

Dynamic response of RC columns subjected to blast loading

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ABSTRACT

Damage effects analysis and assessment of buildings under blast loading is an important problem concerned by the area of explosion accident analysis, blast-resistant design, anti-terrorist and military weapon design [1]. The risks associated with suitcase bombs are of serious concern because they can be easily handled and placed within close proximity of key structural components of building structures. The most common failure mode of structures subjected to blast loads from suitcase bombs is the progressive collapse after that key columns are destroyed [2]. With the advancement of the computational capabilities and explicit codes, it is now possible to carry out detailed simulations of the complex responses of reinforced concrete (RC) structures subjected to severe shock and impact loads such as those generated by an explosion. In the present study, numerical results about the dynamic response of RC columns subjected to blast loading are presented and compared with experimental testing in order to improve the calibration of the mechanical models. Failure of RC columns subjected to blast loads of different scaled distances is estimated. Moreover, the location of the blast load is also investigated.

REFERENCES

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