

Resume

Arturo Montalva, P.E.
Associate Principal and Vice President
Technical Director

Background

Arturo Montalva has over 14 years professional experience in design and analysis of a wide range of structures with a general background in mechanical/structural engineering and in-depth expertise in the area of linear and non-linear structural dynamics. Mr. Montalva specializes in the areas of structural analysis and design, blast analysis and design, and finite element analysis.

He has been involved in a variety of projects including bridge, building, and blast design. His experience covers renovations of historic buildings, concept design of new high-rise buildings, analysis development of new buildings, blast analysis and design of structural elements and progressive collapse analysis. He has utilized his knowledge in numerical methods to develop in-house analytical tools as well as to perform applied design and analysis using commercial and government software.

Mr. Montalva routinely performs analysis and design meeting the requirements of UFC 4-023-03 Design of Buildings to Resist Progressive Collapse, UFC 3-340-01 Design and Analysis of Hardened Structures to Conventional Weapons Effects, UFC 3-340-02 Structures to Resist the Effects of Accidental Explosions.

Mr. Montalva is fluent in English and Spanish.

Education

Universidad Politécnica de Valencia, Spain. Industrial/Mechanical Engineer, 1999
Universidad Politécnica de Valencia, Spain. PhD Candidate, 2006

Registrations

Professional Civil Engineer, CA 2007 (#71561)
Professional Industrial/Mechanical Engineer, Valencia, Spain 2001 (#3755)

Representative Project Experience

- **Industrial Plant, Saudi Arabia: Project Manager and Lead Blast Engineer** for a Consequence Based risk assessment for 17 buildings at an existing industrial plant near Damman, Saudi Arabia. Montalva work included visiting the site to determine existing conditions of the buildings and processes, and to coordinate with the client. The assessment itself looked at the potential effects of the Maximum Credible Explosive events due to accidental releases in the manufacturing and storage areas of the plant. Building types included reinforced concrete masonry units and steel buildings with lightweight façade elements.

- **US Federal Government Criteria Development:** Lead Engineer and Author for GSA's interpretation of the ISC Physical Security Criteria for Federal Facilities (FOUO) dated April 12, 2010. The new document provides baseline blast and progressive collapse requirements for GSA buildings classified as Facility Security Levels III and IV in the absence of a site-specific risk assessment. These standards are the basis for the majority of the GSA projects developed to meet the new ISC Criteria.
- **Dobbins Air-Force Base Progressive Collapse and Anti-terrorism Peer Review** - Project Manager and Engineer for a peer review of an air traffic control tower required to meet UFC 4-023-03 and UFC 4-010-01. Mr. Montalva provided structural consulting that allowed the structural engineer to optimize the structure and reduce steel weight.
- **National Guard Armed Forces Reserve Center, Cedar Rapids Iowa:** Lead Blast Engineer for blast analysis and AT/FP Compliance services for this design-build project which included the National Guard Armed Forces Reserve Center itself, and a separate Vehicle Maintenance Shop. The buildings total 177,000 SF and are LEED Silver certified. The building did not meet the conventional construction standoff distance requirements in the UFC 4-010-01 *DoD Minimum Antiterrorism Standards for Buildings*, so explicit blast analysis was performed for the structure and façade elements.
- **Anthony J. Celebrezze Federal Building, Cleveland Ohio USA** - Lead Blast Engineer performing non-linear dynamic progressive collapse analysis for an existing 32 story high rise federal office building to verify UFC compliance. The analysis included large displacements formulation of the existing structure to demonstrate the ability of the structural system to resist progressive collapse.
- **Airforce Technical Applications Center, Patrick Airforce Base, Florida:** Lead ATFP and Blast Project Engineer for ATFP design and peer review of progressive collapse for a 490,000 SF design-build project including a Command and Control Center, laboratory space, and central utility plant. Work included non-linear dynamic analysis for the building envelope and supporting perimeter columns, assessing both blast forces and possible conflicts with ocean surge response requirements. Worked with the EOR to develop multiple progressive collapse options, using the alternate load path method, to determine the most cost effective and constructible solution to progressive requirements.
- **Transbay Transit Center - San Francisco, CA:** Blast Engineer on the first phase of the Transbay Transit Center which is a transportation and housing project intended to create a "Grand Central Station of the West" in San Francisco. The overall project is estimated at \$4 billion and will include a regional transit hub connecting eight Bay Area counties and the State of California as well as housing, retail, and office space. The first phase of the project is a new five-story, one million square foot, Transit Center with one above-grade bus level, ground floor, concourse, and two below-grade rail levels serving Caltrain and future California High Speed Rail. Working with the URS Risk & Vulnerability Assessment team, Stone aided in the development of customized criteria requirements that took into account the iconic nature of the facility the location in an urban environment, and the high level aesthetics of the design. Criteria was developed for the primary structure as well as for each of the non-structural systems that could be hazardous in the event of a blast. Non-structural elements addressed include unique, architectural overhead ceilings, multiple window and curtain wall systems, non-glazed building envelope, and elements critical to occupant exit in the event of an emergency.

