Sustainable tape solutions in construction: Driving circularity and performance

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The construction sector is under increasing pressure to **reduce embodied and operational carbon, improve resource efficiency, and design for circularity**. While attention often centres on major materials—concrete, steel, insulation—smaller components such as tapes and adhesives too influence building performance.

Adhesive tapes enable **sustainable, higher-performing buildings** with supporting airtight envelopes, moisture-resistant barriers, and recyclable protective films. These innovations help cut VOC emissions, improve energy efficiency, and advance circularity across the construction lifecycle. By replacing resource-intensive fasteners and traditional sealants, **sustainable tapes** streamline installation, reduce material use, and minimise on-site waste.

Their expanding role in modern construction demonstrates **how even small components can deliver meaningful environmental gains**, helping the industry lower carbon footprints while maintaining the durability and performance essential to long-lasting, resilient structures.

Modern construction tapes support a wide range of sustainability-critical functions:

- **Airtightness and weatherproofing:** High-performance sealing tapes reduce uncontrolled air leakage, improving thermal efficiency and lowering energy demand.
- **Moisture management:** Vapour-control and façade tapes protect building envelopes from moisture ingress, extending the lifespan of insulation and structural components.
- **Surface protection:** Recyclable protective films and tapes prevent damage during installation and can be recovered or recycled after use.
- **Lightweight bonding:** Tapes replace screws, rivets, and mechanical fasteners, reducing material consumption and simplifying disassembly.

These functions align directly with the principles of circular construction: durability, resource efficiency, and design for reuse.

Circularity through material innovation

Sustainable tape solutions are advancing rapidly thanks to innovations in adhesives, backings, and manufacturing processes.

Bio-based and low-VOC adhesives

Manufacturers are adopting bio-based polymers derived from natural resins, starches, and other renewable feedstocks. These adhesives reduce reliance on fossil-based chemistries and help lower product carbon footprints (PCFs). Low-VOC and solvent-free formulations also support healthier indoor environments and reduce emissions during installation.

Recycled and mono-material backings

To support recyclability and reduce embodied carbon, tape backings are shifting towards:

- Recycled PET films
- FSC-certified paper
- Bio-based polyethylene
- Mono-material laminates that simplify end-of-life processing

Mono-material tapes are particularly important for circularity, as they avoid the mixed-material structures that complicate recycling.

Design for disassembly

As buildings move towards modular and reversible construction, tapes are being engineered for selective adhesion and clean removal. Detachable adhesive systems allow components to be separated without damage, enabling reuse or high-quality recycling.

Commercial examples of sustainable tape solutions

Several manufacturers are already advancing sustainable tape technologies, offering practical examples of how the industry is evolving. Here's a look at some of them.

Company	Product / Range	Sustainability Features	Primary Applications
3M	VHB™ Tapes; Low-VOC Acrylic Tapes	Solvent-free adhesives; recycled PET backings; reduced reliance on mechanical fasteners	Façades, cladding, glazing, interior fit-out
DuPont	Tyvek® Tape Range	High durability; optimised for long-life building envelopes; low emissions	Weather barriers, façade systems, roofing
H.B. Fuller	Construction Adhesive Tapes	Water-based and low-VOC adhesives; recyclable backings	Bonding, sealing, modular construction
Illbruck (Tremco CPG)	ME Series Airtightness Tapes	Low-VOC adhesives; long-term durability; system-tested with membranes	Airtightness, window and façade sealing

Owens Corning	FOAMULAR® Tape; System Tapes	Designed for system compatibility; supports thermal performance	Insulation systems, joints, vapour control
Pro Clima	Tescon®, Contega®, Solido®	Low-emission adhesives; durable, moisture-managing backings	Timber construction, airtightness, moisture control
Saint-Gobain	CertainTeed & Weber Tape Systems	Low-emission adhesives; recyclable materials; system-level compatibility with insulation	Airtightness, façade systems, insulation detailing
Siga	Wigluv®, Rissan®, Fentrim®	Solvent-free adhesives; recyclable packaging; passive-house certified	Airtightness, façade sealing, window installation
Soudal	Soudatape Range	Solvent-free adhesives; recyclable packaging; high durability	Airtightness, vapour barriers, roofing membranes
Tesa	ecoLogo® Range; Airtightness Tapes	Bio-based adhesives; recycled backings; solvent-free production	Airtightness, vapour control, general construction

Regulatory drivers: The revised Construction Products Regulation (CPR)

The **revised Construction Products Regulation (EU) 2024/3110** is reshaping expectations for construction products across Europe, and tapes are no exception. The updated regulation is in force, with implementation phased in over several years. It aims to strengthen sustainability, transparency, and performance requirements.

