Electric scooters can restore the quality of life to people with restricted mobility. However, there are still dangers associated with using them with lifts.

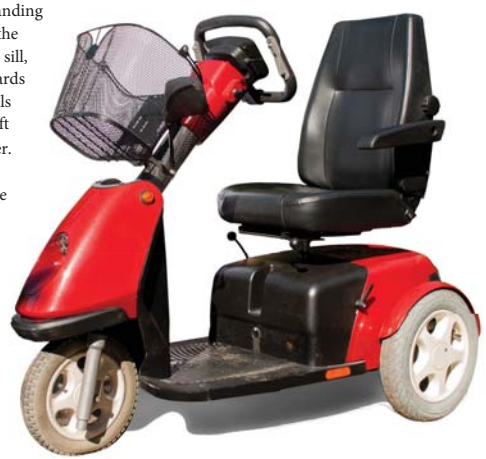
Pictures: Meiller, www.meiller-aufzugueren.de

Safety with MEILLER ScooterGuard®

Effective lift door safety system – for lift users with electric scooters as well as for lift operators

Erika G. (66) has suffered from diabetes for many years. Her eyesight has de-declined considerably as a result of her condition, and two years ago, she had to have her left leg amputated. And yet she has not lost any of her will to live - on the contrary, since her children gave her an electric scooter last Christmas, her quality of life has improved considerably. "She has her independence back. She can visit friends, go shopping or just enjoy being out in the park." That is what the sales brochure says, and indeed, the pensioner is enjoying an independent lifestyle again, thanks to her scooter.
Just like every Tuesday, she has done her shopping and placed her things in the useful shopping basket in front of the handlebars. But today, she doesn't feel so well. She slept poorly and feels weak and a little bit dizzy. So she wants to get home as quickly as possible.

And that is when it happens. She opens the automatic entrance door of her apartment block, drives her scooter towards the lift, and forgetting to brato brake, crashes into the closed panels of the landing door. The enormous force of the impact rips the door out of its sill, leaving them swinging backwards like a cat flap, and Erika G. falls five metres down the empty lift shaft, together with her scooter. The sober police report states that the pensioner survived the fall with very serious injuries and notes that an expert has been called in to deal with the matter. What sounds like a scene from a horror film has actually happened in one way or another on several occasions in recent years.



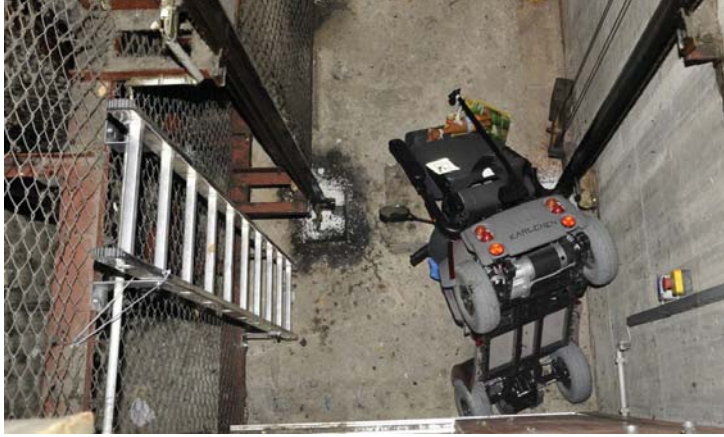
Reports of terrible accidents like this have come from the USA, the UK and The Netherlands, and also from Berlin; one of the accidents was even fatal. And everyone in the lift industry is familiar with the video posted on the Internet, shot by a surveillance camera in a shopping centre in a large Asian city, in which a man on a scooter - quite deliberately and apparently without realising the danger involved - drives his scooter three times against the lift landing door, until it finally gives way- and the man plunges into the lift shaft.

UNDERESTIMATING THE DANGER RESULTS IN A HIGH RISK OF ACCIDENT FOR USERS AND A HIGH RISK OF LIABILITY FOR OPERATORS

As the population ages,the number of people using electric scooters rises. In The Netherlands, 'scootmobiels' are a widespread form of transport that enables seniors citizens to enjoy a high level of self-sufficiency, despite their advanced age. And in modern shopping centres in the United Kingdom (where it is estimated that more than 300,000 people use electric scooters), there are even separate parking areas for older individuals or others with restricted mobility, where shoppers are able to borrow scooters from a nearby hiring centre for the duration of their visit. Many lift operators, who are responsible for the safety of passengers, have not yet undertaken sufficient accident prevention measures, while some have even failed to recognise the problem. But a lack of knowledge is no protection against responsibility. When accidents occur, liability and all consequential costs lie with the lift operator.

MAJOR CHALLENGE FOR LIFT AND COMPONENT MANUFACTURERS

Rising accident numbers (not only with respect to lifts) have therefore led to increasing calls for appropriate suitability tests and user certification. But manufacturers are also being called upon and are responding to the need to improve the safety of their vehicles.
In our case, the focus is principally on reinforcing the cabin walls, and, in particular, the landing and car doors, to enable them to withstand a collision at significant force.
However, to date, no specific requirements have been laid down in common standards. Not even DIN EN 81-71



Several countries have reported terrible accidents involving people crashing scooters into closed lift landing doors and plunging into the shaft.

