

The Need for Maintenance – Raising Awareness

JOINT HPA-ICOMOS
CONFERENCE

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The Need for Maintenance – Raising Awareness

- FORMS OF NEGLECT
- CONSEQUENCES OF NEGLECT
- MATERIAL BEHAVIOUR
- MAINTENANCE - PURPOSE AND PRACTICE
- MAINTENANCE REGIMES
- PROMOTING THE CAUSE FOR MAINTENANCE



Forms of Neglect

- UNCONSCIOUS NEGLECT
- DELIBERATE NEGLECT
- MALICIOUS NEGLECT





Unconscious Neglect

- Owners and custodians of are generally unaware of the importance of maintaining buildings or, how to implement maintenance requirements
- Deterioration and failure will eventually come to light, with detrimental consequences for the fabric of the building

Deliberate Neglect

- Owners and custodians tendency / decision to ignore maintenance requirements for their buildings, despite being generally aware of problems that could result
- When disruptive problems arise, they will deal with them, but not pre-empt them
- For other problems, an attitude of *'out of sight out of mind'* persists



Malicious Neglect / Abandonment

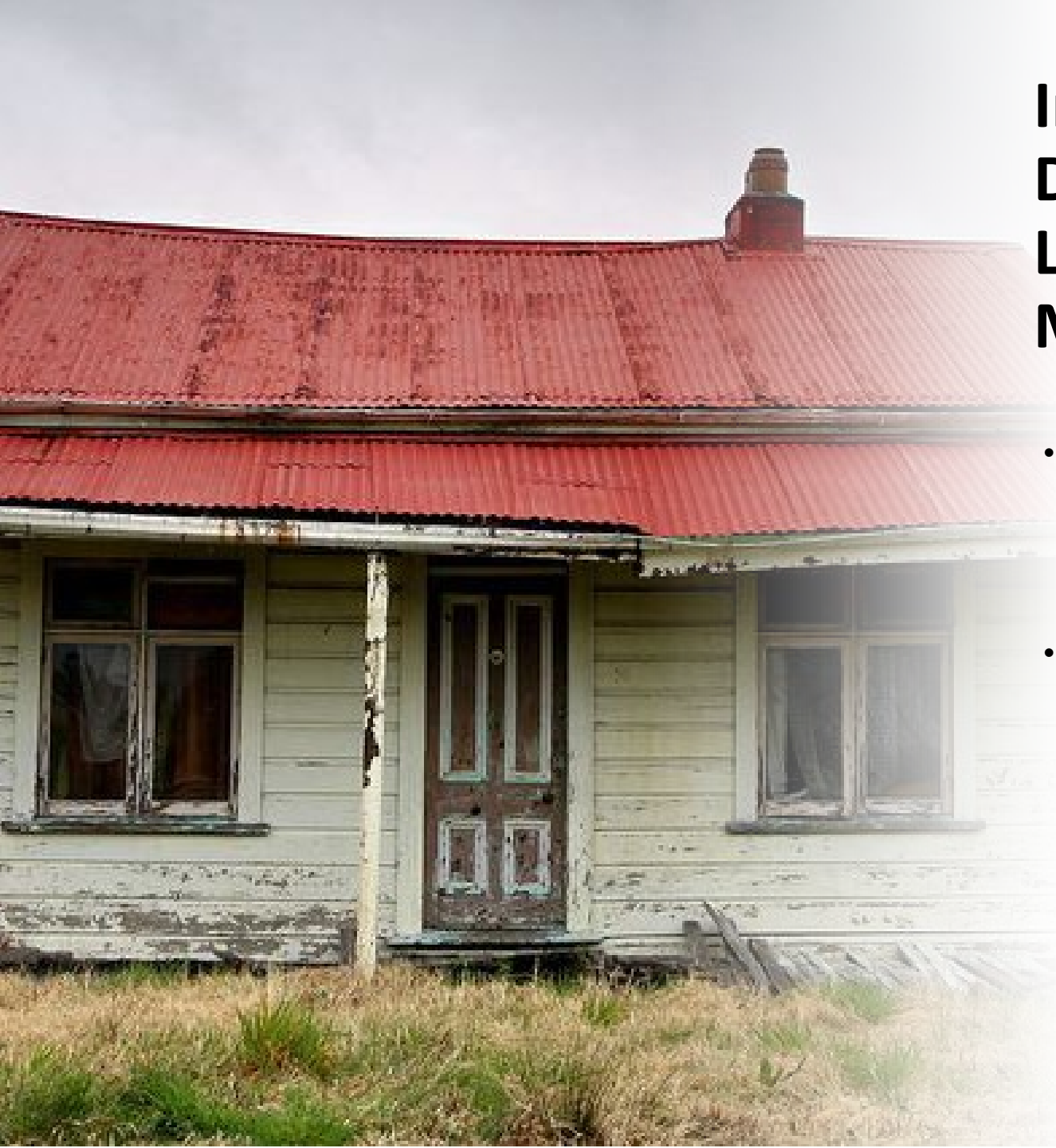
- Owners neglecting to maintain buildings and abandonment over long periods, in order to pursue another outcome - often demolition
- Although there are legal remedies and mechanisms for Heritage Protection Authorities to address '*demolition by neglect*', these are rarely executed



