CEN/TC 010/WG 01 N 1517

Questions/Answers to EN 81-20:2014 & EN 81-50:2014

New Answers are highlighted in yellow

Revision 5

Text EN 81-20	Question	Answer	Approved by WG1
General Question	Within the framework of the Construction Product Regulation CPR, there is a new standard harmonised. EN 50575:2014 "Power, control and communication cables - Cables for general applications in construction works subject to reaction to fire requirements". This European Standard specifies reaction to fire performance requirements, test and assessment methods for electric cables used for the supply of electricity and for control and communication purposes, which are intended for use in construction works and subject to performance requirements on reaction to fire. There will be local regulations requiring specific performance requirements depending on the building type. It is clear, that the CPR does not apply to lifts, but there will be endless discussions about the requirements for cables used in the lift installation. In order to prevent such discussions and to avoid confusion for the lift business it is strongly recommended to have clear requirements for the fire classification of any material used in the well and in machinery spaces defined in the EN 81 series of standards.	*Whist it is clear that CPR does not apply to the cables "downstream" of the mains switch; it would be desirable to avoid such conflicts with specifiers for cables for buildings.* *The recommendation of WG1 would be for this to be studied by AH6 as to how such information might be included into EN 81-20 without causing divergence of requirements at ISO level.* *Requirements for similar product rules for cables should also be gathered by AH17 where available.* *Therefore WG1 will study this further with a view to making amendment at the next revision of EN 81-20.*	*Agreed by WG1* *Feb 2015*
0.2.2.1 Persons to be safeguarded: a) users, including passengers and competent and authorized persons, e.g. maintenance and inspection personnel (see EN 13015); **3.2 authorized person** person with the permission of the natural or legal person who has the responsibility for the operation and use of the lift, to access restricted areas (machinery spaces, pulley rooms and lift well) for maintenance, inspection or rescue operations Note 1 to entry: Authorized persons should be	**Question 1** What is a "competent maintenance person"? With EN 81-20 we have introduced the term **3.2 authorized person** and **3.7 competent person**. But inside the text the term **competent person** is nowhere used but it is used "**competent maintenance person**". So with the amendment we shall clean up this editorial. During analysis of the standard, I found 6 topics where intervention of "**competent maintenance person**" is required in different wording. These wording shall be aligned editorial and also the	***Answer to Q1*** *Agreed, there is a need for consistency and this will be reviewed as part of the revision process to EN 81-20.* *We will consider to change to :* • *persons competent in rescue procedures.* • *persons competent in maintenance procedures.*	*Agreed by WG1* *Feb 2015*

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competent for the tasks they have been authorized for (see also 3.7). **3.7 competent person** person, suitably trained, qualified by knowledge and practical experience, provided with necessary instructions to safely carry out the required operations for maintaining or inspecting the lift, or rescuing users Note 1 to entry: National Regulation may require certification of competence **3.46 rescue operations** specific actions required to safely release persons entrapped in the car and well by competent persons **5.6.2.1 Safety gear** **5.6.2.1.4.3** After the release of the safety gear it shall require the intervention of a competent maintenance person to return the lift to service. **Etc ...**	note about the "The activation of the main switch is not sufficient by itself to allow the lift to be returned to service." shall be aligned to all topics. **Question 2** Is the use of an evacuation device, when the final limit switch was operated, considered as an intervention of a competent maintenance person? The standard procedure used according EN 81-1: When the final limit switch is operated, the car cannot move anymore automatically but can be moved manually by lifting the brake or with the emergency electrical operation which is bypassing the final limit switch. In this way the requirement of EN 81-1 "The return to service of the lift shall not occur automatically." is fulfilled, because to move the car, the intervention of a competent person is necessary. With the change of the wording in EN 81-20 the question is if this procedure is still compliant to EN81-20. old: The return to service of the lift shall not occur automatically. new: The return to normal operation of the lift shall require the intervention of a competent maintenance person.	***Answer to Q2*** *It was not intended to require a technical means to prevent the return to service in this circumstance.* *Should a competent rescue person recover the lift to the terminal floor, then the lift should be left out of service and only re-activated by a person competent in maintenance activity.* *This will be reviewed in the revision of EN 81-20.*	
0.4 Assumptions **0.4.1 General** In drawing up this standard the following assumptions have been made: **0.4.2** Negotiations have been made between the customer and the supplier and agreement reached about: a) the intended use of the lift; b) the type and mass of the handling devices intended to be used to load and unload the car in	*Fs* is assumed by the loading of the passenger or the handling devices. Can we interpret this calculation method of the mass is considered as follows? As the realistic situation is assumed; 1) The affected force on the sill can be calculated by the distributed value of the total load. 2) For the passenger lifts, the centre of the distributed load is acting in the centre of the sill. 3) For goods passenger lifts, to consider the	*It is up to the negotiated contract to determine if the lift is a passenger, goods passenger or heavy duty lift.* *Since the type of handling device is not known we cannot make assumptions as to how the load and device enters the car, therefore the values given are intended as "worst case" scenarios, e.g. a forklift truck may have only a single rear wheel and goes backwards into the lift carrying the load.*	*Agreed by WG1* *Feb 2015*

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the case of goods passenger lifts; … **5.3.3.1 Sills** Every landing and car entrance shall incorporate a sill of sufficient strength (see 5.7.2.3.6) to withstand the passage of loads being introduced into the car. **…** **5.7.2.3.6** Whilst loading or unloading a car, a vertical force on the sill *Fs* has to be assumed to act centrally on the sill of the car entrance. The amount of the force applied on the sill shall be: - *Fs* = 0,4 . *gn* .*Q* for passenger lifts; - *Fs* = 0,6 . *gn* .*Q* for goods passenger lifts; - *Fs* = 0,85 . *gn* .*Q* for goods passenger lifts in the case of heavy handling devices if the weight of the device is not included in the rated load.”	handling devices according to 0.4.2 b), the centre of the distributed load is acting in two symmetric positions of the centre of the sill.	*Requirement 5.7.2.3.6 requires a point load to be supported at the center of the sill.* *Depending on the use of the lift and specific loading conditions defined by the building designer, a deviation, approved by the relevant authority (notified body or government) may be required to accommodate a different loading than specified here.*	
5.2.1.4 Lighting ... To achieve this, sufficient number of lamps shall be fixed throughout the well and where necessary additional lamp(s) may be fixed on the car roof as a part of the well lighting system. and **5.10.8 Control of the supply for lighting and socket outlets** **5.10.8.2** ... In case additional lamps are installed on the car roof, they shall be connected to the car light circuit and switched from the car roof. The switch(es) shall be in an easily accessible position not more than 1 m from the entry point(s) for inspection or maintenance personnel.	Lamps for well lighting have to be supplied from the car light circuit (not well light circuit) and need to have their own switch (not controlled by normal well lighting switches)? Many suppliers have a well lighting switch installed also on the car roof connection box. And this switch controls the well lighting fixed in the well and are supplied from the well light circuit (in parallel to the pit and (near main switch) machinery space well lighting switches). Would it also be acceptable to have the additional lamp on the car roof supplied from the well lighting and switched by the well lighting switch(es) (also available on the car roof) ?	*No, the text is clear and the car top light must be connected to the car light circuit.*	*Agreed by WG1* *Feb 2016*

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5.2.1.4.1 The well shall be provided with permanently installed electric lighting, giving the following intensity of illumination, even when all doors are closed, at any position of the car throughout its travel in the well: a) at least 50 lux, 1,0 m above the car roof within its vertical projection; b) at least 50 lux, 1,0 m above the pit floor everywhere a person can stand, work and/or move between the working areas; c) at least 20 lux outside of the locations defined in a) and b), excluding shadows created by car or components. To achieve this, sufficient number of lamps shall be fixed throughout the well and where necessary additional lamp(s) may be fixed on the car roof as a part of the well lighting system. Lighting elements shall be protected against mechanical damage. The supply for this lighting shall be in conformity with 5.10.7.1. NOTE For specific tasks additional temporary lighting may be necessary, e.g. by hand lamp. *The light meter should be oriented towards the strongest light source when taking lux level readings.*	We believe that as long as the last sentence is valid, everything listed in clauses a, b and c have no value at all. To orient a lux-meter directly towards the strongest light source is incorrect, and will violate the meaning if this clause. We suggest that this sentence should be deleted	*Since the light source may not be directly overhead, and might be at less than 1m from the car roof according to the pitch of light fixtures withing the well, holding the meter in a horizontal plane would not always give the correct value.* *The intension of the text was to ensure that the measurement was taken towards the light source and not directed at a dark, non reflective surface, or light surfaces which are further away.* *This was done in order that persons measuring the light did not deliberately orient the light meter away from the light source to find the lowest possible reading.*	*Agreed by WG1 – Nov 2016*
5.2.1.5.1 There shall be in the pit: a) stopping device(s) visible and accessible on	Question to **5.2.1.5.1 a):** What is the definition of "operable from a refuge space"; 0,30	*Agreed* *These all should be aligned at the next*	*Agreed by WG1*

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opening the door(s) to the pit, and from the pit floor, in conformity with the requirements of 5.12.1.11. The stopping device(s) shall be located: 1) for pits with depth less than or equal to 1,60 m the stop switch shall be: — within a vertical distance of minimum 0,40 m above the lowest landing floor and a maximum of 2,0 m from the pit floor; — within a horizontal distance of maximum 0,75 m from the door frame inner edge; 2) for pits with depth greater than 1,60 m, two stop switches shall be provided; — the upper switch within a vertical distance of minimum 1,0 m above the lowest landing floor and within a horizontal distance of maximum 0,75 m from the door frame inner edge; — the lower one within a maximum vertical distance of 1,20 m above pit floor operable from a refuge space. b) a permanently installed inspection control station according to 5.12.1.5 operable within 0,30 m of a refuge space; **5.2.1.6 Emergency release** If no means to escape are provided for person(s) trapped in the well, alarm initiation devices to the alarm system according to EN 81-28 shall be installed at places where the risk of trapping exists (see 5.2.1.5.1, 5.2.6.4 and 5.4.7), operable from the refuge space(s). **5.4.8 Equipment on top of the car** The following shall be installed on top of the car: a) control device in conformity with 5.12.1.5 (inspection operation) operable within 0,30 m horizontally from a refuge space (5.2.5.7.1);	m as in **5.2.1.5.1 b)**? Question to **5.2.1.5.1 b):** How to understand "operable within 0,30 m of a refuge space"? Question to **5.2.1.6**: Why the formulation is different? Is the intention of "operable from the refuge space(s)" that in case of 2 refuge spaces it might be necessary to have 2 alarm initiation devices because in case of one person trapped on the car roof, it is not clear if the person can move from one refuge space to the other? There shall be only one alarm initiation device necessary at the inspection control station. Question to **5.4.8:** How to understand "operable within 0,30 m horizontally from a refuge space"? There are 4 different formulations for one and the same safety objective.	*revision to "operable from within 0,30m horizontally from one of the refuge spaces."*	*Feb 2015*
5.2.1.8.2 The walls of the well shall have a mechanical strength such that when a force of 1000 N, being evenly distributed over an area of 0,30 m x 0,30 m in round or square section, is	All these clauses require that a force is applied to “any point” of the door and then the result must be that no permanent deformation greater than 1mm can occur.	*The intent of these clauses within the standard was to ensure that there was no deformation which could cause permanent damage to the door/panel in such a way that its safety*	*Agreed by WG1* *Nov 2014*

