# What use is an explosion in a box?

During one demonstration of the ExploSim system the comment was made “**So, its basically an explosion in a box.**”, we suppose it is.

**So what use is an ‘explosion in a box’?**

The ExploSim system allows users to see the effects of an explosion without causing those effects. It sends a coded RF signal to receivers to show if a receiver is in range of: a lethal blast pressure, blast injury, fragmentation injury or severe structural damage. ExploSim allows the user to select from 25 types of explosives and quantities from 100 grammes (~0.2 lb) to 20 tonnes (~44,000 lb) or from nine pre-programmed IEDs.

<https://layer3services.net.au/explosim/>

For **Security, Safety and Emergency managers, building Wardens and Marshals** the ability to fire off a range of explosions on site without interfering with normal operations enables:

* Testing of security measures such as access controls and stand-off distances:
	+ What happens if a bomb explodes in this part of the site?
	+ Given our current security measures, will a bomb damage or destroy critical elements of the business?
	+ If our access controls allow only briefcases and handbags into this area what is the effect compared to having no bag size limits?
	+ Our stand-off distance is ‘here’ so how big an explosion are we protected from?
	+ What are the effects if a bomb explodes at this distance?
	+ What if the bomb is bigger or smaller what if it is closer, further or to the side? With ExploSim any number of scenarios can be tried.
	+ Can we detect a bomb near critical elements before it explodes? ExploSim has a built-in timer to allow practice of responses within time limits.
* Testing and validation of emergency procedures:
	+ Are our emergency evacuations routes actually safe from possible bomb locations?
	+ How effective are our bomb incident procedures (threats, unattended items, actual bombs)? Now we can test them against different bomb sizes.
	+ How many casualties could be expected from a bomb of a certain size and location?
	+ We can show the first aid responders what could be expected.
	+ What severe structural damage could be expected from a bomb of a certain size and location?
	+ We can replicate bombings that have happened in similar sites to see what might have happened here, without causing those effects.
* Pre-testing of planned security measures:
	+ Will the proposed stand-off distances provide the protection required from the probable bomb sizes.
	+ Will the procedures provide the expected level of protection.
	+ Are certain walls going to need additional hardening and protection.
	+ Based on ExploSim tests we know where to concentrate the detailed (and expensive) computer blast modelling.
* For **Risk Managers**:
	+ Identify, test and rate vulnerabilities.
	+ Test physical and procedural bomb incident risk mitigation treatments prior to implementation.
	+ Validate bomb risk treatments currently in place.
	+ Verify effectiveness of proposed solutions.

For **Owners and Operators of Critical Infrastructure** including entertainment and sports venues, utilities, transport hubs, ITC centres, Defence, Law Enforcement and related organisations, in addition to the security an emergency management uses above:

* Testing of current and planned security measures both business-as-usual and special events.
* Testing of business continuity plans in response to a bomb incident.
* Replicate bombings that have happened in similar sites, without causing casualties.
* Evaluate effects and responses while operations and business activities continue.

For **Law Enforcement and Defence** organisations, and others that provide EOD and IEDD and emergency support functions:

* The ability to train against explosives devices with immediate real-world indication of blast, fragmentation and structural effects.
* Train in any area where WiFi is permitted.
* Ability to test deployment distances for command and support teams.
* Ability to get immediate indication of effects from breaching and other explosive tools.
* Ability to test and validate First Responder responses to bomb incidents.
* Ability to immediately see the number of fatalities and injuries from an explosion.

For **security, safety and blast consultants**:

* Ability to demonstrate the effects of an explosion on site.
* Demonstration of the effectiveness of appropriate stand-off distances.
* Demonstration of the adequacy of existing or planned security and emergency management procedures.
* Cost effective multiple scenarios on site leading to focusing CFD modelling effort where it is of most value to the client.

For **academics**:

* The ability to educate students on energetic materials in a safe manner without requiring access to range areas and explosives.
* The ability to demonstrate the effects of blast in a classroom environment.
* As ExploSim is based on Kingerly Bulmarsh formulae the ability to task students to determine other factors such as impulse based on observed effects and distances.

For **other users**:

* We are certain there are many other uses for an ‘explosion in a box’ that will be come apparent. We look forward to working with users to develop them.

For more on the ExploSim system contact us at: services@layer3services.net.au



 [www.youtube.com/channel/UC5FwE9SxHUNFx2d0kmvPEMg](http://www.youtube.com/channel/UC5FwE9SxHUNFx2d0kmvPEMg)



 <http://www.linkedin.com/company/layer3services>