



# Engineering Sciences Section - 2014

## C1 Forensic Architecture

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The goals of this presentation are: (1) to promulgate awareness of forensic architecture as a forensic discipline; (2) to inform as to the nature of forensic architecture; (3) to show how forensic architecture differs from other forensic sciences; and, (4) to show examples of forensic architecture.

This presentation will impact the forensic science community by demonstrating the usefulness of forensics in the arena of architectural design, design and construction standards, construction, construction law, and personal injury.

This presentation examines three cases being managed to resolution and includes pertinent detail and graphic examples. Management of foreseen actions or events by the forensic architect before an occasion of injury or damage is preventative in nature, such as surveys to identify architectural barriers or participation in development of building design standards. These activities do not become legal situations. However, those arising after the occasion of injury or loss due to non-adherence to building codes or construction specifications usually end up in the legal system.

**Case 1:** An Americans with Disabilities Act (ADA) study of a county's public buildings and facilities: Sixty county facilities were surveyed for compliance with requirements of ADA and 2,400 non-compliant conditions were found. Facilities consisted of community centers; half-way houses; a hospice facility; senior citizens' and children's day care centers; a cultural affairs facility; a library; a nature center; fire stations and a fire-training academy; water and sewage treatment plants; municipal services and vehicle repair facilities; an employment center; transportation stations; a performing arts center; and a 400,000-square-foot, 12-story detention facility. By working with the legal department of the county, the highest-priority items for remediation were determined at the earliest possible time, making maximum use of the available funds. The consulting contract included expert architectural assistance in legal defense of the county in the event that a complaint is brought by either a person with a disability or by the U.S. Department of Justice. The nature of this forensic architectural service is preventive, providing architectural advice to assist the client before being forced into court.

**Case 2:** Defense of the owner of air cargo building at any international airport. In the process of selling a 60,000 square-foot air-cargo facility (which included leased space for four large national air-cargo shipping companies), the buyer claimed that the owner/seller had to make over \$500,000 in repairs to the interior of the building and entrances to meet ADA design requirements. Forensic services involved: (1) reviewing the buyer's report claiming \$500,000 in remedial costs; (2) inspecting the facility; and, (3) analyzing the law to determine if the owner/seller needed to remove architectural barriers. Services also included assisting the owner's/seller's legal counsel in negotiations with the buyer's legal counsel to resolve differences and achieve an amicable settlement that would result in the successful sale of the building. Similar to the services for the county described above, these expert forensic architectural services were preemptive so that parties would not have to enter legal action to resolve matters.

**Case 3:** Support of an intervenor in case to disallow a dangerous ramp to remain. The interested party, aware that a ramp (at a newly acquired lease space in building by the franchisee of a national restaurant chain) was constructed too steeply, engaged the expert forensic architect to assist with intervention if the state building officials decided in favor of allowing the steep ramp to remain. The site is in a small town's historic district. Therefore, any architectural modifications to the exterior of the building are required to be in accordance with historic guidelines as promulgated by the U.S. Department of the Interior. The site was inspected and the state-approved drawings indicated, erroneously, that the ramp was compliant with building codes. Calculations were made including a graphic demonstration of dangerous shift in center of gravity of a wheelchair user on the ramp, proving that the extreme steepness was non-compliant with both state building codes and federal ADA design standards. The ramp was not only non-compliant, but also extremely dangerous for people who use wheelchairs. After the state proceeded to approve the variance to state code, the forensic architect was then engaged as an expert in assisting the legal effort to appeal the state ruling. Also, the expert forensic architect assisted in filing a complaint with the U.S. Department of Justice. Unlike the two previously described cases above, this case has gone to court. The architectural expert continues to assist with this case both in the state court system as well as on the federal level through the U.S. Department of Justice.

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