Advancing the Science of Safety

JENSEN HUGHES

About Us.

JENSEN HUGHES is the global leader in specialty engineering consulting services for the built environment. We are a company of engineers, consultants, and scientists focused on evaluating risks and diligently developing the best, most cost effective solutions to meet our clients' needs.

We offer extensive, practical experience through countless projects, research and industry innovation. The services we provide include fire protection systems design and analysis, code consulting, risk assessment, commissioning, forensic, environmental, security, research, development and testing services.

Our global clients include a majority of Fortune 500 companies and encompass nearly every vertical market.

We are the choice for securing the safety of people and assets.

Our Mission.

We want to be the leader in evolving today's standards to meet tomorrow's expectations. Through a rigorous research and development culture, JENSEN HUGHES delivers data driven, evidence-based solutions that last. With a deep understanding of the built environment, our engineers, consultants and scientists work with the understood goal of protecting people, property and assets. The end point is an actionable, cost effective solution for our clients.

Our Worldwide Presence.

Headquartered in Baltimore, Maryland, JENSEN HUGHES serves customers globally through more than 40 offices worldwide. For more than 35 years, the strength of our firm has been with our application of appropriate and technically advanced methods that solve our client's challenges.

We are the world's most experienced specialty engineering consulting firm with more than 80,000 successful projects in our portfolio and projects completed on every continent. We have the best in technical talent with more than 500 engineers, consultants and scientists who are dedicated to meeting safety and protection challenges around the globe.

The Global Challenge.

As we move toward a true global economy, the need for increased levels of fire protection, life safety and security is a global concern. This concern creates a challenge for the international architect, developer, owner/investor and risk insurer.

Despite high-profile projects designed by teams from around the world, there is still no universally adopted set of building standards recognized world-wide. The result is innumerable variations of fire safety codes, fire protection system design standards, and product testing standards. Successfully meeting these challenges often necessitates working closely with local Code and Fire Officials to develop effective solutions to unique challenges.

The JENSEN HUGHES international team of engineers and consultants knows how to navigate the international regulatory process and provide appropriate levels of fire protection, life safety and security in environments with different levels of technological development, diverse risk management philosophies and less defined regulatory infrastructures.

Global design and construction teams play a key role in moving the globalization process forward. As we participate on global design teams – an architect from New York, a structural engineer from Paris, a construction manager from Seoul – we continue to harmonize our expertise in much the same way as the standards making bodies are moving toward adopting unified regulations.

In the future, with the further development of scientifically based fire simulation tools, the use of performance-based design approaches will eventually be the primary means of establishing equivalent fire safety compliance for any code. Variations in the prescriptive requirements of local codes will be of secondary consideration.

Sheraton Huzhou Hot Spring Resort
Huzhou, Zhejiang, China

Shanghai Tower
Shanghai, China

We Protect Your Greatest Assets.

Protecting property, life and the environment through our innovative engineering solutions and technologies is what sets JENSEN HUGHES apart. We have internationally renowned experts that produce a dynamic delivery process through thought leadership and collaboration.

We provide these specialized engineering services across all built environments. We have a wide range of clientele including developers, institutions, owners, architects, contractors, insurance companies, attorneys and end users who rely on our expansive range of services.

Our outstanding reputation has been built on innovation, technically superior analyses, professional integrity, communication and commitment. We bring value and save our clients time, money and many frustrations that can come with any building project.

We offer an exemplary depth and scope of services, including but not limited to:

