



CONSORTIUM
OF EUROPEAN
BUILDING CONTROL

IMPACT OF CLIMATE CHANGE ON BUILDING CONSTRUCTION IN EUROPE

July 2026



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About The Consortium of European Building Control (CEBC)

CEBC is an independent body composed of member organisations representing different European countries and associated non-European countries from both public and private sectors. CEBC currently comprises of thirty two organisations from twenty two countries.

Members are involved in building control or in the development and delivery of legislation and standards associated with health, safety, accessibility, energy conservation and sustainability aspects of the built environment. Members include professional bodies, commercial organisations, government bodies or comparable agencies.

The aim of the CEBC is to promote and contribute to improving the safety and sustainability of the built environment and to promote modern building control systems, which are both sustainable and business friendly.

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Executive Summary

Introduction

Climate change is reshaping environmental risks across Europe, and the built environment is already experiencing more frequent heatwaves, intense rainfall, flooding, wildfires, storms, and drought-driven subsidence.

This report presents and analyses responses from 23 organisations across 19 countries. It offers a summary view of how nations are adapting their building regulations, planning frameworks, and construction practices to these emerging climate impacts.

While many countries report progress, the responses reveal variation in capability, consistency, and preparedness. The effective implementation of mitigation measures can be further supported by the building control profession, whose role is central to delivering buildings which are resilient, safe, and climate-ready.

Key Findings

Most respondents reported a clear shift in national policies towards energy efficiency and decarbonisation (mitigation). However, adaptation measures (such as overheating prevention, flood resilience, and stormproofing) are developing unevenly, and are often embedded in planning systems rather than building regulations. Countries experiencing more acute climate impacts (e.g., the Netherlands, France, Scotland, Cyprus) are taking more proactive steps, while others remain at an early stage.

Innovation is theoretically supported by performance based codes in many jurisdictions, but in practice remains constrained by administrative complexity, outdated standards, and conservative risk management by organisations such as insurers and warranty providers. Meanwhile, government incentive schemes across Europe heavily favour retrofitting and energy upgrades, with very limited support for adaptation-specific measures.

Challenges for the Building Control Profession

Across all regions, respondents identified a consistent set of challenges that directly influence how effectively building control bodies can support climate-resilient construction:

1. Rapidly evolving and increasingly complex regulations

Building control professionals must interpret and enforce a growing volume of highly technical standards - particularly around energy performance, airtightness, advanced materials, and renewable technologies. Many authorities reported limited capacity to keep pace with frequent legislative changes and divergent regional frameworks.

2. Lack of up-to-date climate data and design assumptions

Most construction standards cited by building regulations are still based on historical datasets that no longer reflect current or future climate reality. This creates uncertainty for regulators and industry professionals attempting to assess compliance, structural safety, and overheating risk.

3. Skills, competency and capacity pressures

Building control teams face mounting expectations around climate literacy, carbon assessment, digital tools (building information modelling, digital twins), and modern construction methods. This comes at a time when many authorities report skills shortages, high turnover, and resource constraints.

4. Fragmented governance and unclear responsibilities

In many countries, adaptation responsibilities are split between planning, environment, and building control bodies, creating potential ambiguity in accountability and enforcement. This fragmentation can limit the sector's ability to take a proactive, systemwide role.

5. Balancing innovation with risk and compliance

New low-carbon materials, technologies, and modular or industrialised building systems often lack robust longterm performance evidence. This can make demonstrating compliance challenging as building control professionals must evaluate these innovations while managing liability, public safety, and insurance concerns. Clear evidence in support of solutions is key.

6. Gaps in addressing existing buildings

Most regulatory frameworks apply only to new construction, even though adaptation needs are greatest in older buildings. Building control bodies are often limited by legislation in what they can require or influence during renovation works.

7. Increased risk of unintended consequences

Respondents highlighted challenges such as overheating in highly insulated buildings, fire risks associated with energy technologies, drainage failures, and supply chain inconsistency - all of which require building control vigilance beyond traditional compliance checks.

Conclusion

The building control profession sits at the frontline of Europe's response to climate change. Its ability to manage the technical, regulatory, and operational pressures identified in this report will be important for assurance that future buildings are both low-carbon and climate-resilient.

Strengthening competence frameworks, modernising climate data within standards, improving interagency coordination, and supporting digital transformation will be essential steps in equipping building control professionals for the challenges ahead.

Such action can be supported by the ongoing incorporation of future climate data within the national and international standards cited in the context of compliance with building regulations. Member organisations should take an active role in this work where practical.

Further stages of this project will focus on refining these findings and identifying practical pathways to improve resilience within building control systems across member countries.

1. Introduction

In May 2023, a proposal was put forward to engage CEBC member organisations on the topic of climate change impacts and how this affects the delivery of our built environment.

The purpose of this survey was to gather information from across Europe on the current understanding on the impact of climate change on the way we deliver new buildings, with a focus on how the risks and impacts of climate change are mitigated through regulation and other means. The survey questions are listed in Appendix A of this report.

The focus was to be on new buildings and actions, through legislation and through other routes, intended to deliver an effective response at a national level on both adaptation to our changing climate and mitigating the contribution our built environment has on our climate.

This report is presented in three sections:

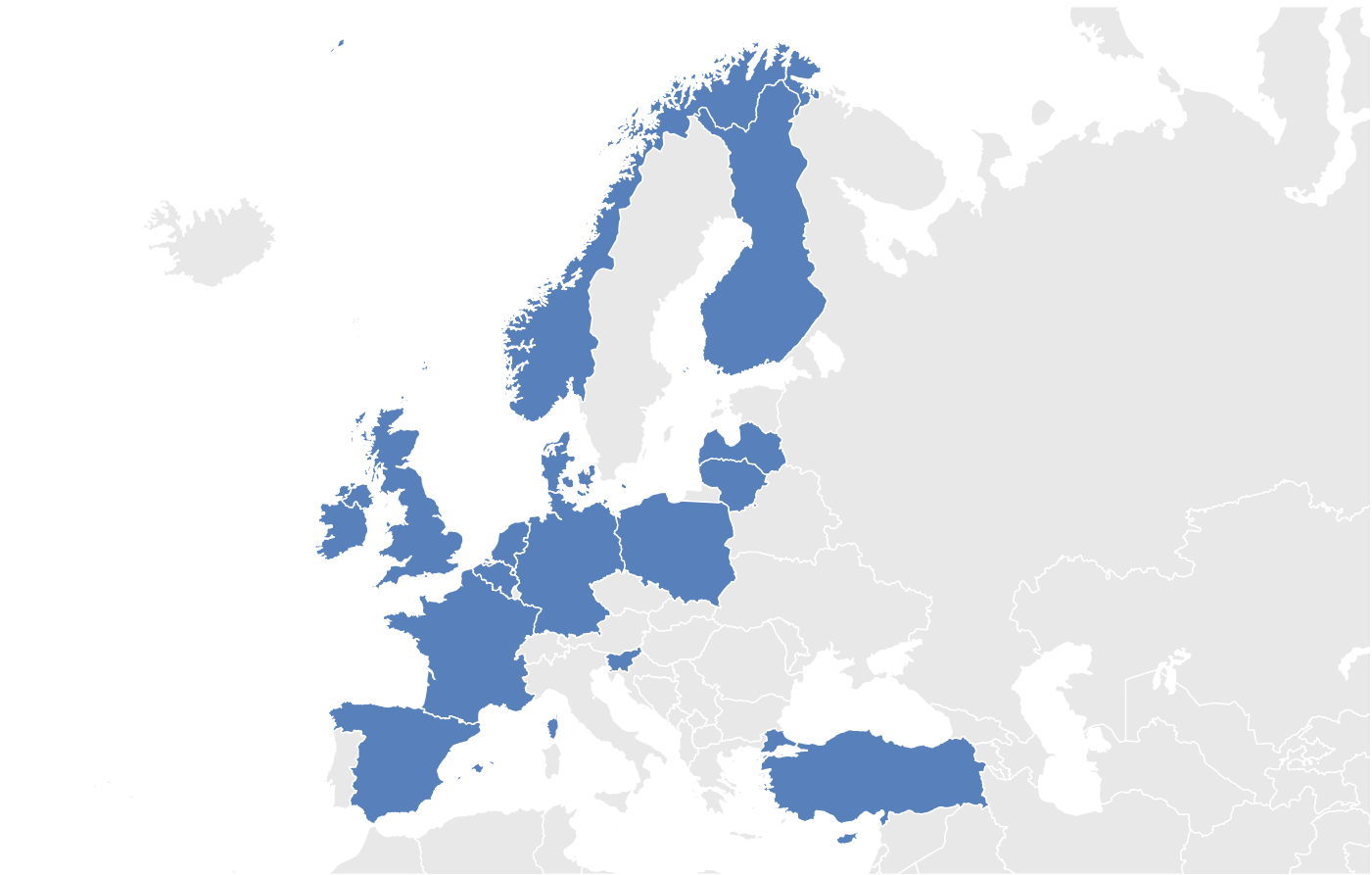
- General information from member organisations on the impacts of climate change that are being experienced in their countries and how they are considered in the design and delivery of buildings.
- Information from member organisations on how government policies are applied to the built environment, if these policies support innovation and
- A set of observations, conclusions and potential further actions derived from the reported information.

As a survey of member organisations involved in the delivery of the building control country across 19 European countries, it is important to note that responses reflect the perspectives and experience of individual organisations and may not necessarily reflect a full national picture for the countries represented.

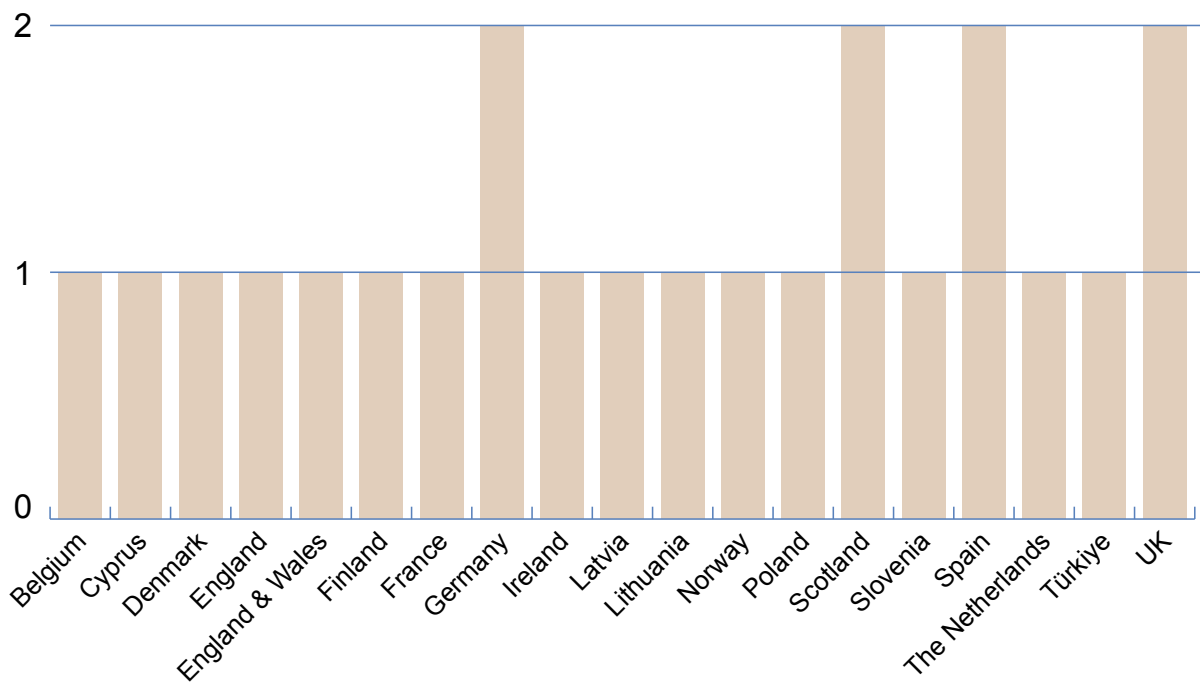
Accordingly, this is primarily a snapshot of the current impact of climate change on building construction through the lens of the building control function and is seen as a means to develop further dialogue on how that function can support climate-resilient outcomes.

2. Scope of Responses

23 Responses were received from member organisations in 19 countries. The geographical distribution of those countries is shown below.



