

BUILDING AND CONSTRUCTION AUTHORITY (BCA) ANNUAL LIFT AND ESCALATOR SAFETY SEMINAR

9 January 2023 9:00 AM – 12:30 PM

Table of Summary

S/N	Issue Raised	BCA's Response
	<p>1) Common findings from Lift and Escalator audit inspections and incidents</p> <p>BCA presented on common findings from maintenance audit inspections conducted between 1 October 2021 and 30 September 2022. BCA also shared good practices in checking lift components for compliance with the maintenance requirements stipulated under Part 1 of the First Schedule of the Building Maintenance and Strata Management (Lift, Escalator and Building Maintenance) Regulations 2016 (“BMSM (LEBM) Regulations”).</p> <p>This item also included case studies of L&E incidents and recommendations for lift owners and service contractors. In particular, BCA highlighted the common causes of brake failures that have resulted in lift incidents. It was recommended that lifts with single plunger should be upgraded to a double brake system or with the installation of ACOP and UCMP systems.</p> <p>For escalators, BCA shared the common causes of handrail slippage or stoppage and emphasised the importance of monitoring for wear and tear of components as well as proper tensioning of handrails.</p>	<p>No questions regarding this item were raised.</p>

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<p>2) Uplifting Lift Standards for Safety and Maintainability - Design Compliance to SS550:2020 Requirements</p> <p>BCA recapitulated the adoption of SS550:2020 for new lifts and lifts undergoing major alterations or replacements with effect from 1 July 2021(?). In this item, BCA also covered the key differences between SS550:2020 and SS550:2009 to which the industry should pay attention, including the type testing of safety components, lift-related building design, and car size compliance. For belt suspension system, BCA also clarified that a continuous belt monitoring system must be installed.</p>		
1.	<p>A participant asked if the use of belts for suspension means in newly installed lifts would require an alternative solution application.</p>	<p>There is no need for an alternative solution application if the belt system is able to meet all the requirements stated in SS550:2020, including a minimum of three belts are used, a belt monitoring device is installed to continuously monitor the condition of the steel cords within the PU coating, etc. The list of key requirements for belt lift systems can also be found in the presentation slides for this topic (https://www1.bca.gov.sg/regulatory-info/lifts-escalators/resources-from-past-events).</p>
2.	<p>The participant also asked if the use of lift doors that were shown in Figures 11.e and 11.f in SS550:2020 would require an alternative solution application.</p>	<p>Similarly for lift doors, if the pendulum tests are conducted in accordance with the striking points for each of the door types as illustrated in Figures 11.e and 11.f, and all other requirements stated in SS550:2020 are also met, no alternative solution application is required.</p>

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<p>3) Life Cycle Planning for Lifts - Soft Launch of Maintenance Control Plan Guide for Lifts</p> <p>BCA presented on the Maintenance Control Plan (MCP) guide for lifts. An MCP is a life cycle parts replacement approach that guides owners and lift service contractors to manage parts replacement and obsolescence. Examples of the use of a two-stage monitoring system for part replacement was also explained to participants. The MCP will also aid the owners in planning and budgeting for replacement of major parts. Contractors are encouraged to refer to the replacement criteria when conducting conditional monitoring of parts and record measurements in a logbook.</p> <p>The MCP guide seeks to inform owners and lift service contractors on how to the prepare an MCP for their lifts. The guide will be published on BCA website. The industry will be informed accordingly when the guide is ready for download.</p>		
3.	A participant asked whether specific rejection limits will be stated in the MCP guide, and whether the MCP rejection criteria will override the rejection limits stated in the OEM manuals.	The MCP guide serves to advise lift owners and their contractors in preparing the MCP. It is not the actual MCP that would be used. Hence, the MCP guide does not specify any actual condition for replacement. The contractor will need to work with the manufacturers or reference applicable standards and codes to put in the actual working values for monitoring and replacement.
4.	A participant asked how BCA could help in cases where property owners do not bother about the MCP that the lift contractor provided.	The MCP provides information on when a replacement should be initiated and carried out. In particular, should a replacement condition be met, the owner must immediately replace the relevant component or shut down the lift immediately if the replacement could not be carried out. Please refer to

