OIL, GAS, AND CHEMICAL
SPECIALTY ENGINEERING AND CONSULTING SERVICES
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FIRM OVERVIEW

We are the Choice for Securing the Safety of People and Assets

JENSEN HUGHES is the global leader in specialty engineering and 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 protection and safety solutions. We offer extensive, practical experience through countless projects, research and industry innovation.

Our global clients include numerous Fortune 500 companies that encompass architects, designers, general contractors, developers, building owners, and facility operators who retain our firm for the following services and market sectors.

Services We Offer

- Fire Protection and Life Safety Design and Analysis
- Code Consulting
- Hazard Analysis and Risk Management
- Security Design and Consulting
- Construction Administration and Commissioning
- Electrical System Design and Analysis
- Fire Research, Development and Testing
- Forensic Engineering and Litigation Support
- Sustainability and Pollution protection
- Live and Online Training

Sectors We Serve

- Assembly
- Corporate Real Estate
- Education
- Gaming and Recreation
- Government and Military
- Healthcare
- Hospitality and Lodging
- Industrial and Manufacturing
- Power and Energy
- Science and Technology
- Telecom and Data Centers
- Transportation (Aviation, Marine, Rail)

Our Past, Present, and Future

JENSEN HUGHES was re-branded in January 2015 after the historic merger of two of the most experienced and respected specialty engineering and consulting firms, Hughes Associates (Hughes), founded in 1980, and Rolf Jensen & Associates (RJA), founded in 1969.

Both Hughes and RJA exhibited the highest level of technical excellence, offered proven on-time and on-budget performance on projects, and developed long-term client relationships. The merger brought together Hughes’ strengths in areas such as research, testing, forensic engineering and risk analysis, and the complementary strengths of RJA in the areas of code consulting, performance-based design, and security system design.

JENSEN HUGHES has since merged with several outstanding firms that further expand our specialty engineering and consulting services into numerous vertical markets, geographic regions, and increase our professional staff of engineers, consultants, scientists, and administrative professionals.
SERVICES OFFERED TO THE OIL, GAS AND CHEMICAL INDUSTRY

From the outset, JENSEN HUGHES has supported many facets of the industry and has considerable project experience, ranging from research to assessing risks for multi-location, multi-product facilities.

Our team gives unbiased assessments of our clients’ fire protection, process safety, and other risk identification and mitigation needs. We do not draw pre-conceived conclusions. We analyze your needs, develop a set of recommendations, and assist you in obtaining, designing, and testing the optimal solution for your situation.

Risk and Reliability

Risk and reliability assessment is an essential part of a programmatic risk management process that integrates cost, schedule and technical risks covering all phases of the systems life cycle. Specific examples of JENSEN HUGHES implementations of our analyses are:

- Online Risk Management. Development of risk models and automation tools for accidents involving hydrocarbon release on oil platforms
- Quantitative Risk Assessments (QRA) for offshore platforms, specialty chemical facilities, and refineries
- Development of Guidelines for QRA Database Development for the Process Industries
- Seismic and vibration design of semiconductor facilities, cleanrooms, process systems and manufacturing equipment.
- Performance of post-event HAZOP and process safety recommendations for an acrylic fiber spinning plant
- Risk impact assessment of proposed equipment and operating changes, such as equipment change requests, procedure modifications, and hazardous materials storage recommendations

Fire Protection

JENSEN HUGHES advocates a cohesive design philosophy from concept to project execution that results in a feasible, practical, goal-oriented fire protection design. Our services cover a wide range of facility and project needs, including:

- Fire Risk Assessments
- Conceptual planning
- Preparation of bid packages and specifications
- Detailed designs, including calculations
- Review of bids, preliminary design packages
- Field review of installed systems
- Functional and acceptance testing

Computer Modeling

We call on a full suite of software products to analyze and solve clients' problems. As we are neither a commercial software development company nor affiliated with any software vendors, we do not force fit a problem to specific software. We select the best model available to solve the problem at hand in a cost-effective manner. Available modeling techniques include:

- Fire Hazard Analysis – Hazard and consequence can be analyzed using tools such as Computational Fluid Dynamics (CFD) fire models, thermal exposure models (e.g. PHAST) or simplified analytical models.
• Facility Life Safety – Using advanced people-movement software like Pathfinder or more traditional life safety evaluation using empirical analysis, we can assist in developing facility evacuation timing and pathways, merging hazard analysis with means of escape

• Release Scenario models – Mass release calculations, vapor generation models, pool spread models.

