Neil Trenwith Director Magnatex Industries











Australasian Concrete Repair Association (ACRA), Australasian Corrosion Association (ACA), Master Builders Association (MBA), Strata Community Australia (SCA)





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





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





What is it

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





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





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





Internal or External

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





Case Studies

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

External degradation





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





















PLATINUM SPONSORS





































































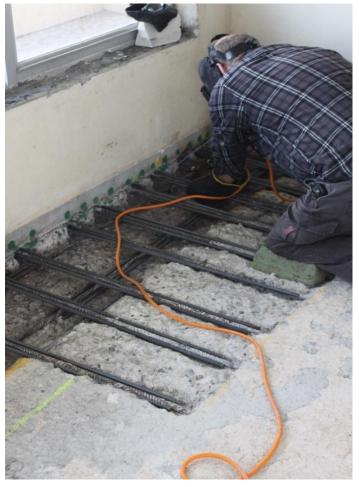


PLATINUM SPONSORS











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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

Cantilever balconies













Cantilever balconies













Cover up













Cover up













Cover up













Renovation





(NSW)





Renovation













Renovation













Responsibilities

Lot Owners

Executive Committee

Concrete spalling specialist





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





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





Responsibilities of the concrete spalling specialist?

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





What can be expected of the concrete spalling specialist

Identify/recommend preventative measures

Risk management strategies

Whole of building approach





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





What are the treatment options?

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





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





Some practical tips

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





Early intervention

Reduced excavation

Reduced interference

Potential for less invasive options

Contain expenditure





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







Magnesite removal Concrete spalling investigation & repair Cementitious toppings

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