Risha engineering

Janah A. Risha, PE, SE
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Robert T. Lyons, PE, SE
Principal – rlyons@risha.com

Rimah I. Nazzal, PE, SE
Principal – RNazzal@risha.com

firm qualifications

Entertainment, Television and Motion Picture Studio Experience

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expertise

Dedicated to enhancing the quality of lives through better engineered buildings

OUR CLIENTS **DEMAND** SOLUTIONS TO ACHIEVE THEIR **MISSION**

OUR **MISSION** IS TO EXCEED THEIR **DEMANDS**

Design Services

- New Building Design
- Existing Building Renovation & Rehabilitation
- Seismic Evaluation & Retrofit
- Retaining Walls & Foundation Repairs
- Temporary Shoring
- Set, Show & Entertainment Structures
- Equipment Bracing & Support
- Support for Non-Structural Systems
- Repairs, Mitigation & Remediation

Civil Services

- Entitlements & Feasibility
- Grading & Drainage
- Flood Control & Urban Hydrology
- Parking layout
- Sewer & Water Infrastructure
- LID BMP Integration & Runoff Reduction
- SWPPP Development & Compliance
- Surveying services

Consulting Services

- Feasibility Studies
- Structural Condition Assessments
- Structural Investigations
- Earthquake, Wind & Fire Damage Assessment
- Forensic Engineering
- Quality Control
- Litigation Support
- Construction: Sequencing, Auditing, Support, Management

Risha Engineering Group is a structural and civil engineering consulting firm dedicated to enhancing the quality of lives through better engineered buildings. By design, our buildings are safe, efficient and unique. Our clients demand solutions to achieve their mission. Our mission is to exceed their demands.

Firm History

Janah A. Risha, PE, SE founded Risha Engineering over 15 years ago, to provide proactive, simple, and flexible structural and civil engineering solutions to clients and communities. Risha Engineering provides structural and civil engineering services for diversified project types. The firm has established a distinguished record of client oriented service to a wide range of clients, including the private sector, state, local and federal agencies. Our principals have a reputation for dynamic problem solving, responsive design and strong cost and quality control. As such, the firm experiences a high rate of repeat clientele. Emphasis is placed on meeting client needs through quality design with technical efficiencies.

Risha Engineering has a proven track record of reliable performance. Follow-up and follow through are practiced by each and every staff member. Projects are always delivered as promised and the staff provides a personal commitment to ensuring client satisfaction.
Projects completed by Risha Engineering consist of hospitals, offices, restaurants, retail, industrial, institutional, entertainment and residential buildings. Several of the projects are high visibility such as the renovations of the old Los Angeles Federal Reserve building in downtown. Other high visibility projects include the Nabisco Building in downtown Los Angeles, a new six-story production office building at one of the Hollywood studio's housing major movie and TV production companies, and a new wafer fabrication plant with an immediate occupancy level for seismic performance.

The firm's client roster include City of Burbank, City of Lake Elsinore, City of Alhambra, Los Angeles Unified School District (LAUSD), U.S. Department of Veterans Affairs, Los Angeles County, Paramount Pictures, CBS Studios, 20th Century Fox, NBC Universal, DreamWorks, Baxter Healthcare Products, Lucent Technologies, Patina/Pinot Restaurant Group, CIM Group, Ciba Chemicals, Gensler, Turner, Rudolph and Sletten, Studio 111, KCS West, HOK, Warner Bros. and many other well established organizations.

This diversified list of corporate owners, architects, contractors and government agencies is an indication of the firm's flexible experience, proven capabilities and positive reputation in the marketplace.

ENTERTAINMENT, TELEVISION AND MOTION PICTURE STUDIO EXPERIENCE

Building Projects

Janah Risha, SE has been providing Structural Engineering consulting services for the Entertainment Industry since 1994. Projects are assigned on an as needed basis and vary from foundation systems inspection, modifications and upgrades to existing structures, to structural design for new building projects.

Mr. Risha has developed an excellent working relationship with Paramount Pictures, CBS, Universal – NBC Studios, DreamWorks, 20th Century Fox, Warner Bros. and other Studios, providing efficient, flexible, and cost-effective solutions for extremely complex engineering issues. For existing buildings, the work commissions addressed the alteration to and/or the repair of parts or components of the existing structural elements, affecting the building's structural system. This requires extensive knowledge of building behavior and the ability to adapt new building components to older construction materials and practices. Risha Engineering Group has been able to consistently provide creative solutions to achieve the desired end, such as a new space or an upgrade of an existing structure. Services have also included preparing plans, details, specifications, cost estimates, and construction support for new building projects, as well as detailed condition assessment inspection reports with preliminary recommendations.

