

The Hardford Coliseum roof structure collapse

13 October 05

Introduction

In 1978, six hours after 5,000 spectators who attended a basketball game had left, the roof of the Hartford Civic Center Coliseum caved in under a load of wet snow. An investigation revealed that a design error involving improper bracing of top chord compression members was the likely cause of the roof collapse.

Recommendations

While there are several design and construction quality issues in all of these failures, a common quality step lacking is independent verification of the adequacy of the structural design. In typical United States practice, the assurance of the quality of a structural design rests almost entirely with the engineer of record. There are no regulatory checks as there are in other industries, such as airlines or pharmaceuticals. Many years ago, plan reviews by local building departments often provided thorough reviews of building structural designs and, in some cities like Los Angeles, building departments still provide comprehensive reviews. Generally, however, municipal building departments have neither the staff nor the funds to provide meaningful reviews of today's complex structural designs.

One characteristic of catastrophic building failures is that they tend to be low frequency, high-consequence events. While they receive great attention when they do occur, many forget them shortly thereafter, so that high priority on their avoidance is lost. Consequently, building owners and the general public frequently does not value the importance of sound structural engineering.

Peer review is receiving more consideration nationwide as building owners, designers, and code officials recognize that the complexity of current design codes and specifications, the complexity of modern design and construction teams, the use of higher performance structures with lower factors of safety, and the severe business and time pressures of the industry work to increase the probability of catastrophic life-threatening failures.

Bibilography

Wearne, Philip (2000). The Collapse. TV Books Inc.