



Economic and Social Council

Distr.: General
25 July 2012

Original: English

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Perishable Foodstuffs

Sixty-eighth session

Geneva, 22-25 October 2012

Item 5 (a) of the provisional agenda

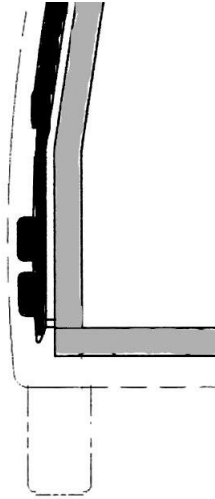
Proposal of amendments to the ATP: Pending proposals

Interpretation of external surface area measurement for panel vans

Transmitted by the United Kingdom

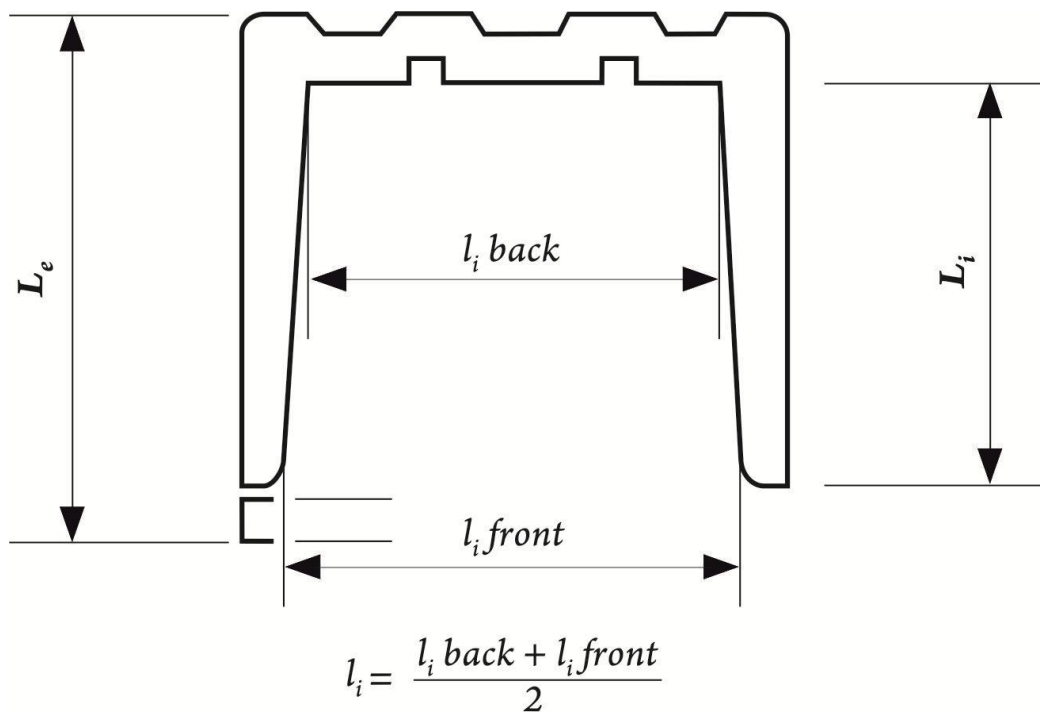
Introduction

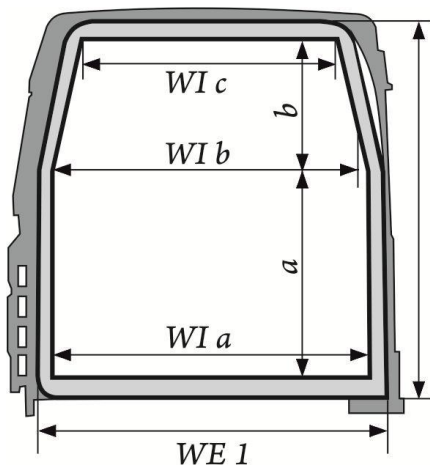
1. This topic was originally raised at the 66th session of WP11 and led to some misunderstandings over the problem experienced. The problem leads to some van structures receiving slightly lower K values than they otherwise might be entitled to.
2. The text of the ATP Agreement is not practical for the measurement of the external surface area of insulated vans for all shapes and sizes of vehicle. The smooth contours of a van body make it difficult to establish the most accurate point from which to take measurements. For example, the width of the floor is often different from the ceiling and the front can be narrower than the rear where a side door is installed.
