

PU Europe Comments
on
Communication COM(2014) 445 final
Resource Efficiency Opportunities in the Building Sector

Summary:

- PU Europe fully supports the goal of increasing the resource efficiency of Europe's built environment through the development of a harmonised European building assessment scheme.
- However, it is deeply disturbing to see that the Commission intends to develop yet another assessment scheme instead of using the mandated standards developed by CEN/TC350 following their alignment with PEF. This will lead to unjustified additional burdens, in particular for SMEs.
- It cannot be accepted that the proposed scheme contradicts the philosophy of CEN/TC350 with the latter being supported by manufacturers, contractors, architects, public authorities and academics.
- It is irrational that this new initiative will run in parallel to the PEF pilot projects for construction products. The PEF methodology and indicators as well as the future PEFCRs are not compatible with the new scheme. Furthermore, the ongoing efforts to align PEF and TC350 standards will be compromised.
- The proposed initiative will not necessarily increase resource efficiency. Firstly, the limitation of environmental indicators may trigger burden shifting and not provide decision makers with a complete picture. Secondly, a vast majority of stakeholders and scientists agrees that "recycled content in construction products" is not an environmental indicator but one out of many tools possibly increasing resource efficiency. Decisions can only be taken at the building level.
- Resource efficiency trends in making construction products should have been assessed before proposing new measures. Rising raw material prices and the wide availability of Environmental Product Declarations (EPDs) already push manufacturers to lower resource use in production.
- PU Europe calls on the European Commission to launch a dialogue with the construction industry and researchers to avoid any further duplication of initiatives.

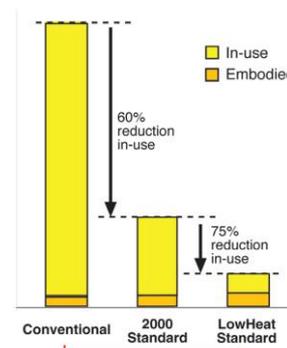
Detailed comments:

General:

- Increasing the resource efficiency of the built environment is indeed one of the major challenges we are facing in Europe. PU Europe fully supports efforts to achieve this.
- PU Europe also agrees that the environmental impacts embodied in construction products need to be taken into account when assessing the life cycle performance of buildings. However, the main challenge of the construction sector remains the energy consumption of the existing building stock (42% of total energy consumption) and its related environmental, health and cost impacts. Energy renovation is only partly addressed by current EU legislation and national implementation remains poor.
- The construction industry is Europe's leading industry sector which accounts for about 8-9% of total GDP. It is therefore not astonishing that it consumes 5-10% of the EU's total energy use. It is true that construction and demolition waste is one of the heaviest and most voluminous waste streams accounting for approximately 25-30 % of all waste generated in the EU. However, it should be taken into account that almost 50% of this stems from excavation waste.
- In a time when production plants are shut down across Europe and the continent struggles to find its way out of recession, administrative simplification is an imperative. As it will be shown further down, this new initiative duplicates existing schemes while lacking a solid scientific basis.

Comments on chapter 2:

- The Communication provides a somewhat flawed analysis of the situation and draws conclusions which will not withstand scientific scrutiny. The main flaw relates to the link between product and building performance.
- The Communication suggests that the embodied impacts of buildings are increasing and, hence, resource efficiency benchmarks for construction products (for example for recycled content) should be set.
- However, as shown in this graph, this analysis covers only part of reality. The use of more insulation, double or triple glazing, solar panels etc. indeed leads to a small increase in embodied impacts, but has enabled a drastic reduction in use phase impacts. Hence, **the resource efficiency of products cannot be dissociated from that of the building.**
- Chapter 2 of the Communication lists measures to reduce the consumption of resources throughout a building's life cycle, but omits the most important one: **Increase the resource efficiency of the building's use phase by minimising energy and water use.** This is important as a building does not need to be resource efficient to meet user needs and functional requirements.
- There is no scientific evidence that requirements at the product level will lead to better resource use throughout the building's life cycle. A new construction product might even use more resources than its predecessor. As long as it saves even more resources at the building level (lighter, thinner elements, more energy / water savings) it may still be sensible to promote its use. **A holistic approach is therefore indispensable in order to stimulate innovation.**



Common European building assessment scheme (chapter 3)