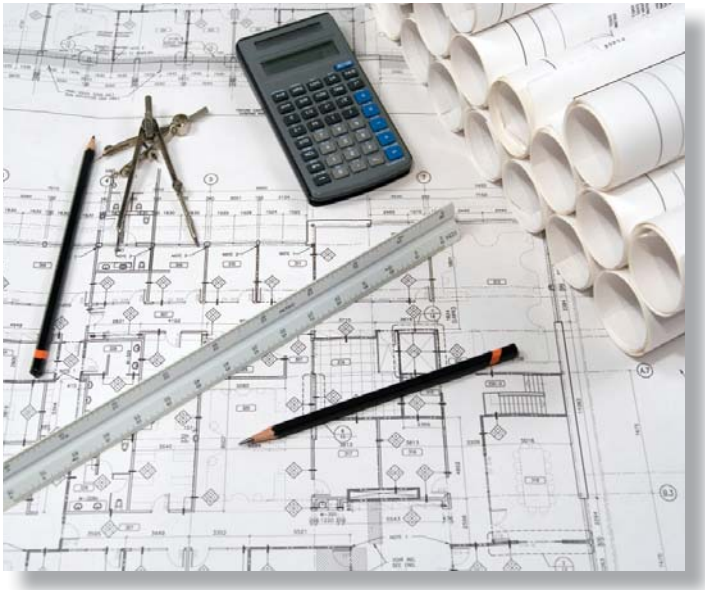
- Fire Protection Engineering and Design
- Fire, Life Safety and Accessibility Code Consulting
- Security Design and Consulting
- Fire, Smoke and Egress Modeling
- Risk Assessment and Hazard Analysis
- Forensic Engineering and Litigation Support
- Construction Administration and Commissioning
- Research, Development and Testing
- Emergency Planning
- Combustible Dust Hazards
- Loss Control Surveys
- Condition Assessments
- Mass Notification Systems (MNS)
- Emergency Planning
- Training

Here's what our clients are saying about us...

"JENSEN HUGHES has demonstrated responsiveness, expert engineering capability and leadership..."

"Exceptional knowledge and leadership helped to achieve a very successful project that functioned correctly the first time and met all requirements of the Code, Facility, and the Authorities Having Jurisdiction."

FIRE PROTECTION SYSTEMS DESIGN



JENSEN HUGHES is the industry leader both in the accurate application of prescriptive codes and in the development of Performance-Based Design solutions aimed at achieving code-equivalent levels of life safety.

We provide design solutions for a wide variety of life safety systems including fire suppression, fire alarm and mass notification systems. Our superior design services and BIM capabilities provide for cost effective and well coordinated system designs which are complemented by our construction administration phase services including testing and commissioning of fire protection systems.

CODE CONSULTING AND ARCHITECTURAL SUPPORT

We know the codes because we helped create them. We have earned a reputation as a trusted expert among regulators, legislators, and inspectors.

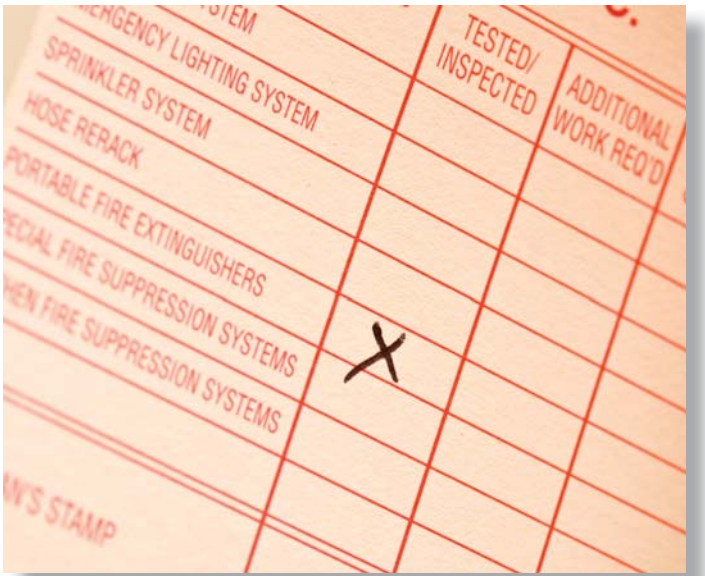
Our engineers, architects and consultants are skilled at code assessments for fire protection, life safety, egress and accessibility.

Our staff consistently leads the development of ground breaking fire safety techniques and of code and engineering handbooks. We continue to be instrumental in the development of modeling techniques and data collection.

SECURITY ENGINEERING AND SYSTEMS DESIGN

JENSEN HUGHES has extensive experience in the design of electronic security system solutions (PACS, VSS, IDS, ECS), asset protection systems, Security Management System (SMS) and Physical Security Incident Management (PSIM) integration concepts. We provide expertise in system-engineering criteria, systems design integration and concept methodology. In addition, we prepare complete bid/specification package documentation as well as security console and control room designs, complete systems engineering specifications and design drawings for electronic security systems, security management systems and complex security system designs.

