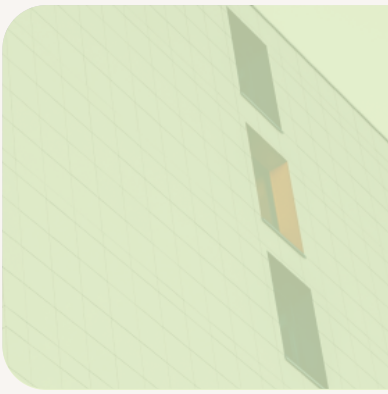
tector

Moisture in construction: the 2025 industry report

The state of moisture in construction, grounded in real data.



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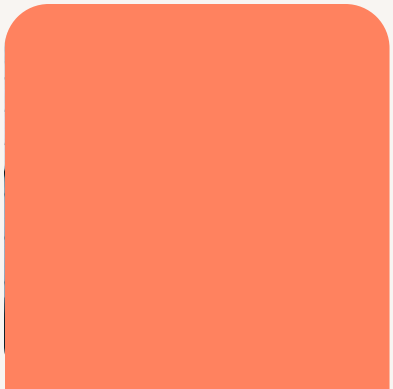

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Introduction

Moisture is one of the construction industry's most persistent blind spots. It is rarely visible, frequently underestimated, and yet consistently linked to some of the most costly and preventable failures in the built environment. As projects grow more complex and performance expectations rise, moisture is no longer a technical footnote. It is a strategic risk.

In 2025, the industry sits at an inflection point. Sustainability targets are tightening, building lifecycles are under greater scrutiny, and the margin for error is shrinking. In this context, relying on assumptions or intermittent checks is no longer enough. Understanding moisture requires visibility, evidence, and continuous insight. At Tector, we see this reality every day across real buildings and live projects. That perspective has shaped this report.

For the first time, we have consolidated anonymised moisture data from hundreds of projects across multiple regions, combined it with insights from industry leaders, and set it against the current regulatory landscape. The result is a clear, data-grounded view of how moisture behaves in practice, where risks truly emerge, and why they are so often missed.

The purpose of this report is not simply to present findings, but to challenge how the industry thinks about moisture.

- To move from reaction to anticipation.
- To treat moisture as measurable, predictable, and controllable.
- To better understand how the environment, materials, and construction decisions interact over time.

This work has been shaped in collaboration with contractors, engineers, sustainability leaders, consultants, and building owners. It reflects a shared belief that better data leads to better decisions, less rework, and buildings that perform well beyond handover.

Our hope is that this report helps shift moisture from an afterthought to a standard consideration in every high-performing project.
Because when the industry truly understands moisture, it builds with greater confidence, resilience, and long term value

Steven Maritt
CEO - Tector

Data insights

Understanding moisture starts with understanding the data. This chapter brings together millions of readings collected from more than 220 construction projects in 22 countries, spanning different climates, building types, and construction phases throughout 2025. Covering residential, commercial, and landmark assets, this dataset represents one of the largest real-world moisture evidence bases in construction today.

In total, Tector recorded 10.6 million moisture readings, up from 8.7 million in 2024, a 21% year-on-year increase. To put that in perspective, it would take a single person roughly a decade to collect that many readings manually. We capture it automatically, effortlessly, and in real time.

The goal is simple: to show how moisture behaves in the real world and what it means for project planning, building performance, and long-term risk. From seasonal trends to building elements and regional differences, these insights reveal where issues typically arise and when teams should pay closer attention. By relying on data rather than assumptions, project managers, consultants, and building owners can work proactively, reducing rework and improving the durability of every structure.

2025	2024	YoY
10.6 mil	8.7 mil	▲ 21%
Moisture readings	Moisture readings	Increase