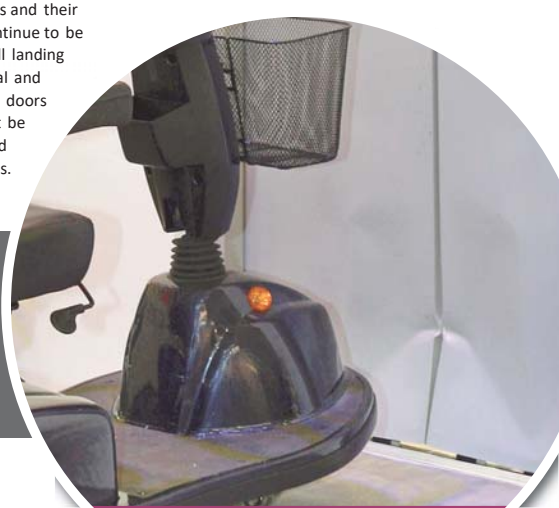
'Protective measures against wilful destruction' can be applied to such cases, because the impact points in the pendulum tests described are considerably higher than the point at which a typical retail electric scooter would collide with a lift door.
In all the investigations conducted in relation to electric scooter accidents that are known about thus far, it was noted again and again that the cause of the accident was not the stability of the doors, since they complied with the legally applicable safety requirements.
The new wordings of the lift standards EN 81-20 and EN 81-50 attempt to place increased emphasis on stability as well as on the test requirements for lift doors and car walls. For newly built lift doors and car panels, the static force of 300 N applied vertically to an area 5 cm^2 has been increased to 1000 N, evenly distributed over an area of 100 cm^2.
Following exposure to these forces, the door components must not display any permanent deformities and their functionality must continue to be ensured. Moreover, all landing doors with sheet metal and glass panels as well as doors with glass panels must be subjected to optimised pendulum impact tests.

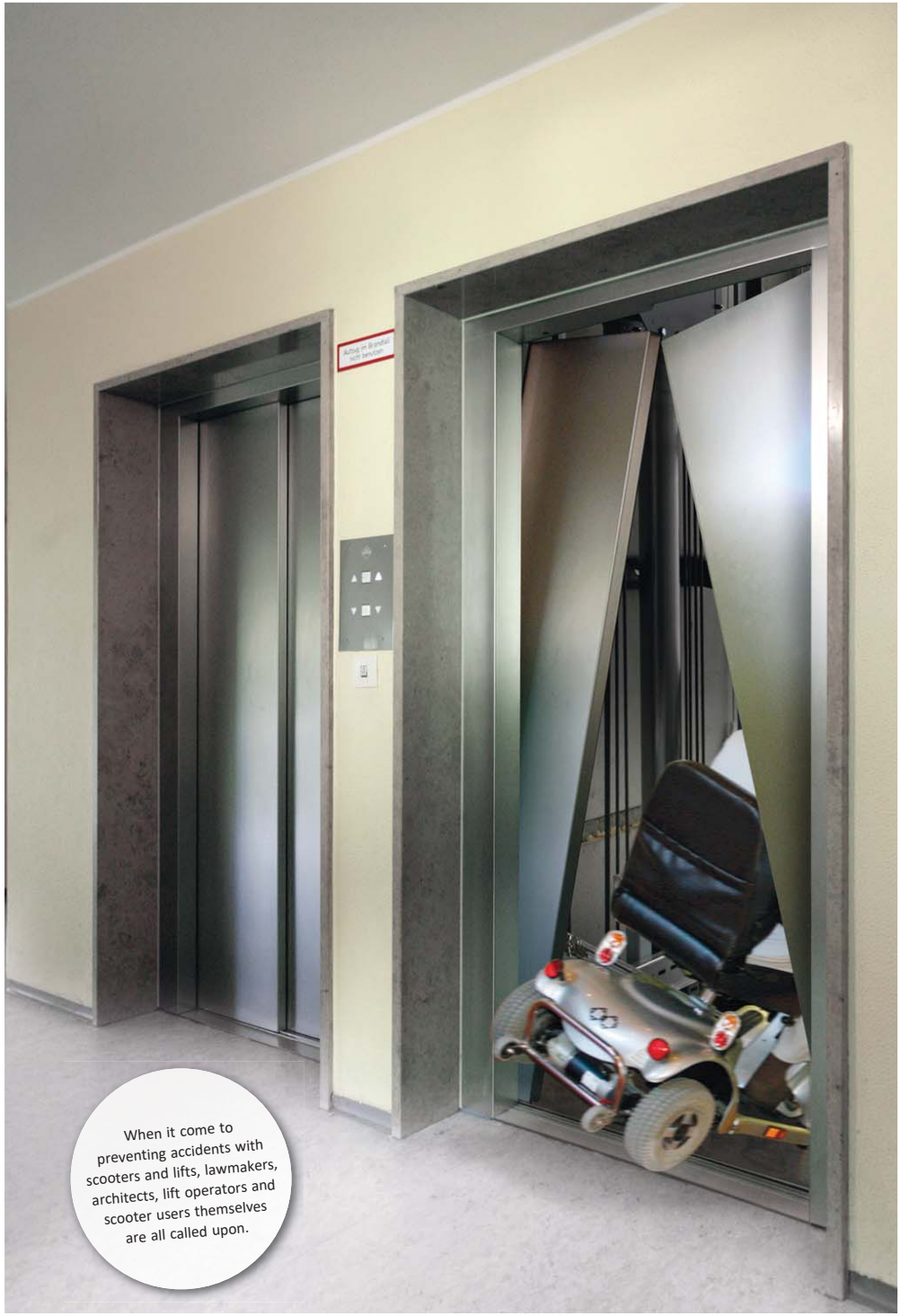
Solving all the problems solely by reinforcing the materials or implementing additional armouring would be of little use. To do so would merely replace one evil with another one, as such measures would significantly increase the weight of the door panels as well as their inertia. In order to be sure that the risk of users becoming trapped and injured by closing doors is not increased, it is necessary to undertake a considerable reduction in the speed at which the door closes.