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applied at right angles to the wall <u>at any point</u> on either face they shall resist without: a) permanent deformation greater than 1 mm; **5.3.5.3.1** Complete landing doors, with their locks, and car doors shall have a mechanical strength such that in the locked position of landing doors and closed position of car doors: a) when a static force of 300 N, being evenly distributed over an area of 5 cm² in round or square section, is applied at right angles to the panel/frame <u>at any point</u> on either face they shall resist without: 1) permanent deformation greater than 1 mm; **5.4.3.2.2** Each wall of the car shall have a mechanical strength such that: a) when a force of 300 N, being evenly distributed over an area of 5 cm² in round or square section, is applied at right angles to the wall <u>at any point</u> from the inside of the car towards the outside, it shall resist without: — any permanent deformation greater than 1 mm;	How are we to understand "any point". Is this at any point chosen by the manufacturer, or at any point which present the worst case, so in fact all points. In practice it seems that this test is almost impossible to meet with the materials used by manufactures and determined as safe for many years. This is because the requirement to place the static force at any worst point means that it has to be placed at all points on the door or wall panel to see which gives the worst result. Particularly for wall panels, if the load is placed as close as possible to a panel fixing or at the edge of a fold, then there will be deformation greater than 1mm, even though this has absolutely no effect what so ever on the integrity of the door or panel. It is purely a result of the fixing forming a rigidized local area that is not able to produce elastic deformation. How should we understand "any point" in relation to the maximum of 1mm of permanent deformation?	*integrity might be compromised, such as might be seen in a crack or tear in the material.* *Where the panel is locally rigidized by a fold or fixing, then placing the load adjacent to this may cause a small localised permanent deformation.* *This small deformation is only considered as aesthetic damage and not structural failure and is therefore acceptable.*	
5.2.1.9 Surfaces of walls, floors and ceilings Surfaces of walls, floors and ceilings of wells, machine and pulley rooms shall be in durable material not favouring the creation of dust e.g. concrete, brick or blockwork. <u>The surface of the floor where a person needs to work or to move between working areas shall be of non-slip material.</u>	Where is defined, which means non-slip?	*The note below gives reference to the ISO standard. This standard gives information on various national documents which might be used to fulfil this requirement until such time as an EN standard is published.*	*Agreed by WG1* *Feb 2015*
5.2.1.9 Surfaces of walls, floors and ceilings Surfaces of walls, floors and ceilings of wells, machine and pulley rooms shall be in durable material not favouring the creation of dust e.g.	With regard to "The floor of working areas shall be approximately level" and the work area on the car roof, what should be understood by "approximately level.	*a) Normally places where persons can stand should have an area of 0.12m2 with a minimum dimension of 250mm along one side.*	*Agreed by WG1* *May 2015*

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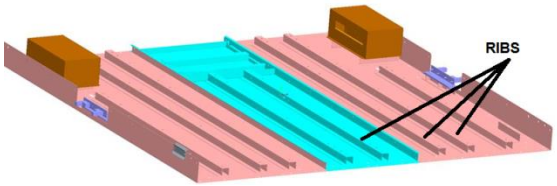
concrete, brick or block work. The surface of the floor where a person needs to work or to move between working areas shall be of non-slip material. NOTE 1 For guidance see EN ISO 14122-2, 4.2.4.6. The floor of working areas shall be approximately level, except for any buffer and guide rail bases and water drainage devices. After the building-in of guide rail fixings, buffers, any grids, etc., the pit shall be impervious to infiltration of water.	a) Would the roof design below be considered as "approximately level" b) If not what projections from the level surface are allowed.  	*b) As per machine room floors the maximum projection would be considered as 0,05m* *Manufacturers must consider their designs on a case by case basis determined by risk assessment.*	
5.2.2.4 A means to enter the pit shall be provided consisting of; a) an access door where the pit depth exceeds 2,50 m; b) either an access door or a ladder inside the well, easily accessible from the landing door, where the pit depth is not exceeding 2,50 m. Any pit access door shall comply with the requirements of 5.2.3. **5.2.3 Access and emergency doors - Access trap doors - Inspection doors** **5.2.3.3** Access and emergency doors and inspection doors shall: …… An electric safety device is not required in the case of access door(s) to machine and pulley rooms and in the case of access door(s) to the pit (5.2.2.4), if the pit door(s) does not give access to a hazardous zone. This is regarded to be the case if the free vertical distance between the lowest parts of car, counterweight or balancing weight including guide shoes, apron, etc. during normal operation and the	**Question:** Is it necessary to have a reset device available after inspection operation in the pit was activated in the case there is a pit access door e,g. due to the >2.5m depth (no machinery in the pit).	*The standard requires that a reset is used regardless of the depth of the pit and the means of access into it.*	*Agreed by WG1* *Feb 2016*

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bottom of the pit is at least 2 m. **5.2.6.4.4.1** Where machinery is to be maintained or inspected from the pit and if any kind of uncontrolled or unexpected car movement resulting from maintenance/inspection can be dangerous to persons, the following applies: a) a permanently installed device shall be provided to mechanically stop the car …. at least 2 m between the floor of the working area and the lowest parts of the car…..; … d) the opening by the use of a key of any door providing access to the pit shall be checked by an electric safety device according to 5.11.2 which prevents all further movement of the lift. Movement shall only be possible under the requirements given in f) below; e) all movement of the car shall be prevented by means of an electric safety device in conformity with 5.11.2 unless the mechanical device is in its inactive position; f) when the mechanical device is in its active position as checked by means of an electric safety device in conformity with 5.11.2, electrically driven movement of the car shall only be possible from the inspection control station(s); g) the return of the lift to normal operation shall only be made by operation of an electrical reset device placed outside of the well and accessible to authorized persons only, e. g. inside a locked cabinet. **5.12.1.5.2.2** Return to normal operation of the lift (after activated inspection operation in the pit)			
5.2.2.5 A safe access for persons to machinery spaces and pulley rooms shall be provided. For preference, this should be effected entirely by way of stairs. If it is not possible to install stairs, ladders satisfying the following requirements shall be used: d) the clear width of the ladder shall be at least	Question: Why is the distance behind the ladder different in the pit from that for machinery space access?	*This should not be considered as an error as these requirements were developed using differing EN standards which each viewed the risk in different way.* *During the ongoing amendment of EN81-20*	*Agreed by WG1 – Nov 2016*

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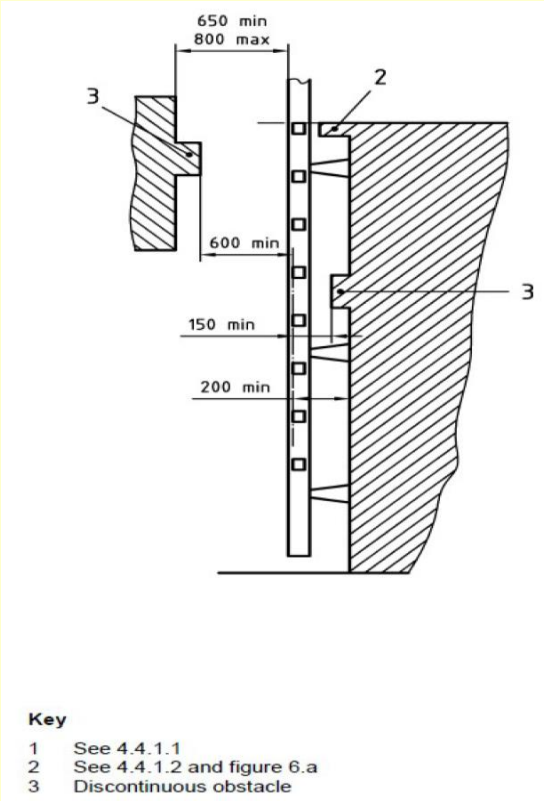
0,35 m, the depth of the steps shall not be less than 25 mm and in the case of vertical ladders the distance between the steps and the wall behind the ladder shall not be less than 0,15 m. The steps shall be designed for a load not less than 1500 N; **F.5 Location of the ladder in the pit** The location of the ladder in the pit shall be such that in position of use the following are fulfilled: a) there shall be a clear distance of 200 mm minimum between back of any rung and wall of the pit in the case of vertical ladder;		*the text will be reviewed with the proposal to harmonise these values.* *Meanwhile the dimensions should be applied as stated.*  **Key** 1 See 4.4.1.1 2 See 4.4.1.2 and figure 6.a 3 Discontinuous obstacle	
5.2.5.2.2.2 Any horizontal projection from a wall into the well or horizontal beam greater than 0,15 m width, including separator beams, shall be protected from a person standing there, unless access is prevented by a car top balustrade in accordance with 5.4.7.4.	a) Often when doors are mounted on the landing there are ledges left at either side of the door, which may be more than 150mm in depth depending on the type of door. Does EN81-20 require that these ledges at the front of the car are guarded in accordance with 5.2.5.2.2.2	*a) Where there is no guard rail at the front edge of the car preventing stepping into these areas then protection according to 5.2.5.2.2.2 is required.* *b) According to 5.2.5.7.3. the area considered as being possible for a person to stand is*	*Agreed by WG1* *Nov 2014*

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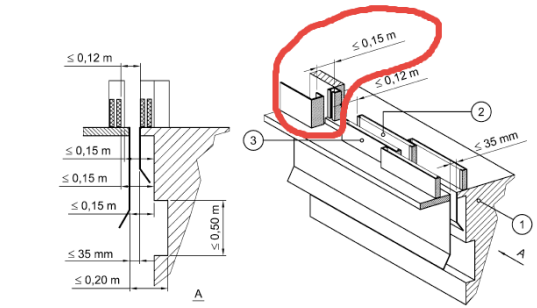
Protection shall be such as: a) the projection, where greater than 0,15 m, shall be chamfered to at least 45° to the horizontal, or b) a deflector forming an inclined surface of minimum 45° to the horizontal, capable of resisting a force of 300 N applied at right angles to the deflector at any point, distributed evenly over a surface of 5 cm² in round or square section, such that it shall resist: — without permanent deformation; — without elastic deformation greater than 15mm.	b) Some ledges may be more that 150mm in depth, but would not be wide enough for a person to stand in. At what length of ledge is protection according to 5.2.5.2.2.2 required.	*0,12m².* *Therefore where the ledge is greater than 0,15m deep the maximum length of the ledge should be less than 0,25m.* *This will be clarified at the next amendment of EN 81-20.*	
5.2.5.3.1 The horizontal distance between the inner surface of the well and the sill, door frame of the car or closing edge of car sliding doors shall not exceed **0,15 m**, over the full height of the well (See **Figure 3**). The distance given above: a) may be extended to 0,20 m over a height not exceeding 0,50 m. There shall not be more than one of such recesses in between two consecutive landing doors (see **Figure 3 is missing**); b) may be extended to 0,20 m throughout the travel on goods passenger lifts in which the landing doors are vertically sliding; c) is not limited if the car is provided with a mechanically locked door in accordance with 5.3.9.2, which can only be opened in the unlocking zone of a landing door. **5.3.4.1** The horizontal distance between the sill of the car and sill of the landing doors shall not exceed **35 mm** (see **Figure 3**). **5.3.4.2** The horizontal distance giving access to the well between the leading edges of the car door and the landing doors during the whole of their normal operation shall not exceed **0,12 m** (see **Figure 3**).	 Key ① lift well wall ② landing door leading panel ③ car door leading panel Figure 3 — Clearances between car and wall facing the car entrance The distance marked in red is not mentioned in this paragraphs; correct? In analogy to 5.3.4.2 this distance shall be 0,12 m; correct? It is recommended to add a key to the different distances as it is done in e.g. in Figure 5 with reference to the corresponding paragraph..	*The distance from the wall to the car door frame as shown is found in the first sentance of 5.2.5.3.1* *The distance between the slam sides of the car and landing doors is not shown in the figure.* *This shall be added to the drawing at the next revision of the standard and should be 0,12 m as per the distance between car and landing doors.* *This shall also be added to the text of 5.4.3.2.* *Agreed to add key.*	*Agreed by WG1* *Feb 2016*