Movie Productions and Studio Sets

In addition to traditional building design, Risha Engineering Group is privileged to provide Structural Engineering consulting services for production projects. Working with producers and art directors, we have developed a keen understanding of production needs and the business of making movies. This particular experience, enables us to understand the needs of the user groups within the various business groups of a studio.

Clients

20th Century Fox Studios ◆ CBS Studio ◆ Cirque Du Soleil ◆ Downey Studios ◆ DreamWorks ◆ Food Network ◆ MTV ◆ NBCUniversal ◆ Paramount Pictures Corporation ◆ Ren-Mar Studio ◆ Warner Bros. ◆ The Lot

PRODUCTION PROJECTS

Balls of Fury (Focus)
Beautician and The Beast
Bobby Flay (Food Network)
Case 39 (PPC) CSI:Miami (CBS)
Cirque Du Soleil – Iris, Kinect Event
Deep Impact (DreamWorks)
End of Days (WB)
Face Off
Flight Plan (Touchstone)
Frasier (PPC)
JAG – NCIS (PPC-Belisarius)
Jurassic Park 3 (Universal)
Kiss the Girls
Lemony Snicket (PPC)
Changing Lanes
Spider Man 3 (Sony)
Pirates of the Caribbean:
On Stranger Tides (Disney)
Star Trek – Generations,
Deep Space Nine,
Voyager, Insurrection (PPC)
The Cell (New Line Cinema)
The Ellen DeGeneres Show (WB)
The Italian Job (PPC)
The Relic
The Terminal (DreamWorks)
The Truman Show
Traffic (Universal)
Waterworld
Wild Wild West (WB)

BUILDING PROJECTS

WB	Bldg. 19 — Production Offices and Editing Facility
WB	Stages 1, 2, & 3 Renovations — Production and Editing Facility
WB	New Editing Facility — Building 2R
PPC	Commissary Renovations & Addition
NBC	Universal — Various production safety projects.
PPC	Cruise-Wagner Productions
WB	Building 151 — Tenant Improvements
The Lot	All Stages Documentation
NBC	Universal —Amblin Productions
CBS	Stages 18, 19, 20 — HVAC
PPC	Chicago Street
CBS	Fall Protection Evaluation —All Stages.
CBS	Retail Center
PPC	Marathon Mill Truss Repairs & Seismic Upgrades
PPC	Dressing Room Extensive Remodel and Seismic Upgrades
PPC	Administration Building Renovations.
PPC	DeMille Building — Renovations.
PPC	Lubitch Building Renovations.
PPC	Swanson Building Renovations.
PPC	Wilder Building Renovations.
PPC	HVAC Platform — Stages 8 & 9
PPC	HVAC Platform Stage 30
Disney	HVAC Support - ABC building
PPC	Stage 19 Catwalk Renovations
PPC	Stage 14 Fan House
PPC	New York Street - Various Projects.
PPC	Movie Screen Relocation and Stage Widening- Studio M
CBS	New Parking Structure and Storage Facility.
PPC	HVAC remodel - Sturges Building
PPC	Truss Alteration and Strengthening - Fall Protection Program - All Active Stages
PPC	Truss Analysis - Stage 2
PPC	Bluhdorn Building - Upgrades
PPC	Building 210 Remodel - Lynda Obst Offices
PPC	Valentino Building - Structural Upgrades

20th Century Fox	Writers' Bungalows
20th Century Fox	Retail Store Seismic Upgrades
RenMar Studios	Fall Protection

experience

We look at the what is and provide the solution to become what it could be

Founded by Janah A. Risha, PE, SE, in January 1999

- Strategically located in Burbank, California, to serve the Southern California marketplace
- A Las Vegas, Nevada, office to serve the Las Vegas valley area
- Proactive, simple, and flexible solutions
- Award-winning firm for innovation and efficiency
- Vast knowledge and understanding of a diversified range of projects and clients
- Client-oriented approach

Janah A. Risha, PE, SE
Founder & President

Robert T. Lyons, PE, SE
Principal

Rimah I. Nazzal, PE, SE
Principal

Matthew C. Breaks, PE, SE
Senior Associate

A dedicated team of licensed engineers with over 100 years of combined experience ◆ Active members of the Structural Engineers Association of Southern California (SEAOSC) and the Structural Engineers Association of Southern Nevada (SEASoN) ◆ Heavily involved in the leadership and committee chairmanship of SEAOSC ◆ Culture of teamwork and collaboration ◆ Continuously innovating ◆ Involved in the community

