



Engineering Sciences Section – 2007

C44 Suspicious Fall of a Young Child From a Height

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After attending this presentation, attendees will learn how simulation experiments and basic principles in physics were applied to understand physical forces involved in the fatal fall of a child from a height.

This presentation will impact the forensic community and/or humanity by showing how throwing experiments based on bags of pork of similar weight to the victim helped re-enact the different forces acting on her body which caused her to fall out from the building and to land at a certain distance from the foot of the building.

On 7 October 2004, at about 4.44 am, a four-year-old girl, Sindee Neo plummeted from an upper storey of a 16-storey apartment block in Singapore. She suffered serious head injuries and died five days later without regaining consciousness. Just before she fell, her parents who had been frantically searching for her heard their daughter's piercing cries from an unknown upper storey. To their horror, they saw the dark figure of Sindee crashing through the sheltered walkway before hitting the concrete flooring 3.43 m from the edge of the building. Thirty-six year old Constance Chee, who was alone with the child just before she plummeted, was charged with kidnapping Sindee Neo from her apartment and causing her death. In the months before the tragedy, the ex-lead air stewardess had a tumultuous affair with Sindee's father. The latter borrowed some US\$30,000 from Constance, which he spent mainly on gambling before avoiding his lover's many calls to return her the sum.

Constance Chee claimed that she entered Neo's house to recover her loan but when she saw Neo sitting on his bed with a cleaver ready to attack her, Constance snatched the sleeping Sindee as a human shield. Constance claimed that she ran with Sindee up several flights of stairs, carried her near the corridor railing and the crying child accidentally fell over the railing.

As there were no eyewitnesses to the incident, the laboratory was approached to provide an expert opinion on the fall. Experiments were carried out using 25-kg bags of meat simulating Sindee's weight to determine the horizontal force required for the child to land 3.43 m from the edge of the building. A woman police officer of the same height and weight as Constance Chee helped in the experiments: tipping the bags over, projecting them out with a light force, and projecting them out with a strong determined force.

The experiments indicated that Sindee did not simply tip over the railing but had been projected out of the building with a light to strong force by an adult person from the sixth or a higher storey. It was explained in court the physics behind a falling body, and the various forces acting on Sindee's body before and during the fall.

A pediatrician testified that Sindee was too heavy a child and her hands were too small to tightly grip the 1.1-metre high railing, and the child could not have projected herself over the railing and out of the building. The defense engaged an expert who critiqued the authors' report, performed Finite Element Analysis (a computer simulation) to refute the experimental results, but did not take issue with the fundamental scientific methodology employing, suggesting instead improvements to some aspects of the experiments. After a sensational trial, the judge found Constance Chee guilty of kidnapping Sindee and causing her death. The defendant was sentenced to 13 years' imprisonment.

Fall, Height, Simulation Experiment