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	Key A distance ≥ 0,50 m (5.2.5.7.2 a) B distance ≥ 0,50 m (5.2.5.7.2 a) C distance ≥ 0,50 m (5.2.5.7.2 c) 2) D distance ≥ 0,30 m (5.2.5.7.2 c) 1) E distance ≤ 0,40 m (5.2.5.7.2 c) 1)		
5.2.5.5.1 The travelling area of the counterweight or the balancing weight shall be guarded by means of a screen, which comply with the following: a) if this screen is perforate, EN ISO 13857:2008, 4.2.4.1 shall be respected; b) this screen shall extend from the lowest point of the counterweight resting on its fully compressed buffer(s) or balancing weight in its lowest position to a minimum height of 2,0 m from the pit floor; c) in no case shall it be more than 0,30 m from the pit floor to the lowest part of the screen. For buffers travelling with the counterweight, see 5.8.1.1; d) the width shall be at least equal to that of the counterweight or balancing weight; e) if the gap between the counterweight/balancing weight guide rails and the well wall exceeds 0,30 m then this area shall also be guarded in accordance with b) and c); f) the screen may have slot(s) with the minimum width necessary to permit free passage of compensation means or for the purpose of visual inspection; g) the screen shall have sufficient rigidity to ensure that when a force of 300 N being evenly distributed over an area of 5 cm2 in round or square section is applied at right angles at any point of the screen, it shall not deflect to cause the counterweight or balancing weight to collide with it; h) the car and its associated components shall be at a distance of at least 50 mm from the counterweight or balancing weight (if there is one)	There seems to be a contradiction between b), c) and the previous interpretation to EN81-1, number 501 where it was stated: "*In the case of lifts with compensating means it is regarded as acceptable that the lower end of the screen is lifted to a height corresponding to the height of the fully compressed buffer(s).* *If this additional free height is not sufficient for diverting the compensating means additional slot(s) may be provided where necessary*." Whilst b) seems in line with this interpretation, c) overrules this and **requires** that the height is never more than 300mm from the pit floor. This seems to be incorrect. Can WG1 confirm the following: b) is correct. c) is an error in the standard. This seems apparent since if the full collapsed buffer is more than 2m in length, then the screen would only be around the fixed parts of the buffer and not protecting against being struck by moving parts. In addition, can WG1 confirm that the 50mm clearance required in h) is between the car and the counterweight and not between the car and counterweight screen.	*The text of EN81-20 is correct and interpretation 501 is not applicable to lifts in accordance with EN81-20.* *In case of buffers larger than 2m in compressed length, this is already identified as an item to be revised in the next edition of EN81-20.* *Yes, the clearance is required between moving parts, not between the screen and the car.*	*Agreed by WG1* *Feb 2016*

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and its associated components.			
5.2.5.5.2.1 Where the conditions of not giving access to a hazardous zone according to 5.2.3.3 d) are met then such a partition screen shall not be provided below the lowest point of travel of the car.	Is the "shall not" error of the "may not"?	*Agreed.* *This was spotted by WG1 during answering the comment to the final vote. However CEN would not allow the change of "shall" to "may" since this was considered to be a technical change.* *Therefore it will be addressed during the amendment to EN 81-20.*	*Agreed by WG1* *Feb 2015*
5.2.5.8.1 When the car is at its lowest position according to 5.2.5.6.1 at least one clear area where a refuge space can be accommodated shall be provided on the pit floor, selected from Table 4. ……. **5.2.5.8.2** When the car is at the lowest position according to 5.2.5.6.1, the following conditions shall be satisfied: a) the free vertical distance between the bottom of the pit and the lowest parts of the car shall be at least 0,50 m. This distance may be reduced: 1) for any part of the apron or parts of the vertically sliding car door(s) to a minimum of 0,10 m within a horizontal distance of 0,15 m to the adjacent wall(s); 2) for car frame parts, safety gears, guide shoes, pawl devices, within a maximum horizontal distance from the guide rails according to Figures 6 and 7; b) the free vertical distance between the highest parts fixed in the pit, for instance a tensioning device for compensation ropes being in its highest position, jack supports, pipes and other fittings, and the lowest parts of the car, except for items detailed in 5.2.5.8.2 a) 1) and 2), shall be at	Can the compensation means, where not tied down, be allowed to enter the refuge space? See diagram below:	*Within EN81-20 the refuges space, as described, is required to be free from any objects, with the exception of the recess in one side of the bottom edge, as described in the standard.* *This situation is not described within EN 81-20 and it may be possible under certain circumstances that compensation means can enter the refuge space.* *However items such as the following would need to be considered:* *a) the means should not be retrained in any way and must be free to swing from side to side.* *b) this must also be the case when the car has come down to the stage when the engineer would take refuge.* *c) the means should not allow the snagging of clothing.* *d) the refuge space should be marked on the pit floor to ensure the engineer understands that the means may enter the refuge space.*	*Agreed by WG1* *May 2015*

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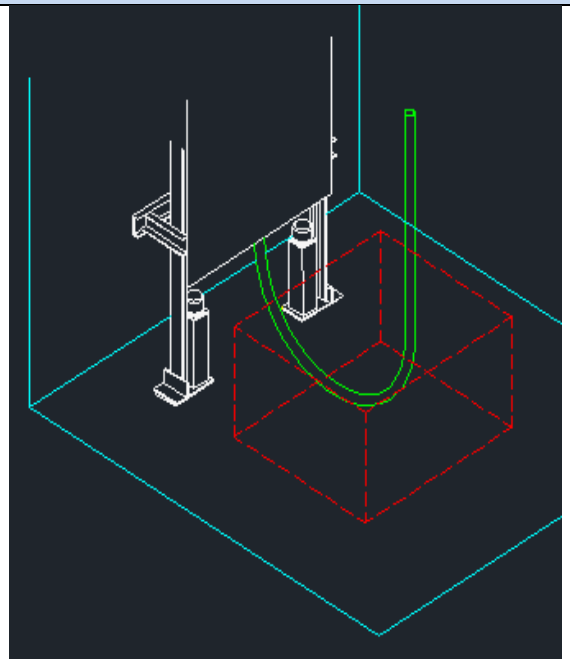
least 0,30 m; c) the free vertical distance between the bottom of the pit or the top of equipment installed there and the lowest parts of the downwards-travelling ram-head assembly of an inverted jack shall be at least 0,50 m. However, if it is impossible to gain involuntary access under the ram head assembly (e.g. by providing screens in accordance with 5.2.5.5.1), this vertical distance may be reduced from 0,50 m to 0,10 m minimum; d) the free vertical distance between the bottom of the pit and the lowest guiding yoke of a telescopic jack below the car of a direct acting lift shall be at least 0,50 m.		*e) how far the means can be allowed to enter the refuge space. e.g < 150mm* *This will be studied further as part of the revision of EN81-20.*	
5.3.5.3.2 Horizontal sliding landing and car doors shall be provided with devices for retaining the door panel(s) in position should the guiding element fixed to the door panel fail. All door panels with these devices installed in their complete door assembly with these devices shall withstand a pendulum shock test as specified in 5.3.5.3.4 a) at striking points according to Table 5 and Figure 11 under the worst possible failure condition of the normal guiding elements.	a) Which failures need to be considered? − Upper guiding element falling of the hanger plate of breaking in parts. − Screws, welding or other fixations of upper or lower guiding elements on door panels getting loose, rusting, breaking due to aging, etc. − Guiding elements (either complete guide shoe or just guiding material) not being replaced during maintenance.	*a) In this case "should the guiding element fixed to the door panel fail" should be understood as any means of failure of the elements directly fixed on the door panel which results in the door no longer being guided.* *i.e. if the guiding element is removed then the retaining devices should ensure that the door remains in place, forming an effective guard.* *Examples.*	*Agreed by WG1* *Sept 2014*

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Retainer should be understood as a mechanical means preventing the door panels from leaving their guides which may be either an additional component or part of the panel/hanger.	− In case of 2 redundant guiding elements failure of both elements. − Etc. b) What can be considered as a retainer? − An additional part completely separated from the normal guiding elements. − An internal element of the guiding element which does not need to be taken off for replacement of guiding material. − Supporting part of the guiding elements if made of stainless steel, high safety factor, safe screw locking, etc. c) If the guiding element fails due to corrosion, screws getting loose or aging can it be assumed that the retainer doesn't fail due to the same reason during an impact?	*1) If the door suspension rollers wear or fail such that they become detached from the track, further restraint of the door panel should be provided.* *2) if the bottom guide shoe wears or fails such that it no longer guides the door in the sill, then further restraint should be provided.* *b) The retainer should be separate from the guiding element unless it is part of the panel or hanger, in which case it is assumed not to fail, but must still be subject to impact testing.* *c) Yes, since this would be two simultaneous failures which is not accounted for in our standard.*	
5.3.5.3.2 Horizontal sliding landing and car doors shall be provided with devices for retaining the door panel(s) in position should the guiding element fixed to the door panel fail. All door panels with these devices installed in their complete door assembly with these devices shall withstand a pendulum shock test as specified in 5.3.5.3.4 a) at striking points according to Table 5 and Figure 11 under the worst possible failure condition of the normal guiding elements. Retainer should be understood as a mechanical means preventing the door panels from leaving their guides which may be either an additional component or part of the panel/hanger.	Does a non-glass folding car door need to comply with § 5.3.5.3.2? No need to apply pendulum choc tests? Having read the standard, car folding doors are not addressed as to the pendulum shock tests. Do you agree?	*A folding door is considered as a Horizontal Sliding landing or car door. This should be amended to include folding doors in the same way as stated in 5.3.5.3.3 as part of the EN81-20 amendment.*	*Agreed by WG1* *Nov 2015*
5.3.5.3.4 a) when an impact energy equivalent to a falling height of 800 mm of the soft pendulum shock device (EN 81-50:2014, 5.14) is striking the glass panels or side frames in the middle of the panel or frame width, at striking points according to Table 5, from the landing side or from the inside of the car, the following shall be satisfied:	With regard to a) 2) shall the 0,12m gap be measured during the test, as permissible elastic deformation, or shall it be measured after the test as permissible permanent deformation.	*The 0,12m is to be measured after the test as permissible permanent deformation, as indicated in a) 1).*	*Agreed by WG1* *Nov 2014*

