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Spring / Summer 2016 Forensic Consulting, Technology & Animations brought to you by DJS associates

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Grandson Drowns While Grandmother Works at Client's House

Tom Griffiths, Ed.D

Case Synopsis: A grandmother, who worked as a gardener at a residential home, brought her six year old grandson with her to work. The home where she worked had a lovely residential pool.

As was often the case, on this date she was going to take her grandson swimming after she finished her gardening chores. The boy was a non-swimmer, but was anxious to get into the pool and repeatedly asked his grandmother when they were going to swim. In addition to the gardener and her grandson, many teenagers were in the house and around the grounds. While gardening, the grandmother lost track of her grandson. He somehow managed to get into the swimming pool and quickly drown.

Expert Analysis: This was a very preventable tragedy. The homeowners should not have allowed the child to accompany their employee to work, knowing they had a swimming pool and knowing she would be distracted working. Also, if the child was to be allowed to go to the house and pool, he should have been required to wear a life jacket around the pool and a supervisor for the child should have been assigned. Finally, the gates to the swimming pool should have been locked until the boy could have been closely watched in the swimming pool. Many other ***Layers of Protection*** could have also been used to avoid this tragedy.

Result: Case settled

Failure to Diagnose Oral Cancer

Michael E. Pliskin, DDS, Ph.D

Case Synopsis: A 62 year-old Caucasian male noticed a small "sore" on the undersurface of his tongue. His physician referred him to an oral surgeon who biopsied the lesion. The pathological diagnosis was an invasive squamous cell carcinoma. Additionally, the patient also had clinically palpable neck masses which suggested that the cancer had spread from his tongue to the draining lymph nodes. Treatment consisted of surgical removal of half his tongue and a radical neck dissection followed by radiation treatment. The patient had been examined by his general dentist eight months before the discovery of the cancer. Consequently, he filed suit against the general dentist for failing to diagnose the tumor.

Expert Analysis: The cancer at the time of diagnosis was 2.4 cm. at its largest diameter. The question was whether the tumor was of detectable size eight months earlier when he was examined by his general dentist. The scientific literature on the kinetics of tumor growth revealed that squamous cell carcinomas are some of the more rapidly dividing cancer cells, with doubling times ranging from 45-78 days. Utilizing this data, a 2.4 cm. tumor would have been below the detectable size of 0.2 cm. when the patient had been examined by his dentist eight months earlier. The cancer was not clinically detectable when the general dentist examined the patient.

Conclusion: Jury found in favor of the dentist. This study demonstrated how the use of basic science information can be applied to a clinical situation.

Plaintiff's Injuries Not Consistent with Alleged Fall Mechanics

Robert J. Nobilini, Ph.D

Case Synopsis: Plaintiff was walking across a wood, foot-bridge and claimed she tripped at the end of the bridge and fell forward onto her out stretched hands. At the end of the bridge was a step-down to a gravel parking lot. Plaintiff's expert, who examined the bridge some time after the incident, identified a small piece of wood missing from the last plank on the bridge floor. He opined that the missing piece of wood was a trip hazard and caused the plaintiff's fall. Plaintiff incurred fractures of her right distal tibia and fibula. It was further reported she had stones from the parking lot embedded in the soft tissue of her right lateral calf. It was requested that the incident be examined to determine if the plaintiff's injuries were consistent with her alleged fall mechanics.

Expert Analysis: The missing piece of wood on the last plank of the foot-bridge created a small depression. During normal walking gait, trips occur when the trailing foot is prevented from swinging forward to heel strike. This typically occurs when the foot is impeded by an object in the walkway that is raised. The defect identified by the plaintiff's expert was not a trip hazard. The fall mechanics described by the plaintiff were consistent with a trip; however, they were inconsistent with her injuries. Had the plaintiff fallen forward onto the stone parking lot surface, she would have incurred certain injuries to her upper body and/or her hands, but she did not. Furthermore, the plaintiff's injuries to her right lower leg were not consistent with a trip. Had the plaintiff tripped, as she testified, her right foot would have remained on the bridge and her center of mass would have continued to move forward as she fell onto the parking lot surface. Under these circumstances the plaintiff's right leg would have been unloaded and the forces necessary to produce the fractures she incurred to her right lower leg would not have been present. The fractures the plaintiff incurred to her right distal tibia and fibula were consistent with her stepping off the foot-bridge in an awkward manner, such that she could not support her weight. As a result, she rotated about her right leg and fell down onto her lower leg. The stones embedded in the plaintiff's right lateral calf were consistent with the weight of the plaintiff's body forcing the lateral surface of her right lower leg down against the stone parking lot surface when she landed with her right leg bent under her.

