The Richard J. Carroll Memorial Lectureship

The Richard J. Carroll Memorial Lectureship in Civil Engineering was established at The Johns Hopkins University to commemorate one of Baltimore’s leading structural engineers, Richard J. Carroll, P.E. The lectureship was endowed by the many friends and admirers of Mr. Carroll, who passed away in 1982. The endowment contributes to the ongoing guest seminars in the Department of Civil Engineering and provides for these special lectures.

Richard J. Carroll, P.E. received his bachelor of civil engineering degree from Villanova University in 1955 and studied advanced structural design at The Johns Hopkins University and George Washington University. He was chief structural engineer for the firms of Knoerle, Bender, Stone, and Associates, and Ewell, Bomhardt and Associates and chief field engineer for the Portland Cement Association. In 1964 he founded his own firm, Carroll Engineering, Inc., which grew to 26 employees under his leadership. Mr. Carroll made contributions to the civil engineering profession through his membership in numerous professional societies and he published several papers on concrete use and design with an emphasis on post-tensioned and pre-stressed concrete. He also taught courses in ultimate strength design and plastic design in steel. His untimely death at the age of 49 left a legacy of professionalism, integrity, and vigor.

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Bruce R. Ellingwood, Ph.D., P.E., N.A.E.
School of Civil and Environmental Engineering
Georgia Institute of Technology

Wednesday, April 11, 2012, 1:30 – 2:30 p.m.
The Johns Hopkins University, Homewood Campus
Hodson Hall, 3rd Floor Boardroom
Open to the Public

www.ce.jhu.edu
Abnormal Loads and Progressive Collapse  
Assessment of Building Vulnerability and Mitigation of Risk

A progressive (or disproportionate) collapse is one that initiates from a local structural failure and propagates, by a chain reaction mechanism, into a failure that involves a major portion of the structural system and is disproportionate to the local initiating damage. Such collapses can initiate as a result of extreme environmental or abnormal loads or design/construction errors. Public awareness of building safety issues has increased markedly in recent years as a result of media coverage of natural and man-made disasters. Improved building practices and design procedures to control the likelihood of such progressive failures are receiving heightened interest from structural engineers, standards organizations and regulatory authorities in the United States and elsewhere, and several initiatives for accomplishing this objective are underway. Procedures for assessing the vulnerability of buildings to such occurrences and for designing structural systems to withstand local damage without subsequent development of a general structural collapse can be developed using concepts of risk and structural reliability analysis and probability-based limit states design. This presentation summarizes design and risk-informed decision approaches for minimizing the likelihood of progressive collapse, identifies current research issues, and summarizes progress in implementation of general provisions in national standards such as ASCE Standard 7, Minimum design loads for buildings and other structures.