3. Measurement of the external surfaces of a van cannot account for unfilled voids within the structure. Panel voids might also include steel structures that bridge the external heat to the outer edge of the insulated wall panels.
4. The point is illustrated in the diagram below. The grey shading represents the main insulated panel and the black voids represent varying thicknesses of foam infill. The question is whether the external surface should be considered as the outer edge of the grey part or should it include the voids and be loosely considered as the external metal surface.
5. The decision of WP.11 was to await the results of project group 413 of TC113 who were looking at this problem for a forthcoming CEN standard.



Proposed amendment

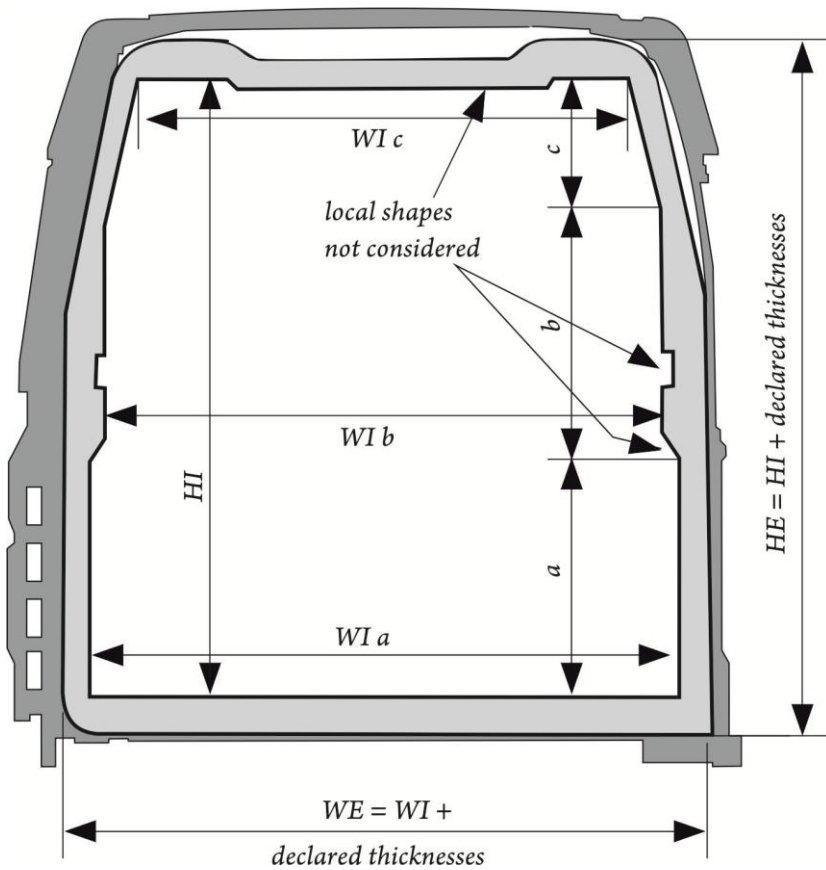
6. For the purpose of measuring the external and internal area it is proposed to use the method developed by project committee 413 for TC113. The method uses a manufacturer declared thickness of insulation material with a check calculation.





$$WI = \frac{WIa \times \frac{a}{2} + WIb \left(\frac{a}{2} + \frac{b}{2} \right) + WIc \left(\frac{b}{2} \right)}{a + b}$$