Adopted in **November 2024**, the revised regulation introduces new essential characteristics related to environmental performance. Manufacturers must now provide data on:

- Durability and service life
- Recyclability and reparability
- Emissions during use
- Environmental impacts across the lifecycle

This pushes tape producers to adopt cleaner chemistries, recyclable materials, and more efficient manufacturing processes.

Digital product passports (DPPs)

A cornerstone of the revised CPR, Digital Product Passports will require construction products to carry **standardised digital information** on:

- Material composition
- Environmental performance
- Safe installation and use
- End-of-life instructions

For tapes—often used in hidden layers of the building envelope—DPPs will improve traceability and ensure compatibility with **circular construction systems**.

Stronger market surveillance

The CPR revision expands obligations for manufacturers, importers, and distributors. Claims related to sustainability, recyclability, and emissions must be verifiable and supported by harmonised standards. This will reward companies that invest in transparent data and third-party verification.

PCFs and EPDs: Quantifying environmental performance

As sustainability becomes a procurement priority, transparent environmental data is essential. The following metrics are particularly relevant for tape manufacturers.

Product carbon footprints (PCFs)

PCFs quantify greenhouse gas emissions across a product's lifecycle—from raw materials to manufacturing, transport, use, and end-of-life. For tapes, PCFs highlight the impact of:

- Adhesive chemistry
- Backing materials
- Solvent use
- Energy-intensive curing processes
- Packaging and logistics

Environmental product declarations (EPDs)

EPDs provide standardised, third-party-verified environmental data based on lifecycle assessment (LCA). They are increasingly required in green building certifications and public procurement.

For tape solutions, EPDs help specifiers compare products on:

- Global warming potential
- Resource use
- Waste generation

- Emissions to air and water

Afera, The European Adhesive Tape Association and IVK, the German Adhesives Association recognised the need for harmonised and transparent environmental data available and collaborated to develop an **industry-first PCF calculation tool for adhesives and tapes**. Launched in May 2025, TACK (**T**ape and **A**dhesives **C**alculation **K**it) provides a standardised, user-friendly solution, which is backed by ISO standards, TfS guidelines, and third-party verification. TACK equips manufacturers to meet evolving European regulatory requirements, where **PCF data is becoming essential for environmental compliance**.

Also, under the revised CPR, construction products will be required to **report Global Warming Potential (GWP) using the EN 15804 methodology**. Delegated acts are expected to begin applying from 2026, making GWP (A1–A3) one of the first mandatory environmental indicators for market access and Digital Product Passports.

Ongoing work within **Afera's Flagship Sustainability Project (AFSP)** includes exploring how future iterations of TACK could support the generation of EPDs for adhesives and tapes. More updates on this topic are expected in 2026.

In addition to PCFs and EPDs, Product Environmental Footprints (PEFs) are gaining prominence as the EU moves towards harmonised lifecycle-based metrics. PEFs assess a wider range of environmental impacts across 16 categories, offering a more comprehensive view of a product's sustainability profile.

A path forward: Tapes as enablers of circular construction

As the construction industry accelerates towards net-zero and circularity, adhesive tapes will play an increasingly strategic role. Their ability to enhance building performance, reduce waste, and support reversible construction makes them essential components of modern, sustainable design.

The revised CPR, combined with growing demand for PCFs, EPDs, and transparent sustainability data, is pushing manufacturers to innovate faster and more responsibly. Those that invest early in sustainable chemistries, recyclable materials, and verifiable environmental performance will be best positioned to lead.

In a sector where every component matters, sustainable tape solutions demonstrate how small innovations can drive big change—helping the industry build structures that are efficient, resilient, and ready for a circular future.