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		the BCA circular issued on 1 Aug 2022 at https://go.gov.sg/bca-circular-leosc .
<p>4) BIM: The Way Forward - Common BIM Standards for Lift Design Submission</p> <p>BCA presented on upcoming requirements for the use of BIM in plan submission of L&E installations. To help firms which do not possess sufficient competency in BIM, BCA has developed a family of generic lift component models for adoption by such firms in their BIM submission.</p> <p>For this item, KONE also shared with participants on its journey toward building up its BIM capability.</p>		
5.	A participant sought clarification on when the submission of BIM plans would become mandatory, and how BCA intended to support firms with no BIM experience.	<p>As announced in 2021, CORENET X is targeted to be launched in end-2023/early 2024. For projects (with gross floor area more than 5,000m²) which are selected for submission via CORENET X, the proposed lifts and escalators in these projects should also be submitted in BIM.</p> <p>BCA will be publishing a guide on BIM submission for the industry. In addition, a BIM course customised for BIM for lifts and escalators will be rolled out in second half of 2023. In the meantime, participants may attend the other BIM courses in mechanical and electrical services organised by BCA Academy.</p>

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6.	A participant asked if Level of Detail (LOD) 400 is the mandated standard for BIM.	<p>For lift and escalator BIM submission, the required Level of Detail is equivalent to LOD 350, as a mixture of both LOD 300 and LOD 400 is required for geometric dimensions (e.g. clearance requirements in SS550) and intrinsic parameters such as rated speed and loading capacity.</p> <p>Participants may refer to the BIM guide for more detail.</p>
<p>5) Towards a High-Tech & Productive Lift Industry with RM&D - Updates on the Regulatory Sandbox</p> <p>BCA presented updates on the regulatory sandbox for Remote Monitoring & Diagnostic (RM&D) lifts, including the list of RM&D solutions that are already approved for a relaxed maintenance regime under the sandbox. BCA emphasised the need to embrace technology to tackle manpower challenges and added that applicants (lift owners/RM&D solution providers/lift service contractors) interested in implementing RM&D for lifts should approach BCA for a consultation.</p> <p>For lift owners who are interested in installing RM&D systems for their lifts, the list of RM&D solutions approved by BCA (and undergoing trials) for a reduced maintenance regime will be published on the BCA website (https://www1.bca.gov.sg/regulatory-info/lifts-escalators/remote-monitoring-diagnostics-for-lifts-in-singapore).</p>		
7.	A participant asked how BCA intends to promote the adoption of RM&D if lift contractors disagree to reduce regular maintenance regime and embrace cost reduction by having RM&D installed.	BCA has introduced the alternative maintenance regime for approved RM&D solutions to support the push for more productive and efficient use of manpower. The alternative regime, which allows quarterly maintenance visits, would help lift service contractors optimize the use of manpower. Adoption of technology has become increasingly important in view of the

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		<p>increasing manpower costs; thus, it is important for both lift owners and service contractors to look into manpower sustainability.</p> <p>Although RM&D adoption will provide productivity savings in the longer term, technology adoption comes with a cost and lift owners should take a holistic and long-term view on the benefits of RM&D adoption.</p> <p>Under an RM&D 'regime', the reduced maintenance frequency does not mean reduced service levels. Lifts that are equipped with approved RM&D solutions are monitored and faults diagnosed 24/7, instead of being attended to once a month under the current monthly maintenance regime. The RM&D system will also provide information and dispatch technicians to attend to the lifts as and when required.</p> <p>In the longer term, owners should also look at moving towards a contracting model based on performance outcomes of lifts than on frequency of visits. Otherwise, owners will have to contend with rising manpower costs that would be unsustainable.</p>

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		<p>RM&D solution providers and lift maintenance contractors should also adopt a collaborative mindset and be open to data transparency so that lift owners will be able to make informed decisions based on service standards and expected performance of lifts.</p> <p>Lift owners and contractors can view the latest updates on the Regulatory Sandbox for RM&D and other information on our website at https://www1.bca.gov.sg/regulatory-info/lifts-escalators/remote-monitoring-diagnostics-for-lifts-in-singapore; The website also provides the list of approved RM&D solutions and those that are undergoing testing.</p>
<p>6) Supporting the Transformation of the Lifts and Escalators Industry - Fixed Installation (FI) Contractor Registration Enhancements</p> <p>BCA presented amendments to the BC Regulations relating to the registration of fixed installations contractors (i.e. lifts, escalators, and mechanised car parking system (MCPS)). Details of the new registration requirements which include requirements for technical person(s) and a mandatory adoption of the Progressive Wage Model (PWM) were also being shared.</p>		
8.	A participant asked whether existing RW02 and RW03 holders could submit one single application for the new RW02A, RW02B, RW03A, and RW03B workheads.	Yes. Registrants can submit multiple workhead applications in a single application.

