

National Structural Fire Resistance Laboratory

NIST is proceeding with construction of the National Structural Fire Resistance Laboratory. The NSFRL will be built as an addition to the existing Large Fire Laboratory on NIST's Gaithersburg, Maryland Campus. It will include a 60' x 90' strong floor and a 60' long by 30' tall reaction wall. A 45' x 50' hood will capture the exhaust products from fires. The facility will have a capacity for testing structures up to two stories tall, and two bays by three bays in plan. The facility has been designed to accommodate fires up to 20 MW in size.

The NSFRL will provide the capability to develop an experimental database on performance of large-scale structural connections, components, subassemblies, and systems under realistic fire and loading, to validate physics-based models to predict fire resistance performance of structures, and support the development performance-based standards for fire resistance.

In addition to the test area, the facility will include a large assembly area and pit for conditioning of concrete test articles. The new facility includes an additional emission control system to extend the fire capacity to 20 MW.

Construction of the facility is scheduled to begin later this summer and is scheduled to take 18 months. We anticipate that it will take another year to prepare the facility to begin conducting experiments. NIST expects to operate the facility under a model that will allow researchers from outside NIST to utilize excess capacity for their research. The NSFRL will provide a unique and valuable resource for structural fire research and supporting the development of performance-based standards and codes for structural fire resistance.