specialist



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Lot Owner responsibilities

- Don't ignore it
- Don't cover it up
- If renovating stop work in the effected area
- Report damage to the executive
- Remember you are part of a community



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Executive committee responsibilities

- To ensure the building is properly maintained
- Arrange proper repair by appropriately qualified persons
- Arrange funding of the repair costs
 - Levies are not the only way



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Responsibilities of the concrete spalling specialist?

- Identify extent
- Identify cause
- Consider structural implications
- Engage a structural engineer
- Select the most appropriate repair system



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What can be expected of the concrete spalling specialist

- Identify/recommend preventative measures
- Risk management strategies
- Whole of building approach



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Treatment options

- It is an electrochemical activity so sophisticated structural repair systems suited to the cause are required
- A repair system must be used
- A detailed methodical repair technique
- Protect the remaining slab to minimise risk of future spalling activity



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What are the treatment options?

- Breakout & repair
- Repair systems suited to cause
 - Structural repair mortars
 - Sacrificial anodes
 - Chemical treatments
 - Cathodic protection – retrofit



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Some practical tips

- Regular inspection of external and common areas
- Encourage lot owners tenants to report
- Encourage early reporting
- Protocols to all occupants
- Leased units – inspection to include defects
- HWS – in a tray plumb to waste
- Renovations – bathrooms to bare slab and waterproof
- Balconies – to bare slab, waterproof and retile
- Pre 1974 – take control of balcony door / hob



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Some practical tips

- Expert check when carpets replaced
- Remove magnesite
- Carpet cleaning
- Hot spots
- Be proactive
- Windows – leaks, deterioration of frame
- By-laws



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Early intervention

- Reduced excavation
- Reduced interference
- Potential for less invasive options
- Contain expenditure



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What you need to know about concrete cancer

- What is it
- Causes
- Internal & external
- Case studies
- Responsibilities – yours, OC, experts
- Practical tips
- Early intervention



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Magnesite removal
Concrete spalling investigation & repair
Cementitious toppings

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