
UK CLIMATE RESILIENCE ROADMAP PROPOSALS: INDUSTRY CONSULTATION

SUPPORTING DOCUMENT – JULY 2024

UKGBC is co-developing the UK's first Climate Resilience Roadmap for the built environment industry. The Roadmap is intended to be an informative, actionable, and evidence-based pathway that will map how the built environment can adapt to, protect people from, and thrive within our changing climate while considering our natural environment. It is being developed in close collaboration with numerous organisations across all subsectors of the built environment.

This consultation document provides an update on the progress and seeks broad industry feedback to build consensus on the current development proposals.

This document is comprised of the following parts:

- Part 1.** Industry consultation outline and process
- Part 2.** The UK Climate Resilience Roadmap Project
- Part 3.** The UK Climate Resilience Roadmap - Sections for consultation
- Appendix.** The questions that make up this industry consultation

Please do not hesitate to contact us at resilience.nature@ukgbc.org if you have any questions about the consultation process.

Resilience and Nature Programme Partners:



UK Climate Resilience Roadmap Project Partners:



Part 1. Industry Consultation Outline and Process

What form does the consultation take?

The consultation is being run via an online form, which takes approximately 20-25 minutes to complete, and considers the following key sections:

- 1) About the participant
- 2) Audience of the Climate Resilience Roadmap
- 3) Definitions: Core concepts
- 4) Vision for a climate-resilient built environment
- 5) Climate risks, metrics and indicators to support industry action
- 6) Policy recommendations
- 7) Wrap up

You can access the consultation response form [here](#).

Over what period does the consultation take place?

The consultation is officially **open to the industry from Thursday 11th of July until the end of Wednesday 7th August.**

Who should respond?

This is an opportunity for **all built environment stakeholders** to feedback on the Roadmap. We encourage anyone with an interest in climate resilience and adaptation to respond, from experienced professionals to those with a general interest.

What will happen after the consultation closes?

The results from this consultation will be used to inform the development of the Roadmap. A consultation response document will be produced and shared publicly.

Part 2. The UK Climate Resilience Roadmap Project

Project Overview

Why now?

Climate hazards are an ever-increasing challenge to the safety, integrity, and sustainability of the built environment. Buildings and infrastructure require urgent and resilient adaptation measures to be made in parallel with emissions reduction. There is a notable lack of clear guidance on adaptation strategies, highlighting the need for immediate and collaborative efforts to accelerate the industry's knowledge and thereby improve the resilience of the built environment.

Why a Roadmap?

To achieve climate resilience in the UK's built environment, it is essential to understand the unique challenges and capacities of its diverse subsectors. We can then set a unified industry vision, and outline specific actions and policies that can promote effective action towards climate resilience.

What is the objective of the UK Climate Resilience Roadmap?

The objectives of the Roadmap are to enhance awareness, level up knowledge and trigger action within the industry and Government, while offering key actions, recommendations, and policies to significantly increase appropriate knowledge and strengthen climate resilience in the UK. The Roadmap will address key climate-related hazards for the built environment, including overheating, wildfires, flooding, drought, and storms. With its development currently ongoing, we continue to review and address new insights to determine the most appropriate outputs and impact outcomes to support built environment stakeholders. Changes to the approach may occur in light of the consultation to ensure the Roadmap responds to the industry's needs.

Structure of the Roadmap

The UK Climate Resilience Roadmap is aimed at the whole industry and will provide detailed guidance for key industry subsectors, including the design team, owners and occupiers, and policymakers. The content is intended to be straightforward, minimising jargon, and will be supported by helpful visuals and practical tools.

Here is a summary of the likely key project outputs, that will form the UK Climate Resilience Roadmap:

- 1. The UK Climate Resilience Roadmap document:** This will outline the Roadmap vision and context, providing insights into the current and future state of the UK's built environment. It will offer key actions and recommendations for achieving climate resilience in the UK built environment, raising awareness and providing valuable insights for the entire industry and relevant stakeholders.
- 2. The risk and vulnerability GIS mapping tool:** This will take the form of an interactive web-based map using advanced modelling methods to show the current and future risks and vulnerabilities of various areas of the built environment. It is intended to provide quantitative evidence for the UK Climate Resilience Roadmap document and support the multiple stakeholders of the built environment industry in their actions towards resilience.
- 3. The summary recommendations for policymakers document:** This will present key findings and policy recommendations for the UK and devolved governments, aligned with the Roadmap. These

aim to help the UK progress towards a climate-resilient built environment and fulfil our international obligations under the Climate Change Act 2008.

