

## Steel seismic issues from a consulting engineers perspective

With a leaning towards low damage design and seismic devices

### Reliability

- Considering the unexpected
  - What is the failure mode
  - Excess displacement performance
  - Emergent second order effects or system effects
- At element/device level and system level
- Aging and durability

### Behaviour of the Building

- Not just the structure
- Acceleration and drift impact
- Localised high displacement impacts

### Low Damage Systems vs Robust Systems

- In the move to low damage...
- ...are we sacrificing robustness?
- And where can we get both
- Device connection and interaction research

### Barriers to application

- Design time impacts
  - Guidance doc?
- Availability of concept/prelim level information
- Test data and project test facilities
- (Lack of) client desire for resilience

### Imported Steel and products

- Imported steel and SO requirements
- (Simple) steel product performance (couplers, brace connectors, shear studs, bolts)

## Seismic Performance of Non-Structural Elements (SPONSE)

- Limited available practical design information
- Design Practice
  - Simple and prescriptive
  - Or engineered
  - Is there a middle ground?
- Parts behaviour
- Parts behaviour in isolated/damped buildings