

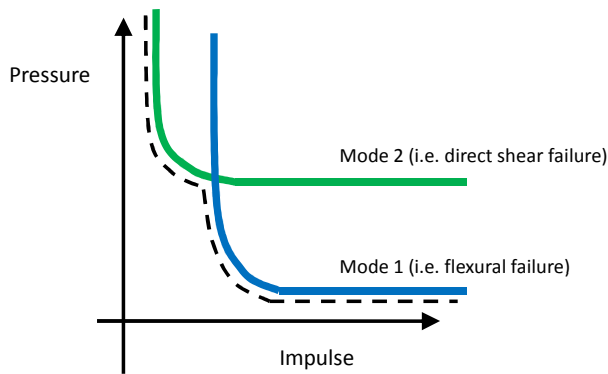
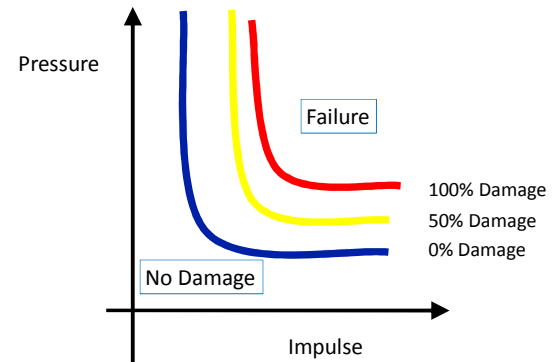
Pressure-Impulse Diagrams

Objective

Develop accurate pressure-impulse diagrams for structural components based on fully established nonlinear SDOF techniques and reliable dynamic material and constitutive models.

Background

The pressure-impulse diagram is a useful design tool that permits easy assessment of response to a specified load. With a maximum displacement or damage level defined, the diagram indicates the combinations of load and impulse that will cause failure or a specific damage level.



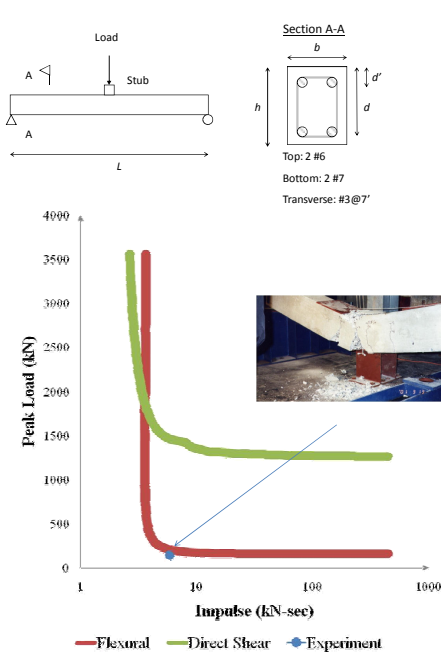
Multiple Failure Modes

For most structures, flexure is the predominant failure, but not necessarily the only mode of failure. Under certain loading conditions, other failure modes such as direct shear failure in reinforced concrete beams and slabs may be activated.

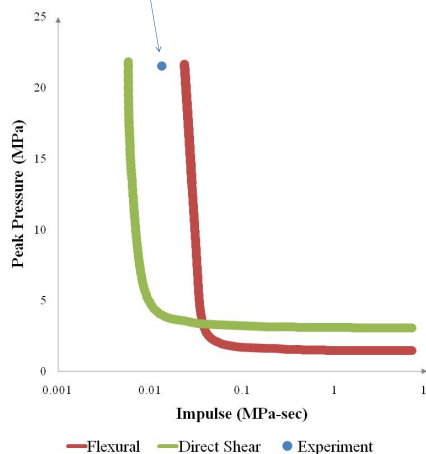
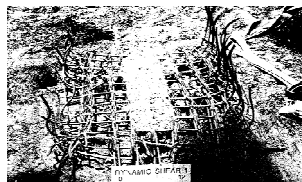
Numerical studies using DSAS

Evaluated different structural components under complex loading time-histories.

- R/C Beam with concentrated load



- R/C Box with uniform pressure



- Wood frame panels: Stud-to-sheathing (SS) and stud-to-sheathing with adhesive (SSA)