• Dispersion models – Standard industrial approach using Gaussian dispersion models (PHAST, ALOHA), heavy gas models (DEGADIS, HEGADAS), and complex modeling utilizing CFD for toxic, explosive and asphyxiation hazards.

• Overpressure models – Vessel rupture and vapor cloud explosions using the TNO Multi Energy Method or Baker-Strehlow-Tang model, accounting for confinement and congestion.

Where commercially available models are unavailable, our scientists and engineers develop in-house models for the problem at hand.

**Incident Investigations and Expert Witness**

JENSEN HUGHES built a reputation for technically superior analysis, professional integrity, and presentation of information in a logical and scientifically credible manner. Our engineers and scientists support clients’ investigations and litigation with our knowledge of the following:

- Reconstruction of Fire Incidents
- Engineering Analyses
- Testing
- Compliance with Codes and Standards

**Process Safety Management**

JENSEN HUGHES personnel have assisted many clients with developing and implementing Process Safety Management (PSM) programs that meet or exceed applicable regulatory or company requirements.

Our staff has conducted hundreds of Process Hazard Analysis (PHA) studies and numerous audits of PSM programs. We are prepared to assist our clients in any aspect of their PSM program including:

- Development of Program Elements
- Facility Siting Assessments
- Process Hazard Analysis
- Consequence Analysis
- Release scenario development
- EPA Risk Management Plan Development
- Discharge modeling
- Vapor cloud generation and dispersion
- Toxic impact
- Blast and radiant heat impact
- Frequency calculations
- Process safety management system audits
- Risk management program audits
- Levels of Protection Analysis (LOPA)
- Safety Integrity Levels (SIL) Analysis
Fire Safety Programs and Systems

Our firm conducts independent surveys of facilities to assess the level of hazards, evaluate the adequacy of fire protection systems and procedures, and provide prioritized recommendations for remediation and risk reduction. The following systems can be specified, designed, reviewed or audited:

- Drainage and Containment
- Emergency Response Plans
- Emergency Shut Down
- Fire Protection Equipment
- Fire Water System Supply and Distribution
- Plant and Equipment Spacing/Siting Analysis
- Plant Fire Protection Requirements vs. Industry and International Standards
- Pressure Relief Valve Design and Installation

Risk Control Management

The JENSEN HUGHES approach to risk control management differs from traditional risk services. Our engineers assess hazard probability and model hazard consequences. Risks are profiled and ranked in terms relevant to our customers’ organizations. We establish the cost/benefit relationship of various risk-mitigation strategies through risk-treatment modeling. Risk control/loss prevention activities include:

- Loss Prevention Reviews
- Petrochemical Risk Analysis
- Business Continuity Reviews and Planning
- Underwriting Reports
- Plan Review

From Cool Planet Biofuels in Camarillo, CA to a LNG plant in Papua New Guinea, our safety, fire protection and risk and hazard engineers provide the leadership and technical expertise necessary to provide plant operators with peace of mind in knowing that their facilities have a safe environment for workers and the environment. Our solutions offer more than explanation; we help you achieve regulatory compliance.

Prevention of fire, safety and hazmat issues is achieved through our awareness and application of the highest industry code standards. We begin with risk assessment and end with system designs that mitigate risks is a cost-conscious manner.

Focused analysis and appropriate technology meet design objectives and ensure cost-effective code compliance. Providing a safe and adequately protected environment for your biggest stakeholders is our shared concern.

Security

Security Vulnerability Analysis (SVA)

JENSEN HUGHES is one of only a few consulting companies certified by the American Institute of Chemical Engineers (AIChE) for conducting security vulnerability analyses (SVA) in accordance with the CCPS methodology and criteria.

Security and Hazards Mitigation Alliance

As a member of the Security and Hazards Mitigation Alliance, we provide state-of-the-art solutions to any security issue from bioterrorism to industrial theft.