COMMISSIONING AND CONSTRUCTION MANAGEMENT



We offer a multitude of construction management and commissioning services for our clients, including:

- Fire Protection Systems Commissioning
- Life Safety System Certification
- Document Search and Review
- Inspections and Pre-Tests
- Plan Review
- Third-Party Review
- Final Acceptance Testing
- Detailed Reports
- Operations Training

RISK ASSESSMENT AND HAZARD ANALYSIS

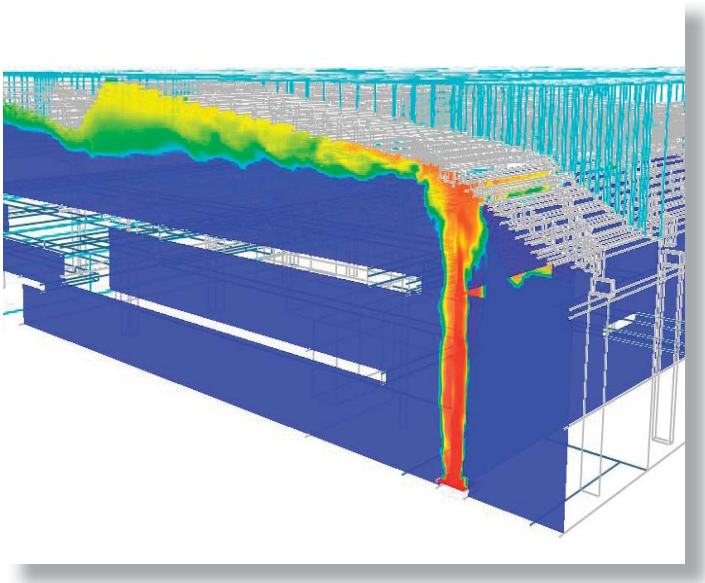
JENSEN HUGHES has diversified risk and fire protection experience with utility, municipal, industrial, commercial and regulatory clients. Services include Appendix R safe shutdown analyses, fire hazards analyses, Fire Protection program design and implementation, Probabilistic Risk Assessment (PRA), Risk-informed/ Performance-based Fire Protection Programs (NFPA 805), fire suppression and detection system design and evaluation, Nuclear Regulatory Commission (NRC) licensing, emergency response planning, emergency response coordination (Nation Incident Management System), and fire pre-planning services for power plant, transmission and distribution facilities.

FORENSIC ENGINEERING AND LITIGATION SUPPORT

We provide forensic engineering services and litigation support for a broad spectrum of cases, ranging from acts of terrorism to performance of consumer products or fire protection systems. Our extensive background in fire testing, research and development, fire modeling, and fire protection design gives us an unparalleled depth of technical expertise that can be drawn upon when providing expert witness services.

We have built a reputation for technically superior analyses, professional integrity, and presentation of information in a logical and scientifically credible manner.

FIRE, SMOKE AND EGRESS MODELING



JENSEN HUGHES' experts utilize CFD models, people movement/timed egress models, fire and smoke models, and hydraulic models to assist in litigation support, smoke control system evaluation, and the design of fire protection and egress systems.

We also use building airflow models in the evaluation of facilities designed to withstand chemical and biological attack.

The National Institute of Standards and Technology (NIST) chose JENSEN HUGHES as a "beta tester" for the Fire Dynamic Simulator (FDS) model and we continue to provide support for the FDS model development.

LOSS CONTROL

Ranked among the top five independent property loss control specialists in the United States, we offer businesses a unique holistic approach to protecting their people and operations.

Our cost-effective, end-to-end solutions focus on the entire spectrum of risk mitigation to include building, people and environmental considerations. Our independence from the insurance industry coupled with our technical expertise enable us to provide comprehensive risk mitigation programs and unbundled risk control services that are targeted to meet each individual client's specific needs and support their overall business strategy.

RESEARCH, DEVELOPMENT AND TESTING

JENSEN HUGHES' award winning fire research and testing services are designed to provide accurate, efficient results, achieve regulatory approvals for new products, and achieve the code changes needed for a successful project.

