

## **Comparison Study of Blast Ingress into a Structure with Frangible Exterior and Interior Walls**

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### **Abstract:**

Predicting the potential for injury to occupants and damage to equipment resulting from an external detonation requires an accurate prediction of blast propagation through available openings and failing surfaces. Assessing the damage to buildings, including the damage to internal partitions, walls and load bearing members requires an accurate modeling of the blast propagation. There are a number of tools from High Fidelity Physic Based (HFPB) methods to fast running Single Degree of Freedom (SDOF), Multi Degree of Freedom (MDOF) and empirically based methods for addressing this complicated problem. In this paper we will compare coupled Computational Fluid Dynamic (CFD), Computational Structural Dynamic (CSD) solutions with a fast-running assessment tool. We will compare the results of both damage and blast pressures within structures for different approaches. We will also look at the impact internal failing walls have on the propagation of blast compared to a rigid wall with openings approach. This study will be limited to reinforced concrete frame structures with interior steel stud partition walls.