Guideline for Fire Protection for Chemical Processing Facilities

JENSEN HUGHES coauthored a textbook for the Center for Chemical Process Safety aimed at providing general fire protection guidance for the petrochemical industry. JENSEN HUGHES authored the chapter on Fire Hazard Analysis, which introduces fire protection chemistry, hazard identification, typical fires, and the impact from fires. Emphasis was placed on thermal radiation from fires, and resulting impact on equipment, structures, and personnel.
FACILITIES SERVED

Refineries
Our refinery experience has included project design, fire protection system analysis, process safety management program implementation, process hazards analysis, audits, training, and technical support to refinery staff. Our projects have involved nearly every type of refinery process unit.

Chemical/Petrochemical Plants
JENSEN HUGHES has provided fire protection and process safety support to several basic and specialty chemical plants. Services have included facility siting assessments, developing and implementing process safety programs, conducting process hazard analysis, audits, and training.

Terminals and Tank Farms
JENSEN HUGHES has conducted numerous projects involving pipelines, tank farms, terminals, and loading and unloading operations. These projects have covered evaluating facility siting, conducting fire consequence analyses, compliance reviews, industry and regulatory codes, and new facility design projects.

Exploration and Production Facilities
JENSEN HUGHES personnel have worked on many projects at exploration and production facilities, both onshore and offshore. We have conducted audits of facilities, worked on the design of fire protection systems for new platforms, performed failure modes and effects analyses (FMEA) of conceptual sub-sea production systems, and provided ongoing loss prevention technical support to operating facilities.

Gas Plants
JENSEN HUGHES personnel have conducted numerous projects at several gas plants. These gas plants have included gas-oil separation facilities, both onshore and offshore. We have carried out projects for liquefied natural gas (LNG) and compressed natural gas (CNG) plants, hydrogen and methanol alternative fuel storage and refueling facilities:

- Providing ongoing fire protection support during plant construction and expansions
- Evaluating fire systems
- Calculating fire radiation in support of a facility's siting
- Conducting process hazard analyses
- Third party review of facility design, fire protection features and emergency response measures

Hazardous Chemical Warehouses
JENSEN HUGHES has evaluated of hazardous chemicals to identify compliance with local and national codes and standards. Where needed, fire tests to define the appropriate level were conducted, fire protection systems designed, fire resistive construction, venting, drainage, electrical area classification and explosion relief were specified and permits were obtained.
PROJECT EXPERIENCE – OIL, GAS, AND CHEMICAL INDUSTRY

NORTH AMERICAN REGION

Petroleos Mexicanos – Pemex, Mexico
Provided fire protection engineering services to over 30 sites consisting of transfer stations, refineries, and chemical plants which serve as the main infrastructure system for the Petroleum distribution network for the entire country of Mexico.

Many the sites were operated directly by Pemex, the government run petroleum company. Sites were comprised of a main operation building, suction and discharge piping arrangements, equipment control rooms and supplemental areas, e.g., shop areas, generators and transformers.

Scope varied from site to site but fire water infrastructure analysis, fire protection design, risk assessment, bid services, and construction administration were the primary services requested.

Axiall Corporation, Multiple US Locations
Provided facility siting assessments related to both toxic and fire release scenarios. Worked with the client to develop follow on opportunities for risk mitigation.

MarkWest Midstream Partners (MLXP), PA, OH, and WV
Provided fire risk analysis, fire protection and gas detection design as well as bid services and on site construction administration through completion of the project at each of their new build locations in the Marcellus and Utica Shale Plays.

Maxum Petroleum, Richmond, CA
Performed a code review of high-piled storage and storage of hazardous materials. Drawings have been prepared for submission to the local AHJ to obtain applicable permits.

Chevron Corporation Facilities, San Ramon, CA
Under a Master Service Agreement, JENSEN HUGHES personnel have provided consulting services for the upgrade of existing 50,000 – 285,000 bpd refineries, petrochemical plants, producing operations and marketing terminals, research laboratories, and other facilities. Fire protection consulting has included code reviews, equipment spacing and layout, emergency shutdown, isolation, fire water supply and distribution, drainage, oily water sewer design, pressure relief valve and flare design, deluge and sprinkler systems, foam water systems, monitors and hydrants, emergency response, mass notification systems, gas and fire detection, fire proofing of critical instrumentation and cables, fire proofing of column skirts and supports, and development of business continuity plans per corporate objectives.