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1) they may have permanent deformation; 2) there shall be no loss of integrity of the door assembly. The door assembly shall remain in place with no gaps greater than 0,12 m into the well;			
5.3.6.2.1 General In the case of coupled car and landing doors, operated simultaneously the following requirements are valid for the joint door mechanism.	Question: considering the following situation: 1. an automatic car door is used in combination with manual landing swing door 2. the car door cannot start closing before the swing door is closed Is it required by EN 81-20 to provide a protective device, e.g. light curtain, as described in 5.3.6.2.2.1 (b) for that automatic car door?	*This particular arrangement is not fully described within the standards at this time. Therefore it has been requested to AH02 to further study this and make a proposal for the revision of EN81-20.*	*Agreed by WG1 – Nov 2016*
5.3.6.2.2.1 h) doors made from glass, with the exception of vision panels to 5.3.7.2.1 a), shall be provided with means to limit the opening force to 150 N and to stop the door in the event of an obstruction	What shall happen after activation of this means to limit the door opening force? a) Should the door motor supply be interrupted once the 150 N has been exceeded or is it sufficient to maintain a force not exceeding 150 N? b) Should the door motor restart in the opening or closing direction after a certain time? c) Should the limitation of 150 N still be active in opening and closing direction? d) If the door would not restart automatically the lift operation could be blocked. How should this blocking be set back to normal operation? If there is no automatic restart this could lead to many break downs due to misuse or other reasons.	*Whilst this is not explicitly stated in the standard it is assumed that the power to the door motor shall be removed, such that re-closing the door does not increase the chance of harm.* *After a period of time, e.g. 60 seconds, the door motor may be re-energised to open the door.* *If the 150N force limitation is still in place then the door shall be stopped again.* *This will be clarified in the 1st amendment of EN 81-20.*	*Agreed by WG1* *Sept 2014*
5.3.9.1.7 The lock shall resist, without permanent deformation or breakage which could adversely affect safety during the test laid down in EN 81-50:2014, 5.2, a minimum force at the level of the lock and in the direction of opening of the door	a) There is a contradiction concerning the impact point of the forces in EN 81-20 and EN 81-50. Which position is correct for sliding doors and for hinged doors? b) Is the time period of 300 s also applicable for	*There is a contradiction in the testing of the hinged doors against the requirements in the EN81-1&2/20 standards which has been in place since 1988.* *This contradiction will have to be reviewed and*	*Agreed by WG1* *Sept 2014*

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of: a) 1000 N in the case of sliding doors; b) 3000 N on the locking pin, in the case of hinged doors. **EN 81-50, 5.2.2.2.3 Static test** For locking devices intended for hinged doors, a test shall be made consisting of the application over a total period of 300 s of a static force increasing progressively to a value of 3000 N. This force shall be applied in the opening direction of the door and in a position corresponding as far as possible to that which may be applied when a user attempts to open the door. The force applied shall be 1 000 N in the case of a locking device intended for sliding doors.	sliding doors?	*removed at the next amendment of EN 81-20/50.* *With regard to sliding doors the force of 1000N shall be applied at the locking means.* *This will be clarified in the 1st amendment of EN 81-20.*	
5.3.10.2 The means used to prove the position of a locking element shall have positive operation.	In the German text the word 'Fehlschließsicherung' is added to the text (already in the previous version), which could be interpreted as a stronger requirement as in the English text. What is the understanding of 'positive operation' and is this identical with 'Fehlschließsicherung'?	*Positive action normally means to be acted upon positively, i.e. to force contacts to open or in the case of a safety circuit to forcefully move a sensor element.* *The use of this term in the German text seems to be in excess of the requirement for positive operation as intended in EN81-20 and should be deleted in the amendment of EN81-20.*	*Agreed WG1 Nov 2015*
5.3.15.1 If the lift stops for any reason in the unlocking zone (5.3.8.1), it shall be possible with a force not greater than 300 N, to open the car and landing door by hand from: a) the landing after the landing door has been unlocked with the triangular unlocking key or being unlocked by the car door; b) within the car. **EN81-1, 8.11.1** In order to permit passengers to leave the lift car, if	When specifying that the force to open the car and landing door, from inside the car, when the car is in the unlocking zone, should be less than 300N the EN81-1 standard explicitly stated that this could be measured with power having been removed from the door operator. Does EN81-20, 5.3.15.1 allow the similar removal of power, or shall the measurement always be possible regardless of the powered state of the door operator?	*Since EN81-20 does not state "with the supply disconnected" it must be such that the 300N requirement is measured with the power to the operator both on and off, whichever is worse.*	*Agreed by WG1* *Nov 2014*

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the lift stops for any reason close to a landing, it shall be possible with the car stopped and the supply to the door operator (if any) disconnected: a) to open or partly open the car door by hand from the landing; b) to open or partly open the car door together with the landing door linked to it if they are coupled, by hand from within the car.			
5.3.15.1 If the lift stops for any reason in the unlocking zone (5.3.8.1), it shall be possible with a force not greater than 300 N, to open the car and landing door by hand from: a) the landing after the landing door has been unlocked with the emergency unlocking key or being unlocked by the car door; b) within the car.	In the previous answer it is stated that the 300 N requirement is measured with the power to the operator both on or off, whichever is worse. With some door operators it is not possible to comply with this requirement if they are holding the door closed under power. However normally the door open button should open the doors from inside and from outside either the contact on the door locking or the main switch should switch off the door operator in case of rescue operations. Is it the intention of the standard to cover only normal functioning of the door operator or also failures, e.g. door open button not effective?	*A failure of the door open button would be classed as a second failure and therefore outside the scope of the standard. Therefore using the door open button when power is on the doors does comply.* *In all cases when the power is off then the force to open the car from inside or outside shall be less then 300N.*	*Agreed by WG1* *Nov 2015*
5.3.15.1 if the lift stops for any reason in the unlocking zone (5.3.8.1), it shall be possible with a force not greater than 300 N, to open the car and landing door by hand from: b) within the car	The locking device of the car door mechanism is not listed in the DIRECTIVE 2014/33/EU / Annex III as a safety component. However according to the 5.3.9.2 of EN 81-20 is regarded as a safety component. With this in mind, the unlocking device of the car door mechanism, can be other than mechanically operated? For example electrically *Additional background* *Scenario - Question (81-20)* *In a car door model, in case of power failure, the opening of the car door lock is achieved through operation of the motor, practically it is achieved though the operative condition of the battery which supplies the motor*	**See 5.3.9.2 Car door locking devices** *If the car door needs to be locked (see 5.2.5.3.1 c), the locking device shall be designed to meet the requirements given in 5.3.9.1.* *This device shall be protected against deliberate misuse.* *The locking device is regarded as a safety component and shall be verified according to the requirements in EN 81-50:2014, 5.2.* The lock described would not meet the requirements of EN81-20, since a power failure would result in not being able to open the car door, thus failure to meet 5.3.15.1	*Agreed by WG1* *Nov 2016*

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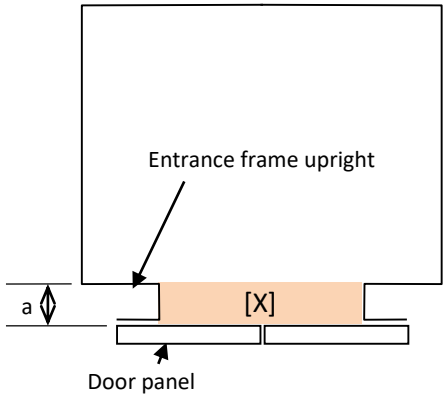
	During a power failure: *If the lift stops for any reason in the unlocking zone,* *In the case of a the battery failure*, condition 5.3.15.b is not fulfilled: When battery is empty, the car door cannot be unlocked and the door cannot be opened from inside of the car.* *Is the case of the door NOT opening from inside (caused by the battery failure) when a power failure happens a "dangerous malfunction of the lift" according to 5.11.1?* **Absence of voltage according to 5.11.1.2 (a)*		
5.3.15.1 If the lift stops for any reason in the unlocking zone (5.3.8.1), it shall be possible with a force not greater than 300 N, to open the car and landing door by hand from: a) the landing after the landing door has been unlocked with the emergency unlocking key or being unlocked by the car door; b) within the car.	Due to receiving multiple questions on this topic and the technical nature of the answers given, should the answers be combined into single Interpretation Request ?	*Agreed.* *WG1 will open a new interpretation request to give a combined answer to the questions raised above.*	*Agreed by WG1* *Nov 2016*
5.3.15.2 In order to restrict the opening of the car door by persons inside the car a means shall be provided such that: a) …, and b) when the car is outside of the zone defined in 5.3.8.1, it shall not be possible to open the car door more than 50 mm with a force of 1000 N, at the restrictor mechanism nor shall the door open under automatic power operation.	If the restrictor mechanism is located on one door panel of central opening doors and only this door panel is locked by the mechanism, is it then correct to apply the force of 1000 N on this door panel at a height where the restrictor mechanism is arranged?	*The 1000N is applied at the restrictor mechanism. However, applying this force to the individual panels should not cause a failure resulting in the door no longer being a valid means of protection.*	*Agreed by WG1* *Sept 2014*
5.4.2.1.2 "The car area shall be measured from wall to wall car body inner dimensions excluding finishes at a height 1 m from the floor." However in EN81-70 it is said;	For any passenger carring lift in conformity to EN 81-70, where the thickness of the car lining exceeds 15mm, then the car body must be increased to meet the minimum required dimensions for accessibility. i.e. if the minimum	*Yes.* *In order to avoid such conflict with EN 81-70 the car lining material must be kept below the thickness where it would cause divergence between the load area and allowable no of*	*Agreed by WG1* *Nov 2014*

Text EN 81-20	Question	Answer	Approved by WG1
1 Scope This European Standard specifies the minimum requirements for the safe and independent access and use of lifts by persons, including persons with the disabilities mentioned in annex B, Table B.1. This European Standard covers lifts with minimum car dimensions according to Table 1 and provided with car doors and landing doors constructed as automatic power operated horizontally sliding doors. **5.3.1** ……Car dimensions shall be measured between the structural car walls. Any decorative finishes of a wall that reduces the minimum car dimensions given by Table 1 shall not exceed 15 mm in thickness.	actual requirement of a 1100 x 1400 car is 1070 x 1370, and car finishes are 40mm thick, then the bar body size must be increased to 1150mm x 1450mm. This being the case, then according to EN81-20, where it states the car area must be taken to the structural walls, this car has an area of 1.15m x 1.45m = 1.6675m^2. According to EN81-20 this would then have to be rated at 675kg, which when divided by 75kg per peson gives a capacity of 9 persons. Therefore working to EN81-20 and EN81-70 will result in a car size of 1070 x 1370 inside dimensions, which will have a loadplate of 9 pers – 675kg. The same could result with lesser finish thickness if there is an area to be taken into account for the doors. Is this understanding correct?	*persons traditionally found in Tables 1 and 2 of EN 81-20.*	
5.4.2.1.3 Where there is an available area between the entrance frame uprights, when the doors are closed the following applies: a) Where the area is less or equal than 100mm deep up to any door panel (including fast and slow doors in the case of multi-panel doors), then it shall be excluded from the floor area b) Where the area is greater than 100 mm deep, total available area shall also be included into the floor area.”	Regarding the above sentences, can we interpret as the below figures?  Where a<=100mm, the area[X] are excluded Where a> 100mm, the area[X] are included	*Yes, this understanding is correct; this is why the requirement is for "the total available area".*	*Agreed by WG1* *Feb 2015*

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	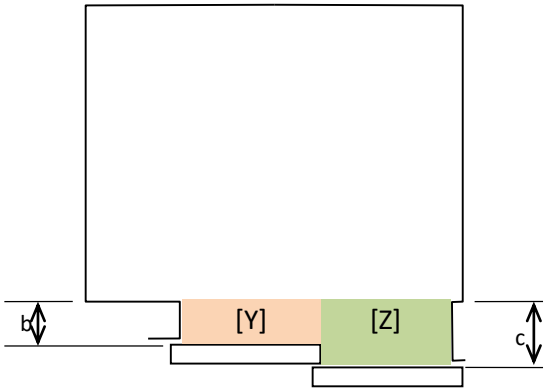 Where b and c <=100mm, both of the area[Y] and [Z] are excluded Where b <= 100mm, c>100mm, both of the area[Y] and [Z] are included Where b and c >100mm, both of the area[Y] and [Z] are included		
5.4.4 The supporting structure of the car body shall be made of non-flammable materials.	What is the definition of: a) non-flammable materials (ISO xxx, EN xxx)? It shall be non-combustible as in EN 13501-1 b) supporting structure of the car body (the structure which keeps the load or the structure which keeps the car body)?	*The standard is clear that the supporting structure of the car body is non-flammable.* *For the purpose of this standard "Non-flammable" should be understood as not being able to support a flame.* *This allows the use of some materials which are not steel, but are still considered as safe in relation to flammability.*	*Approved by WG1* *Nov 2015* *Modified by WG1* *Nov 2016*

