

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

The image shows a large, powerful explosion with a massive plume of dark smoke and bright orange flames rising into the sky. In the foreground, on the left, is a screenshot of the DIRE software interface. The interface is a standard Windows-style dialog box with several input fields and dropdown menus. The 'Donor Inputs' section includes a 'Type' dropdown set to 'Brick'. The 'Explosive Inputs' section includes a 'Type of explosive mechanism' dropdown set to 'Fragment-Producing Bomb' and an 'Amount of explosives (lbs)' field set to '1000'. The 'Target Inputs' section includes a 'Name' field set to 'Bank', a 'Category' dropdown set to 'Unreinforced Brick/Masonry', a 'Type' dropdown set to 'Sn. Unreinf Brick (< 5000 sq. ft.)', a 'Roof type' dropdown set to '4" reinforced concrete', a 'Glass Type' dropdown set to 'Annealed', a 'Percent glass' field set to '10', a 'Floor area' field set to '5000', a 'Graph Res.' field set to '5', a 'Distance from the donor (ft)' field set to '450', a 'Number of people in the building' field set to '100', and a 'Number of stories in the building' field set to '5'. At the bottom of the interface are buttons for 'Calculate', 'Cancel', 'Load', and 'Save'. The text 'A-P-T Research' is visible in the bottom right corner of the interface. On the right side of the foreground is a CD-ROM. The CD-ROM has the text 'APT Research, Inc.' at the top, 'Analysis of Death and Injuries Resulting from Explosions' in the middle, 'DIRE ©' in large letters at the bottom, and 'Visit our Web site at: www.api-research.com' at the very bottom. The CD-ROM also features a small circular inset image of the explosion.

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.

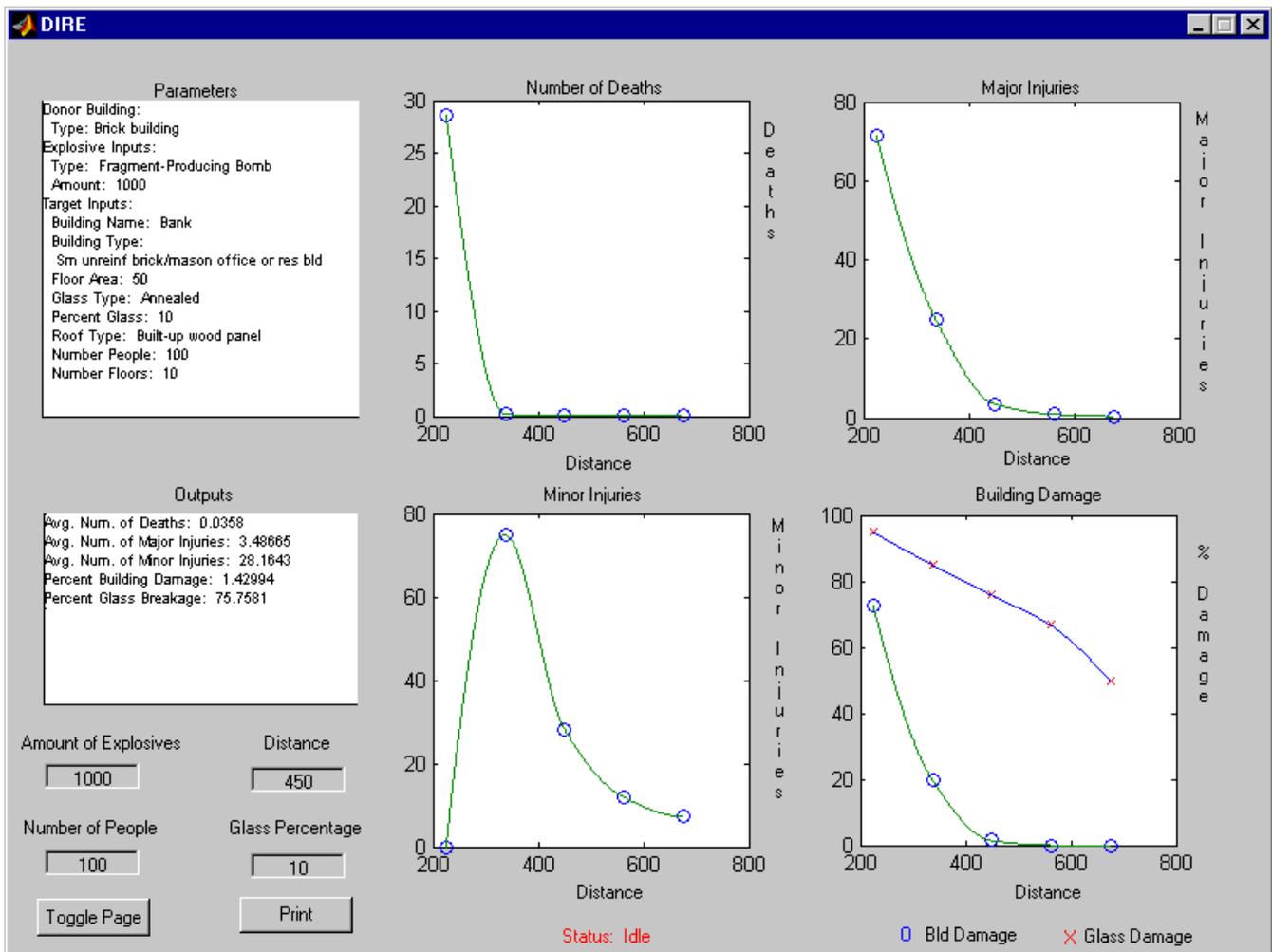
DIRE calculates fatalities, major injuries, minor injuries, building damage, and glass breakage from a specified explosive event.

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.



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