

# 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

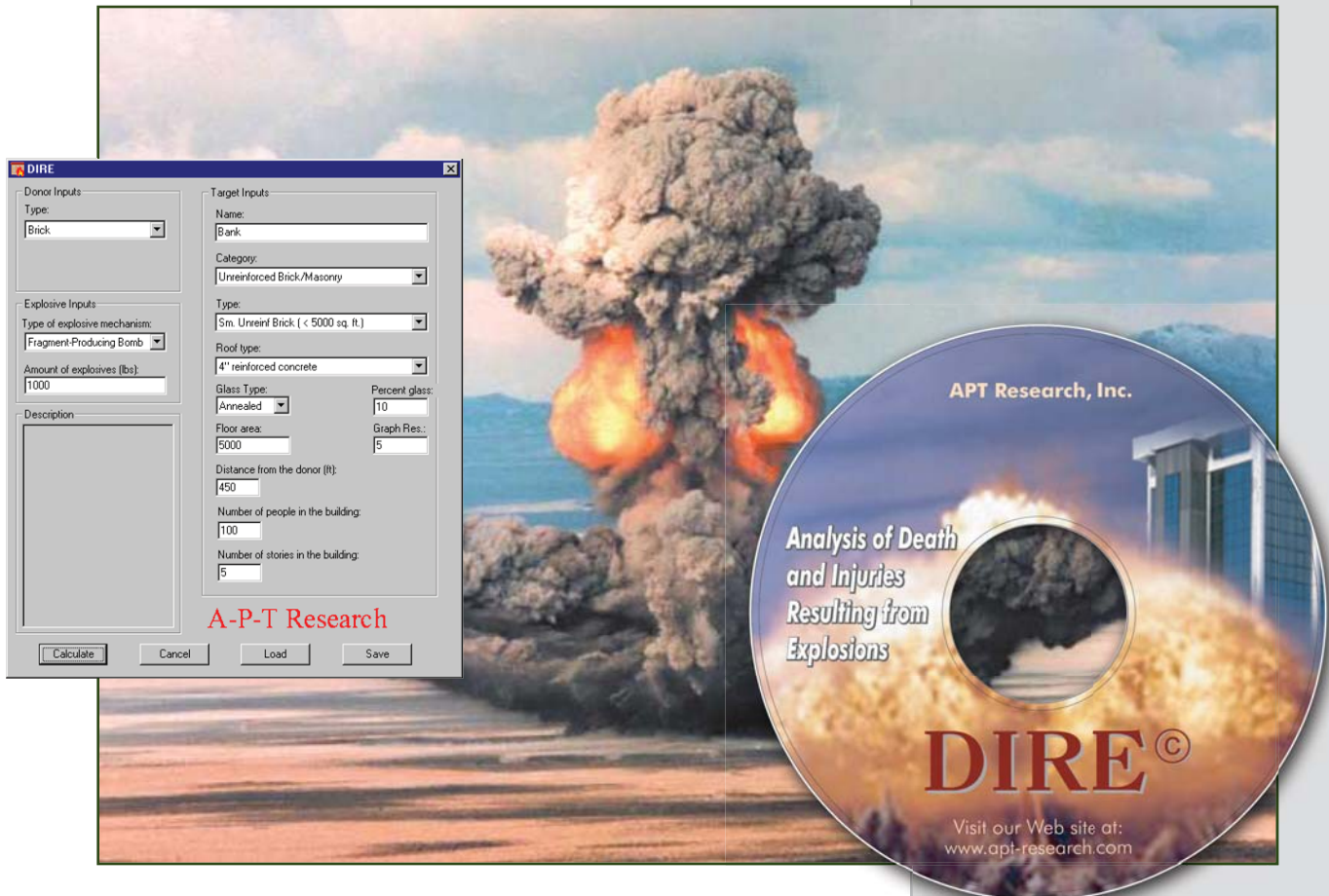
## Features

- 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 screenshot of the DIRE software interface overlaid on a background of a large explosion. The software window is titled "DIRE" and contains several input fields and buttons. The "Donor Inputs" section includes a "Type:" dropdown menu set to "Brick". The "Explosive Inputs" section includes a "Type of explosive mechanism:" dropdown menu set to "Fragment-Producing Bomb" and an "Amount of explosives (lbs):" text box containing "1000". The "Description:" section is empty. The "Target Inputs" section includes a "Name:" text box containing "Bank", a "Category:" dropdown menu set to "Unreinforced Brick/Masonry", a "Type:" dropdown menu set to "Sm. Unreinf Brick (< 5000 sq. ft.)", a "Roof type:" dropdown menu set to "4\" reinforced concrete", a "Glass Type:" dropdown menu set to "Annealed", a "Percent glass:" text box containing "10", a "Floor area:" text box containing "5000", a "Graph Res.:" text box containing "5", a "Distance from the donor (ft):" text box containing "450", a "Number of people in the building:" text box containing "100", and a "Number of stories in the building:" text box containing "5". At the bottom of the window are buttons for "Calculate", "Cancel", "Load", and "Save". The CD-ROM in the foreground features the text "APT Research, Inc.", "Analysis of Death and Injuries Resulting from Explosions", "DIRE ©", and "Visit our Web site at: www.api-research.com".

