WJE

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

## Spring 2027

# ARCH 594 FF: Building Failures and Forensics

# 3 CR with Option for 4 CR

### Fridays 1:00pm to 3:50pm, 1065 Lincoln Hall

## SOLVING FOR 'WHY?': FAILURES & FORENSICS IN OUR BUILT ENVIRONMENT

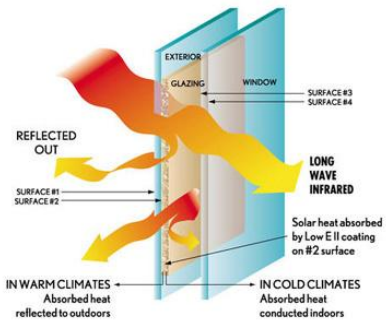
*Instructor/ Course Developer*: **Daniel Lemieux,** FAIA NCARB FASTM (Principal, WJE), Affiliate Faculty
*Instructor.* **Anthony Cinnamon,** NCARB (Associate Principal, WJE), Affiliate Faculty
*Instructor/ Coordinator*: **Sudarshan Krishnan,** Ph.D., Associate Professor and Chair, Bldg. Performance

Why do buildings and infrastructure fail? And what can we learn from these disasters and tragedies? Whether it involves loss of life, loss of property – or perhaps both – failures in our built environment have much to teach us. This interdisciplinary course will feature guest lectures by subject-matter experts from internationally recognized firms who were directly involved in the aftermath of several of the most significant failures in our built environment over the past 70 years. Through a combination of case studies, classroom lectures, and direct engagement with practicing professionals and subject-matter experts, this class will offer students a unique opportunity to explore the factors that can lead to failure in our built environment. The course will be offered as both a graduate and undergraduate class with reflections essays and graded assignments consistent with each class level. If you are a student in the School of Architecture or Civil and Environmental Engineering, or simply interested in building forensics, this course will demonstrate through real world examples how engineers, architects, and materials scientists have worked together to investigate some of the most complex building failures and structural collapses of the past half-century.








**Jan 22**: Course Overview and Introduction
**Jan 29**: Failures & Forensics: History, Significance, and Lessons Learned
**Feb 5**: Introduction to Steps in an Investigation
**Feb 12**: Technical Writing and AI: First Principles and Deductive Reasoning
**Feb 19**: When Buildings & Bridges Collapse
**Feb 26**: The Role of Building Science in an Investigation
**Mar 5**: The Role of Materials Science in an Investigation
Class Trip to the WJE Janney Technical Center in Northbrook, Illinois
**Mar 12**: Midterm reviews (no class)
**Mar 13-21:** Spring Break
**Mar 26**: Historic Preservation and Adaptive Re-Use
**Apr 2**: A Failure of Process: The Devil is in the Details
**Apr 9**: Forensic Mistakes and Blunders
**Apr 16**: Leaks, Cracks & Lawsuits
**Apr 23**: Term Project Due: Final Presentations
**Apr 30**: Design reviews (no class)
**May 5**: Last day of instruction