KEY CHANGES IN SS550: 2020 AND REGULATORY COMPLIANCE

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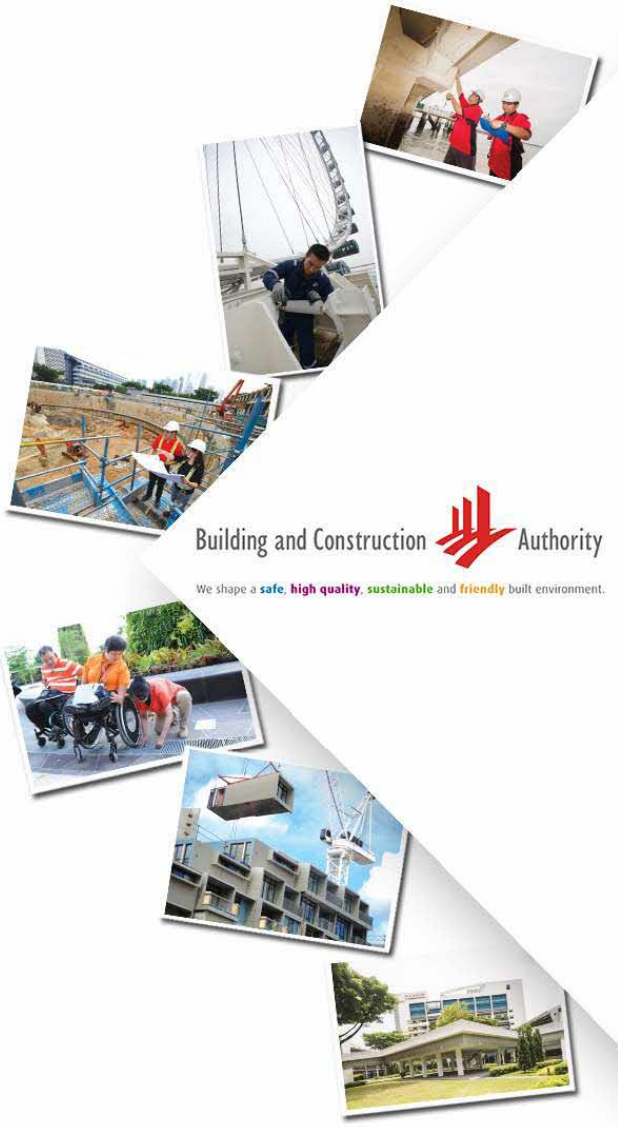

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Content






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

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PART 1

KEY CHANGES RELATED TO WORK ENVIRONMENT/SAFETY AND TYPE TESTING

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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: *https://www1.bca.gov.sg/docs/default-source/docs-corp-news-and-publications/circulars/circular-on-adoption-of-ss-550-2020.pdf*
3. With effect from 1 July 2021, 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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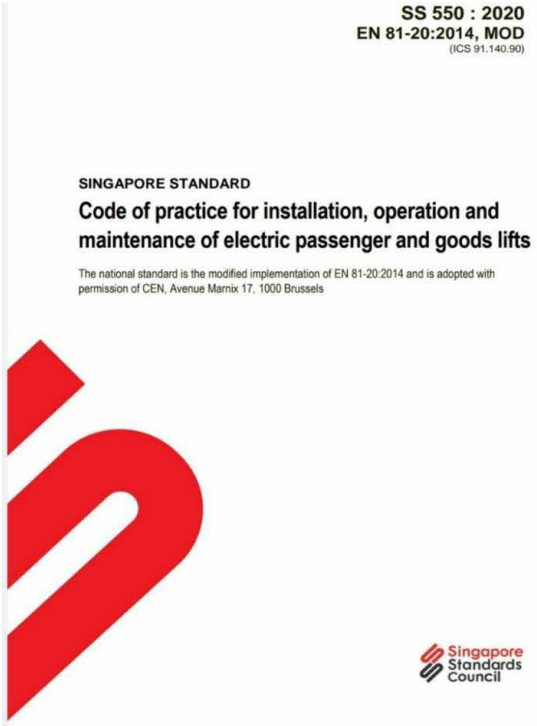
Summary of key changes

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



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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Changes in Work Environment and Safety






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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Changes in Work Environment and Safety






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 m^2 for each lift in the well.

