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Electrical and Mechanical Engineering Group

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Dear Sir/Madam

## **GUIDELINES ON MAINTENANCE OUTCOME REQUIREMENTS FOR VERTICAL PLATFORM LIFTS**

### **Objectives**

The objectives of this circular are to:

- (a) clarify the maintenance requirements for Vertical Platform Lifts (“**VPLs**”), so as to comply with EN81-41 or other equivalent standards as accepted by the Commissioner of Buildings; and
- (b) advise all lift servicing contractors maintaining VPLs to comply with the maintenance guidelines enclosed in Annex A.

### **Clarification of Maintenance Requirements and Introduction of Maintenance Guidelines for VPLs**

2. Under the Building Maintenance and Strata Management (“**BMSM**”), (Lift, Escalator and Building Maintenance) (“**LEBM**”) Regulations, an owner of a lift (including a VPL subject to Part 3 of the BMSM (LEBM) Regulations) is required to engage a lift service contractor to carry out maintenance at least once every 3 months or based on manufacturer’s recommendation, whichever is more frequent.

3. This circular seeks to clarify the maintenance requirements that lift service contractors should comply with when carrying out maintenance works for VPLs subject to Part 3 of the BMSM LEBM Regulations, to ensure compliance with EN81-41 or other equivalent standards as accepted by the Commissioner of Buildings. The Building and Construction Authority (“**BCA**”) has developed a set of guidelines that set out the relevant maintenance requirements for the purpose of this circular.

4. All lift servicing contractors maintaining VPLs are advised to perform maintenance works on VPLs in accordance with the maintenance requirements set out in the guidelines enclosed in Annex A.

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**Feedback and Clarification**

5. For further information, feedback or clarification, please submit your enquiry through BCA's Online Feedback Form at <https://www.bca.gov.sg/feedbackform> or call us at (65)1800-342 5222 (1800-DIAL BCA).

6. Thank you.

Yours faithfully



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**Annex A**

**Maintenance Requirements for VPL**

Areas of maintenance	Requirements
1. User Control Devices	<p>(a) Lift platform movement must only be allowed when the control devices, controlling the movement of the platform, are continuously pressed and hold to run.</p> <p>(b) At all times when the lift is in operation, the emergency stop fitted on the platform must function as intended and be able to stop the lift platform movement immediately when activated.</p>
2. Edge Protective Devices	<p>Edge protective devices must be operational at all times and be able to stop the lift platform immediately upon activation of one or more edge protective devices.</p>
3. Landing & Landing Doors	<p>(a) Lift platform movement must only be allowed when all landing doors are closed and locked, unless during levelling, re-levelling or anti-creeping within the unlocking zone.</p> <p>(b) Lift platform movement must only be allowed when all landing doors are closed and locked, and all locking elements are engaged at least 7mm.</p> <p>(c) The landing doors, when locked, must not be opened by an average person's pull or push force.</p> <p>(d) During levelling, re-levelling or anti-creeping within the creeping zone, lift platform must be stopped when one landing door is unlocked and the levelling of the lift platform is more than 50mm from the sill level of the unlocked landing door.</p>
4. VPL Emergency Alarm Devices	<p>(a) When lift platform emergency alarm button is pressed, the emergency alarm device must function as intended and be audible from outside the lift well.</p> <p>(b) When lift platform intercom button is pressed, the intercom system must function as intended to allow a two-way conversation between the platform and a readily accessible point outside the lift well that is available to emergency personnel (telephone, intercom, etc.)</p>

Areas of maintenance	Requirements
<p>5. VPL Emergency Operation (Applicable to Hydraulic Drive System)</p>	<p>(a) The manually operated emergency lowering valve must function as intended, even in the case of a power failure, during emergency operation.</p> <p>(b) There must be no signs of leakage, corrosion or jamming of the valves and pipes.</p> <p>(c) A hand-pump must be provided and readily available at all times for lift platform fitted with a safety gear or a clamping device.</p>
<p>6. Emergency Power Supply for VPL</p>	<p>Power supply for lift platform lighting, emergency alarm device and emergency manual operation must remain functioning when normal power supply to lift car is disrupted.</p>
<p>7. Movement of VPL</p>	<p>Abnormal sounds or vibrations must not occur during any movement of the lift platform.</p>
<p>8. Stopping/Levelling/ Re-levelling Accuracy/Inclination</p>	<p>(a) The stopping accuracy of the lift platform must be less than or equal to + 10mm.</p> <p>(b) The re-levelling accuracy of the lift platform must be less than or equal to +20mm.</p> <p>(c) The maximum horizontal distance between the lift platform and inner surface of enclosed lift way must be less than or equal to 20mm.</p> <p>(d) For hydraulic drive system of direct acting, if several jacks are used to raise the platform, the inclination of the lift platform must be less than or equal to 1 degree. There must be no sign of corrosion or damage of the jacks.</p> <p>(e) For hydraulic drive system, the creeping distance of the lifting platform must be less than or equal to +20mm below the landing level or below the lower end of the unlocking zone.</p> <p>(f) For hydraulic drive system, the anti-creeping device must function as intended, even in the case of power failure. The pawl device, if provided, must function as intended to maintain the platform at the landing level.</p>

