UKGBC Climate Resilience Roadmap Consultation

Consultation Response - CIBSE

Submitted 7th August 2024

Useful Links:
Industry-Consultation-Supporting-Document_UK-Climate-Resilience-Roadmap_July2024.pdf (ukgbc.org)
Table: Metrics and indicators for climate-related risk associated to overheating (ukgbc.org)

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* Zoe De Grussa
2. Organisation* Chartered Institution of Building Services Engineers (CIBSE)
3. Job Title (if you are currently unemployed, please refer to any professional training or knowledge you identify yourself with). * Research Manager
4. Which sector of the built environment would you classify your role or organisation as? *

   Choose one from the list below: Other - Professional Body
5. Email address* - zdegrussa@cibse.org.uk
6. Are you filling this out as an individual or on behalf of your organisation?* Behalf of organisation
7. Please add any additional information you would like to share with us in the free text box below.

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

8. **To what extent do you agree with the list of primary audiences identified for the UK Climate Resilience Roadmap? Agree**
9. **If you disagree or somewhat disagree with the listed audience, please share your reasons.**

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

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

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.**

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

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

We agree that the built environment should be designed so it is able to easily "restore" itself however we also feel that certain core functions of a building need to remain operational/intact. In Section 4 the definition for "What is a climate resilient built environment?" states that the built environment needs to be "…capable of maintaining its core functions during extreme events" and we would encourage that this is also incorporated within the definition of a climate resilience in the built environment. Other minor grammatical changes have also been made.

Our recommendation is that this is rephrased to:

Climate resilience in the built environment is the ability of buildings, infrastructure, and natural ecosystems, to first anticipate and adapt to, then withstand, and are able to maintain their core functions and recover from extreme weather events, as well as long-term climate changes. A climate-resilient built environment can preserve or restore their essential core functions and structures, maintaining a comfortable and healthy environment, while it continues to prepare.

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

16. **Please provide any further comments or feedback below.** We are happy with the proposed definition as is.

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

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

Overall, we agree with the proposed definition, but we have made some minor suggestions for improvement. We replaced 'promoting' with 'assuring' to be more assertive in the language used and 'effects' with 'impacts' to remain consistent with the terminology previously used in the climate adaptation general definition proposed. Other minor grammatical changes have also been made.

Our recommendation is that this is rephrased to:

Climate adaptation in the built environment are the actions taken to cope with the current and anticipated climate change impacts. 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, assuring longevity in the current building stock, and innovating the supply chain.

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

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

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

We would suggest incorporating the ability to 'withstand' within the first sentence of the vision definition of 'What is a climate resilient built environment? As follows:

A climate-resilient built environment is prepared to adapt to, withstand 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.

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

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

We feel the vision outlined in the consultation is relatively high level so at this point it is hard to assess whether it is sufficient. Specifically, the actions for stakeholders need to be more specific and ideally outline which stakeholders need to carry out what actions to be effective. However, as a high-level overview of the actions needed, we think this is appropriate.

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

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

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

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

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

We agree to the extent that those that are most relevant to CIBSE and its members are considered.

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? Agree**

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

The metrics should also take account of green infrastructure but should also consider blue/green infrastructure i.e., lakes, rivers, ponds, wetlands etc. Please also see our response to Q32 which includes a response in reflection of the entire framework of metrics and indicators.

We are pleased to see mention to both CIBSE TM52 and TM59 thermal comfort limits and would like to take this opportunity to make you aware that CIBSE TM59 is currently being revised and updated and is scheduled to be published towards the end of the year. There are two key changes we would like you to be made aware of. The first is a change to Criterion (b) within TM59 which is applicable to bedrooms within homes. Currently the draft document reads as follows:

(b) For bedrooms only: to guarantee comfort during the sleeping hours the mean operative temperature in the bedroom between 10 pm to 7 am shall not exceed the applicable temperature threshold for more than 7 nights between May to September inclusive. The applicable temperature threshold for criterion (b) is 27°C (Lomas & Li, 2023).

The second change is that TM59 will refer to a different weather file. These new weather files are currently being tested and are based on the more recent UKCP18 Met Office projections. We plan to launch the new set of CIBSE Weather files with the publication of CIBSE TM59 (2024).