- PU Europe strongly supports efforts to develop a single harmonised EU building assessment scheme. With this in mind, we had welcomed the Commission mandate M/350 to CEN. After more than ten years of work, EN15804 and EN15978 were published and industry spends millions of euros every year to provide accurate environmental product data through EPDs.
- On the downside, the use of EN15978 by architects and designers remains limited and the recognition of EPDs across borders is still not achieved. The Commission could support this process through (promoting) the development of designer software tools linked to a central EU database for the environmental performance of construction products (possibly EPLCA).
- **The above problems do not justify the development of yet another European building assessment scheme.**
 - The CEN/TC350 standards offer a system which is recognised by a wide range of stakeholders (architects, contractors, producers, academia, public authorities). Most of the relevant global sustainability assessment tools for buildings (BREAAAM, LEED, HQE, DGNB, etc.) are now asking for environmental information according to EN 15804.
 - It will take two to three years until the new scheme becomes operational. During this time, the implementation of EN15804 and EN15978 will be significantly hampered by uncertainties caused by the new scheme and the question whether building assessments to EN15978 would become irrelevant.
 - A number of construction products are covered by pilot projects relating to the Environmental Product Footprint method. **It is not acceptable that the new assessment scheme will run in parallel to these PEF pilots.** The alignment of PEF and TC350 is one of the declared goals of construction products associations participating in PEF. The new scheme would be in contradiction to both of them (see below) and add to the confusion. **To avoid this, it must correspond to the aligned TC350/PEF scheme.**
 - As the case of the Ecolabel shows, the introduction of a European scheme does usually not substitute existing national / private schemes but comes on top of them.
- Whilst the Communication remains vague, it would appear that the Commission aims to reduce the number of indicators to a few (so-called core indicators). **PU Europe calls on the Commission to use the full list of indicators as approved by TC350 and PEF.**
 - **Limiting the number of indicators to a few will lead to burden shifting.** Designers / architects will not be able to take sound decisions and regulators will find it difficult to set requirements knowing that they might cause undesired effects in other areas. For example, insulation products are a very heterogeneous product group. Omitting POCP will favour one part, omitting the eutrophication potential favours another one and ignoring acidification helps a third group. Leaving out all three indicators will withhold relevant environmental information from decision makers. This is particularly true as the embodied

impacts of all construction products may exceed building use phase impacts for those three indicators.

- A small list of indicators will always encourage alternative assessment schemes / regulators to add new ones claiming that they are equally relevant. Only the full list can avoid this.
 - **The PEF guidance paper states that all environmental indicators should be declared for intermediate products.** Based on this, the PEF pilot scheme for insulation products will declare the full list.
 - Declaring the full list is not significantly more costly as all data have to be collected and allocated anyway. Software tools can facilitate the work of designer / architects.
- Under the heading “Step forward – selecting reliable indicators” the Communication lists several recycling-related areas. PU Europe members are actively working on recycling solutions¹. As it is the case for other life cycle stages, **LCA principles must be applied.**
 - One of the areas listed is “recycled content in construction materials”. **However, recycled content is not an indicator but a tool which may (or may not) decrease the embodied environmental impacts of products.** It is therefore part of the second bullet point (Material use and the embodied environmental impacts). If the benefits of increasing recycled content outweigh the burdens, the embodied impacts will decrease.
 - **It is scientifically wrong to assume that increasing recycled content in products will lead to higher resource efficiency of buildings.** The case of insulation products which may be of organic, mineral or plant / animal-based origin demonstrates the flaws of this concept. Densities and thermal conductivity levels differ significantly between materials leading to different impacts at application level. The table in example 1 only looks at the building element level and does not take account of knock-on effects at the building level.

Example 1²:

Assuming, product G has a recycled content of 50% and product B has 0%. Which product would be better in this application?

100 m ² flat roof is to be insulated guaranteeing a thermal resistance of 3.33 m ² .K/W.						
	Thermal conductivity	Insulation thickness mm	Density Kg/m ³	Insulation weight kg	Embodied energy MJ/kg	Total embodied energy MJ/100 m ²
Product A	0.040	133	130	1,733.33	7.1	12,220
Product B	0.024	80	32	264.00	91.7	27,328
Product C	0.035	117	25	291.67	99.2	28,933
Product D	0.038	127	120	1,520.00	22.1	33,622
Product E	0.037	123	105	1,295.00	34.6	44,807
Product F	0.036	120	35	420.00	110.2	46,284
Product G	0.050	167	240	4,000.00	17.0	68,000

Example 2³:

The choice of the insulation material can have knock-on effects on the whole building structure. The steel structure of a 2,300m² the steel deck flat roof can be about 15 t lighter in moderate and Mediterranean climates when a light insulant is used rather than a heavier alternative. The difference is 13 t for the cold climate. This gain of about 10 % is due to the fact that the insulation layer of the light material weighs only 10.7 t compared to 86.7 t for the heaviest insulation layer (moderate climate). Setting benchmarks for recycled content at the insulation product level would provide no guarantee for better building performance.