4. The technical report document: This will explain the research methods, data collection process, modelling, GIS mapping, and adaptive pathway methods used in the project. It is designed for those who seek a comprehensive understanding of the methodologies underpinning the UK Climate Resilience Roadmap or who may be interested in conducting similar work in the future.

Part 3. UK Climate Resilience Roadmap - Sections for Consultation

The following content outlines the aspects of the Roadmap that we are currently seeking feedback on:

Section 1 - About the participant | *Questions 1 to 7*

These are questions regarding the personal and organisational or role details of the consultation participants.

No further context or information is required for you to complete this section.

Section 2 - Audience for the UK Climate Resilience Roadmap | *Questions 8 to 9*

The UK Climate Resilience Roadmap is aimed at the entire industry, but we have identified key actors who, with more detailed guidance and actions, can significantly accelerate climate resilience across the sector. The three primary target audiences are:

- **Policymakers & Government:**
Includes: policymakers e.g. national Government, devolved administrations and local authorities. Influencing these audiences, delivering impactful recommendations, and creating change is essential to laying the groundwork for others to take action.
- **The Design Team:**
Includes: consultants, designers, architects, urban planners, and engineers. This audience develops plans and designs for new-builds, retrofits, and master plans. Guidance on incorporating climate adaptation into their work is crucial.
- **Building owners/occupiers**
Includes: asset portfolio managers concerned with the acquisition and management of existing assets.

In addition, the UK Climate Resilience Roadmap also aims to raise awareness amongst:

- Academic institutions
- NGOs / trade associations / professional institutions
- Investors (banks, funders, etc.)
- Developers
- Facilities managers/maintenance
- Contractors
- Material and product manufacturers
- Infrastructure clients
- Infrastructure owners
- Infrastructure designers

Section 3 - Definitions: Core concepts | *Questions 10 to 18*

Definitions have an important role in establishing shared understanding and ensuring clarity in communication. They provide a foundation for effective collaboration, measurement, and assessment, promoting coherence, consistency, and accountability. The Roadmap development group is suggesting

adopting the following key definitions: i) general definitions (UN's), and ii) definitions from the built environment perspective.

General definitions:

Climate resilience (general): *The ability of a system, community, or society exposed to hazards to resist, absorb, accommodate to, and recover from the effects of a hazard. A climate-resilient system responds in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. [UN Office for Disaster Risk Reduction \(UNDRR\), 2022](#)*

Climate readiness (general): *The ability to quickly and appropriately respond when required. It's closely related to "preparedness", which encompasses planning and education strategies to enable both agencies and residents to effectively anticipate, address, and recover from relevant extreme weather events. [\(extract from UNDRR's definition\)](#).*

Climate adaptation (general): *Climate adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic impacts and their effects. It refers to changes in processes, practices and structures to moderate potential damages or to benefit from opportunities associated with climate change. [\(UNFCCC\)](#).*

Built environment specific definitions (developed by the Roadmap Task Group):

Climate resilience (Built Environment): *Climate resilience in the built environment is the ability of buildings, infrastructure, natural ecosystems and to first anticipate and adapt to, then withstand, and finally recover from extreme weather events, as well as long-term climate changes. A climate-resilient built environment can preserve and restore its essential basic functions and structures, maintaining a comfortable and healthy environment, while it continues to prepare.*

Climate readiness (Built Environment): *Climate readiness in the built environment is the state of being prepared for climate change impacts. This involves actions such as proactive policies, adapted physical assets, robust strategies and proactive collaboration by all stakeholders to reduce vulnerability to hazards and improve the capacity to adapt. Climate readiness ensures all sectors, physical assets, ecosystems and communities of the built environment are capable of thriving and rapidly responding to climate hazards.*

Climate adaptation (Built Environment): *Climate adaptation in the built environment is the actions taken to cope with current and anticipated climate change effects. It involves modifying and upgrading existing buildings and infrastructure, as well as supporting people and ecosystems to withstand changes in climate, reducing damage and harm from climate impacts, promoting longevity in the current building stock, and innovating the supply chain.*

Section 4 - Vision for a climate-resilient built environment | *Questions 19 to 24*

CONTEXT FOR THE VISION

The vision for a climate-resilient built environment is being designed to be an informative and standalone visual, easily understood without additional references. It will include a central descriptive image, with accompanying text (below). The text has three sections providing context as to what a climate-resilient built environment is and what stakeholders need to do to get there.