Six of those responses were from organisations representing one or more part of the United Kingdom. Whilst regulatory regimes governing matters such as Planning and Building Regulations are different across the four UK administrations, the impacts of climate change on the UK are likely to be reported as broadly similar (see question 2a).



2.1 Responses Received by Country and Organisation

Country	Organisation
Belgium	SECO Belgium sa-nv
Cyprus	Ministry of the Interior
Denmark	Forum for Danske Bygningsmyndigheder (DABYFO)
England & Wales	National House Building Council (NHBC)
England & Wales	Local Authority Building Control (LABC)
Finland	The Finnish Society of Building Inspectors (RTY)
France	DEKRA Industrial SAS
Germany	Federal Association of Design Review Engineers for Construction Technology
Germany	VHV Versicherungen
Ireland	Irish Building Control Institute (IBCI)
Latvia	State Construction Control Bureau (BVKB)
Lithuania	State Territorial Planning and Construction Inspectorate (VTPSI)
Norway	Norwegian Building Authority (DBA)
Poland	General Office of Building Control (GUNB)
Scotland	Local Authority Building Standards Scotland (LABSS)
Scotland	Building Standards Division, Scottish Government
Slovenia	Ministry of Environment and Spatial Planning
Spain	Consejo General de la Arquitectura Técnica de España (CGATE)
Spain	Escuela Técnica Superior de Edificación (ETSE), Universidad Politécnica de Madrid
The Netherlands	BouwQ
Türkiye	Construction Control & Earthquake Engineering Association (YDDMD)
United Kingdom	Chartered Institute of Building (CIOB)
United Kingdom	Royal Institution of Chartered Surveyors (RICS)

3. Climate Impacts: Analysis and Context

3.1 Introduction

In this section general questions were asked about climate change in each country and the current experiences. This information sought to provide background about the climate impact in Europe and on different regulations which are applied.

Member organisations were asked to identify which, from a list of eight key climate impacts, currently affect their country.

The self-reporting of impacts covers the views of 23 organisations from 19 countries or administrative regimes is summarised below. Commentary is provided on both trends and the alignment of impacts with country climate types, ranging from Subarctic to Mediterranean.

3.2 Overview of Common Climate Impacts

Question 2a: Which climate change impacts does your country experience?

All 23 responses answered this closed question which identified 8 impacts of climate change and invited respondents to also add in any other impact their country was experiencing. Three organisations identified other impacts.

It is useful to note that the list of climate change impacts identified by some organisations within the same country did differ. This subjectivity may be for one of several reasons, including considering only impacts which can be mitigated by regulations applied to the built environment; or recognition of those impacts that are of most relevant to the operations of a given organisation.

An overview of responses with commentary is provided below.

The climate change impacts presented were:

- **Flooding** – Universally reported.
- **Heavy Precipitation** – Reported in all but two responses.
- **Storms with High Winds** – Mentioned by 16 countries.
- **Heat Waves** – Reported by 13 countries, especially in Southern and Western Europe.
- **Droughts** – Common in both Mediterranean and Northern European countries.
- **Coastal Erosion** – Reported by nations with significant coastal exposure.
- **Wildfires** – Predominantly Mediterranean and boreal countries.
- **Subsidence** – Noted in several regions, often linked to drought or flood cycles.
- **Other/Emerging Issues Identified** – Nature depletion, overheating in buildings, and wind-driven rain were also identified. The latter two being linked to other impacts above (heat waves, heavy precipitation and storms with high winds).

Climate Impacts Identified

Responses by Country *notes all cited impacts from two responses	Heat wave	Wildfire	Storms. including high winds	Heavy precipitation	Floodings	Subsidence	Drought	Coastal erosion	Other	Other (description)
Belgium	1		1	1	1	1	1			
Cyprus	1	1	1	1	1	1	1	1		
Denmark			1	1	1					
England	1	1	1	1	1		1	1		
England and Wales*	1		1	1	1	1	1	1	1	See (a) below
Finland		1	1	1	1		1		1	See (b) below
France	1	1			1	1	1	1		
Germany*	1	1	1	1	1					
Ireland			1	1	1		1	1		
Latvia	1		1	1	1		1	1		
Lithuania	1		1		1					
Norway	1	1	1	1	1					
Poland			1	1	1					
Scotland*	1	1	1	1	1		1	1	1	See (c) below
Slovenia	1	1	1	1	1		1			
Spain*	1	1		1	1		1	1		
Türkiye	1	1		1	1	1	1			
The Netherlands	1		1	1	1		1	1		
United Kingdom			1	1	1	1		1		
	14	10	16	17	19	6	13	10	3	

Notes:

- Wind Driven Rain, Warmer Drier Summers, Nature Depletion
- Overheating in summertime (not so bad than in South Europe)
- Overheating risk in some building environments

Climate Impacts

Heatwave
Wildfire
Storms including Strong Winds
Heavy Precipitation
Floodings
Subsidence
Drought
Coastal Erosion
Other

Click on a climate impact tab to show which countries have been affected.

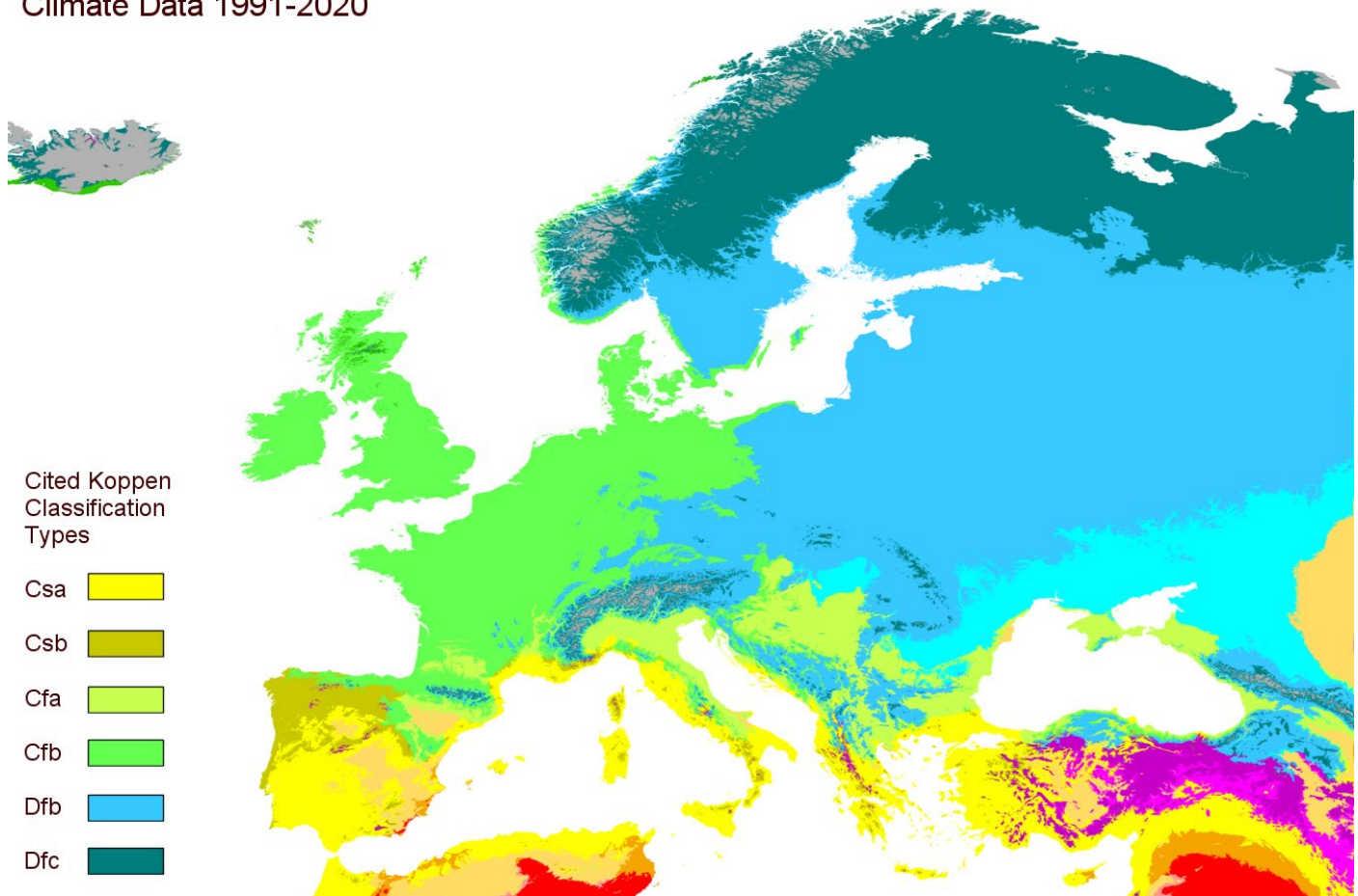
Note: this functionality may not work on mobile devices.



3.3 Regional and Climatic Analysis

It is useful to consider reporting on these impact in the context of the regional climate type mainly associated with each country ([Köppen classification](#)) and whether there is a level of commonality based upon region.

Climate Data 1991-2020



Map climate data source: Beck et al. (2023)

Western Europe (e.g., UK, Ireland, France, Belgium, Netherlands)

Climate Type: Temperate Oceanic (Cfb)

Western Europe experiences **frequent storms, intense rainfall, and flooding**, in line with the prevailing westerlies and proximity to the Atlantic. Coastal erosion is especially noted in **low-lying nations** like The Netherlands and the UK, both vulnerable to sea level rise. **Heatwaves and droughts** are also becoming more common, despite historically temperate conditions, signalling a northward shift in Mediterranean-type climatic extremes.

Southern Europe (e.g., Spain, Cyprus, Türkiye)

Climate Type: Mediterranean, hot summer (Csa) and Mediterranean, warm summer (Csb)

Southern nations report **heatwaves, wildfires, and droughts** as dominant impacts reflecting hotter, drier summers resulting from climate change. **Heavy precipitation and flash flooding** are also increasingly disruptive due to shifting storm tracks and extreme rainfall events. **Subsidence and coastal erosion** in Cyprus and Türkiye are exacerbated by water scarcity and land degradation.

Central and Eastern Europe (e.g., Poland, Slovenia, Germany, Latvia, Lithuania)

Climate Type: Humid Continental, warm summer (Dfb) and transitional zones

This region highlights **storms, heavy rain, and floods**, along with heatwaves and droughts, especially

in Germany and Slovenia. These impacts reflect a changing balance between summer dryness and more intense storm systems. Notably, **wildfires** are now reported in Germany and Latvia, previously rare for these forested areas.

Nordic Countries (e.g., Norway, Finland, Denmark)

Climate Type: Subarctic (Dfc), Humid Continental (Dfb) and Temperate Oceanic (Cfb)

Despite cooler climates, Norway and Finland report **heatwaves, droughts, and wildfires**, indicating a warming climate. **Flooding and stormwater management** are concerns, for example with snowmelt variability. Finland's **overheating risk**, though currently moderate, reflects northern Europe's transition to warmer summers. Denmark, with its flat topography and coastal exposure, may see greater risk of **flooding and storm surges**.

