BREEAM®

Accoya® wood and BREEAM International New Construction

Application of high performance wood provides additional BREEAM credits

BREEAM is one of the most important green building certifications worldwide. For Accoya®, BREEAM New Construction is the most relevant scheme subdivided in nine environmental categories, each with a different weighting:

- Management
- Water
- Health & wellbeing
- Materials
- Energy
- Waste
- Transport
- Land use & ecology
- Innovation
- Pollution

BREEAM credits can be earned on building level. This means that use of Accoya® can contribute to several credits and as such may also contribute to a higher BREEAM classification of the building project itself. However, this often has to be done in combination with other green building materials to reach the required threshold value for the criterion (e.g. for MAT 3, 80% of the applied materials need to be responsibly sourced. Accoya® always meets this credit, but it may be that other materials applied in the building do not). Application of Accoya® may contribute to a higher BREEAM International New Construction score for the following credits:

Direct contribution:

- **MAT 1** - Lifecycle impact
- **MAT 3** - Responsible sourcing of materials
- **INN 1** - Innovation

Indirect contribution:

- **ENE 1** - Energy Efficiency
- **MAN 5** - Life cycle cost and service planning

More information on the possible contribution of Accoya® for each of the criteria mentioned is provided below, including a copy of the relevant selection of the actual text (in italics) from the BREEAM International criteria document (full text available online through this link).

Direct contribution

MAT 1
Life Cycle Impacts

Aim

To recognise and encourage the use of robust and appropriate life cycle assessment tools and consequently the specification of construction materials with a low environmental impact (including embodied carbon) over the full life cycle of the building.

Applicable credits:

Up to 6 credits

- The project uses a life cycle assessment (LCA) tool to measure the life cycle environmental impact of the building elements.
- The LCA includes at least the mandatory building elements indicated in the 'Materials assessment scope' section of the BREEAM International Mat 01 calculator (where present in the building).
- The mandatory requirements identified in the 'Materials assessment tool, method and data' section of the BREEAM International Mat 01 calculator have been met.
- A member of the project team completes the BREEAM International Mat 01 calculator and determines a score based on the robustness of the LCA tool used and the scope of the assessment in terms of elements considered.

Comments

Delft University of Technology was commissioned in 2010 to develop a cradle to grave Life Cycle Assessment (LCA) including carbon footprint for Accoya® in compliance with ISO 14040/44. The report is publicly available and the results (summary available on this webpage) show that in terms of eco-costs and global warming potential (GWP also known as carbon footprint) application of Accoya® wood, for example in window frames, has a considerably lower environmental impact compared to Aluminium, PVC and tropical hardwood. As a result, use of Accoya® is expected to contribute to achieving a higher score within the BREEAM International Mat 01 calculator.

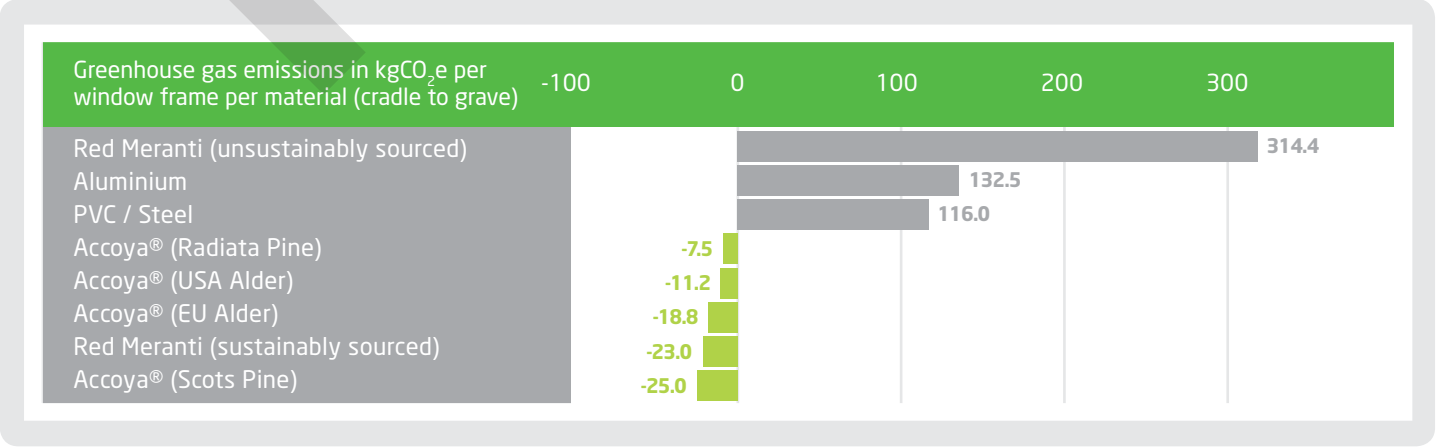


Figure 1: Accoya® has a considerably lower environmental impact than other building materials (based on Vogtlander 2013)

Direct contribution

MAT 3
Responsible Sourcing of Materials

Aim

To recognise and encourage the specification of responsibly sourced materials for key building elements.