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?** Neutral

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

Unfortunately, we have not had time to fully evaluate the table of proposed metrics and indicators, but we suggest that the following matrices and indicators should be included as they are instrumental in assessing the risks posed by flooding and should be included:

- Number of Assets at Risk: Essential for prioritizing vulnerable areas.
- Value at Risk (£): Provides a financial quantification of potential losses.
- Recovery Time (days): Indicates the speed of recovery post-flooding.
- Operational Capacity (%): Measures the ability of infrastructure to function during floods.
- Insurance Claims (£): Reflects the economic impact through claims made post-event.
- Water Management Efficiency: Assesses the effectiveness of water management strategies in mitigating flood risks.

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?** Neutral

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

Unfortunately, we have not had time to fully evaluate the table of proposed metrics and indicators but we suggest that the following metrics and indicators should be included as they are critical for drought resilience:

- Water Storage Capacity: Indicates the availability of water resources.
- Uptake of Water Efficiency Measures: Encourages reduced water consumption.
- Public Supply Resilience: Ensures a reliable water supply during drought conditions.
- Real-Time Water Quality Monitoring: Monitors water quality to ensure safety and sustainability.
- Dynamic Water Pricing: Incentivizes water conservation through pricing strategies.
- Water Reuse Rate: Promotes the reuse of water to reduce demand on freshwater sources.

We suggest the proposed metrics and indicators are integrated into planning and policymaking. This will foster innovation in water management technologies. It is also important to engage with stakeholders to raise awareness and implement best practices.
Some consideration also needs to be given to how to track, monitor and the ability to adapt climate resilience strategies based on the effectiveness of the implemented measures.

In view of the collective framework of metrics and indicators presented in this consultation we feel it would also be useful to:

- Develop predictive indicators to forecast future risks.
- Implement cross-referencing systems between different stages of the building lifecycle.
- Establish quantitative targets for each metric to guide goal-setting and performance evaluation.

These enhancements aim to provide a dynamic and adaptable framework that reflects the urgent need for action and the collaborative effort required across all sectors of the built environment.

If further information is needed on any of the proposed metrics and indicators, and overall suggestions for improvement, please feel free to get in touch.

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?**

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

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?**

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

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. 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.

    c. 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.

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

We would like to suggest that Option C - "Put climate resilience at the core of England's planning system so every decision is part of the solution, not the problem." - is expanded to include Wales, Scotland, and Northern Ireland (i.e., the United Kingdom).

We have prioritised Option A, C and D as we feel these options will lead to the greatest action. Policy is an effective tool in driving the built environment towards climate resilience and this has been proven within policies incorporated into The London Plan, Building Regulation Approved Document O: Overheating within Building Regulations, and more recently Biodiversity Net Gain policy.

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

As well as raising public awareness and educating members of the public of what actions/behaviours they can take. An education campaign on climate resilience to all built environment stake holders is needed. This also needs to be embedded within the school education system (through STEM), and higher education to ensure the UK is equipped with a skilled workforce needed to meet the challenges of climate change. This has been advocated also by the National Engineering Policy Centre (NEPC) in there "Engineering a resilient and prosperous future. Policy priorities for the next UK parliament" report who represent 42 professional engineering organisations. Available here: https://nepc.raeng.org.uk/media/zmjfjwhd/final-engineers-2030-launch-paper.pdf

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

The areas of greatest concern to CIBSE and its members are:

- Overheating in buildings
- Flooding & Droughts, in terms of water management and quality issues,
- and Storms, specifically the impact of wind on structures.

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. Yes

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.

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.

This is an interesting concept, but we would need further detail on how this would work, and who would deliver and manage it to determine whether it would be useful. Engineers would need to play a critical role in the development and assessment of homes for such a scheme. Currently EPC assessors are not appropriately trained and therefore there is a large variation in what is considered a 'C' rated property in relation to actual energy performance. We would also like to highlight that the social and economic implications would need to be considered as such a scheme would highlight the risks of a property, some of which will have an impact on the health and well-being of the occupants. For example, what would the implications be to home insurance?

Section 7 - Wrap up

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

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.

Please see our response to Q22, our summary response to the metrics and indicator framework in Q32, and Q39.

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

We would like to highlight the recent CIBSE publication “Building Performance Reimagined." This report, commissioned by CIBSE and researched by Arup, diverges from typical CIBSE publications, focusing not on system sizing, maintenance, or controls, but on a holistic and future-oriented perspective on building performance. The sections on Readiness, Emergence and the Summary and Change enablers (which provide recommendations for different stakeholders within the built environment) may be of interest. This can be found here: Building Performance Reimagined project (cibse.org)

END OF CONSULTATION QUESTIONS