

# PRACTICAL APPLICATION OF SECURITY BY DESIGN FOR BUILDINGS IN SINGAPORE



## Seminar Description

Incorporation of protective hardening elements to enhance a structure to withstand blast effects is a challenge in the modern building construction landscape where there are many competing requirements and limited funding.

In Singapore, this can be especially difficult due to the proximity of threats and the dense urban landscape rich with potential targets. These unique issues present a challenge to building owners and developers while designing buildings.

This seminar will examine the current building design requirements, with a special focus on the recent implementation of the Infrastructure Protection Act, and provide a pragmatic approach to integrating blast mitigation into a new project. A short primer on blast design fundamentals will be offered to set the stage for discussion of pros/cons and strategies for each of the more common construction methods used in Singapore highlighting the structural and aesthetic impacts. Key tenets of security by design and major components of the required risks studies will be discussed in detail, including TVRA, BEA and SRS. The seminar will be rounded out with an overview of special considerations related to blast design to include blast testing, progressive collapse and performance-based design.

Equipped with the information shared in this seminar, stakeholders will be able to properly address blast design requirements.

## Seminar Highlights

- Overview of Security By Design
- Fundamentals of Protective Design
- Design of Blast Resistant Buildings
- Retrofit Strategies for Existing Buildings
- Progressive Collapse, Curtain Walls and Other Considerations
- Q&A Session

## Meet Our Experts



Darrell Barker  
Senior Consultant



Chris LeBoeuf  
Senior Director



Nelson Duran  
Director Engineering



Mindy Loo  
Lead Engineer



## Objective

The objectives of this seminar are to answer the following questions:

- What is the Infrastructure Protection Act (2017) and how will it affect my projects?
- What are the guidelines and criteria used for blast design in Singapore?
- Why do I need to engage a blast consultant and what qualifications and experience should they have?
- How will protective hardening measures impact my building?
- How much will it cost to integrate blast design into my building (new vs retrofit)?
- When is blast testing required?
- What are the challenges to implementing COTS blast products on the market?
- How do I specify blast products in my design – prescriptive vs performance?

## Intended Audience

- Building Owners, Developers, Construction Managers,
- Quantity Surveyors, Contractors, Public Agencies,
- Architects and Engineers



## About ABS Group

ABS Group maintains an explosion hazards technology competency center as part of the Extreme Loads and Structural Risk group. With regional hubs in Singapore, UK, and U.S.A, the team focuses on evaluation of explosion hazards including: blast load prediction, thermal hazards, debris hazards (primary fragments, building debris and cratering), non-linear dynamic structural response and the engineering of protective construction. We have analyzed thousands of structures for response to explosion effects for a number of different blast criteria and our engineers are recognized within the blast design community for our experience and expertise as subject matter experts and we are active participants in industry technical committees and professional forums contributing to the development of new blast design guidelines and criteria.

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