Why do we need a climate-resilient built environment?

Global warming is making climate-related hazards like heatwaves and floods more frequent and severe. Current policy measures across the globe are predicted to limit warming global warming to between 2.1-2.8 degrees Celsius, meaning that we can expect significant changes in weather patterns and the frequency of extreme weather events.

These changes are predicted to cause harm, excess deaths, and socio-economic breakdown, which is why we need a built environment that prepares for, and responds to, these hazards.

This vision, created by the stakeholders involved in our UK Climate Resilience Roadmap project, sets out our definition of what a climate-resilient built environment could be, and how the built environment industry plans to achieve it.

THE VISION

What is a climate-resilient built environment?

A climate-resilient built environment is prepared to adapt to and recovers from climate-related impacts. It is capable of maintaining its core functions during extreme events, and has the ability to recover both in itself and as part of the wider network of physical and socio-economic systems.

How do climate-resilient stakeholders act?

Climate-resilient stakeholders of the built environment are aware of the challenges arising from climate change.

Decision making groups are flexible, diverse, inclusive, and equipped with the appropriate knowledge and skills to anticipate and respond to current and potential climate threats.

Climate-resilient stakeholders of the built environment communicate and collaborate effectively, ensuring solutions for climate mitigation and adaptation are integrated holistically throughout the built environment.

What actions do these stakeholders take?

Below are the key actions that industry stakeholders can take to progress toward, achieve, and maintain climate resilience.

Awareness and education

- Remaining aware of and up to date with climate-related hazards, and the impacts they could bring.

Ecocentric approach

- Championing nature-centric approaches such as implementing nature-based solutions and safeguarding ecosystems, so that nature is protected as an integral part of the physical, ecological, and societal components of the built environment.

Urban planning and transport

- Creating safe urban areas, enabling towns and cities that protect the health and wellbeing of inhabitants in the face of a changing climate and promoting active, efficient, and low or zero carbon transport by co-aligning climate resilience with climate mitigation efforts.
- Forging dynamic collaborations and sharing knowledge across industry and beyond to drive innovation in climate resilience strategies.

Energy and materials

- Sourcing materials from sustainable and regenerative cycles, operating according to circular economy principles, and avoiding reliance on carbon-intensive processes or unsustainable material extraction, so reducing exposure to resource availability made uncertain and unreliable by climate change, while supporting climate mitigation.
- Ensuring the built environment is powered by renewable energy sources, and managing energy and water for efficiency and sustainability, enhancing adaptive capacity to climate uncertainty.

Assessment and planning at organisational, project level and building levels

- Incorporating climate-related risk assessment and adaptation planning into their role, projects, asset management plans or organisational strategy, and aligning these with climate mitigation efforts.
- Establishing monitoring and measurement practices to ensure the continued climate resilience and readiness of the built environment.

Design of new buildings and adaptation of existing buildings

- Retrofitting and refurbishing existing buildings, supporting climate resilience by improving energy efficiency, enhancing building and occupant adaptability to climate changes, and conserving valuable resources, while also reducing the need for demolition and new-build
- Following regenerative design principles, emphasising a systemic perspective, focusing on the physical, societal, and ecological aspects of the built environment.
- Prioritising a just transition, ensuring fairness and equity in transitioning towards sustainable practices within design, and considering social and economic impacts alongside environmental goals.
- Where new-build is necessary, designing and constructing long-lasting and versatile buildings in low or no-risk locations and that are designed to anticipated climate change, also decreasing the need for future demolition and redundancy.

Policy and Advocacy

- Supporting the positive action of all stakeholders through appropriate policy mechanisms and advocating for further funding from the Westminster Government devolved governments and local authorities.

Section 5 - Climate risks, metrics, and indicators to support industry action |

Questions 25 to 36

CLIMATE RISKS

A thorough review of the known risks for the built environment, suggested by the Climate Change Committee (CCC), as well as the active collaborators on this project, enabled the identification of key risks and their categories listed in the table below.

Table's risk code:

TG: Risk identified by the Roadmap Task Group

Other code: Refers to risk identified by the CCC's [CCRA3](#).

