Fire Resistance Testing

Southwest Research Institute® (SwRI®) is a worldwide leader in fire research and testing for compliance with building codes, maritime codes and government specifications.

As an accredited organization, SwRI evaluates the fire performance of a variety of materials, products and construction elements to meet requirements specified in codes and standards such as:

- ❑ ASTM International
- ❑ International Building Code
- ❑ International Fire Code
- ❑ National Fire Protection Association
- ❑ Safety of Life at Sea
- ❑ MIL Specs

DO 16613

SwRI's loading frame for the large-horizontal furnace applied over a glass floor system

Capabilities

SwRI's three furnaces (large-scale vertical, large-scale horizontal and small-scale horizontal) and jet-fire apparatus are used to meet the needs of the construction, marine and off-shore industries for fire testing of:

- ❑ Wall and bulkhead assemblies
- ❑ Floor, ceiling and deck assemblies
- ❑ Windows and doors
- ❑ Columns and beams
- ❑ Cable, pipe and duct penetration fire stops
- ❑ Passive fire protection materials
- ❑ Energized cables
- ❑ Pressurized hoses
- ❑ Fiber-reinforced plastic gratings
- ❑ Aircraft walkway elements

The large-scale furnaces are used for qualification testing and the small-scale furnace is used primarily to support engineering evaluations or screening tests. Custom fire scenarios can also be accommodated.

DO 16614

Glass wall and double door assembly being tested on SwRI's large-vertical furnace

Facilities

Features of SwRI's furnace testing facility include:

- ❑ Large-scale vertical furnace
  - 12 x 12 ft opening
  - Flat flame burners
  - Structural loading up to 100,000 lbs (10,000 lb/ft over 10 ft)
- ❑ Large-scale horizontal furnace
  - 12 x 16 ft opening
  - 6-ft deep chamber
  - Structural loading up to 130,000 lbs (722 lb/ft^2 over 180 ft^2)
- ❑ 2500°F capacity
- ❑ Thermal imaging capabilities of unexposed surfaces
- ❑ Side ports for internal furnace camera
- ❑ Multiple LCD displays in furnace control room for real-time data and sample observation

FIRE TECHNOLOGY
SIXTY YEARS OF SERVICE
1949-2009
SOUTHWEST RESEARCH INSTITUTE

Exceeding clients' expectations by providing world-class, innovative fire research, testing and product certification services

SwRI's three furnaces (left to right): small-horizontal, large-vertical, and large-horizontal

Calibration of SwRI's jet-fire apparatus

Southwest Research Institute is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides more than 2 million square feet of laboratories, test facilities, workshops and offices for more than 3,200 employees who perform contract work for industry and government clients.

Benefiting government, industry and the public through innovative science and technology

Equal Opportunity Employer M/F/D/V
Committed to Diversity in the Workplace

Tests Performed

Fire resistance tests performed at SwRI include:

- **ASTM E119**, Standard Test Methods for Fire Tests of Building Construction and Materials
- **IMO Resolution A.754(18)**, Recommendation on Fire Resistance Tests for A, B and F Class Divisions
- **MIL-STD-3020**, Fire Resistance of U.S. Naval Surface Ships
- **UL 1709**, Rapid Rise Fire Test of Protection Materials for Structural Steel
- **BS 476 (Parts 20, 21 and 22)**, Fire Tests on Building Materials and Structures
- **ASTM E814**, Standard Test Method for Fire Tests of Through-Penetration Fire Stops
- **NFPA 252**, Fire Tests of Door Assemblies
- **NFPA 257**, Fire Tests of Window and Glass Block Assemblies
- **NFPA 275**, Test method for the Evaluation of Thermal Barriers
- **NFPA 415**, Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways
- **OTI 95 634**, Jet-Fire Resistance Test of Passive Fire Protection Materials
- **ISO 22899-1**, Determination of the Resistance to Jet Fires of Passive Fire Protection Materials
- **NFPA 58 Annex H**, Procedure for Torch Fire and Hose Stream Testing of Thermal Insulating Systems for LP-Gas Containers
- Testing in accordance with ICC-ES Acceptance Criteria

Accreditations and Approvals

The Fire Technology Department is ISO/IEC 9001:2008 registered by NSF International Strategic Registration, Ltd. The Department is ISO/IEC 17020 and ISO/IEC 17025 accredited by the International Accreditation Service (IAS) and accredited by the Occupational Safety and Health Administration (OSHA) as a Nationally Recognized Testing Laboratory (NRTL).

We welcome your inquiries. For additional information, please contact:

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