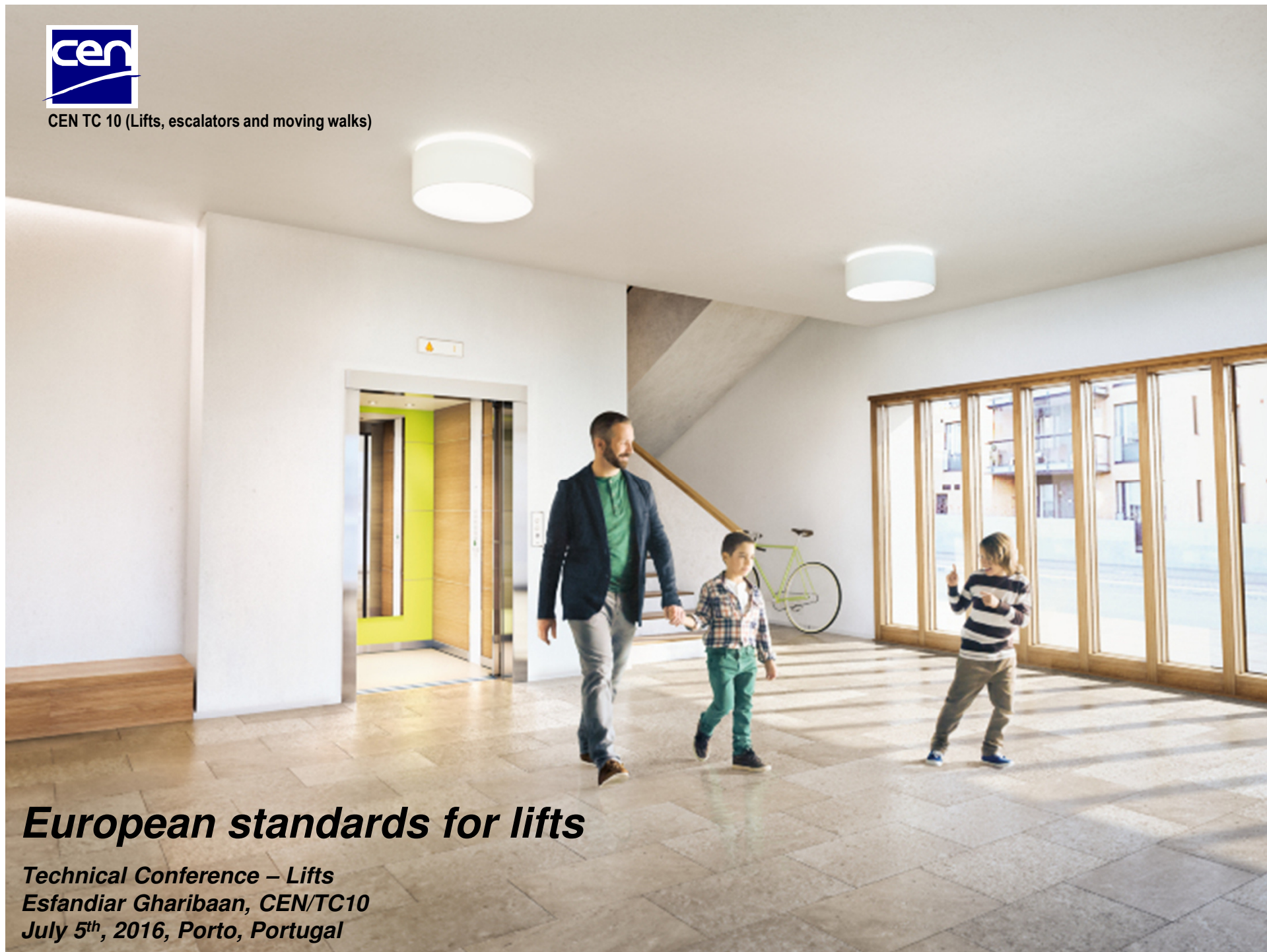




CEN TC 10 (Lifts, escalators and moving walks)



European standards for lifts

***Technical Conference – Lifts
Esfandiar Gharibaan, CEN/TC10
July 5th, 2016, Porto, Portugal***



CEN TC 10 (Lifts, escalators and moving walks)



*European Committee for Standardization
(CEN)*

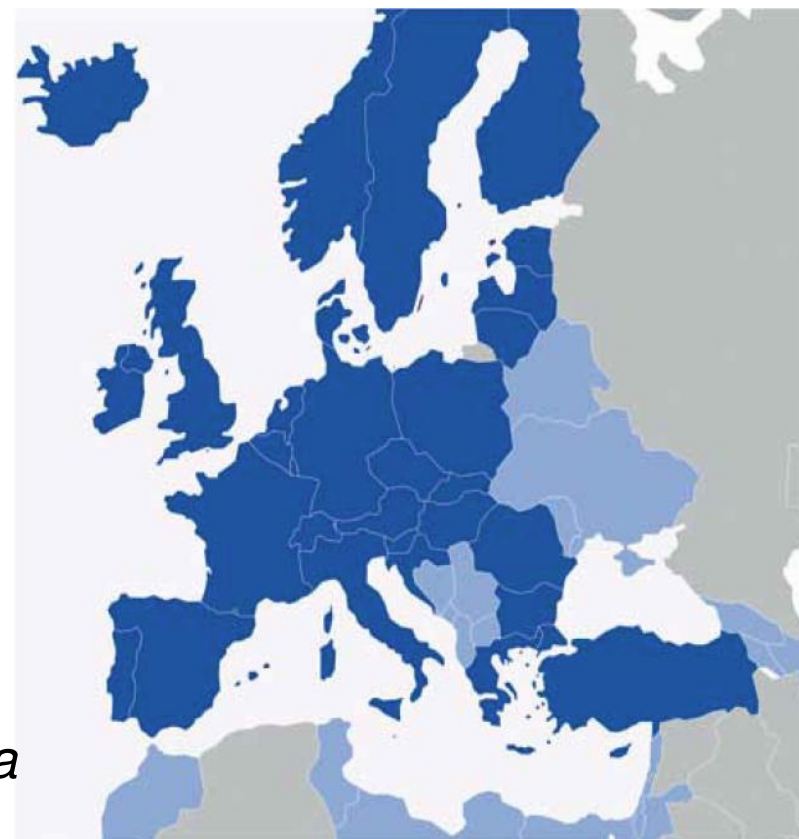


European Committee for Standardization (CEN)