Port of Long Beach Container Terminal Facility, Long Beach, CA
Provided code consulting services for an above-ground diesel and gasoline tank installation at a Port of Long Beach Container Terminal Facility.

Magellan Midstream, Tulsa, OR
Consulting services have been provided for Magellan facilities since 2006. This work has included:

- Fire suppression system evaluation, truck loading racks, Sioux Falls
- New foam system protection design, Dallas & East Houston Terminals
- Fire investigation, tank fire
- Ethanol canopy, East Houston
- Code evaluation, tank expansion, Marrero, Louisiana
- Foam water sprinkler system design, truck load rack, Dallas
Kinder Morgan, Reno Tank Farm, Reno, NV

**Foam System Design**
The design of foam suppression systems was provided for two petroleum storage tanks.

**AFFF Suppression System Design**
Foam suppression systems were designed for six existing floating roof fuel tanks at Kinder Morgan’s Reno fuel tank terminal. Work included construction period services.

Conoco Phillips Lost Cabin Gas Plant, WY
Performed an evaluation of the existing water supply system, including near-term proposed modifications. The project developed a hydraulic model, proposed water line sizes, recommended changes to near-term improvements as necessary and recommended changes to best-practices.

Confidential Client (2012-2014)
*Online Risk Models from Hydrocarbon Release on Offshore Oil Platforms*
JENSEN HUGHES personnel supported a project of integrated LOPA, HAZOP and QRA models to develop an online risk model. The online risk models were developed and beta-tested using EPRI’s EOOS (Equipment Out Of Service) software with the eventual objective to support Preventive Maintenance (PM) and monitor status of the platform’s LOPs (Layers Of Protections).

BP Exploration (Alaska), Inc., Anchorage, AK
A site visit was conducted to observe in-place spray-applied fire-resistive material for deficiencies. A remediation plan was developed to determine structural steel that needed protection, how best to remediate, and what type of materials should be used.

Alyeska Pipeline Service Company, Anchorage, AK

**East Tank Farm**
Services were provided to review a prior fire protection study regarding internal floating roofs on crude and ballast water tanks. A design basis was generated and recommendations were made for fire, smoke detection and alarming. The concept for fire protection piping routing was developed.

**Valdez Tank Farm**
Participated in a risk assessment of the recommendation to install fire monitors at the tank farm.

**Pump Station Risk Assessment**
Participated in a risk assessment of pump stations.

**Cable Tray Risk Assessment**
Participated in a risk assessment of cable trays at PS3 and PS4

BP Exploration (Alaska), Inc., Anchorage, AK
Consulting is being provided to BP Exploration for clean agent system use. Tasks include:

- Clean agent training preparation – Preparation of a power point presentation to BPXA. Covering the basics of clean agent system protection and the specifics of their applications.
- FM200 as Direct Halon Replacement Study - Development of a white paper on the ability to use FM200 as a direct drop in replacement for Halon 1301 in total flood systems.
- FE-13 Leakage Calculations
- Halon 1301 system review

Borger Refinery, Borger, TX
Assisted client in extending deluge water spray coverage to two vessels at the Borger Refinery. The scope of work included performing detailed design of systems, including piping, supports, and hydraulics. Construction-ready documentation was prepared for the installation.
BP Production America, Houston, TX
Provided fire safety consulting services an open-contract basis for BP worldwide fire protection, safety and environmental design and consulting services. Three projects conducted include establishing the correct concentration of fire protection gaseous extinguishing agent to protect a specific chemical compound; analyzing the fire risk of operation of a triplex pump/combustible engine for pumping methanol into the piping system, and developing a white paper on relative value of using HSSD detection vs. ionization and photoelectric detection.

DoD Fuel Tank Storage Facility, Craney Island, VA
Provided the design for a fire alarm system for a fuel tank storage facility at Craney Island.