8K+
Sensors

220+
Projects

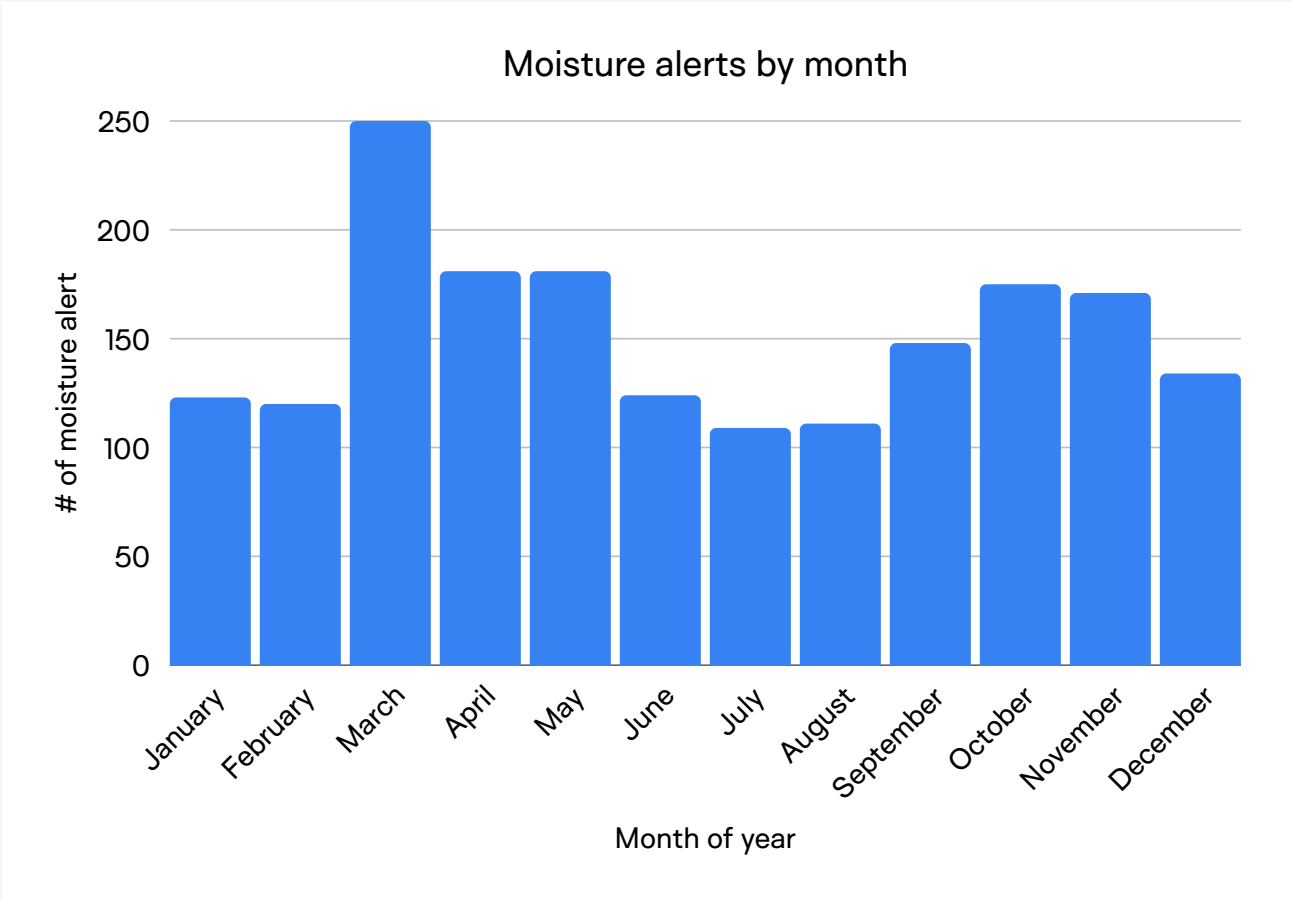
20+
Countries

Seasonal trends in moisture

Moisture alerts in 2025 displayed a clear seasonal pattern, with peaks in early spring and late autumn. March recorded the highest number of alerts (250), followed by April and May (181 each), while the summer months of July (109) and August (111) saw the lowest levels.

This pattern reflects the natural influence of weather on construction sites. Early spring alerts often result from residual winter moisture, thawing, and early-stage construction activity. In contrast, late autumn peaks, observed in October (175) and November (171), are driven by increased rainfall, temperature fluctuations, and condensation risks.

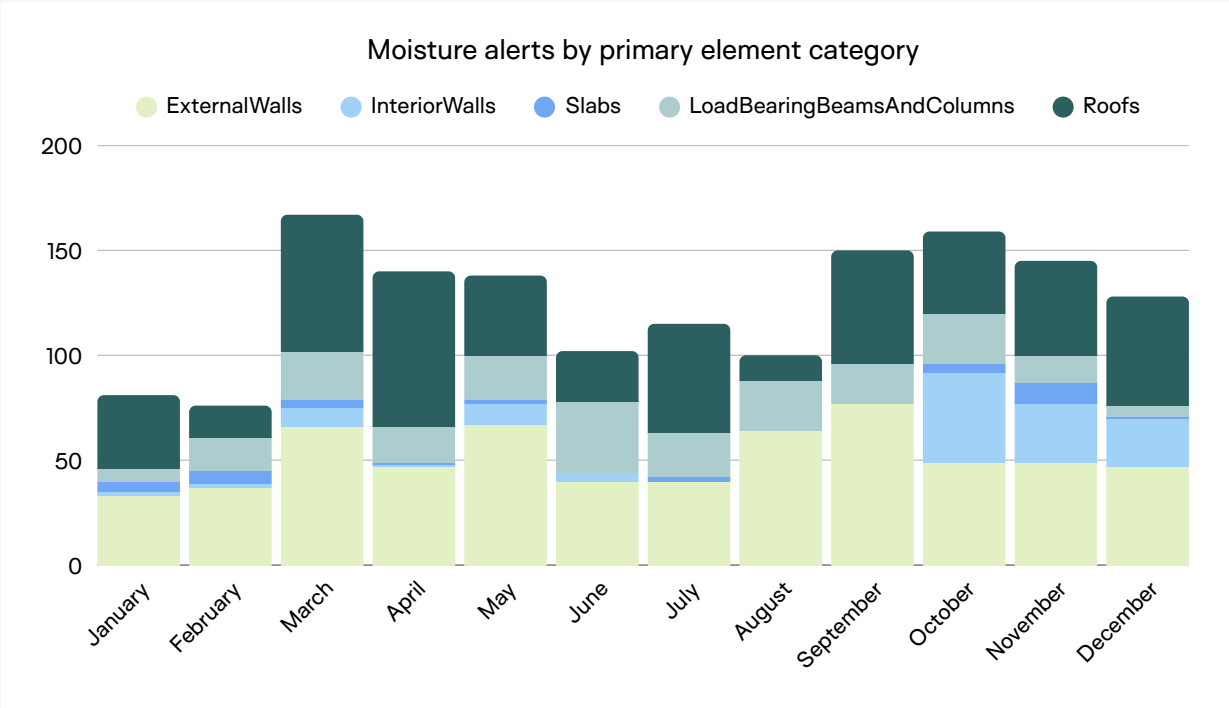
Proactive moisture monitoring during these periods remained crucial to prevent structural damage and costly rework.



Moisture alerts by building element

Analysing moisture alerts by primary building element reveals which parts of a building are most at risk:

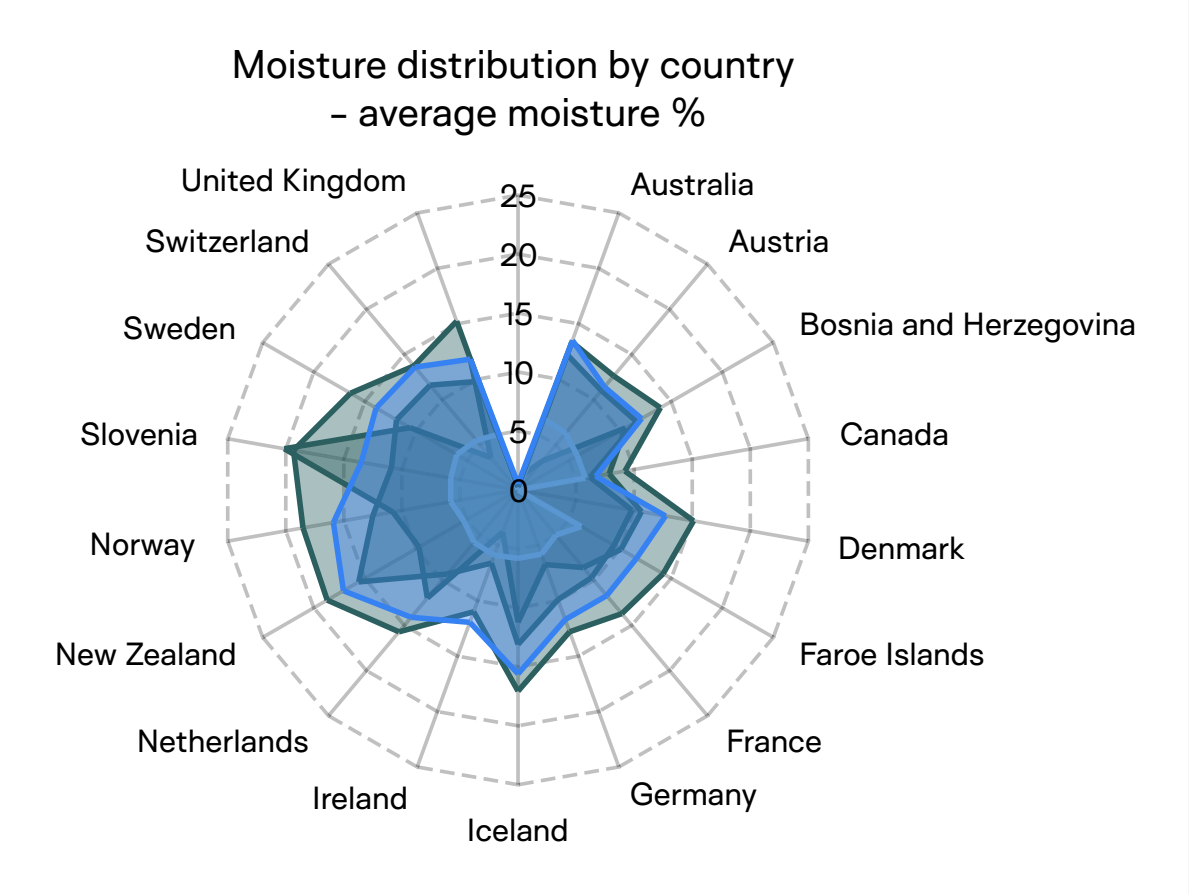
- External walls consistently showed the highest number of alerts throughout the year, with notable peaks in September (77), May (67), and March (66). Their exposure to weather and large surface area made them especially sensitive.
- Roofs recorded significant alert volumes, particularly in April (74), March (65), and December (52). These peaks reflect exposure to rainfall, seasonal weather changes, and ongoing roofing works.
- Load-bearing beams and columns experienced moderate but significant spikes, especially in June (34), October (24), and March (23), often associated with construction sequencing and seasonal moisture variations.
- Slabs saw smaller increases, most notably in November (10). These alerts typically relate to curing conditions, rainfall, and moisture trapped during winterisation.
- Interior walls remained the least affected overall, with generally low alerts except for October (43) and November (28). While lower risk compared to external elements, consistent monitoring remained important to catch early signs of hidden moisture or mould.