Clients

20th Century Fox
ADD Inc.
AH2 Construction
Anthony Eckelberry
Anthony Mason & Associates
AP Americas
ARD Group
Bastien & Associates
Baxter Healthcare Products
Beckson Design Associates
Belzberg Architects
Bryant Palmer Soto
CANNON Design
CBS
Ciba Chemicals
CIM Group
City of Alhambra
City of Burbank
City of Lake Elsinore
County of Los Angeles
Dreamworks
ETS Lindgren
Gabbay & Associates
Gensler
HDR
HED
HOK
Honeywell
Jay Vanos Architects
Kam Sang Company
Kanner Architects
KCS West
Loma Linda University
LA Unified School District
Lucent Technologies
Marmol Radziner
Martin-Harris Construction
Nestle
Nicholas Budd Architects
Paramount Pictures
Perkins + Will
Rios Clementi Hale
Rudolph & Sletten
Studio 111
Taslimi Construction
Tom Farrage
Trammel Crow Company
Turner Construction
Tyler Gonzales Associates
US Department of Veterans Affairs
Versales, Inc.
Versatile Systems, Inc.
Warner Bros.

Janah A. Risha, PE, SE – President

Mr. Risha specializes in large scale design and trouble-shooting the hard-to-build, highly technical projects. He has been practicing structural and civil engineering for over 25 years, and has extensive experience designing structural systems for diversified building projects. His portfolio includes structural and civil engineering for building projects, performing structural design in steel, concrete, masonry, and timber for over five hundred building projects. He has managed structural condition assessment projects for various building types. Mr. Risha has designed structural rehabilitation and strengthening schemes for numerous buildings, supervising the preparation of plans, details, and specifications.

In addition to traditional building projects, Mr. Risha has also been providing Structural Engineering design and construction documents for the Motion Picture and Television industry since 1994. He is active with several professional organizations, including the Structural Engineers Association of Southern California (SEAOSC), serving as its President in 2011-2012, American Institute of Steel Construction (AISC), International Code Council (ICC), and the American Society of Civil Engineers (ASCE).

Registrations

Structural Engineer - California and Nevada
Professional Engineer - Civil - California and New Jersey

Education

Masters of Science, Civil Engineering - Stanford University, Stanford, California
Bachelor of Science, Civil Engineering - Texas Tech University, Lubbock, Texas

Professional Affiliations and Activities

- Structural Engineers Association of California
- American Society of Civil Engineers
- American Concrete Institute
- American Institute of Steel Construction
- Applied Technology Council
- International Code Council
- Life-time Member of USC Architectural Guild
- Associate AIA Member
- Past President - Structural Engineers Association of Southern California
- Past Chair - SEAOC Code Streamlining Committee
- SEAOSC Building Code Committee
- SEAOSC Existing Buildings Committee
- SEAOC 2006 Convention
- ASCE Standards Committee on Condition Assessment and Seismic Rehabilitation of Buildings

Project Types

- Entertainment projects
- Multiplex Theatres
- Theatre and Performance venues
- Retail centers
- Industrial facilities
- Commercial buildings
- Commercial TI projects
- Multi-unit residential and custom homes
- K-12; Public and Private Schools
- Community Colleges
- Higher education
- Seismic and structural investigations using ASCE 31 and 41
- Hospitals - new facilities and expansions
- Hospitals - SB 1953 SPC and NPC evaluations and upgrade
- Hospitals and MOB department upgrades
- MOB's
- Central plants
- Seismic restraint design and detailing of overhead utility systems
- Equipment anchorage and non-building structures
- Fall protection

Publications

"Earthquake Design Manual for Low Rise Building Structures", SEAOC Code Streamlining Committee, August 2002.

"Achieving Immediate Occupancy Seismic Performance Objectives with Conventional Structural Systems", 2002 SEAOC Proceedings, September 2002.

"Application of Structural Observation to Retrofitting Existing Concrete Structures", SEAOSC Seminar, March 1997.

"Preventive Maintenance and Emergency Planning Reduce the Impact of Natural Disasters" , Community Trends Magazine, April 1993.

Robert T. Lyons, PE, SE – Principal

Mr. Lyons is a well respected structural and civil engineer with over 35 years of design experience and is one of the industry's leading experts in all aspects of structural and civil engineering in California. Bob understands better than most the operational needs of the client and the stringent demands of the California regulatory environment. As Principal, Bob is responsible for all phases of project development, structural design and system selection, seismic design, construction administration and client interface. His broad portfolio of design work includes major projects in the healthcare field, education and earthquake engineering, to modernizations, as well as demonstrated professional expertise in alternative structural systems and construction materials.

Bob has been the structural and civil engineer of record for many out-of-state projects and is licensed in eleven states. Bob's technical prowess and mastery is evident in some of the types of projects he has managed, which include the Harbor UCLA Medical Center, Scripps Memorial Hospital and several Kaiser Medical Facilities. Also, Bob has served on numerous structural committees, resulting in published code provisions.

