KEY CHANGES IN SS550: 2020 AND REGULATORY COMPLIANCE

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1) Highlights of selected key changes related to work environment/safety and type testing of safety components





2) Changes to Processes/Submission Requirements for lifts after SS550:2020 becomes effective











PART 1

KEY CHANGES RELATED TO WORK ENVIRONMENT/SAFETY AND TYPE TESTING

Adoption of SS550:2020

- 1. SS550:2020 was launched on 8 January 2021;
- 2. BCA issued a circular on 11 January 2021 to inform the industry on the adoption of SS550:2020;

Link for the circular: <u>https://www1.bca.gov.sg/docs/default-source/docs-corp-news-</u> and-publications/circulars/circular-on-adoption-of-ss-550-2020.pdf

 With effect from <u>1 July 2021</u>, any lift proposed in a project whose first set of plans* is submitted to BCA for approval under the Building Control Act on or after this date will have to comply with SS550:2020, including the type examination requirements.

*Either building plans or structural plans, whichever is earlier



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Summary of key changes



SS550:2020 is an adoption of EN81-20 with modification to align with local requirement with following key changes:

SS 550 : 2020 EN 81-20:2014, MOD (ICS 91.140.90)

SINGAPORE STANDARD Code of practice for installation, operation and maintenance of electric passenger and goods lifts

The national standard is the modified implementation of EN 81-20:2014 and is adopted with permission of CEN, Avenue Marnix 17, 1000 Brussels



- a) Work environment and safety;
- b) Type testing of safety components;
- c) Incorporated BCA's maintenance outcome into SS550;
- d) Incorporated provisions and emergency operations from SS550:2009 ;
- e) Included traction and hydraulic lifts
- f) Other technical changes: car size etc.



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1. Lighting intensity

1a. Working space – 200 lux



For example, machinery space/control panel **1b. General areas – 50 lux**

For example, moving space between working spaces such as entrance to motor room, car roof and car pit inside the well etc

2. Stopping device in case of emergency

to be provided at a) lift pit; b) in the pulley room; c) on the car roof; d) at the inspection control devices; e) at the lift machine; f) at the test panel;





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3. Ventilation

In addition to ventilation requirement in machinery spaces and pulley rooms in SS550:2009:

3a. Lift Well Ventilation (updated)

Ventilation opening shall be provided for ventilation and heat extraction in the well.



5.2.1.3.2 Lift wells shall be adequately ventilated to the external air, by means of one or more permanent openings provided at the topmost part of the well, having a total unobstructed area of at least 1 % of the horizontal section of the well and not less than 0.1 m² for each lift in the well.

3b. Permanent fan(s)

Fan(s) to circulate draught in machinery area <u>and other working spaces</u> (such as car top, lift pit etc) as necessary for better work environment.





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4. Fall Protection

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4.1 Car top toe board and barricade shall be installed as per 5.4.7.2











No balustrade required but a toe-board 100 mm minimum high

4.2 Requirement for barricade in 5.4.7.4 including height must be at least 1.1 meter.

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Changes in Work Environment and Safety

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5. Car top clearance and refuge space



Illustration Picture - Courtesy of Mr. Phuah Cheng Kok



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6. Protection inside the well

6.1 Reach Between Adjacent Lifts – requirement added in SS550:2020

5.2.5.5.2.2 The partition shall extend through the full height of the well if the horizontal distance between the inner edge of any balustrade and a moving part (car, counterweight or balancing weight) of an adjacent lift is less than 0,50 m.

This partition shall be at least the width of the moving part and extend a further 0,10 m on each side throughout the height of the well.





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6.2 Partition for Adjacent Pit

In addition to the partition requirement when there is levelling difference in adjacent pits, SS550:2020 added requirements for <u>partition for adjacent pits</u>.

5.2.5.5.2 Where the well contains several lifts there shall be a partition between the moving parts of different lifts.

If this partition is perforate, EN ISO 13857:2008, 4.2.4.1 shall be respected.

The partition 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 partition, it shall not deflect to cause the moving parts to collide with it.

5.2.5.5.2.1 This partition shall extend from within 0,30 m from the pit floor to a height of 2,50 m above the floor of the lowest landing.

The width shall be sufficient as to prevent access from one pit to another.

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.

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Illustration Picture - Courtesy of Mr. Phuah Cheng Kok

Changes in Type Testing



Changes in type testing of safety components in SS550:2020:



1. Updated List of Safety Components to align with EN81-20



2. EN81-50 was referred as the testing standard

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Changes in Type Testing

1. Updated List of Safety Components in SS550:2020



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Changes in Type Testing



2. Safety components needs to be tested in accordance with EN81-50



BS EN 81-50:2014

BSI Standards Publication

Safety rules for the construction and installation of lifts — Examinations and tests

Part 50: Design rules, calculations, examinations and tests of lift components EN81-50 includes the type testing requirement of safety components, including testing method, testing procedure, and testing sample etc.