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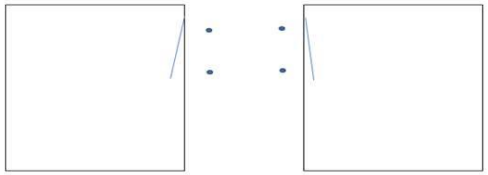
		Supporting structure of the car body should be understood as the car frame/sling and supporting platform. *For example, if a platform has a wooden floor then the requirement would be to have a non-flammable load bearing material under the wooden floor. The wood shall then comply with the floor finishes requirement in the standard.*	
5.4.4 the last sentence makes a reference to EN 12600:2002 …Mirrors or other glass finishes, where used within the car, shall comply with mode B or C according to EN12600:2002, Annex C, if broken.	This seems to be wrong. Annex C contains terms and definitions of glass types with explanations about typical mode of braking. The explanation of "Mode of breakage" is in chapter 6.3	*Agreed,* *We will review this in the amendment to refer to the correct clause ; i.e. 6.3 and not annex C.*	*Agreed by WG1* *Feb 2015*
5.4.6.3.1.2 Emergency doors shall not be located in the path of a counterweight or a balancing weight or in front of a fixed obstacle (except for beams separating the cars) preventing passage from one car to another.	 Is the governor rope considdered to be a fixed obstacle?	*Yes, governor ropes should be considered as a fixed obstacle.*	*Agreed by WG1 – Nov 2015*
5.5.3 Rope traction NOTE Examples of design considerations are given in EN 81-50:2014, 5.11.	a) Is the calculation for Traction as described in EN81-50, 5.11 a mandatory requirement of EN81-20. b) If not, then which of the calculations described in EN81-50 are mandatory.	*a) No, notes in the standards are not mandatory requirements. Therefore the use of the traction calculation is only one suggested means of calculating traction. Other methods are possible.* *b) In relation to EN 81-20 (see paragraph 7 of Foreword to EN 81-50, "The content of this standard provides the design rules, calculations, examinations and tests for lifts component, the requirements of which are specified in other EN 81 series of standards. Therefore this standard can only be used in*	*Agreed by WG1* *Nov 2014*

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		conjunction with the standards for specific lift types, e.g. EN 81-20 for passenger and goods passenger lifts".); • *Calculations found in EN 81-50, 5.1 to 5.9 are normative where stated in EN 81-20 clauses.* • *Calculations found in EN 81-50, 5.10 for guide rails are one of three possible, the others being to EN 1993-1-1 (Eurocode), or Finite Element Method (FEM) in accordance with national or international standards in that field (see EN 81-20, 0.4.3)* • *Calculations for traction found in EN 81-50, 5.11 are informative.(See EN 81-20, 5.5.3)* • *Calculations for evaluation of safety factor found in EN 81-50, 5.12 are normative (see EN 81-20, 5.5.2.2)* • *Calculations for hydraulic equipment found in EN 81-50, 5.13 are normative.(See EN 81-20, 5.9.3.2.1.1)* *The requirements are relevant when the concerned standards call for them and those requirements are applied in the manner described by the concerned standard.*	
5.5.3 Rope traction *NOTE Examples of design considerations are given in EN 81-50:2014, 5.11.* *Rope traction shall be such that the following three conditions are fulfilled:* *a) the car shall be maintained at floor level without slip when loaded to 125 % as per 5.4.2.1 or 5.4.2.2;* *b) it shall be ensured that any emergency braking causes the car, whether empty or with rated load, to decelerate to a speed which is lower or equal than the speed for which the buffers are designed, including reduced stroke buffer;* *c) it shall not be possible to raise the empty car or*	There is a difference between the requirement and the test. 5.5.3 b) requires to decelerate in case of emergency braking whether empty or with rated load but the test according 6.3.3 requires the car loaded with 125 % of the rated load and complete stoppage of the car shall occur. The test requirement is much stronger than the design requirement. What is valid?	*The test requirement has been formulated to remove any variance caused by where the test is carried out within the well and represents a worst case condition.* *These are the same requirements as have been present in EN81-1 since 1985.* *Therefore the test is considered as valid to the requirements of 5.5.3.*	*Agreed by WG1* *Nov 2015*

Text EN 81-20	Question	Answer	Approved by WG1
the counterweight to a dangerous position if either the car or the counterweight is stalled; either: *1) the ropes shall slip on the traction sheave; or* *2) the machine shall be stopped by an electric safety device in conformity with 5.11.2.* *NOTE Some lifting of the car or counterweight is acceptable provided there is no risk of crushing at the extremes of travel or falling back of the car or counterweight causing impact forces on the means of suspension and excessive retardation of the car.* ***6.3.3 Checking of the traction (5.5.3)*** *The traction shall be checked by making several stops with the most severe braking compatible with the installation. At each test, complete stoppage of the car shall occur.* *The test shall be carried out:* *a) ascending, with the car empty, in the upper part of the travel;* *b) descending, with the car loaded with 125 % of the rated load, in the lower part of the travel;* *The counterweight shall be brought into contact with the buffer(s) and the machine shall continue to be turned until rope slippage occurs, or if slippage does not occur the car shall not be raised. It shall be checked that the balance is as stated by the installer.*			
5.5.5.3 Protection in the case of abnormal extension, slack rope or slack chain shall be provided as follows: a) in the case of two rope or two chain suspension of the car an electric safety device in conformity with 5.11.2 shall cause the machine to stop in case of abnormal relative extension of one rope or chain; b) for positive drive lifts and hydraulic lifts, if the risk of slack rope (or chain) exists, an electric safety device in conformity with 5.11.2 shall cause the machine to stop when slack occurs. After stopping normal operation shall be prevented. For	The risk that would be the case at emergency lowering acc. 5.9.3.9.1.5 is also present when using emergency electrical operation. Should further sinking of the ram beyond that causing the slack rope/chain also be prevented at electrical emergency operation down movement ?	*At present this is not required by EN81-20 and therefore would be a technical addition to the standard.* *This might also be the case in the use of electrical emergency operation on positive drive lifts.* *This will be reviewed as part of the revision of EN81-20.*	*Agreed by WG1* *Feb 2016*

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hydraulic lifts with two or more jacks this requirement applies for each suspension set. **5.12.1.6** Control of emergency electrical operation 5.12.1.6.1 If a means of emergency electrical operation is required in accordance with 5.9.2.3.3 an emergency electrical operation switch in conformity with 5.11.2 shall be installed. The machine shall be supplied from the normal main supply or from the standby supply if there is one. The following conditions shall be satisfied simultaneously: ... d) the emergency electrical operation switch shall render inoperative by itself or through another electric switch in conformity with 5.11.2 the following electric devices: 1) those used for checking slack rope or chain according to 5.5.5.3 b) ... **5.9.3.9.1.5** The emergency lowering valve shall not cause further sinking of the ram when the pressure falls below a value predetermined by the manufacturer. In the case of indirect acting lifts where slack rope/chain can occur, manual operation of the valve shall not cause the sinking of the ram beyond that causing the slack rope/chain.			
5.5.7.1 For sheaves, pulleys and sprockets, overspeed governors, tension weight pulleys, provisions shall be made according to Table 10 to avoid: see also	This sentence has changed compared to EN 81-1 9.7.1. There it was "For **traction** sheaves, pulleys ...:" Does this change mean that any sheaves (e.g. rotating sheaves of roller guide shoes) need to have protection according table 10?	*This clause is under the provision of suspension means.* *Roller guides are not sheaves, sprockets or pulleys.*	*Agreed by WG1* *Feb 2015*

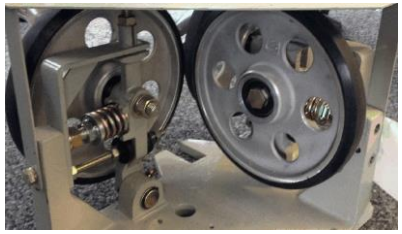
Text EN 81-20	Question	Answer	Approved by WG1
5.4.7.6 Pulleys and/or sprockets fixed to the car shall have protection according to **5.5.7.** see also table 1 List of significant hazards where 5.5.7 is listed for 3 hazards: *Drawing-in or trapping hazard, Entanglement hazard, Rotating elements*	This would need additional protection on any roller guide shoe on top of the car.   		
5.5.7.1, Table 10	Why are there different requirements in column a for traction sheaves installed in the machine room or in the headroom / pit? The remark 2 leads to the conclusion that no additional protection of a traction sheave is required even the traction sheave is not smooth and spokeless. Is this the intention of this remark?	*Ans 1 - It is agreed that the Note 2 should be applied to all pulleys in the headroom and in the pit to be consistent with those in the machine room. This to be reviewed as part of the future amendment to EN81-20.* *Ans 2 – No, there is no requirement in the standard for full protection of the traction sheave in the machine room.*	*Agreed by WG1* *Nov 2015* *Revised by WG1* *Nov 2016*

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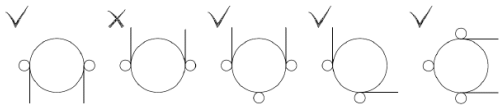
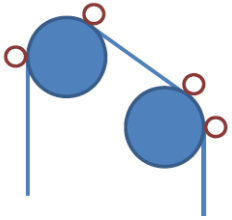
Table 10 — Protection for sheaves, pulleys and sprockets See table below			
5.5.7.2. . . The devices for preventing the ropes from leaving the grooves of pulleys shall include one retainer near the points where the ropes enter and leave the pulleys and at least one intermediate retainer if more than 60° of the angle of wrap is arranged below the horizontal axis of the pulley and the total angle of wrap is more than 120° (see Figure 19).  Figure 19 — Examples of arrangements of rope retainers	What about rope retainers in double wrap systems? Single wrap is clear:  What is correct for Double wrap, A or B?	*The text of EN81-20 was written based on single wrap solutions.* *In the case of double wrap the "A" diagram should be sufficient to meet the requirement of the rope entering and exiting the sheave arrangement.* *This is consistent with other worldwide standards on lift design.* *The text should be amended to state this is based on single wrap, or that for double wrap the solution applies to the sheave/pulley set.*	*Agreed by WG1* *Feb 2015*

Location of sheaves, pulleys and sprockets			Risk according to 5.5.7.1		
			a	b	c
At the car	on the roof		x	x	x
	under the floor			x	x
On the counterweight / balancing weight				x	x
In machine and pulley rooms			x [2)]	x	x [1)]
In the well	Headroom	above car	x	x	
		beside car	x	x	
	between pit and headroom			x	x [1)]
	Pit		x	x	x
Jack	Extending upwards		x [2)]	x	
	Extending downwards			x	x [1)]
	With mechanical synchronizing means		x	x	x

x Risk shall be taken into account.

1) Required only if the ropes/chains are entering the traction sheave or the pulley/sprocket horizontally or at any angle above the horizontal up to a maximum of 90°.

2) Protection shall be nip guards as a minimum preventing accidental access to areas where ropes/chains enter or leave the sheaves, pulleys or sprockets (See Figure 18).