Registrations

Professional Engineer - Civil - California, Colorado, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, North Carolina, South Carolina, Utah, and Washington
Structural Engineer - California and Massachusetts

Education

Bachelor of Science, Civil Engineering - Cum Laude - UCLA, Los Angeles, California

Professional Affiliations

- Member SEAOSC and SEAOC, member for life honorary member of SEAOSC since 2010
- Committees – seminar committee, code committee, steel committee (co-chair 1998, Steel testing and Inspection Sub-committee, Seismology (vice chair 2000/2001, chair 2001 to 2006), SEAOSC Board of Directors (2003 to 2005)
- Professional Member of AISC 1997 to present
- Committees – Seismic Provisions for structural Steel Buildings and Prequalified Connections for Special and Intermediate Steel Moment Frames

Project Types

- Entertainment Projects
- Commercial TI projects
- Commercial buildings
- Hospitals, new facilities
- Hospitals, expansions
- Hospitals, SB 1953 SPC and NPC evaluations and upgrade
- Hospitals and MOB department upgrades
- MOB's
- K-12; Public and Private Schools
- Forensic investigations of failures and litigation preparation
- Seismic and structural investigations using ASCE 31 and 41
- Central plants, hospital and commercial
- Seismic restraint design and detailing of overhead utility systems
- Equipment anchorage and non-building structures
- Structural frames for support of RF shielding enclosures worldwide for ETS Lindgren
- Access floor designs for Tate and their installers nationwide, as well as installers of systems by other manufacturers.

Publications

Contributing author, Seismic Provisions for Structural Steel Buildings AISC 2005 (ANSI/AISC 341-05)

Contributing Author, Prequalified Connections for Special and Intermediate Moment Frames for Seismic Applications AISC 2005 (ANSI/AISC 358-05)

Recommended Lateral Force Requirements & Commentary, 1999, 7th Edition, Co-Leader of Chapter 7 (Steel)

Co-author, 1994 Northridge Earthquake case Studies, Chapter 1.15 Three Tilt-Up Buildings, tilt up Seismic Safety Commission, 1995

Lead author, Commentary and Recommendations on FEMA 350, SEAOC Seismology Committee, January 2002

Authored and presented numerous technical presentations between 1994 and today

Peer reviewer, AISC Engineering Journal Articles, 2000-2005

Rimah I. Nazzal, PE, SE – Principal

Mr. Nazzal has over 25 years of experience in structural evaluation, analysis and design, and project management of a wide variety of facilities. As the Principal in charge of the Las Vegas office, his responsibilities include the day to day operations, business development and staff supervision in addition to the technical engineering by performing seismic evaluations of structures, selection and design of lateral force resisting systems along with foundation systems, and preparation of construction documents and specifications.

During the past three code adoption cycles in the Las Vegas valley, Mr. Nazzal has been very active in the local review process of the International Building Code (IBC). As past president of the Structural Engineers Association of Southern Nevada (SEASoN), he has participated extensively with local agencies and engineers in the development of the local amendments to the IBC. He has specialized expertise in the use of engineering software for computer simulation and analyses of frames and buildings such as RISA-3D, ENERCALC, STAAD/Pro and RAM Structural System. Mr. Nazzal is proficient in supporting software such as CAD, project schedulers, spreadsheets and word processors. His practical knowledge of the International Code Council - International Building Code (IBC), American Society of Civil Engineers - Minimum Design Loads for Buildings and Other Structures (ASCE 7), American Concrete Institute - Building Code Requirements for Structural Concrete (ACI 318), and American Institute of Steel Construction - Steel Construction Manual makes him an asset to Risha Engineering's structural and civil team.

Registrations

Structural Engineer - Illinois, Massachusetts, Nevada and Wyoming
Civil Engineer - California, Nevada and Wyoming
Engineer - Florida, Iowa, Maryland, New York, Oklahoma, Pennsylvania, Tennessee and Texas

Education

Bachelor of Science, Civil Engineering, California State Polytechnic University, Pomona, CA

Professional Affiliations and Activities

- Structural Engineers Association of Southern Nevada, Member SE and Past President

Project Types

- Water treatment plants
- Water reservoirs
- Pump stations
- Airports
- Convention centers
- Commercial buildings
- Industrial buildings
- Shopping centers
- Track homes
- Custom homes
- Concrete vaults and manholes for pipelines

Project Types (Cont.)

- Flood control open channels and detention basins
- Underground concrete box culverts
- Pedestrian bridges
- Highway bridges
- Sound barriers
- Fence walls
- Mechanical and electrical equipment supports and anchoring
- Mechanical and plumbing pipe supports and lateral bracing
- Shade structures and car ports
- Solar panel supports
- Power transmission poles
- Light pole foundations
- Retaining walls.

