

Alternatives to plastic construction products

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Plastics in construction

ASBP does not seek to advocate a completely 'plastic-free' built environment. In some cases plastic materials can be the most appropriate option. For example:



Membranes



Underground pipework



Trunking cables

Issues - Plastics in construction

The construction sector's use of plastic continues to grow and there are a number of environmental concerns for plastics including:

- Use of petrochemicals for their manufacture
- High embodied energy
- Fire - Use of harmful chemicals i.e. fire retardants; toxicity during/after a fire
- Off-gassing/VOCs of plastic products in-use
- Single-use plastic and packaging waste
- Plastic waste and pollution during manufacture (nurdles) and disposal (i.e. ocean pollution)
- Persistence in environment after disposal at end of life and difficulties with recycling certain plastics

5 commonly used construction products containing plastic



Windows & doors

uPVC



Insulation

EPS, PUR, PIR



Pipework/guttering

ABS, HDPE, PVC, PEX



Flooring

PVC (i.e. Vinyl)



Paints

Polyvinyls, acrylic/PVA polyurethanes (in binders)

These are all mainstream products and it's clear that they do have some advantages, particularly cost benefits, but can also be lightweight, durable, resistant to corrosion and low maintenance.

But there are alternatives... What are their benefits?

Alternative to uPVC – Timber windows and doors

Timber is an excellent alternative to uPVC windows and doors.

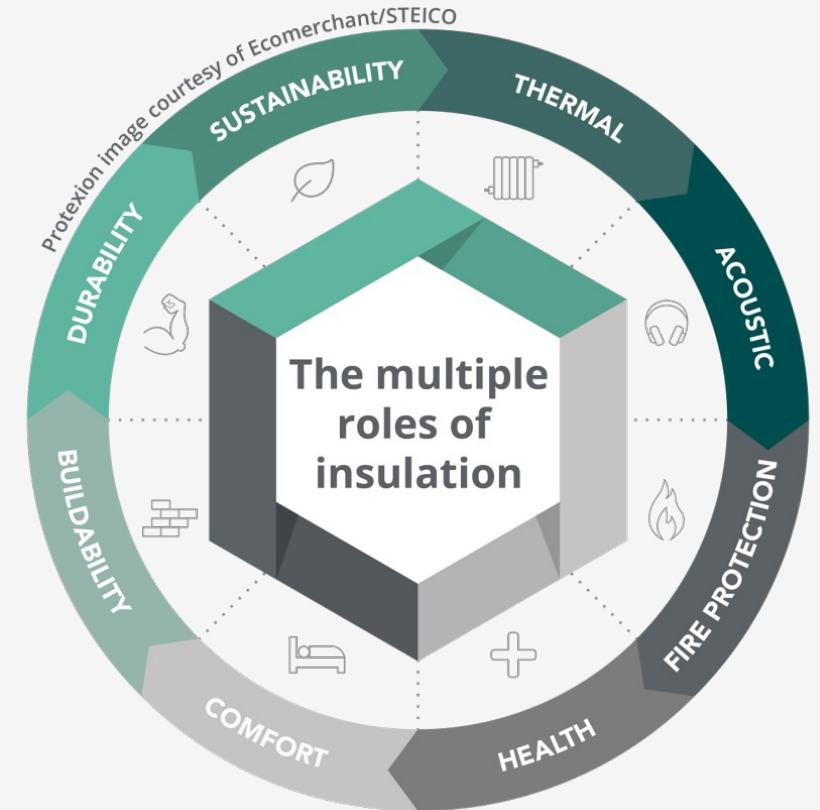
- Can have higher up-front costs but have a number of environmental and performance benefits.
- Lower embodied carbon and ability to 'lock up' carbon. From renewable sources, i.e. 100% FSC certified.
- Long lifespan - Timber windows can have a lifespan of 50-70 years subject to routine maintenance, which is three times the equivalent of a uPVC frame.
- High performance – Triple glazed and suitable for Passivhaus buildings.
- Suitable for both new build and particularly historic properties (i.e. in conservation areas).
- ASBP member Bereco seeking to develop a completely plastic free window without plastic components.



Alternative to EPS/PIR/PUR – Natural fibre insulation

Natural fibre insulation (NFI) products and systems are derived from natural materials such as wood fibre, hemp, straw, cellulose, wool, cotton and flax.

- Insulation is more than just U-values. It profoundly influences the performance of our buildings and NFIs have multiple roles/benefits such as acoustic and fire performance, low VOCs, breathability etc.
- Most NFIs do contain a % of plastic as a binder, i.e. PUR resin for woodfibre insulation boards.