3b. Permanent fan(s)

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

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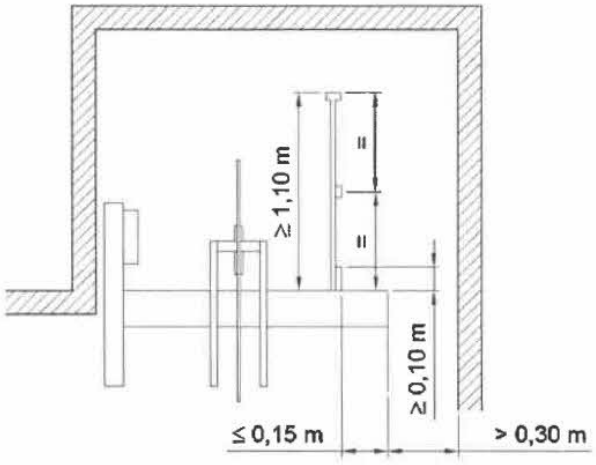
Changes in Work Environment and Safety



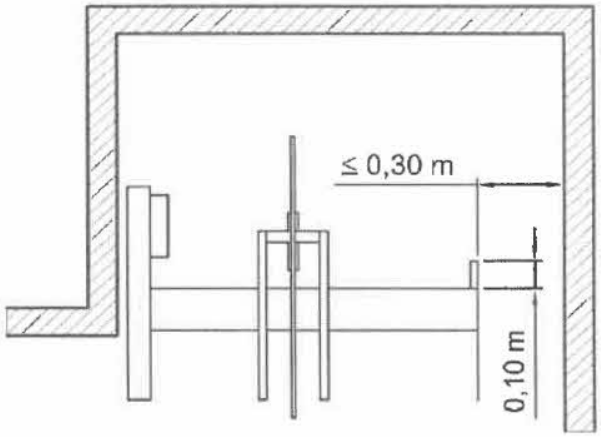



4. Fall Protection

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



Balustrade required, 1100 mm minimum height
and a toe-board 100 mm minimum height