Consequences of Neglect

- IRREVERSIBLE DAMAGE AND LOSS OF ORIGINAL MATERIAL
- UNSAFE CONDITIONS
- VANDALISM





Irreversible Damage and Loss of Original Material

- Regular maintenance ensures the longest practicable life for materials and components
- Deterioration over long periods of time - due to inadequate maintenance - challenges even the best of traditional materials to the point where *'maintenance cedes to replacement'*



Unsafe Conditions

- Neglected buildings result in the breakdown of elements and expedite the risk of significant damage, including structural failure
- Ultimately, Health and Safety legislation overrides building protection



Vandalism

- Vandalism is an ever-increasing concern because of multiple factors
- 'Abandoned' buildings present great opportunity and little risk
- The theft of materials, of differing value, leaves buildings damaged and suffering accelerated deterioration

Material Behaviour

- MECHANISMS OF DECAY
- ADDRESSING DEFECTS
- COMPATIBILITY ISSUES





Decay Mechanisms

- Key decay mechanisms are well understood, and New Zealand exhibits all of them:
- *Water ingress*
- *UV light*
- *Freeze/thaw*
- *Differential movement (heat)*
- *Wind erosion*
- *Material incompatibility*
- *Seismic intervention*



Addressing Defects

- Defects arising from the mechanisms of decay can be mitigated in part by periodic inspection and regular maintenance:
- *Washing and Cleaning (to remove salts, organic growth, etc)*
- *Repainting to prevent the exposure of substrates (especially ferrous metals and timber)*
- *Addressing damage as it occurs*



Compatibility Issues

- The prevalence of decay mechanisms exploit compatibility issues:
- *The widespread and inappropriate use of cement*
- *Bi-metallic corrosion is complex and challenging*
- *Modern components and systems do not behave in the same manner as traditional materials*
- *Aesthetic compatibility considerations are also relevant, particularly for heritage buildings*

Maintenance – Purpose and Practice

- THE BASIS OF HERITAGE PRESERVATION
- THE BASIS OF SEISMIC RESILIENCE
- THE BASIS OF SUSTAINABILITY





The Basis of Heritage Preservation

- Maintenance is fundamental to sound heritage conservation practice
- Less frequent maintenance equates to greater intervention
- Regular maintenance protects the integrity of heritage buildings and their original design intent
- Original building fabric embodies cultural heritage value, whilst replacement materials have a supporting role for what remains



The Basis of Seismic Resilience

- Strengthening a building serves differing purposes, including life safety, sustainable operation, and heritage preservation – these goals are diminished if the same building is poorly maintained
- Schemes for seismically upgrading buildings should be based on a detailed knowledge of existing condition
- A partnership of engineering assessment and investigation of condition is paramount



The Basis of Sustainability

- This aspect is highly topical and will continue to be so – we all know that original use is best, and re-use next best
- Adaptive re-use of existing buildings has been the focus of many international heritage organisations. This has shifted from repairs and maintenance, but we must not forget the basics

Maintenance Regimes


- OWNING RESPONSIBILITY FOR MAINTENANCE
- IMPORTANCE OF BASIC PRACTICE
- REACTIVE (UNSCHEDULED) MAINTENANCE AND PLANNED (PREVENTATIVE) MAINTENANCE
- POST-PROJECT CARE