Results: Defense Verdict

Who Was the Driver? - Be Careful About Reaching "Obvious" Conclusions

Steven M. Schorr, PE

Case Synopsis: A single-vehicle collision occurred in a rural area. A two-door, open-Jeep-type passenger vehicle left the roadway, traveled over 100 feet into a wooded area, and contacted a tree. When the police arrived, they found the damaged driver's side of the vehicle in contact with the tree, and an occupant inside the vehicle trapped in the damaged driver's compartment area, which was against the tree. While investigating the collision, the police found a second person in the wooded area between where the vehicle left the roadway and where the vehicle came to rest against the tree. Both the occupant inside the vehicle and the person outside the vehicle were deceased. Among the questions asked was: who was the driver?

Engineering Analysis: On the surface, one might think that because there was an occupant trapped in the driver-side compartment of the vehicle, when it came to rest, that the occupant still inside the vehicle was the driver. An analysis applying the laws of physics to the available physical evidence defined how the vehicle moved, from where it left the roadway to where it contacted the tree. Specifically, the laws of physics dictated that as the vehicle left the roadway, it underwent a rather severe clockwise rotation. The analysis of the dynamics established that as the vehicle underwent this rotation, both occupants moved to the left relative to the interior of the vehicle. During this rotation, the occupant operating the vehicle moved into the driver's side door, opening the door allowing him to exit the vehicle, coming to rest in the woods. The now driverless vehicle continued its clockwise rotation and the driver side contacted the tree, closing (and jamming) the door in place. When the vehicle contacted the tree, the remaining occupant in the vehicle (formerly the front seat passenger) was still moving to the left (relative to the interior of the vehicle), ultimately coming to rest in the driver's side compartment, adjacent to the jammed shut, damaged door and tree. The plotting of the physical evidence showed that the point of rest position of the ejected driver was consistent with the path and rotation of the vehicle as defined by the laws of physics.

Conclusion: Although the data may initially appear to show one scenario, until the physical evidence is correlated to the applicable laws of physics, no engineering opinions should be reached.

Truck-Mounted Crane Accident

Tom Cocchiola, PE, CSP

Case Synopsis: A driver delivered a load of concrete blocks with a flatbed truck equipped with a special purpose crane. The driver unloaded the truck at a jobsite and proceeded to return to the supply yard. The crane struck an overpass as the truck travelled on an interstate highway, which caused the boom to separate and strike a car travelling behind the truck.

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Engineering Analysis: The driver must lower the boom onto a storage cradle after delivering a load. When lowered onto the cradle, the overall height of the boom is significantly lower than highway overpasses. The driver believes he lowered the boom before leaving the jobsite and claims it went up accidentally after making the delivery. An analysis demonstrated the driver could not have been correct. The hydraulically powered crane has a pump powered by the engine through a Power Take-off (PTO). The driver has to manually engage/disengage the PTO. If the PTO is engaged while the truck is in motion, it will emit discernible high pitch whining noises and would likely be damaged. The crane also has electrical controls, including a main ON/OFF switch and a separate toggle switch for raising the boom. In order to elevate the boom, a driver must engage the PTO, actuate the main ON/OFF switch, and then continuously actuate another toggle switch on a portable control console. The design of the truck crane requires three sequential, independent actions to raise the boom. The analysis demonstrated that the boom clearly cannot accidentally lift up off the cradle while the truck was in motion. The analysis showed that the driver forgot to lower the boom onto the cradle after delivering the blocks.

Results: The case resolved before trial.

Sauna Gets Too Hot For Clothes

Ronald Panunto, PE, CFEI

Case Synopsis: A fire occurred in the basement of a home. An origin and cause investigation showed that the fire originated in a dry sauna that was located in the basement. The homeowners' insurance company put the electrical contractor, who wired the sauna, on notice. An expert was retained by the electrical contractor's insurance company to determine liability, if any, on the part of the contractor.

Expert Analysis: An examination of the wiring to the sauna, installed by the contractor, was completed. It was determined that it was installed in a neat and workmen like manner, and in accordance with the requirements of the revision of the National Electrical Code (NEC) in effect at the time of the installation. The fire occurred about 3 years after the sauna was installed.

Upon further investigation of the sauna, lighting and ventilation devices were eliminated as origins because they were insufficiently damaged to have caused the fire. Also, the sauna light and fan switches were tested for continuity and found to be in the "OFF" position, meaning that the lights and fan were not even energized at the time of the fire.

Detailed analysis of the badly damaged sauna electric heater showed that the ON/OFF switch suffered an electrical series short circuit that allowed the heater to turn on by itself. The sauna was only being used for closet storage, and there were a lot of clothes piled on top of the sauna heater, which provided a large fuel load.

Result: The fire was caused by failure of the sauna heater's switch, and not by the contractor. The contractor was let out of the case, and the homeowner's insurance company put the sauna heater manufacturer on notice.

