Safety of Existing Escalators

ELA Conference

April 10th, 2014

Dr. Gero Gschwendtner
Introduction

➢ In 2008 the escalator code EN115-1 (Safety of escalators and moving walks - Part 1: Construction and installation) was revised in order to increase the safety for both users and maintenance workers and to reduce the hazards, based on plenty of detailed risk analysis.

➢ This safety enhancements shall be implemented into already installed escalators and moving walks, too. EN115-2 (Safety Norm for Existing Escalators and Moving Walks - SNEE), which is effective since 2010, has the principle intention to align existing escalators and moving walks with the state of the art safety requirements.
Introduction

The following presentation gives an overview of accidents and highlights measures which shall be implemented according to the SNEE requirements to increase the level of safety according to new technologies and social expectations within the development of codes.
Statistics

Accidents on escalators and moving walks between 2008 and 2012:

The increasing number of accidents in 2012 was the result of a new accident report collection system.
Statistics

Categories of user accidents between 2008 and 2012:

- Slipping on steps/pallets/belt/landings: 32%
- Entrapment between skirting and steps: 8%
- Falling from landing: 8%
- Entrapment between combs and steps/pallets/belt: 7%
- Entrapment between steps or pallets: 5%
- Climbing the balustrade: 3%
- Entrapment at handrail entry points: 3%
- Improper use of shopping cart: 2%
- Crushing fingers between handrail and balustrade: 2%
- Falling due to improper stopping distance: 2%
- Others: 2%
Statistics

Categories of worker accidents between 2008 and 2012:

- Insufficient space in working area: 29%
- Inadequate lighting: 5%
- Heavy parts of escalator: 5%
- No emergency stop: 3%
- Manual handling: 3%
- Slip, trip and fall: 3%
- Using tools: 3%
- Others: 3%
- Others: 3%
- Others: 3%
Slipping on steps/pallets/belt/landings: 32%

Hazard
Surfaces do not provide secure foothold

SNEE Measure
Provide secure foothold on tread surfaces and landing areas
Entrapment between skirting and step: 8%

Hazard
Gap between step and skirting

SNEE Measure
Install skirt defectors
Falling from landing: 8%

Hazard
Contact with outer edge of the handrail

SNEE Measure
Increase the height of building structure
Entrapment between comb and step/pallet/belt: 7%

**Hazard**
Insufficient meshing between the combs and the tread of steps

**SNEE Measure**
Provide an electrical contact to stop the escalator
Entrapment between steps or pallets: 5%

Hazard
Risk of getting trapped due to excessive gaps between steps

SNEE Measure
Reduce gap
Climbing the balustrade: 3%

Hazard
Climbing outside the balustrade

SNEE Measure
Provide anti climbing devices on outer deckings
Entrapment at handrail entry points: 3%

Hazard
Getting trapped by the handrail at the handrail entry area

SNEE Measure
Install adequate guards and electrical safety devices
Improper use of shopping carts: 2%

Hazard
Unsuitable carts available in the vicinity

SNEE Measure
Provide barriers to prevent access
Insufficient space in working area: 29%

Hazard
Maintenance work close to moving parts

SNEE Measure
Provide a device to detect persons approaching the hazardous area
Inadequate lighting: 5%

Hazard
Unsafe working conditions due to improper lighting

SNEE Measure
Provide lights with adequate light intensity
No emergency stop switch: 3%

Hazard
Working in the drive or return station

SNEE Measure
Provide emergency stop switches
Others: e.g. Electric shock

**Hazard**
Insufficient insulation causes contact with live current

**SNEE Measure**
Provide protection against electric shock
Summary

The investigation of several accidents which have been occurred in the past has resulted in many efforts to prevent them. It is important to raise the awareness of all responsible involved to ensure that future incidents and harm can be prevented.