Sunoco Engineering Services, Philadelphia, PA
Consulting services have been provided to Sunoco since 2002. Work has included:

- Process Hazard Analysis updates, using PHAWorks
- Corporate Fire Protection & Prevention guidelines
- Training course development and presentation

Strategic Petroleum Reserve Sites

Fire Protection Program Evaluation

Hydrant Flow Testing
Performed hydrant flow testing at all Strategic Petroleum sites in Louisiana and Texas.

Update of Baseline Needs Assessment
Provided an update of a Baseline Needs Assessment that it developed in 2007, to ensure compliance with Department of Energy Orders. Work also included development assistance for emergency planning based on a vulnerability analysis, and providing solutions based on engineered systems, programmatic changes, or modifications to approaches on staffing.

Halon Fire Suppression System Evaluation
Provided all necessary services to evaluate the control room halon fire suppression systems at Strategic Petroleum Reserve Sites (SPR) for compliance with accepted industry fire protection requirements and the applicable standards. The Bayou Choctaw, Big Hill, Bryan Mound and West Hackberry sites were analyzed and an assessment was made of fire prevention and protection program documentation; engineered drawings, operational requirements, and implementation of those requirements. JENSEN HUGHES made a determination of whether the SPR meets the Improved Risk/Highly Protection Risk (IR/HPR) level of protection. Recommendations were made for modifications and elimination of redundant systems.

Strategic Petroleum Reserve, New Orleans
Performed a baseline needs assessment for the U.S. Department of Energy. Oil storage in salt caverns and aboveground tanks were included in the evaluation, which focused on their Emergency Response Team.

Amerada Hess Corporation, Port Reading, NJ
Assisted the client in revalidating the process hazard analyses of a wet gas scrubber and of a steam boiler system. Assistance was also supplied to update a facility siting study of the refinery.

Enbridge Pipelines, Inc., Edmonton, Alberta, Canada
Developed radiant heat exposure distances from the full surface storage tank fires to prevent damage to tanks.

TransAlaska Pipeline & Valdez Marine Terminal
Reviewed existing fire protection facilities to identify significant fire protection and life safety deficiencies at 12 existing pumps stations and the Valdez Marine Terminal. JENSEN HUGHES personnel conducted a facility walk down to identify deviations from codes and standards. Results were used to implement a plan to correct identified deficiencies, and justify continued permit to operate.
INTERNATIONAL REGION

**ExxonMobil Development Co.**

**Loss Prevention Support, Upper Zakum Project, Abu Dhabi**
Provided loss prevention support for the Upper Zakum Project, involving the construction of artificial islands to support production from an offshore oil field. Assistance is also being provided to resolve issues arising from a Quantitative Risk Analysis and other loss prevention issues.

**Loss Prevention, Barzan Project, Yokohama, Japan**
Provided loss prevention and process hazard analysis support for the Barzan Project in Japan.

**Loss Prevention, Banyu-Urip, Indonesia**
Support was provided to resolve risk and loss prevention issues in preparation for the start-up of a new gas-oil separation plant (GOSP).

**Refineria Puerto La Cruz, Puerto La Cruz, Venezuela**
Provided fire protection engineering consulting services for the retrofit and upgrade of fire protection systems for the Puerto La Cruz refinery, tank farm, and maritime terminals. The Puerto La Cruz complex is Venezuela's third largest refinery, with an installed refining capacity of 199 million barrels per day. The complex also includes a very large port facility with 7 terminals, and 3 extensive tank storage farms.

**San Roque Y El Terminal Guamche, Puerto La Cruz, Venezuela**
Performed flow testing throughout the plant to develop a master plan for the existing fire suppression systems. The master plan evaluated the capacity of the existing system to address the existing fire hazards of the plant and define portions of the system that required upgrades.

**Petrobras – Cubatao, Cubatao, Brazil**
Performed flow testing throughout the plant to develop a master plan for the existing fire suppression systems. The master plan evaluated the capacity of the existing system to address the existing fire hazards of the plant and define portions of the system that required upgrades.

**Petrobras – REDUC, Rio de Janeiro, Brazil**
Performed flow testing throughout the plant to develop a master plan for the existing fire suppression systems. The master plan evaluated the capacity of the existing system to address the existing fire hazards of the plant and define portions of the system that required upgrades.