- **Multi-threat Vulnerability Assessment and Retrofit Design: UNAMI Headquarters Annex Compound, Baghdad Iraq:** Blast Engineer, as part of a multi-disciplinary team, performed a vulnerability assessment for the UNAMI Headquarters Annex Compound in Baghdad, Iraq which included 98 occupied structures, perimeter walls, and multiple entry control points. The assessment addressed multiple threats and threats sizes and first determined the response of the existing buildings and then made recommendations for potential retrofits that would mitigate the effects of the various threats. Once the client selected their preferred protection approach, the team finalized the design and developed construction documents for the retrofits.

Employment History

Project Manager, Stone Security Engineering, New York, NY (January 2010 – present)
Senior Engineer, Hinman Consulting Engineers, San Francisco, CA (November 2006 – December 2009)
Senior Engineer, Gilsanz Murray Steficek LLP, NY, NY (April 2003 – October 2006)
Associate Professor, Universidad Politécnic de Valencia, Spain (November 2001 – March 2003)
Engineer, Tecnica y Proyectos S.A., Valencia, Spain (January 2000 – October 2001)
Interim Engineer, Tecnica y Proyectos S.A., Valencia, Spain (June 1999 – December 1999)

Technical Committees and Professional Affiliations

Society of American Military Engineers (SAME), USA, Member #301228

Publications

Alcalde J., Montalva A. “*Resistencia de Materiales*”, SPUPV-97.318.

Montalva A., Ivorra S., Marjanishvili S. “*Air-Blast Analysis of Beam-Columns using Galerkin Formulation*”, PROTECT 2007, Whistler, Canada, August 20-22 2007.

Montalva A., Marjanishvili S. “*Modeling Approach for Progressive Collapse Analysis*”, Structural Engineers World Congress, Bangalore, India, November 2-7 2007.

Montalva A., Loukaides E., Long M. & Gallant S. “*Analysis of Steel Columns for Air-Blast Loads*”, ISIEMS 12.1, Orlando, September 17-21-2007

Chan J., Montalva A., Marjanishvili S. “*Effects of Forcible Removal of Elements in Progressive Collapse Analysis*”, ISIEMS 12.1, Orlando, September 17-21 2007

Godinho J., Montalva A. & Gallant S. “*Analysis of Steel Columns for Air-blast Loads*” Structures Magazine. November 2007

Montalva A., Godinho J., Marjanishvili S. “*Air-blast Failure Criteria for Columns using Finite Element Methods*”. Structures 2008, Vancouver

Montalva A., Chan J., Marjanishvili S. “*Single Degree of Freedom Characterization of Impact Load on Continuous Systems*”. Structures 2008, Vancouver

Montalva A., Tadepalli T., Chan J., Marjanishvili S. “*Progressive Collapse as Implicit-Explicit Multi-step Initial Condition Dynamic Analysis*”. EM08, Minneapolis

Montalva A., Pons i Frigola V., Herrera O., Pons i Grau V. and Gilsanz R, "A Catastrophic Collapse: Windsor Building Fire (Madrid, 2005)". Fourth International Conference on Forensic Engineering, London 2008.

Public Speaking

9th US National Congress on Computational Mechanics, "Air-Blast Analysis of Beam-Columns using Galerkin Formulation" San Francisco, July 22-26 2007.

PROTECT 2007, "Air-Blast Analysis of Beam-Columns using Galerkin Formulation", Whistler, Canada, August 20-22 2007.

International Symposium on Interaction of the Effects of Munitions with Structures (ISIEMS 12.1), "Analysis of Steel Columns for Air-Blast Loads", Orlando, September 17-21 2007

Structures 2008 Congress, "Performance-based Techniques for Columns Subjected to Air-Blast". Vancouver, April 24-26 2008

Structures 2008 Congress, "Air-blast Failure Criteria for Columns using Finite Element Methods". Vancouver, April 24-26 2008

Fourth International Conference on Forensic Engineering, "A Catastrophic Collapse: Windsor Building Fire (Madrid, 2005)". London, December 3-4 2008.