

POSITION PAPER

A common-sense approach to the Assessment and Verification of Constancy of Performance (AVCP) of windows and doors

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➤ Background

Although this paper covers thermal performance of windows and doors, the same principles apply to acoustic performance and any other characteristics of other products covered by deemed to satisfy provisions or calculation. The published harmonised European Standard EN 14351-1:2006+A1:2010, *Windows and doors – Product standard, performance characteristics – Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics*, includes the characteristics acoustic performance and thermal transmittance.

Three methods are offered to derive thermal transmittance, which is declared as the U-value:

- tabulated values, where the overall U-value can be looked up, knowing the U-values of the frame and the glazing,
- calculation, where input data may be derived from testing and/or reference data,
- hot box testing.

The conformity assessment system assigned to thermal transmittance is System 3, intervention of a notified test laboratory. The standard, however, provided two exemptions from the obligation to involve a notified test laboratory (both in Annex ZA, ZA.2.1):

Where a manufacturer produces an individual and non-series product(s) he may be permitted to declare conformity for [thermal transmittance, which does not have a special impact on health and safety] without the involvement of a notified body.

Determination of [thermal transmittance] ... performed by a notified test laboratory under the responsibility of the manufacturer, ... by means of tabulated values or calculations may be carried out by the manufacturer, but the basis on which the determination is made shall be checked by the same body.

A revised version of the standard, prEN 14351-1:2018 is being developed. This draft contains a number of changes to the provisions of the former published standard:

- tabulated values may only be used for vertical windows, not for doorsets,
- micro-enterprises are allowed to treat products under AVCP System 3 covered by this standard in accordance with AVCP System 4, applying this simplified procedure with its conditions, as foreseen in Article 37 of Regulation (EU) No. 305/2011 [the CPR],
- the exemption from involving a notified body for individual and non-series products has been removed,
- the possibility of the manufacturer using tabulated values or performing calculations himself, provided that these are checked by the notified body, has been removed,
- Table ZA.3.1, external doorsets in escape routes under [AVCP] System 1 allocates thermal transmittance to the notified product certification body, with the text “[The notified product certification body shall perform] an assessment of the performance of the construction product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product”,
- Table ZA.3.2, windows and external doorsets under AVCP System 3, allocates thermal transmittance to the notified laboratory, with the text “[The notified laboratory shall perform] an assessment of the performance of the construction product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product”.

The text is unclear as to what exactly the certification body or laboratory is required to do when transmittance is assessed by calculation or tabulated values. The systematic intervention of either in selecting tabulated values or performing calculation, or even in checking the correct selection/calculation performed by the manufacturer would, however, be costly and onerous for small and medium-sized enterprises (micro-enterprises are exempt), especially when they have a large number of different models in their range. This position paper therefore assesses the appropriateness of these new provisions, and suggests ways in which they may be modified.

➤ Analysis

Two mandates for windows and doors have been issued, under the CPD: M101 from 1994 and the amending mandate M126 from 1999. M101, although it covered System 1 products (fire resistant doors and windows), did not include thermal transmittance as a System 1 characteristic. Moreover, all doors and windows other than fire resistant ones came under System 4, i.e. no characteristics tested by a notified laboratory. M126 made two important changes:

- thermal resistance (as well as watertightness, release of dangerous substances, resistance to wind load, direct airborne sound insulation and air permeability) for fire/smoke compartmentation products are allocated to the notified product certification body under System 1,
- all windows and external doors, other than those under System 1, come under System 3 in respect of all characteristics.

The first of these changes raises an important question of consistency. While it is fully accepted that the fire/smoke compartmentation characteristics of doors and windows rightly belong under System 1, there seems little or no justification in imposing a greater level of notified body control on characteristics having nothing to do with fire performance (water-tightness, etc.) when compared with non-fire products.

The option to treat individual and non-series products, normally under System 3, under System 4, had no legal basis under the CPD, and has no legal basis under the CPR, either. There is no differentiation, either legally or under mandates, between ‘important’ and ‘unimportant’ characteristics, and the text of the published standard did not respect Mandate M126.

It is also correct that the draft standard no longer refers to the two tables of U-values for doorsets, when these two tables are clearly intended for windows only. This raises the question of whether equivalent tables, for doorsets, could be drawn up and included in the standard.

For AVCP procedures, however, there is a clear legal basis for the use of procedures simpler than testing. CPR Article 17 3) states:

“Harmonised standards shall, where appropriate and without endangering the accuracy, reliability or stability of the results, provide methods less onerous than testing for assessing the performance of the construction products in relation to their essential characteristics.

It is clear that using tabulated values and/or calculation as alternatives to hot box testing, as originally provided for by EN 14351-1:2006, represent less onerous methods than testing. If these methods have to be *applied* (as opposed to *checked*) by a notified body, however, they risk becoming costly for small and medium sized manufacturers.

The treatment of reaction to fire Class A products covered by EC Decision 96/603 (Classified without further testing) in EN 14351-1, and all other CPR hENs, shows the correct way to handle tabulated values. Decision 96/603 is a sort of set of tabulated values and the text in the footnote of Table ZA.3 explicitly provides for an AVCP reduction from System 3 to System 4. This same approach should be taken for thermal transmittance and acoustic performance.

With these considerations in mind, SBS makes the following recommendations:

Recommendations

SBS asks the European Commission to reconsider the inclusion of characteristics which are not safety-critical under AVCP System 1 for fire and smoke control doors.

SBS asks the European Commission or the GNB to issue general guidance on the roles of notified bodies when tabulated values or calculations are used instead of testing.

SBS asks CEN TC33 to reinsert the text allowing manufacturers to use tabulated data or perform calculation themselves, provided that (if necessary) the bases on which the calculation is performed are checked by the notified body.

SBS asks Sector Group 06 of the CPR Group of Notified Bodies (GNB) to draft guidance clarifying the (limited) role for notified laboratories in checking the bases of tabulated values and calculated values used by manufacturers.

Further information on the subject in this paper can be obtained from the SBS Secretariat at info@sbs-sme.eu.

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