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9.	A participant asked whether the scope of work for firms registered under RW02A or RW03A would include testing and commissioning (T&C) works, or just mechanical assembly works and electrical wiring works.	RW02A and RW03A workheads are for installation or major alteration works (including T&C) for lift & escalators. However, if firm is merely facilitating manpower or equipment (e.g. electrical works) for the course of installation works, they could be considered as sub-contractors and their works must be conducted under standing supervision by a registered RW02A/03A contractor.
10.	A participant whose firm is currently registered under the RW02 workhead asked whether there would be a need to upgrade to RW02A if their existing registration will only expire in 2025.	Existing contractors with RW02 will need to register under RW02B by 8 June 2023. BCA will schedule these firms to renew their registration during the six-month grace period. If the firms also wish to carry out lift installations, they could also apply for RW02A under the same application (Note: the application fees for RW02A will be separate from the RW02B fee).
11.	A participant asked for details on how to re-register their existing RW02 workhead to the RW02A workhead.	BCA will be scheduling existing RW02 and RW03 registered firms during the six-month grace period. Firms can register for the new workheads (i.e. RW02B and RW03B) upon receiving our invitation.

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12.	A participant asked whether the 5B directive was applicable to subcontractor companies supplying labour to lift contractors.	No. Sub-contractors providing manpower to lift contractors need not be registered under the new registration requirement, but the work on L&E must be carried out under the standing supervision of a registered contractor.
13.	A participant shared that their firm has a team of technicians working solely on lift testing for PTO renewal and are not doing any maintenance/servicing. However, some of them have the Certificate of Competency (CoC) while some do not. The participant asked if all of them must obtain the CoC.	Going forward, all technicians carrying out maintenance works independently in a firm registered under RW02B/RW03B workheads will require a CoC in Lift Maintenance for Lift Specialist or CoC in Escalator Maintenance for Escalator Specialist respectively.
14.	A participant asked what purpose or value-add would technical persons provide for FI contractors and how the new requirements would be helpful to the industry that is currently facing challenges due to labour shortage.	It is important that FI contractors have strong engineering capabilities within the firm so as to understand and resolve technical challenges that they faced, such as troubleshooting complex failures. Thus, FI contractors are required to have adequate number of such technical persons based on the complexity of equipment maintained.

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15.	A participant asked whether a contractor currently registered under the RW02 workhead will need to meet the corresponding technical persons requirement during change of registration, or whether the requirement will only apply during re-registration.	Contractors applying for the new workhead would need to meet the corresponding technical persons requirement when they transit into the new registration regime.
<p>7) Lifts and Escalators Application (LEAP) Portal - Enhancements and Future Features</p> <p>BCA shared enhancements and upcoming new features for LEAP following the system launch in November 2022. New features will be added in the 2nd release of LEAP such as data tracking for progressive wage model implementation, differentiated user groups within the same Corppass log in as well as SMS notifications. Service journeys and engagements would be planned for different user groups.</p>		
17.	A participant asked when BCA would be uploading checklists for other type of lifts, such as hydraulic lifts, VPLs, and stair/chair lifts. The participant also asked how submissions for these types of lifts will be managed after 31 March 2023.	<p>In transiting to the new LEAP system, the submission of the Annual Inspection and Testing Reports as part of PTO renewal is currently optional.</p> <p>The checklist will have to be completed in LEAP for the annual examination, inspection and testing of traction lifts and other lifts (hydraulic lifts, VPLs, stair/chair lifts) as well as escalators from 1 June 2023.</p>

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18.	A participant asked whether there would be an extension for the replacement of PTO to the new version due to the hiccups encountered during the implementation of LEAP.	The existing PTO is a valid permit as long as the expiry date indicated therein has not passed. Nonetheless, owners are encouraged to print and replace the existing PTO with the new-designed PTO as soon as they could. The SPE will need to scan the QR code on the PTO when they conduct the annual inspection and testing fin preparation for the PTO renewal application. No physical replacement will be required for the new PTO in the subsequent years.
19.	A participant asked how SPEs could scan the QR code on the PTO for lifts in locations where the use of a handphone is not allowed or handphone cameras are disabled.	SPEs can either scan the QR code on the PTO or upload an image of the PTO certificate in LEAP. For high security locations where camera phones are not allowed, SPEs can request for the owner to provide an image of the PTO certificate.
20.	A participant asked whether BCA would continue to issue L&E renewal notifications three months prior to PTO expiry.	LEAP will send an email reminder before the PTO expires. The user will be able to configure the period at which the notification will be sent before the PTO expiry date. This notification will be sent to both the owner and owner's representative (if there is a representative assigned for the equipment). However, owners need not wait for the reminder email and can renew PTO through the LEAP portal as long as it is within the 3-month renewal window period.