Regional differences in moisture

Moisture levels varied across regions, influenced by climate, construction practices, and local conditions:

- Denmark and the UK showed moderate, consistent moisture readings, with mean values around 15.1. This indicates steady exposure across large-scale construction projects, underscoring the need for ongoing monitoring.
- Northern and temperate regions, such as Norway (18.6), Iceland (17.1), Sweden (16.4), and New Zealand (18.7), experienced higher average moisture. These figures reflect wet climates and challenging weather conditions, reinforcing the value of proactive moisture management.
- Countries with large datasets, including Denmark (5.85 million readings) and the UK (839,000 readings), provide a reliable overview of national moisture trends, supporting informed construction planning and risk reduction strategies.



Where 2-layer protection should be required

Two-layer protection: detect & protect

The 2025 moisture dataset shows that some building elements face higher and more consistent moisture risks than others. These are the areas where failures occur first, damage hides longest, and remediation is most expensive.

Because these patterns repeat across climates, materials, and construction stages, these elements deserve two layers of protection on every project:

1. Technical protection – membranes, coverings, proper sequencing, drainage, and drying strategies.
2. Digital protection – continuous remote monitoring with sensor technology and intelligent alerts.

This dual approach ensures moisture is prevented and detected early, reducing rework, protecting building performance, simplifying compliance, and strengthening insurance positioning.

Roofs: the highest-risk element

Roofs recorded the most alerts in 2025 in April (74) and March (65). They face constant exposure, complex sequencing, and hidden vulnerabilities under temporary coverings.
Why dual protection matters:

- Most exposed surfaces with high consequences of failure
- Leaks often go unnoticed until significant damage occurs
- Monitoring plus preventative measures reduces costly rework and supports insurance and compliance

External walls: slow drying, high exposure

Most alerts appeared in September (77), May (67), and March (66). Moisture can bypass detailing, accumulate behind cladding, and create hidden mould risk.
Why dual protection matters:

- Long-term weather-driven wetting
- Risk concentrated at joints, penetrations, and interfaces
- Early detection protects interior finishes and avoids expensive remediation

Slabs & structural frames: critical and hard to fix

Alerts in slabs occurred in November (10). Load-bearing beams and columns experienced alert spikes in June (34), October (24), and March (23). Once enclosed, trapped moisture is difficult and costly to correct.
Why dual protection matters:

- Impacts load paths, alignment, and structural integrity
- Moisture can become locked into the structure
- Monitoring ensures early intervention before full removal of finishes is required

High-moisture regions: amplified risk

Slovenia, New Zealand, Norway, Iceland, and Sweden reported the highest average moisture readings.
Why dual protection matters:

- Higher baseline moisture and shorter drying periods
- Greater scrutiny from insurers
- Continuous monitoring supports risk management and evidence of due diligence

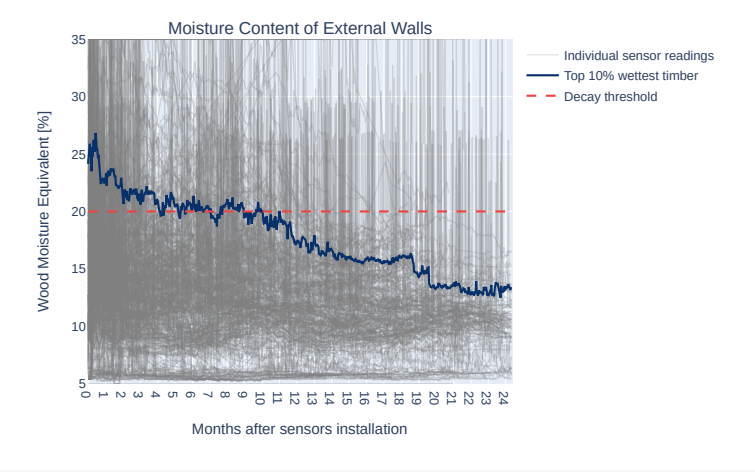
Moisture in action: case studies

This chapter presents a series of concise case studies, each supported by clear graphs and data, showing how moisture behaves in real-world building scenarios.

The case studies provide evidence-based insights for preventing and managing moisture issues on-site.

