



# EXPLOSIVE BLAST MODELING

CISA OFFICE FOR BOMBING PREVENTION

The **Explosive Blast Modeling Program** uses software and other tools to provide a physics-based, 3D model for anti-terrorism and force protection against Improvised Explosive Device (IED) attacks. Personalized assessments can be provided on both hard and soft targets based on a variety of customizable IED threats.



## Stakeholders

### Private Sector:

- Facility Security Managers
- Event Security Managers
- Corporate Risk Advisors

### Federal/State/Local:

- Event Coordinators
- Emergency Managers and Planners
- Public Safety Officials



## Value

- Provides stakeholders with an easy-to-understand product with visualized IED effects
- Increases vulnerability awareness of IED threats to meet security preparedness goals
- Estimates bomb threat standoff needs through visualizing effects, allowing planners to determine mitigation strategies
- Visualizes catastrophic building damage or human injury by simulating an IED attack with customizable variables
- Assesses criticality of major building systems such as generators, transformers, and HVAC equipment



## Structural Blast Analysis

- Analyzes the structural impacts of an IED attack on a facility including beams, columns, utilities, and equipment
- Simulates fragmentation blast effects inside buildings
- Provides overpressure effects on structures and people around an IED threat
- Estimates bomb threat standoff distances for the facility and provide physical security recommendations based on the analysis

### Structural Models

- Peak overpressure
- Shock-impulse
- Glazing damage potential
- Glazing hazard levels
- Structural damage
- Equipment damage
- Fragmentation ricochet



## Soft Target Outdoor Blast Analysis

- Simulates an IED attack for soft-targets and crowded spaces
- Produces reports and visualization based on population density, IED size, fragmentation, and IED delivery method
- Visualizes potential crowd effects for each customized scenario

### Human Injury Reports

- Eardrum rupture
- Lung collapse
- Skull fractures
- Fragmentation injuries
- Human injury potential



## Contact Us

- To request an Explosive Blast Modeling Assessment of your facility or to request more information, email us at [EBM@cisa.dhs.gov](mailto:EBM@cisa.dhs.gov)

