Carbon Data Before Carbon Certainty

EPDs, material passports, and the problem facing SME manufacturers

The uncomfortable transition

The construction industry is rapidly moving toward a future in which carbon data may become as commercially important as cost, programme or technical performance.

Environmental Product Declarations (EPDs), digital product passports, whole-life carbon assessments and embodied-carbon limits are increasingly entering mainstream construction discourse. Architects are requesting carbon figures during specification. Consultants are building lifecycle models earlier in design stages. Governments and standards bodies are developing frameworks intended to reduce the climate impacts associated with construction.

On paper, this all appears logical and necessary.

The problem is that much of the construction supply chain — particularly the SME manufacturing sector that physically delivers many of the industry's products and systems — is not yet fully equipped for the sophistication of the carbon-data environment now beginning to emerge.

Many SMEs do not routinely measure organisational carbon footprints. Most operate with highly bespoke product configurations rather than standardised repeatable outputs. Often, within commercial environments where margins are tight, technical teams are small, and sustainability specialists simply do not exist in-house.

Yet increasingly, suppliers are being asked to provide highly specific carbon information into a system that is itself still evolving.

This creates a difficult question:

How can SMEs know where to focus their efforts when the rules, methodologies and commercial implications of carbon accounting are still moving?

The EPD expectation gap

Environmental Product Declarations are often presented as though they are definitive answers, and suppliers are starting to get asked for them by purchasers up the chain (despite those suppliers themselves often not really knowing what value they hold). In reality, they are structured datasets built upon assumptions, boundaries, modelling choices and methodological rules.

None of this makes EPDs invalid – far from it. They are an essential part of creating more transparent environmental reporting within construction. However, the industry sometimes risks treating EPDs as though they are universal truth labels rather than context-dependent tools.

A generic EPD may be entirely appropriate for early-stage design modelling, benchmarking exercises or broad product comparisons. But bespoke manufactured systems can create complications.

A timber frame wall panel, for example, may vary substantially depending on insulation type, timber content, membrane specification, transportation distances, fire performance requirements and project-specific engineering adaptations.

At what point does a "representative" EPD stop being representative?

For many SMEs, this is where uncertainty begins.

The missing readiness problem

One of the least discussed realities in the current carbon transition is that different parts of the industry are progressing at very different speeds.

Large multinational manufacturers may already operate dedicated sustainability teams, maintain detailed lifecycle databases and commission third-party verified EPDs across extensive product ranges.

Meanwhile, many smaller businesses are still in the earlier stages of understanding what embodied carbon actually represents, how lifecycle modules work, how carbon data should be collected and what level of precision is genuinely expected.

The challenge is not simply producing numbers; it is building systems capable of producing credible, repeatable and transparent carbon information over time.

The specifier-side challenge

This issue is not confined to suppliers: specifier-side frameworks are also still maturing.

Architects, consultants, contractors and clients increasingly request carbon data, but the industry is still developing consistency around what data should be requested, how uncertainty should be handled and when generic assumptions remain acceptable.

Suppliers may feel pressured to provide highly precise carbon figures while specifiers themselves may still be developing the frameworks needed to interpret those figures appropriately. The risk is not necessarily fraudulent accounting, the risk is false precision.

Governments are still defining the rules

At the same time, regulatory frameworks continue to evolve internationally.

Questions continue around how biogenic carbon should be treated, how temporary carbon storage should be valued, how future sequestration assumptions should be handled, how refurbishment

cycles should be modelled and how dynamic lifecycle analysis should account for time.

This matters because different accounting choices can materially alter reported outcomes. A product may appear significantly more or less favourable depending on the methodology selected. For SMEs attempting to invest sensibly in carbon-data capability, this moving landscape creates understandable uncertainty and frustration.

The emerging question nobody fully owns yet

One final unanswered question is around value, and who holds it.

If embodied-carbon limits become commercially important, lower-carbon products may begin to create measurable economic value within projects. A building team that specifies lower-carbon materials may satisfy future planning thresholds, improve procurement scoring, and reduce exposure to carbon taxation or support ESG reporting.

If a product additionally stores biogenic carbon for many decades – as timber certainly does – the commercial implications become even more complicated. Who ultimately benefits from that value?

The manufacturer who engineered the product?

The architect who specified it?

The developer who funded the project?

The building owner who retains the asset?

At present, the industry has not fully resolved these questions, but it does reinforce an important point: the market is attempting to build carbon-accounting infrastructure while many of the underlying commercial relationships are still being defined.

So what should SMEs actually do?

The temptation in uncertain environments is often to wait, but I believe that would probably be a mistake. The methodologies will continue

evolving, but the direction of travel appears increasingly clear. Carbon information is likely to become progressively more integrated into procurement, compliance, specification and finance.

The challenge for SMEs is not in achieving perfect precision immediately, it is in beginning to build credible carbon-data capability in proportion to the scale and maturity of the business, and developing the mindsets in the leadership team to support this.

This can start with relatively practical steps:

- Understand your dominant material and energy impacts.
- Build product-family logic rather than pretending every bespoke product is identical.
- Separate fossil emissions from stored biogenic carbon and other mechanisms.
- Focus on organising data consistently before chasing perfect precision.
- Be transparent about uncertainty rather than overstating confidence.

A more mature transition

None of this is an argument against EPDs and nor is it an argument against material passports, lifecycle assessment or embodied-carbon regulation. The industry absolutely needs better environmental transparency. But there is perhaps a danger in assuming the market is more mature, standardised and methodologically settled than it really is.

Construction remains a highly fragmented industry comprised of thousands of businesses operating at very different levels of technical, financial and organisational capability. The transition toward meaningful carbon transparency will probably succeed not through demanding immediate perfection, but through helping businesses progressively improve the quality, consistency and usefulness of their data over time.

What to take away?

For SMEs, the goal may not yet be producing flawless carbon declarations, it might just be about building the foundations of carbon literacy. Understanding what is being measured, why it matters, where uncertainty exists and how product data can gradually become more credible over time.

The industry may still be debating many of the rules but waiting for complete certainty before engaging with carbon accounting could leave businesses dangerously behind the direction the market is moving. The most practical path forward may therefore be neither blind confidence nor paralysis, but rather honest, incremental capability-building.

Businesses that begin building carbon capability now — even imperfectly — are likely to be in a far stronger position than those waiting for the methodologies to become completely settled, because while the rules may still be evolving, the direction of travel increasingly is not.

About the author

Andy Gibson is the **Technical Director** at **Merronbrook Ltd.**, a UK-based manufacturer of engineered wood products and timber framed buildings. Andy has a Master's Degree in **Sustainability Leadership for the Built Environment** from the Cambridge Institute for Sustainability Leadership, at the University of Cambridge. Andy's dissertation on the impacts of forest management on the net carbon benefits of timber in construction is available here, and the follow-up journal paper published in *MDPI: Sustainability* is available here. He also co-authored a paper on pandemic-resilient neighbourhoods, which was presented at the 2025 AMPS: Livable Cities Conference and can be read here.