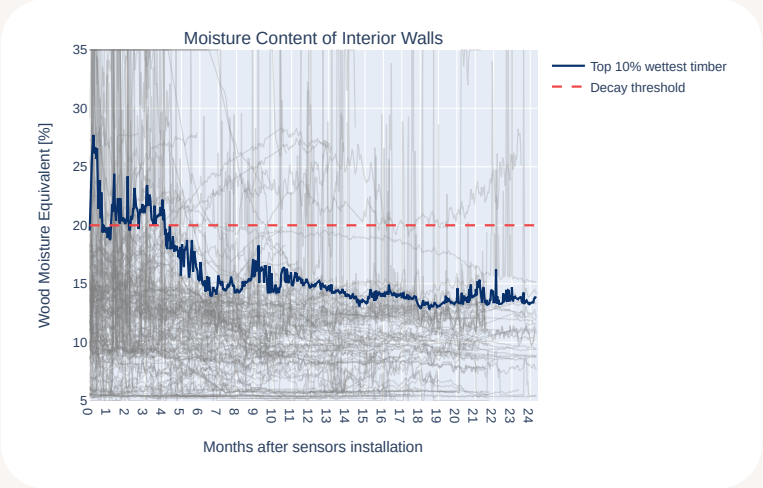



Case 1
Drying out & closing up – the waiting game



This isn't theory, it's what actually happened on a live CLT project.

The external CLT walls sat exposed to the weather, slowly releasing moisture over time. It took almost 10 months before 90% of them were dry enough to close up.



Inside the building, the story was completely different.
With far less exposure, the internal CLT dried in roughly 5 months, almost twice as fast.

You'll see this pattern clearly in the graphs beside this case. The data speaks for itself.

Why it matters

Drying time isn't just a technical detail. It shapes your programme, your costs, and your risk. When you understand how your structure is actually drying, you can make decisions earlier, schedule trades with confidence, and prevent delays long before they appear.

Key takeaway

Moisture management influences your entire timeline. Plan for it early, and you protect your project later.

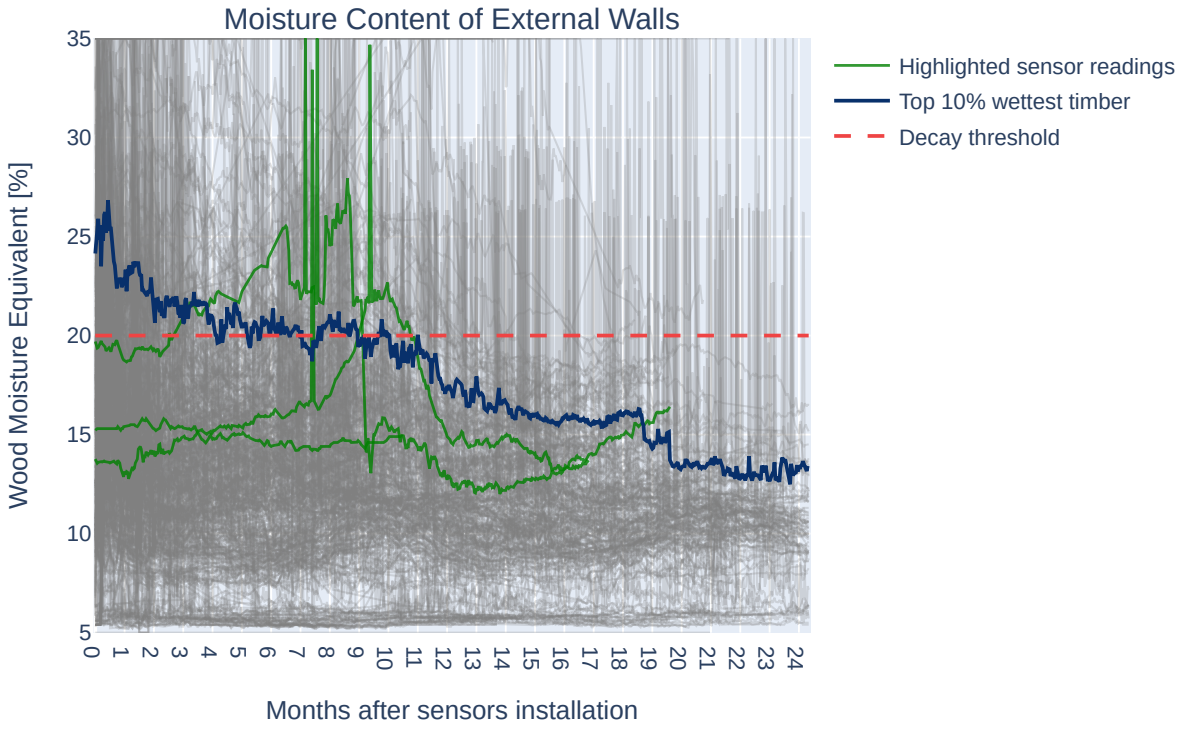
Case 2
Long road to safe moisture levels

On this project, external CLT walls took 13 months to drop below safe moisture levels, far longer than anyone expected.

Without real-time monitoring, this slow drying could have gone unnoticed, quietly threatening your schedule, your materials, and your budget. Trades could be delayed, finishes compromised, and costly rework could easily sneak in.
With accurate moisture insights, you spot delays early, adjust plans proactively, and protect both your timeline and your materials.

Key takeaway

Understanding moisture risk, tracking it, and acting on it saves time, money, and headaches.



Case 3
Understanding moisture behaviour in warm roofs

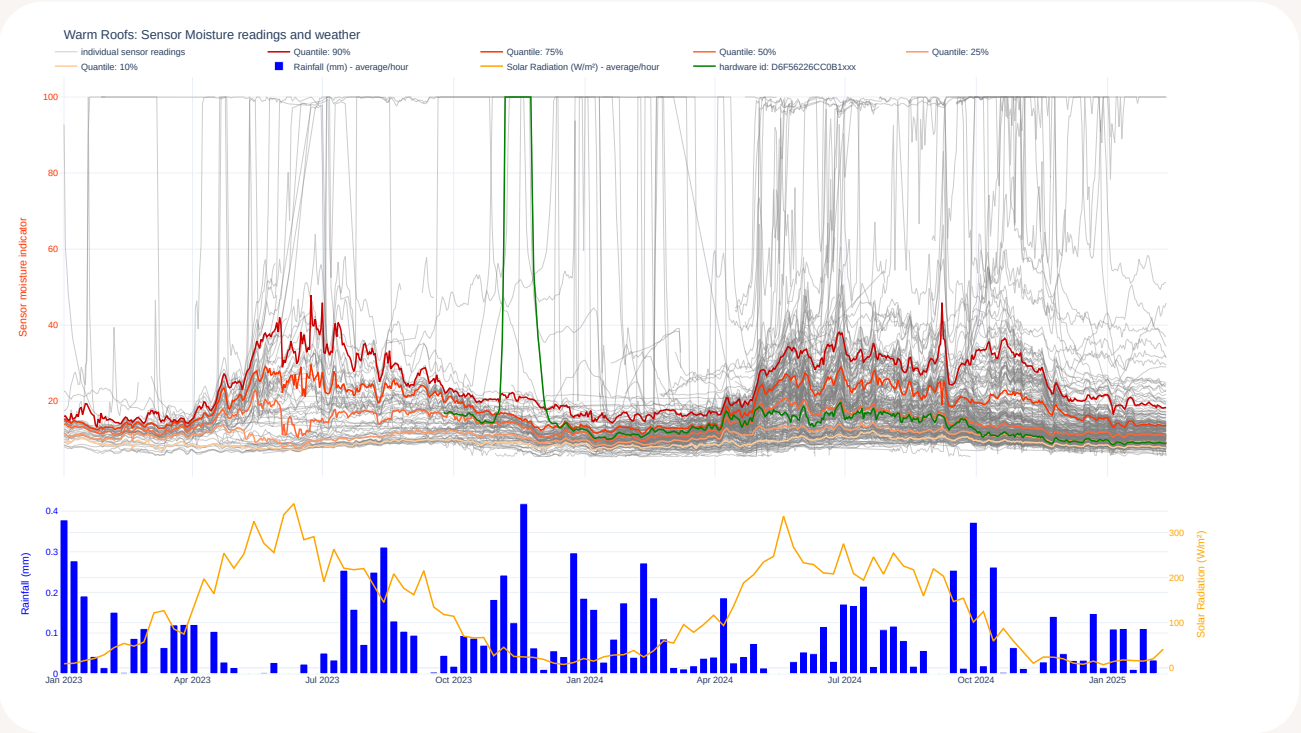
Warm roofs are designed to last for decades, yet moisture behaviour inside the roof build-up is still largely assumed rather than measured. Many failures develop quietly over time due to condensation and seasonal moisture transport, long before visible damage appears.