Project Awards

2008 Top Projects, Southwest Contractor, McCarran Terminal 3 Roadways

Best of Nevada 2007 (Concrete), Southwest Contractor, I-515 Sound Wall Barriers

Project of the Year, Construction Specifications Institute, I-515 Sound Wall Barriers

Matthew Breaks, PE, SE – Senior Associate

Mr. Breaks' breadth of skills and experience spans almost 20 years in the structural and civil engineering fields. Matthew's expertise includes inspection of concrete, steel and timber bridges, tunnels, trusses and other structures. His flexibility in working with clients and design professionals helps deliver seamless solutions to complex structural requirements from design development through project completion. Matthew is experienced in structural analysis utilizing steel, concrete, masonry and wood, and has completed projects in California, Virginia, Maryland, North Carolina, Florida, Arizona and Washington D.C. His experience in working with high seismic requirements makes him skilled in anticipating and resolving potential conflicts before they become challenges.

Some of Matthew's most notable work includes: managing major structural renovations, including the addition of multiple new structures, at the Aerojet Rocketdyne De Soto campus in Canoga Park, CA; structural design services for the Cirque du Soleil production "Iris" located in the Dolby Theatre in Hollywood, CA; and, structural design and construction support services for the 300,000 square foot multi-use facility Atlantic Times Square in Monterey Park, CA, which included a 14-Plex Movie Theatre.

Registrations

Professional Engineer - Civil - California and Virginia
Structural Engineer - California

Education

Bachelor of Science, Civil Engineering - University of Virginia, Charlottesville, VA

Professional Affiliations

- Structural Engineers Association of California
- American Society of Civil Engineers
- American Institute of Steel Construction

Project Types

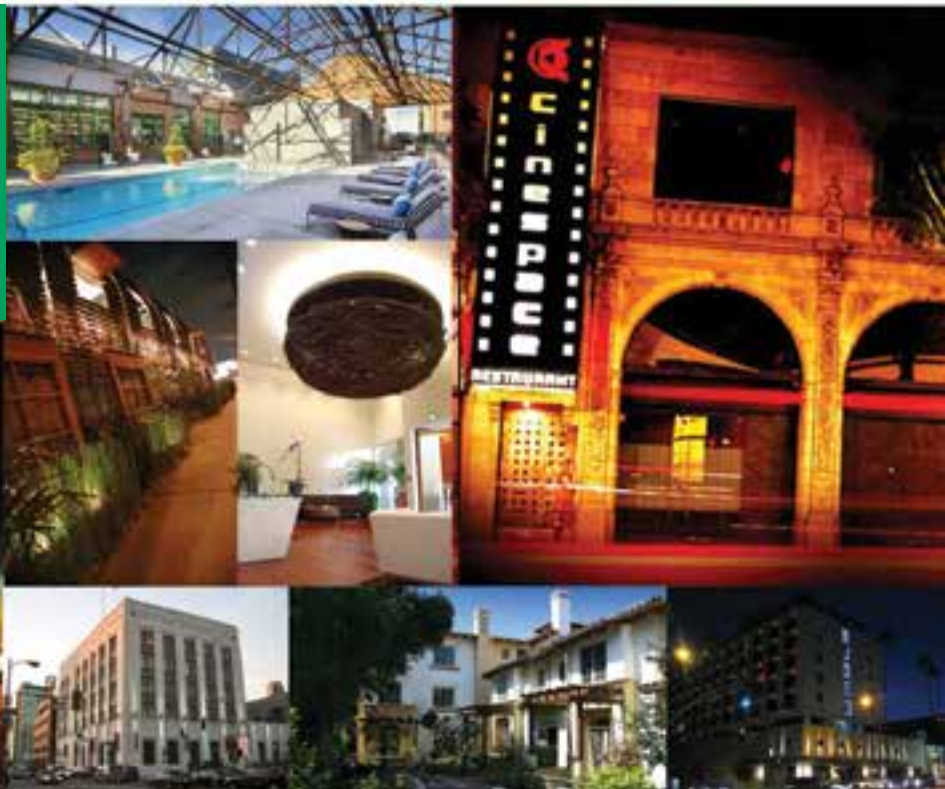
- Entertainment projects
- Theatre and performance venues
- Educational projects
- Commercial buildings
- Commercial TI projects
- Industrial projects
- Mixed-use projects
- Multi-family residential
- Custom homes
- Seismic and structural investigations using ASCE 31 and 41
- Equipment anchorage and non-building structures
- Seismic retrofit of existing structures
- Fall Protection
- Temporary structures
- Highway bridges
- Pedestrian bridges
- Tunnel and bridge inspections
- Truss inspections
- Water treatment plants
- Pump stations

