

MECHANICAL STATEMENT OF LIFT SHAFT: BS EN 81-20:2020 SECTION 5.2.1.8.2

The European standards for the design and manufacture of lifts were introduced in August 2014 – BS EN 81-20:2020 and BS EN 81-50:2020.

- BS EN 81-20:2020 sets out safety requirements for construction and installation.
- BS EN 81-50:2020 sets out test and examination requirements for certain lift components.

These standards replaced existing European standards BS EN 81-1:1998+A3:2009 and BS EN 81-2:1998+A3:2009 which were originally introduced in 1998. The new EN81 derivatives apply to all lifts taken into service from 1 September 2017.

The new standards have been revised with the aim of improving accessibility, safety and comfort for lift passengers and those required to service lift installations. They also contain stipulations relating to building design and interfacing. The 2020 BSI Knowledge website indicates there had been no technical changes in the 2020 edition.

Since the commencement of the new standards questions have been made to GPA members regarding the nature of the supporting evidence required to demonstrate compliance with Section 5.2.1.8. of BS EN 81-20:2020.

Section 5.2.1.8 – Strength of wall, floors and ceilings outlines a requirement that the walls immediately surrounding the lift should have a mechanical strength such that when subjected to a certain force

they do not deform permanently greater than 1mm or exhibit an elastic deformation greater than 15mm (as per the extract 5.2.1.8.2 from BS EN 81-20:2020 below). This relates to the shaft construction – For lightweight metal stud drywall constructions these are predominantly known as ‘Shaftwall’, drylining systems that can be constructed entirely from one side where access is restricted to the opposite face.

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 applied at right angles to the wall at any point on either face they shall resist without:

1. *permanent deformation greater than 1 mm;*
2. *elastic deformation greater than 15mm.*

In response to enquiries the GPA has identified that the standard does not identify or clarify, in enough detail, any defined test methodology. Therefore, the approach to demonstrating compliance is open to interpretation for any type of wall construction located in the adjacency of the lift shaft.

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The GPDA is seeking engagement with relevant industry parties to resolve this current absence of clarity. We understand that the intention of the requirements currently outlined in BS EN 81-20:2020 are to prevent a conflict occurring between the working parts of the lift and its surrounding walls/linings. As such the surrounding linings should remain in full isolation from the working parts of the lift, even when subject to anticipated levels of in use movement/deflection.

In the interim period the GPA are recommending that the testing methodology as set out in BS5234: Part 2 Specification for performance requirements for strength and robustness including method of test in relation to end-use categories as a potential suitable method of appraisal. The standard BS5234 covers performance aspects such as stiffness, crowd pressure, impact resistance, anchorage and door slamming resistance of vertical wall and wall lining systems.

BS5234-2 Annex A addresses the stiffness of walls. Graded from 'Light Duty (LD)' up to 'Severe Duty (SD)', we would suggest that site project teams could confirm a dry-lining system satisfying the Severe Duty stiffness criteria to Annex A as an appropriate test standard to be adopted. Severe duty [SD] grade to the Annex A test methodology limits deflection to 10mm and residual deflection to 1mm. Manufacturers can advise on which drywall systems meet this criteria.

OUR MEMBERS:

