



## Systems for Structural Failure Investigations in the United States

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### Abstract

The United States lacks a comprehensive system for investigation of structural failures. However, there are a number of systems that may be brought into play following a collapse. Transportation facilities such as bridges are investigated by the National Transportation Safety Board (NTSB). Investigations of other structural collapses are often left to independent forensic engineers hired by the parties to actual or potential litigation following the incident. The findings of these investigators may remain confidential and may or may not ever be published. It is also possible that multiple conflicting possible causes are published, such as the L'Ambiance Plaza lift slab collapse. In some cases, construction collapses are investigated by the Occupational Safety and Health Administration (OSHA), but those investigations are often limited to whether or not any OSHA safety rules were violated. Thus, the contributions for OSHA investigations to improving engineering practice may be limited. In contrast, the United Kingdom has a confidential reporting system on structural safety (CROSS). This system allows for anonymous report submission.

**Keywords:** Forensic engineering; construction collapse; investigation methods; bridge failures; building failures; tunnel failures; data bases.

### 1 Introduction

The United States lacks a comprehensive system for investigation of structural failures. However, there are a number of systems that may be brought into play following a collapse. This paper discusses some of these systems. In general, quite different systems are used for buildings and bridges.

For example, transportation facilities such as bridges are investigated by the National Transportation Safety Board (NTSB). NTSB reports of transportation collapses, such as the Minneapolis I-35W bridge or the Boston Big Dig tunnel ceiling failure, are generally published a year to a year and a half after the incident. NTSB

investigations are generally well funded and comprehensive.

Investigations of other structural collapses are often left to independent forensic engineers hired by the parties to actual or potential litigation following the incident. The findings of these investigators may remain confidential and may or may not ever be published, particularly if the case is settled before trial or mediated. Contract provisions may also eliminate the possibility of a trial. It is also possible that multiple conflicting possible causes are published, such as the L'Ambiance Plaza lift slab collapse.

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