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






5. Car top clearance and refuge space

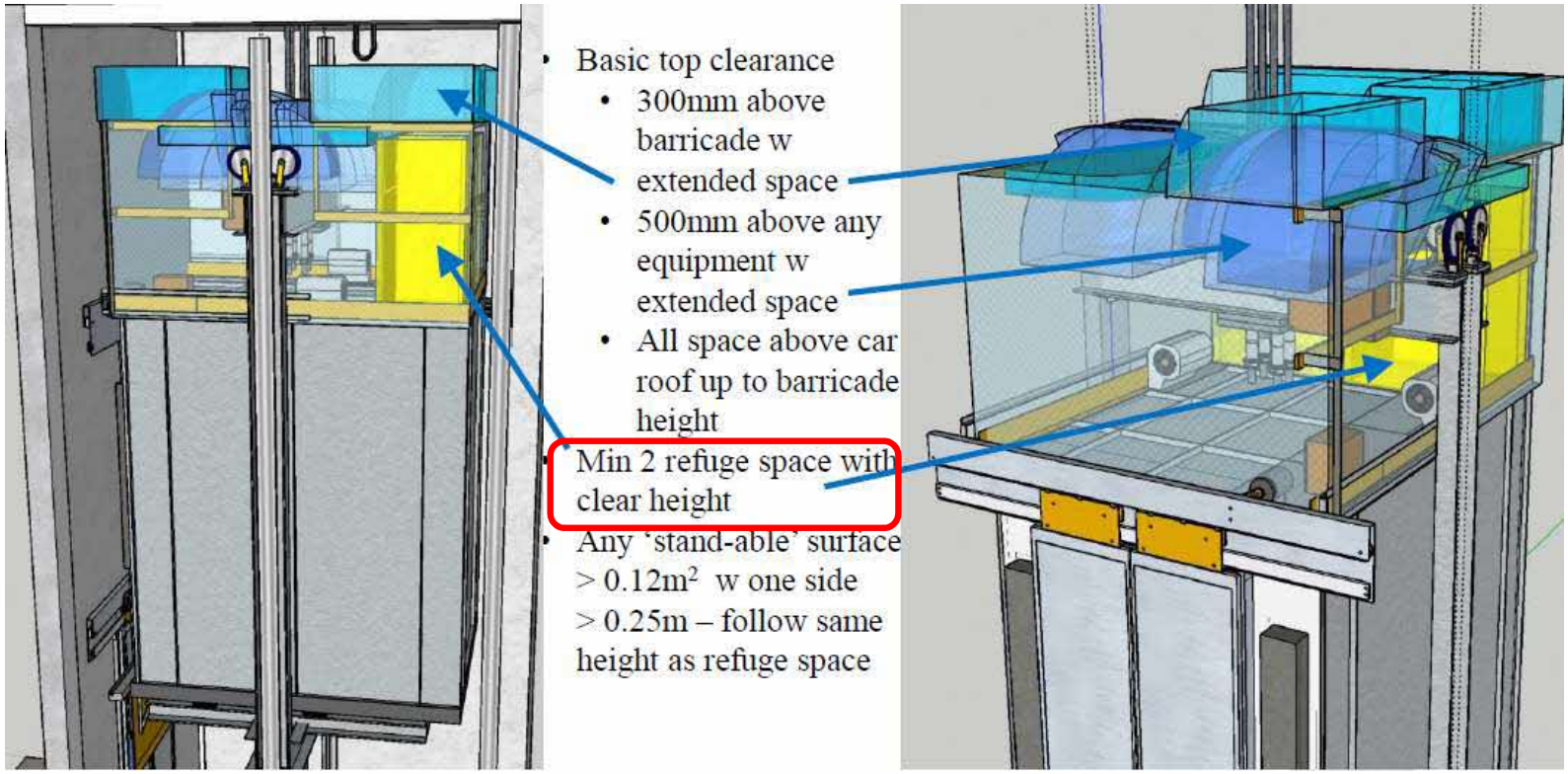

Illustration Picture - Courtesy of Mr. Phuah Cheng Kok

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Changes in Work Environment and Safety






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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Changes in Work Environment and Safety






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 partition for adjacent pits.

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 cm^2 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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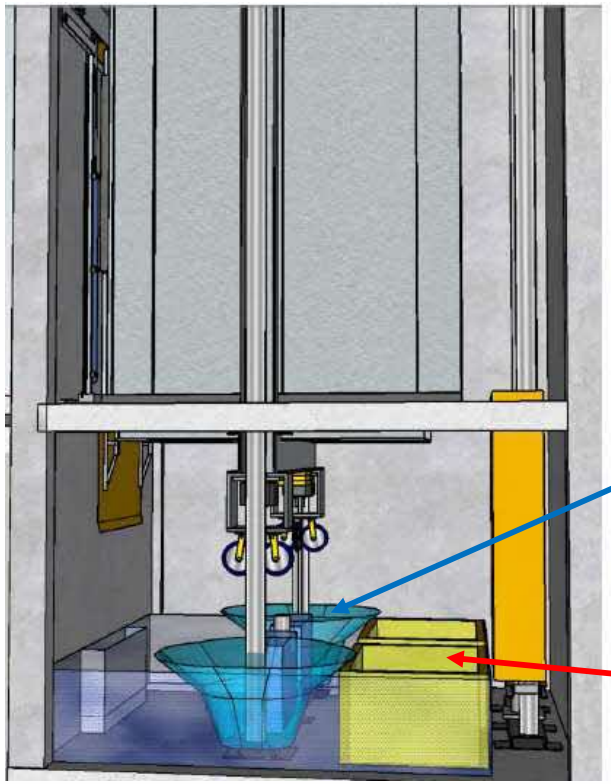
Changes in Work Environment and Safety

