Fédération Européenne des Syndicats de Menuiseries Industrielles du Bâtiment
Federation of the European Building Joinery Associations
Vereinigung der Europäischen Verbände der Holzindustrie im Baubereich

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Comments on new energy requirement for windows in Norway

Dear Sirs,

FEMIB is the European umbrella organisation for national woodworking organisations in the European member states.

The reason we are addressing you is that we are in receipt of information that new energy legislation in Norway requires windows with a U-value of 1.1 W/m^2, and that the legislation has been sent out for consulting.

FEMIB strongly supports environmental initiatives. Our members are within the woodworking industry and are all focusing on the environmental advantages of wood as a construction material.

Materials for window frames

In principal, windows can be designed with 3 kinds of material, Wood, Wood/Alu or PVC. Each of these materials has different environmental performances.

Wood and Wood/Alu have several environmental advantages as compared to PVC, both with regard to manufacturing and recycling. PVC frames, however, can be developed with a multi-chamber system with better U-values, which is not possible with wooden frames with the existing technology.

Several research projects are undertaken in order to develop better wooden frames, among others with a focus on insulation of the outer surface, on insulation in the laminated frame etc - all to reduce heat loss through the wooden frame.

Such projects, however, are not ready to be used as standard solutions in the production within the next many years. Such new technologies must not only meet energy requirements but issues such as fire, sound reduction, strengths, humidity, lifetime, environmental factors and recycling are important to evaluate for window frames.

Therefore, in order to meet your requirement, wooden windows will have to be developed as 2+1 constructions - that is an extra wooden frame. Due to the chamber system in the frame reach, PVC windows can reduce the U-values on the frame and easily develop special frames to meet your requirement.

The PVC solution will for sure be expensive for the customer but we would like to bring to your attention that the wooden solution (2+1) will be more expensive than the PVC solution.

As most customers focus on costs and not only on the material, we are concerned that your requirement will change the window market from wooden windows to PVC windows. This will among others have an effect on the design and architecture of buildings.

Another consequence is that Norway will properly have to import the windows from countries where the PVC market is developed rather than produce wooden windows locally. It will result in other problems in areas of the environment, recycling, etc., and we ask you to take these concerns into consideration as well.

Energy savings

The energy savings obtained by using windows with a U-value of 1.1 W/m^2K as compared with 1.4-1.5 W/m^2K are limited. Due to the situation that the frames gets bigger (lowering the glazing (daylight) area of the window) and the use of 3 layers of glass are needed, both the volume of passive solar energy and the volume of daylight entering the building are reduced.

Outside condensation on glazing often occurs. It is an increasing problem on triple and 2+1 glazing, and the result can be that the view to the outside is reduced during most of the morning.

The consequences of the above-mentioned issues should also be taken into consideration when raising the new requirement. If you take these issues into consideration, the effective energy savings are limited and properly will not result in a sufficient payback period for the customer.

Energy requirement in the EU

If we focus on the EU market for windows, I would like you to bear in mind that the strictest requirement today is 1.4 W/m^2K in Finland, in Denmark the requirement in new buildings is 2.3 W/m^2K (for replacement 1.5 W/m^2K, however an energy balance method can be used as an alternative to the U-value 1.5 W/m^2K). There is no specific requirement in Sweden (but buildings under 100 m^2 can be built without energy calculation if windows used have a U-value of 1.3 W/m^2K), and the requirement is 1.7 in Germany, Austria, the Czech Republic, 1.8 in England, France etc.

The window industry has developed the products in accordance with the above level. Therefore your requirement will result in special solutions only for Norway, with the consequence of more expensive products.

Recommendation

As the new requirement is an important threat to the wooden window industry, we strongly recommend that you evaluate to change the requirement from 1.1 W/ m^2K to 1.5 W/ m^2K.

With kind regards,

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Secretary General
FEMIB