Island and Coastal States (e.g., Cyprus, UK, Ireland)

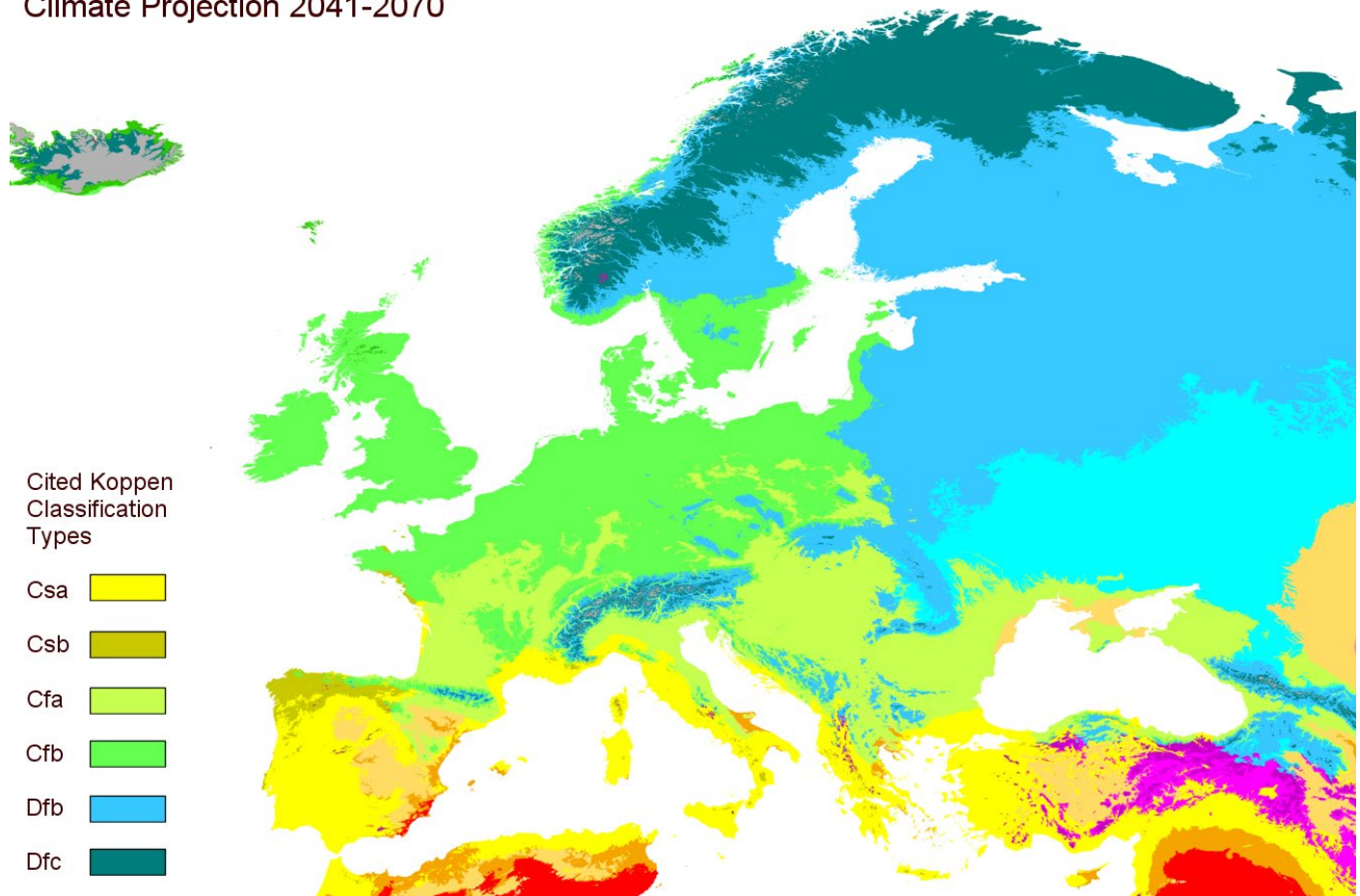
Climate Exposure: High coastal vulnerability

These nations are particularly prone to **coastal erosion, flooding, and storm intensification**, consistent with rising sea levels and changing wave dynamics. **Cyprus and Ireland**, although climatically distinct, may both face erosion pressures and ecosystem stresses.

3.4 Observations from Climate Data and Responses

Projections indicate a northward shift of European climate zones by 2050, with Csa (Mediterranean) and Cfb (Oceanic) zones expanding. Projections show Dfc (Subarctic) areas shrinking in Northern Scandinavia and the Alps with encroachment of Dfb (humid continental, warm summer), while Cfa (humid sub-tropical)/Cfb zones become more prevalent in Western, Central and Northern Europe.

Climate Projection 2041-2070



Map climate data source: Beck et al. (2023)

Heat and Drought Expansion: Historically temperate and humid countries (e.g., UK, Germany, Finland) are increasingly affected by heat and water scarcity.

Flooding and Precipitation Volatility: All regions report increased flood risk from intensified rainfall, indicating a pan-European need for adaptive stormwater systems and flood prevention.

Northward Shift of Southern Risks: Mediterranean impacts (heatwaves, wildfires) are now common in northern and central Europe.

Widening Impact Spectrum: New issues like **subsidence**, **nature depletion**, and **building overheating** suggest evolving and interconnected risks, requiring integrated adaptation policies. It may also be that some risks can be exacerbated by the response to other risks – for example, increase insulation in buildings creating a summer overheating risk if not managed as part of building design?

3.5 Summary – National Reported Impacts

The climate impacts reported are generally relatable to the geography and baseline climate of each country, yet responses would support the premise that the boundaries of risk are shifting.

Mediterranean risks are encroaching into continental and oceanic zones, while traditionally cooler countries are seeing an increase in heat-related impacts.

Such convergence would increase the importance not only of regionalised planning but also a pan-European adaptive strategy to support and effective resilience across diverse climatic and geographic conditions. Commentary in this context is offered later in section 14.

4. Analysis of Reported National Responses

4.1 National Approaches to Climate Adaptation or Mitigation

Questions 2b-d: *“Do you already take (those) climate change impacts into account during designing buildings? If yes or partly, can you please give an explanation on how the impact of climate changes are considered. If no, can you please give an explanation on why the impact of climate changes are not considered (yet)”.*

16 organisations responded with ‘yes’ (2) or ‘partially’ (14). Three of these responses were relatively detailed and offered commentary on a range of considerations. Several responses included information on action to address climate change mitigation as well as action in support of adaptation. Seven responses answered ‘no’.

The following offers a brief summary of the information provided on action at a national level.

Regulatory Interventions

Several countries embed climate resilience directly into building codes and regulations:

- **England and Wales** reported against their respective regulatory frameworks. Building Regulations ([England](#)) ([Wales](#)) address impacts within topics including structure, moisture resistance, overheating, water efficiency, energy/emissions performance and EV charging readiness. [The Climate Change Act 2008](#) mandates a legally binding pathway to net-zero emissions by 2050 whilst the [National Planning Policy Framework](#) for England notes response to climate risks including flooding and overheating into planning processes.
- **France’s** [RE2020 for new buildings](#) explicitly considers energy consumption, lifecycle carbon and overheating risk. Regulation of building structure have added resilience on risk issues such as clay shrinkage due to climate impacts.
- **Germany** focuses on structural integrity (e.g. wind and snow loads), building sealing, energy supply, and thermal insulation.
- **Scotland and Norway** regulate responses to floods, precipitation, and storms via both building and planning legislation, while **Finland** recognises flooding in local plans and overheating risk as a new challenge in new and renovated buildings.

Planning and Spatial Interventions

Ireland restricts development in flood-prone and erosion-prone zones and links urban planning to real-time satellite monitoring via the [Copernicus Emergency Management Service](#).

Norway and **Scotland** use hazard mapping and building codes to mitigate the impact of climate-induced natural hazards, such as floods and, in **Norway**, landslides and stormwater surges. **Lithuania** sets provisions to limit impervious surfaces and minimum provision of green space.

Market-Driven and Voluntary Frameworks

In **Belgium** climate risk assessments are increasingly considered within voluntary frameworks and certification systems such as [GRO](#), [BREEAM](#), [DGNB](#), [Do No Significant Harm \(DNSH\)](#) related funding mechanisms. However, these practices are not yet standard across the wider construction industry and remain mainly associated with projects which have financial or institutional incentives, such as certified office buildings.

Level of Integration

Countries like England, France, and Germany show a higher degree of integration between climate science, legal frameworks, and building regulations. Others, such as Denmark, illustrate a more localised response, often reactive rather than systematic.

4.2 Focus Areas of Regulation

Recurring focal points in climate-responsive design include:

- Flood resilience (Ireland, Lithuania, Scotland, Norway, Denmark)
- Overheating and insulation (France, Finland, UK nations)
- Energy efficiency and decarbonisation (UK, Germany, Belgium)
- Material durability and envelope performance (Finland, France)

Innovation and Data

Scotland and England noted work to consider predictive climate modelling for future standards, through partnerships with their national standards and weather data bodies, to remove the limitations inherent in traditional use of historical data in design codes.

Nature and Biodiversity

England noted their [Biodiversity Net Gain](#) requirement, which compels developers to enhance ecosystems either on-site or via a compensatory credits system. This links ecological sustainability directly with the delivery of the built environment.

4.3 Lack of Action in Response to Climate Change Impacts

Seven organisations responded ‘no’, highlighting several reasons:

- Lack of reliable data (Germany).
- Design rules exist but not based on extreme climate change scenarios (Cyprus, Latvia, Netherlands).
- Issues not covered in regulations; decisions left to investors (Poland).
- Focus currently on energy efficiency and sustainability rather than climate impacts; no strong enforcement (Spain, with two separate responses).

4.4 Summary – National Approaches

It is reasonable to note that while some countries have taken steps to integrate a response to climate change into their building and planning systems, others are still evolving that response or relying on voluntary frameworks.

Responses covered a range of impacts, considering both mitigation and adaptation topics. One trend is the growing recognition of specific climate risks - especially flooding, overheating, and energy inefficiency - and the corresponding technical or legislative responses.

The main barriers identified were gaps in legislation, insufficient or non-specific regulations, lack of reliable data, limited enforcement and greater policy focus on energy efficiency (mitigation) than on resilience to climate change impacts (adaptation).

However, there were also indications that a more proactive use of both climate projections and cross-sectoral policies would further support a mainstreaming of climate resilience in the built environment across all regions.

5. Analysis - Current National Policies, Regulations and Law

5.1 Current Policies on the Built Environment and Climate Change

Question 3a. Please provide an overview of how your government policies apply to the built environment. Current planning/building regulations/Standards/Codes/Guidance

As part of the ongoing response to the impacts of climate change and risks to the built environment, national governments enact various regulatory and strategic frameworks aimed at both mitigation and adaptation.

Responses from 21 organisations covering 17 countries or administrations were provided setting out how their built environment policies **currently address climate change** as a topic. All but three of the responses were relatively brief in their summary of actions.

5.2 Policy Frameworks and Legislative Instruments

A common trend among countries is the integration of climate considerations into existing planning and building regulations. Most countries leverage overarching legislative acts - such as national building codes or climate change acts - and apply performance-based standards or technical requirements within these frameworks.

- **Belgium:** Applies a regionally tailored and EU-aligned approach to sustainable construction, shaped by its three regions. Frameworks such as the [GRO sustainability framework](#) (voluntary) and regional EPB (Energy Performance of Buildings) regulations support energy-efficient and increasingly circular building practices. Regional policies also emphasise climate adaptation measures, particularly flood prevention and the integration of flood risks into spatial planning and building regulations.
- **England and Wales:** A structured approach governed by the Building Act 1984 and supporting Building Regulations. Notably, Part L (energy efficiency) and Part O (overheating) target carbon emission reductions and climate resilience. National Planning Policy requires local authorities in both countries to develop Local Plans that align with net-zero goals.
- **Lithuania:** Territorial plans require assessment of flood and overheating risk and biodiversity impact for development. Spatial issues such as transport and sustainable mobility are considered. Sustainable retrofit is a priority for public buildings.
- **Scotland:** Building regulations (under their 2003 Building Act) and National Planning Framework (NPF4) incorporate adaptation elements such as flood risk, overheating, and wind-driven rain resistance. A national Adaptation Plan (2024–2029) supports this by outlining priorities for climate resilience in buildings.
- **Finland and Germany:** These countries emphasise climate adaptation in urban planning laws, although the extent of enforcement varies. Finland's Climate Law 423/2022 introduces carbon dioxide (CO₂) limit values, while Germany relies on voluntary homeowner compliance supported by professional guidelines.

5.3 Energy Efficiency and Carbon Emissions

Reducing energy use and associated carbon emissions in new and existing buildings is a key priority across most countries.

- **Cyprus and Spain:** Apply Eurocodes and enforce Nearly Zero Emissions Buildings (NZEB) standards. Regulations require renewable energy integration in new builds.
- **Netherlands:** Regulations under the *Omgevingswet* and detailed [NEN standards](#) specify outcomes rather than methods, promoting innovation while ensuring environmental outcomes.

- **Ireland:** The [National Climate Action Plan](#) addresses building-related emissions with sector-specific goals.
- **England & Wales:** Regulation 28 of building regulations mandates energy performance upgrades during renovations. A Publicly Available Standard, [PAS 2030/2035](#) sets out a specification to support high-quality retrofits in existing housing.

5.4 Climate Adaptation Measures

Adapting the built environment to future climate conditions (e.g., flooding, overheating, water scarcity) is gaining traction.

- **Scotland and England:** Address overheating (both countries) and flood risks (Scotland) in regulations for new buildings. Investigation into use of future climate data in regulatory updates seeks a best practice approach.
- **Belgium and Germany:** Focus on integrating flood risk into urban planning. Belgium employs flood zoning.
- **Slovenia and Latvia:** Address adaptation indirectly through broader environmental laws and territorial planning acts.