Risha engineering

History and Background

- Providing structural and civil engineering services since 1999, with over 100 years of combined staff experience.
- Strategically located in Burbank, California, to serve the Southern California marketplace.
- A Las Vegas, Nevada, office to serve the Las Vegas valley area.
- We aim to provide proactive, simple, and flexible structural and civil engineering solutions.
- Our projects deal with both new construction and the renovation or retrofit of existing buildings.
- In addition to providing structural design for new buildings, our projects include as-needed services, varying from foundation systems inspection to modifications and upgrades for existing structures.
- Our portfolio of projects spans across multiple markets including Corporate & Commercial, Entertainment, Education, Government & Military, Residential, Hospitality, Industrial, Healthcare, Science & Technology, and Civic. Risha Engineering has the experience to understand diverse building needs and undertake various project types.
- Our structural and civil engineering solutions are tailored around each project's set of distinct requirements. We approach each project with no preconceived ideas as to what the possibilities may or may not be while applying lessons learned on similar previous projects.
- A vast knowledge, understanding and experience in a diversified range of clients and projects.
- Recognized by colleagues through multiple awards.
- Client oriented approach.

100 YEARS OF COMBINED EXPERIENCE



Risha engineering

WARNER BROS.
BUILDING 151

Risha Engineering provided structural engineering inspection, analysis and design for the extensive renovations of this building. The building is now occupied by Warner Bros. International Television Distribution arm of the Warner Bros. Television Group (WBTVG). The work included detailed evaluation of structural damages to the building frame system, due to the exposed nature of the architecture. We developed a detailed repair scheme that allowed for replacing damaged sections of the beams and columns, in conjunction with other renovations.

The project received a LEED Silver certification and was awarded the 2005 Governor's Environmental and Economic Leadership Award in the Sustainable Practices of Facilities category.

Risha engineering

CIRQUE DU SOLEIL / MICROSOFT
PRODUCT LAUNCH EVENT

Risha Engineering provided structural support for Cirque du Soleil's incredible production of Microsoft's unveiling of Kinect, a controller-less motion device for their Xbox 360 system.

The project involved coordinating the production's imparted loads on the existing structure with the original design engineer and providing structural design and expertise during the show's tight time frame and ever-changing criteria.

The focal points included 25-foot projection screens around the top of the arena, and a rotating 40-foot structure that transforms from a "television screen" to a rotating living room called "Home".

All permits were coordinated with the City of Los Angeles in order to meet the demanding schedule.

Risha engineering

TECHNICOLOR
FILM DEVELOPMENT FACILITY

Risha Engineering provided structural engineering for a new film development facility for Technicolor in Glendale, California. Technicolor selected an existing concrete tilt-up building to house its new facility. In order to accommodate their specialized equipment and process plumbing, several new equipment platforms were constructed within the existing building. The largest platform is approximately 2,500 square feet with special steel concentric braced frames and a concrete deck. It is used to support six large film developers weighing up to 50,000 pounds each, along with the support equipment and necessary plumbing and electrical piping. The platform was carefully tailored around the existing building structural elements while still providing the client an effective space for production.

A portion of the existing roof was evaluated for the addition of new mechanical units as well as process piping. Where needed, creative and cost-effective strengthening procedures were implemented in order to provide the client with the facility layout they desired.

Offices were also updated in the tenant improvement. Bearing walls were relocated and structural supports were added to accommodate the new space layout the client requested.

Risha engineering

PARAMOUNT PICTURES
EXECUTIVE DINING & CAFE

Executive Dining
Retrofit of one-story wood, steel and bow-string truss structure for conversion into an executive dining facility. The primary design component for this project was a large structural steel soffit framing multiple skylights and supported by steel posts and spread footings. Lateral bracing of the soffit to the existing roof diaphragm was used to satisfy seismic requirements.

Additional designs included new and retrofitted plywood shearwalls, concrete landing and stairs, and strengthening of roof framing to support new and future mechanical units. Risha Engineering also provided the design of the new glass framed outdoor executive dining area.

Cafe
Approximately 6,000 sq. foot structure, wood framed roof, with sandblasted bow string trusses carrying gravity loads. Steel moment frames and shearwalls for the lateral load resisting elements.

Risha Engineering provided complete seismic retrofit of the existing one story structure.

Risha engineering

THE TERMINAL
AIRPORT MOVIE SET

When the production designer for The Terminal was presented with a fascinating design challenge by Steven Spielberg to create a full-sized airport terminal, Risha Engineering was proud to take on the unique opportunity within a very aggressive time frame. The set needed to appear absolutely believable to an audience intimately familiar with this type of space.

The structure consists of long span trusses supported by an offset column grid. The set includes a 45,000 sq. ft. mezzanine and a 6,000 sq. ft. third floor 1st class lounge. The project includes an independent self-supporting three story structure. Working with the production staff, Risha Engineering delivered structural drawings with a shop drawing level of detailing within a very agressive schedule.

This project received the SEAOC Excellence in Structural Engineering Award.