Areas of maintenance	Requirements
9. VPL Driving Unit	<p>(a) There must be no signs of oil stains and leakage occurring at the machine and drive.</p> <p>(b) Moveable parts, joints and gear box must be sufficiently lubricated.</p> <p>(c) Lift machine and driving system must be securely mounted.</p> <p>(d) There must be no signs of foreign bodies obstructing the moving pinions on the rack, moving chain and associated elements.</p>
10. Brake of VPL Driving Unit	<p>(a) Brakes, when activated, must cause lift platform to slow down, stop and stay at stopping position.</p> <p>(b) Brakes must not be contaminated with, or be at risk of being contaminated with, any oil or grease.</p> <p>(c) If lift is fitted with additional brake system for preventing uncontrolled lift platform motion, the brake, when activated, must cause the lift car to stop and stay at stopping position.</p> <p>(d) For Screw &amp; Nut Drive System, there must be no signs of excessive wear and tear of the screw and nut threading.</p>
11. Overspeed Governor	<p>(a) At all times when lift is in operation, overspeed governor must function as intended and be able to activate lift safety gears.</p> <p>(b) Governor ropes must not show any sign of excessive wear and tear, in accordance with manufacturer's recommendations or, where manufacturer's recommendations are not available, the requirements in ISO 4344:2004.</p>
12. Safety Gear	<p>(a) Safety gear must be maintained and functioning at all times when lift is in operation.</p> <p>(b) Safety gear, when activated, must be able to stop and hold the lift platform within the allowable distance in accordance with the standard in compliance.</p>



Areas of maintenance	Requirements
13. Safety Devices	<p>(a) All stopping safety devices must be functioning at all times when the lift is in operation.</p> <p>(b) Stopping safety devices, when activated, must be able to stop and hold the movement of the lift platform.</p> <p>(c) There must be no signs of excessive wear and tear, corrosion or damage of the stopping safety devices.</p> <p>(d) There must be no signs of misalignment, bypass or tampering of electric safety devices.</p>
14. Rack & Pinion	<p>There must be no signs of excessive wear and tear, corrosion or damage to the rack and pinion gear teeth.</p>
15. Ropes and Chains	<p>(a) Main rope must be properly and equally tensioned.</p> <p>(b) Main rope and compensation rope must not show any sign of excessive wear and tear, in accordance with manufacturer's recommendations or, where manufacturer's recommendations are not available, the requirements in ISO 4344:2004.</p> <p>(c) For rope or chain drive system, the electric safety device must function as intended to monitor the status of the rope or chain at all times when the lift is in operation. The electric safety device, when activated, must stop and hold the movement of the lift platform.</p> <p>(d) There must be no signs of excessive wear and tear, corrosion or damage of the pulleys, sprockets and guide elements.</p>
16. Friction Traction	<p>(a) There must be no signs of excessive wear and tear, corrosion or damage to the traction bearing components.</p> <p>(b) There must be no signs of oil, grease and ice on the rail.</p>

Areas of maintenance	Requirements
17. Hydraulic System	<p>(a) The hydraulic valves, rupture valves and restrictor must function as intended.</p> <p>(b) There must be no sign of corrosion or deformation or leakage on the pipes, flexible hoses, valves, restrictors and filters.</p> <p>(c) There must be sufficient oil in tank, as indicated by oil level gauge, in accordance with manufacturer's recommendations.</p> <p>(d) There must be no signs of leakage or corrosion on the tank.</p>
18. Controller & Electrical System	<p>(a) Ground and earth of controller and electrical system must be firmly secured.</p> <p>(b) Controller must initiate immediate stopping of lift platform and prevent lift platform movement under any condition that is unsafe to passengers and maintenance workers.</p> <p>(c) Safety switches must function as intended at all times when lift is in operation.</p>
19. All VPL Parts	<p>Level of corrosion, wear and tear of all parts of lift must not affect the safe operation of the lift.</p>
20. Housekeeping	<p>(a) Machinery, machinery space and pit, hoistway must be kept clean, tidy and free from discarded items and debris.</p> <p>(b) There must be provision of means for removal of any oil leakage for hydraulic system.</p> <p>(c) There must be no signs of discharge of steam, gas or liquids from pipes that would endanger life or health of the passengers.</p>