Current status (2016)

CEN TC 10 (Lifts, escalators and moving walks)

- 33 members
- 17 affiliates
- 3 Partner Standardization Bodies
 - Australia, Kazakhstan, Mongolia
 - Open to all ISO members
- Cooperation agreement with
 - China, Russia, Japan, Korea and Canada
- CEN standards are used in many countries around the world
- Nearly 16,000 publications



- *Established in 1971*
- *CEN/TC 10 priorities*
 - *Safety*
 - *Accessibility*
 - *Environment*
 - *Contribute to the harmonization technical requirements*
- *Publications : 40*
- *Standards under development:4*
- *Many of TC 10 standards used outside Europe, e.g.*
 - *EN 81-1/-2 for lifts*
 - *EN 115-1 for escalators*

Fundado em 1971

Prioridades

- *Segurança*
- *Acessibilidade*
- *Ambiente*
- *Harmonização*





CEN TC 10 (Lifts, escalators and moving walks)



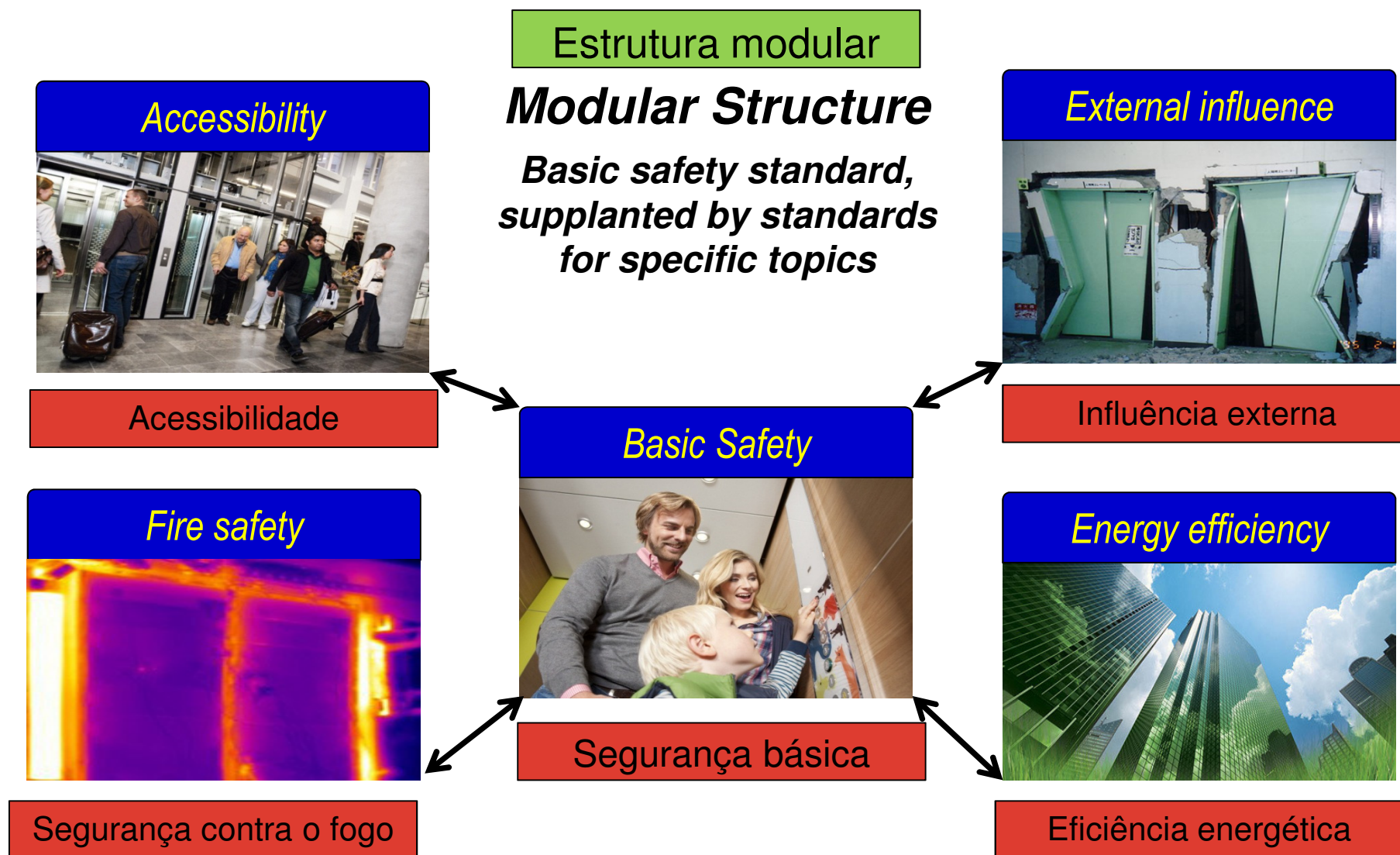
CEN/TC 10 work program



CEN/TC 10 work program

EN standards for lifts, main structure

CEN TC 10 (Lifts, escalators and moving walks)

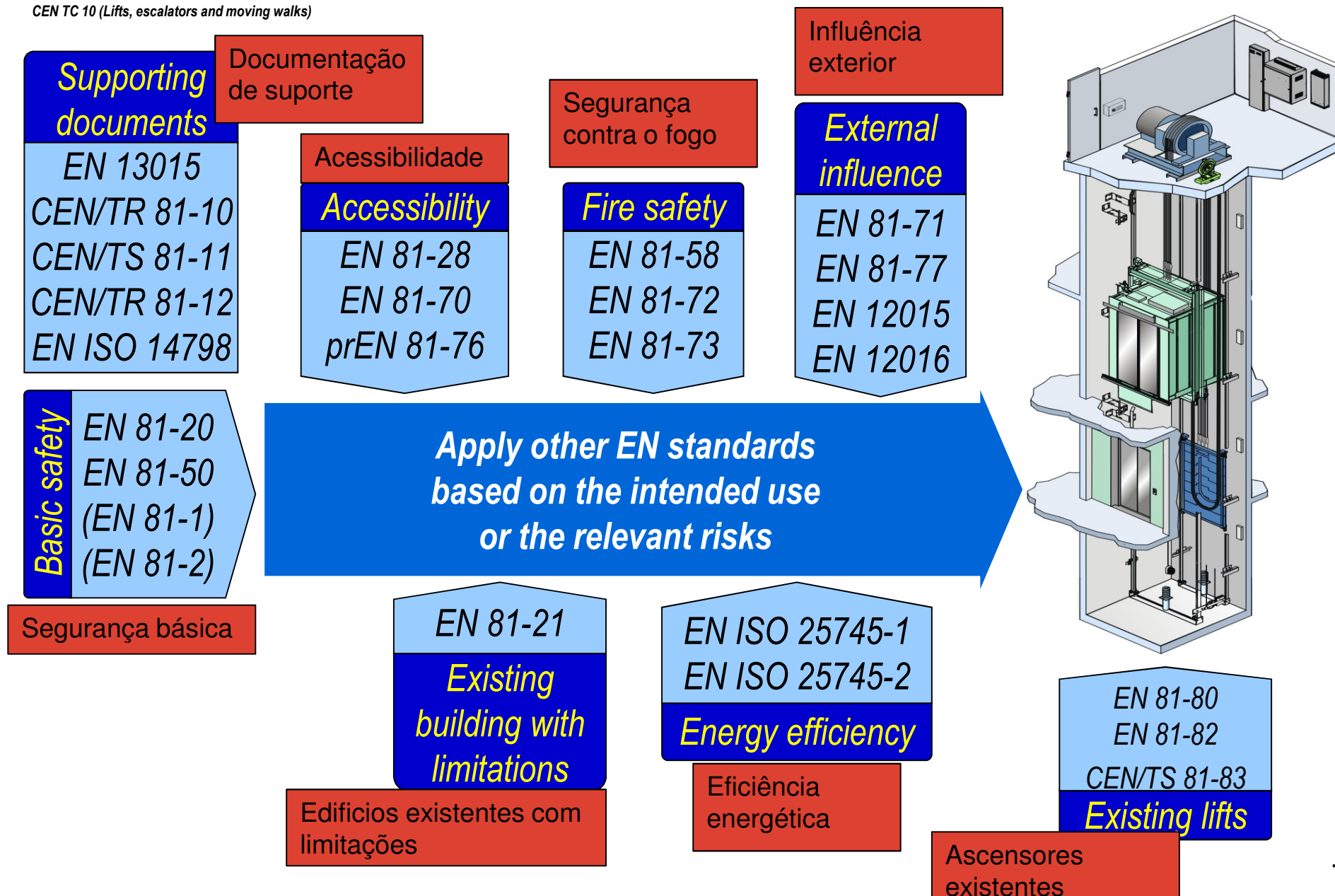




CEN/TC 10 work program

Application of EN standards for design and construction of a lift

CEN TC 10 (Lifts, escalators and moving walks)

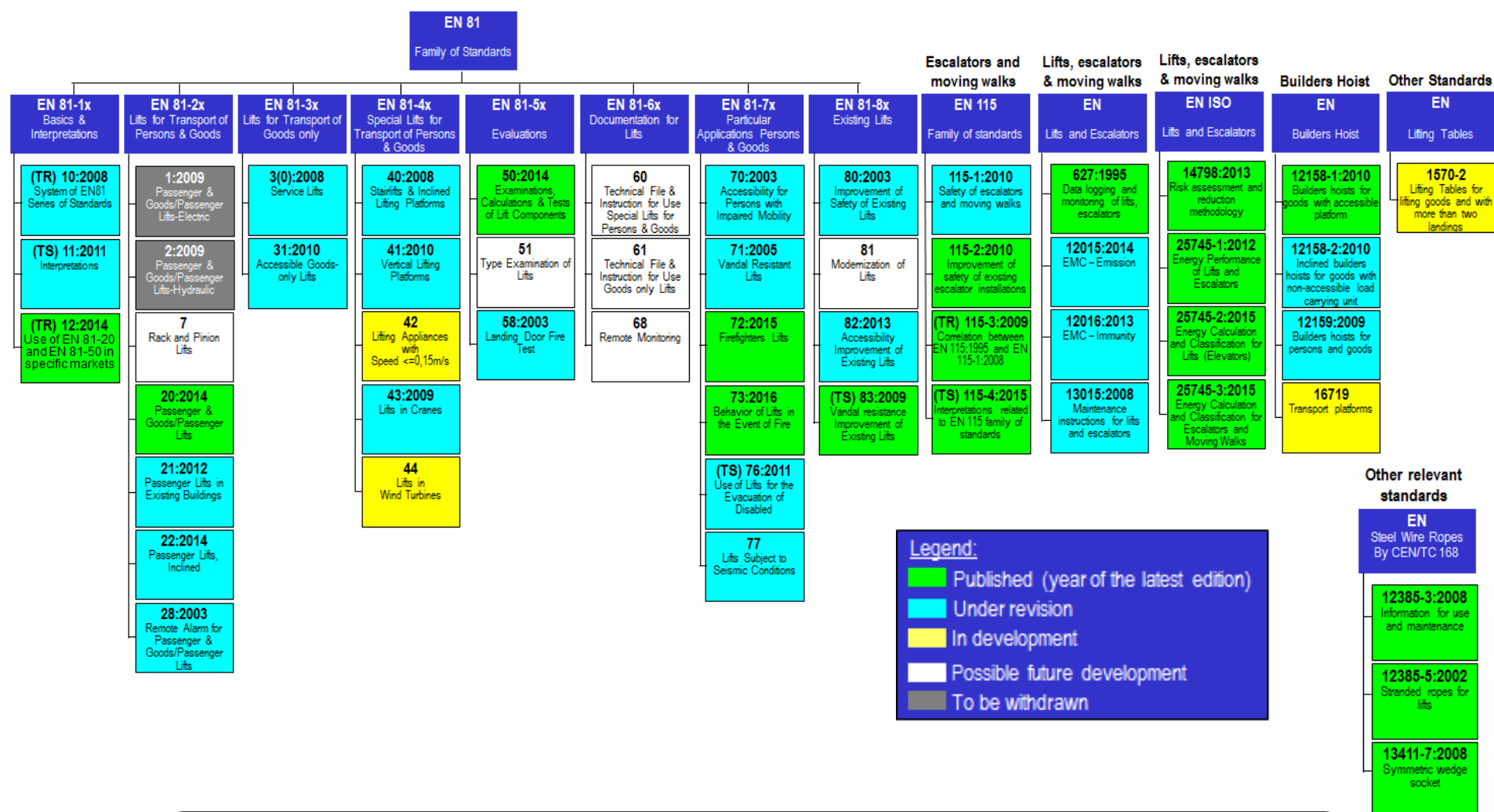




CEN/TC 10 work program

Complete overview

CEN TC 10 (Lifts, escalators and moving walks)



Total of 44 standards, 40 published and 4 under development



CEN TC 10 (Lifts, escalators and moving walks)



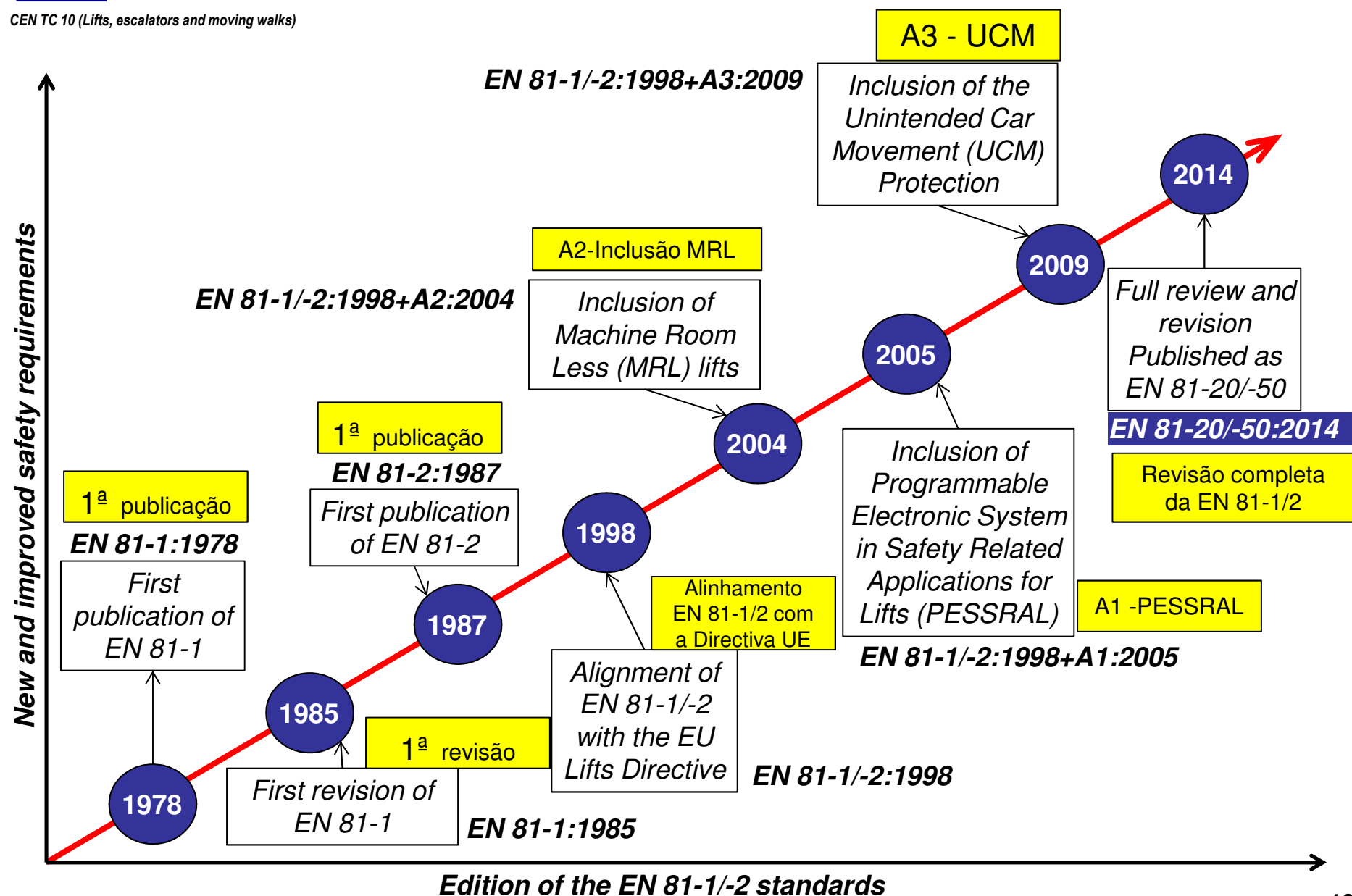
EN 81-20/-50



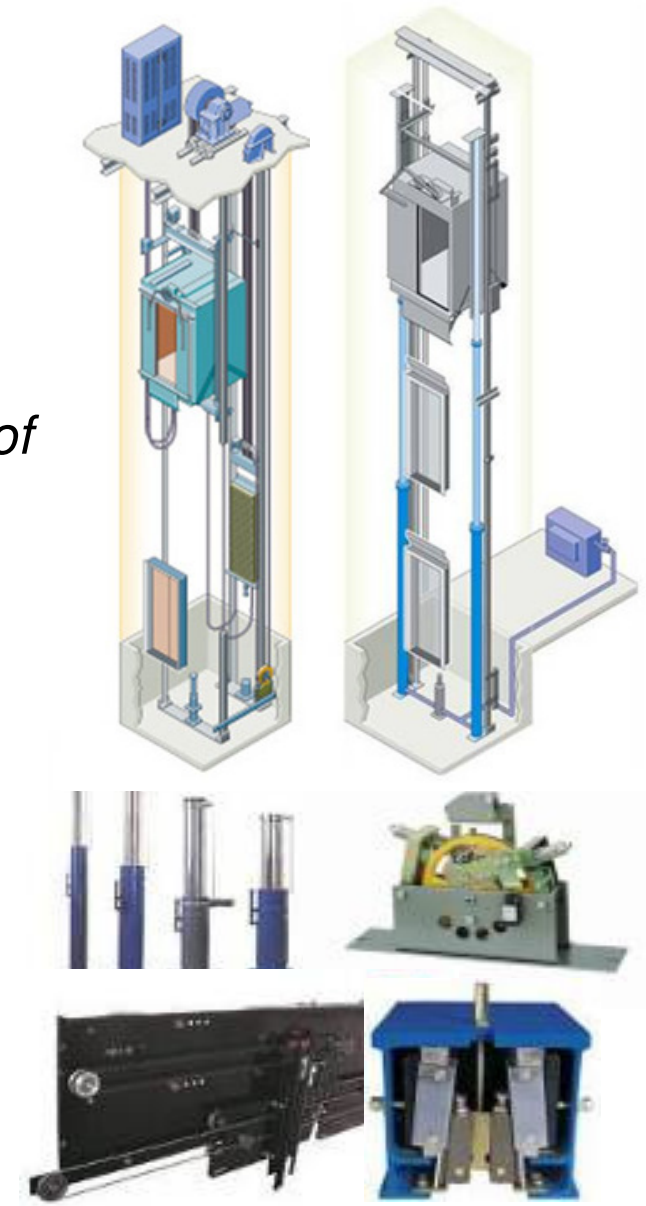
EN 81-20/-50

Evolution of EN 81-1/-2

CEN TC 10 (Lifts, escalators and moving walks)



- *Result of revision of EN 81-1 and EN 81-2*
Resulta da revisao da EN 81-1 e EN 81-2
- **EN 81-20:** Requirements for complete passenger or goods passenger lift installations independent of the driving system
- **EN 81-50:** Description of the examinations, calculations and tests of lift components used in any type of lift (passenger, goods passenger, goods only lift, etc.)
- *Introduces many changes and improvements (>700 items)*





EN 81-20/-50

Examples of safety improvement for passengers

CEN TC 10 (Lifts, escalators and moving walks)

- *Requirements for strength of landing and car doors*
 - *Addition of door retainers*
 - *To withstand an impact force of 1000N at any point*
 - *To be tested with a soft pendulum shock device*
- Requisitos para a resistencia de portas
 - Adição de elementos de retenção
 - Preparadas para 1000N em qualquer ponto
 - Submetidas a teste de pendulo (todas)
- *Preventing car doors striking the passengers when entering or leaving the lift car*
 - *Non-contact detection device to open the door before striking the passenger*
- Prevenção contra entalamento
 - Dispositivo de detecao sem contacto fisico (barreira)





EN 81-20/-50

Examples of safety improvement for passengers

CEN TC 10 (Lifts, escalators and moving walks)

- *Requirements for strength of car walls*
 - *Withstand 1000N, without permanent deformation*
- Requisitos para a resistencia de painéis de cabina
 - 1000N sem deformação permanente
- *Level for car lighting*
 - *100 lux (instead of 50 lux)*
- Nível de iluminação da cabina : 100 lux (em vez de 50 lux)
- *Prevision against possible fall into the lift well due to self-rescue*
 - *Adding car door opening restrictor*
 - *Not to be able to open the car door from inside the car when the car is outside the unlocking zone*
- Proteção à queda na caixa (auto resgate)
 - Restrição à abertura de porta (adicionado)
 - C/ cabina fora da zona de desencravamento a porta de cabina não abre.



- *Requirements for over-connecting the car or landing door contacts during the maintenance operation*
 - *Audible signal on the car during the operation*
 - *Lift may put into normal service only when the over-connecting is disabled*
- Requisitos para “shuntar” os contactos da porta de piso **ou** cabina, em manutenção
 - Sinal audível durante a operação
 - O elevador só reentra em normal uma vez removido o “Shunt”
- *Requirements for rescue of trapped persons*
 - *Rescue crew to be able to move the car in all conditions*
- Requisitos para resgate de pessoas encarceradas
 - Equipamento de resgate capaz de mover a cabina em todas as condições



- *Requirements for refuge spaces on the car roof and in the pit*

- *Larger safety refuge volumes*
- *Safety refuge volume per person present on the car roof and in the pit*
- *Emergency light on the car roof*

- Requisitos para espaços de refúgio no tecto da cabina e no poço
 - Maiores volumes de refugio (1 por cada pessoa no teto ou poço)
 - Iluminação de emergência no tecto da cabina

- *Requirements for balustrades on the car roof*

- *For balustrade of 1100 mm, distance between the lift and the well reduced from 850mm to 500mm*
- *Strength of the balustrade is defined*

- Balaustradas
 - 1100 mm (>500mm em vez de 850 mm)
 - Definida a resistência da balaustrada



- *Requirements to prevent risk of trapping on the car roof and in the pit*
 - *To open the landing door from the pit*
 - *To leave the car roof when the car is blocked for maintenance*

- Requisitos para prevenção do risco de encarceramento no teto da cabina ou poço
 - Abertura da porta de piso a partir do poço
 - Poder sair do teto da cabina se esta está bloqueada para manutenção

- *Specific requirements for the size and location of landing door unlocking device*
 - *No need to stand on the toes or stool to open the landing door*

- Requisitos específicos para o tipo e localização do dispositivo de desencravamento da porta de piso
 - Não é necessário colocar-se em bicos de pés ou de um banco para abrir a porta de piso

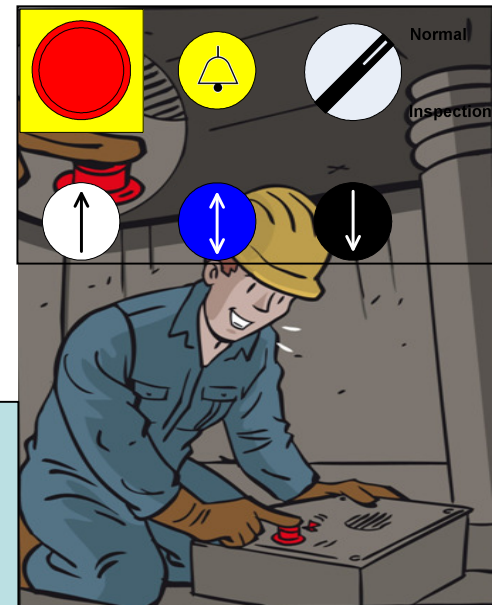
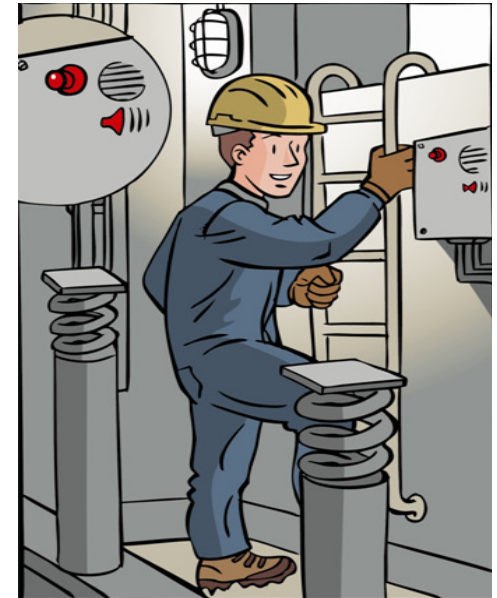


- *Requirements for access to pit and machine rooms, e.g. ladders*
 - *Dimensions, strength and location have been defined*

- Requisitos para acesso ao poço e casa de máquinas (p.e. escadas)
 - As dimensões, resistência e localização foram definidas

- *Control station in the pit to avoid using ladders and stools to reach car components*
 - *Moving the car under the control of the person in the pit*
 - *Reset the lift from outside the well*

- Estação de controlo no poço (evitar o uso de escadas para chegara a componentes na cabina)
 - Mover a cabina sob controlo da pessoa no poço
 - Reset do ascensor no exterior da caixa

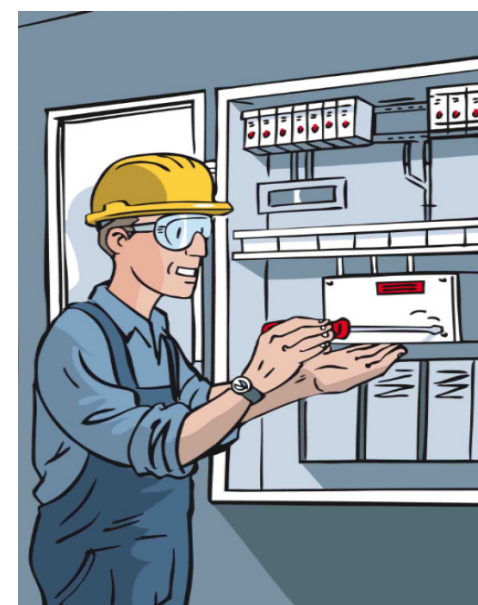


- *Accurate definitions for lighting in the well*
 - *Addition of the emergency lighting (5Lux)*

- Melhor definição da iluminação da caixa
 - Adicionada a iluminação de emergência no tecto da cabina (5 lux)

- *Protection against electrical shock*
 - *Additional 30mA RCD for socket outlets, control circuits for landing controls and indicators (voltage > 50 V AC) and circuits on the lift car (voltage > 50 V AC)*

- Proteção contra choques eléctricos
 - Proteção diferencial adicional de 30 mA para tomadas, circuitos de controlo de piso e indicadores de posição (V>50 V AC) e circuitos na cabina (V>50 V AC)



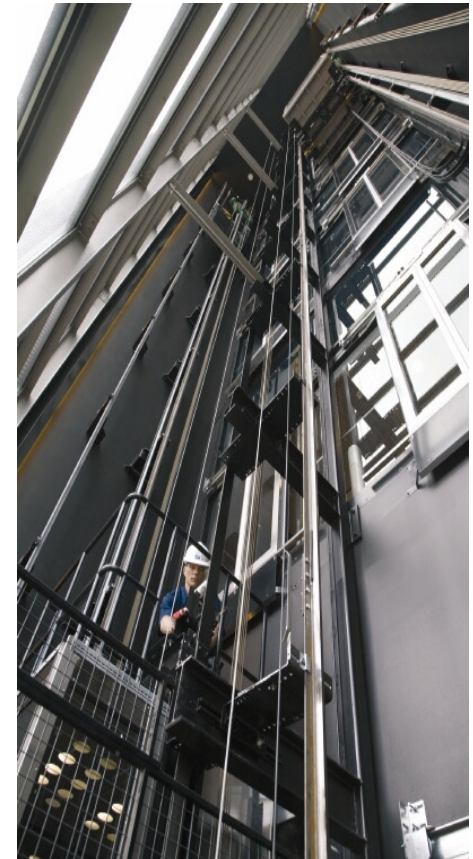


EN 81-20/-50

Examples of changes to the building interfaces

CEN TC 10 (Lifts, escalators and moving walks)

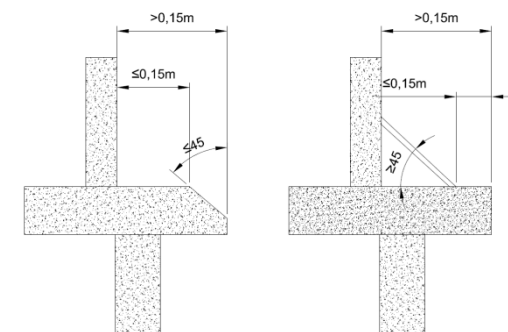
- *Well Ventilation*
 - *It is the responsibility of the building designer, based on the information provided by the lift designer*
- Ventilação da caixa
 - Responsabilidade do projetista/construtor com informação fornecida pelo instalador
- *Accessible space under the pit*
 - *Safety gear in te counterweight must be provided*
- Acesso sob o poço
 - Pára-quedas no contrapeso (não pilar)