Alternative to plastic pipes and guttering – Copper and aluminium

Copper is an alternative to plastic pipework.

- Infinitely recyclable. Keeps its value at end of life.
- High performance and durable – less likely to fail.
- Corrosion resistance.
- Anti-microbial properties.



Aluminium is an alternative to plastic guttering.

- Aluminium can be infinitely recycled, losing less than 3% of its material properties during the recycling process.
- 75% of all aluminium ever produced is still in use today. 90%+ of aluminium from building demolition is recycled.
- Low maintenance and non-combustible.



Alternatives to vinyl flooring

Flooring alternatives include timber, linoleum, stone, cork, bamboo and ceramic tiles.

Alternatives to synthetic carpets include wool, sisal, jute and cotton.

- Natural materials are (usually) from sustainable sources and have lower VOCs.
- Natural stones and ceramic tiles are durable, retain heat and are low maintenance.



Alternatives to plastic based paints

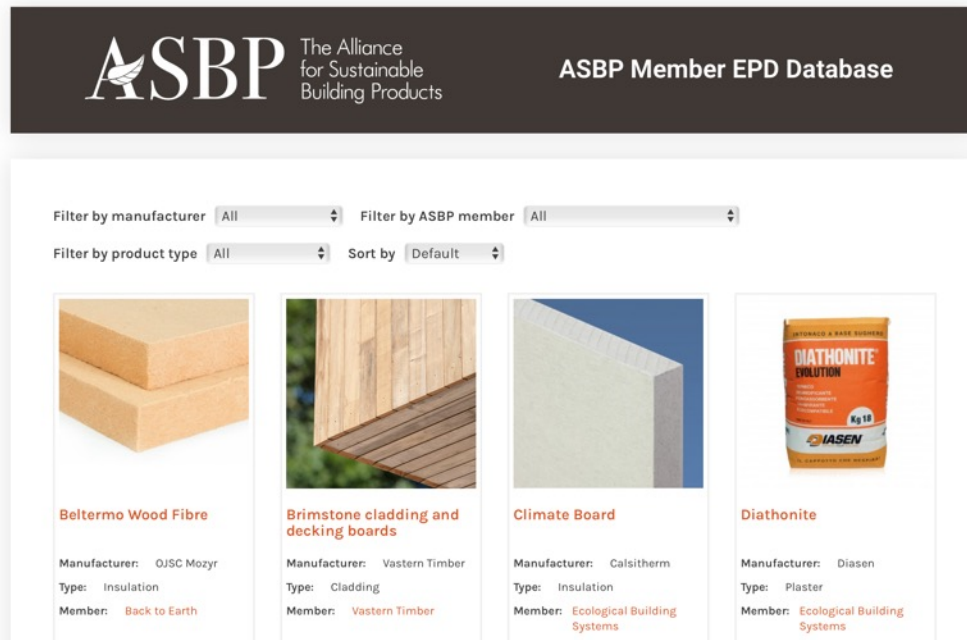
Alternatives include natural, mineral-based paints.

- Breathable - work well together with other natural materials such as insulation.
- Free of plastic binders. Binders include linseed oil, clay, lime and potassium silicate.
- Virtually VOC free – but NOT zero! All contain some trace VOCs, even if minimal. No harmful off-gassing.
- Mineral paints are naturally resistant to mould and fungal growth due to their high alkalinity.
- Good for people with allergies and hypersensitivity.
- ASBP has recently launched a Paints & Finishes Group, aiming to agree on consistent terminology and a Code of Practice for eco paint manufacturers.



Find out more about alternative products

- Check out our Interactive House of ASBP members' products – broken down into windows, services, insulation, flooring, structural elements, guttering etc.
- Soon will launch a new database of ASBP members' products with Environmental Product Declarations.



Upcoming ASBP events

17th February – ASBP Awards 2022 Ceremony and Drinks Reception - Hybrid event (in-person/online) at a venue in London TBC

Judges' winners announced and audience vote.



24th February – Healthy Buildings 2022 – Online

With Prof. Nic Carslaw, Prof. Avtar Matharu (University of York); Architype IAQ monitoring research (TBC); BS40102 and Met Office case study; Neurodiversity and built environment; Jane Thornback, CPA on new building product code.

HEALTHY BUILDINGS
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Become a sponsor – Support our events or research activities

Input into one of our specialist groups or projects – Reducing Plastics in Construction, Natural Fibre Insulation, Timber Accelerator Hub, Paints & Finishes

Register for one of our upcoming webinars - asbp.org.uk/upcomingevents

www.asbp.org.uk

Thank you

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