

related test method	EN 1363-1: 1999 Fire resistance – Part 1: General requirements
subject	Establishment of the neutral pressure plane in tall (> 3 m high) furnaces – at furnace top or at neutral pressure plane
reference of original query	TC2 N267rev1 Helpdesk 2001-02

Problem

EN 1363-1: 1999 clause 5.2.2.1 requires the fire resistance furnace to be run so that the neutral pressure plain is at 500 mm above the notional floor level. However it is also a requirement that the pressure does not exceed 20 Pa at the top of the test specimen.

Several European laboratories have furnaces of height > 3 m (some furnaces as high as 4 m or 5 m) and regularly carry out tests on test specimens of height > 3m.

If a test specimen of height > 3 m is used both these requirements cannot be met. The text indicates that the priority is to maintain the 20 Pa value at the top of the test specimen, thereby, as a consequence the neutral pressure plane will be raised above 500 mm from the notional floor level.

For tall specimens, a decision by the laboratory to meet the furnace pressure requirements at the top of the test specimen or to maintain the neutral pressure plane at 500 mm above the notional floor level, according to the standard, could significantly affect the test result obtained.

Recommendation

When testing in fire resistance furnaces of height greater than 3 metres, the requirement to have a 20 Pa maximum pressure at the top of the specimen should override the need to establish the neutral pressure plane at 500 mm above the notional floor level, i.e. for tall test specimens in tall furnaces, the maximum pressure at the top of the specimen shall be 20 Pa (the neutral pressure plane shall be as is).

