

A Study of RC Beam-Column Against Close-in Blast Loading Using 3D ALE Mapping to S-ALE Technique

Zoey Lim Siew Fern¹, Sun Jian Yun¹, Heng Zi Jing¹, and Dr. Ang Choon Keat¹

¹ Prostruct Consulting Pte Ltd., 38 Cleantech Loop, #01-31, Singapore 636741.

Abstract

A two-stage loading of a RC beam-column involving blast load and post-blast compression load to determine the residual axial capacity. This paper presents a mesh sensitivity study on the RC beam-column against close-in detonation using 3D ALE mapping to 3D S-ALE model technique. The mesh sensitivity study is performed to investigate the effect of different mesh sizes on 3D ALE mapping to the S-ALE model. The simulation results were compared to a full-scale blast test of a RC beam-column test specimen.

Keyword: ALE Mapping, RC beam-column, Close-in detonation, S-ALE