Staffed with the industry's most well-respected scientists and engineers, we have extensive experience in full-scale evaluations and experimental fire testing of both existing and new fire and gas detection system technologies.

SUSTAINABILITY AND POLLUTION PREVENTION

We offer integrated solutions to address today's varied and evolving environmental, safety, and occupational health (ESOH) challenges. Our consultants and engineers perform detailed life cycle economic analyses of process changes and recommend strategies to achieve maximum cost savings.

Our sustainability and pollution prevention services include:

- Regulatory Analysis
- Chemical Risk Assessment
- Identification and Evaluation of Sustainable Alternatives

CONDITIONS ASSESSMENTS

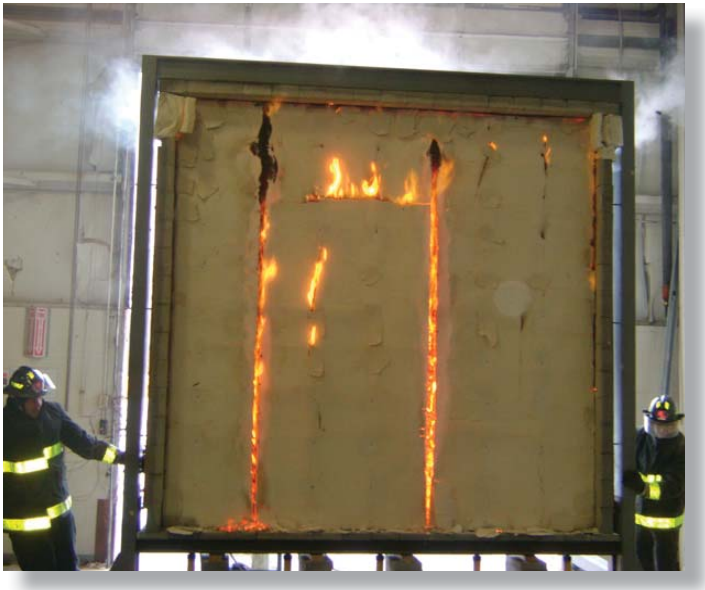
JENSEN HUGHES provides Property Conditions Assessments by utilizing experienced fire protection engineers with a detailed understanding of fire protection, smoke control, and life safety systems, and a broad knowledge of national, state, and local building and fire codes. We have provided property conditions assessments for a vast array of facilities, including but not limited to, business, residential, assembly, healthcare, educational, mercantile, industrial, storage, and high hazard facilities. Additionally, our staff actively participates on technical committees for codes and standards-making purposes, keeping us at the forefront of building and fire code rules and regulations.

COMBUSTIBLE DUST EXPLOSIONS

We assist clients in preemptively assessing their facilities for OSHA compliance issues and ensuring that they are adequately managing dust explosion related issues.

We also provide engineering support for clients facing OSHA violations. We have extensive experience in evaluating dust hazards and performing process hazard analyses for facilities dealing with the challenges of combustible dusts. These challenges include the prevention of dust explosions, operation of dust collection systems, and development of electrical classification diagrams.

PRODUCT DEVELOPMENT AND SUPPORT



JENSEN HUGHES assists manufacturers in getting new construction products, assemblies and systems into the marketplace through active involvement in the code development process and by providing product evaluation services, product testing services, and third party approval support. We also support manufacturers and construction industry professionals in getting products approved for use in specific projects ranging from typical applications all the way to the most unique and innovative applications, while meeting the intent of the applicable code requirements.

MASS NOTIFICATION AND EMERGENCY COMMUNICATION SYSTEMS

We provide design, evaluation, and commissioning services for all types of mass notification and emergency communication systems. Our staff can fully analyze the various types of mass notification systems that can be utilized. Often these systems are integrated with one another to create a cohesive and reliable approach to mass notification. We specialize in providing services for:

- In-Building Mass Notification Systems
- Wide Area Mass Notification Systems
- Distributed Recipient Mass Notification Systems
- Message Content and Intelligibility

EMERGENCY RESPONSE PLANNING

JENSEN HUGHES' experience with emergency response planning goes beyond the fundamental planning steps and integration and includes plans developed with some of the largest and most unique operations in the world.