Owning Responsibility for Maintenance

- Need a key person or role to take responsibility for maintenance planning, otherwise it is not acted upon
- Support to be provided with access to useable information
- The ongoing care of buildings is not an option, it is a requirement
- The valuable contribution of voluntary groups, working bees, and locally organised maintenance campaigns - cleaning, clearing, and mending



Importance of Basic Practice

- It is essential to address the basic maintenance requirements in time, rather than defer these to a notional future date
- Regularity and repetitiveness are key
- Observing the behaviour of a building is the most informative process of understanding – in heavy rain is the best time to observe



Reactive (Unscheduled) Maintenance

- ‘Breakdown maintenance’ the failure or damage has already occurred, e.g. water leak internally becomes a nuisance
- Malfunction of equipment
- Urgent - usually immediate action needed
- Temporary correction of a defect – not a long term solution



Planned (Preventative) Maintenance

- This substantially reduces reactive maintenance
- Time-based or condition monitored
- Catches problems before they cause damage
- Periodic replacement of parts before they wear out
- Reduces the frequency of capital renewal projects

120 Symonds St,
Toilets & Tram Shelter
Grafton, Auckland
Maintenance Manual

following major repair works and
seismic upgrading undertaken in
2021/22

Issue: April 2022

SRA REF: 2019-036

Post-Project Care

- Addressing the absence of comprehensive maintenance planning between major projects
- The damaging cycle of maintenance boom and bust.
- Major projects inevitably involve more significant repair and replacement, than occurs with regular maintenance
- Project Handover Maintenance Plans a vital aspect of caring for heritage buildings



Promoting the Cause For Maintenance

- WHAT ARE WE GETTING WRONG ?
- HOW CAN WE IMPROVE THINGS
- SHARING KNOWLEDGE AND TEACHING (THE NEXT GENERATION)





What Are We Getting Wrong

- Not giving sufficient attention to the need for maintenance per se
- Inadequate availability of information and guidance
- Capital expenditure, or improvements, enhances an asset's market value, whilst maintenance is classed as an expense
- Too many condition reports commissioned but not implemented – sometimes multiple times
- All buildings should come with a maintenance log book (like a car)



How Can We Improve Things

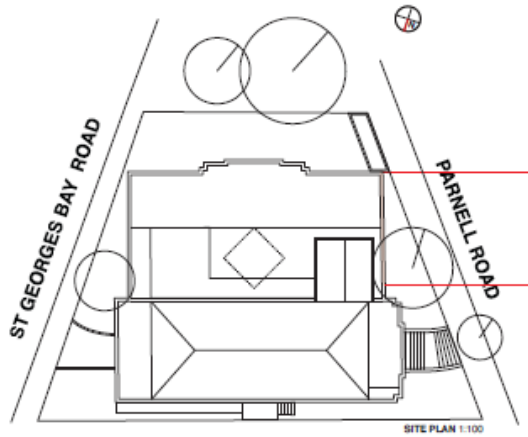
- Encouragement to give maintenance a greater priority within the building industry
- Address conflicting advice and inappropriate work
- Focus on the fundamental contribution of maintenance towards sustainability and climate change
- Move away from cyclical capital expenditure to be more sustainable



Sharing Knowledge and Teaching

- Training / Educating the next generation(s)
- Current courses and educational programmes
- “knowledge is nothing if not shared” said somebody...I would rather say that knowledge is progressive and must be shared

RECOMMENDATIONS: WEST ELEVATION A



KEY	DEFECT
CONCRETE AND PLASTER	
	1. patch plaster
	2. fill in plaster
	3. patch solid plaster
	4. fill in solid plaster
	5. repaint
	6. removal of modern cement patching
	7. fill in arkalite patching
	8. remove plaster remnants and recast in plaster
PAINT	
	9. new paint finish
ORGANIC	
	10. removal of vegetation growth

KEY	DEFECT
STAINING	
	11. plaster moulding surface clean
	12. mould & damp surface clean
	13. yellow staining surface clean
	14. plaster darker surface clean
	15. efflorescence surface clean
	16. litcrete surface clean
METAL	
	17. steel rust removal
	18. iron rust removal
	19. removal of steel & replace with iron casting of downpipe & tie
	20. removal of steel bolt
	21. new flashing