Applicable credits:

Up to 3 credits

Legal and sustainable timber procurement
(...) Written confirmation from the supplier/s that all timber is sourced in compliance with the definition of the Legally harvested and Legally traded - or recognised certification schemes - FSC, PEFC - and their endorsed schemes (e.g. SFI, etc).

Comments

Within the BREEAM system, FSC and PEFC fall in the highest tier level with respect to system for sustainable sourcing of building materials. Therefore, use of as much FSC and PEFC certified Accoya® as possible can contribute to a higher score for this specific credit. Chain of Custody certificates for Accoya® are available here (FSC) and here (PEFC).

FSC www.fsc.org FSC® C012330 The mark of responsible forestry

PEFC PEFC/30-31-040 www.pefc.org

INN 1
Innovation

Aim

To support innovation within the construction industry through the recognition of sustainability related benefits which are not rewarded by standard BREEAM issues.

Applicable credits:

One credit for approved innovation
Any technology, method or process that can be shown to improve the sustainability performance of a building's design, construction, operation, maintenance or demolition, and which is approved as innovative by BRE Global.

Comments

As Accoya® is a very new material with a low environmental impact and based on abundantly available rapidly renewable resources, there still may be application areas where the use of Accoya® is completely new and where it may substitute more polluting nonrenewable incumbent materials such as steel and concrete, for example in various structural applications (contribution through innovation).

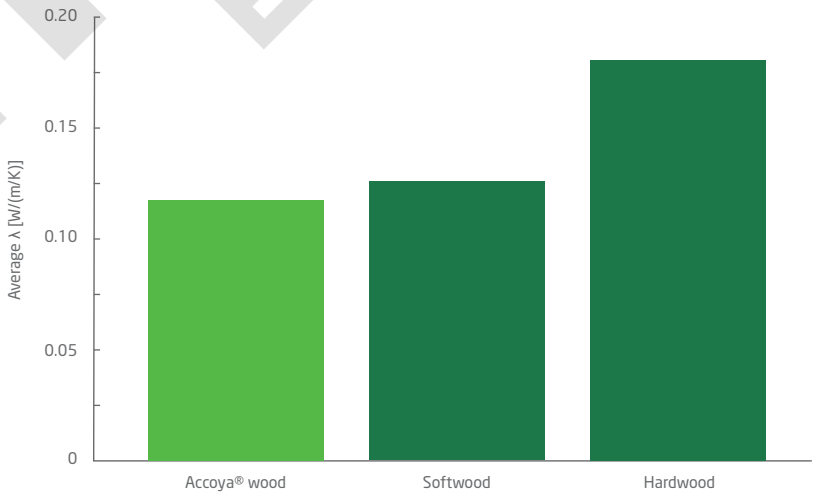
www.accoya.com

Indirect contribution

Besides the BREEAM credits mentioned above, where application of Accoya® can provide a **direct** contribution to a higher BREEAM score, there are also several BREEAM credits where application of Accoya® may provide an **indirect** contribution:

Credits	Contribution
MAN 5 **Life cycle cost and service planning**	Because of the high durability (class 1 following EN 350) and high dimensional stability (hardly any shrink / swell resulting in a very low coating frequency) the application of Accoya® in maintenance sensitive areas such as cladding, window frames and shutters, can help contribute to a lower maintenance frequency and subsequent lower life cycle costs. For more background information including test results and benefits during use phase please refer to the **performance brochure** and **this webpage**.
ENE 1 **Energy efficiency**	In general, wood is known as a good insulator making it very suitable for application in the building envelope (window frames, doors, etc). Through the acetylation process the already good insulation performance of wood is further improved (the thermal conductivity declared value of Accoya® is declared at 0.120 W/(m*K)) by 4-50% compared to alternative wood species, see also the **research report** of IFT Rosenheim and page 17 of the **performance brochure**. Thus, as a result of its good insulation properties Accoya® can help contribute to reach the required Energy Performance Ratio (ENE 1).

Thermal conductivity
Comparison with other species



Questions?

Please contact Dr. Pablo van der Lugt, sustainability manager of Accsys Technologies PLC via sustainability@accsysplc.com

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the world's leading high technology wood

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