AT MEILLER, IT IS ALL ABOUT SAFETY

As a manufacturer of high-quality door systems and a specialist in the the production of lift doors, particularly for use in public areas, MEILLER has always dedicated itself to lift component safety. Vandal-proof doors with reinforced components have been in successful operation for many years all over Europe.

In the event of an accident, liability and consequential costs rest solely with the lift operator.



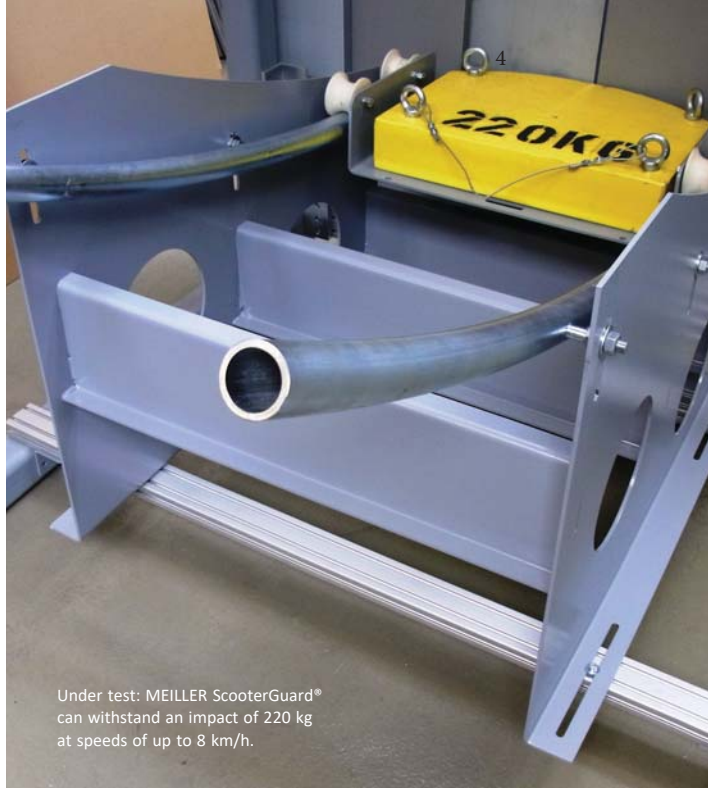


When it come to preventing accidents with scooters and lifts, lawmakers, architects, lift operators and scooter users themselves are all called upon.

In keeping with this, a project was initiated several years ago with the aim of developing ‘scooter-proof’ lift doors that provide effective protection against scooter and rider falling into a lift shaft, potentially fatally.
Following considerable research, an overriding certification for electric scooters was developed in collaboration with the renowned ‘Laboratory for Steel and Light Alloy Construction’ at Munich University of Applied Sciences. A series of complex tests was performed on scooters of all classes and numerous crash tests conducted. This gave rise to the unique ScooterGuard® safety system, which is able to withstand a collision with an electric scooter and driver (220 kg) at speeds of up to 8 km/h. The additional cost of integrating the safety features to the standard sheet metal doors remains at a reasonable level. Upon request by the customer, MEILLER can even supply standard glass doors pursuant to EN 81-20 and 50 with ScooterGuard® at a neutral price, making it an easy decision for clients to choose increased safety.

CONCLUSION

Of course, this alone will not be able to prevent every future accident. Indeed, lawmakers and official bodies should make it their task to amend the existing building regulations accordingly. Architects and planners should consider measures during a building’s conceptual phase, whereby an electric scooter can only approach a lift door at low speed or only from the side, or that the call button is positioned at a sufficiently large distance from the landing door.
Ultimately, lift operators, building owners, and in particular scooter users require intensive training and instruction in the possible risks and dangers associated with using a lift in conjunction with a scooter. So let us all work together to ensure that such terrible accidents do not happen again.



Under test: MEILLER ScooterGuard® can withstand an impact of 220 kg at speeds of up to 8 km/h.

Electric scooter users as well as lift operators and building owners need to be informed of possible dangers