

ABSTRACT

The increasing terrorist attacks in recent years and the heavy losses caused by these blasts and the poor performance of buildings against these blasts were born a lot of concern among people. So it is the responsibility of engineers providing secure buildings for people and can resist the large loads generated as a result of these blasts.

This research aims to study the resistance elements of reinforced concrete structures against the blast, the study of resistance elements of concrete structures against blast passes through two stages.

The first centered around (How does calculate the blast loads on the buildings and the factors influencing them and second centered around the resistance elements of concrete structures against blasts and development of the properties of reinforced concrete to dismiss the size of sections of reinforced concrete structures and elements of cost.

Autodesk robot software and finite element method was used to analyze the design elements of reinforced concrete structures, this study was applied to a sports center consists of (12) floors and an area of ($1080M^2$).

The study hypothesis was a car loaded with 0.25 tons of (TNT), the blast at a distance of 10 m from the sports center building and a study has been resisting concrete columns under the blast loads and the result was the failure of the columns under these loads.

The proposed solutions to improve the resistance the columns under blast loads is to increase the Columns section or increase ductility of reinforced concrete columns.