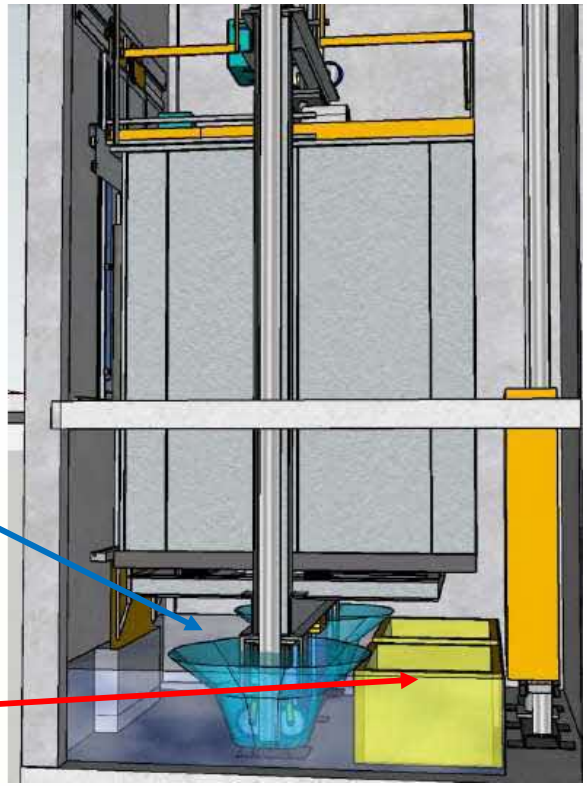





7. Pit Clearance



- Basic height clearance 500mm
- Above any installed equipment – 500mm height
- 150mm from adjacent wall to accommodate width of apron & 100mm from floor
- Around guide rails to accommodate guide shoe/rollers & safety gear – 100mm from floor with gradual space of 150mm to 500mm surrounding at 500mm ht
- Min 2 refuge space – 500mm height if lying down posture



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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

a) Landing Door locking Device;
b) Safety Gear;
c) Overspeed Governor;
d) Buffer
e) Safety Circuit containing electronic components

List of Safety Components in SS550:2009

f) Car Door locking device;
g) Safety circuit containing Programmable Electronics Systems in Safety Related Application for Lifts (PESSRAL)
h) Ascending Car Overspeed Protection Means (ACOP)
i) Unintended Car Movement Protection Means (UCMP)
j) Rupture Valve/One Way Restrictor (for Hydraulic Lifts)

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

EN81-50 includes the type testing requirement of safety components, including testing method, testing procedure, and testing sample etc.

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Changes in Type Testing






Safety Component	Requirement
Landing Door and Car Door 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**
Safety 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**
Overspeed Governor (OSG)	The overspeed governor is regarded as a safety component and shall be verified according to the requirements in **EN 81-50:2014, 5.4**

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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**
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**

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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

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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**

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PART 2
CHANGES TO PROCESSES/SUBMISSION REQUIREMENTS FOR LIFTS

Current Requirement

Changes to Processes/Submission Requirements within Lift Regulatory Regime

Design

Design standards/ codes prescribed under Approved Document (SS550:2009)

Installation

SPE to certify in CSC04 on compliance to SS550:2009.

Operation & Maintenance

Testing contractor to conduct annual examination, inspection & testing in presence of SPEs and owner applies for Permit to Operate (with CSC04)

Monthly Maintenance
Owner to appoint Service Contractor to maintain monthly to prescribed requirements

Alteration & Replacement

Owner to notify BCA before work commences

SPE to supervise and certify the works and reapply for Permit to Operate (recommissioning)

Building Control Act

Building Maintenance & Strata Management (Lift, Escalator and Building Maintenance) Regs 2016

After adoption of SS550:2020

Changes to Processes/Submission Requirements within Lift Regulatory Regime

Design

Design standards/ codes prescribed under Approved Document ***(SS550:2020)***

Lift to have ***Type Test certificates*** for its safety components

Installation

SPE to certify in CSC04 on compliance to ***SS550:2020*** and declare that ***safety components installed are type tested in accordance with EN81-50 standards***

Type Test certs for safety components of lifts to be submitted during TOP /CSC (if no TOP) ***application***

Operation & Maintenance

Testing contractor to conduct annual examination, inspection & testing in presence of SPEs and owner applies for Permit to Operate (with CSC04)

Monthly Maintenance
Owner to appoint Service Contractor to maintain monthly to prescribed requirements

Alteration & Replacement

Owner to notify BCA before work commences

SPE to supervise and certify the works and reapply for Permit to Operate (recommissioning)

Building Control Act

Building Maintenance & Strata Management (Lift, Escalator and Building Maintenance) Regs 2016

