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21 + 22 September 2022

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Hintergrundinterview

Escalators in trade show operation: "Hands on" – passenger safety starts on the handrail

Frankfurt am Main, July 2022. We know this when we use the escalators and moving walkways in public buildings to change floors or to cover long distances: The handrail just walks along with you. Relief for the travellers. Support for the unsecured and the inexperienced? ... Wrong: that's what Olaf Kühn, Head of Facility Management at Messe Frankfurt, says.

We meet the head of building services and facility management at the Frankfurt exhibition grounds on the sidelines of retrofit work on escalator handrails in the Congress Center of the Frankfurt trade show organiser.

Slim, black, steady... so the escalator handrail is not just a "fellow traveller"?

Olaf Kühn: Yes, definitely: the handrail is even usually a "precursor", and it is always an integral part of escalators and moving walkways and thus also of DIN EN 115. The EU standard defines the safety rules for the design and installation of escalators and moving walkways.

And as far as the speed gap between handrail and steps is concerned: this is granted to the handrail, because, as defined in the Euronorm, handrails of escalators and moving walkways must have the same running speed as the associated but separately driven steps or belts. However, a lead of the handrails compared to the running speed of the steps or belts is permissible by up to two percent. This is to ensure passenger safety. And this has priority: the handrail should never have a lower speed than the steps – this might lead to dangerous accidents of users on steps and belts.

That is probably important for people who are inexperienced or unconfident passengers?

Olaf Kühn: Not at all. The use of escalators and moving walkways is mandatory, and I am now deducing this somewhat prosaically from the general regulations: ***Put your hand on it, because safety starts from the handrail!***

Unexpected interruptions in the journey can always occur, and the abrupt braking effect can throw even the most experienced passenger off balance. If you don't have the support of the handrail, you can seriously injure yourself and other passengers. This is why large pieces of luggage, trolleys, wheelchairs and prams are generally better off in elevators.

In addition, there is a wide range of differences in maximum speeds, depending on a variety of factors, such as conveyor and safety regulations or cultural habits. You will

notice, for example, that escalators in metropolises and in railway stations or airports with very high passenger volumes travel at a higher speed. The escalators in the metro stations of Eastern Europe have legendary record-breaking dimensions: those in Prague are said to be the fastest – at 0.9 m/sec. Our moving walkways and escalators on the Frankfurt exhibition grounds travel at an average of a comfortable, yet time-saving 0.5 m/sec. After all, they connect 12 large exhibition halls on a total area of 592,000 square metres.



Hand on rail: Olaf Kühl, Head of Facility Management with Messe Frankfurt.
Source: Messe Frankfurt GmbH

That sounds like a considerable conveyor system...

Olaf Kühl: That is indeed well worth mentioning, both in comparison to international airports and other exhibition grounds around the world. What's more, we make this exhibition area, which is equivalent to more than 80 soccer fields, accessible with a total of 317 escalators and moving walkways as well as 184 elevator – and this for around two million visitors a year.

Safety is very important there...

Olaf Kühl: Yes. The safety of our guests comes first. But this claim has many facets. Above all, these include reliability, quality, energy efficiency and sustainability – of the products as well as of operation and maintenance. We consider this, as well as our building stock and infrastructure as a whole, in its technical and architectural lifecycle. And the life cycle of an escalator system can span several decades.

Which brings us to the important aspect of sustainability...

Olaf Kühl: Yes. Four aspects contribute to sustainability here. And these are unimaginable without good cooperation and strong partners on both the product and maintenance sides:

First, there is the high-quality substance and technology: we operate escalators that consume less energy simply because of their lighter material. Another performance feature is the energy-saving operation of systems that only start up when in use (stop-and-go operation) or accelerate from slow speed mode to full operating speed (nominal speed) when in use. These sensor-controlled stand-by speed operation systems help save energy and also contribute to the overall longevity of the facilities.

Second element is continuous maintenance and further development: here, too, we can rely on the industry's manufacturing and maintenance companies – these include the large global corporations of the elevator and escalator industry as well as traditional medium-sized companies and young start-ups.

The third pillar of sustainability is the share of regeneratively produced energy in Messe Frankfurt's carbon footprint: we currently operate three solar plants on our exhibition halls that produce more than two gigawatt hours (GWh) of solar power annually. And the exhibition grounds are supplied with 100 per cent eco-electricity. This saves about 19,000 tonnes of carbon dioxide (CO₂) every year.

All these are, in principle, effects of the core aspect of competence. Our staff in construction and facility management is the trump card of sustainability at Messe Frankfurt. Here, 44 experts from all building services and construction trades are responsible for the planning, development and operation of our facilities on the exhibition grounds. They also managed our latest test application. And this completes the circle, On the handrail and its importance for passenger safety.

Even safer?

Olaf Kühl: Yes, we are constantly optimising our systems with our partners from the industry. The safe use of escalators, which requires passengers to hold on to the handrail, is often opposed by reservations: For many passengers, the hygiene of the surfaces and their own sense of hygiene are paramount. For this reason, we have been using an innovation for the new start of many events at the Congress Center since spring 2022 – the automatic surface disinfection of the handrails of our escalators with UV-C light.

Our preference was the high-quality solution of a still young company from Germany that specialises in hygiene solutions in public spaces and has already implemented successful projects at home and abroad: UVIS UV-Innovative Solutions offers a physical method that consumes a limited amount of energy but, in contrast to mechanical-chemical concepts, does not require any further resources. The Escalite modules of UVIS UV-Innovative Solutions permanently disinfect the handrails on the basis of ultraviolet UV-C light. The installation at the exhibition centre is a novelty for both sides - this is the first time at a large event location. We are looking forward to the response! Personally, I would say: with germ-free surfaces, I take hold of the handrail again much more instinctively and, yes, more securely.

Thank you for the interview, Mr. Kühl!

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Please see our graphic chart „fact check E2“ as well as additional pictures and texts at www.e2forum.com/press

Links to websites and further reading:

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Background information on Messe Frankfurt

The Messe Frankfurt Group is one of the world's leading trade fair, congress and event organisers with their own exhibition grounds. With a workforce of 2,200 people at its headquarters in Frankfurt am Main and in 28 subsidiaries, it organises events around the world. As in the previous year, annual sales for 2021 were significantly lower owing to the COVID-19 pandemic: approximately €154 million compared with Group sales as high as €736 million in pre-pandemic 2019. We serve our customers' business interests efficiently within the framework of our Fairs & Events, Locations and Services business fields. Sustainable business practices are a central pillar in our corporate strategy and strike a healthy balance between ecological and economic interests, social responsibility and diversity. Another of Messe Frankfurt's strengths is its powerful and closely knit global sales network, which covers around 180 countries in all regions of the world. Our comprehensive range of services – both onsite and online – ensures that customers worldwide enjoy consistently high quality and flexibility when planning, organising and running their events. We are using our digital expertise to develop new business models. The wide range of services includes renting exhibition grounds, trade fair construction and marketing, personnel and food services.

With its headquarters in Frankfurt am Main, the company is owned by the City of Frankfurt (60 percent) and the State of Hesse (40 percent).

For more information, please visit our website at: www.messefrankfurt.com