Category of risk identified	Risk code	Risk identified for each category
Risks to business and industry		
Economic - business disruption Insurance costs	B1	Risks to businesses from flooding
	B2	Risks to businesses and infrastructure from coastal change from erosion, flooding, and extreme weather events
	B3	Risks to business from water scarcity
	B4	Risks to finance, investment, and insurance, including access to capital for businesses
	B5	Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments
	B6	Risks to business from disruption to supply chains and distribution networks
	TG	Risk of stranded assets
	TG	Disruption to business/schooling as a result of time taken to recover after a flood.
	TG	Difficulty in securing national funding
Risks to the physical built environment		
Buildings Physical damage (structural and contents)	Buildings	
	H5	Risks to building fabric
Infrastructure Physical damage Transport disruption Damage to utilities, drainage and communications systems.	Infrastructure	
	I2	Risks to infrastructure services from river, surface water, and groundwater flooding
	I3	Risks to infrastructure services from coastal flooding and erosion
	I4	Risks to bridges and pipelines from flooding and erosion
	I5	Risks to transport networks from slope and embankment failure
	I6	Risks to hydroelectric generation from low or high river flows
	I7	Risks to subterranean and surface infrastructure from subsidence
	I8	Risks to public water supplies from reduced water availability
	I9	Risks to energy generation from reduced water availability
	I10	Risks to energy from high and low temperatures, high winds, lightning
	I12	Risks to transport from high and low temperatures, high winds, lightning
	I13	Risks to digital from high and low temperatures, high winds, lightning
	TG	Infrastructure damage
	TG	Energy usage
TG	Risks to transport systems	
Risks to society (health, communities and the built environment)		
Safety Physical and mental health Economic problems Displacement	H1	Risks to health and well-being from high temperatures
	H3	Risks to people, communities, and buildings from flooding
	H4	Risks to the viability of coastal communities from sea level rise
	H6	Risks and opportunities from summer and winter household energy demand
	H7	Risks to health and well-being from changes in air quality
	H10	Risks to water quality and household water supplies
	H12	Risks to health and social care delivery
	TG	Risks for vulnerable communities/people of lower incomes

	TG	Migration, displacement
	TG	Political fragmentation
	TG	School and business closure
	TG	Risks to water provision to residents
Risks to ecosystems and the natural environment		
Erosion of land Air quality Water quality and quantity Risks to animals and plants.	N4	Risk to soils from changing climatic conditions, including seasonal aridity and wetness.
	NA*	Risk to nature

* Risks to nature will be considered within the risks mentioned above.

METRICS AND INDICATORS

Metrics and indicators are essential for assessing vulnerability, informing decision-making, and monitoring the performance of resilience measures in the built environment. They enable effective risk management, ensure regulatory compliance, and support a proactive approach to thriving in the face of climate challenges. The industry is gradually adopting metrics and indicators, but there is still significant progress needed to standardise and widely implement these tools for effective climate resilience.

Below you will find the current draft tables for each one of the hazards considered in this project, against the identified metrics and indicators defined by the project groups so far. Each metric/indicator has been assessed to determine whether they would be appropriate for the different life-building cycles* and the stakeholders within each one of these building stages.

(* Life-building cycles refer to the view of a building throughout its entire life. In this work we are referring to the stages of the cycle: planning and design, construction, operation and retrofit).

You can see an enlarged version of the tables by clicking [here](#).

METRICS AND INDICATORS FOR CLIMATE-RELATED RISK ASSOCIATED TO OVERHEATING												
	OVERHEATING METRICS & INDICATORS											
Proposed metric or indicator	Apparent temperature or heat index	Outdoor thermal comfort index	Universal thermal climate index (UTCI)	Cooling degree days	CIBSE's TMS2 & TMS9 thermal comfort limits (i.e., % of hours over temp. limit)	Cooling capability	No. of assets complying with Building Regulations Part O	No. of assets complying with the performance overheating assessment approach	Albedo and/or reflectance of roof (coefficient 0 to 1)	Proportion of green vs. grey roof	Tree canopy cover	Urban Greening Factor (UGF)
Unit of measurement	Air temperature & relative humidity	UTCI categories	UTCI categories	Number of days	Number of assets complying with limits	N/A	Number of assets	Number of assets	Number of assets with high albedo	% of roof	% of tree cover	Ratio between 0 to 1
Is this a metric or an indicator?	Metric	Metric	Metric	Metric	Metric	Indicator	Metric & Indicator	Metric	Metric	Metric	Metric	Metric
Is this monitoring the hazard, or measuring exposure, resilience or vulnerability to it?	Monitoring hazard	Monitoring hazard	Monitoring hazard	Monitoring hazard	Vulnerability to risk	Vulnerability to risk	Resilience to risk	Resilience to risk	Resilience to risk	Resilience to risk	Resilience to risk	Resilience to risk
Planning and Design (P&D)												
Building Life Cycle stage applicability*	Construction (Con)											
	Operation (Op)											
	Retrofit (Retr)											