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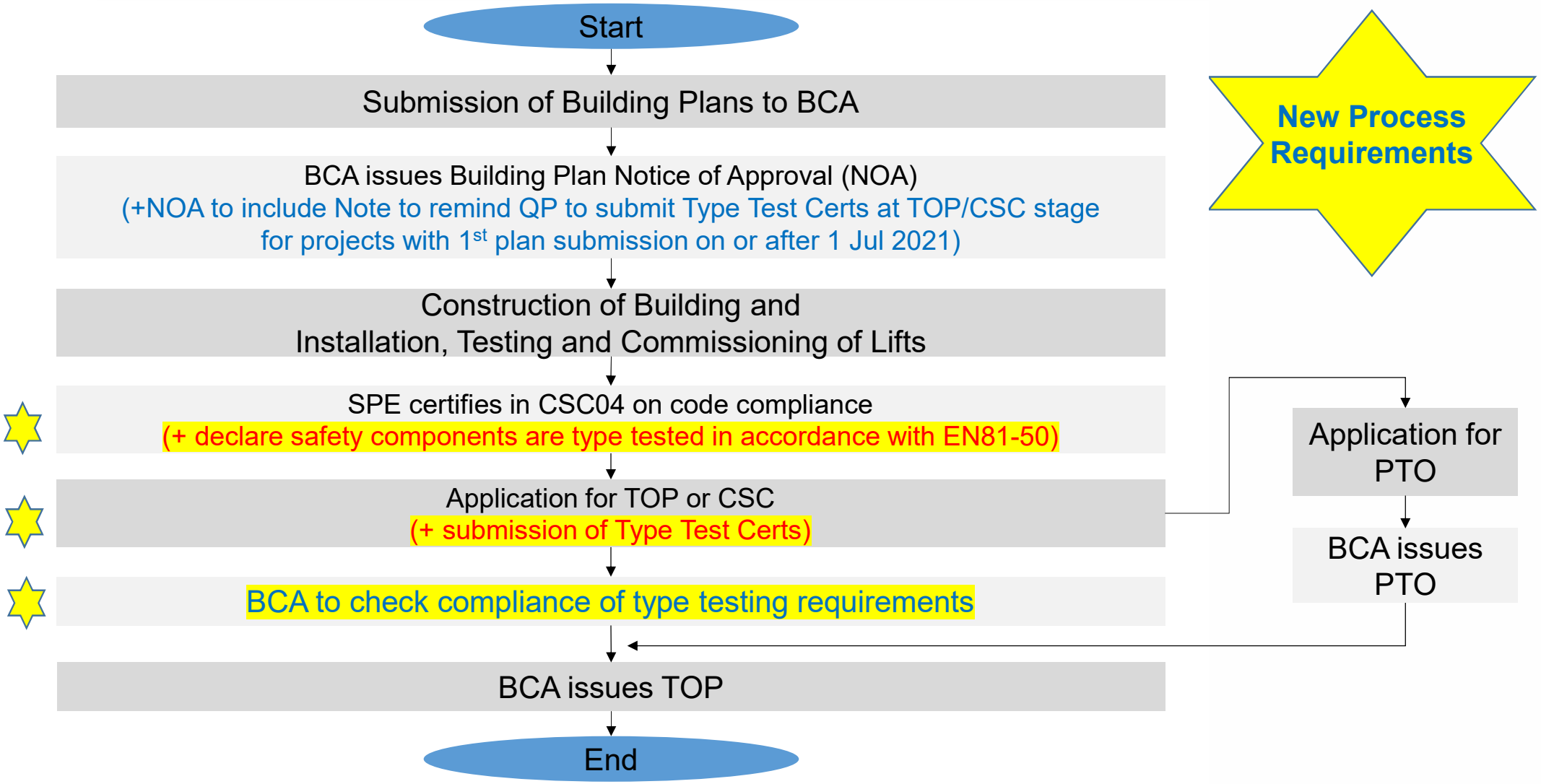
Revised Process Flow for New Lift Applications



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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 *https://www1.bca.gov.sg/docs/default-source/docs-corp-news-and-publications/circulars/circular-on-adoption-of-ss-550-2020.pdf*

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Type Testing Certification Requirements






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

List 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 **Annex B of BCA's circular (ref:APPBCA-2021-01)** issued on 11 January 2021*

