

Powerlouvre™ Window Human Obstruction Risk Assessment Facts

Breezway Technical Bulletin

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Page 1 of 2

Background

Powerlouvre™ Windows by Breezway are popular for use in schools as they provide:

- Superior ventilation for natural cooling and improved indoor air quality,
- Tight sealing against wind, rain and air infiltration,
- Automated operation,
- Motors and connectors are fully concealed and contained within the head of the frame, leaving no exposed rods or actuators which could potentially entrap limbs or fingers.

Concerns may rise regarding the safety of Powerlouvre™ Windows in schools due to the risk of low level windows closing on children's limbs. This Technical Bulletin aims to help specifiers, developers, building managers and building owners to assess these risks, in a similar manner to how they would assess the risks posed by other hinged doors, windows and other products used in the project.

Rods and actuators are fully concealed and contained within the Powerlouvre™ Window frame.



Likelihood

The likelihood of Powerlouvre™ Windows closing on limbs is reduced due to a number of factors:

- Powerlouvre™ Windows take 8-15 seconds to move from a fully open position to a fully closed position. This relatively slow closing allows time for a person to register that the Powerlouvre™ Window is closing.
- Whilst relatively quiet, the Powerlouvre™ Window motor does make some noise which would help to alert those near the window that it is being closed.
- It is visually noticeable that Powerlouvre™ Windows are closing due to the multiple moving blades, this movement would help to alert those near the window that it is being closed.
- If Powerlouvre™ Windows are installed near the ceiling to allow rising hot air to flush out of the building, they are likely to be out of normal reach.
- If Powerlouvre™ Windows are used exclusively for night purging of hot air, children are unlikely to be present when the Powerlouvre™ Windows are operated.
- If fitted, mesh screens will further reduce risks.

Safety Mechanisms

Powerlouvre™ Windows have built in overload protection™ to prevent damage to the motor and other moving parts of the window in the event of a large object preventing the Powerlouvre™ Window blades from closing. The motor circuitry will cut out after slightly more than normal locking pressure is applied to blades that are being prevented from moving. This automatic cut off would also prevent serious injury should closing Powerlouvre™ Windows be obstructed by a child's limb.

Comparisons to Other Common Products

Tests show that Powerlouvre™ Windows generate a maximum force of 50N. 50N of force is approximately the same force that would be exerted by the handles of a plastic bag containing 5kgs of fruit. While this may cause discomfort, it is unlikely to cause an injury requiring first aid.

As a comparison, the powered windows of a popular Australian-made family sedan were also tested and were shown to produce up to 240N of force. Closing times over an equivalent distance were also measured with the Powerlouvre™ Window proving to have a significantly longer closing time than the powered windows of a popular Australian-made family sedan.

The closing forces generated at the hinged side of a door being closed very slowly were also tested and showed that more than 536N of force were produced (The actual force was higher, but the scale maximum was reached at 536N. If a door was closed at a more normal speed or if it was slammed shut the forces generated would be very significantly higher. These forces could result in very serious injuries due to the potential guillotining action that the door jamb and stop can create.