To replace the assumptions with evidence and understand how moisture behaves over time, we have analysed data from 1,000+ sensors actively tracking roof performance, 10 largest projects cover 40,000+ m² of roof area.

What the data revealed

Sensor readings from Jan 2023 to early 2025 showed clear patterns:

- Seasonal moisture transport is measurable:
  - Median moisture rises from ~12% in midwinter to ~30% in summer.
  - Moisture increases correlate with sunlight, causing summer condensation.
- Timing matters:
  - Water ingress that dries in winter can become a long-term risk in summer due to high humidity.
  - Without continuous monitoring, these differences remain invisible.



"It's not if water comes in through the roof, it's about when."

Mads Alleslev @Byggeri København

Why this matters

Seasonal cycles and environmental conditions have a significant influence on roof performance; assumptions alone are insufficient.

- On average, Tector detects one moisture event per 391 m², long before visible signs appear.
- Continuous monitoring provides:
  - Real-time roof performance insights
  - Early alerts when conditions deviate from expected norms
  - Evidence-based understanding of seasonal moisture risk

Teams can then:

- Make informed decisions, not react to failures
- Protect workmanship and long-term performance
- Clearly track when and where issues occur, simplifying liability discussions
- Resolve issues faster with objective, time-stamped evidence
- Reduce risk and avoid costly rework

Key takeaway

With continuous monitoring, moisture risk is no longer assumed; it is understood. From construction through handover, project teams gain full visibility into warm roof performance, enabling:

- Confident scheduling and planning
- Early intervention before minor issues escalate
- Decisions based on evidence, not guesswork
- Clear accountability and smoother issue resolution when problems arise

Warm roofs don't fail suddenly. They fail quietly – unless you're watching.

Insurance & moisture risk

Moisture is not only a technical risk, it is a significant financial risk.

Across the construction industry, insurers consistently cite water damage as the biggest driver of claims for wood and mass-timber buildings.

The latest research confirms that moisture-related exposure is a major factor in underwriting decisions for timber construction.

Moisture as the leading insurance concern

According to insurance underwriters, water damage is the single most significant factor influencing premiums for wood and mass-timber projects. Insurers highlight moisture as a leading cause of structural loss, mould, dimensional movement, and large-scale remediation, all of which represent high-severity, high-cost scenarios.

In practical terms:
Where concrete can often be dried and repaired, wood exposed to prolonged moisture may be considered a total loss.

A case study in the insurance report by Frank T. Came & Associates illustrates this starkly. A multi-storey concrete building suffered a 13-hour undetected leak and remained salvageable. A comparable wood-frame building under the same conditions, insurers note, would likely have been written off entirely.

This is a clear signal: early detection is not a nice-to-have; it's the difference between minor delays and major insurance claims.

Premiums Reflect Moisture Risk

An insurance survey from 2024, by NRMCA, shows that moisture exposure is a major driver of higher premiums for timber buildings:

The study found premiums for wood-frame buildings were reported as 36% to 80% higher than for concrete buildings. For commercial property insurance, wood buildings carried premiums 4% to 63% higher, depending on location. These higher rates are driven largely by exposure to water damage, followed by fire and climate-related risks.

For contractors, asset owners, and developers, this means moisture is not just a site challenge; it is a direct cost driver that affects project viability and long-term operating expense.

Moisture impacts structural performance

Insurers also assess the physical impact of moisture on timber.

Excess moisture can cause:

- Dimensional change of up to 2.5%, affecting alignment and load paths.
- Connector failure caused by swelling and shrinkage.
- Mould, decay, and structural weakening after prolonged wetting.

These risks highlight why insurers are concerned and why digital monitoring is quickly becoming an expectation rather than an innovation.

No consistent standards for moisture control

There are still no widely adopted, enforceable standards for moisture management during mass-timber construction, and very little formal guidance for monitoring moisture behaviour on active sites. This inconsistency increases perceived risk for insurers and complicates underwriting decisions.

However, several organisations have begun developing practical guidance and best-practice frameworks to improve industry confidence. While these documents are not yet universal standards, they represent important steps towards a more structured approach to moisture risk:

- Mass Timber Insurance Playbook, created in collaboration with insurers, engineers, and fire specialists, offers practical advice on moisture, fire, and site protection.
- Danish Technological Institute: Strategies for Moisture Management in Wood Construction, A respected technical guide outlining planning, detailing, and on-site control strategies.
- BUILD Report 2020 (Aalborg University), one of the most comprehensive academic reviews of moisture risks in wood construction, including construction-phase exposure.
- Atelier Ten – Mythbusting Mass Timber, A consultant-focused document clarifying misconceptions around moisture performance and offering proactive guidance.
- Timber Development UK: Moisture Management During Construction, A practical step-by-step overview covering storage, sequencing, protection, drying, and inspection

Together, these resources show momentum towards clearer expectations. But until such guidance becomes standardised and embedded into codes or mandatory practice, insurers will continue to view moisture as a major, and often unpredictable, source of risk. This gap is precisely where proactive, data-driven moisture monitoring adds value: it provides structure where the industry still lacks formal standards.

