# The 60-Year Liability

## How Contractor Delivery Quality Appears in Your CSRD Report for Six Decades

Category 2 and Category 11 Scope 3 are the Hidden Link Between Construction Standards and Developer Disclosure

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01 — THE CASE

# Your Contractor Left. The Carbon Liability Stayed.

Your contractor handed over the building. The defects liability period ended. The relationship concluded. And yet, under CSRD, the operational carbon of that building continues to appear in your disclosure — every year — for the next six decades.

### Category 11 Requirement

GHG Protocol Category 11 — Use of Sold Products — requires developers to account for the full **60-year lifetime operational emissions** of every building sold in the reporting year.

### The Core Argument

Those emissions are determined by the building's energy performance *as built*: airtightness, HVAC commissioning quality, and thermal fabric performance — decisions the contractor made during construction.

This link is not understood, not priced into contracts, and is creating a **long-duration liability** most asset owners have not yet identified. The fix is not technical. It is **contractual**.

02 — THE LANDSCAPE

# Category 11: The Biggest Surprise in the First Inventory

CSRD Wave 2 reporters filed their first disclosures covering financial year 2025 during 2026. For most real estate developers, Category 11 was the biggest surprise.

## 216K

### Tonnes $CO_2e$

Disclosed in a single CSRD filing for one mid-sized 10,000 m² office at 180 kWh/m²/yr over 60 years at 0.2 kg$CO_2e$/kWh

## 30–80%

### Performance Gap

UKGBC Closing the Loop data shows this gap between designed and actual energy performance — almost always contractor-controlled

## 65K

### Extra Tonnes $CO_2e$

A 30% performance gap on a 10,000 m² office increases the 60-year Category 11 liability by approximately 65,000 tonnes $CO_2e$

That single building's Category 11 liability is roughly equivalent to the **annual Scope 1 and 2 emissions of a mid-tier manufacturing company**. The SBTi Buildings Guidance and UKGBC Scope 3 reporting guidance both identify Category 11 as critical, yet neither draws the explicit link to contractor delivery quality.

03 — THE MECHANISM

# The Energy Model Is Not the Building

## What the Model Assumes

Every new commercial building requires a SBEM energy model for Building Regulations compliance. This model calculates designed energy performance — producing the EPC rating and the carbon figures that inform the 60-year Category 11 calculation.

The model assumes airtightness within specification, thermal bridging treated at every junction, HVAC systems commissioned to design setpoints, and variable speed drives operating at design curves.

## The Critical Gap

The energy model represents the **designed building**, not the **delivered building**. **None of these assumptions are verified at handover.**

The EPC is issued on the basis of the model — not a measurement. The contractor has met their contractual obligation. The developer carries the gap.

03 — THE MECHANISM

# Five Contractor-Controlled Failure Points

### Airtightness Below Specification

Every additional $m^3/hr/m^2$ of air permeability above the design target increases heating and cooling load by a compounding factor across the 60-year assumed lifespan.

### Thermal Bridging at Structural Junctions

Cold bridges at slab edges, column connections, and window reveals create localised heat loss — typically adding **5–15%** to fabric heat loss beyond the notional calculation.

