

## COMPARATIVE ANALYTICAL STUDY OF REINFORCED CONCRETE WALL SUBJECTED TO BLAST LOADING PATTERN

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### ABSTRACT

To construct a numerical model of reinforced concrete structures in nonlinear dynamic formulation against blast loads or accidental loads needs a lot of assumptions and approximations, to simplify the simulation process. There are two main elements, that are important to be simplified; material properties and structural elements. Any information added to the modelling process consumes more analysis time, which requires more computational capabilities and all of that translated into more cost. Unified Facilities Criteria (UFC) is considered one of the most important references to design structures, to resist the effects of accidental explosions. A reinforced concrete wall, subjected to pressure-time relationship, such as blast load was analysed and designed by UFC, then modelled using the advanced finite element software program; LS-DYNA to simplify the analysis and design processes of these structures. Dynamic response Results were evaluated, for the maximum displacement time history. Result values were extremely, in close agreement between UFC and LS-DYNA. Also, reinforcement ratio was compared between and found to be the same. The results of this study can be used, for design and evaluation studies.

**KEYWORDS:** Accidental Load, Ls-Dyna, Dynamic Response, Finite Element & UFC