METRICS AND INDICATORS FOR CLIMATE-RELATED RISK ASSOCIATED TO FLOODING

		FLOODING METRICS AND INDICATORS															
Proposed metric or indicator	Increase in average sea level	Water accumulated over time (rainfall)	No. and location of assets with a historical flood event	Number of assets with Property Flood Resilience measures in place	Proximity to water sources	Elevation of asset	Flood Zone asset is located within	Flood depth	Number of flood Performance Certificates	Long term monitoring of flood risk	Housing damage	Value of insurance claims due to flood events	No. of sustainable urban drainage systems (SuDS) in urban areas	No. of flood defences	The average insurance claim for floods	Number and location of properties at flood risk	% of sponginess (for an area or city)
Unit of measurement	cm	mm	Number of assets	Number of assets	m or km	m	Flood Zone	m	emerging- no. of certificates	N/A	No. of houses, or value of damage in £	£ value	No. SUD installations	No. of defences	£ value	Number of assets	%
Is this a metric or an indicator?	Metric & Indicator	Metric	Metric & Indicator	Metric & Indicator	Metric	Metric	Indicator	Metric	Metric	Metric & Indicator	Metric & Indicator	Metric & Indicator	Metric & Indicator	Metric & Indicator	Metric & Indicator	Metric & Indicator	Metric
Is this monitoring the hazard, or measuring exposure, resilience or vulnerability to it?	Monitoring	Monitoring	Exposure	Resilience	Exposure	Exposure	Exposure	Monitoring	Resilience	Monitoring	Vulnerability	Vulnerability	Resilience	Resilience	Vulnerability	Exposure	Resilience
Building Life Cycle stage applicability*	Planning and Design (P&D)																
	Construction (Con)																
	Operation (Op)																
	Retrofit (Retr)																

METRICS AND INDICATORS FOR CLIMATE-RELATED RISK ASSOCIATED TO DROUGHT

		DROUGHT METRICS AND INDICATORS											
Proposed metric or indicator	Uptake of water efficiency measures in new and existing buildings	Water storage capacity (soil moisture content)	Water leakage rates from public water supply system	Water usage limits for new build and retrofit properties	Household and non-household water demand	Change in reservoir capacity	% of sponginess (for an area or city)	No. of sites reporting subsidence (for an area or city)	Change in soil moisture content	Frequency of asset repairs (% indicate ground movement)	No. of insurance claims due to subsidence	Value of insurance claims due to subsidence	
Unit of measurement	Number of assets	Soil moisture %	M/day	Litres per person per day (Lpppd)	Litres per person per day (Lpppd)	MI	%	No. of sites with detailed studies	Soil moisture %	N/A	Number of claims	£	
Is this a metric or an indicator?	Metric	Metric	Metric	Metric	Metric	Metric	Indicator	Metric	Metric	Metric & Indicator	Metric	Metric	
Is this monitoring the hazard, or measuring exposure, resilience or vulnerability to it?	Resilience	Monitoring	Resilience	Resilience	Resilience	Monitoring	Resilience	Exposure	Exposure	Exposure	Vulnerability	Vulnerability	
Building Life Cycle stage applicability*	Planning and Design (P&D)												
	Construction (Con)												
	Operation (Op)												
	Retrofit (Retr)												

METRICS AND INDICATORS FOR CLIMATE-RELATED RISK ASSOCIATED TO WILDFIRE

		WILDFIRE METRICS & INDICATORS										
Proposed metric or indicator	Quantification of damage (m2 covered by fire, m2 of burned property)	Amount of surrounding vegetation	Wildfire / Fire weather stress index (zones)	No. of external cladding exposure risk assessments for assets	Long term tracking of fire event locations, duration and impact	Frequency and location of necessary natural wildfires	Water availability	UK Fire Danger Rating System	Fuel moisture survey	Number of assets with access to security	Number of assets with access to emergency routes	Quantity of housing damage
Unit of measurement	m2	m3	Number of assets in the zone	Number of assessments	N/A	N/A	N/A	N/A	Number of surveys	Number of assets	Number of assets	Number of houses, or value of damage in £
Is this a metric or an indicator?	Metric	Metric	Indicator	Metric	Indicator	Indicator	Indicator	Indicator	Metric	Metric & Indicator	Metric	Metric
Is this monitoring the hazard, or measuring exposure, resilience or vulnerability to it?	Vulnerability	Exposure	Exposure	Exposure	Monitoring	Monitoring	Monitoring	Monitoring	Exposure	Vulnerability	Vulnerability	Vulnerability
Building Life Cycle stage applicability*	Planning and Design (P&D)											
	Construction (Con)											
	Operation (Op)											
	Retrofit (Retr)											

