

2.2 BUILDING CODES

Unlike the World Trade Center Towers (WTC 1 and WTC 2), which were developed and owned by The Port Authority, WTC 7 was developed on land owned by The Port Authority, but the building was owned by Seven World Trade Company and Silverstein Development Corporation, General Partners. It was designed and constructed as a “Tenant Alteration Project” of The Port Authority.

When WTC 7 was designed in the mid-1980s, the 1968 NYC Building Code (NYCBC) with amendments was in effect. A comparison of the 1968 NYCBC with contemporaneous building codes is presented in NIST NCSTAR 1-1E. The Project Specifications for WTC 7, issued in 1984, required that the structural steel be designed in accordance with the then current NYCBC. The November, 1978 edition of the Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings, published by the American Institute of Steel Construction in the Eighth Edition of the *AISC Manual of Steel Construction* (AISC 1980), was the current steel design specification document.

The Port Authority developed a tenant alteration process for modifications to leased spaces in the WTC complex to maintain structural integrity and fire safety. The Tenant Construction Review Manual contained technical criteria to be used in planned alterations for tenants. The manual included the applicable standards and review criteria to be used by The Port Authority Engineering Department in its review of alteration designs completed by design professionals. At the completion of the work, the as-built drawings were to be submitted to The Port Authority. Since WTC 7 was built as a “Tenant Alteration Project,” its design and construction followed the requirements of the 1984 edition of the Tenant Construction Review Manual. Details of the Tenant Construction Review Manual are found in NIST NCSTAR 1-1C.

Although the PANYNJ was not subject to the NYCBC, WTC 7 was intended to be designed in accordance with the NYCBC and all applicable reference standards. Based on citations in the construction documents, the 1968 NYCBC, including amendments through January 1, 1985, appears to have been used for the design and construction provisions of WTC 7.

Based on the height, area, primary occupancy classification, and installation of a fire sprinkler and standpipe system, the minimum construction type (permitted by the NYCBC) was type 1-C (2 h protected) classification. However, some documentation, including some building drawings and specifications for bidders on the contract for fireproofing¹ the structural steel, indicate a Type 1-B (3 h protected) classification. Chapter 12 in NIST NCSTAR 1-1D gives a summary of fire protection measures used in WTC 7, which were consistent with a Type 1-C classification.

After the publication of the WTC towers investigation reports in September 2005, documents which contained a set of measured thicknesses of the sprayed fire-resistive material (SFRM) used in WTC 7 were obtained. The SFRM thickness measurements were consistent with a Type 1-B classification. A Type 1-B classification required a 3 h fire resistance rating on the columns and a 2 h fire resistance rating

¹ The application of sprayed fire-resistive materials (SFRM) is often referred to as “fireproofing.” The sprayed fire-resistive materials themselves are also sometimes called “fireproofing.” In this report, SFRM is used to describe the thermal insulation spray-applied to protect the steel, and the term fireproofing is used to describe the act of applying the SFRM. In quotations from contract documents or correspondence, the term “sprayed-on fireproofing” is used for SFRM; in such cases, the original wording is preserved. In no case did the Investigation Team presume that the protected steel was actually “fireproof.”