Why monitoring matters for insurance

Implementing real-time moisture monitoring and maintaining a verifiable moisture history offers tangible insurance benefits:

- Continuous monitoring and alerts for environmental conditions
- Documented moisture history for each structural element
- Evidence of risk-aware construction sequencing

These measures contribute to:

- Lower risk exposure
- Improved insurability and more predictable premiums
- Reduced the likelihood of catastrophic failure
- Better long-term building performance

Moisture management, therefore, is not just a technical safeguard; it is part of the financial resilience of every project.

> **“The solution is one of the extraordinary initiatives construction projects can do that helps them get into a lower risk class and thereby lower their insurance premium”**
>
> **Jan Linde, Risk Broker @Willis Towers Watson**

The cost of ignoring moisture

Why this matters now

Moisture is not a minor detail. Liability periods are longer, insurance scrutiny is sharper, and sustainability claims increasingly depend on measurable performance. Ignoring moisture today creates predictable risks tomorrow.

What happens if nothing changes

Unchecked moisture quietly compounds. Schedules slip, warranties are threatened, insurance premiums rise, and remediation costs escalate. Hidden moisture eventually becomes visible – in structural failures, mould, or litigation.

Where the impact shows up

- Programme delays from extended drying times and re-sequencing
- Warranty claims from undetected moisture at handover
- Higher insurance premiums and reduced insurability
- Asset devaluation through accelerated degradation and remediation
- Reputational damage when failures surface post-completion

Who ultimately pays

Contractors pay through rework and claims. Owners pay through lower-performing assets. Insurers pay through higher losses. Occupants pay through compromised safety and comfort.

The uncomfortable truth

Most moisture failures are not caused by extreme events. They result from predictable exposure that was never measured or acted upon. The choice is not fate – it is whether the industry sees the signal before it becomes a failure.

Industry experts insights

In this chapter, leading professionals from across the construction sector share their perspectives on a single, critical question: how to improve moisture management.

Their responses reveal a combination of practical experience, innovative thinking, and research-driven strategies. Key learnings include the importance of early detection, understanding moisture as part of the whole-building system, prioritising prevention at the source, and integrating monitoring and maintenance into everyday workflows.

This collection of expert insights offers readers actionable advice grounded in real-world experience, helping to anticipate, prevent, and manage moisture-related risks effectively.

Seb Laan Lomas

Associate and Passivhaus Designer, Architype

Seb is an architect and environmental design specialist focused on post-occupancy evaluation, embodied carbon, and sustainable timber construction. He is a Certified Passivhaus Designer, active in climate action initiatives, and has collaborated with both Architype's climate team and the City of Edinburgh Council on decarbonisation projects.

From your experience, what are the biggest moisture-related risks in today's construction projects?

Firstly and obviously - designing and building for adequate and suitable protection of timber construction, both during construction and throughout its life. This is critical to ensure our stored carbon in timber construction lasts as long as possible, and our timber buildings continue to deliver for people and planet.
Secondly - retrofit. 2025 has been a watershed moment for seeing how damaging poor installations of retrofit can be for the existing building and its inhabitants through moisture damage and mould.

How do you expect digital monitoring and AI to change how construction teams prevent moisture problems in the coming years?

With the introduction of Awaab's law, there will likely be a marked increase in the monitoring of moisture in buildings to close the feedback loop with the aims of accelerating the rectification of issues. A consequence of this would also be significant datasets on the performance of UK buildings, which could support future research and policy.

What common moisture-management mistake do you see repeatedly, one that could be easily avoided?

Temporary moisture protection of timber on site during construction. There are various ways of doing this, some with minor specification changes, which would help avoid timber becoming saturated, driving down risk. Whilst this can bring additional costs, this can far outweigh the consequences of moisture damage.

Mike White

Associate, Smith and Wallwork

Mike White is a standout Associate at Smith and Wallwork, bringing over a decade of hands-on civil engineering experience to every project. With a career that progressed from Engineer to Senior Engineer at Peter Brett Associates, Mike combines technical expertise with practical insight, making him a go-to problem-solver in the industry.

From your experience, what are the biggest moisture-related risks in today's construction projects?

The biggest risk in my view is the workmanship of roofing membranes - on large roofs, it almost seems statistically probable that an issue will occur, which can often be invisible until moisture ingress has built up and caused a problem.

How do you expect digital monitoring and AI to change how construction teams prevent moisture problems in the coming years?

My hope is that as the costs of digital monitoring systems come down, more buildings will have monitoring installed (and not just moisture monitoring). This should allow for earlier detection of issues and so resolve problems before they develop too far. Importantly, this will also help to educate those involved with the project design/construction/operation about the potential risks by making them more visible.

What common moisture-management mistake do you see repeatedly, one that could be easily avoided?

Perhaps not a mistake but a misconception - assuming that damp internal timber will dry out quickly without mechanical intervention, such as dehumidifiers, especially when the moisture has penetrated deep into the timber. Modern construction projects move so fast that it can be a challenge to dry out timber without affecting the overall programme.

Nick Hewson

Director, Arboralis

Nick Hewson is the founder and director of Arboralis, with deep roots in timber buildings that began in the UK and have shaped the mass-timber movement in Australia since 2010. A passionate advocate and regular speaker, Nick also co-founded Timber DiaLog to support knowledge-sharing and collaboration across the timber industry.

From your experience, what are the biggest moisture-related risks in today's construction projects?

The biggest risks are from the unseen water leaks that are almost inevitable in all buildings, but particularly in my specialist field in timber buildings. Leaks beneath floors, roofs, and ceilings can go undetected for years, quietly damaging the structure until significant remediation is required. Trying to identify leaks without good data is like trying to find a needle in a haystack, and in many cases, owners won't be aware of any problems until it's too late, without employing significant monitoring or regular assessments of the structure.

How do you expect digital monitoring and AI to change how construction teams prevent moisture problems in the coming years?

The ability to monitor and identify moisture before it becomes an issue is set to be a game-changer for all construction, but for timber construction, it's absolutely essential. As buildings become more complex and higher performing, moisture issues can remain hidden until serious harm is done. Using digital monitoring can provide constant data and reassurance that the building is performing as intended, and identify any issues before they become much larger problems. The data can also help us improve performance, extend the longevity of the building (or products within), and provide a healthy and safe environment for many years to come.

What common moisture-management mistake do you see repeatedly, one that could be easily avoided?

The common mistake I see repeated is failing to plan for moisture. Especially for new clients, designers, or builders, there is often a lack of understanding of the potential issues and impacts, and they rely a lot on a single system to protect their building. In reality, no waterproofing system is ever 100% effective for the life of a building, which is why moisture management must assume failure and plan for it, in other words, hope for the best, but plan for the worst.

