

Explosion Effects and Structural Design for Blast

A two-day training course

Drury Inn & Suites Riverwalk, San Antonio, TX

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Course Outline

1. Introduction

- Course Overview
- References
- Earthquake vs Blast Design

2. Explosion Effects

- Blast Wave Phenomena
- Explosive Types
- Cube Root Scaling
- Cratering/Truck Bombs
- Blast/Barrier Walls

3. Loads on Structures

- Wall and Roof Loading
- CONWEP Software
- Pressure Fill through Opening
- Internal Explosions
- BlastX Software

4. Behavior of Structural Elements

- Material Properties
- Resistance Functions
- Flexural Resistance
- Shear Resistance
- Tensile and Compressive Membrane Resistance
- Failure Criteria

5. Structural Dynamics

- Simplified Analysis Models
- Elastic Analysis/Dynamic Load Factor
- Elasto-Plastic Analysis
- Response Charts

Structural Dynamics Continued

- Idealized Systems
- Transformation Factors
- Dynamic Reactions
- Limiting Cases of Impulse and Peak Pressure sensitive Systems

6. Response Calculations

- Span 32
- WAC
- PSADS
- P-I Diagrams
- Wall Systems and Retrofit Designs

7. Design Examples

- Walls
- Roofs

8. Window Glazing

- Hazards
- WinDas
- HAZL
- Retrofits

9. Other Design Aids/Criteria

- TM5-1300
- Unified Facilities Criteria
- Progressive Collapse

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