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Type Testing Certification Requirements






Certification Bodies (CBs) Available for PESSRAL

List of Certification Bodies Accredited for PESSRAL Type Examination Certification	
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 **Annex B of BCA's circular (ref:APPBCA-2021-01)** issued on 11 January 2021*

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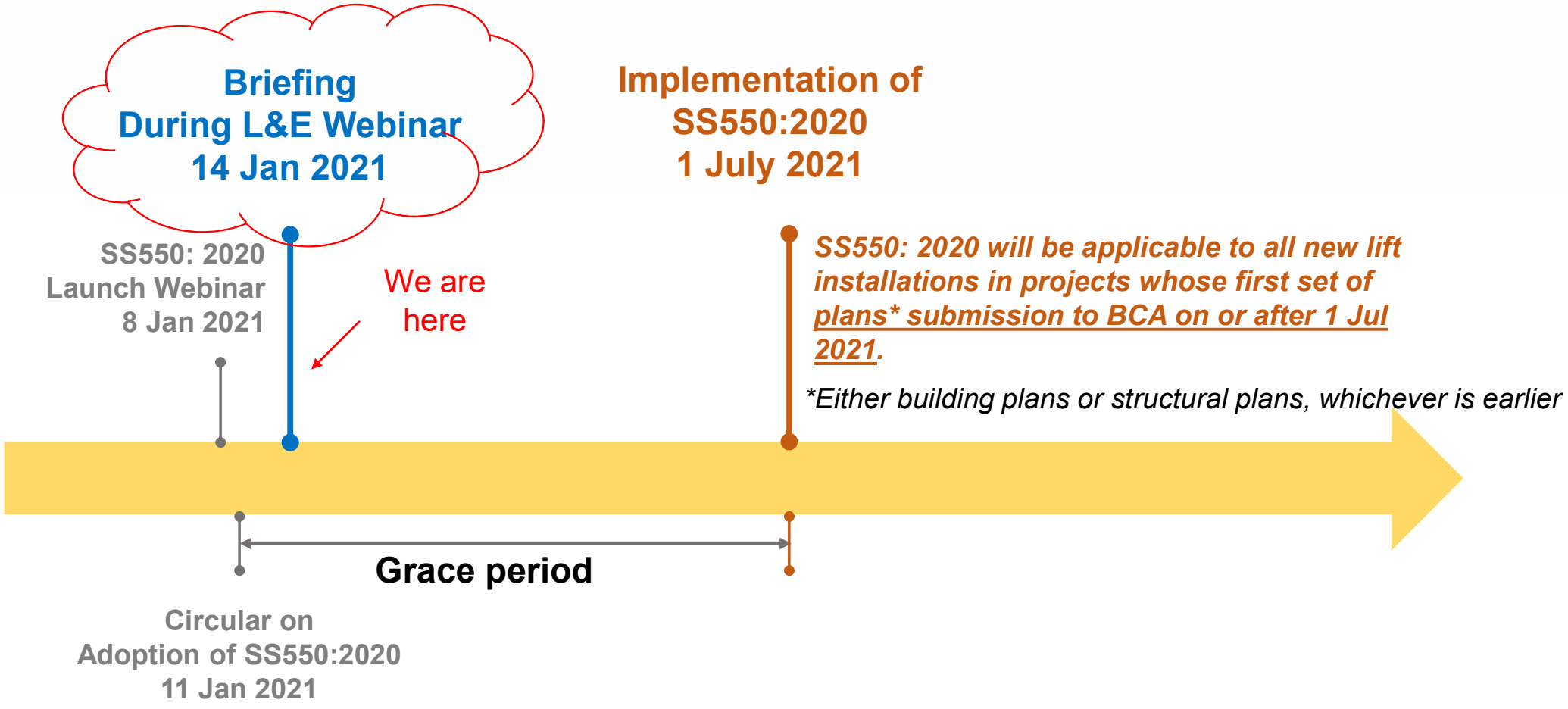
Timeline



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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 SS550:2020 by accredited certification bodies.** *The list of certification bodies can be found in Annex B of BCA's circular issued on 11 Jan 2021.*
Submission Requirement	The type test certificate of safety components needs to be submitted at TOP or CSC stage.
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

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Thank You