5.5 Implementation and Compliance Mechanisms

Performance-based standards are widely used to give developers flexibility while ensuring compliance with climate targets.

- **Norway:** Embeds flexibility in its [Planning and Building Act](#), allowing developers to meet safety and climate objectives via diverse means, underpinned by Eurocodes.
- **France:** Uses zoning based on historical climatic events to define construction parameters but has limited proactive adaptation measures.
- **Poland and Denmark:** Offer detailed technical regulations and professional guidance, although political reluctance in some cases (e.g. Germany) limits the imposition of stricter climate mandates.

5.6 Summary: Current National Policies

The responses reveal a varied landscape of policies addressing climate change through the built environment. While some countries are advancing proactive, comprehensive measures - including energy standards, climate adaptation provisions, and retrofit guidance - others rely on broader legislative acts or professional discretion with fewer enforceable mandates.

A key recommendation is for countries with fragmented or minimal adaptation measures to establish clearer national strategies, supported by enforceable standards and integration of climate projections into building practices. Cross-border learning, especially within the European Union (EU) context, presents a strong opportunity to harmonise and elevate standards.

6. Analysis - Future National Policies, Regulations & Law

6.1 Future Policies on the Built Environment and Climate Change

Question 3a. Please provide an overview of how your government policies apply to the built environment. Future planning/building regulations/Standards/Codes/Guidance.

Responses from 14 organisations covering 12 countries or administrations were provided, setting out how **future built environment policies** are likely to address climate change as a topic. Again, all but two of the responses were relatively brief in their summary of actions.

The indications on future policy direction across various countries points to increasing emphasis on energy efficiency, material circularity, climate resilience, and integration of renewable energy solutions. These form themes within country-specific plans, proposals, and regulatory changes to be implemented in the coming years.

6.2 Legislative Evolution and Strategic Planning

Several countries are taking proactive legislative steps to align future building policies with national climate targets.

- **Germany** plans to reform its planning law to strengthen climate adaptation by mandating decentralised water management systems and green roofs, even in areas without formal planning documents. Additionally, there is legislative support to accelerate wind and geothermal energy projects and enforce “green” compensation measures.
- **Ireland** references compliance with the [Climate Action and Low Carbon Development \(Amendment\) Act 2021](#), emphasising alignment with evolving technical codes and climate goals.
- **France** is advancing its [Construction and Housing Code](#) (2025) to enforce stricter insulation, ecological material usage, and mandatory pre-demolition audits to facilitate reuse. Policies under the National Low Carbon Strategy and the Multi-Year Energy Program push for photovoltaic deployment and lower building sector emissions.
- **Lithuania** seeks to embed a climate-focussed approach through national strategic documents, including its [National Climate Change Management Agenda](#) and [National Energy and Climate Plan](#) (NECP 2021–2030).

6.3 Energy Efficiency and Building Performance Standards

Energy efficiency remains a central pillar in future policies, especially for new constructions and retrofitting.

- **England** issued the “[Future Homes and Buildings Standards: 2023](#)” consultation. Proposals include moderate fabric improvement standards for new homes, mandated solar photovoltaic (PV) installation for non-domestic buildings, a new compliance methodology, the Home Energy Model (HEM) and a call to expand overheating standards to cover building conversions. [Consultation on similar topics](#) is published in Wales.
- **Scotland** is investigating a national “[Passivhaus-equivalent](#)” standard, with any changes likely to become mandatory by 2028. This future model would both reduce energy consumption in buildings and deliver a more evidence-led approach to compliance, improving performance.
- **Poland** has established an advisory group tasked with reviewing and reforming building technical requirements to harmonise them with EU climate legislation.
- **Finland** aims to fast-track clean energy investments and advance material circularity. Digital tools like Building Information Modelling (BIM) will play a role in achieving future targets.

6.4 Climate Adaptation and Resilience Integration

Future regulatory approaches are increasingly incorporating adaptation to climate hazards like flooding, heatwaves, and high wind.

- **Slovenia** is preparing updated environmental maps (precipitation, snow, wind) as a basis for revised building codes.
- **Scotland** is reviewing its building guidance to integrate updated flood risk assessments and construction practices for flood-prone areas. Overheating risk in new homes (standard introduced in 2023) will be reviewed once sufficient data is available. Predictive climate modelling will also be explored in coordination with the UK national standards body.
- **Germany** seeks to mandate retention and greening infrastructure for both planned and unplanned development zones, which represents a meaningful shift toward systemic urban resilience.

6.5 Renewables, Material Reuse, and Digital Tools

A forward-looking emphasis is evident on resource efficiency, reuse of building components, and digitisation.

- **France** has introduced legal obligations for demolition diagnostics to promote reuse of materials, contributing to its circular economy goals.
- **Finland** and **Germany** promote the use of digital tools and innovative technologies such as BIM and geothermal systems, streamlining compliance and fostering carbon-neutral energy transitions.
- **Spain, Slovenia** and other countries plan to update standards and codes, albeit with less detailed information currently available.

6.6 Summary: Future National Policies

The responses received indicate a trend toward increasingly stringent, integrated, and technology-supported building regulations as countries prepare for a climate-resilient future. Forward-thinking policies in countries emphasise a whole-system approach - linking planning, construction, and energy systems - to deliver on national and international climate obligations.

Continued international coordination and knowledge sharing will be important in enabling an approach to climate resilience which becomes a universally embedded feature of the built environment.

7. Analysis – The Role of Innovation

7.1 Support for Innovation in Built Environment and Climate Change Policies

Question 3b. Do the current regulations allow/support innovation?

Question 3c. If the previous answer was partly or no, can you please give an explanation on the restrictions.

Of the 23 responses provided, 12 confirmed that regulations in their country allowed/supported innovation as part of the response to climate impacts.

A further 10 consider there is partial support.

Only one organisation considered there was no support for innovation.

Twelve responses offered further comment on their national regime. While many countries acknowledge the importance of innovation in addressing climate change within the built environment, current regulatory frameworks show mixed levels of support. Most policies are technically flexible but often lag behind the pace of technological change or present practical barriers to implementation of newer solutions.

7.2 Insights by Country

Supportive but Constrained Flexibility

Countries such as **England**, **Wales** and **Scotland** highlight that their building regulations provide performance-based requirements rather than prescriptive methods. This theoretically allows for innovation, but in practice, innovations may face delays in implementation or barriers due to lack of recognition in cited calculation methods, third-party standards, and the need to prove equivalence to established practices.

Systemic Barriers

Cyprus and **Spain** identify procedural and cultural barriers - such as strict adherence to Eurocodes, land-use zoning restrictions, and conservative industry mindsets - as impediments to adopting emerging technologies like modular construction or 3D-printing.

Lack of Regulation can also Limit Innovation

In **Poland**, innovation is “neither restricted nor required”. The absence of guidance or incentives to innovate can discourage investment in new approaches related to climate resilience or energy efficiency.

Indirect and Evolving Support

The Netherlands note how stricter durability and energy standards, although not explicitly targeting innovation, indirectly pressure the industry to adopt newer solutions. However, the complexity of overlapping regulations is cited as a challenge in the implementation of innovation.

Variable Implementation

Finland and **Denmark** suggest limited innovation primarily due to economic or political prioritisation elsewhere (e.g., national defence in Finland), while **Slovenia** relies on secondary verification for non-standard solutions, which can delay implementation.

7.3 Summary: Support for Innovation

Whilst most countries report that current regulations allow innovation, actual support remains inconsistent. Regulatory lag, administrative complexity, and reliance on traditional methods of construction may often create indirect barriers.

Clearer pathways for validating new technologies, updates to calculation methodologies, and streamlined multi-level approvals could better enable the built environment to evolve with climate-responsive innovations.

8. Analysis - Impacts of Recent Regulation Changes

8.1 Summary Analysis (Statistical)

Question 3d. How has the built environment adapted to these changes in the past 15 years in response to the changing regulations/standards/codes

Member organisations were asked to identify areas of change in the design and delivery of the built environment, selecting from a range of ten building elements or topics affected by said changes.

- Planning/site layout/biodiversity
- Foundations
- External walls
- Floors
- Roof
- Services
- Landscaping
- Fire prevention/mitigation including Wildland Urban Interface (WUI)
- Flood mitigation
- Other (please specify)

20 responses covered 17 countries, reporting on how their built environment has adapted in response to change in regulations, standards or codes.

Areas Impacted by Regulation Change

Responses by Country *notes all cited impacts from two responses	Planning/ Site layout/ Biodiversity	Foundations	External walls	Floors	Roof	Services	Landscaping	Fire prevention/mitigation	Flood Mitigation	Other (description)
Belgium	1	1	1		1				1	
Cyprus								1	1	
Denmark										See (a) below
England			1	1	1	1				
England and Wales	1		1	1	1	1			1	
Finland		1	1	1	1			1	1	
France	1	1	1		1					
Germany	1				1				1	
Ireland	1	1	1	1	1	1	1		1	
Latvia			1	1	1					
Lithuania	1		1	1	1		1		1	
Scotland	1		1	1	1		1		1	See (b) below
Slovenia	1	1	1	1	1	1	1		1	
Spain	1	1	1	1	1					
Türkiye	1				1		1			
The Netherlands			1	1	1					
United Kingdom	1	1	1		1				1	
	11	7	13	10	15	4	4	2	10	

Notes:

- a. There has been adjustment in the following type of codes: Access conditions, Drainage, Building law and overall assessment, Interior design of buildings, Moisture and wet rooms, Constructions.
- b. Overheating risk in some building environments.

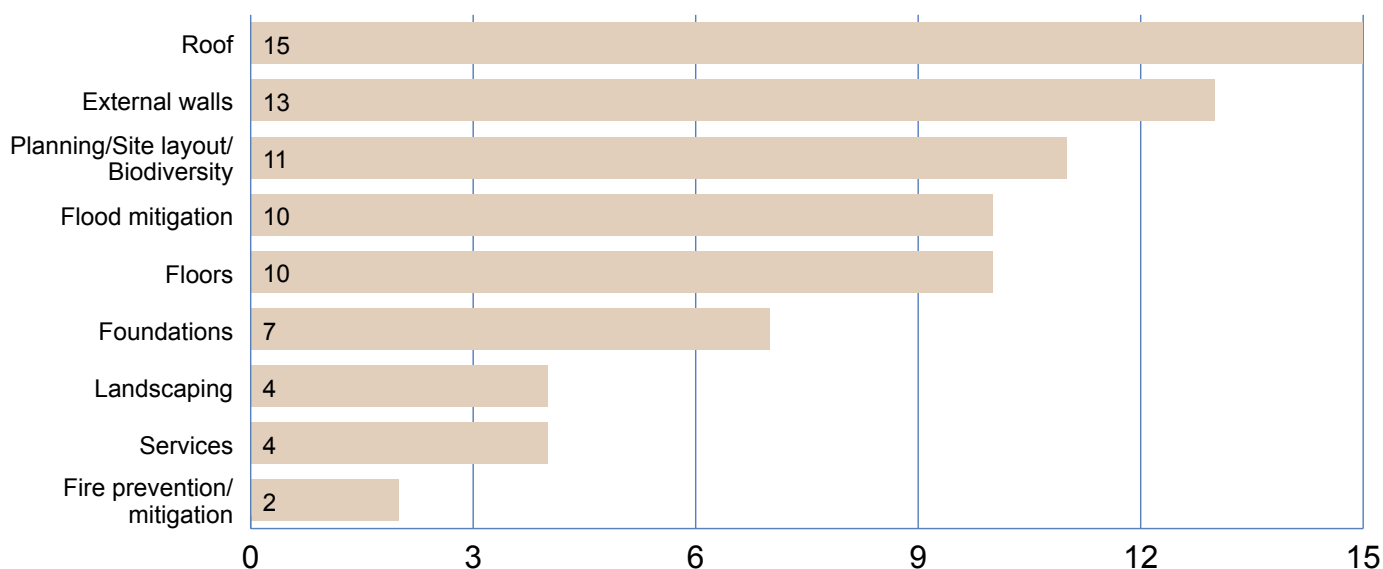
Summary of Impacts

Responses indicate that, over the past 15 years, adaptation has been:

- strongest in roofs (89%), external walls (79%), and planning/biodiversity (68%),
- moderate in floors and flood mitigation (63%) and foundations (42%), and
- weakest in landscaping (32%), services (26%) and fire prevention/mitigation (11%).

Other changes (e.g. drainage, access, overheating) were noted only once in single countries.