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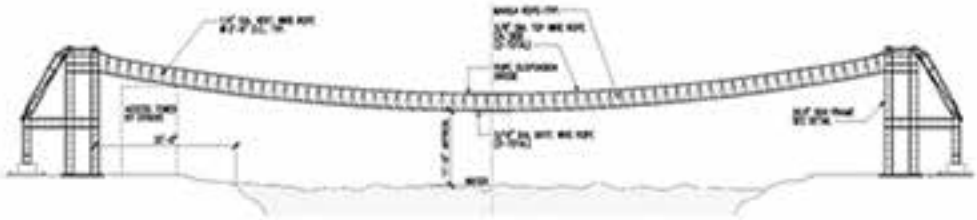

BALLS OF FURY
MOVIE SET

Risha Engineering was presented with a challenging project when the production company for the movie "Balls of Fury" requested that the firm design a suspended rope bridge similar to the ones featured in the Indiana Jones series. This rope bridge would be featured in the main action sequence, where some dueling would take place. This bridge would span over a lake area located at the Los Angeles Arboretum in Arcadia. With the location being an actively maintained natural preserve, the roots, flora, and natural settings were not to be disturbed; therefore, excavation and conventional foundation were not permitted.

Risha Engineering met this challenge by designing a bridge composed of 6x19 IWRC steel wire rope spanning 160 feet (120 feet over water). It is 3 feet wide and 11 feet above water at its lowest point.

The bridge deck is 2x wood board supported by wire rope which, in turn, is supported by upper wire rope. The bridge towers are prefabricated aluminum box trusses bearing on 4'x8'x0'-1" steel traffic plate. The bridge span is connected to the towers via a system of blocks, shackles, and eyebolts.

Close coordination with the construction crew combined with an in-depth understanding of movie production needs, and by applying structural engineering principles, Risha Engineering was able to deliver a structure that met the needs of the client, and most importantly had a zero impact on the environmentally sensitive site.

Risha engineering

ROCK IN RIO, MGM NORTH FESTIVAL LOT
SPYDER STAGE

Rock in Rio, an event originating in Brazil, is a recurring music festival located in Rio de Janeiro, Lisbon and Madrid. In 2015, Las Vegas was added to the tour as the fourth location. Rock in Rio is one of the largest music festivals in the world, with 1.5 million people attending the first event, 700,000 attending the second and fourth, about 1.2 million attending the third, and about 350,000 people attending each of the 3 Lisbon events.

The project included the design of deep foundations for Spyder stage and also provide peer review of the structural design of the Slide Tower and Delay Towers steel framing and concrete foundations.

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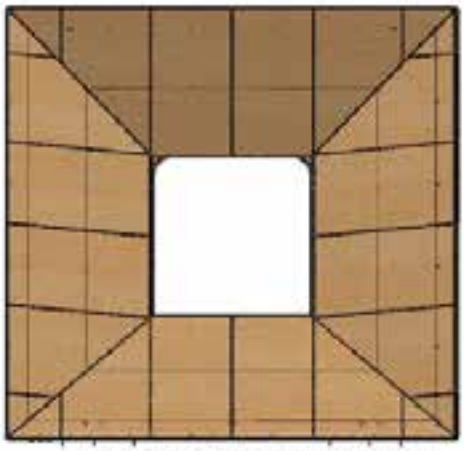
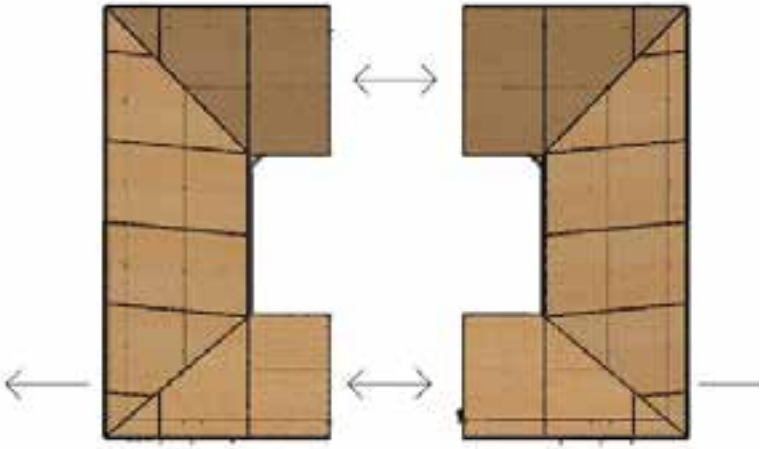
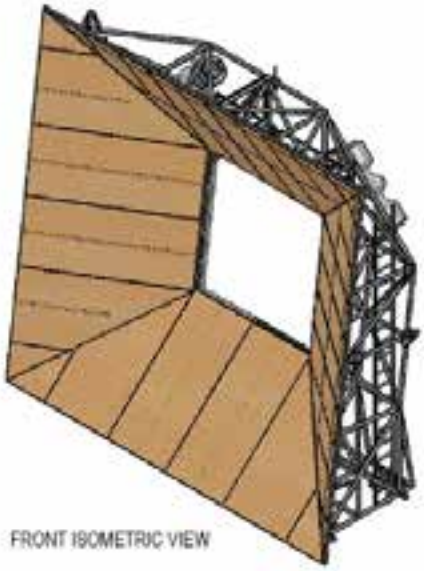