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		<p>As part of our efforts to go green with paperless notifications, BCA has ceased to send hardcopy reminder letters from 21 November 2022 onwards. L&E owners will receive notifications through their registered email addresses. They can also opt in to receive notifications via SMS (short message service) for future releases of LEAP. The frequency of the notification can be configured by the user.</p>
21.	<p>A participant requested for an enhancement in LEAP that could allow auto-renewal of L&E equipment based on the PTO expiry month, instead of owners being required to initiate PTO renewal applications.</p>	<p>In OPTO, owners were required to initiate the renewal of PTO applications only for non-GIRO payment modes. Equipment under GIRO payments were renewed automatically.</p> <p>In LEAP, owners will have control over the equipment which they wish to renew the PTO. In this way, the owners will not need to request for refund of PTO fees for equipment which they had not intended to renew the PTO (e.g. the equipment needs to be suspended for major alteration/replacement works or be switched off for an extended period of time).</p>
22.	<p>A participant shared that lift contractors were not able to view past PTO renewal records. For example, in the month of January 2023, the participant was not able to view PTO</p>	<p>Contractors are able to view past PTO renewal records by filtering the list of equipment in the dashboard or by exporting all the records to Excel for data analysis.</p>

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	renewal records for the month of December 2022.	
23.	A participant asked whether the page displaying lifts due for renewal can allow selection of lifts by month.	In LEAP, owners can filter and sort the records by expiry date (among other fields) and make the application for the renewal of the PTOs, as long as they are within three months from the PTO expiry date. This gives owners more flexibility to combine more equipment instead of restricting the renewal to a month.
24.	A participant shared that if the equipment type was wrong, the checklist generated will be wrong. As the equipment type cannot be amended in LEAP, the participant asked whether there was an interim solution for this issue.	The equipment list was probably created wrongly in OPTO system, and this could be changed by the owner, contractor or SPE in LEAP.
25.	A participant requested that SPEs be allowed to delete the L&E equipment which are not assigned to them and be allowed to change inspection dates. The participant also	The owner or the appointed service contractor can change the SPE any time in the system. The intent of disallowing SPE removing the record of L&E equipment, which are assigned to them wrongly, from their account is to prevent a situation where there is no appointed SPE for the equipment.

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	requested for pending payments to not show in the SPE's portal.	<p>LEAP does not allow the SPE to change the inspection date as the system records the date stamp when the QR code is scanned or uploaded by the SPE. This serves as a proxy as to the date that the inspection is carried out in the presence of the SPE.</p> <p>BCA wishes to remind all that Regulations 7(1)(b) and 19(1)(b) of the Building Maintenance and Strata Management (Lift, Escalator and Building Maintenance) Regulations 2016 require the owner of a lift or escalator, before applying for any PTO, to engage a lift service contractor or escalator service contractor, to examine, inspect, and test the lift or escalator in the presence of a SPE.</p>
26.	A participant asked how the OEM can be changed in the PTO inspection checklist.	This can be changed by the owner or SPE by clicking "Edit" in the dashboard. Alternatively, the owner or the SPE can view equipment details and click "Edit".
27.	A participant asked why dates for full load testing were not dated to end of the month but kept to the actual date of testing, citing administrative challenges resulting from the latter.	Only the PTO expiry date is aligned to the end of month. All the exact dates of no load testing and full load testing are captured in the system and as long as the no load test is carried out within the 3-month window before the expiry date, the PTO will be renewed for another 12 months from the current expiry date. The full load testing date is to remind the owner,

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		<p>appointed contractor, and SPE that arrangements can be made in advance to carry out full load testing every 5 years under the code requirement for traction lifts.</p>
<p>8) Recap of Circulars issued in 2022 & Sharing on Type Testing Training Programme for SPEs</p> <p>BCA presented a recapitulation of the circulars to the industry that were published in 2022. BCA also presented proposed changes to the maintenance frequency of existing vertical platform lifts (VPLs) that serve more than one storey in public areas.</p> <p>Following a recent type testing training to Germany in November 2022, key learning points covered during the trip were also shared with the participants. BCA will notify all SPE(L&E)s when there is an similar training opportunity coming up, and would encourage all SPEs to sign up and participate for the learning opportunity.</p>		
<p>No questions regarding this item were raised.</p>		