**Saudi Basic Industries Corporation (SABIC) KEMYA Facility, Saudi Arabia**
Performed fire protection engineering services including audits for the KEMYA facility. Scope of work includes site surveys, audits, testing, draft report and a final report.

**Saudi Aramco, Dammam, Saudi Arabia**
Five-day training courses on fixed fire systems design and fire alarm system design were developed and presented three times during 2011.

**Haiphong Jetty Fire Water System, Vietnam**
Using NFPA and industry codes and standards, JENSEN HUGHES reviewed the proposed fire protection design for the planned construction of a petrochemical/hydrocarbon jetty to service up to two large tanker vessels in Haiphong Harbor. Work included:

- Determination of needed fire flow and duration to determine the water tank size
- Determination of fire pump, foam system, water tank, supply system, gas and fire detection requirements
- Fire water system reliability
- Location of monitors, hydrants, and hose reels appropriate for the project.
OUR SERVICES

Fire Protection and Life Safety Design and Analysis
Our experts design cost-effective, performance-based protection systems that meet code requirements and the highest standards of life safety. We routinely handle challenging designs which involve life safety, mission continuity, property protection, heritage preservation, and environmental protection.

Code Consulting
Our problem-solving consultants ensure design and construction projects comply with safety (Building, Fire, Hazardous Materials, etc.) and accessibility codes, maintain the integrity of architectural design, preserve historical authenticity, and address a wide range of project-specific requirements, including code equivalencies and variance requests.

Hazard Analysis and Risk Management
Our fire hazard and risk analysis consultants provide fire and smoke modeling, process hazard analysis, risk management and regulatory compliance support, and a suite of risk-informed engineering and applications services, which include probabilistic risk assessment (PRA), human factors analysis, technology evaluation and selection, gap assessments, trade-off studies, and emergency response planning and training.

Security Design and Consulting
Our security experts utilize a holistic approach for all physical security elements to ensure they provide high-level protection. We conduct surveys and audits, master planning, emergency response planning, operations planning, physical and technical system design, building system integration, construction management, training and support.

Construction Administration and Commissioning
We verify and document the performance of a building and its systems to ensure that it meets the owner’s design needs and requirements. Our services include complete fire and life safety systems commissioning and inspection as well as project turnover for training and documentation to the building’s operation and maintenance staff.

Electrical System Design and Analysis
We provide electrical system design and analysis services to the Department of Defense (DoD) and other facilities. Our areas of technical expertise include electrical, instrumentation and control, fire protection, energy efficiency, risk assessment, and systems engineering.

Fire Research, Development, and Testing
Our engineers and scientists offer the industry’s most comprehensive services to test, assess and implement fire protection concepts and products. The broad spectrum of services performed in our in-house laboratories include new product roll-out, testing of unique fire protection strategies for special hazards and new processes or equipment designs that are not considered in current code provisions.

Forensic Engineering and Litigation Support
We deliver technically superior analyses and scientifically credible expert witness testimony on a wide range of subjects, including fire incident reconstruction, engineering analysis, fire spread analysis, fire modeling, origin and cause, testing, and compliance with codes and standards.

Sustainability and Pollution Prevention
Our environmental team provides regulatory forecasting and analysis, policy and standards development, sustainable design, audit, and remediation services.

Live and Online Training
We deliver advanced web-based training in convenient, self-paced modules, and accredited live instruction courses covering a variety of safety topics, including fire alarm systems, sprinklers, flammable liquids, hazardous materials, electrical safety, emergency evacuation, and other safety related topics.
CONTRIBUTIONS TO THE SCIENCE OF SAFETY

JENSEN HUGHES has established a reputation for expertise, ethics, and competency in fire protection engineering and research. We have achieved this through years of active participation with regional, national and international building and fire code committees and regulatory bodies. We continue to contribute to the development of such codes through our representation both on and before many of these committees.

