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ROBSON FORENSIC PRESENTS

Aging

Consequences of aging can include decreases in physical strength and agility, poorer balance, reductions in visual, auditory and sensory ability, and increases in the time required for perception, analysis and reaction. Preventing injuries to this growing population requires special attention to facilities and products that serve them. Issues may include hot water temperature settings, evenness of walking surfaces, product safety features to accommodate lower grip and lifting strength, placement and selection of warning and informational signs, and adjustment of escalators, elevators, and automatic doors.

We regularly evaluate injury incidents involving elderly users. Our architects, engineers, and product designers have particular experience and qualifications designing facilities and products for elderly users. Our human factors scientists determine if site and device conditions are appropriate and our biomechanical engineers are expert at evaluating causes of injuries.

Contact us at one of our offices listed on the reverse of this piece, or visit www.robsonforensic.com.

Robson Forensic
Engineers, Architects, Scientists & Fire Investigators

Aging

Areas of Aging Expertise:

- ◆ Specialized Care Facilities - architecture and construction
- ◆ Product design and failure
- ◆ Regulatory compliance and standards of care
- ◆ Aqua therapy
- ◆ Injury causation
- ◆ Biomechanics
- ◆ Human Factors
- ◆ Premises liability

Other expert areas:

- ◆ Fire origin and cause
- ◆ Meteorology
- ◆ Environmental health and safety
- ◆ Professional liability
- ◆ Aquatics
- ◆ Sports and recreation
- ◆ Construction
- ◆ Marine
- ◆ e-Discovery
- ◆ Electrical

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Recent Case Highlights

Woman struck by automatic door

An elderly woman fell after she stopped in the exit opening of a revolving door and was struck from behind by the next leaf of the door. This door discharged at a platform above stairs outside an historic landmark hotel. Numerous conditions were claimed to have been dangerous and causes of her fall, including that the platform outside the door was too narrow, that there weren't enough signs warning of the claimed dangerous conditions, and that the non-powered door rotated too quickly.

Our architect expert cited studies of pedestrian activity and stair safety and demonstrated that conditions outside the door provided more than enough space for the woman to have safely exited. We showed that door construction, signs, and floor markings provided the plaintiff with numerous clear cues that she was choosing to stop in the path of the moving door. We also established that landmark status impacted the owner's ability to alter the exterior conditions of the building, and demonstrated that the owner met the applicable standard of care.

The plaintiff's door consultant was unable to replicate excessive door speed. He claimed the door rotated more quickly on the day of the incident, and opined that the weather-stripping must have been changed. We explained that this was impossible: the maximum rotation speed was fixed at the central shaft governor, and maintenance records showed the speed could not have been changed. Further, we tested the door and showed that the next person in the door -- the plaintiff's daughter -- had ample time to see where her mother had stopped and to exert the small forces needed to stop the door before her mother was hit.

The case settled before trial.

Amputee infected at therapy pool

An elderly amputee was found to be infected with *Pseudomonas aeruginosa* shortly after he began receiving therapy pool treatment. This caused an infection at his amputation site that forced him to discontinue therapy and prevented proper adaptation to his prosthetic.

Pseudomonas aeruginosa exposure is known to be related to improperly operated pools. Robson Forensic was asked to determine if the therapy pool was a likely source of the infection. Our Aquatics expert analyzed the pool filtration, circulation, and sanitation systems and reviewed the operational records and reports.

When we examined the pool components, we identified biofilm slimes on the pool edges and in the skimmer baskets. Biofilms are dangerous because they harbor bacteria. When disrupted, biofilms release bacteria into the water. Unless there are effective levels of sanitizer in the water, the bacteria will survive.

We found that the pool's chemical controller had been improperly maintained and was malfunctioning, depriving the pool of an adequate sanitizer supply. Since this pool used Trichloro-s-triazinetrione as the sanitizer, sodium carbonate was added to the water to adjust pH. We analyzed the chemical test logs from the period of the victim's therapy, and showed that the pool's pH levels were much too high and affected the sanitizer's ability to inactivate bacteria.