- *Well design*
 - *It is no longer allowed to use ladders to access pits with depth >2500mm*
 - *If glass is used, it must be laminated glass*
 - *Ledges with depth $\geq 0,15m$ to be chamfered or protected from person standing*



- Construção da caixa
 - Para poços com profundidade >2500 mm não é permitido o acesso por escada (no poço)
 - Quando se utilize vidro na construção da caixa, este deve ser laminado
 - As reentrâncias $\geq 0,15$ m devem ser chanfradas ou protegidas para que não possam ser utilizadas por pessoas



Publicação

- **Date of publication: 6th August 2014**
 - Made available by CEN on 6th Aug. 2014
 - Harmonised (Lifts Directive) on 12th Dec. 2014
 - EN 81-1/-2 remain harmonised until their date of withdrawal (DOW)

Data de retirada

- **Date of withdrawal: 31st August 2017**
 - EN 81-1/-2 will no longer be harmonised
 - Only EN 81-20/-50 will remain harmonised

EUROPEAN STANDARD
 NORME EUROPÉENNE
 EUROPÄISCHE NORM

EN 81-20

August 2014

ICS 91.140.90

Supersedes EN 81-1:1998+A3:2009, EN 81-2:1998+A3:2009

English Version

Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods - Part 20: Passenger and goods passenger lifts

Règles de sécurité pour la construction et l'installation des ascenseurs - Élévateurs pour le transport de personnes et d'objets - Partie 20: Ascenseurs et ascenseurs de charge

Sicherheitsregeln für die Konstruktion und den Einbau von Aufzügen - Aufzüge für den Personen- und Gütertransport - Teil 20: Personen- und Lastenaufzüge

This European Standard was approved by CEN on 28 May 2014.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
 COMITÉ EUROPÉEN DE NORMALISATION
 EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels



CEN/TC 10 work program

Alignment of other standards to EN 81-20/-50

CEN TC 10 (Lifts, escalators and moving walks)

Normas revistas ou em revisão

Standards revised or under revision

Nr.	Affected Standard
1	EN 81-3
2	TR 81-10
3	TS 81-11
4	EN 81-21
5	EN 81-22
6	EN 81-28
7	EN 81-31
8	EN 81-40

Nr.	Affected Standard
9	EN 81-41
10	EN 81-43
11	EN 81-58
12	EN 81-70
13	EN 81-71
14	EN 81-72*
15	EN 81-73**
16	TS 81-76

Nr.	Affected Standard
17	EN 81-77
18	EN 81-80
19	EN 81-82
20	TS 81-83
21	EN 13015
22	EN 12015
23	EN 12016

Data comum de retirada (DOW) : 31 Agosto 2018

With a common Date of Withdrawal (DOW) as 31st August 2018

- ***Already published with DOW as 31st August 2017***

Já publicada : DOW 31 Agosto 2017

- ** ***Already published with DOW as 31st August 2018***

Já publicada : DOW 31 Agosto 2018



CEN TC 10 (Lifts, escalators and moving walks)



Additional Information

Detailed overview of CEN/TC 10 work program



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
EN 81-1:1998 +A3:2009	Safety rules for the construction and installation of lifts - Part 1: Electric lifts	<i>To be withdrawn</i>	2014/33/EU (Lifts)
EN 81-2:1998 +A3:2009	Safety rules for the construction and installation of lifts - Part 2: Hydraulic lifts	<i>To be withdrawn</i>	2014/33/EU (Lifts)
EN 81-3: 2000 +A1:2008	Safety rules for the construction and installation of lifts - Part 3: Electric and hydraulic service lifts	<i>Under Revision</i>	2006/42/EC (Machinery)
CEN TR 81-10:2008	Safety rules for the construction and installation of lifts - Basics and interpretations - Part 10: System of the EN 81 series of standards	<i>Under Revision</i>	Not Applicable
CEN TS 81-11:2011	Safety rules for the construction and installation of lifts - Basics and interpretations - Part 11: Interpretations related to EN 81 family of standards (Interpretations on EN 81-1, EN 81-2, EN 81-28, EN 81-70 and EN 81-72)	<i>Under Revision</i>	Not Applicable



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
CEN/TR 81-12:2014	Safety rules for the construction and installation of lifts - Basics and interpretations - Part 12: Use of EN 81-20 and EN 81-50 in specific markets	<i>Published</i>	Not Applicable
EN 81-20:2014	Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods - Part 20: Passenger and goods passenger lifts	<i>Published</i>	2014/33/EU (Lifts)
EN 81-21:2009 +A1:2012	Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods - Part 21: New passenger and goods passenger lifts in existing building	<i>Under Revision</i>	2014/33/EU (Lifts)
EN 81-22:2014	Safety rules for the construction and installation of lifts - Lifts for transport of persons and goods - Part 22: Electric lifts with inclined path	<i>Under Revision</i>	2014/33/EU (Lifts)
EN 81-28:2003	Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods - Part 28: Remote alarm on passenger and goods passenger lifts	<i>Under Revision</i>	2014/33/EU (Lifts)



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
EN 81-31:2010	Safety rules for the construction and installation of lifts - Lifts for the transport of goods only - Part 31: Accessible goods only lifts	<i>Under Revision</i>	2006/42/EC (Machinery)
EN 81-40:2008	Safety rules for the construction and installation of lifts - Special lifts for the transport of persons and goods - Part 40: Stairlifts and inclined lifting platforms intended for persons with impaired mobility	<i>Under Revision</i>	2006/42/EC (Machinery)
EN 81-41:2010	Safety rules for the construction and installation of lifts - Special lifts for the transport of persons and goods - Part 41: Vertical lifting platforms intended for use by persons with impaired mobility	<i>Under Revision</i>	2006/42/EC (Machinery)
EN 81-42	Vertical Lifting Appliance with enclosed carrier intended for use by persons, including persons with disability	<i>Under Development</i>	2006/42/EC (Machinery)
EN 81-43:2009	Safety rules for the construction and installation of lifts - Special lifts for the transport of persons and goods - Part 43: Lifts for cranes	<i>Under Revision</i>	2006/42/EC (Machinery)
EN 81-44	Lifts in wind turbines	<i>Under Development</i>	2006/42/EC (Machinery)