### HVAC Commissioning Drift

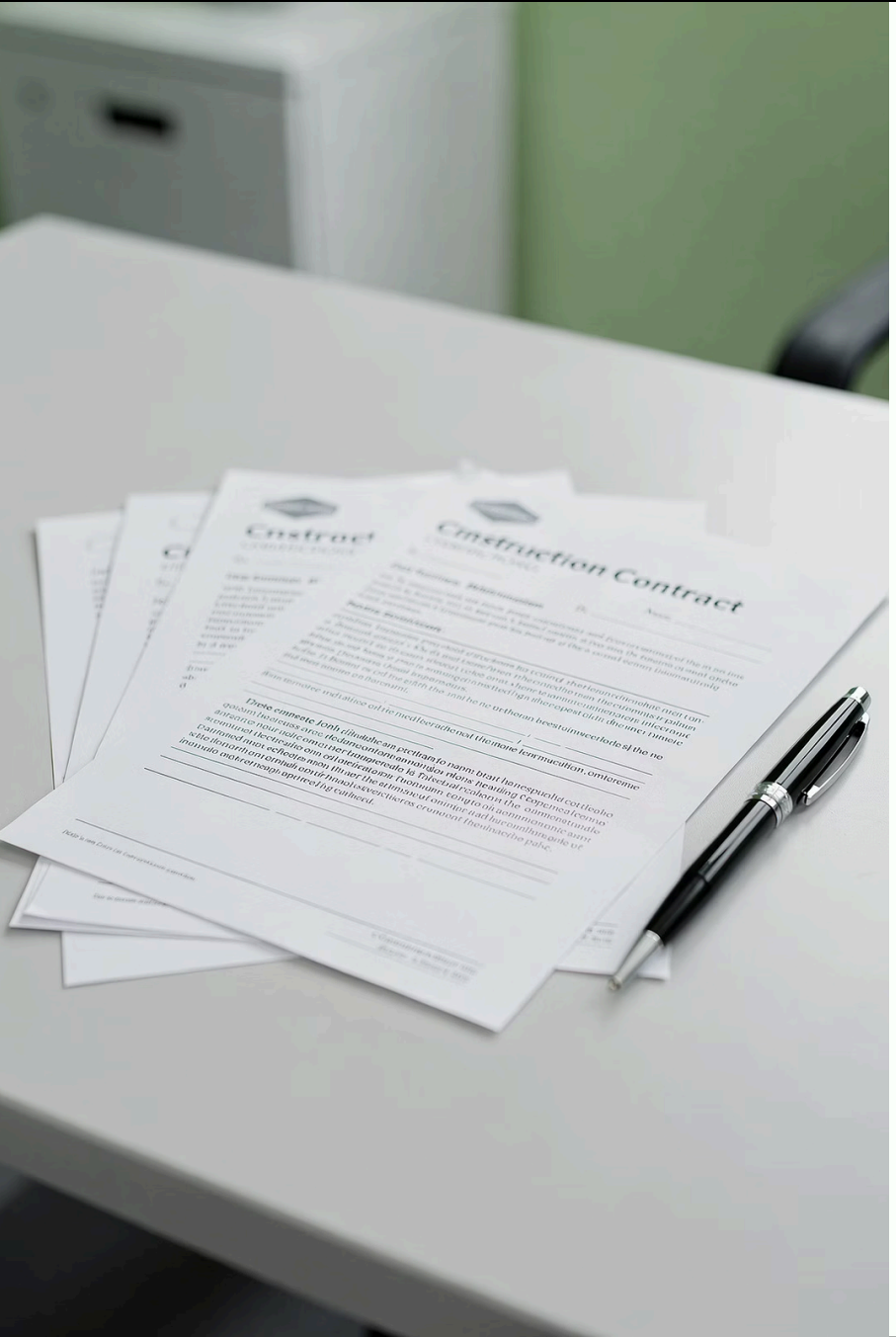
Systems commissioned to default settings rather than design setpoints can run at **15–25% above** designed energy consumption from day one, with the gap widening over the first five years.

### Variable Speed Drive Configuration

VSDs not configured to design curves operate at fixed high speed, eliminating the fan and pump energy savings that represented a significant share of the modelled performance improvement.

### Renewable System Underperformance

PV systems with unaccounted shading or misconfigured inverter settings produce less than modelled generation — increasing net operational carbon against the Category 11 baseline.




03 — THE MECHANISM

# Why This Does Not Appear in Contracts

## The Contractual Reality

Construction contracts — whether JCT, NEC, or bespoke — specify completion to a drawing and specification standard. They do not specify post-occupancy operational performance. The contractor's obligation ends at practical completion.

A building performing at **180 kWh/m²/yr** against a designed **140 kWh/m²/yr** is *not in defect*. The EPC was issued on the model. The contractor has met their contractual obligation.

## The Developer's Exposure

The developer is now disclosing a Category 11 liability **29% higher** than their investment model assumed.

And they have **no contractual mechanism** to recover that cost from the party who created the gap.

04 — THREE PERSPECTIVES

# How This Lands Differently for Each Party

## For Contractors

**A Commercial Opportunity.** You controlled the outcome — clients are beginning to understand this. Performance-linked retention is coming. Contractors who proactively offer a post-occupancy performance warranty — backed by rigorous QA for airtightness and HVAC commissioning — can command a premium and differentiate in tender.


## For Operators

**The Inheritance Problem.** You inherit the performance gap. FM budget assumes 140 kWh/m²/yr; the building runs at 180. Operators who commission independent post-occupancy evaluations in year one and build performance-optimisation into FM contracts can systematically close the gap — the energy savings fund the process.

## For CRE Clients

**The Disclosure You Didn't See Coming.** Category 11 is likely your largest single Scope 3 source — and your data quality is weakest here. An overstated liability makes your CSRD disclosure larger, your SBTi trajectory harder, and your GRESB score lower. Investors and lenders will ask what you are doing about it.

