

How to Determine when a New Building Product is Suitable – Certifications and Experience

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1 Introduction

Previously, only solutions with long-term experience were used in the building sector and it was sufficient to describe, e.g. in the building regulations, how the solutions should be constructed. However, the innovation rate has gradually increased, encouraged by industrialization and by building regulations becoming more functional based. As a result, the required performance is often described for the whole building or for a technical solution (a wall, a roof, etc.), but not at product level. A technical solution is normally composed by several products (bricks, insulating materials, membranes, wood panels, etc.), for which not all relevant properties may be available as part of a CE-marking. The challenge is to close the gap between performance-based requirements specified for a technical solution and specific requirements to properties of products included in the solution, especially when new or not fully tested products are introduced, or when well-known products are used in new combinations.

2 Expensive Experiences

Two cases – flat roofs with no slope, and MgO-containing boards used as wind barriers – show that it can be very expensive to use new products or solutions in a specific context if not all relevant properties are documented, or if the products are not used as intended. The first case initiated the Danish Building Defects Fund in 1986, the second one from 2015 shows that the gap still exists. They show how difficult it can be even for professionals to understand different certifications, especially when a product seems to be well suited for a specific use.

3 Systematic Review of New Products

A guideline is presented targeted at buyers of building products and other partners in a building project who are supposed to demand documentation of relevant properties for such products.

The client should expect the consulting architect/engineer to identify new solutions in the building design and to make sure that the project documents detail and highlight all relevant requirements for documentation of each product in each new solution. Moreover, he should ensure that product properties are documented and that suppliers' information about the product is critically evaluated.

4 Discussion and Conclusion

The introduction of CE marking makes it possible to market and sell a specific product in any country within EU, although a CE mark does not guarantee that the product complies with national requirements. A CE mark is neither a quality mark nor an approval of the product for a specific application; a product can get a CE mark simply by meeting a minimum requirement for a single property. Further, a CE mark might not be required for new products or solutions as a standard may not be available. It is therefore a major challenge for the building sector to determine if a new product is suitable in a specific technical solution. To guide the client/consultant when deciding whether a specific product or solution is acceptable, a systematic review of new products or solutions is necessary, e.g. by a simple, straightforward decision chart (Figure 1). This closes the gap between performance-based requirements specified for a technical solution and specific requirements to technical properties of products.

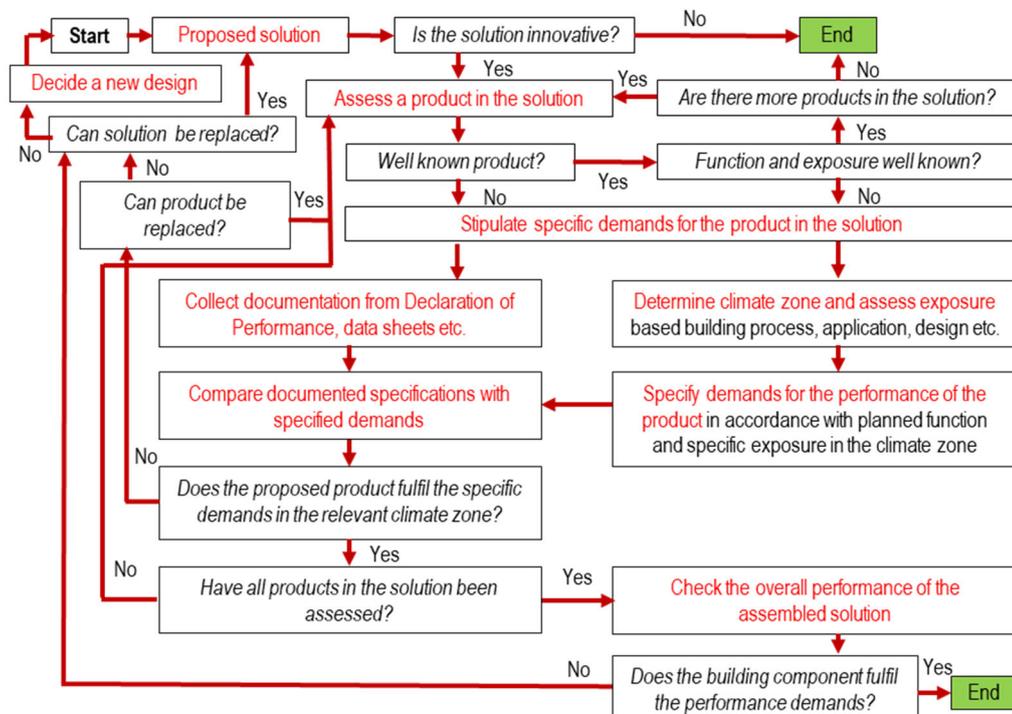


Figure 1. Decision chart guiding the user to ensure a suitable solution for the building envelope, developed from (Peuhkuri, Nielsen and Møller, 2020), using a lightweight wall and moisture-related properties as an example.

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