METRICS AND INDICATORS FOR CLIMATE-RELATED RISK ASSOCIATED TO STORMS

STORM METRICS & INDICATORS														
Proposed metric or indicator	Pedestrian Wind Comfort limits	Met Office limits	Maximum wind gust speed	Wind load capacity assessment of an asset	No. of assets undertaken roof and façade survey for loose elements	Location of asset in historic wind maps (Eurocodes EN1991-1-4)	Location(s) of nearby hazards (such as trees)	A financial quantification of wind-related impacts	No. of days of disruption, closure or 'unsafe access' (for a building, space, piece of infrastructure)	No. of workdays lost (for an organisation)	% increase / decrease of insurance claim rates related to wind damage	Severity of wind-related damage	Reduction in electricity generation due to high winds or storm events	Reduction in public services (transport, healthcare, schools open etc.)
Unit of measurement	Gust equivalent mean (GEM) in m/s	Knots	Knots	N/A	Number of assets	N/A	N/A	£ value of damage	Number of days	Number of days	Number of claims	N/A	% (of MWh)	N/A
Is this a metric or an indicator?	Metric & Indicator	Metric & Indicator	Metric & Indicator	Metric & Indicator	Metric	Indicator	Indicator	Metric	Metric	Metric	Metric	Indicator	Indicator	Indicator
Is this monitoring the hazard, or measuring exposure, resilience or vulnerability to it?	Resilience & Vulnerability	Monitoring	Monitoring	Resilience & Vulnerability	Vulnerability	Exposure	Exposure	Vulnerability	Vulnerability	Vulnerability	Vulnerability	Vulnerability	Vulnerability	Vulnerability
Life Building Cycle Stages applicability*	Planning and Design (P&D)				For planning. From surrounding buildings				For planning. From surrounding buildings		For planning. From surrounding buildings	For planning. From surrounding buildings		Would inform planning
	Construction (Con)													
	Operation (Op)													
	Retrofit (Retr)													

Section 6 - Policy Recommendations | Questions 37-42

As part of our ongoing policy work, the UKGBC policy team conducted an in-depth interview process to gather insights from the industry on the essential next steps for policy to support adaptation in the built environment. The policy recommendations in section 6 of the form reflect these insights. As we continue this research, particularly after this consultation, these recommendations may evolve to include other critical aspects of creating a climate-resilient built environment. For instance, we will consider whether tree planting is an appropriate initial focus for the industry or if a broader range of nature-based solutions should be pursued as the project develops.

Appendix. The Consultation Questions

The questions asked in this consultation directly relate to each one of the aspects in Part 3 of this Supporting Document. Please keep this supporting document open while answering the questions. The online form to answer these questions can be accessed [here](#).

Section 1 - About the participant

Personal details are strictly for the use of UKGBC and will not be shared with outside individuals or organisations.

1. Full name*
2. Organisation*

3. Job Title (if you are currently unemployed, please refer to any professional training or knowledge you identify yourself with). *

4. Which sector of the built environment would you classify your role or organisation as? *

Choose one from the list below:

- Sustainability Consultants
- Architects/Designers
- Multi-Disciplinary Consultants
- Constructors/Contractors
- Developers
- Property Consultants
- Government
- Engineer Consultancy
- Facilities Management
- Software/IT
- Construction Consultants/QS
- Charity/Member Org./Trade Body
- Local Authority
- Product Manufacturers
- University
- Finance and Investment
- Other

5. Email address*

6. Are you filling this out as an individual or on behalf of your organisation?*

7. Please add any additional information you would like to share with us in the free text box below.

Section 2 - Audience of the UK Climate Resilience Roadmap

The UK Climate Resilience Roadmap is aimed at the entire industry, but we have identified key actors who, with more detailed guidance and actions, can significantly accelerate climate resilience across the sector.

In Part 3, section, page 5 of this document, we mention the key audience for the UK Climate Resilience Roadmap.

8. To what extent do you agree with the list of primary audiences identified for the UK Climate Resilience Roadmap?

Choose one:

- Agree
- Somewhat agree
- Neutral
- Somewhat disagree
- Disagree

9. If you disagree or somewhat disagree with the listed audience, please share your reasons.

[FREE TEXT]

Section 3 - Definitions: Core concepts

In Part 3, Section 3, Page 5 of this document, we outline the core concepts that the UK Climate Resilience Roadmap's development group will use to support a common understanding and action.