Mark Tant

CEO and Owner of The Tant Companies LLC

Mark Tant is a senior UK construction leader with over 40 years' industry experience. He has held senior roles at Willmott Dixon and Shepherd Construction and served as managing director of Wates Construction. He is recognised for his strategic leadership, delivering complex projects, and driving growth and innovation in the construction sector.

From your experience, what are the biggest moisture-related risks in today's construction projects?

The most significant moisture risk in modern construction, in pure construction terms, is that contractors struggle to achieve true watertight buildings, leading to moisture accessing the interior of the building longer than planned. There is no established means to monitor areas of the building drying out, and as a result, moisture is often trapped within the building, either in insulation layers, or ceilings, walls and roofs. Schedules are often then compressed, and hidden moisture issues are literally covered up.

How do you expect digital monitoring and AI to change how construction teams prevent moisture problems in the coming years?

Digital monitoring of moisture can be a game-changer. It presents the modern contractor with a choice - to reactively deal with moisture issues, or to proactively manage moisture and provide their customers with true quality assurance. The choice is between a professional and credible modern contractor, or one that exists in the past and is managed by hope.

What common moisture-management mistake do you see repeatedly, one that could be easily avoided?

There are probably many, but I now look at the complexity of roofs - green roofs, blue roofs, brown roofs, arrays of solar panels, significant mechanical plant, and numerous penetrations to provide ventilation and natural light. All involving multiple trades, and significant movement across waterproofing layers that are not designed to be trafficked. So, the common problem is one of roof design and sequencing - it is vital, it is on the critical path, and it materially affects the ability to complete a building. Digital management allows you to be confident that you are achieving this, and allows you to quickly identify any issues. It may not be quite so easily solved!!

Nic Clark

Managing Director, KLH UK

Nic Clark is Managing Director of KLH UK and a long-standing figure in the UK mass-timber market, having led KLH's UK operations for over 14 years. With a background spanning quantity surveying, commercial management and operational leadership, he plays a central role in how CLT is specified, delivered and adopted at scale across the UK.

From your experience, what are the biggest moisture-related risks in today's construction projects?

The most significant moisture-related risk in today's construction projects is failure within roofing systems, leading to water ingress.

How do you expect digital monitoring and AI to change how construction teams prevent moisture problems in the coming years?

From a durability perspective, maintaining timber relies heavily on early awareness of moisture issues to enable timely intervention. Digital monitoring will play a major role in providing this early warning capability.

What common moisture-management mistake do you see repeatedly, one that could be easily avoided?

Recurring issues include flat roofs and terraces, as well as poor detailing around valley details, which are common sources of moisture problems.

Legislations

In many jurisdictions, the law of tort and building-specific statutes create a duty of care to prevent foreseeable harm from building defects, including those caused by moisture. That legal duty sits alongside contractual duties and statutory obligations and shapes the exposure faced by contractors, designers, landlords and owners.
The insurance industry treats moisture as a material underwriting issue for this reason: moisture-related failures are foreseeable, costly, and in some tragic cases, catastrophic.

Practical conclusion: waiting for a new, single moisture standard is not a safe strategy. Because moisture-related harm already attracts legal liability, teams must act now by designing for moisture resilience, documenting decisions, and using monitoring to create demonstrable evidence of due care.

Tort, duty of care and latent liability

Across common-law jurisdictions, the tort of negligence can impose a duty of care on those who design, build, maintain or control buildings. Where moisture harm is foreseeable, for example, poor detailing that will allow water ingress, or failure to control built-in moisture, courts and regulators will expect reasonable precautions. That legal exposure is compounded where statutory protections extend the period for claims (see UK example below). Guidance and case law make clear: if moisture-related harm is known or reasonably foreseeable, there is a duty to prevent it. Designing Buildings

The UK: Defective Premises, Building Safety Act and Awaab's Law

Extended claims window. The Building Safety Act 2022 amended the Defective Premises Act 1972, so the limitation period for claims is substantially extended: for many works, the right of action can be brought within 15 years where the cause of action accrues on or after 28 June 2022 (and transitional provisions provide up to 30 years in certain historic cases). This materially increases long-term contractor and designer exposure for latent defects, including moisture-related failures. Hsf Kramer+1

Awaab Ishak and Awaab's Law. The tragic death of two-year-old Awaab Ishak from prolonged mould exposure in his social housing flat catalysed legal and regulatory change in the UK. The coroner's Prevention of Future Deaths report and the subsequent legislation known as Awaab's Law place swift obligations on social landlords to investigate and remediate hazards such as damp and mould, with specific timeframes introduced for urgent hazards. The Awaab case underlines that non-structural moisture failures (mould, condensation, poor ventilation) can lead to catastrophic health outcomes and therefore trigger regulatory intervention as well as civil liability. Courts and Tribunals Judiciary+1

Why it matters for projects: With longer limitations and tenant-safety-driven regulation, early-stage moisture control, documentation and monitoring are commercial necessities: remediation years after completion is riskier and more expensive and the original installer may no longer be available to remediate.

Denmark

National building regulations (BR18) explicitly require moisture control and healthy indoor climates; national guidance expects moisture conditions to be assessed and that critical moisture content thresholds are not exceeded at occupancy. Denmark also publishes practical guidance (e.g. DTI material) on moisture management in timber construction. Practitioners commonly document moisture calculations and retain records as part of compliance. ÅBN+1

Practical implication: Danish rules already demand moisture-aware design and evidence of control at handover, monitoring and documented site processes, therefore support compliance and reduce liability.

European Union

Directive and standards landscape. The EU's building-related framework (for example, the Energy Performance of Buildings Directive - EPBD) increasingly emphasises indoor environmental quality, energy performance and resilience; while EPBD does not create a single, EU-wide moisture law, its transposition and the supporting CEN standards push member states towards higher performance (including ventilation, condensation and IAQ considerations). In practice, moisture is therefore addressed via a mix of national building codes, EU performance standards and harmonised technical guidance. Energy+1

Practical implication: In the EU, the route to compliance is national; monitoring provides objective evidence of IAQ and moisture performance in jurisdictions implementing EPBD-related measures.

New Zealand

Building Code E2/E3 and "weathertightness" legacy. New Zealand's Building Code contains clear functional requirements on external moisture (E2) and internal moisture (E3); historically, the "leaky homes" crisis prompted extensive guidance, remediation frameworks and an expectation that designers and builders prevent moisture entry and accumulation. Acceptable Solutions and guidance note that designers must make allowance for construction sequencing, drying, and the consequences of failures. building.govt.nz+1

Practical implication: Given New Zealand's history and the explicit E2/E3 performance obligations, there is a strong incentive to document moisture control from design through handover, and monitoring closes the evidence gap.

