

Planning for Sustainability Ltd



STYROFOAM™-A
BREEAM 2011 Case Study



Summary findings

Planning for Sustainability was appointed to fulfil the BREEAM assessor role on a factory extension project.

The design team aimed to achieve the maximum of 2 credits in the MAT04 BREEAM issue.

With a Green Guide rating of A on the project and responsible sourcing certification meeting the Tier 6 requirements STYROFOAM™-A contributed positively to achieving the full two credits.

STYROFOAM™-A and BREEAM credits

The environmental performance of insulating materials feeds into a number of issues in BREEAM New Construction 2011.

Planning for Sustainability worked on an industrial project where the design team was keen to maximise the BREEAM credits in the materials category. STYROFOAM™ -A (Trademark of the Dow Chemical Company (“Dow”) or an affiliated company) was one of the products considered and we examined how this material would contribute to the BREEAM score for the project.

Within the BREEAM New Construction methodology credits for insulating materials sit within the materials category. The insulating materials play a role in the first issue in this category: MAT01 Life Cycle Impacts. Most building materials are covered by the generic ratings provided in the BRE’s Green Guide to Specification and the type of insulation is not a discriminating factor there.

There is a specific issue in the materials category that deals with the environmental performance of insulating materials: MAT04 Insulation. Here different insulants can affect the BREEAM rating differently. In MAT04 there are two credits available: one credit relates to the embodied impact and one credit relates to responsible sourcing of materials. It is for these two credits that we examined STYROFOAM™-A in more detail.

MAT04 insulation credits

Credit 1 - Embodied impact

The credit for the embodied impact of insulating materials is based upon the materials Green Guide rating, which can be found at www.thegreenguide.org.uk. There is a separate category for insulation materials in the Green Guide.

Our building comprised three different kinds of insulation: All walls were insulated using 150mm of glass wool, the concrete floor was insulated using rigid urethane insulation boards and the inverted roof was insulated using Dow Building Solutions’ ROOFMATE™ SL-A, a STYROFOAM™-A material.

Green Guide rating

The Green Guide rating from both the glass wool and the rigid urethane could be easily found in the Green Guide to specification: the ratings were an A⁺ and an A respectively. STYROFOAM™-A extruded polystyrene uses CO₂ as a blowing agent. It quickly became apparent that this material was not included in the Green Guide to Specification and we therefore had to make a specific rating request to the BRE.

A project specific rating request was therefore made by the registered BREEAM assessor. For our application, which is an inverted roof in an industrial building, the BRE returned an “A” rating. This was very helpful to the project, as combined with the other insulating materials it meant that the credit could be achieved.

The combined insulation index score for the project was 2.3, which is sufficient to award the MAT04 credit for embodied impact of insulating materials. (Refer to the BREEAM 2011 MAT04 Insulation Calculator on the opposite page.)

Responsible Sourcing Certification

Tier level 2

- BES6001 Excellent

Tier level 3

- BES6001 Very Good
- Forest Stewardship Council (FSC)
- Re-used materials
- Programme for the Endorsement of Forest Certification (PEFC)
- Sustainable Forestry Initiative (SFI)

Tier level 4

- BES6001 Good

Tier level 5

- BES6001 Pass

Tier level 6

- Certified EMS for key process and supply chain
- Recycled materials certified EMS for key process
- Societe Generale de Surveillance's (SGS) Timber Legality and Traceability Scheme
- Rainforest Alliance's Verification of Legal Origin and Compliance Scheme



Credit 2 Responsible sourcing

The credit for responsible sourcing is available if at least 80% by volume of thermal insulation used in the main building elements is responsibly sourced. For this issue responsibly sourced means that the products are certified in accordance with tier levels 1, 2, 3, 4, 5 or 6 as described in the BREEAM manual. The higher tiers often require product specific supply chain management certification such as under the BES 6001 standard or Forest Stewardship Council (FSC). Tier level 6, however includes environmental management system certification for the key process and supply chain extraction process.

For the production of extruded polystyrene an EMS certificate that covers the manufacturing of the products and one that covers the production of the polystyrene (as the principal polymer) would allow the credit to be awarded. We therefore contacted The DOW Chemical Company which confirmed that its own production process of STYROFOAM™-A and those of its suppliers of polystyrene were produced in facilities operating certified ISO14001 environmental management systems.

At the time of writing we identified the following suppliers and their EMS systems as:

- Dow Belgium BVBA, Tessenderlo, Belgium valid until 1 May 2013
- Styron Deutschland GmbH, Schkopau Germany valid until 31 October 2013
- Dow Hellas S.A., Thriko, Lvrrio, Greece valid until 26 July 2014

BREEAM 2011 MAT04 Insulation Calculator							
Total BREEAM credits achieved			2				
		Area (m ²)	Thickness (m)	Volume (m ³)	GGR	Responsibly sourced	Insulation index
							2.32
Ins 1	Floor – rigid urethane	2184	0.05	109	A	100%	0.42
Ins 2	Walls – glass wool	1320	0.15	198	A ⁺	100%	1.13
Ins 3	Roof - STYROFOAM™-A	2184	0.1	218	A	100%	0.83



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Planning for Sustainability provides strategic advice and project support regarding the sustainability agenda in the area of land use planning and development of construction projects. Our services include masterplanning, town planning, environmental impact assessment and sustainable building design.

The multi-faceted nature of sustainable development requires a wide range of specialist input as well as an integrated approach. Planning for Sustainability's strength lies with the integration of a variety of specialist input and with ensuring a comprehensive and coherent narrative on sustainable development.



Consultants for sustainable development

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