10. By adhering to the UNDRR 2022 definitions of *climate resilience*, *adaptation*, and *readiness*, we ensure our industry communication remains consistent, comprehensible, and relevant in a global context. Do you agree that the industry would benefit from adopting these UNDRR definitions for global relevance?

Choose one:

Agree

Neutral

Disagree

11. Do you agree that *climate resilience*, *adaptation*, and *readiness* are the essential core concepts that all stakeholders in the built environment must understand to work towards achieving climate resilience?

Choose one:

Agree

Neutral

Disagree

12. Are there any other key concepts around climate resilience and adaptation that all decision-making stakeholders of the built environment should understand to support climate resilience? Please write below.

[FREE TEXT]

13. Do you agree with the definition provided for *climate resilience in the built environment*?

Choose one:

Agree

Neutral

Disagree

14. Please provide any further comments or feedback below.

[FREE TEXT]

15. Do you agree with the definition provided for *climate adaptation in the built environment*?

Choose one:

Agree

Neutral

Disagree

16. Please provide any further comments or feedback below.

[FREE TEXT]

17. Do you agree with the definition provided for *climate readiness in the built environment*?

Choose one:

Agree

Neutral

Disagree

18. Please provide any further comments or feedback below.

[FREE TEXT]

Section 4 - Vision for a climate-resilient built environment

In Part 3, section 4, page 6 of this document, we share the 'Vision for a climate-resilient built environment'. This vision is the result of the discussions of experts making up the [Steering \(Partners\) and Task Groups](#) for the Climate Resilience Roadmap.

19. Do you agree with the overall sentiment of the vision of a climate-resilient built environment?

Choose one:

Agree

Neutral

Disagree

20. Please provide any further comments or feedback below.

[FREE TEXT]

21. Do you believe the ambition of the vision is in line with the scale of action needed on climate adaptation?

Choose one:

Too ambitious

Suitable

Not ambitious enough

22. Please provide any further comments or feedback below.

[FREE TEXT]

23. Do the high-level behaviours resonate with you in your role or organisation?

Choose one:

Agree

Neutral

Disagree

24. Please provide any further comments or feedback below.

[FREE TEXT]

Section 5 - Climate risks, metrics and indicators to support industry action

In Part 3, section 5, page 9 of this document, we share the key risks and their categories, as well as the metrics and indicators identified for each one of them.

25. Do you agree that the identified list of climate-related risks are the most critical for the built environment?

Choose one:

Agree

Neutral

Disagree

26. Please provide any further comments or feedback below.

[FREE TEXT]

The questions that follow are linked to the tables shared in Part 3, section 5, pages 11 and 12 of this document. The questions seek to inform the next steps on the metrics and indicators and the direction they are taking.

27. Overheating: Do you agree that the listed metrics and indicators would be informative for measuring the built environment's vulnerability and/or resilience to this climate-related hazard in general?

Choose one:

Agree

Neutral

Disagree

28. Please provide any further comments or feedback below. *

[FREE TEXT]

29. Flooding: Do you agree that the listed metrics and indicators would be informative for measuring the built environment's vulnerability and/or resilience to this climate-related hazard in general?

Choose one:

Agree

Neutral

Disagree

30. Please provide any further comments or feedback below. *

[FREE TEXT]

31. Drought: Do you agree that the listed metrics and indicators would be informative for measuring the built environments' vulnerability and/or resilience to this climate-related hazard in general?

Choose one:

Agree

Neutral

Disagree

32. Please provide any further comments or feedback below. *

[FREE TEXT]

33. Wildfire: Do you agree that the listed metrics and indicators would be informative for measuring the built environment's vulnerability and/or resilience to this climate-related hazard in general?

Choose one:

Agree

Neutral

Disagree

34. Please provide any further comments or feedback below. *

[FREE TEXT]

35. Storms: Do you agree that the listed metrics and indicators would be informative for measuring the built environment's vulnerability and/or resilience to this climate-related hazard in general?

Choose one:

Agree

Neutral

Disagree

36. Please provide any further comments or feedback below. *

[FREE TEXT]

Section 6 - Policy recommendations

In Part 3, Section 6, on page 12 of this document, we present the current areas of focus and the trajectory of our policy recommendations. The questions below are designed to reinforce this direction and scope.

