

Public Abstract

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Graduation Term:SP 2015

Department:Civil Engineering

Degree:MS

Title:Dynamic Capacity of Isolated Slab Column Specimens

Localized damage, particularly in flat plate structures, can cause a chain reaction of subsequent failures resulting in failure of a large portion or even the entire structure. This type of failure is known as a progressive or disproportionate collapse. While there are well documented cases of progressive collapses, there is still a lack of knowledge in regard to a structure's capacity to resist this potentially catastrophic failure mode.

The goal of the overall research project is to determine the potential for progressive punching shear failures in flat plate buildings. After initial failure of a supporting member in a structural system, the loads initially carried by that member will be redistributed to surrounding connections at a dynamic rate. There has been little research to date on the dynamic loading effects on flat plate structures. By understanding the behavior of these slab-column connections and their response to dynamically applied loads, better predictions and more refined modeling can be done to investigate a structures ability to resist progressive collapse.