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	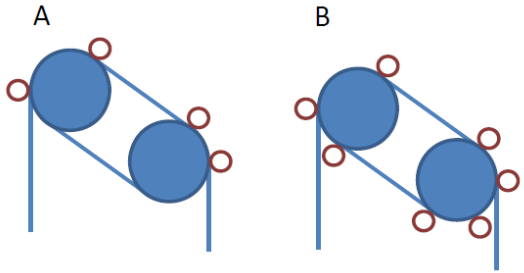		
5.5.8 Traction sheaves, pulleys and sprockets in the well Traction sheaves, pulleys and sprockets may be installed in the well above the lowest landing level under the following conditions: a) there shall be retaining devices to prevent diverter pulleys/sprockets from falling in the event of a mechanical failure. These devices shall be able to support the weight of the pulley/sprockets and the suspended loads;	1. Is it enough to have retaining devices only for the diverter pulley/sprockets located above the projection of the car? 2. If no, is the hanging pulley of the counterweight included in the diverter pulley/sprockets above the lowest landing level?	*1) – According to the text of the standard, all pulleys / sprockets installed in the well above the lowest landing shall have such protection means, not just the ones in the car projection.* *In this case "installed" should be understood to mean fixed in the well.* *2) – The pulleys attached to the counterweight and attached to the car are not required to have such protection.*	*Agreed by WG1* *Feb 2015*
5.6.2.1.2.3	Maximum tripping speed for an instantaneous safety gear installed in a counterweight <u>Antecedents</u> There have been changes in the new standard EN 81-20 regarding the tripping speed for safety gears installed in the counterweight. The clause 9.9.3 of EN 81-1 has been deleted as well as the reference given for 'car' when ranging the tripping speed in clause 9.9.1 of EN 81-1 that now referenced as 5.6.2.2.1.1 of EN 81-20 does not specifically mention 'car' so can be interpreted as applicable to car, counterweight or balancing weight. Clause 5.6.2.1.2.3 (EN 81-20) allows using instantaneous safety gears installed in counterweights up to a rated speed of 1.0 m/s,	*At present the standard requires that the maximum tripping speed for instananeous safety gear is 1 m/s for a speed governor.* *Therefore the rated speed of the installation must be proportionally less than this to allow this solution.* *For tripping by other means at rated speeds up to 1 m/s the possibility exists to trip at a speed equivalent to the use of a governor.* *WG1 will review these requirments giving consideration to market needs at the next revision of EN 81-20.*	*Agreed by WG1* *Feb 2016*

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	but clause 5.6.2.2.1.1 (EN 81-20), if considered applicable to the safety gears in counterweight, says the maximum permissible tripping speed for instantaneous safety gear shall be 1.0 m/s. Such interpretation gives rise to incoherence because the minimum tripping speed shall be at least 115% of the rated speed, thus the minimum tripping speed (1.15 m/s) is greater than the maximum permissible tripping speed (1.0 m/s) which is not possible. When the safety gear is not tripped by an overspeed governor, as allowed in table 11 (EN 81-20) when the rated speed does not exceed 1.0 m/s, the alternative means: breakage of suspension means or safety rope, the actual tripping speed can be from zero to an undefined tripping speed that should be considered as that of the corresponding tripping speed of an appropriate overspeed governor as per clause 5.6.2.1.6.5 (EN 81-20). Note: The permissible mass is a function of the tripping speed, so it is important to know what is the appropriate tripping speed aforementioned because it gives the limit of use of the safety gear. <u>Questions</u> 1. What is the maximum tripping speed for an instantaneous safety gear installed in a counterweight as mean against free fall, given protection against that risk when there are accessible spaces below the lift's hoistway? 2. What shall be considered the tripping speed of an appropriate overspeed governor when the tripping means are due to breakage of the		

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	suspension means or by a safety rope? Is it the maximum according to the rated speed and the figures of clause 5.6.2.2.1.1 (EN 81-20)? 3. Shall the same criteria be used when the instantaneous safety gear is used in a counterweight under the conditions of 5.6.6 and 5.6.7 of EN 81-20?		
5.6.6.2 (ACOP)requires "*Self monitoring is subject to type examination*", but there is no test in EN 81-50 5.7. Usually such a self-monitoring is done by the control system or by the drive control system.	Does this require separate certificates for these self-monitoring systems?	*The same procedure as for UCMP in EN81-50, 5.8.3.2.5 should be used for verification of monitoring.* *This will be added into the amendment of EN81-50.* *The self-monitoring means should be listed in the type examination certificate.*	*Agreed by WG1* *Nov 2015*
5.6.7.1 Lifts shall be provided with a means to prevent or stop unintended car movement away from the landing with the landing door not in the locked position and the car door not in the closed position, as a result of any single failure of the lift machine or drive control system upon which the safe movement of the car depends. **5.12.1.8.3…..** The following conditions for functioning shall be satisfied: a) the normal operation controls, including the operation of any automatic power operated doors shall be neutralized; b) bypassing of the contacts of the landing doors (5.3.9.4, 5.3.11.2), the landing door locks (5.3.9.1), the car door(s) (5.3.13.2) and the car door locks (5.3.9.2) shall be possible; c) it shall not be possible to bypass the contacts	In case of 5.12.1.8.3 it is allowed to bypass both the landing door lock contact and the landing door closed contact (except on manual doors). If the lift is operating under Emergency Electrical Operation and landing door by-pass, is it allowed to disable UCM? In not, what tells the controller that the doors are actually closed.	*NO* *Rationale:* *Disabling of UCM during Inspection or EEO is not necessary because:* • *During normal Inspection and EEO all the doors are closed.* • *Bypassing both car doors and landing door at the same time is not allowed.* • *UCM is movement away from the landing with the landing door not in the locked position **and** the car door not in the closed position.*	*Agreed by WG1* *May 2015*

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of the car door(s) and landing doors at the same time; d) a separate monitoring signal shall be provided to check that the car door(s) is/are in the closed position in order to allow a car movement with bypassed car door closed contact(s). This applies also if the car door closed contact(s) and the car door locked contact(s) are combined; e) in case of manually operated landing doors, it shall not be possible to bypass the contacts of the landing doors (5.3.9.4) and the landing door locks (5.3.9.1) at the same time; f) movement of the car shall only be possible in inspection operation (5.12.1.5) or emergency electrical operation (5.12.1.6);			
5.7.2.3.5 … $$F_v = \frac{k_1 \cdot g_n \cdot (P+Q)}{n} + (M_g \cdot g_n) + F_p$$ - Fp = nb **.** Fr in the case of guide rails supported on the pit or hanging (fixed at the top of the well), … where Fp is the push through forces of all brackets at one guide rail (due to normal settling of the building or shrinkage of concrete) in newtons; nb is the number of brackets for a guide rail;	In the formula to calculate Fv, nb is the number of brackets for a guide rail. There is an inconsistency in this formula. Is nb the number of brackets in one line of guide rails?	*Yes, nb is the number of brackets in one line of guide rails.* *A guide rail normally comprises several sections connected in a single line. The number of brackets applies to the complete length of the rail.*	*Agreed by WG1* *Feb 2015*

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5.9.2.2.2 Electro-mechanical brake **5.9.2.2.2.1** This brake on its own shall be capable of stopping the machine when the car is travelling downward at rated speed and with the rated load plus 25 %. In these conditions the average retardation of the car shall not exceed that resulting from operation of the safety gear or stopping on the buffer.	**QUESTION** 5.9.2.2.2 /12.4.2.1 meanings of braking force (stopping distance) and retardation are uncertain. Therefore, we have made two interpretations and we would like to know if they could be interpreted as follows: **Suggestion 1)** Retardation of the safety gear(0.2g~1.0g) should not be exceeded since the safety gear operates in the travelling area. Thus, brake stopping distance should be designed lower than the distance which corresponds to $0.2g[\frac{v^2}{2\times(0.2\times 9.81)}$, m]. For instance, in the case of an elevator whose speed is 1 m/s, retardation of car should not be higher than 1g and maximum brake stopping distance should be designed lower than 254 mm. **Suggestion 2)** Maximum retardation of both retardation and buffer of emergency stop equipment is 1g, thus it should not be exceeded. Therefore, there is no rule regarding maximum brake stopping distance. For example, in the case of an elevator whose speed is 1 m/s, retardation of car is lower than 1g and maximum brake stopping distance is not	*The clause can be interpreted that the brake must excerpt sufficient force to cause the car to slow, eventually coming to a stop if there is sufficient free travel distance, and that the average retardation should not exceed 1g.* *Therefore there is no limit to the distance traveled in stopping and the 0,2g lower limit of the safety gear is not relevant to this clause.*	*Agreed by WG1 – Nov 2016*

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	additionally regulated. **Suggestion 3)** Others I would really appreciate if you tell me about other opinions on a range of application of retardation which is regulated in the section 12.4.2.1.		
5.9.2.2.2.9 With the brake manually released and the car loaded within the limits of (q – 0,1) Q and (q + 0,1) Q it shall be possible to move the car to an adjacent floor by ...	What is understood by "within the limits of" since it could be understood that emergency operation is only possible within these loading conditions and therefore with the car loaded at 100% rescue operations are not needed.	*"within the limits of" must be understood as being the following,* *With the car loaded from ;* *0% of rated load to (q - 0,1) Q and from (q + 0,1) Q to 100% of rated load, it shall be possible to….* *This will also need to be understood in a similar manner for the verification in 6.3.1.c)* *This will be clarified by official TC10 interpretation and at the next amendment of EN 81-20.*	*Agreed by WG1* *Sept 2014*
5.9.2.3.1 Where a means of emergency operation is required (see 5.9.2.2.2.9 b) it shall consist of either: … or b) an electrical means which complies with the following: 1) the power supply shall be able to move the car with any load to an adjacent landing within 1 h after a breakdown; 2) the speed shall be not greater than 0,30 m/s.	Is it required that the electric safety chain or parts of it (e.g. door chain) is monitored and closed during electrically driven movements according to 5.9.2.3.1 b)?	*No, there is no such requirement in EN 81-20. Electrically driven movements in emergency cases are considered similar than mechanically driven movements. Even if a monitoring of the safety chain would increase the safety during rescue operations, it would prevent or delay rescue of trapped persons in case of failures of one of the electric safety devices.*	*Agreed by WG1* *Feb 2015*
5.9.3.6 Checking the pressure **5.9.3.6.1** A pressure gauge shall be provided for indication of system pressure. It shall be connected to the circuit between the non-return valve or the	According to EN81-20, 5.9.3.6.1. , there shall be a pressure gauge between the non-return valve or the down direction valve(s) and the shut off valve. By using a second non-return valve as a	*Correct.* *This should be changed at the next revision of EN81-20*	*Agreed by WG1* *Feb 2016*