We explained how growth of *Pseudomonas* is a predictable result of exactly these types of failures, and how this made it more likely than not that the victim had been exposed and infected while receiving therapy in the pool. The case settled favorably for the plaintiff before trial.

Third-degree burns in shower

An elderly patient at an extended care facility suffered third-degree burns while in the shower. It was claimed that the regulating valve that controls water temperature malfunctioned, causing the shower water to exceed safe temperatures.

Our expert conducted an on-site investigation that included examination of the central domestic hot water plant. In this case, the water temperature was manually controlled, and set at 120 degrees. This temperature setting was compliant with building code and standards of care at that time, as was the temperature of the water delivered at the shower source.

Our expert established that the regulator valve did not fail, was set appropriately, and the temperature of the water delivered through the shower was compliant with building codes and standards of care at the time of the incident.

Further investigation, including independent review of patient supervision logs, showed that this patient was in the shower, unsupervised, for a period exceeding one hour -- contrary to standards for extended care facilities. Prolonged exposure to water between 115 and 120 degrees has been shown to cause 3rd degree burns, particularly in the elderly. The patient's unreasonably prolonged exposure to near 120-degree water caused his injury. The case settled.

Since the time of this incident, building codes have changed to mandate a water temperature maximum of 115 degrees. Even with prolonged exposure, this lower temperature setting would have prevented this plaintiff's injuries.

Special Locking Devices in Nursing Homes: The Dilemma between Code Compliance and Patient Care.

Owners and operators of skilled care nursing facilities often have to navigate opposing positions: achieving personal safety for Alzheimer's patients and meeting code requirements for means of egress. The result is often delay, legal expense, and the potential hazard of the people under their care.

It's important, therefore, to know what this conflict involves, how it has evolved over time, and how to satisfy the authority having jurisdiction.

Contact Mark E. Williams, AIA, NCARB for his white paper on this subject at (800) 654-4344 or mwilliams@robsonforensic.com.

Featured Experts

JULIUS (JAY) E. NACHOD, III

Industrial and consumer products, seating/wheelchairs

Jay has been an engineer for a variety of industrial and consumer products including health care equipment, furniture, and plumbing components. He developed seating and positioning devices for wheelchairs to enable an occupant to remain seated properly while in the chair, and developed a line of foam and composite wheelchair cushions to help wheelchair users prevent the development of decubitus ulcers (pressure sores).

He's earned four U.S. patents for developing products for companies like Moen, Inc., Invacare Corporation, Haworth, Inc., and General Electric.

Jay is a member of the American Society of Mechanical Engineers.

Louis M. Wetstein, Ph.D., PE

Biomedical engineer, clinical engineer, facilities engineer

Dr. Wetstein's experience combines academic achievement with 20 years of industry experience in a major metropolitan academic medical center in both technical and administrative positions of the Biomedical Engineering, Facilities Engineering and Facilities Operations Departments. Dr. Wetstein has extensive experience in all aspects of medical diagnostic, therapeutic and monitoring equipment; design of healthcare occupancies as they relate to medical equipment and facilities; installation of equipment in a healthcare setting; healthcare facilities utility management and operations including air and water quality issues.

Dr. Wetstein is a Licensed Professional Engineer, a Certified Biomedical Equipment Technician and holds advanced degrees in Bioengineering and Biomedical Engineering.

Mark E. Williams, AIA, NCARB

Construction, specialized care facilities, code compliance, commercial and institutional properties

For twenty-three years, Mark rendered architectural services on a wide variety of project types including nursing homes, medical office buildings, hospital renovations, restaurants, postal facilities, multi-family residential developments, correctional facilities, automobile dealerships, zoological exhibits, and waste-water treatment plants.

This diverse architectural career path also led Mark to investigate special locking devices for Alzheimer's patients in skilled care nursing facilities and testify before the Ohio Board of Building Standards.

Mark is a licensed Architect registered in multiple states throughout the Midwest region including Ohio, Indiana, Kentucky, and Michigan and holds certification by the National Council of Architectural Registration Boards. His memberships and affiliations include the American Institute of Architects, International Code Council, and the American Society for Testing & Materials.