37. Which 3 policies do you want the Government to prioritise as immediate areas of focus? Please select three from the list below:

- a. Make climate resilience a prime ministerial priority with an 'Office for Climate and Nature' in the Cabinet Office to coordinate and drive government action.

Protecting our communities from climate risks needs to be a much higher national priority and addressed with strong leadership, urgency, funding, and oversight with effective coordination across national government and at all levels. Responsibility currently sits largely with the Department for the Environment, Food and Rural Affairs, but functions to address climate change and climate resilience are spread across various government departments including the Department for Energy Security and Net Zero and the Department for Levelling-Up, Housing and Communities.
- b. Update the National Adaptation Programme to provide a comprehensive national climate safety plan.

An urgent refresh of the National Adaptation Programme (NAP 3) should set out a high-level vision with clear targets and metrics, and a comprehensive plan, so it is meaningful to organisations seeking to understand what role they need to play as part of a wider national effort.
- c. Put climate resilience at the core of England's planning system so every decision is part of the solution, not the problem.

The planning system needs to be modernised to place strong and predictable climate and nature protection at its core. Every planning decision is an opportunity to improve climate resilience and harness the power of nature, but adaptation currently doesn't have legal priority over other considerations in planning policies.
- d. Make existing homes and buildings safe by integrating climate resilience into government retrofit policy and funding.

Over half of UK homes suffer from overheating, and the 2022 heatwave caused over 3,000 excess deaths. Government funding for adaptation measures to homes such as blinds, shutters, and flood barriers will be needed, particularly for low-income households as part of a wider £64bn government funded national retrofit programme over 10 years.
- e. Increase urban tree cover and green spaces to reduce the risk of overheating and floods.

Tree cover reduces overheating and flash flooding but is sparse in many urban areas. Urban trees can reduce air temperatures by 3°C and improve urban air quality. The government should support the '3-30-300 rule'. This means 3 trees visible from every home, 30% canopy cover in each neighbourhood, and everyone just 300 metres from a biodiverse park or green space.
- f. Raise public awareness of actions they can take to protect against climate hazards in buildings.

As the incidence and frequency of climate hazards increase - including heat waves, water shortages and flooding, behaviour change can make a huge difference. Campaigns and awareness across Europe help people stay cool in hot temperatures, dramatically reduce water waste and prepare for violent storms and flooding and help people to access community cool and flood shelters. Government funded awareness and information campaigns could have a huge impact.

38. Please explain the reasoning behind your choice of priorities. *

[FREE TEXT]

39. Please provide details below if we have missed any issues that you are prioritising in relation to climate resilience.

[FREE TEXT]

40. What physical climate risks pose the greatest threat to your organisation, which would benefit from policy attention? Please explain below.

[FREE TEXT]

41. Please give us feedback on what you think about the following proposal:

Making sustainable drainage systems mandatory across new developments.

Tell us (yes or no) if you would support this policy in principle, and if so, please explain below how you think it could be made effective and workable.

In 2023 the UK Government accepted the DEFRA recommendation to mandate sustainable drainage systems (SuDS) across new developments in the UK. SuDS are drainage solutions that provide an alternative to directly channeling surface water through pipes and sewers to nearby watercourses. Instead, they use wetlands to absorb excess water and runoff, decreasing the threat of both flooding and water pollution including from sewage. They can also improve biodiversity and air quality.

[FREE TEXT]

42. Please give us feedback on what you think about the following proposal:

Resilience Performance Certificate (RPC) - similar to the Energy Performance Certificate (EPC). Tell us (yes or no) if you would support this policy in principle, and if so, please explain below how you think it could be made effective and workable.

A policy we are exploring is a new 'Resilience Performance Certificate' for homes and buildings to help people understand flood and overheating risks, and the water efficiency of fittings. It could help attract investment and be the basis for minimum standard protections for renters in the way that EPCs do (to an extent). Trained assessors would produce a certificate and recommendations, like the EPC. Lessons from the problems of EPC would make this scheme more effective.

When providing your comments, you may consider whether you think this process can be a standalone process, or rolled into an expanded and enhanced EPC.

[FREE TEXT]

Section 7 - Wrap up

43. Do you have any further feedback or comments on the overall proposals for the Climate Resilience Roadmap?

[FREE TEXT]

44. Do you believe the UK Climate Resilience Roadmap, in its current form, will support your efforts to enhance climate resilience and adaptation action? If so, how? If not, please explain why.

[FREE TEXT]

45. Use this space below to share any other comment you may want to share.

[FREE TEXT]