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down direction valve(s) and the shut-off valve. **5.9.3.6.2** A gauge shut-off valve shall be provided between the main circuit and the connection for the pressure gauge. **5.9.3.6.3** The connection shall be provided with an internal thread of either M 20 x 1,5 or G 1/2".	solution to comply with UCM requirements this clause must be corrected. The pressure gauge shall be connected between the UVM non-return valve and the shut-off valve. Is this correct?		
5.10.4 Protection of electrical equipment **5.10.4.1** For the protection of electrical equipment EN 60204-1:2006, 7.1 to 7.4 applies. **5.10.4.2** Protection of motors against overheating shall be provided for each motor. NOTE According to EN 60204-1:2006, 7.3.1 motors below 0,5 kW need not to be provided with overheat protection. This exception, however, does not apply in this standard. **5.10.4.3** If the design temperature of electrical equipment provided with temperature monitoring devices is exceeded, then the car shall stop at a landing such as the passengers can leave the car. An automatic return to normal operation of the lift shall only occur after sufficient cooling down.	It can be understood to a degree that we now require overheat protection on all motors, even that for the door gear and car ventilation fan. However, it is questioned if 5.10.4.3 is correct since this appears to require that any motor is monitored and if overheated removes the lift from service. We are asking was it really intended for this, and does it really include the door gear motor, ventilation extraction fan motor, controller ventilation fans (these last two it seems are very common in China) Could you confirm that 5.10.4.3 applies to any motor as part of the lift installation?	*Clause 5.10.4 is not only for motors but for all electrical equipment.* *Clause 5.10.4.3 means that temperature monitoring device of any electrical equipment shall not stop the car between floors.* *Overheating protection of the motor can be implemented by other means than the temperature monitoring. e.g. by current limitation.*	*Agreed by WG1* *May 2015*
5.12.1.2 Load control **5.12.1.2.1** <u>The lift shall be fitted with a device to prevent normal starting, including re-levelling, in the event of overload in the car.</u> In the case of hydraulic lifts, the device shall not prevent re-levelling. **5.12.1.2.2** The overload shall be detected at the latest when the rated load is exceeded by 10 % with a minimum of 75 kg. **5.12.1.2.3** In the event of overload: a) users shall be informed by an audible and a visible signal in the car;	We believe that in order to fulfil "shall be provided with a device to prevent normal starting" the load weighing device must be part of the safety circuit. If not a failure in the device might mean that "normal starting" is not prevented when the device fails. Should the overload device be part of the electric safety chain?	*No, the device does not have to be part of the safety chain because the standard does not require that this device fulfils the requirements of an electric safety device (5.11.2).* *The overload device can be seen as providing information to the user regarding the load limits of the lift car and preventing normal operation.* *In any case the standard provides protection from overload within its basic requirements such as traction calculations, 125% overload test, hydraulic pressure relief valve and car*	*Agreed by WG1 – Nov 2016*

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b) automatic power operated doors shall be brought into the fully open position; c) manually operated doors shall remain unlocked; d) any preliminary operation in accordance with 5.12.1.4 shall be nullified.		*size limits.*	
5.12.1.5.2.1 i) if more than one inspection control station is switched to “INSPECTION", it shall not be possible to move the car from any of them unless the same push buttons on the inspection control stations are operated simultaneously;	Does this mean that it must be possible to move the car or it may be possible to move the car if the same push buttons are operated simultaneously?	*Agreed, this text can be understood in two different ways, that movement is an option or that movement is mandatory.* *To clarify the following text shall be used* ***5.12.1.5.2.1 i)*** *if more than one inspection control station is switched to “INSPECTION" :* *a) the car shall be prevented from moving, or* *b) movement of the car is only possible by operation of the run button and the same direction push button on the respective inspection control stations simultaneously.* *This will be changes in the 1st amendment to EN81-20*	*Agreed by WG1* *Feb 2015*
5.12.1.5.2.3 a) a series connection of a direction and the "RUN" push-button. These push buttons shall belong to the following categories as defined in EN 60947-5-1:2004: — AC-15 for safety contacts in A.C. circuits; — DC-13 for safety contacts in D.C. circuits.	“Safety contacts” have been defined by 5.11.2.2. As there is no definition of safety contacts in EN60947-5-1:2004, safety contacts shall satisfy 5.11.2.2. **Q:** shall the safety contacts mentioned by 5.12.1.5.2.3a) satisfy all requirements of 5.11.2.2?	*No. This is a mistake in the standard. Standard text should be.* *— AC-15 for contacts in A.C. circuits;* *— DC-13 for contacts in D.C. circuits.* *This will be corrected in the 1st amendment of EN 81-20.*	*Agreed by WG1* *Nov 2014*
5.12.1.6.2 The emergency electrical operation means shall have a minimum degree of protection of IPXXD (EN 60529) **5.10.1.2.2 Basic protection (protection against direct contact)**	Concerning the IPXXD for the emergency electrical operation means (5.12.1.6.2) and IPXXB for basic protection against direct contact (5.10.1.2.2 c)) in case of the use the same cover assuring both IP protections in the control	*Requirement 5.12.1.6.2 is independent from 5.10.1.2.2.* *Emergency electrical operation IPXXD protection shall be kept when any cover or enclosure needs to be opened for rescue*	*Agreed by WG1* *Feb 2015* *Amended*

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Additionally to the requirements of 5.10.1.2.1 the following applies: a) in the lift well, machinery spaces and pulley rooms protection of the electrical equipment against direct contact shall be provided by means of casings providing a degree of protection of at least IP2X; b) when equipment is accessible to non-authorized persons, a minimum degree of protection against direct contact corresponding to IP2XD(EN 60529) shall be applied; c) when enclosures containing hazardous live parts are opened for rescue operations, access to hazardous voltage shall be prevented by minimum degree of protection of IPXXB (EN 60529); d) for other enclosures containing hazardous live parts EN 50274 applies.	cabinet, should the IPXXD be kept even when this cover needs to be removed for any task that requires access to the parts located inside e.g. for inspection, or maintenance?	*operations or basic checks (see 3.30 b) and c)).*	*May 2015*
5.12.1.5.2.2 Return to normal operation of the lift The return to normal operation of the lift shall only be effected by switching the inspection operation switch(es) back to normal. Additionally return to normal operation of the lift from pit inspection station shall only be made under the following conditions: a) landing doors giving access to the pit are closed and locked; b) all stopping devices in pit are inactive; c) the electrical reset device outside the well is operated: 1) in conjunction with emergency unlocking means of the door giving access to the pit; or 2) accessible to authorized persons only, e. g. inside a locked cabinet located in close	Concerning the reset device to return to normal operation of the lift from pit inspection station (5.12.1.5.2.2 and 5.2.6.4.4.1), shall this reset device consist of safety contacts or is it enough to use a monitoring signal (following an activation protocol) associated to the emergency unlocking means of the access door to the pit?	*Electrical reset device referred to in 5.12.1.5.2.2 c) and in 5.2.6.4.4.1 g) do not need to be electric safety device in conformity with 5.11.2 or electric device, which complies with the requirements of 5.11.2.2.* *Anyhow clause 5.11.1.1 applies to all electric equipment of the lift.*	*Agreed by WG1* *Feb 2015*

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proximity of the door giving access to the pit. Precautions shall be taken to prevent all involuntary movement of the car in the event of one of the faults listed in 5.11.1.2 appearing in the circuit(s) involved in inspection operation.			
5.12.1.9 **Prevention of normal operation of the lift with faulty door contact circuits** The correct operation of the electric safety device checking closed position of car door (5.3.13.2), the electric safety device checking locked position of landing door locking device (5.3.9.1) and the monitoring signal referred in 5.12.1.8.3 d) shall be monitored while the car is in the unlocking zone, the car door is opened and landing door lock is released. If devices are detected faulty the normal operation of the lift shall be prevented	In our national interpretation committee a number of questions have been raised concerning clause 5.12.1.9. Since our committee was not sure on possible answer we would like WG1 to check these questions and let us know the opinion of the experts. We have the following questions: 1. It is required to monitor the correct operation of the electric safety device checking closed position of car door, the electric safety device checking locked position of landing door locking device and the monitoring signal referred in 5.12.1.8.3 d) while the car is in the unlocking zone, the car door is opened and landing door lock is released. In case of cars with 2 or more doors 6 or even more signals would have to be checked simultaneously. Due to the fact that some of these devices are linked in series checking them separately requires additional connections for gathering information on the status of the devices which might create additional risks. Is this really the intention of the standard? 2. In case of detection of a failure, shall doors close or remain open? 3. Is it allowed after detection of a failure to close and lock doors and re-open again to see whether the failure is still present? Is it allowed to re-start in normal operation if the failure is no longer	*Intention of the standard is to detect faulty door contacts also in cases where car has two or more doors.* *Ans 1 - At present the standard requires that this is checked each time the car door is opened.* *Ans 2 - This is not defined by the EN 81-20 standard.* *Ans 3 - Manual reset by competent person is not required. This means that lift can recover automatically if fault disappears.*	*Agreed by WG1 – Nov 2016*

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	detected? 4. In case of hydraulic lifts with electrical anti-creep system shall the doors be closed and the car be sent to the lowest landing? 5. How shall the lift control be reset to normal operation? Is it sufficient that an instructed person operates the main switch or is the intervention by a competent maintenance person required?	*Ans 4 – Electrical anti-creep operation is not within the EN81-20 clause for normal operation, however WG1 consider that the purpose of 5.12.1.9 was to prevent any automatic movements away from the landing with open doors.* *In this case WG1 believe that re-levelling should remain active, even though in the clause of Normal Operation.* *This shall be further reviewed for the proposed amendment to EN81-20.* *Ans 5 - See answer 3 above.*	
5.12.2.3.2	In EN 81-1 for traction lifts it has been required that the lift shall not return to service automatically after operation of the final limit switch. This was usually interpreted in such a way that the final limit switch could be activated by a long vane which is keeps the final limit switch operated for the full overrun and buffer stroke distance. Furthermore a traction lift would not leave the final limit switch by a movement like hydraulic lifts due to leakage and therefore once the switch is operated it is kept operated. Only be moving manually emergency electrical control of with a hand wheel the switch could be released. This seems to be different now in EN 81-20 where it is required in above clause that after operation of the final limit switch the return to normal operation shall require the intervention of a competent maintenance person. This could be understood that just moving the car with EEO	*Please see answer already given regarding persons to be safeguarded in 0.2.2.1*	*Agreed by WG1* *Feb 2016*

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	would not be sufficient anymore because this could be done by instructed rescue personal.		
6.3 Testing and Table 18	According to 6.3 there are a lot of items listed under the relevant clause of EN81-1 / 2 which are no longer specified to be carried out under 6.3, instead they are listed generically in Table 18. Which tests as described in EN81-20, Table 18 are required to be done at the job site?	*Clause 6.3 gives specific information on how to conduct some tests already identified as required in Table 18.* *For other on site tests the requirements of Table 18 should be self-evident.* *Within Table 18, under the columns titled "Visual Inspection", "Performance Checks/Test", "Measurement" and "User Information" there are many items which can only be carried out at the place of installation, such as the check of the electrical safety chain.* *All tests which can only be done at the place of installation, since they require to be tested as a complete assembly or with the building fabric, need to be carried out at the job site.* *Additionally some tests carried out within the manufacturing process, such as door impact testing and fire certification for landing and car doors should be verified at the place of installation for correct assembly in accordance with the instructions and certificates provided by the manufacturer.* *As an example, further information on site based testing can be found in the Test Documentation as developed by the NB-L or National Standards bodies.*	*Agreed by WG1* *May 2015*
6.3.1 Braking system (5.9.2.2) The test shall demonstrate that: a) the electro-mechanical brake on its own is capable of stopping the machine when the car is travelling downwards at rated speed and with the rated load plus 25 %. <u>In these conditions the retardation of the car shall not exceed that</u>	<u>In these conditions the retardation of the car shall not exceed that resulting from operation of the safety gear or stopping on the buffer;</u> This is a new requirement. Is it really expected to carry out this test for deceleration limits for every unit, at the job site.	*The same technical requirement existed in EN81-1, but without the need to test units for maximum deceleration at the installation site.* *Under normal circumstances and with 25% overload the lift will not stop with deceleration of greater than 1g.*	*Agreed by WG1* *May 2015*