Areas of change in the design and delivery of the built environment



- **Roofs & External walls:** The most adapted elements, likely reflecting regulatory emphasis on insulation, energy performance, and resilience to extreme weather.
- **Planning & Biodiversity:** Strong uptake, indicating greater integration of sustainability and land-use considerations into building regulations.
- **Floors & Foundations:** Moderate changes, tied to damp-proofing, insulation, and ground movement/flood resilience.
- **Flood mitigation:** A clear priority in many countries, aligning with growing climate change risks.
- **Services & Landscaping:** Limited adaptation, suggesting slower regulatory development in building systems and external environments.
- **Fire prevention/mitigation:** Very limited reporting, despite rising wildfire concerns - may indicate regulatory gaps or treatment under separate codes.

Two respondents identified single country-specific regulatory changes under “Other” included Access conditions, Drainage, Building law, Interior design, Moisture and wet rooms and Construction methods. Additionally, overheating risk was flagged as an emerging issue in some building types.

8.2 Commentary on Recent Changes to Regulations

Question 3e. Can you explain shortly the changes in the topics in the previous question?

Three of the 23 responses offered no further commentary or referred to a response to a previous question. The remaining 20 offered observations ranging from very brief to relatively detailed. Whilst the pace and scope of reforms vary, some themes do emerge.

Strengthening Energy Performance and Carbon Reduction

Most countries report **stricter energy performance requirements** for new buildings, particularly around thermal insulation, airtightness, ventilation efficiency, and heating systems:

- **Northern and Western Europe (Finland, France, Latvia, Lithuania, Netherlands, Slovenia, Spain, UK nations):** continuous tightening of U-values, façade performance, and overall building fabric standards, largely driven by EU directives (e.g. Energy Performance of Buildings Directive). Increased use of energy from renewable sources.
- **England, Wales, Scotland, Ireland:** incremental updates to reduce emissions from building fabric and services, phase-out of fossil-fuel heating (gas boilers), and in some cases (e.g., Scotland) the introduction of self-generation and renewables.
- **Türkiye:** promoting solar, wind, and rainwater systems in building design.
- **France and Slovenia:** coupling energy efficiency with land-use restrictions (e.g., limiting urbanisation of farmland, requiring PV panels on large roofs).

These measures mainly target **mitigation**, reflecting the EU-wide trajectory towards net-zero buildings.

Adaptation to Climate Hazards: Floods, Fires, Overheating, and Storms

Countries increasingly see the need for resilience to climate impacts:

- **Flood risk management:** Belgium, Cyprus, Germany, Ireland, Scotland, Slovenia: enhanced zoning, drainage, flood-resilient construction, and integration of flood risk into planning. The Netherlands and Germany continue large-scale investments in dikes and dams. Scotland introduced explicit building regulations on flood resilience, with ongoing reviews of standards and alignment with national adaptation frameworks.
- **Overheating and temperature management:** Belgium considers heatwaves in building design. Scotland recently introduced overheating regulations (2023) for new dwellings and non-domestic buildings.
- **Storms and wind:** Scotland and Germany reference structural standards (Eurocodes) for storm resilience.

Divergence in National Approaches

While most countries are steadily tightening standards, **levels of progress vary**:

- **Proactive aims:** Belgium, Cyprus, and France, Scotland and Slovenia demonstrate integrated strategies covering both **adaptation and mitigation**.
- **Mitigation-focused:** Finland, Latvia, Lithuania, Spain, and England have primarily emphasised energy performance improvements.
- **Lagging adaptation:** Norway reports limited information due to performance-based regulations, and Poland notes **no meaningful regulatory updates** in the past 15 years.

Emerging Planning and Policy Integration

Several countries highlight planning systems as a driver of adaptation:

- **Scotland's National Planning Framework 4** requires development away from vulnerable areas and explicit adaptation planning.
- **Slovenia** prioritises flood areas over buildable land in zoning decisions.
- **France** restricts expansion onto agricultural land.

These indicate a shift from **purely technical building standards** towards **spatial and land-use governance** as a tool for climate resilience.

8.3 Key Observations

- **Action on Mitigation still dominates:** The bulk of changes concern energy efficiency, emissions reduction, and renewable integration.
- **Action on adaptation is growing but uneven:** Flood protection and, more recently, overheating are receiving more regulatory attention, but fire and storm risks are less systematically embedded outside specific high-risk countries.
- **EU Directives as a driver:** The Energy Performance of Buildings Directive (EPBD) and related EU legislation provide a baseline, but national implementation varies. Some reporting countries are not directly subject to the EU provisions.
- **Policy innovation:** Scotland's holistic approach and Slovenia's mandatory PV rules illustrate how regulation can extend beyond minimum EU requirements.
- **Gaps remain:** Countries like Poland and Norway show how fragmented or passive regulatory systems may risk lagging behind climate impacts.

8.4 Conclusion

In summary, building regulations across Europe and beyond have significantly advanced in addressing climate change, particularly in reducing energy demand and carbon emissions.

However, adaptation measures - especially for extreme weather events - remain less consistently integrated and often depend on national risk profiles.

The emerging trend is a more holistic integration of planning, zoning, and building regulation to support resilience.

9. Analysis – Impact on the delivery of buildings

9.1 Consequences of recent changes to the delivery of buildings

Question 3f. Are there any unintended consequences to the changes/adaptions that have occurred that you are aware of?

13 of the 23 responses answered ‘No’ but 11 responses, including two which had answered ‘No’ offered comments, as follows.

9.2 Summary of Country Responses

England & Wales noted challenges in understanding and implementing new requirements and a need for clear guidance and stakeholder collaboration. Difficulties in connecting renewable technologies to the grid due to aging infrastructure. Concerns over insufficient skills and supply chain capacity to support installation of heat pumps. Electric vehicle (EV) chargers raising fire safety concerns, especially in basement carparks.

Ireland noted rising construction costs and material availability issues.

Norway expressed concern over lack of documentation on actual construction practices makes unintended impacts difficult to assess.

Scotland noted that the recent “new build heat standard” inadvertently overlooked rural/cultural needs (wood, peat, biomass heating) and required revision. Risk of overheating risk in new buildings also increases due to higher insulation and airtightness unless ventilation managed correctly.

Slovenia considers buildings are becoming more complex, expensive, and harder to maintain.

Spain has concern over poor repetitive designs, higher costs, and reliance on materials with limited availability or high prices.

Türkiye considers it is too early to observe consequences, but infrastructure adaptation (e.g., integrating rooftop electricity into systems) is still underdeveloped.

A general observation from the **United Kingdom** on the potential risk of more severe fires in highly insulated buildings.

9.3 Key Themes Identified

- **Cost and Supply Chain Pressures** – Ireland, Slovenia, Spain, and England & Wales highlight rising costs, material shortages, and supply chain strain.
- **Technical and Safety Risks** – Issues with EV charger fire safety, severe fires in insulated buildings, overheating risks, and insufficient infrastructure for renewables.
- **Policy and Implementation Gaps** – Scotland’s rural oversight and England & Wales struggle with new regulatory clarity.
- **Skills and Capacity Limitations** – Particularly around renewable tech and heat pumps.
- **Documentation and Monitoring Challenges** – Norway lacks sufficient data on real-world impacts.

In summary, unintended consequences mainly relate to increased costs, safety risks, supply chain challenges, gaps in regulation/implementation, and cultural or regional oversights.

10. Analysis – Impact of Incentives

10.1 Commentary on Government or Other Incentives to Drive Change

Question 3g. Are there any incentives or government led schemes to enable the implementation of government policies in the built environment?

19 of the 23 responses answered ‘Yes’ and offered comments, as follows.

10.2 Summary of Country Responses

Belgium has regional schemes offering support and incentives for energy efficiency measures in buildings.

England & Wales offer a range of funding programs and schemes, such as grants for heat pumps and energy efficiency improvements. The Future Homes Hub also helps coordinate implementation.

Ireland has significant financial incentives and schemes available, especially for retrofitting and energy upgrades in housing.

Norway provides incentives through Enova, supporting energy efficiency, renewable energy solutions, and climate-friendly technologies in construction.

In **Scotland**, multiple schemes exist, including grants and government-backed programs for zero-emission heating, energy efficiency, and retrofits, with a focus on housing.

In **Slovenia**, Eco Fund provides subsidies and loans for energy efficiency measures, renewable energy use, and sustainable construction.

Spain and Poland has national or regional programs, supported by EU funds, provide grants and incentives for energy efficiency and renewable installations in buildings.

In **Türkiye**, some schemes are emerging but still limited; mainly pilot projects and early-stage programs.

United Kingdom (in general) has various schemes across England, Scotland, Wales and Northern Ireland for decarbonisation, energy efficiency, and renewable integration in buildings.

10.3 Key Themes Identified

- **Strong Support in Most Countries** – Almost all countries report some form of government-led scheme or incentive.
- **Focus Areas** – The majority of incentives target:
 - **Energy efficiency improvements** (insulation, retrofits, building upgrades).
 - **Low-carbon heating solutions** (heat pumps, zero-emission heating).
 - Renewable energy adoption (solar, biomass, etc.).
- **EU Influence** – In EU countries, **European Union funding streams** (such as [Recovery and Resilience Facility](#), [Cohesion Funds](#)) strongly support national schemes.
- **Capacity Differences** – Some countries (e.g., Türkiye) are at an early stage with limited schemes, while others (e.g., Norway, Ireland, Scotland) have extensive, well-developed programs.
- **Coordination and Delivery** – Countries like England & Wales highlight the importance of **stakeholder coordination hubs** to implement policies effectively.

In short, **most countries have established financial incentives and government-backed programs** to enable climate-responsive construction, though the maturity and scope vary. EU membership often enhances support through additional funding, while non-EU countries show more uneven progress.

10.4 Examples of Current Initiatives Reported:

- **Belgium** - Subsidies & research programs ([Innoviris](#), [Vlaanderen Circulair](#), [VLAIO](#)); [GRO-tool](#) & life cycle assessment (LCA) standardisation
- **Cyprus** - Energy efficiency grants (“[Saving – Upgrading Houses](#)”); tax incentives (capital deductions); [housing subsidies for remote/mountain areas](#)
- **England** - Financial assistance for energy conservation in dwellings; subsidies for EVs
- **England, Wales and Scotland** - 0% sales tax on energy efficiency products (until 2027); [ECO4 Scheme](#) (retrofits, insulation, renewable heating); [Great British Insulation Scheme](#) (loft & cavity wall insulation).
- **France** - [MaPrimeRénov](#) program – financial support for energy-saving renovations
- **Finland** – grants are available for building owners switching from fuel oil.
- **Ireland** - Government grant schemes for building upgrades and reuse of building stock
- **Latvia** - State support for insulation and solar panel installation
- **Norway** - The [Norwegian Water Resources and Energy Directorate](#) (NVE) offers financial support for various measures (flood/landslide safety measures, hazard mapping, environmental restoration). Municipalities can apply for funding
- **Scotland** - Funding provided for energy efficiency retrofit over and above UK schemes (e.g. [Warmer Homes Scotland](#), [Home Energy Efficiency Programme](#)). The [Adaptation Scotland](#) programme supports adaptation (e.g., coastal change)
- **Slovenia** - [Eco Agency](#) provides subsidies and favourable loans for energy efficiency & renewables
- **Spain** - Tax reduction incentives for retrofits (linked to EU goals); limited incentives for young homebuyer.
- **Netherlands** - WKB ([Wet KwaliteitsBorging](#)) – mandatory design inspection before construction; currently small houses & distribution centers, expanding later. Design inspection must be done by a private company.
- **Lithuania** - [Renovation Program](#) (state & EU funds); renewable energy grants (30–50% cost coverage); public building renovation funding; institutional support (training, energy performance certificate (EPC) registry).
- **Germany** reported little or no financial support currently available.

11. Analysis – Role of Insurance and Warranties

11.1 Response of Insurers and Warranty Providers to Innovation

Question 3h. How are insurance companies/warranties reacting on innovations/ adaptations to minimise climate impact of construction of new buildings or renovation/changes to existing buildings? Is there a stimulation system?

12 of the 23 responses offered comment in response to this question. Other than citation of government/insurance industry partnership in two countries, comments indicated a lack of useful and specific action by insurance companies in response to climate change impacts.

There was a general view that this remained an area of opportunity for future development.

11.2 Summary of Country Responses

Belgium – Insurance sector is reactive, waiting for issues before acting. Some interest in resilience planning; proving climate risk mitigation could help influence agreements.

Cyprus – No real progress yet.

