MMM DISTINGUISHED LECTURER

Why Are Our Buildings Failing Us

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Building regulations (i.e. codes and standards) coupled with insurance for assets provide resilience to the homeowner, business and government. Major changes were made to regulations, and designer and builder training for house construction due the devastation to the Australian city of Darwin following Tropical Cyclone Tracy (1974). Damage investigations following cyclones over the subsequent decades have shown that there is positive step change in performance for life safety robustness of housing built after the code changes (post-1980) across the cyclone regions of Australia, which is comparable to code improvements following Hurricane Andrew in the USA.

However, an examination of Australian insurance claims reveals a high proportion of the losses in terms of cost of rebuilding or repair and loss of property's functionality, are associated with contemporary construction. This raises questions as to fitness of purpose of our building construction, Codes and design practices, when subjected to the combined impacts of severe wind loads and wind driven rain ingress.

Building codes need better processes to enable resistance of coincident impacts (e.g. wind and rain) – so our communities can speedily recover. In mining the claims and damage data with the coincident wind field and rain intensity, common weaknesses (e.g. building envelope) that drive loss are quantified in terms of cost/benefit to enable targeted retrofitting for existing construction along with developing appropriate code changes for future construction. But there is a disconnect between designing for the "acceptable" point risk level as prescribed in the building code for that one building, but the whole community is also impacted by the hurricane with the consequences of damage greatly amplified (as everything is built to that same minimum design level). The cost/benefit mechanism that is the basis of our building codes needs to incorporate whole of community impact in evaluating the functionality of the building.

Tuesday, 31 May 2022, 2:00pm

Refreshments 1:45pm

NCAR-Foothills Laboratory, 3450 Mitchell Lane

FL2/1022, Large Auditorium

Seminar will also be live webcast

https://operations.ucar.edu/live-mmm

Participants may ask questions during the seminar via Slido.