We help establish and maintain emergency response plans, as part of a larger emergency management program. Portions of such plans include, but are not limited to:

- Standard Operating Procedures (SOPs)
- Pre-Incident Planning (also known as pre-fire plans, pre-plans or response plans)
- Ongoing Training
- Drills and Exercises

TRAINING

We have a wealth of experience in training and education services. Our flexible training programs are designed to meet specific customer needs.

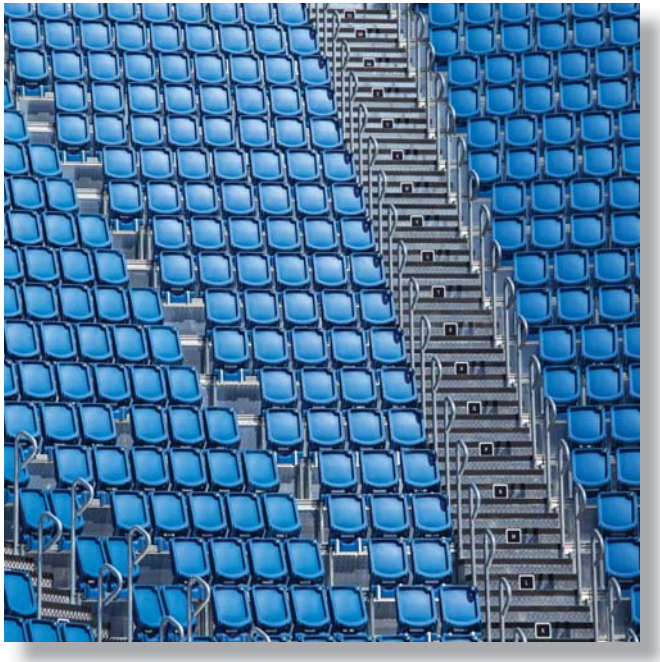
Next Knowledge, a division of JENSEN HUGHES, provides web-based fire and electrical safety training to learners around the world. For more information, go to our training website at www.NextKnowledge.com.

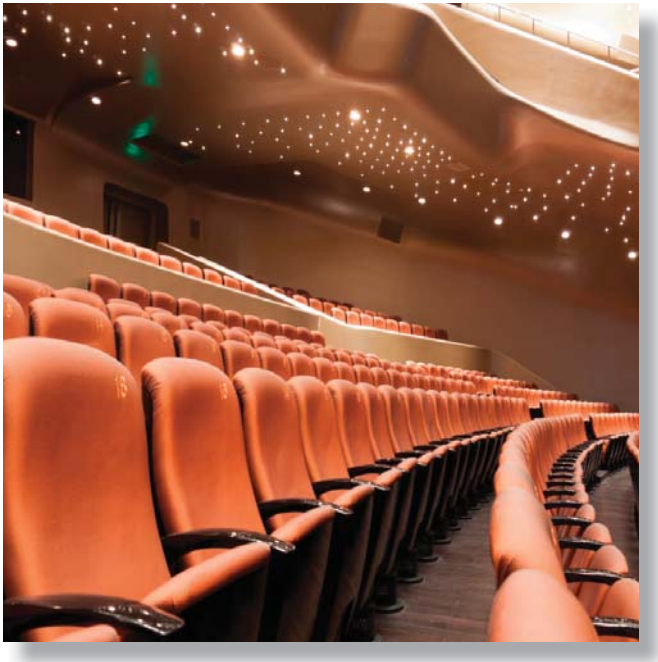
We also offer on-site training from seasoned instructors. Many of our courses are AIA Accredited for earning CEU's.

