

The Defects Dilemma Research Initiative

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Building Defects and their Systemic Causes in the Australian Context

Unravelling the systemic causes of
fire and structural defects through systemic re-
search and analysis

Forensic Analysis of Complex Problems related to Construction and Property Development Interfaces

Dr Jonathan Drane is a recognised expert in property development, design and construction processes in the Australasian industry. Jonathan is available as an expert witness and for advisory forensic analysis of complex construction and development problems.

Summary:

This research explores the systemic, historic deterioration of property development and construction practices, their structures and regulatory systems to explain and deter the tragic life threatening events that have arisen in our tall building commercial building sector (see inset).

A Defects Scenario Model

The research builds on Dr Drane's **Defects Scenario Matrix**, and his prior doctoral thesis (2011-2015 UNSW BE) to build a model for assessing higher risks of the incidence of defects in the delivery models of property development and construction.

Study Method

A (pilot) micro-study of the systemic causes behind the deterioration of industry practices and structures in the NSW construction and property development industry with a focus on multi-apartment dwellings.

Survey, Case Study, Historical Analysis, Semi-structured interview reinforcing the author's existing **Defects Scenario Matrix** which provides an analytical project risk framework. The pilot will inform and frame further substantial research of overall Australian systems with the view to securing defined and effective out-

For further details

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See our master class web site: <https://mclass.jondrane.net/>
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Independent
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Dr Drane is a researcher and advisor in
complex property and construction matters.

University Collaborations & Teaching Positions:

- UNSW Built Environment
- City Futures Research Centre UNSW BE
- Sydney University
- Western Sydney University
- MGSM
- ICMS

Building Defects: Tower Failures

Bankstown Fire 2012: The Bankstown incident involved a fire in a multi-apartment tower which saw two young women jump from the fifth floor to escape the intense fire and flames. Tragically one of the women did not survive the fall. Fire brigade commentary noted that a fire door burned down in a matter of minutes instead of having a one to two hour rating.

Docklands Lacrosse Fire 2014: This 20 storey apartment tower saw 500 residents evacuated as the fire climbed the external balconies and engulfed seven floors. Later studies showed the façade materials to have contributed.

Grenfell Tower UK 2017

The greatest tragedy in the era of tragedies, the Grenfell apartment tower was engulfed with rapidly ascending fire to see many people not survive.

Torch Tower Dubai 2017

This high rise tower set fire and saw damage to 34 apartments over 64 floors. The residents thought it was a false alarm.

Opal Tower Sydney 2018

Precast elements in the Opal Tower showed explosive failure leading to the evacuation of the occupants for weeks.