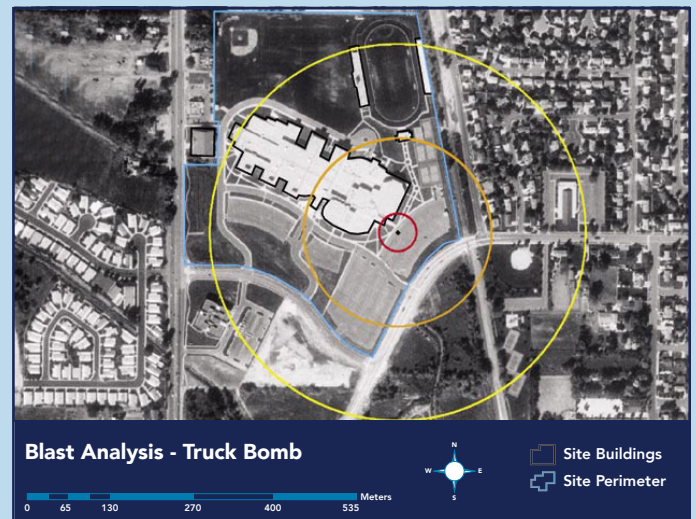
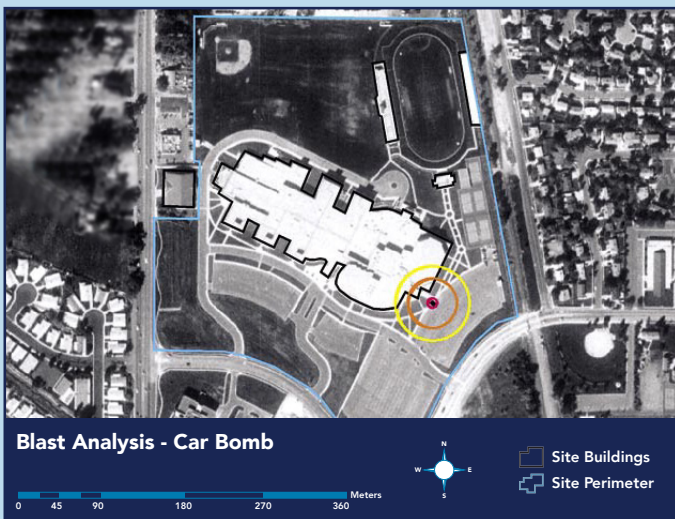


# WHAT HAPPENS IN A BLAST?

Glass is often the weakest part of a building, breaking at low pressures compared to other components such as the floors, walls, or columns. Past incidents have shown that glass breakage may extend for miles in large external explosions. High-velocity glass fragments have been shown to be a major contributor to injuries in such incidents.

Pictures 1 and 2 show blast effects predictions for a high school based on a typical car bomb, and a typical large truck bomb detonated in the school's parking lot, respectively.

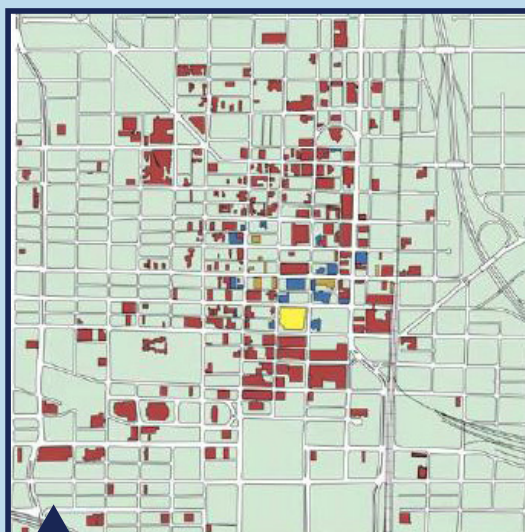
The red ring indicates the area in which structural damage is predicted. The orange and yellow rings indicate predictions for lethal injuries and severe injuries from glass, respectively.



Picture 1: Blast analysis of a high school for a typical car bomb detonated in the school's parking lot.

Picture 2: Blast analysis of a high school for a typical large truck bomb detonated in the school's parking lot.

SOURCE: [Explosive Blast Document, FEMA \(Federal Emergency Management Agency\)](#), based on FEMA 428 – Primer for Design Safe Schools Projects in Case of Terrorist Attacks



## Building Inspection Area

### Legend

- A. P. Murrah Federal Building
- Collapsed Structure
- Structural Damage
- Broken Glass/Doors

In the bombing of the Murrah Federal Building in Oklahoma City, Oklahoma 40 percent of the survivors in the building cited glass as contributing to their injuries. Within nearby buildings, laceration estimates ranged from 25 percent to 30 percent.

Source: [Explosive Blast Document, FEMA \(Federal Emergency Management Agency\)](#)

Picture 3: Impact distance of broken glass in the Murrah Federal Building, Oklahoma City, OK attack

SOURCE: [The Oklahoma City Bombing \(FEMA 277\)](#)



FEMA



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