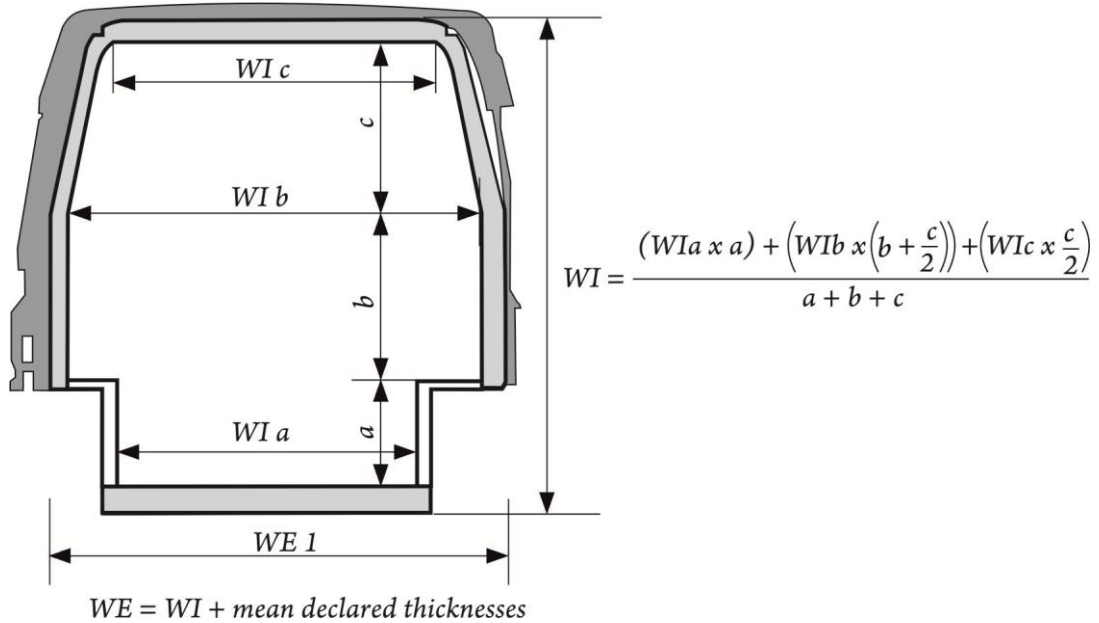
(to be discussed)



$$WI = \frac{WIa \times a + WIb \times \left(b + \frac{c}{2} \right) + WIc \times \frac{c}{2}}{a + b + c}$$

Mean declared thicknesses (mm) $< \frac{25}{K}$

(to be discussed)



7. The following text should be added to annex 1, appendix 2, paragraph 1.2 as follows:

“For insulated panel vans the external surface area should be considered as the inner dimensions plus the declared thickness of the insulation material. Localised shapes are not considered and the wheel arches are subtracted from the final calculation.

$$WI = \frac{(WIa \times a) + (WIb \times (b + \frac{c}{2})) + (WIc \times \frac{c}{2})}{a + b + c}$$

$WE = WI + \text{mean declared thicknesses}$

WIa is the internal width between the wheel arches

WIb is the internal width above the wheel arches

WIc is the internal width of the roof

a is the internal height of the wheel arches

b is the internal height above the wheel arches

c is the internal height above the wheel arches where the side wall width starts to narrow.

$$l_i = \frac{l_i \text{ back} + l_i \text{ front}}{2}$$

li is the internal length

le is the external length

l_{back} the internal length back

l_{front} is the internal length front”

8. For conformity the mean declared thickness (mm) must be greater than 25 divided by the measured K value, unless it can be shown that a superior insulation material has been used.

Insulation thickness (mm) $< 25/K$.

It is suggested that the diagrams are added to the handbook for additional clarification.

Impact

9. There is no financial impact to industry. The affect would be that some panel van structures experience a small increase in the measured K value due to the effect of making the calculation use a smaller measurement for the external surface area.

10. The proposal would ensure that measurements made on panel vans are consistent between different engineers and test stations, avoiding unrealistic test results. This would benefit manufacturers / body assemblers who would be reassured that the precise K value is not dependent on which test station or which individual person conducts the test.