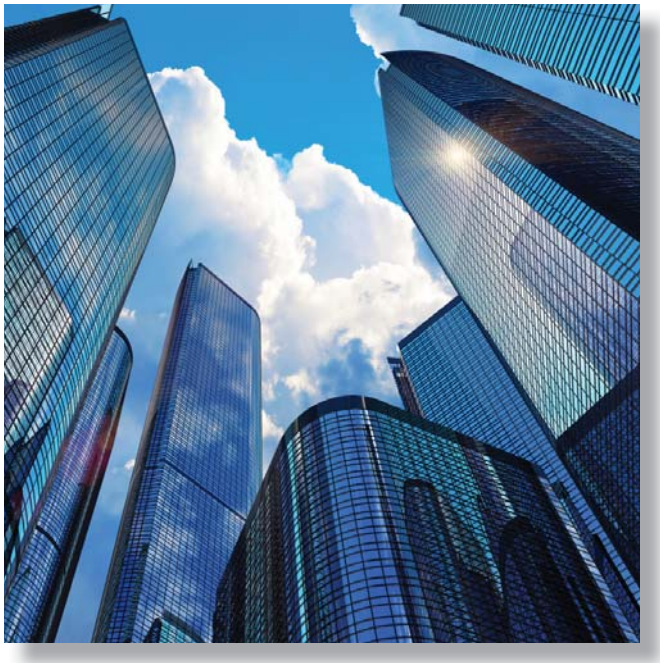
ASSEMBLY

JENSEN HUGHES provides engineering and consulting for a diverse range of assembly facilities. By their nature, assembly facilities pose complex fire and life safety challenges such as:

- High number of occupants
- Unfamiliarity of occupants with the building which could affect egress
- Fire protection of air supply and return systems
- Audio, visual and other sensory distractions
- Access to main entrance/exits
- Historic preservation in some cases
- Smoke and heat venting
- Smoke control in seating and lobby spaces
- Fixed seating egress (aisle/row widths, stair dimensions, ramps)







CORPORATE REAL ESTATE

JENSEN HUGHES experts help ensure that commercial infrastructure designs meet all building and fire safety code requirements while providing a safe environment for occupants.

We have experience with a wide range of corporate real estate facility types, including:

- High-Rise
- Offices
- Mixed-Use
- Retail
- Restaurants
- Super Tall Buildings
- Warehouses
- Wineries

EDUCATION

We provide consulting, design, and engineering services to help K-12, colleges and universities address a wide range of fire protection and life safety issues including:

- Emergency Response Plans
- Mass Notification Systems
- Fire Alarm System Design
- Fire Suppression/Sprinkler System Design
- Facility Evacuation Plans
- Code Compliance Reviews
- People Movement and Simulation Modeling

We provide comprehensive campus-wide risk assessments that identify existing and emerging sources of risk for both facilities and life safety. Based on these assessments, we can create a customized risk control program to mitigate and eliminate these sources of risk. Risk mitigation measures may include improved evacuation plans, implementation of a mass notification system (MNS), new fire suppression systems, or any of a variety of fire safety programs or systems.

GAMING AND RECREATION

JENSEN HUGHES provides fire protection engineering and code consulting for gaming and recreation venues to meet aesthetic, functional, safety, and cost-effectiveness goals.

The gaming and recreation sectors are converging at a rapid pace as people desire venues that can provide multiple activities. These venues often have mixed uses including the main entertainment venue (such as casino or theme park), supporting entertainment venues (shows or rides), along with restaurants, clubs, bars, lounges, shopping, retail, and lodging with its related uses – guest rooms and suites, pools, spas, exercise, and both indoor and outdoor recreation.

GOVERNMENT AND MILITARY

We meet the specialized needs of governmental and military agencies and departments. JENSEN HUGHES has performed under contracts to a wide range of Federal government, military and international government organizations, including:

- Architect of the Capitol
- Department of Defense
- Department of Energy
- Environmental Protection Agency
- United Nations
- United States Embassies
- U.S. Army, U.S. Navy, U.S. Air Force & U.S. Marines

HEALTHCARE

JENSEN HUGHES provides practical, cost-saving solutions for healthcare facilities. We draw on our experience with key healthcare agencies, including:

- Joint Commission
- Centers for Medicare and Medicaid Services (CMS)
- National Institutes of Health
- Children's Hospital of Philadelphia
- Children's National Medical Center
- Children's Hospital of Colorado
- UC Davis Medical Center
- New Stanford Hospital
- St. John Hospital
- NYU Langone Medical Center

HOSPITALITY AND LODGING

JENSEN HUGHES specializes in hospitality fire protection, life safety and security systems design and code compliance. We have experience working in hotels, resorts, and lodging facilities worldwide. Our in-depth knowledge of operational practices provides measurable value to our clients. We collaborate with our clients and other stakeholders to find creative and cost-effective solutions to their challenges. Clients include, but are not limited:

