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Department of Civil and Environmental Engineering (DICEA),
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FAILURE LITERACY IN STRUCTURAL ENGINEERING

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ABSTRACT:

The history of the development of practice in many engineering disciplines is, in large part, the story of failures, both imminent and actual, and of the changes to designs, standards and procedures made as the result of timely interventions or forensic analyses. All engineers, and more particularly structural engineers, should be failure literate. Failure literacy means knowing about the critical historical failure cases that have shaped the profession, not merely the surface technical details, but the environment, the communications difficulties and the procedural issues. In the U.S., an intensive effort has been under way for nearly a decade to promote failure literacy in engineering education and practice. Some landmark failures include the Tacoma Narrows bridge collapse, 1940, the Point Pleasant/ Silver Bridge collapse, 1967, the Ronan Point building collapse, 1968 (U.K.), the 2000 Commonwealth avenue building collapse, 1971, the Bailey's Crossroads building collapse, 1973, the Hartford Civic Center building collapse, 1978, and others. This list, unfortunately, is a living document that will expand as more failures occur.

BIO: Dr. Norbert J. Delatte, Jr., P.E., is the M.R. Lohmann Endowed Professor of Engineering and the Head of the School of Civil and Environmental Engineering at Oklahoma State University. He received his B.S. in Civil Engineering from The Citadel in 1984, a Master's Degree in Civil Engineering from The Massachusetts Institute of Technology in 1986, and a Ph.D. in Civil Engineering from The University of Texas at Austin in 1996. Dr. Delatte is the author of *Beyond Failure: Forensic Case Studies for Civil Engineers* (ASCE Press, 2009) and *Concrete Pavement Design, Construction, and Performance, 2nd Edition* (Taylor and Francis, 2014). In addition, he is the Editor of ASCE's Journal of Performance of Constructed Facilities.