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 presses the Calculate button to quickly obtain results.

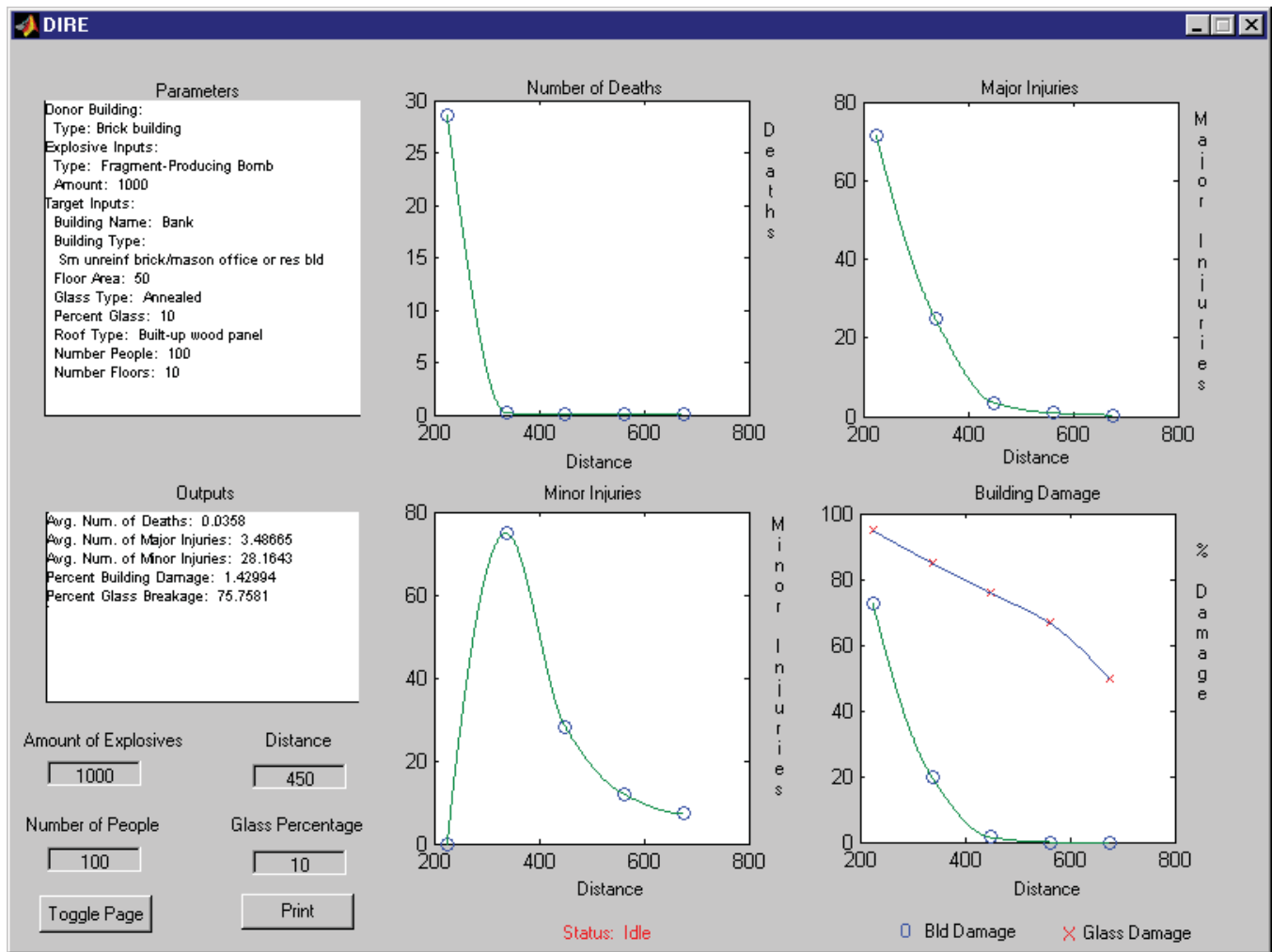
DIRE calculates fatalities, major injuries, minor injuries, building damage and glass breakage from a specified explosive event.

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 output in two forms. 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 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.



## APT Point of Contact

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