United States

Codes & standards. Moisture-control is addressed through a combination of the model building codes (International Building Code, local adoptions) and technical standards such as ASHRAE Standard 160 — Criteria for Moisture-Control Design Analysis (and its updates), which establish performance-based methods for analysing and controlling moisture in building envelopes and HVAC design. These standards are increasingly referenced in specifications and designs to manage interstitial moisture and condensation risk. Environmental Protection Agency+1

Practical implication: Where ASHRAE 160 or code clauses are referenced, designers are expected to perform moisture risk analysis; continuous monitoring is a complementary, evidence-based control.

Canada

National Building Code & guidance. The National Building Code of Canada (NBC) and provincial adaptations set out technical provisions for moisture management (dry lumber at installation, envelope performance, etc.). There is also a strong body of industry guidance (FPInnovations, Canada Wood Council, etc.) on on-site moisture protection and the prevention of built-in moisture. The insurance report you supplied highlights that insurers regard moisture as the dominant risk for timber projects in Canada. Government of Canada Publications+1

Practical implication: Compliance frequently expects documentation of moisture protection strategies; live monitoring offers objective data to show contractors met their obligations.

Australia

National Construction Code (NCC) / BCA — condensation & moisture. The NCC (BCA) has recently strengthened condensation and internal moisture provisions (notably Part F8 in NCC 2022 for condensation management in residential units). The ABCB's Condensation in Buildings handbook and updated NCC clauses require vapour control, ventilation and design measures to limit interstitial and surface condensation. These are now mandatory in many residential contexts. ncc.abcb.gov.au+1

Practical implication: NCC changes make proactive condensation control a compliance matter; monitoring helps demonstrate that design and installed measures are performing as intended.

Key takeaways

1. Moisture is a hidden but controllable risk. Understanding which elements, seasons, and regions are most vulnerable lets teams act early, plan effectively, and prevent costly damage before it occurs.

2. Insurance exposure drives urgency. For mass-timber projects, a single moisture incident can lead to catastrophic financial loss. Proactive monitoring now directly affects insurance premiums, risk class, and project viability.

3. Moisture failures already carry legal liability, and that liability is growing. From the UK's 15-year Defective Premises Act to Awaab's Law and international building code requirements, regulators already expect teams to prevent moisture harm. You don't need a new standard to be responsible; liability already exists.

4. Guidance is fragmented but usable. Most countries provide frameworks or recommendations, yet the lack of a consistent global standard increases uncertainty. Teams must use available guidance, local codes, and best-practice frameworks to reduce avoidable risk.

5. Proactive monitoring is essential for quality, compliance, and cost control. Digital moisture data provides evidence of due diligence, supports insurance negotiations, prevents rework, and ensures buildings perform over the long term. Monitoring has shifted from an innovation to an industry expectation.

Tector

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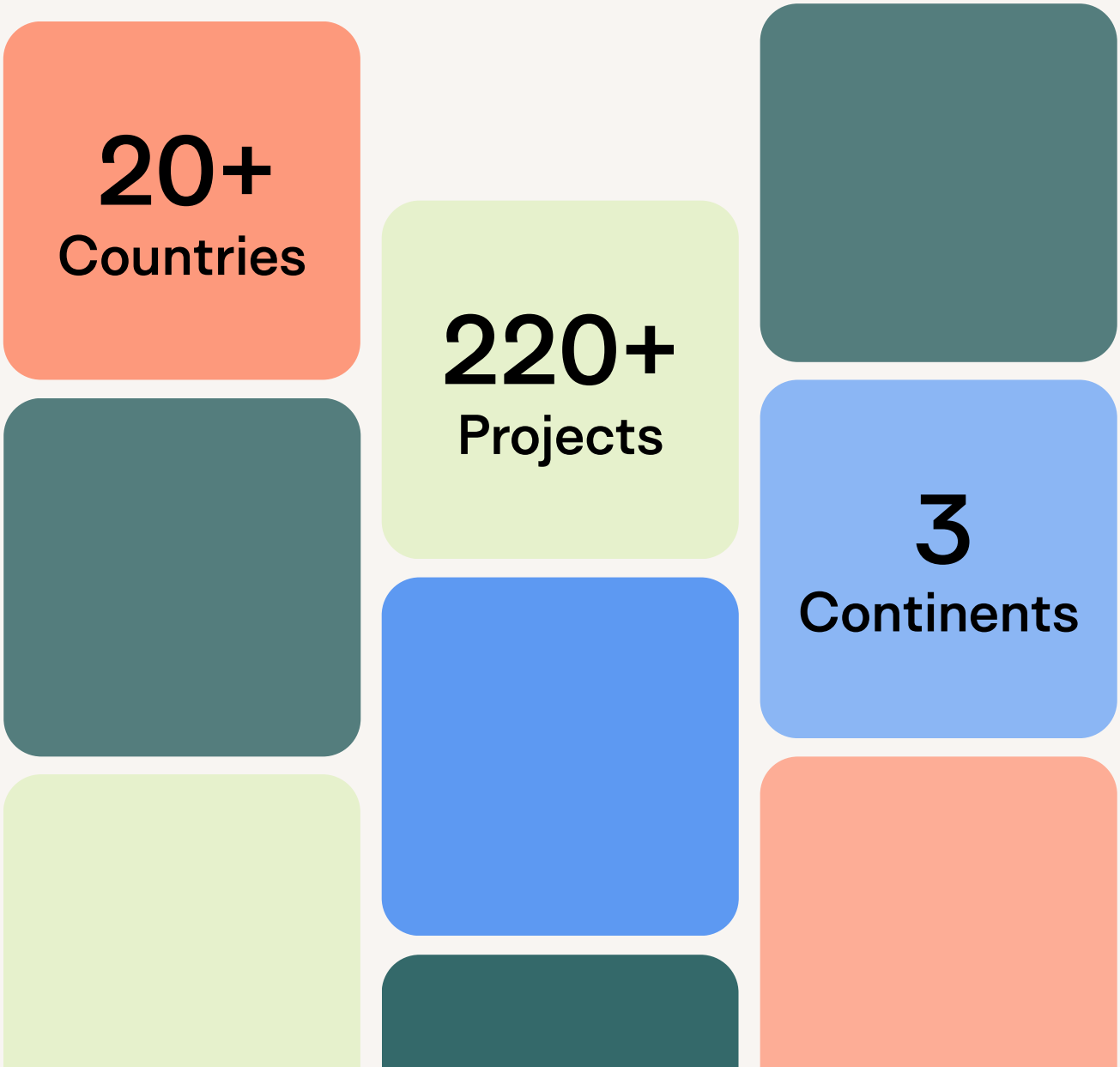

Thank you

We look forward to shaping a future where every project is safer, smarter, and free from costly moisture damage.

Thank you to our teams and partners, your support drives innovation and sets new standards across the industry.

Contact us

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