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**PROPOSED LOW
DAMAGE DESIGN
GUIDANCE**

A NZ APPROACH

Paul Campbell

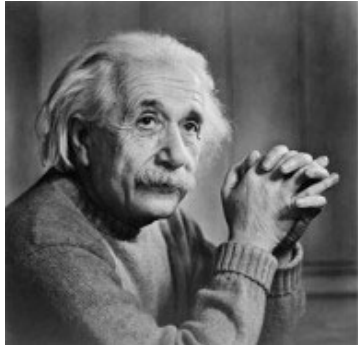
He aha te mea nui o te ao

What is the most important thing in the world?

He tangata, he tangata, he tangata

It is the people, it is the people, it is the people

— Maori proverb



*The definition of insanity is
repeating the same behaviors
and expecting a different outcome.*

Albert Einstein

Engineering is the art of modelling materials we do not wholly understand, into shapes we cannot precisely analyse so as to withstand forces we cannot properly assess, in such a way that the **public** has no reason to suspect the extent of our ignorance.”

— Dr AR Dykes

Low Damage Design Guidance - Why?

(What's wrong with code based minimum performance?)

Some personal observations (people, people, people)

- Buildings getting bigger, more expensive, more people on poorer land = consequence of failure is bigger
- Public expectations of performance is greater
- Communication of performance between stakeholders is not good enough
- Fear based decision making and/or sound bite decision making becoming more common
- Design profession becoming increasingly reliant on 'cook book' codes over 1st principle design
- Repeating mistakes by treating client and the public as ignorant

ATC Workshop November 2018



Owner demands answers on why her building failed
Ben Heather 12:40, Jun 16 2011

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LDD – Who is it for?

Stakeholders (people, people, people)

- Public
- Owners and Developers (clients)
- BCA's
- Other design disciplines
- Contractors
- Researchers



Leadership, Vision & Objectives

Vision:

The industry standard approach to LDD

Objectives:

1. Provide high level guidance on what LDD should achieve
2. Provide design criteria to be satisfied
3. Provide assistance to BCA's & reviewers for compliance of LDD buildings.



Philosophy

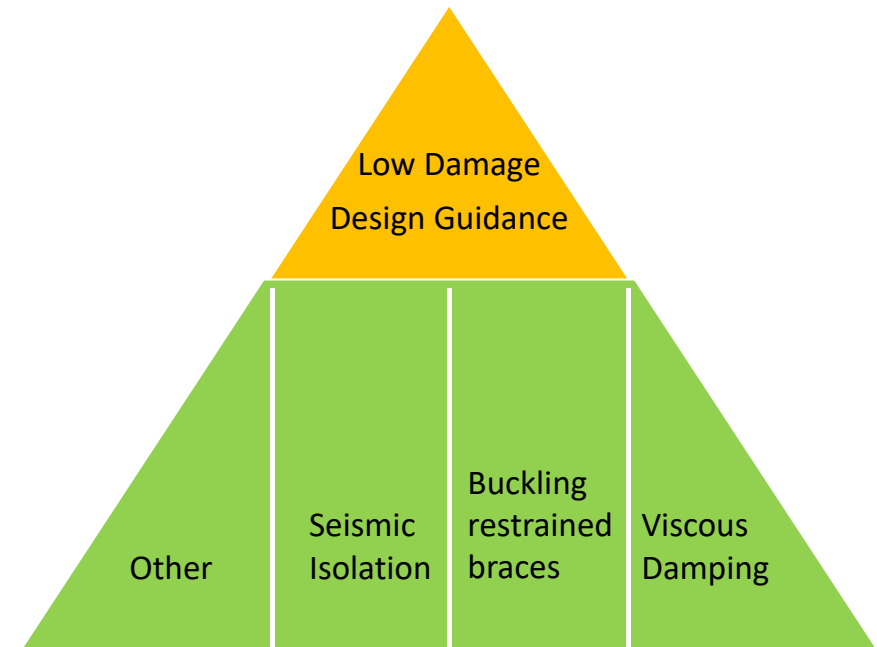
- LDD is not 'bolt on' component. It's a philosophy that must be holistically followed through all aspects.
- It requires the design team to agree performance with stakeholders, not blind reliance on Codes and Standards.
- LDD performance **may not be possible** on some sites
- It does not require 'Low Damage Technologies' to be used.



Document Hierarchy

Practical considerations

- Freely available
- Written in plain English – briefing guidance
- Overarching for more detailed guidance to follow



Performance & Acceptance

Limit State	Serviceability	Damage Control	Ultimate	Grade Required		
General outcome						
By Category						
Primary structure:				Bronze	Silver	Gold
Secondary structure:						
Non-structural elements:						
Contents:						



Concluding Comments

It is People, It is People, It is people. Recent experience has highlighted four lessons:

1. Life Safety code based minimum design performance is not understood.
2. Engineers have not done a good job at communicating performance.
3. Out of service time is an important factor in decision making.
4. That clarity and ownership of terminology is important.

It is People, It is People, It is people. It is the author's opinion that:

1. Owners and users will judge success of building performance; **not** engineers.
2. These issues are universal and international collaboration is important.
3. We must lead the conversation on resilience and LDD but not set the risk level.



Acknowledgements

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Thank you