Changes in Type Testing



afety Component	Requirement
anding Door and Car oor Locking Devices	The locking device is regarded as a safety component and shall be verified according to the requirements in EN 81-50:2014, 5.2
	— . .
afety Gear	The safety gear is regarded as a safety component and shall be verified according to the requirements in EN 81-50:2014, 5.3
verspeed Governor SG)	The overspeed governor is regarded as a safety component and shall be verified according to the requirements in EN 81-50:2014, 5.4

Changes in Type Testing

	Safety Component	Requirement
	Ascending car overspeed protection means (ACOP)	The ascending car overspeed protection means is regarded as a safety component and shall be verified according to the requirements in EN 81-50:2014, 5.7
	Unintended Car Movement Protection (UCMP)	The unintended car movement with open doors protection means is regarded as a safety component and shall be verified according to the requirements in EN 81-50:2014, 5.8
Alte		
	Buffer	The energy accumulation type buffers with non-linear characteristics and energy dissipation type buffers are regarded as safety components and shall be verified according to the requirements in EN 81-50:2014, 5.5
1		

Changes in Type Testing



Safety Component	Requirement
Safety circuits	Safety circuits containing electronic components are regarded as safety components and shall be verified according to the requirements in EN 81- 50:2014, 5.6

In general, there are two types of safety circuits:

Type 1: Safety circuits containing electronic components as mentioned in EN81:50 5.6.1.2

Type 2: Safety circuits based on programmable electronic systems (PESSRAL) as mentioned in EN81-50 5.6.1.3

Noted: The requirement for Printed Circuit Board (PCB) used as part of safety circuits is included in EN81:50 5.6.1.2



Changes in Type Testing



For Hydraulic Lift only

Safety Component	Requirement
Rupture Valve	The rupture valve is regarded as a safety component and shall be verified according to the requirements in EN 81-50:2014, 5.9
Restrictors	Only the one-way restrictor where mechanical moving parts are used is regarded as a safety component and shall be verified according to the requirements in EN 81-50:2014, 5.9









PART 2 CHANGES TO PROCESSES/SUBMISSION REQUIREMENTS FOR LIFTS



Changes to Processes/Submission **Requirements within Lift Regulatory Regime**

Current



Changes to Processes/Submission Requirements within Lift Regulatory Regime

Design	Installation	Operation & Maintenance	Alteration & Replacement	
Standards	CENTIFIED			
Design standards/ codes prescribed under Approved	SPE to certify in CSC04 on compliance to SS550:2020 and declare that safety components	Testing contractor to conduct annual examination, inspection & testing in presence of SPEs and	Owner to notify BCA before work commences	
(SS550:2020)	installed are type tested in accordance with EN81-50 standards	Operate (with CSC04)	SPE to supervise and certify the works	
Lift to have Type Test certificates for its safety components	Type Test certs for safety components of lifts to be submitted during TOP /CSC (if	Monthly Maintenance Owner to appoint Service Contractor to maintain monthly to prescribed requirements	and reapply for Permit to Operate (recommissioning)	
	no TOP) application			
Building Control Act		Building Maintenance & Stra (Lift, Escalator and Building Main	ta Management tenance) Regs 2016	

After adoption of \$\$550:2020



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Type Testing Certification Requirements



Safety component must be type tested and certified by an accredited certification body (which is accredited for type examination/testing of respective safety components) from China or European Union (EU).

Note:

- 1. In EU, these certification bodies are called Notified Bodies.
- 2. The accredited scope of work can be different among certification bodies.
- 3. More details of the certification bodies for the safety components can be found in BCA's circular at <u>https://www1.bca.gov.sg/docs/default-</u> <u>source/docs-corp-news-and-publications/circulars/circular-on-adoption-of-ss-550-2020.pdf</u>

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Type Testing Certification Requirements



Certification Bodies (CBs) Available for Safety Components (except PESSRAL)

List	ist of Certification Bodies Available		
From European Union (EU)			
Refer to the below link for the full list of Certification Bodies under EU			
https://ec.europa.eu/growth/tools-			
databases/nando/index.cfm?fuseaction=directive.pdf&refe_cd=2014%2F33%2FEU			
&requesttimeout=900			
From China			
1.	Shenzhen Institute of Special Equipment, SISE		
2.	National Elevator Inspection and Testing Centre, NETEC		
3.	Shanghai Jiaotong University Elevator Testing Centre, SJUETC		
4.	National Elevator Quality Supervision and Inspection Centre (Guang Dong)		
5.	National Elevator Quality Supervision and Inspection Centre (Zhe Jiang)		
6.	National Elevator Quality Supervision and Inspection Centre (Chong Qing)		
7.	China Special Equipment Inspection and Research Institute		

Note: the list above can be also found in <u>Annex B of BCA's circular (ref:APPBCA-2021-01)</u> issued on 11 January 2021

Type Testing Certification Requirements



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Certification Bodies (CBs) Available for PESSRAL





- **1.** Liftinstituut B.V.
- 2. TUV SUD Industrie Service GmbH
- 3. Shenzhen Institute of Special Equipment, SISE
- 4. National Elevator Inspection and Testing Centre, NETEC
- 5. Shanghai Jiaotong University Elevator Testing Centre, SJUETC
- 6. National Elevator Quality Supervision and Inspection Centre (Guang Dong)



Note: the list above can be also found in <u>Annex B of BCA's circular (ref:APPBCA-2021-01)</u> issued on 11 January 2021



Summary of Submission Requirement



	After SS550:2020 becomes effective on 1 July 2021:	
	Requirement of type testing	Safety components need to be type tested in accordance with EN81:50 as specified in <u>SS550:2020</u> by accredited certification bodies.
		circular issued on 11 Jan 2021.
	Submission Requirement	The type test certificate of <u>safety components</u> needs to be submitted <u>at TOP or CSC stage.</u>
	Lift(s) that need to comply with the new requirement	Any lift proposed in a project whose first set of plans (either building plans or structural plans, whichever is earlier) is submitted to BCA for approval under the Building Control Act on or after 1 July 2021











Thank You