- Marriott International
- Hyatt Hotels
- Sheraton Hotels

INDUSTRIAL AND MANUFACTURING

JENSEN HUGHES provides high quality solutions that meet current standard of care requirements and guidelines while optimizing the owner's or manufacturer's investment. Our experience spans a wide range of industries:

- Microelectronics and Semiconductor
- Pharmaceutical and Cosmetics
- Food and Agriculture
- Pulp and Paper
- Plastics and Rubber
- Automobile and Aircraft Manufacturing
- Energy (hydrogen, LNG, LPG, CNG)
- Solvent Plants
- Bio Waste Processing
- Rack and Bulk Storage Facilities

POWER AND ENERGY

JENSEN HUGHES has diversified fire protection experience and technical leadership on numerous projects such as:

- Appendix R Safe Shutdown Analyses
- Fire Hazards Analyses
- Fire Protection Program Design and Implementation
- Probabilistic Risk Assessment
- Risk-Informed/Performance-Based Fire Protection Programs (NFPA 805)
- Fire Suppression and Detection System Design and Evaluation
- Emergency Response Planning
- Emergency Response Coordination (National Incident Management System)
- Fire Pre-Planning Services for Power Plant, Transmission and Distribution Facilities

We also specialize in electrical system analysis, evaluation, design, testing, and research for electrical power systems, industrial machinery, instrumentation & control, high-reliability backup power systems, power generating stations, and integrated systems operation.

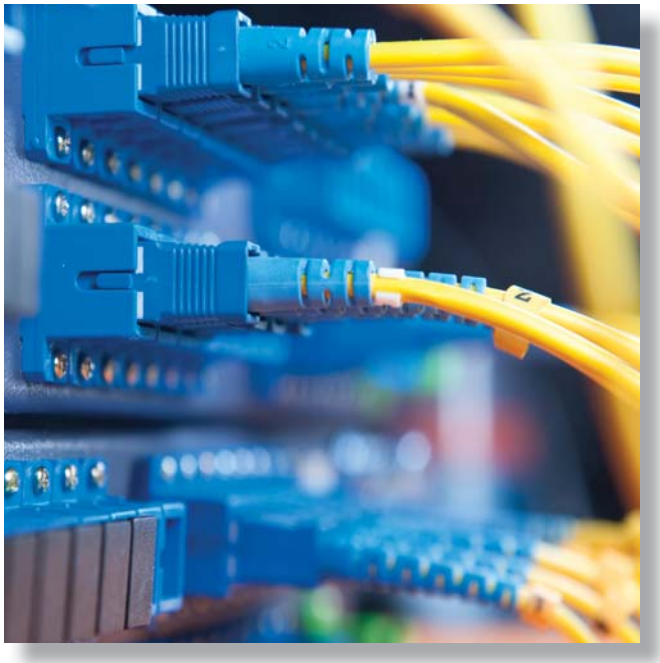
Our experts have experience in all typical refinery process units as well as chemical and petrochemical plants, terminals and tank farms, onshore and offshore exploration and production facilities, and gas plants.

SCIENCE AND TECHNOLOGY

Our teams of engineers and consultants collaborate to create unique fire protection and security designs that meet the specific needs of the client and type of facility.

Our experience includes:

- University Research and Learning Centers
- Life Sciences Research Facilities
- R&D Facilities
- Technology Research Parks
- Biotech Facilities
- Laboratories
- Pharmaceutical Facilities

