WFEO Model Code of Practice: Climate Adaptation and Resilience for Engineers

Summary

17 October 2025

The following 15 guidelines, grouped into three categories, encompass the principles and practices of climate adaptation and resilience applied to the practice of engineering in civil infrastructure and building projects that are executed by, and the responsibility of, engineers. These apply in all facets of planning, design, construction, operation, maintenance and decommissioning in which engineers are engaged.

A. ETHICAL AND PROFESSIONAL PRACTICE AND CLIMATE

1. Adopt Climate Considerations into Practice

Engineers should include an understanding of the changing climate and extreme weather events on infrastructure resilience into the design, construction, operation, maintenance, decommissioning, planning and procurement activities for which they are responsible.

2. Exercise ethical leadership

Engineers should act as ethical leaders, guiding climate adaptation and resilience projects to respect safety and resilience of end users, environmental limits and the needs of future generations.

3. Respect human rights and ensure solutions do not disproportionately affect marginalized or vulnerable groups

Engineers should consider how climate adaptation and resilience projects affect different social groups and ensure that solutions are equitable and just, with a focus on inclusivity. Ensure inclusive decision-making by actively involving women and minorities in the design and implementation of climate change adaptation and resilience strategies.

4. Exercise engineering judgment

Engineers should consider the implications of climate change for each project, including adjustments to codes, standards and regulations as needed to meet the needs for climate resilience and create a clear record of the outcomes of those considerations. Prioritize sustainable solutions that deliver safety and resilience of end users, protect natural resources, minimize waste, and reduce the carbon footprint, while being financially affordable and ensuring future generations benefit from climate resilient infrastructure and buildings as well as a healthy environment.

5. Exercise precautionary measures considering climate uncertainty

In the face of uncertainty about climate change impacts, engineers should take a precautionary approach, prioritize prevention and minimize potential harm. Implement proactive risk mitigation and climate resilience measures where there are threats of serious climate related damage or destruction even in cases where there are unavailable, scientifically inadequate or highly uncertain climate data or projections.

6. **Be aware of potential legal liability**

   Engineers should take reasonable steps so that current and future potential legal liability from their practice in general and to particular engineering work is understood by taking actions that incorporate climate considerations in work for civil infrastructure and buildings and documenting such considerations.

B. INTEGRATE CLIMATE AND CLIMATE-BASED INFORMATION

7. **Interpret and specify climate information**

   Engineers should work with climate and meteorological specialists/experts with local knowledge to specify needs for climate data, information and future projections and engage them for interpretations of derived climate parameters to ensure these are scientifically defensible and reasonably reflect the most current scientific understanding.

8. **Review the adequacy and application of locally applicable codes, standards and guidelines**

   Engineers should review the local design codes, standards and regulations and determine whether these reasonably represent the current and anticipated climate in the location that an infrastructure will operate over its life cycle. Specify, review and or adjust operation and maintenance procedures and standards to adjust as necessary for climate resilient infrastructure over its complete life cycle. Consider exceeding design codes and standards where it is prudent to do so and document the rationale.

C. ENGINEERING PRACTICE GUIDANCE

9. **Work with multi-disciplinary and multi-stakeholder teams**

   Work with other engineers, other infrastructure practitioners, climate specialists and natural scientists to form multi-disciplinary project teams to engage with stakeholders (infrastructure owners, the public), gaining a common understanding of the risks, vulnerabilities and impacts (physical, social and environmental) of current and future climate on the infrastructure and its service to the society it serves. Engage these teams to develop feasible adaptation and resiliency measures within project constraints to ensure a comprehensive approach to climate adaptation and resilience.

10. **Plan for the infrastructure service life (life cycle)**

    Consider the impact of current and projected climate (long term changes and climate extremes) over the entire service life of an infrastructure. Make appropriate and feasible decisions within the context of current scientific, economic, project and social constraints through enhancements in design, construction, operations, maintenance, decommissioning and management procedures and practices.

DRAFT

11. Use risk management to pro-actively address climate uncertainties

Develop and maintain a reasonable level of competence and experience in infrastructure climate risk and vulnerability assessment as well as risk management. Be aware of and utilize recognized procedures, processes and tools based on ISO internationally recognized climate risk and adaptation standards.

12. Enhance the climate resilience of infrastructures and engineered systems

Develop robust designs and enhance operations and maintenance policies and procedures to increase the capacity of infrastructures and engineered systems to withstand a greater range of current and future anticipated extreme weather events. Engage with other responsible parties in the planning and design of emergency response measures to deal with immediate impacts. Additionally, develop and implement strategies and methods to accelerate rehabilitation and reconstruction of infrastructures and engineered systems from damage or loss to restore service as soon as practical.

13. Design and implement solutions, including nature-based, that consider long-term environmental, economic, and social impacts

Consider both immediate and future risks (e.g., climate creep, sea-level rise, extreme weather), as well as any probable combination of each when designing resilient systems to last over the entire service life of an infrastructure. Investigate and consider nature-based solutions (NbS) i.e. green infrastructure to complement or replace grey or engineered infrastructure.

14. Use effective language and communicate decisions clearly

Communicate to clients, employers and the public as appropriate, providing transparent information about risks, benefits, and potential impacts, climate-related and resiliency recommendations using simple, unambiguous, language. Include the costs and benefits of recommended actions, how those actions mitigate the identified risks as well as the economic benefits of the adaptation and resilience measures and the potential costs of not adapting to the identified risks.

15. Engage in lifelong learning and ongoing engagement to stay current with evolving climate science, climate resilient technologies, standards, tools and methods

Pursue continuous learning to ensure work remains relevant, reflects best practices and innovations and is ethically sound. Stay informed about new technologies, methods, and strategies to improve climate resilience and share these findings with the engineering community and fellow engineers. Support and engage in research and demonstration to develop innovative, efficient, and sustainable technologies and methods to enhance climate adaptation and resilience.

DRAFT