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
EN 81-50:2014	Safety rules for the construction and installation of lifts - Evaluations - Part 50: Examinations, calculations and tests of lift components	<i>Published</i>	2014/33/EU (Lifts)
EN 81-58:2003	Safety rules for the construction and installation of lifts - Examination and tests - Part 58: Landing doors fire resistance test	<i>Under Revision</i>	2014/33/EU (Lifts)
EN 81-70:2003 +A1:2003	Safety rules for the construction and installations of lifts - Particular applications for passenger and good passengers lifts - Part 70: Accessibility to lifts for persons including persons with disability	<i>Under Revision</i>	2014/33/EU (Lifts)
EN 81-71:2005 +A1:2005	Safety rules for the construction and installation of lifts - Particular applications to passenger lifts and goods passenger lifts - Part 71: Vandal resistant lifts	<i>Under Revision</i>	2014/33/EU (Lifts)
EN 81-72:2015	Safety rules for the construction and installation of lifts- Particular applications for passenger and goods passenger lifts - Part 72: Firefighters lifts	<i>Published</i>	2014/33/EU (Lifts)



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
EN 81-73:2016	Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts - Part 73: Behaviour of lifts in the event of fire	Published	2014/33/EU (Lifts)
CEN TS 81-76:2011	Safety rules for the construction and installation of lifts - Particular applications for passengers and goods passenger lifts - Part 76: Evacuation of disabled persons using lifts	Under Revision (to become EN)	Not Applicable
EN 81-77:2013	Safety rules for the construction and installation of lifts - Particular applications for passenger and good passengers lifts - Part 77: Lifts subject to seismic conditions	Under Revision	2014/33/EU (Lifts)
EN 81-80:2003	Safety rules for the construction and installation of lifts - Existing lifts - Part 80: Rules for the improvement of safety of existing passenger and goods passenger lifts	Under Revision	Not Applicable
EN 81-82:2013	Safety rules for the construction and installation of lifts - Existing lifts - Part 82: Improvement of the accessibility of existing lifts for persons including persons with disability	Under Revision	Not Applicable



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
CEN TS 81-83:2009	Safety rules for the construction and installation of lifts - Existing lifts - Part 83: Rules for the improvement of the resistance against vandalism	Published	Not Applicable
EN 12015:2014	Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Emission	Under Revision	2004/108/EC (EMC)
EN 12016:2013	Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Immunity	Under Revision	2004/108/EC (EMC) 2014/33/EU (Lifts) 2006/42/EC (Machinery)
EN 12158-1:2000 +A1:2010	Builders' hoists for goods - Part 1: Hoists with accessible platforms	Published	2006/42/EC (Machinery)
EN 12158-2:2000 +A1:2010	Builders' hoists for goods - Part 2: Inclined hoists with non-accessible load carrying devices	Under Revision	2006/42/EC (Machinery)



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
EN 12159:2000 +A1:2009	Builders hoists for persons and materials with vertically guided cages	<i>Under Revision</i>	2006/42/EC (Machinery)
EN 16719	Transport platforms	<i>Under Development</i>	2006/42/EC (Machinery)
EN 13015:2001 +A1:2008	Maintenance for lifts and escalators - Rules for maintenance instructions	<i>Under Revision</i>	2014/33/EU (Lifts) 2006/42/EC (Machinery)
EN ISO 14798:2013	Lifts (elevators), escalators and moving walks - Risk assessment and reduction methodology	<i>Published</i>	Not Applicable
EN ISO 25745-1:2012	Energy performance of lifts, escalators and moving walks - Part 1: Energy measurement and conformance	<i>Published</i>	Not Applicable
EN ISO 25745-2:2015	Energy performance of lifts, escalators and moving walks - Part 2: Energy Calculation and Classification for Lifts (Elevators)	<i>Published</i>	Not Applicable
EN ISO 25745-3:2015	Energy performance of lifts, escalators and moving walks - Part 3: Energy Calculation and Classification for Escalators and Moving Walks	<i>Published</i>	Not Applicable



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
EN 627:1995	Specification for data logging and monitoring of lifts, escalators and passenger conveyors	Published	Not Applicable
EN 115-1:2008+ A1:2010	Safety of escalators and moving walks - Part 1: Construction and installation	Published <i>Under Revision</i>	2006/42/EC (Machinery)
EN 115-2:2010	Safety of escalators and moving walks - Part 2: Rules for the improvement of safety of existing escalators and moving walks	Published	Not Applicable
CEN/TR 115-3:2009	Safety of escalators and moving walks - Part 3: Correlation between EN 115:1995 and its amendments and EN 115-1:2008	Published	Not Applicable
CEN/TS 115-4:2015	Safety of escalators and moving walks - Part 4: Interpretations related to EN 115 family of standards	Published	Not Applicable
EN 1570-2	Safety requirements for lifting tables – lifting tables serving more than 2 fixed landings of a building, for lifting goods with vertical travel speed not exceeding 0,15 m/s – Part 2: Complementary elements	Under Development	2006/42/EC (Machinery)



CEN/TC 10 work program

Published, under development or under revision

CEN TC 10 (Lifts, escalators and moving walks)

Reference	Full Title	Status	EU Directive
EN 12385-3:2008	Steel wire ropes - Safety - Part 3: Information for use and maintenance	Published	2006/42/EC (Machinery)
EN 12385-5:2002	Steel wire ropes - Safety - Part 5: Stranded ropes for lifts	Published	2006/42/EC (Machinery)
EN 13411-7:2008	Terminations for steel wire ropes - Safety – Part 7: Symmetric wedge socket	Published	2014/33/EU (Lifts) 2006/42/EC (Machinery)



CEN TC 10 (Lifts, escalators and moving walks)