LENS HOOD ASSEMBLED ELEVATION VIEW



LENS HOOD DISASSEMBLED ELEVATION VIEW



FRONT ISOMETRIC VIEW

BACK ISOMETRIC VIEW

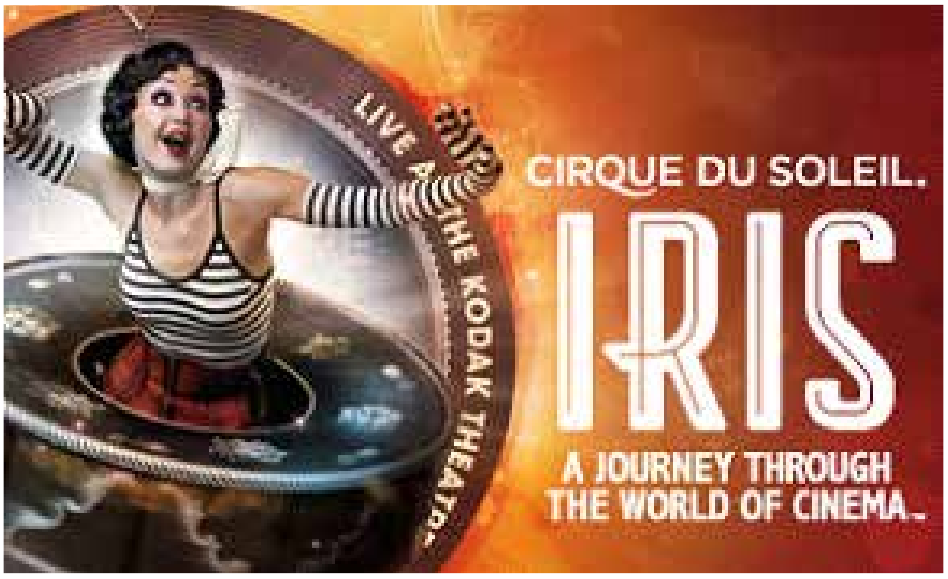
CIRQUE DU SOLEIL, MICHAEL JACKSON ONE
VORTEX LENS HOOD STRUCTURE

The project involved the design of the Vortex Lens Hood structure and rigging support system for Unisson Structures, Inc. as a part of the Cirque du Soleil production “Michael Jackson ONE” at Mandalay Bay in Las Vegas. The structure is comprised of aluminum tube framing with a plywood sheathing skin, and measures approximately 25 feet high, 25 feet wide, and 6 feet deep with a 9 feet square opening at its center. After being rolled on the stage during the show, performers use the Lens Hood as a prop, including launching through the hood opening, before being rolled off the stage. The Lens Hood is stored hanging in 2 sections using a rigging frame and cables.

3 Lens Hood configurations were evaluated using 3D structural analysis, including the rigging condition. Supports and connections for the aluminum truss framing included rollers, pivots, electromagnets, and traditional bolts and anchors due to the movement and variation of truss configurations required during the performance and its storage. Seismic loads were considered for the condition of the Lens Hood being supported on the stage.

The project was completed in 2012.

Risha engineering



CIRQUE DU SOLEIL, IRIS
ACROBATIC AND BUNGEE SUPPORT GRIDS

Considering the firm's unique background and experience in providing structural engineering services for the entertainment industry, Cirque du Soleil selected Risha Engineering to ensure that their imaginative ideas had the means to become reality on stage for their production "IRIS" at the Dolby Theatre, previously the Kodak Theatre, in Hollywood, CA.

The project involved the design of a removable steel acrobatic grid and a bungee support grid to support performers from trapezes and bungee cords as they swing directly above the audience and take the viewers on "A Journey through the World of Cinema". The steel acrobatic grid is supported from the theatre's permanent grid framing using cables and rigid pipe post hangers, and was constructed of components designed to be easily removed to accommodate the annual Academy Awards presentation. Other structural services provided for the project involved fall protection, a media platform, downriggers, and a false proscenium.

This production marks the first time the City of Los Angeles has ever allowed this type of performance directly above a live audience, and Risha Engineering worked closely with Cirque du Soleil and the City to obtain all of the required permits. The show opened in 2011 and ran through 2013.