Finland – Insurance and finance sectors have unused potential to influence climate-focused investments.

France – Cat’Nat system covers natural disasters but is financially strained, leading to higher contributions. State-backed MaPrimeRénov mainly targets energy efficiency. Emerging focus on summer comfort (overheating risk).

Germany – Political debate on compulsory climate/weather event insurance. Insurers already consider building location risks (e.g., flood zones). Owner precautions can lead to lower premiums.

Latvia – Insurers support innovation only if it does not increase risk.

Scotland – UK insurance-linked initiative Flood Re (makes flood insurance affordable). “Build Back Better” encourages resilience upgrades during flood repairs.

Slovenia – Insurers seen as inactive, waiting for government initiatives.

Spain – Little evidence of insurance innovation; government often covers major flood/climate damage. Some ‘greenwashing’, but no real stimulation systems.

Netherlands – Insurers are sceptical of new materials/circular construction due to uncertain risks; support innovation only when risk-neutral.

Türkiye – Climate-related insurance underdeveloped; insurance focus remains on earthquake coverage.

11.3 Key Themes Identified

- **Reactive, not proactive** – Many countries (Belgium, Slovenia, Spain, Netherlands) report insurers **waiting rather than leading** in support of climate-related adaptation.
- **Risk aversion** – Support only if no added risk (Latvia, Netherlands).
- **Government-led schemes dominate** – France’s Cat’Nat, UK’s Flood Re, and public disaster coverage in Spain show that governments, not insurers, bear most responsibility.
- **Emerging discussions** – Germany (compulsory climate insurance), France (summer comfort), Belgium (resilience-linked agreements) show nascent progress.
- It may be that regional priorities also differ –
 - Western Europe: discussions on flood resilience, overheating, insurance premiums.
 - Southern Europe: focus on state disaster coverage.

- Eastern Europe: limited innovation, insurers cautious.
- Türkiye: priority is earthquake insurance, not climate risks.

In summary, insurance companies are generally cautious, reactive, and risk-averse in supporting climate-related innovations in buildings. Most climate resilience incentives come from government schemes rather than insurers. Only isolated cases (e.g., UK Flood Re, German premium differentiation, Belgian resilience incentives) suggest a shift toward insurers playing a more active role.

12. Analysis - Other Information Sought

12.1 Useful Climate Impact/Response Case Studies

Question 4a. Are there any examples that could be used for case studies?

Question 4b. If the previous answer was yes, can you please name the case studies.

Whilst there are examples of current initiatives and project offered in responses to earlier questions, six of the 23 responses offered further commentary on potential case studies, for further reading. These reference and supporting links are set out below.

Country	Response
Belgium	ZIN (https://zin.brussels/nl/) Recyparc Brussel (http://beexemplary.brussels/recypark-2/?lang=nl)
Germany	https://link.springer.com/article/10.1007/s00103-023-03809-x 20210824_attributionsstudie_starkregen.pdf Birkmann et al_2023_Zusammenfassung_fur_KAHR.pdf
Scotland	https://www.gov.scot/groups/energy-standards-review-scottish-passivhaus-equivalent-working-group/ https://www.gov.scot/publications/national-planning-framework-4/pages/3/ https://www.gov.scot/publications/new-build-heat-standard-factsheet/
Slovenia	DARS new office building is just being finished. Construction project to the DGNB standard.
Spain	Graphene nanofibers: A modern approach towards tailored gypsum composites Previous research has determined the possibility of introducing precasts that can be destined to rehabilitate neighbourhoods that are currently exposed to energy poverty. Also reducing CO2 emissions in the process. These products can be subsequently recycled, avoiding the creation of waste.
Lithuania	https://constructive-voices.com/urban-design-in-the-face-of-climate-change-challenges-and-innovations/

12.2 Other Subjects Beyond Survey Questions

Question 4c. Are there any subjects that are not covered in this questionnaire which you would like to discuss?

6 of the 23 responses offered further comment, suggesting the following possible subjects of interest:

- The **cost of meeting regulation**, which can over-burden owners/developers undertaking construction and renovation.
- Interested in how other countries and their standards bodies are using a more **predictive climate data** model when setting relevant national standards and design codes.

- The topics of Cultural and Heritage Preservation, Lifecycle Assessment and Circular Economy, Cross-Industry Collaboration, Waste and Water Management.
- The role of **municipality and urban and regional planning** in climate change. And the risk this can be lacking in situations where a large amount of development may be being undertaken.
- Understanding the **variation of wind speed** in different areas of a country and **microclimate effects**.

It was also suggested that the questionnaire itself could have been more precise in setting out the information sought.

13. The Function of Building Control in the Response to Climate Impacts

13.1 Introduction

In summer 2025, following the initial analysis of responses to the original questionnaire, a further request for information was issued to member organisations.

The intent of this follow-up request was to focus on the building control function and its role in supporting an effective response to climate change impacts. To gain information on the specific actions that could be undertaken by those involved in building control systems to influence the delivery of climate-resilient buildings.

In this context, it is important to understand the function of building regulations and the role of the organisations who set standards and who enforce their application to construction work.

Legislation made through building regulations define what minimum standards must be applied to the construction of a building and are generally supported by guidance on how compliance with regulations is to be achieved. Accordingly, the actions expected by those undertaking building work are limited in law by the extent of provisions set through regulations.

For such regulations to be effective at addressing climate impacts, the identification and mitigation of those impacts must form part of the published regulatory provisions, implemented as part of construction. Commonly, the outcome sought must also be verified by the body charged with enforcement of the regulations.

13.2 Further Questions Posed

Three questions were asked on the themes of challenge, on preparation and on current action:

- Question 3a: Considering the climate change impacts and the factors you mentioned in the first questionnaire, what are the main challenges your country's building control industry is currently facing?
- Question 3b: Given the challenges you've identified, how can the building control profession in your country best prepare to address the impacts of climate change?
- Question 3c: Can you share any examples of how the building control industry in your country has already taken steps to prepare for the impacts of climate change?

Ten responses were received. All but one had provided a response to the previous set of questions. A summary of the responses to the above three questions is provided below.

13.3 Identifying Challenges to the Building Control Sector

Question 3a: Considering the climate change impacts and the factors you mentioned in the first questionnaire, what are the main challenges your country's building control industry is currently facing?

All 10 responses offered a view on this topic. Building control authorities face a range of administrative, technical, and policy challenges in integrating climate change concerns into a construction oversight process. The responses reveal two distinct but related aspects:

- **Climate change mitigation** - reducing greenhouse gas emissions through energy efficiency, low-carbon materials, and sustainable design in new construction; and
- **Climate change adaptation** - enabling buildings to remain safe, durable, and comfortable amid rising temperatures, heavier rainfall, storms, and other climate-induced stresses.

While national contexts differ, common patterns emerge: fragmentation of governance, limited technical capacity, slow legislative adaptation, and tension between speed of approvals and quality assurance.

Challenges in Climate Change Mitigation in New Construction

Complex and Evolving Regulatory Frameworks. Countries such as Slovenia, Cyprus, and Finland highlight the administrative burden of rapidly changing energy efficiency and sustainability standards. Frequent regulatory updates, often influenced by EU directives, overwhelm local authorities and practitioners, hampering both effective delivery and enforcement.

Fragmentation and Coordination Gaps. Fragmented governance - noted in Belgium, Scotland, and Slovenia - creates inconsistent implementation of climate policies. Building control bodies operate within overlapping jurisdictions, limiting cohesive national action.

Technical Competence and Enforcement Challenges. Responses from UK administrations underscore that highly technical building regulations demand expertise often lacking among inspectors and practitioners (designers and builders). Inadequate understanding of advanced systems reduces compliance confidence.

Balancing Innovation with Safety and Quality. Technological advances in low-carbon materials and systems can yield unintended consequences. Issues such as cladding and condensation risk noted in England and Wales show how mitigation efforts can compromise safety if not properly integrated and understood.

Limited Tools for Carbon and Circular Economy Assessment. Finland identifies the early stage of carbon footprint calculation and material reuse frameworks as barriers. Without familiar and reliable standardised methodologies, designers and authorities cannot measure or enforce emission-reduction targets.

Resource Constraints and Competing Policy Priorities. Resource shortages and broader government priorities – noted by Finland and Cyprus - limit building control capacity to pursue carbon-focused agendas.

Challenges in Climate Change Adaptation in New Construction

Outdated Technical Standards and Risk Data. Many countries report that climate data underpinning building codes is obsolete. France notes that standards reflect past extreme events, while England and Wales highlight outdated rainfall and wind-driven rain assessments.

Increasing Frequency of Extreme Weather Events. Poland cites floods and strong winds as immediate hazards requiring rapid response, but understaffed control authorities struggle to ensure safety after events.

Limited Integration of Adaptation into Building Control Mandates. In Scotland, adaptation responsibilities are split between planning and building standards systems, restricting proactive action. Belgium also has a fragmented approach due to the division of responsibilities across its regions.

Urban Planning and Systemic Pressures. Cyprus illustrated how adaptation is influenced by urban planning reforms and incentives for climate-resilient design, creating tension between permitting speed and quality control.

Building Performance and Indoor Climate. Estonia points to adaptation through thermal comfort measures in response to hotter summers, highlighting regional concerns about overheating. A theme already noted in this report.

Need for Up-to-Date Knowledge and Research Integration. Finland emphasises that traditional structural solutions may no longer perform under new climatic conditions, requiring updated design assumptions and contemporary research integration.

Cross-Cutting Themes

- **Governance and Institutional Fragmentation:** Dispersed responsibilities across ministries weaken both mitigation and adaptation efforts.

- **Capacity and Professional Development:** There is a universal need for enhanced technical skills in energy modelling, carbon accounting, and climate risk assessment.
- **Balancing Speed and Quality:** Rapid legal reform outpaces institutional readiness, affecting compliance quality.
- **Digitalisation and Innovation:** Tools such as BIM and carbon calculators are essential but unevenly implemented.
- **Financial Barriers:** Retrofitting and adoption of low-carbon materials remain costly without financial incentives.

In Conclusion – Current Challenges

Building control authorities operate at the ‘front line’ of climate change policy implementation. The core challenge is institutional readiness - ensuring that regulatory systems, professional competencies, and technical standards evolve quickly enough to meet climate demands.

For mitigation, countries must strengthen competence in energy performance and low-carbon construction, while for adaptation, priorities include updating climatic data, improving coordination, and embedding resilience criteria into regulation.

Effective climate action will depend on integration - bridging gaps between legislation, enforcement, and practice to produce buildings that are both low-carbon and climate-resilient.

13.4 Preparing to Meet those Challenges

Question 3b: Given the challenges you’ve identified, how can the building control profession in your country best prepare to address the impacts of climate change?

All 10 responses offered a view on this topic. Building on the previously identified challenges in the last section, those responding propose strategies centred on capacity building, institutional coordination, regulatory reform, and knowledge integration.

A clear distinction emerges between strategies aimed at mitigation) and adaptation. Across all responses, the emphasis is on the professionalism and preparedness of a competent building control sector, to become a proactive driver of climate action rather than a reactive regulator.

Preparing for Climate Change Mitigation in New Construction

Strengthening Competence and Continuous Professional Development. Countries including England and Wales, Cyprus, and Finland emphasise ongoing education and competency frameworks to embed sustainability within the profession. In England and Wales, the registration of Building Control Inspectors (now termed Registered Building Inspectors) includes sustainability-related competencies and mandatory continued professional development (CPD), while Cyprus and Slovenia propose structured training through professional chambers. Finland’s RTY-led conferences and webinars show a scalable model for continuous learning.

Regulatory Simplification and Guidance Development. England and Wales and Poland highlight the need to simplify complex regulations and improve technical guidance. Clearer regulatory language and up-to-date guidance can close the ‘performance gap’ between design and actual building performance.

Promoting Low-Carbon Materials and Construction Practices. France advocate for mainstreaming low-carbon design for newbuild and retrofit through certification systems and harmonised standards. This reflects an evolution from fragmented or outdated standards, leveraging smart technologies in the process.

Digitalisation and Transparency in Carbon Accounting. Finland underscores the importance of transparent carbon footprint tools and integrating them into digital permitting systems. This addresses previous issues of poor understanding and verification of carbon data, aligning mitigation with improved governance.

Preparing for Climate Change Adaptation in New Construction

Institutional Coordination and Governance Reform. Belgium, Scotland, and Cyprus emphasise collaboration between planning, environmental, and building control authorities. Aligning roles and responsibilities to overcome fragmentation and support integrated adaptation strategies.