Failure by Jerry-Rigging and Repurposing

Johann F. Szautner, PE

Case Synopsis: A Country Club hired an architect to prepare plans for an addition to the clubhouse, including a deck with a round gazebo. During construction, the municipal building inspector noticed that the open sided gazebo floor was 30 inches above the adjacent ground and requested a guard rail in accordance with building code requirements. The architect did not provide it on his plans, because the code actually stipulates that a guard rail was required if the open-sided floor was more than 30 inches above the adjacent ground. The owner, eager to finish construction, instructed the contractor to install an ornamental metal railing and to install seasonal all weather curtains between the gazebo columns, without the architect's involvement. The contractor hired a fabricator to make an iron rail in circular shape to match the gazebo floor. The contractor then gave this job to a subcontractor, but forgot to tell him about the proposed installation of the circular railing. The subcontractor installed straight hanging curtains between the columns, which conflicted with the circular railing. The contract was supposed to be finished within a week, but was running behind schedule. In order to speed up the completion of the precast and to avoid incurring more costs, the railing mounting brackets and their fasteners were exchanged, so that the railing could be temporarily removed for fall, when the all-weather curtains were closed, and rehung in spring, when the curtains were rolled up. New, metal u-shaped brackets, similar to the ones used to support curtain rods were installed. The brackets had two holes for mounting them using two 2-inch deck screws. However, in the course of this litigation, no one wanted to lay claim to the ingenuity of the solution, and the finger pointing testimony did not identify whose idea it was to install removable railings and who provided the new brackets and fasteners. Not long after, the new deck addition was booked for its first party. As the party was in full swing and guests enjoyed congregating in the new gazebo, one guest decided to sit on the railing while enjoying his drink. He tilted his head back to empty his glass and lost his equilibrium. He tried desperately to prevent his backward fall by hooking his feet between the rail spindles, but to no avail, and he took the railing with him as he fell off the gazebo floor, sustaining severe injuries.

Forensic Investigation: Upon investigation, it was determined that one of the u-shaped brackets, involved in the failure, was mounted with only one screw. This resulted in an outward rotation of this u-shaped bracket from the force momentum applied by the sitting person weighing 250 pounds, and by sitting on the railing, he also substantially increased the lever height of his fall momentum. Errors and omissions in design, part application, assembly and construction are typically the underlying causes of a failure, or they initiate a process which leads to failure.

Result: Case settled.

Hotel Assault

R. Britton Colbert, CHA

Case Synopsis: A local fraternity held a party at an independent motor lodge. The owner of the motor lodge intended to redevelop the property. He continued to operate through the anticipated fall closing in order to collect as much cash flow as possible. A fraternity member, who was also a former motor lodge summer employee, suggested holding their party at the hotel, fully aware that no employee or management would be present after 5pm based on an established pattern by the owner. The absence of security, patrolling, adequate lighting, emergency procedures and staffing were also well well-established traits of the owner. The former employee also retained the hotel's master room key. Police, who responded to a noise complaint, estimated that there were approximately 40 people, the majority of who were under the age of 21, at the hotel consuming alcohol and being disruptive. Access to guest rooms was facilitated by use of the master key and provided temporary sanctuary from the police. A 19-year old girl was assaulted and her attacker was convicted. A 21-year old received a misdemeanor charge for providing alcohol, and 10 other attendees received summons for underage drinking.

Expert Analysis: Customary and accepted hotel operating practices and standards of property control, management on duty assignments, patrolling, security, key control and emergency procedures were examined and testified to at trial. Property abandonment by the owner/operator is inexcusable, contradicts all hotel operating standards and placed all the other hotel guests and party attendees in great personal danger.

Result: Jury found for the plaintiff, based on the abandonment of the property coupled with the absence of numerous hotel industry operating practices and standards.

Class Action Spark Plug

R. Scott King, BSME

A recent class action settlement is currently providing compensation to owners of certain Ford vehicles affected by abnormally high costs related to engine spark plug replacement. The action, filed in the United States District Court for the Northeastern District of Ohio Eastern Division was settled in January, 2016. The case resulted from numerous complaints, by owners of certain 2004 through 2008 Ford trucks and SUVs, of unreasonably high costs associated with spark plug replacement. Discovery documents revealed that early in its development of its new 5.4 liter, “three-valve” engine, Ford began experiencing problems with spark plugs breaking upon removal. The breakage resulted in the hex-shaped fitting, used for the removal socket to grasp and unthread the plug from the engine, to separate, leaving the remainder of the plug in the engine. With nothing left to “grasp”, Ford was left to develop its own ad-hoc method of extracting the remaining portion from the engine. Failing that, many technicians were left with no alternative but to disassemble the engine almost entirely. Either way, rather than paying for a simple tune-up, many customers faced unexpected repair bills of hundreds, even thousands of dollars.

Engineering analysis, which included review of thousands of consumer claims, service records, and test data, facilitated the expert opinions related to class certification requirements, typicality, commonality, and numerosity. The analysis also discussed the nature of the defect and provided a starting point for determining the cost differential between normal plug replacement and that resulting from the defect. Surviving a motion for summary judgment, the Class ultimately agreed to the nation-wide settlement, which provides partial reimbursement for full replacement costs exceeding $300.00, or $37.50 per spark plug.

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