- **Recyclability and reusability are no quantifiable indicators and no predictions are possible over a 50 to 150 year life cycle. Although PU would probably score well, we cannot accept the use of such indicators from a scientific point of view:**
 - Over their life cycle products may be contaminated by others (adhesive, rust, plaster) which makes recycling difficult;
 - Substances legally used today may not be authorised in 50 years;
 - Once installed, the producer of many products cannot be identified anymore and, hence, the exact product composition is unknown at the end of the life cycle (concrete, wood etc.);
 - It is impossible to predict renovation / transformation activities which may affect recyclability and reusability.

¹ See http://www.pu-europe.eu/fileadmin/documents/Factsheets_public/Polyurethane_insulation_and_waste_management.pdf

² See ANPE – Poliuretano & Ambiente (2007)

³ See [PWC for PU Europe: Environmental and economic analysis of insulation products in low energy buildings \(May 13\)](#)

Market for recycled construction materials (chapter 4)

- The Communication provides an interesting analysis of the market for recycled construction products, but misses some highly important elements:
 - As explained above, recycled content is not a goal in itself but one out of several tools to increase the resource efficiency of buildings. Higher recycled content in products does not necessarily mean more resource efficient buildings. However, **the performance of construction products should always be assessed in their end-use application (building)**.
- The availability of recyclates is often insufficient and fluctuates. This may be due to the fact that more new products are manufactured than old products reach their end-of-life stage. Other reasons are listed above under the heading "recyclability and reusability". In particular, **the issue of REACH "legacy substances" needs to be tackled by the Commission**.
- In addition, the issue of **market surveillance**, in particular of imported products needs to be resolved to avoid higher burdens for EU producers.

Conclusions (chapter 5)

- PU Europe supports a single European building assessment scheme and is willing to contribute to the stakeholder group to be put in place by the European Commission.
- PU Europe calls on the Commission to push for the alignment of TC350 and PEF and use the outcome as the single European scheme. No new scheme should be developed.
- For the reasons outlined above, **PU Europe strongly opposes the setting of benchmarks of recycled materials in construction products. The life cycle performance of the building should always serve as reference point.**
- It is even less comprehensible that insulation products were chosen as pilot products:
 - The Commission just decided not to develop Ecodesign requirements for this product group with the following justification:
 - "The study concluded that requirements on the energy labelling or the minimum efficiency (through ecodesign) of thermal insulation products are not possible. Even though saving energy is the very function of the product group, performance requirements are too varied and dependent on the installation of the products to be set at product level."
 - "Production-phase and end-of-life environmental impacts of thermal insulation products are for now marginal compared to the environmental benefits they bring in the use phase by lowering building energy consumption."
 - "The Commission services conclude from the study that a specific ecodesign or energy labelling implementing measure should not be developed for this product group... It would be disproportionate administrative burden both for the authorities and institutions involved to carry such a measure through the adoption process, and for the manufacturers to implement it."⁴
 - The PEF pilot project for insulation products will run until the end of 2016. Recycled content is not a PEF indicator and is covered by resource efficiency indicators. Furthermore, all parties recognised that the performance of insulation products can only be assessed in their end-use application. It was therefore decided to declare the full list of PEF indicators. The setting of benchmarks for recycled content is in clear contradiction to this approach.
 - The approach is not supported by the TC350 standards. TC88 (thermal insulation products) currently develops specific PCRs based on EN15804. The philosophy is similar to the approach chosen under PEF.
 - Such benchmarks would be arbitrary by definition and not take account of fluctuations in the availability of recyclates, raw material prices, technological progress and market surveillance issues. For example, what would happen if a benchmark can temporarily not be met? Should production be suspended?
 - Last but not least, insulation products are a very heterogeneous product group (appr. 20 materials). While the manufacturing process of some products is indeed energy-intensive, this is not the case for others. Assumptions can therefore not be generalised and the work load would be very substantial.
 - Setting benchmarks through harmonised CEN product standards is impossible as a number of insulation materials are not covered by the Commission mandate and could therefore escape these additional burdens.

Brussels, 8th September 2014

⁴ European Commission Working Document on Thermal Insulation Products (Lot 36) – Results from exploratory study and suggested way forward (4 April 2014)