Embedding Climate Resilience into Standards and Practice. France and Poland stress updating legal and technical frameworks to include climate projections. Scotland highlighted the importance of translating voluntary good practice into enforceable regulation.

Professional Awareness and Scenario Planning. Scotland raised the need to address uncertainty in scenario-based planning to avoid under- or over-engineering.

Public Guidance and Community Engagement. Finland's Building Act assigns building control authorities an advisory role too, encouraging them to guide citizens and developers on resilient construction. The Finnish 'Topten Practices' platform supports participatory adaptation through shared knowledge.

Nature-Based and Passive Adaptation Solutions. Cyprus introduces practical measures-tree planting, permeable surfaces, and shading to mitigate urban heat and flood risks, linking urban planning with building design.

Cross-Cutting Themes: Integrating Mitigation and Adaptation

- **Professionalisation and Competency Frameworks:** All countries recognise that climate action depends on human capacity. Structured CPD, certification, and technical training are essential for enforcing both energy efficiency and resilience standards.
- **Harmonisation of Standards and Knowledge Sharing:** Regional disparities call for unified technical references and climate risk assessment tools to both reduce inconsistency and enhance knowledge transfer.
- **Digital Transformation and Data Transparency:** Digitalisation through BIM integration and open carbon tools enhances traceability and evidence-based regulation.
- **Institutional Coordination and Policy Coherence:** Coordination between planning, environment, and building control remains vital to balance the level of action in mitigation and adaptation policies.
- **Cultural and Behavioural Change:** Several countries emphasise the need for awareness and a shift from compliance-driven to proactive climate leadership.

In Conclusion – Responding to Challenges

The responses indicate a shift from identifying barriers to building capacity for action.

- For mitigation, countries are embedding sustainability into training, regulation, and digital systems.
- For adaptation, they are modernising codes, integrating scenario planning, and improving inter-agency coordination.

The profession's preparedness depends on combining technical competence, policy integration, and adaptive governance. Addressing climate change in the built environment requires an agile, informed, and collaborative professional culture capable of delivering both low-carbon and resilient construction outcomes.

13.5 Action Already in Place in the Building Control Sector

Question 3c: Can you share any examples of how the building control industry in your country has already taken steps to prepare for the impacts of climate change?

7 out of 10 responses offered a view on this topic. Several country responses provide evidence that the building control sector is transitioning from planning to implementation in addressing climate change. There are examples of an emerging maturity in the building control profession - one moving from policy aspiration to operational change, although implementation remains uneven across countries.

Actions Focused on Climate Change Mitigation

Strengthening Energy Efficiency Frameworks and Standards. Several countries mentioned implementing legislation aligned with the EU's Energy Performance of Buildings Directive (EPBD) and other decarbonisation goals.

- Finland's comprehensive approach includes mandating nearly zero-emission new buildings (ZEBs) by 2030, tightening energy performance requirements, and revising national law to reduce average primary energy use in housing by up to 22% by 2035.
- Estonia requires all new and majorly renovated buildings to meet minimum energy performance standards, integrating envelope design, utility systems, and renewable energy sources. These standards are reviewed every five years to reflect technical progress-ensuring ongoing alignment with evolving EU directives.
- Cyprus continually updates its Building Regulations to comply with EU energy performance standards and promotes national campaigns for retrofitting older buildings.

These initiatives demonstrate direct mitigation responses to earlier challenges identified - specifically the need for consistent, enforceable standards and better integration of energy performance data into regulation.

Adoption of Low-Carbon Construction Practices and Materials. Belgium highlighted research focused on low-carbon construction methods and materials. Participation in initiatives such as the [Belgian Green Building Council](#) and the [Belgian Alliance for Sustainable Construction](#) support the exchange of technical expertise and guidance on sustainable construction practices.

Regulatory Innovation and Incentive Mechanisms. Cyprus introduces practical, incentive-based regulatory measures - such as streamlined permitting for solar panels and energy storage systems, or outright exemptions from planning permits for small-scale renewable installations. This encourages uptake adoption, reducing bureaucratic barriers, directly addressing concerns on administrative overload of building control processes.

Integration of Digital and Analytical Tools. Finland is at the forefront of digital transformation within building control. The adoption of Digital Twin and as-built BIM models supports early-stage virtual testing of design resilience and energy performance, reducing errors in real projects.

Furthermore, Finland's discussion on AI (artificial intelligence) applications signals an emerging frontier - using artificial intelligence to analyse materials, simulate climatic impacts, and optimise design solutions. These developments mirror the previous emphasis on digitalisation as a driver of effective climate governance.

Actions Focused on Climate Change Adaptation

Enhancing Building Design to Address Thermal and Weather Risks. Several countries are embedding adaptation into building design:

- France mandates consideration of summer thermal comfort in new buildings, ensuring resilience against overheating as temperatures rise.

- Estonia's regulations include overheating prevention within minimum energy performance requirements, linking adaptation and mitigation in a single regulatory mechanism.
- Scotland's recent regulatory updates (2023) address summer overheating risk in new homes and integrate flood resilience into planning frameworks, representing a structured response to the long-term climate impacts identified earlier.

These initiatives address some of the gap noted in prior analyses - namely, that technical standards were historically based on outdated climatic data.

Coordinated Reform of Building and Planning Systems. The emphasis on ensuring complementarity between systems represents a response to previously highlighted governance fragmentation. The proactive inclusion of climate data into cited European standards also reflects growing awareness of the need to regulate based on future rather than historical conditions.

Institutional Knowledge Building and Professional Empowerment. Slovenia's Chamber of Engineers is preparing technical guidance on addressing climate change, focusing on capacity building for designers and inspectors. This reflects the shift toward institutional learning identified in previous analyses and underlines the profession's recognition that adaptation requires specialised technical knowledge.

Integrating Financial and Risk Considerations into Climate Preparedness. Finland will add a dimension to adaptation by studying insurance and financing eligibility under climate risk scenarios. If certain areas become uninsured due to flooding or extreme weather conditions, this questions the collateral value of buildings and loans. An almost untapped opportunity for building control authorities to start cooperating with financial and insurance sectors - a new form of adaptive governance that would extend the scope of building control beyond compliance to systemic risk management.

Cross-Cutting Themes

Integration of Mitigation and Adaptation: These examples demonstrate convergence between energy efficiency (mitigation) and resilience (adaptation) within building codes and control practices. Countries like Estonia and France are explicitly embedding both within single regulatory frameworks, promoting synergy rather than separation.

Digitalisation and Innovation: Technological transformation is now a defining trend. The adoption of BIM, digital twins, and AI in Finland illustrate a shift toward predictive, data-driven control systems - bridging identified gaps between policy and enforcement capacity.

Institutional Coordination and Professional Development. Initiatives in Slovenia, UK administrations and Cyprus underline the importance of training, collaboration, and professional upskilling. The building control profession is repositioning itself as a knowledge hub for sustainable and resilient construction.

Evolving Governance Models. The link between national policy, EU directives, and local implementation has strengthened. Countries are translating high-level climate objectives into actionable frameworks for inspection, certification, and design review - addressing the fragmentation previously identified.

In Conclusion – Current Activity

The examples provided indicate the tangible evolution in the building control industry's engagement with climate change - from planning and regulatory development toward applied implementation.

- **For mitigation,** progress is evident in the adoption of near zero energy standards, low-carbon materials, and digital compliance systems.
- **For adaptation,** updates to codes, integration of resilience into building design, and cross-sectoral collaboration (with planning, finance, and insurance) reflect growing institutional maturity.

Overall, these developments show that the profession is not merely reacting to climate challenges but beginning to deliver resilience and sustainability through operational and practical regulation, digital innovation, and professional capacity building. Whilst at an early stage overall, the emerging trajectory points toward a more adaptive, data-informed, and integrated building control sector - one capable of delivering both climate-ready and carbon-neutral construction outcomes.

14. Consideration of Survey Responses in Relation to Specific EU-wide Published Strategies/Reports

14.1 Connecting National Climate Impacts to the EU Adaptation Strategy

The diverse yet converging climate change impacts observed across Europe - more frequent heatwaves in the north, intensifying drought in the south, and universal flood risk - resonate with the four pillars of the [EU Strategy on Adaptation to Climate Change](#). These pillars aim to move the EU from understanding to anticipating and managing climate risks in a coherent and just way.

Smarter Adaptation: Improving Knowledge and Managing Uncertainty

The increasing reports of new or intensifying impacts (e.g., overheating in Finland, wildfires in Germany and Latvia, subsidence in Belgium and Türkiye) reflect the growing need for high-resolution, forward-looking climate data - one of the EU strategy's top priorities. The observed shift of Mediterranean climate impacts into temperate and boreal zones reinforces the EU's call for anticipatory adaptation that accounts for future scenarios, not just historical data.

The EU's support for initiatives like [Climate-ADAPT](#), [Copernicus Climate Change Service](#), and improved regional modelling aligns with the needs voiced implicitly in national reports - for example, Finland noting the lack of "security factors" in thermal risk calculations, or Scotland exploring predictive standards with the Met Office.

More Systemic Adaptation: Integrating Climate Risks Across Sectors and Levels

The wide spread of impacts - across water systems, buildings, ecosystems, and coastal infrastructure - confirms that climate risks are not siloed. They require cross-sectoral coordination, one of the strategy's key themes. For instance:

- Belgium and the UK integrate flood risk and building standards.
- Spain and Türkiye deal with water scarcity and land-use planning.
- Ireland and the Netherlands link adaptation to national hazard mapping and spatial planning.

This underscores the EU strategy's call for mainstreaming adaptation into all relevant policy areas, particularly in urban planning, civil protection, and biodiversity policy.

Faster Adaptation: Accelerating Implementation and Closing Gaps

While several countries (UK, France, Germany) have begun embedding adaptation into regulation, others rely on reactive or fragmented measures.

The EU strategy advocates for scaling up tested local solutions, such as nature-based flood defences and heat-resilient urban design.

The diversity of national experiences highlights the need for funding and knowledge-sharing mechanisms, especially for under-resourced areas still developing baseline adaptation frameworks.

Furthermore, subsidence and overheating risks, while increasingly reported, are not yet fully addressed in many national systems, validating the strategy's concern that adaptation lags behind climate impacts.

More International Action: Supporting Global Resilience and Climate Diplomacy

Several of the observed impacts, especially in coastal and Mediterranean countries, parallel those seen globally in climate-vulnerable regions. Through its strategy, the EU commits to supporting global adaptation efforts, including through its Green Deal diplomacy and external funding mechanisms.

Lessons from within Europe, particularly regarding early warning systems, urban water resilience, and coastal protection, have relevance for shared learning beyond the EU.

In Summary

The country-level responses that inform this report do reinforce the urgency and complexity of building climate resilience as a topic for response across Europe.

The commentary provided by member organisations can be considered to validate the EU Adaptation Strategy's core premise: that adaptation must be data-driven, inclusive, proactive, and system-wide.

As climate zones shift and risks evolve, the success of national efforts will increasingly depend on regional solidarity, shared frameworks, and coordinated implementation - precisely the role envisioned for the EU under its adaptation strategy.

14.2 Linking National Climate Impacts to the OECD's Territorial Approach to Climate Action and Resilience (2023)

The varied climate change impacts reported by countries - from heatwaves in Finland to wildfires in Germany, and coastal erosion in Ireland and Cyprus - highlight how deeply 'territory' matters in shaping both the experience of climate risk and the capacity for adaptation. This is precisely the starting point of the [2023 OECD report](#), which calls for place-based climate action as a necessary complement to national strategies.

Climate Impacts are Spatially Uneven and Locally Specific

The Organisation for Economic Co-operation and Development (OECD) underscores that while climate change is global, its consequences are very local - dependent on geography, ecosystems, economies, and demographics. The input from countries contributing to this report reinforce this:

- Coastal areas (Netherlands, UK, Ireland, Cyprus) emphasise erosion and sea-level rise.
- Mountainous or forested regions (Slovenia, Norway, Scotland) highlight stormwater risks and emerging wildfire concerns.
- Southern Europe faces a combined burden of heat, drought, wildfires and flash flooding, exacerbated by urban heat island effects and agricultural stress.

The OECD's territorial framing supports the conclusion that 'one size fits all' adaptation is ineffective, and national policies must be tailored to subnational vulnerabilities.