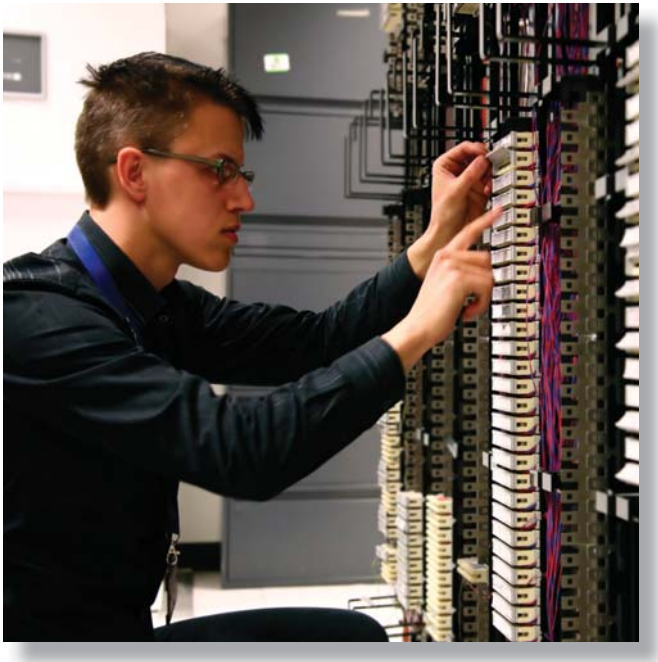


TELECOM AND DATA CENTERS

Our experts draw on their experience with data centers, network operations centers, telecommunication centers and other highly technical facilities to provide appropriate fire protection, life safety and security system solutions.

We are instrumental in integrating innovative system designs for renovations and upgrades of existing and new facilities, including:

- Fire Detection Systems
- Pre-Action Sprinkler Systems
- FM200 & Other Dry-Type Suppression Systems
- CCTV & IP-Camera Systems

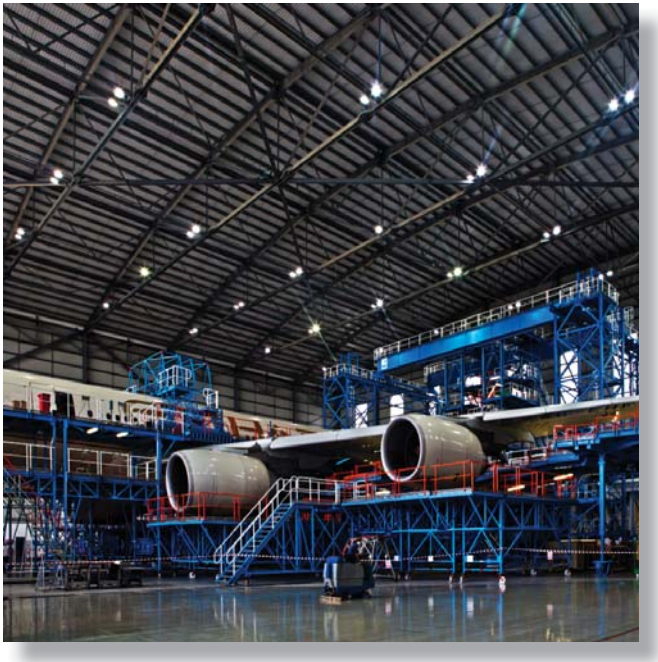


TRANSPORTATION: AVIATION

JENSEN HUGHES helps airports and aviation facilities to reduce the threat to life, property and the environment.

Our engineers and consultants understand the challenges that are unique to airports and aviation facilities, such as:

- Preserving the Integrity of Unique Architectural Designs
- Ensuring Life Safety and Fire Protection within the Stringent Constraints of Airport Security
- Designing Highly Effective Emergency Communications Systems (ECS)



TRANSPORTATION: MARINE AND RAIL

JENSEN HUGHES ensures that fire, life safety and security systems are designed properly for rail, road vehicle, and marine facilities to reduce the threat to life, property and the environment.

MARINE

JENSEN HUGHES' pioneering research into water mist and gaseous fire protection technologies led directly to current IMO test methods and SOLAS regulations. Our deep understanding of marine facility and marine vessel fire protection requirements, challenges, and technologies enables us to provide our clients with exceptional and compliant solutions.

RAIL/ROADWAY

We have unique expertise with roadway/rail tunnels and facilities and can provide analyses required by NFPA 130 and 502, including:

- Railcar, Road Vehicle, and Tanker Fire Growth and Heat Release Rate Modeling
- Tunnel Smoke Movement Modeling
- Water Mist and Foam Sprinkler Systems for Tunnels and Transportation Facilities
- Fire Detection in Tunnels
- Structural Fire Protection
- Egress Analysis, Design and Modeling
- Spill Prevention and Control

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