Fire resistance testing

Evaluate the strength, stability and fire insulation of products and materials

In the event of a fire in buildings, vehicles or means of transportation, the fire resistance time of the materials and products is the most critical variable and has a direct influence on the occupants' safety. Fire-resistant products should allow the structures to retain their minimum functions during the time required to evacuate the people, even despite the extreme conditions of heat and pressure to which they are subjected. Manufacturers of these products, must evaluate product resistance, stability and fire insulation according to the applicable regulation.

**Accredited Fire Resistance Testing Laboratory**

Applus+ Laboratories provides fire resistance testing service for all kind of passive fire protection products. Our fire laboratories in Barcelona, Spain (LGAI Technological Center S.A.) are **ISO/IEC 17025 accredited by ENAC/ILAC (nº 9/LE895)** to test under international standards applicable to various sectors: International Standards (ISO), American Standards (NFPA, UL), European Standards (EN), National Standards (BS, UNE, etc.), Specific Standards for Oil and Gas, Marine, Railway (ASTM, IMO). [See the complete list of our accreditations](mailto:info@appluslaboratories.com)

We are Europe's leaders in annual volume of fire tests and equipment. We have been working for more than 25 years in the fire industry. We are members of EGOLF and ASFP and our experts are involved in the major technical and regulatory forums (CEN) for developing new standards.
Comprehensive Testing services for Fire Safety Products

- **Test Plan** management and execution
  - Fire resistance simulation
  - Test tooling design and manufacture
  - On-line test visualization
  - Data post-processing and test report issuing
- Assessments for extension applications reports EXAP (evaluation of the behavior of other untested components)
- **Training** for technicians

Product Certification and Conformity for International Markets

Applus+ Laboratories is an European Notified Body (No. 0370) for all products with fire resistance and fire reaction requirements that fall within the scope of the Construction Products Regulation. We also have the required notifications and recognitions needed to issue certificates of conformity for access to the major international markets.

- **Europe**: [CE Marking](#) and European Certifications for Innovative Construction Products (ETA, EAD, amongst others)
- **Middle East**: Certification body recognized by Dubai, Qatar, Oman and Kuwait governments.
- **Americas**: Agreement with UL
- **China**: Support and management of the [CCC Certificate](#)
- **Russia**: Support and management of the [EAC Certificate](#)
- **Switzerland**: VKF-AEI recognition

Fire Resistance Test Standards

**Partitions:**

- EN 1363-1: Fire Resistance, general requirements
- EN 1364-1: Non-load bearing walls
- EN 1364-2: False ceilings
- EN 1364-3-4: Curtain walling
- EN 1365-1: Load bearing walls
- EN 1365-2: Floors and roofs
- EN 1365-3: Beams
- EN 1365-4: Pillars
- EN 1365-5: Balconies and walkways
- EN 1365-6: Stairs
- BS 476-20: Fire tests on building materials and structures
- BS 476-21: Fire resistance of loadbearing elements of construction
- BS 476-22: Fire resistance of non-loadbearing elements of construction
- ASTM E119-08a-12a-14-15: Building construction and materials
- NFPA 251: Building Constructions and Materials, Fire resistance
- UL 263: Building Constructions and Materials

**Equipment and services:**

- EN 1366-1: Ducts
- EN 1366-2: Fire dampers
- EN 1366-3: Penetration seals
- EN 1366-4: Linear joint seals
- EN 1366-5: Service ducts and shafts
- EN 1366-6: Raised access and hollow core floors
- EN 1366-7: Conveyor systems and their closures
- EN 1366-8: Smoke extraction ducts.
- EN 1366-9: Single compartment smoke extraction ducts
- EN 1366-10: Smoke dampers
- EN 1366-11: Fire protective systems for cable systems and associated components
- EN 1366-12: Non-mechanical fire barrier for ventilation ductwork
- EN 81-58: Lift doors
- EN 14470-1: Safety cabinets for flammable liquids
- EN 12101-1: Smoke Barriers
- EN 12101-2: Natural smoke and heat exhaust ventilators
- EN 12101-3: Motor-drive ventilators
- EN 12101-7: Smoke duct sections
- EN 12101-8: Smoke control dampers
- ASTM E2816-12: HVAC ducts fire resistance
- EN 1634-1: Doors and gap closing elements and openable Windows
- EN 1634-3: Smoke control test for door and shutters
- BS 476-24: Fire resistance of ventilation ducts
- ASTM E814-8b-09-11a-13a: Fire resistance. Penetration seals
- UL 9: Window Assemblies, Fire resistance
- UL 10B: Fire tests to door assemblies
- UL 10C: Door Assemblies: Positive Pressure Fire Tests
• UL 10D: Fire protective curtains
• UL 155: Vault and File Room Doors
• UL 555: Fire dampers Walkways
• NFPA 252: Door Assemblies
• UL 1479 Through-penetration firestops

Protection structures and materials (paints, mortars and flame retardants):

• EN 13381-1: Horizontal protective membranes
• EN 13381-2: Vertical protective membranes
• EN 13381-3: Protection of concrete members
• EN 13381-4: Protection of steel structures
• EN 13381-5: Concrete/profiled sheet composite
• EN 13381-6: Concrete filled hollow steel columns
• ENV 13381-7: Protection of wood structures
• EN 13381-8: Protection of steel structure
• EN 14135: Coverings - Determination of fire protection ability
• ISO 22899-1: Resistance to jet fires of passive fire protection materials
• BS 476-23: Contribution of components to the fire resistance of a structure

Product Classification

• EN 13501-1: Fire class. of construction products and building elements Classification using data from reaction to fire tests
• EN 13501-2: Fire class. of construction products and building elements excluding ventilation services
• EN 13501-3: Fire classification of fire resisting ducts and fire dampers
• EN 13501-4: Fire class. of smoke control systems
• EN 13501-5: Fire classification of external fire exposure to roofs tests
• EN 15269-1, -2, -3: Extended application of test results for fire resistance
• EN 15725: Extended application reports on the fire performance
• EN 15650: Fire dampers
• EN 16034: Fire resisting and/or smoke Pedestrian doorsets, industrial, commercial, garage doors and openable Windows
• EN 14600: Doorsets and openable windows with fire resisting and/or smoke control characteristics - Requirements and classification

Other standards: Construction, Marine, Rail, Oil and Gas

• EN 15659: Secure storage units. Classification and test methods
• ASTM E 2226-08-12-15b: Hose stream
• ASTM E2816-12a-15a: Fire Resistive Metallic HVAC Duct Systems
• UL 1709: Heating curve
• UL 1724: Electrical circuit protective system
Highly specialized laboratory and equipment

- 1 Vertical furnace (3x5 m)
- 2 Horizontal furnaces (3x4x3 m)
- 1 furnace for experimental RandD (1,5 x 1,5 x 1,5 m)
- 2 furnaces (3x3 m)
- 1 Jet Fire installation
- Supplementary sample characterization equipment, auxiliary loads
- Combined acoustic plus fire tests with the same sample (vertical and horizontal airborne noise transmission chamber)

Benefits

- Increase the product's reliability by detecting latent defects
- Improve your product's quality and lower the costs for non-quality, post-sale incidents, etc.
- Applus+ Laboratories, one-stop-shop for your product's full characterization and validation.