Multi-Level Governance is Critical but Often Fragmented

The OECD report stresses the importance of coordination across levels of government - from national to regional to local authorities. The national responses hint at varied success in this regard:

- The UK and France exhibit relatively integrated governance, with national frameworks like the Climate Change Act or RE2020 filtering down to local planning systems.
- In contrast, some countries (e.g. Slovenia, Poland, Türkiye) offer more generalised accounts, suggesting less institutional alignment or uneven capacity at the subnational level.

This matches the OECD's finding that subnational governments are often under-resourced yet expected to deliver complex, place-sensitive responses. Strengthening their institutional capacity and fiscal tools is a key OECD recommendation.

Data, Tools, and Financing Must Be Localised and Accessible

The report emphasises that subnational actors often lack granular climate data, actionable tools, and long-term financing to implement adaptation. This mirrors the observation from Scotland and Finland about the need for forward-looking climate models and security margins in building standards.

Moreover, the growing mention of subsidence, overheating, and wind-driven rain across diverse climates reveals emerging, under-monitored risks that require better territorial diagnostics, an OECD priority.

Horizontal Coordination and Policy Coherence Across Sectors

The OECD calls for not just vertical, but horizontal integration - ensuring climate resilience is built into housing, transport, health, and biodiversity policies at local levels. The responses from countries like England (with biodiversity net gain requirements) and Belgium (via GRO/BREEAM/DGNB frameworks) are examples of early efforts in cross-sectoral adaptation.

However, gaps remain. The variety of responses on overheating, subsidence, or drought management suggest that these impacts are not yet consistently addressed across building, infrastructure, or land use sectors. The OECD urges better alignment of territorial planning, investment, and environmental policy to close these gaps.

Conclusion: The Territorial Imperative for Adaptation

The climate risks outlined by European countries, whilst often shared in nature, are territorially differentiated in intensity, drivers, and capacity to respond.

The OECD's 2023 framework is highly relevant here. It validates the need to move beyond national averages and sectoral silos towards truly territorial climate governance.

The EU Adaptation Strategy provides a continental framework, but as the OECD emphasises, resilience will ultimately be achieved at the local level, where impacts are felt and responses must be delivered.

Empowering local and regional authorities with tools, autonomy, and coordination mechanisms will help to addressing the climate impacts currently shaping the built and natural environment across Europe.

15. Conclusions and Follow-up Actions

15.1 Comparison of Response to Climate Change Adaptation in Building Regulations Across Contributing Countries

Looking beyond the responses received to our questionnaire, it is considered reasonable to note the following as a brief summary of the current response to climate change through national systems governing the built environment.

General Trends

Across Europe, building regulations remain predominantly focused on mitigation - reducing emissions and improving energy efficiency. Adaptation to the impacts of climate change is still in an evolving phase. Although most countries acknowledge the necessity of climate resilience, adaptation measures are typically embedded within planning systems rather than directly in building codes.

Where adaptation is most visible, it tends to emerge in countries already experiencing severe climate risks, such as flooding in the Netherlands or heatwaves in France. Even so, these measures largely target new construction and major renovation, leaving the extensive existing building stock insufficiently addressed.

Key Themes

Recognition of overheating and heatwaves as critical design concerns is one theme emerging across the surveyed organisations. Parts of The United Kingdom have introduced overheating assessments within their building regulations, and France's RE2020 standard imposes indoor temperature limits. Finland, Spain, and Cyprus have also developed policies encouraging passive cooling techniques such as shading, natural ventilation, and solar control before resorting to mechanical systems.

Despite this progress, many of these regulatory responses remain reactive and limited in scope, offering only partial protection against future extreme temperature scenarios.

Flood risk management is another major area of adaptation, with particularly strong measures evident in the Netherlands, Germany, Belgium, Spain, Ireland, Scotland, and Türkiye. These countries have adopted a mix of land-use controls in flood-prone areas, flood-resilient construction guidance, and sustainable urban drainage systems (SUDS) to improve surface water management. Türkiye's recent building reforms restrict basements in areas at risk of flooding.

However, enforcement remains inconsistent in several southern and eastern European countries, and in many cases flood-related requirements are still articulated through planning policy rather than being binding elements of building regulations.

Nature-based solutions are increasingly recognised as complementary measures to enhance urban resilience. Countries such as Poland, Lithuania, Latvia, the Netherlands, Belgium, Spain, and Türkiye are incorporating green roofs, permeable surfaces, and stormwater retention systems into their national and municipal frameworks.

In Poland and Germany, local adaptation plans are beginning to integrate ecosystem-based approaches that combine environmental and social co-benefits. Yet despite this growing policy attention, such measures are often encouraged rather than mandated, leading to uneven uptake across Europe.

Structural and weather resilience also features within national frameworks. Slovenia's planning system explicitly considers flood and landslide risk. However, few countries currently incorporate future climate projections into their design codes, and most still rely on historic weather data, which is increasingly inadequate for long-term planning.

Retrofit Challenges

An effective response on the adaptation of existing buildings is a persistent gap. In most countries, climate resilience measures only apply during renovation projects, and there is little or no obligation to upgrade existing structures for flood, heat, or storm resistance.

Some governments are beginning to bridge this gap. France, Spain and Cyprus offer renovation subsidies that encourage heat and flood resilience improvements, while Poland proposes municipal-level plans to enhance adaptation through local retrofit initiatives.

Scotland and Ireland are also developing guidance to help owners of traditional and historic buildings improve resilience. Nonetheless, there does not yet appear to be a comprehensive national programme in any country focused specifically on retrofitting for climate adaptation.

Regional Variations

In Northern Europe, Finland's new Building Act introduces overheating thresholds and flood management provisions; Denmark has strengthened requirements around passive cooling and water management; and Norway continues to rely largely on municipal discretion without strong national standards.

In Western Europe, the Netherlands continues to lead on flood protection through its integrated approach to water management and land-use planning.

Germany has made a major regulatory advance with its Federal Climate Adaptation Act of 2024, which mandates adaptation planning at every level of governance.

Belgium's progress varies between regions, and both the UK and Ireland are developing policies to address overheating and flooding, though overall implementation remains fragmented. France stands out in addressing heatwave resilience through its national building standards.

In Southern Europe, Spain has developed robust floodplain management policies but lags behind on overheating measures, while Cyprus faces challenges from an older and poorly insulated building stock. Türkiye's post-earthquake reforms have improved both flood and disaster resilience, but enforcement remains uncertain.

In Central and Eastern Europe, adaptation is acknowledged but still secondary to energy performance. Lithuania, Latvia, and Estonia are at an early stage in integrating adaptation measures. Poland has made notable progress through its emphasis on green infrastructure and municipal adaptation planning. Slovenia, meanwhile, continues to approach adaptation mainly through spatial planning rather than direct building regulation.

Examples of Good Practice

Across these regions, several examples can be identified as effective practice. The Netherlands' comprehensive flood protection framework demonstrates how national and local strategies can be harmonised to manage climate risks. France's regulatory integration of thermal comfort in the RE2020 standard offers a strong model for managing rising temperatures.

Germany and Poland's inclusion of green infrastructure requirements within municipal adaptation strategies represents an important evolution in linking environmental management with building policy.

Similarly, Finland's inclusion of adaptation in its Building Act and Germany's dedicated Climate Adaptation Act provide legislative frameworks that explicitly embed climate resilience into national law.

Despite such progress, substantial gaps remain. The prevailing emphasis on energy efficiency continues to overshadow adaptation objectives, and there is an ongoing absence of coherent strategies for addressing the vulnerabilities of existing buildings.

In several countries, flood and resilience measures are only loosely enforced, particularly in southern Europe, and adaptation generally depends on planning processes rather than being integrated into

building regulation itself. Moreover, a continued reliance on historical climate data rather than future projections prevents current codes from effectively addressing evolving risks.

In Conclusion

Climate adaptation within building regulations is steadily gaining attention across Europe, but progress is limited. The countries facing the most immediate threat are leading the way in embedding resilience into their regulatory systems. The most effective approaches combine legally binding frameworks, clear standards for managing heat and flood risk, and incentives for adopting green infrastructure.

However, the adaptation of existing buildings remains the most critical gap. To achieve genuine climate resilience across the built environment, Europe will need to move toward a coordinated, mandatory, and retrofit-focused approach that fully integrates adaptation into the fabric of building regulation and construction practice.

15.2 Recommendations and Next Steps in this Project

As noted in Section 1, this project has focused on the analysis of responses to a survey of member organisations. The next stage of work should look wider, to the actions that can support the ongoing work of said organisations.

To offer a general observation on the topic of climate change adaptation in the context of the regulation of construction work. Adaptation is, fundamentally, seeking assurance that new construction addresses risks which arising from the impacts of future climate and environmental conditions.

Whilst some future climate risks associated with the location and form of new construction can be identified and avoided by other means, construction itself has to remain both durable and fit for purpose. This is not therefore a separate policy to be applied to buildings but is integral in the regulation of construction work.

Such regulation is commonly supported through reference to national or international product standards and codes which define the performance and resilience of building products and materials and their correct application in practice.

For a system of building control to be effective at addressing climate change adaptation, it is essential that such standards and codes directly reference and respond to our future climate rather than rely on historical data.

Accordingly, all parties with an interest in the delivery of robust and resilient buildings should engage with national and international standards bodies to support the implementation of standards which embed this approach.

As actors involved in the delivery of building control systems, members of CEBC and other partners in nations with similar functions, are well placed to drive this agenda forward.

A further stage to this project could engage more broadly with national and EU-wide standards bodies to understand current activity in this area and to understand where such support may best be provided.

16. Appendix A - Survey Questions

The following information was requested from member organisations through an online survey.

Original Questionnaire (2024).

1. Members Details

1a. Name

1b. Contact details

1c. Country

2. General Information

In this section some general questions will be asked about climate change in your country and the current experiences. This information gives a background about the climate impact in Europe and in different regulations which are applied.

2a. Which climate change impacts does your country experience?

- ☐ Heat wave
- ☐ Wildfires
- ☐ Storms including high winds
- ☐ Heavy precipitation
- ☐ Flooding
- ☐ Subsidence
- ☐ Drought
- ☐ Coastal erosion
- ☐ Other

2b. Do you already take those climate change impacts into account during designing buildings?

- ☐ Yes
- ☐ No
- ☐ Partly

2c. If the previous answer was yes or partly, can you please give an explanation on how the impact of climate changes are considered.

2d. If the previous answer was no, can you please give an explanation on why the impact of climate changes are not considered (yet)

3. Regulations and Law

In this section some questions about laws and additional requirements are asked. The goal of these questions is to find a percentage of countries who are giving more requirements next to the European rules.

3a. Please provide an overview of how your government policies apply to the built environment.

3b. Do the current regulations allow/support innovation?

- ☐ Yes
- ☐ No
- ☐ Partly

3c. If the previous answer was partly or no, can you please give an explanation on the restrictions.

3d. How has the built environment adapted to these changes in the past 15 years in response to the changing regulations/standards/codes

- ☐ Planning/Site layout/Bio diversity
- ☐ Foundations
- ☐ External walls
- ☐ Floors
- ☐ Roof
- ☐ Services
- ☐ Landscaping
- ☐ Fire prevention/mitigation inc Wildland Urban Interface (WUI)
- ☐ Flood mitigation
- ☐ Other - Overheating risk in some building environments

3e. Can you explain shortly the changes in the topics in the previous question?

3f. Are there any unintended consequences to the changes/adaptions that have occurred that you are aware of?

3g. Are there any incentives or government led schemes to enable the implementation of government policies in the built environment?

3h. How are insurance companies/warranties reacting on innovations/ adaptions to minimise climate impact of construction of new buildings or renovation/changes to existing buildings?
Is there a stimulation system?

4. Other Information

4a. Are there any examples that could be used for case studies?

- ☐ Yes
- ☐ No

4b. If the previous answer was yes, can you please name the case studies.

4c. Are there any subjects that are not covered in this questionnaire which you would like to discuss?

4d. Are you open for follow-up questions based on the results of this questionnaire?

Follow-up Questionnaire (2025).

1. Members Details

1a. Name

1b. Country

1c. Contact details

2. General information

2a. Did you complete the first questionnaire?

☐ Yes

☐ No

3. Follow-up questions

3a. Considering the climate change impacts and the factors you mentioned in the first questionnaire, what are the main challenges your country's building control industry is currently facing?

3b. Given the challenges you've identified, how can the building control profession in your country best prepare to address the impacts of climate change?

3c. Can you share any examples of how the building control industry in your country has already taken steps to prepare for the impacts of climate change?

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