Text EN 81-20	Question	Answer	Approved by WG1
resulting from operation of the safety gear or stopping on the buffer;		*The intension of this requirement was for a visual examination under the braking test. Only where the deceleration is observed to be excessive should further tests be necessary.*	
6.3.1 Braking system (5.9.2.2) The test shall demonstrate that: … b) additionally it shall be verified by practical tests that where one brake set is not working a sufficient braking effort is exerted to decelerate the car, travelling downwards at rated speed and with rated load (see 5.9.2.2.2.1);	What can be considered as acceptable practical test to verify sufficient braking effort when one brake set is not working? In case where brake is type tested as UCM safety component, practical test to comply 6.3.1 b) can be done using rated load and rated speed or equally to safety gear testing by using lower speed when defined in manufacturer's instructions (see 6.3.4 b)). Testing with lower speed verifies equally braking torque which defines deceleration, stopping and holding capability. Energy dissipation capability of the brake can be verified during type testing of the brake. Onsite testing with rated load and rated speed may cause unnecessary wear of the brake.	*The requirement in the standard clearly states that the test must be carried out downwards at rate speed with rated load.* *UCM tests are different in that they always assume that both breaks are working.* *Periodical tests once the lift is in service might be done in a different way (as suggested) in order to avoid excessive wear of the brake. See annex C of EN81-20 "These periodic tests should not, through their repetition, cause excessive wear or impose stresses likely to reduce the safety of the lift."*	*Agreed by WG1 – Nov 2015*
6.3.4, b) allows that progressive safety gear on car can be tested with rated speed or lower. (Test load in any case 125 % of rated load.) **6.3.5, b)** allows that progressive safety gear on counterweight can be tested with rated speed or lower. (Test load in any case empty car) In both cases above, there is a condition that manufacturer "shall provide curves…" if the test is done with lower speed than rated speed. **6.3.11** requires that ascending car overspeed protection means shall be tested at a speed not	In our opinion, it is not fully clear at which speed a progressive safety gear must be tested if used as ascending car overspeed protection means. Q1 If progressive safety gear on car is two-directional and used also as ascending car overspeed protection means: What are the allowed test speed in up-direction? • Rated speed or lower as described in 6.3.4, b)? or • Always not less than rated speed as described in 6.3.11? Q2	***3.51*** ***safety gear*** *mechanical device for stopping in the down direction, and maintaining stationary on the guide rails, the lift car, counterweight or balancing weight in case of overspeeding or breaking of the suspension.* ***5.6.6 Ascending car overspeed protection means*** ***5.6.6.1*** *The means, comprising speed monitoring and speed reducing elements, shall detect overspeed of the ascending car (see 5.6.6.10), and shall cause the car to stop, or at least reduce its speed to that for which the counterweight buffer is designed.*	*Agreed by WG1 – Nov 2016*

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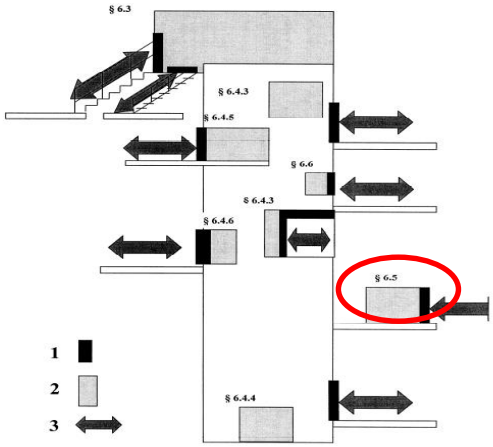
less than rated speed. (Test load empty car)	If progressive safety gear on counterweight are used as ascending car overspeed protection means: What are the allowed test speed? • Rated speed or lower as described in 6.3.5, b)? or • Always not less than rated speed as described in 6.3.11?	*Ans 1 - According to the standard, the safety gear is defined as preventing downwards travel.* *ACOP is preventing upwards overspeed.* *It is the manufacturer's choice to try to combine these into one device.* *Therefore safety gear in down direction can be tested as 6.3.4 b), 6.3.5.b).* *If the same safety gear is used for upwards overspeed, then in the upward direction it must be tested as per 6.3.11* *Ans 2 - For a safety gear on a cwt used as ACOP protection then the safety gear should be tested to 6.3.11* *If there is a cwt safety for both ACOP and accessible spaces, then they should be tested for both, but in this case 6.3.11 is the worst case.*	
6.5 Machinery outside of the well **6.5.2 Machinery cabinet** 6.5.2.1 The machinery of a lift shall be located inside a cabinet which shall not be used for purposes other than the lift. It shall not contain ducts, cables or devices other than for the lift.	Article **6.5 Machinery outside of the wall** and **Annex O** If there is lift machine inside of the elevator well when installing MRL(Machine Roomless) elevator in Korea, we have to install controller cabinet or main switch **on the surface of the elevator well** for easiness of maintenance and inspection. But, in case of manufacturers, they want to install controller cabinet or main switch on **another floor or away from the elevator well** due to the limited design conditions like environmental requirements and others. I wonder if it's fine to install controller cabinet or main switch over regular distance away from the elevator well when there is lift machine inside of the elevator well according to article 6.5 and annex O picture,	***5.10.5.1.2*** *This switch shall be located:* *b) where no machine room exists, in the control cabinet, except if this cabinet is mounted in the well, or* *c) at the emergency and tests panel(s) (5.2.6.6) when the control cabinet is mounted in the well. If the emergency panel is separate from the test panel, the switch shall be at the emergency panel.* *If the main switch is not directly accessible from the control cabinet(s), the drive control system or the lift machine, device(s) according to EN 60204-1:2006, 5.5 shall be provided at these locations.* *The main switch shall always be positioned*	*Agreed by WG1 – Nov 2016*

Text EN 81-20	Question	Answer	Approved by WG1
BS EN 81-1:1998+A3:2009 EN 81-1:1998+A3:2009 (E) Annex O (informative) A2 Machinery spaces - Access (6.1)  Key 1 Doors and trap doors § 6.3.4 and 6.4.7 2 Machinery spaces § 6 3 Access § 6.2 Figure O.1 - Machinery spaces - Access (6.1)	If it doesn't matter to install over regular distance away, I want to know how long distance normally installing them. (ex. Within 100m, under two floors, no regulation, etc) Also, I want to know if there is additional requirement when installing control cabinet over regular distance away. Here I want to know the definition of **Machinery cabinet** from Article 6.5.2. Additionally, I want to know the definition of **Machinery**	*outside of the well. The additional disconnection and isolation devices inside the well shall be in accordance with EN 60204-1:2006, 5.5.* *There is no requirement in the standard to give a maximum distance of the main switch from the machinery in the well.*	

Text EN 81-50	Question	Answer	Approved by WG1
5 Design rules, calculations, examinations and tests **5.1 General provisions for type examinations of safety components** **5.1.1 Object and extent of the tests** The safety component/device is submitted to a test procedure to verify that insofar as construction and operation are concerned, it conforms to the requirements imposed by this standard. It shall be checked in particular that the mechanical, electrical and electronic components of the device are properly rated and that in the course of time the device does not lose its effectiveness, particularly through wear or aging**.** If the safety component is needed to satisfy particular requirements (waterproof, dust proof or explosion proof construction) supplementary examinations and/or tests under appropriate criteria shall be made.	**questions:** What does "Adequate sized"? Does this mean that design calculations must be considered all-encompassing, for example, Compound brake disc - drive pulley via the drive pulley shaft? What does "over time": Does this until next maintenance or inspection, what time frame (example 2 -20 years) is meant? What does "wear": this depends on the operating conditions (duration, hours of operation) and testing being performed (recurring and during maintenance) and unintended operational releases. Which statement is to be made here? Become endurance tests (like locking devices for shaft doors) in currently undetermined number and design criteria necessary?	*We understand that these are differences in the terminology between the German and English text version of the standard.* *These requirements in English were intended as generic background information to give reasoning as to why specific components were required to be type tested.* They were not intended to be read literally in terms of specific dimensions or values. These are not additional requirement to the existing EN81-1/2 type tests.	*Agreed by WG1* *Feb 2015*
5.4.2.2.2 Test procedure ... In addition a minimum of two tests shall be made with an acceleration of between 0,9 g_n and 1 g_n in order to simulate a free fall situation and prove no deterioration of the governor has been caused.	The requirement doesn't specify at which tripping speed the test should be done. We assume it should be for the maximum adjusted tripping speed of the governor. Is our understanding correct?	*Yes*	*Agreed by WG1* *Sept 2014*
5.5.3.2.6.1 b) Peaks of retardation shall not exceed the maximum as required by the standard calling for this device. Does it mean that 'Peaks' is 'Peaks duration'?	Please change as follow. b) Peaks duration of retardation shall not …	*Agreed. This will be revised in the amendment to EN81-50.*	*Agreed by WG1* *Feb 2015*

Text EN 81-50	Question	Answer	Approved by WG1
5.7.1.2 c) use in installations with compensating ropes	The clause only mentions compensating ropes, compensating chain/cable are also used in lifts/installations **Q a:** what is the real meaning of the clause? **Q b:** why the clause only mentions compensating ropes?	*a) "compensating ropes" is used here as a generic term to mean all type of compensation means.* *b) See above, we will alter the wording in the 1st amendment of EN81-20 to "compensation means"*	*Agreed by WG1* *Nov 2014*
5.8.1 General provisions The unintended car movement protection means shall be type tested … In case of electric failure it can be assumed for traction lifts due to internal control means the acceleration which can be achieved is not greater than 2,5 m/s².	1. Is the underlined sentence part of Note 1 or and independent requirement? 2. Is the limit of 2,5 m/s² applicable in general without considering the specific case within a type examination, i.e. by further assessing the internal control means?	*1. This sentence is an independent requirement.* *2. Yes*	*Agreed by WG1* *Feb 2015*
Table 3, 3.5 "(b) Welding of contacts cannot be excluded. However, if the relay is constructed to have mechanically forced interlocked contacts, and made according to EN 60947–5-1, the assumptions laid down in the standards calling for the use of this standard (e.g. EN 81–20:2014, 5.10.3.1.2 and 5.10.3.1.3) apply."	This is not in line with the original comment made during the final comment stage which should have modified the text as follows; "(b) Welding of contacts cannot be excluded. However, ~~if the relay is constructed to have mechanically forced interlocked contacts, and made according to EN 60947–5-1,~~ the assumptions laid down in the standards calling for the use of this standard (e.g. EN 81–20:2014, 5.10.3.1.2 and 5.10.3.1.3) apply." Can this be clarified?	*EN 60947-5-1 covers contactor relays and not relays, therefore the second part of this sentence should have been deleted and is an editorial error.* *This will be corrected at the next amendment of EN 81-20.*	*Agreed by WG1* *Sept 2014*
C.1.3	the symbol бv is missing **Q:** is бv refers to “compression stress”?	*бv shown in C.2.2.2 referring to "Compressive Stress" and so will be added to the table of references.* *This will be corrected in the 1st amendment of EN 81-20.*	*Agreed by WG1* *Nov 2014* *Amended May 2015*

Text EN 81-50	Question	Answer	Approved by WG1
C.2.2.2, C.2.3.2	Base on the formula of “C.2.2.2 Buckling”, C.2.2.2 is only refers to “compression stress”, therefore, “C.2.2.2 Buckling” should be changed into “C.2.2.2 compression stress” **Q**: is the understanding correct?	*Yes* *Since buckling is already calculated for safety gear activation there is no need to do it again for lesser load conditions.* *This is also to be found in C.2.3.2* *At the same time the 6k shown in C.2.3.2 should be altered to 6v.* *The title of these clauses will be corrected in the next version of EN81-1.*	*Agreed by WG1* *Amended May 2015*