04 — THREE PERSPECTIVES

# What Changes If Each Party Acts

### Contractors

Offer a post-occupancy performance warranty before clients demand it as a tender requirement. Use it as a differentiator to build long-term client relationships that protect pipeline through regulatory turbulence.

### Operators

Commission independent building performance evaluations at 12 months. Build performance-optimisation programmes into FM contracts. Improved Category 13 data improves the CRE client's CSRD position directly.

### CRE Clients

Development contracts that include performance warranties, post-occupancy evaluation requirements, and a mechanism linking the EPC energy model to measured performance create Category 11 disclosure that is **defensible, improving, and credibly managed**.

The fix is not technical. It is contractual. The party who controlled the outcome must be the party who warrants it.

05 — THE INSIGHT

# The Conclusion That Changes the Conversation

> *The 60-year Category 11 liability is not an energy modelling problem. It is a contract design problem.*

The performance gap between designed and actual energy performance — consistently measured at **30–80%**, overwhelmingly contractor-controlled — is creating a Scope 3 liability developers must disclose annually, but have no mechanism to recover, quantify in advance, or contractually prevent.

## The Single Clause That Changes Everything

The contractor warrants that the building will achieve a measured air permeability within **20% of the designed specification**, verified by a third-party test conducted **12 months post-occupancy**, with a remediation obligation if the threshold is not met.

## Why It Matters

That clause does not exist in any standard form of building contract. The developer who includes it in their next contract **permanently changes the commercial relationship** between construction quality and carbon disclosure. No new standard. No new regulation. One clause.

06 — DECISION FRAMEWORK

# The Choice in Front of You

| Dimension | Current Default | Recommended Approach |
|---|---|---|
| **Contract Design** | Accept designed performance as the standard. No post-occupancy obligation. No link to Category 11. | Include a post-occupancy performance warranty clause specifying measured airtightness and HVAC verification at 12 months. |
| **Energy Modelling** | Use SBEM model output as Category 11 baseline. No adjustment for performance gap. | Commission a post-occupancy energy model update using measured consumption data within 18 months of handover. |
| **Contractor Selection** | Select on price, programme, and quality track record. No sustainability performance credential required. | Add a 'post-occupancy performance track record' criterion to contractor prequalification. |
| **FM Commissioning** | Accept building systems as commissioned. No independent performance verification. | Commission an independent building performance evaluation at 12 months. Remediate against design specification. |
| **CSRD Disclosure** | Use energy model output for Category 11. Carry the gap as an unremediated liability. | Disclose based on measured or performance-gap-adjusted data. Include a note on remediation programme and trajectory. |

**First practical step:** On your next development project, ask your legal team to draft a 12-month post-occupancy air permeability test requirement with a remediation threshold. It costs nothing to include. It creates an entirely different contractor incentive from the moment it enters the contract.

HOW LIMINAL CLIMATE SUPPORTS THIS

# Turning Compliance into Competitive Advantage

The problem identified in this paper is happening now, on live projects, across portfolios already subject to CSRD disclosure obligations. Liminal Climate works alongside contractors, operators, and CRE clients to close the data, process, and strategic gaps described here.

| Service | What It Delivers |
|---|---|
| **Regulatory Readiness Audit** | Structured assessment of your CSRD Scope 3 position — identifying live categories, missing data, and highest-urgency actions. |
| **Scope 3 Carbon Inventory** | Full Scope 3 calculation covering Cat 1 (purchased services), Cat 2 (embodied carbon), Cat 11 (use of sold products), and Cat 13 (downstream leased assets). |
| **Whole-Life Carbon Assessment** | RICS-compliant WLCA across all lifecycle stages — producing data that closes both Cat 2 and Cat 11 simultaneously. |
| **Carbon Handover Protocol Design** | Structured carbon and performance data handover pack for contractor-to-operator transitions — closing the most common cause of Cat 13 reporting failure. |
| **Green Lease Strategy** | Advisory support for drafting and implementing green lease clauses that enable Cat 13 data collection and align landlord-tenant obligations. |
| **Sustainability Tender Support** | Embedded advisory turning Scope 3 carbon credentials into scored, winning sustainability narratives for commercial tender panels. |
| **CSRD Disclosure Framework** | End-to-end support for first CSRD disclosures — data collection, assurance preparation, ESRS alignment, and board-level governance documentation. |

Liminal Climate was founded by **Rob Atkinson** , a sustainability consultant and designer with **25+ years** of built environment experience across **50+ countries**. We translate complex Scope 3 obligations into clear commercial strategy, for contractors who build, operators who manage, and CRE clients who report. Contact me on **rob.atkinson@liminal-climate.com**