Our familiarity and participation in the codes and standards making processes enables our staff to develop code compliant approaches and equivalencies in a timely manner, thus streamlining the design and construction process. Our engineers, scientists and consultants actively participate in 150+ committees for numerous industry associations, including but not limited to:

- National Fire Protection Association (NFPA)
- Society of Fire Protection Engineers (SFPE)
- International Code Council (ICC)
- Institute of Electrical and Electronics Engineers (IEEE)
- Underwriters Laboratory (UL)
- Fire Protection Research Foundation (FPRF)
- American Society for Testing and Materials (ASTM)
- Automatic Fire Alarm Association (AFAA)
- American Society of Mechanical Engineers (ASME)
- American Nuclear Society (ANS)
- American Institute of Steel Construction (AISC)
- American Iron and Steel Institute (AISI)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- ASIS International
- Council on Tall Buildings and Urban Habitat (CTBUH)
- National Association of Fire Investigators (NAFI)
- Joint Army-Navy-NASA-Air Force Safety and Environmental Protection (JANNAF)
- World Organization of Building Officials (WOBO)
- Various Fire Inspector and Fire Chiefs Associations Nationwide

In-Depth Knowledge

- Authored several chapters and edited the *SFPE Handbook of Fire Protection Engineering*
- Authored chapters of the *NFPA Fire Protection Handbook*
- Contributors to the *NFPA Fire Alarm Code Handbook* and *NFPA Automatic Sprinkler System Handbook*
- Contributors to multiple Department of Defense (DOD) UFC Codes and Specifications, including *UFC 3-560-01, Electrical Safety - Operations and Maintenance*
JENSEN HUGHES has completed hundreds of thousands of projects, performing projects located on every continent in over 100 countries, some of which include:

**North America**
- Canada
- Mexico
- Puerto Rico
- United States

**Central / South America**
- Argentina
- Bermuda
- Brazil
- Bolivia
- Chile
- Colombia
- Ecuador
- Panama
- Trinidad & Tobago
- Uruguay

**Pacific**
- Australia
- Fiji Islands
- Guam
- New Zealand

**Antarctica**

**Europe**
- United Kingdom
- Finland
- France
- Germany
- Ireland
- Italy
- Norway
- Portugal
- Scotland
- Turkey

**Africa**
- Algeria
- Egypt
- Ghana
- Guinea
- Jordon
- Nigeria
- Republic of South Africa
- Sierra Leone

**Asia**
- Bangladesh
- Cambodia

**Asia (continued)**
- Hong Kong
- India
- Indonesia
- Iraq
- Japan
- Macau
- Malaysia
- Maldives
- Myanmar
- Nepal
- Oman
- Pakistan
- Peoples Republic of China
- Philippines
- Qatar
- Saudi Arabia
- Singapore
- South Korea
- Sri Lanka
- Taiwan
- Thailand
- United Arab Emirates
- Vietnam
Global Locations

Headquartered in Baltimore, MD, USA, we serve our customers globally through more than 70 office locations strategically positioned in major metropolitan areas. Our team of over 1,200 professionals has the capacity to assist from any region on a variety of projects in order to satisfy the needs of our clients.

United States Offices

Alaska: Anchorage  
Arizona: Goodyear, Phoenix  
California: Alameda, Anaheim, Campbell, Los Angeles, San Diego, San Francisco, Torrance, Vacaville, Walnut Creek  
Colorado: Colorado Springs, Denver, Englewood  
Florida: Miami, Orlando  
Georgia: Atlanta, Johns Creek  
Hawaii: Honolulu  
Illinois: Chicago, Lincolnshire, Mount Prospect, Oakbrook Terrace  
Indiana: Fort Wayne  
Maryland: Baltimore, Rockville  
Massachusetts: Boston, North Andover, Woburn  
Minnesota: St. Paul  
Nebraska: Lincoln  
Nevada: Las Vegas  
New Jersey: Woodstown  
New Mexico: Albuquerque  
New York: Armonk, Manhattan  
North Carolina: Charlotte, Raleigh  
Ohio: Cincinnati, Cleveland  
Oregon: Portland  
Pennsylvania: Philadelphia, West Chester  
Rhode Island: Providence

United States Offices (cont.)

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Utah: Salt Lake City  
Virginia: Arlington, Blacksburg, Fairfax, Virginia Beach  
Washington: Mountlake Terrace, Vancouver

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British Columbia: Richmond, Vancouver  
Nova Scotia: Halifax  
Ontario: Ottawa, Toronto

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Korea: Seoul  
Macau: Taipa  
Singapore  
UAE: Abu Dhabi, Dubai