DIRE

Analysis of Death and Injuries Resulting from Explosions

What is DIRE?

DIRE is an automated analysis tool developed to assist Federal, State, and Local Governments, as well as private businesses in assessing the risks and vulnerabilities they have from potential terrorist actions or other explosive events. Business examples include:

- Insurance companies can utilize the tool to set insurance rates based on building resistance to terrorist attack.
- Bankers can evaluate the risk of commercial loans due to terrorist actions.

Uses

- Security planning
- Building design definition
- Security barrier location and risk assessments

Features

- State-of-the-art consequence and effect algorithms
- User friendly – no training required
- Rapid analysis

System Requirements

- Intel Pentium processor 300 MHz (450 MHz recommended)
- Microsoft Windows® 98, Windows® NT 4.0, Windows® 2000, or Windows® XP
- 32 MB of RAM (64 MB recommended)
- 30 MB of available hard-disk space
- CD-ROM drive

Cost
$500

DIRE, using state-of-the-art consequence modeling, analyzes the effects of an explosion by considering overpressure, impulse, building collapse, and debris. The User Input Window utilizes pull down options to make data entry quick and easy. The user clicks the Calculate button to quickly obtain results.
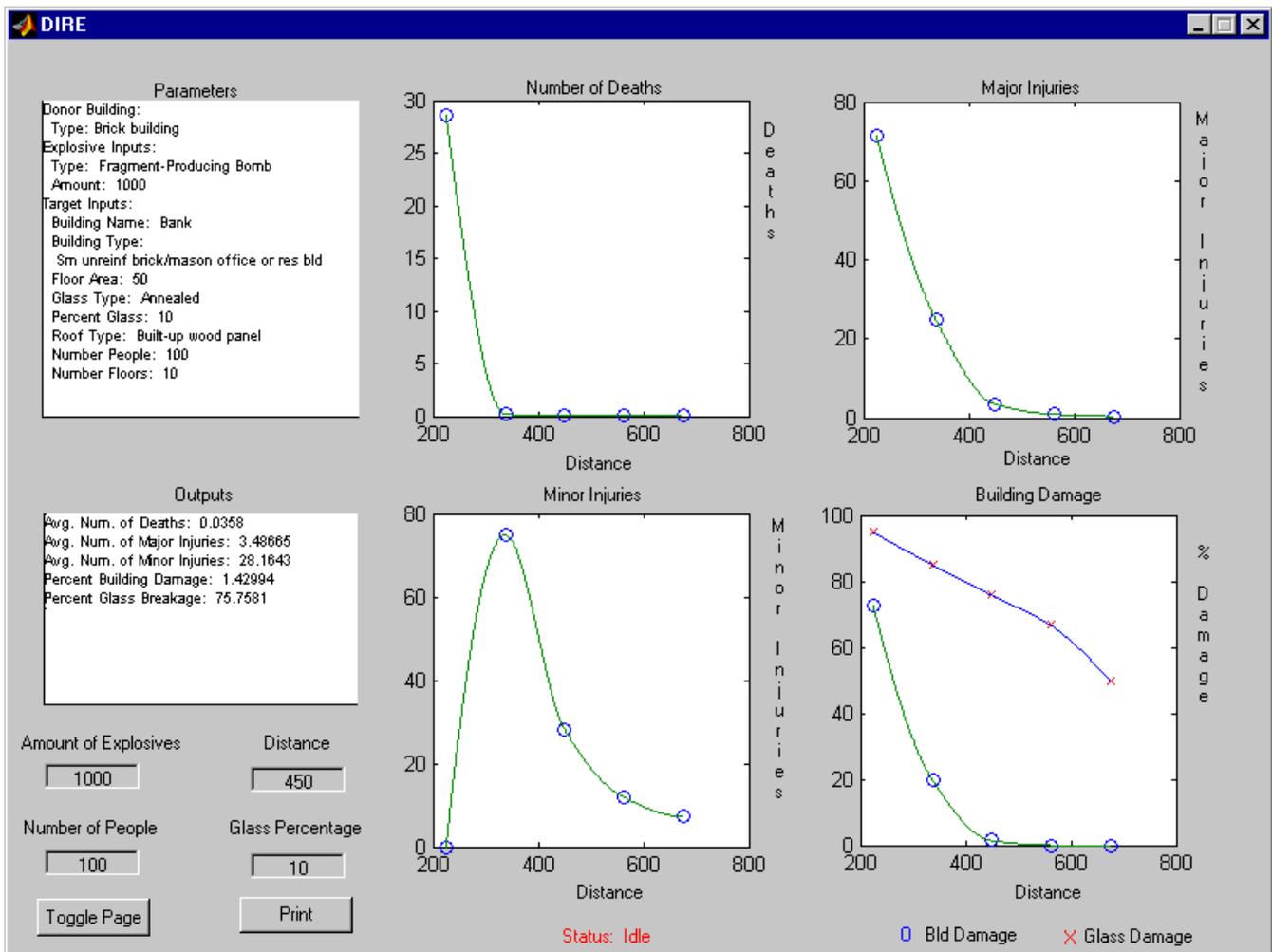
DIRE calculates fatalities, major injuries, minor injuries, building damage, and glass breakage from a specified explosive event.

DIRE has the capability to vary the factors of distance, explosive quantities, percent glass, and number of people from the Output Results Window. This permits the user to quickly see the results of varying the key factors in evaluating possible situations.

DIRE has two forms of output. The first is consequence as a function of distance. The second output is consequence reported floor-by-floor.

DIRE developers have worked with the DoD for over 10 years to develop a software tool to be used by the armed services to determine risk from explosives. DIRE is a logical extension of that work that has been made available to improve security.

DIRE

Parameters
Donor Building:
  Type: Brick building
Explosive Inputs:
  Type: Fragment-Producing Bomb
  Amount: 1000
Target Inputs:
  Building Name: Bank
  Building Type:
   Sm unreinf brick/mason office or res bld
  Floor Area: 50
  Glass Type: Annealed
  Percent Glass: 10
  Roof Type: Built-up wood panel
  Number People: 100
  Number Floors: 10

Outputs
Avg. Num. of Deaths: 0.0358
Avg. Num. of Major Injuries: 3.48665
Avg. Num. of Minor Injuries: 28.1643
Percent Building Damage: 1.42994
Percent Glass Breakage: 75.7581

Amount of Explosives: 1000
Distance: 450
Number of People: 100
Glass Percentage: 10

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Status: Idle

Bld Damage   Glass Damage

APT Point of Contact

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