

North Carolina Board of Examiners for Engineers and Surveyors

Guidelines on the Use of Artificial Intelligence in Engineering and Surveying Services

The North Carolina Board of Examiners for Engineers and Surveyors provides the following guidelines concerning the use of artificial intelligence (AI) in the provision of engineering and surveying services in accordance with Board laws and rules.

I. Purpose and Scope

If a licensee uses AI in the provision of engineering and surveying services, the licensee shall maintain responsible charge over all aspects of the work. In all projects or tasks that involve AI—whether as an assistive tool or for producing a final product—the licensee shall exercise direct control, maintain complete oversight of all data inputs, and be capable of reproducing the output independently from any AI program.

II. Requirement of Responsible Charge

Per 21 N.C. Admin. Code 56.0701(d), no licensee may affix a signature or seal to any document or plan unless the licensee was in responsible charge of the work. To ensure responsible charge when AI is used, the licensee should:

1. Maintain Full Oversight:

- Be directly involved in the review and supervision of both work in progress and the final product.
- Exercise the authority to “review and to change, reject or approve both the work in progress and the final work product, through examination, evaluation, communication and direction throughout the development of the work.”

2. Ensure Comprehensive Knowledge:

- Possess full professional knowledge and control over all aspects of the work, including the data inputs to any AI model.
- Be personally aware of the scope, needs, parameters, and limitations of the project to “be capable of answering questions relevant to the surveying or engineering decisions made as part of the services provided.”

3. Accept Full Responsibility:

- Maintain complete responsibility for the work, regardless of the degree of AI assistance.

- Document and maintain detailed records—including calculations, drawings, and data inputs and outputs—to demonstrate responsible charge.

III. Data Integrity and Control in AI Applications

For licensees to exercise responsible charge over projects involving the use of AI and to conduct their practice “in a manner to protect the public health, safety, and welfare,” 21 N.C. Admin. Code. 56.0701(b), and “perform services in an ethical manner,” 21 N.C. Admin. Code 56.0701(h), licensees shall ensure that any data they provide to AI systems is managed with the utmost integrity, authenticity, and security:

- **Data Input and Verification:**
 - Only use data that a licensee has verified as accurate and complete.
 - Maintain direct control over the data provided to AI models, ensuring that any changes or updates are made with the licensee’s knowledge.
- **Understanding and Replication of Outputs:**
 - Ensure that the results generated by AI tools can be fully understood, replicated, and, if necessary, reproduced by the licensee.
 - Regularly review and validate AI outputs to confirm that they meet professional standards.

IV. Professional Competence and Continued Oversight

Per 21 N.C. Admin. Code 56.0701(c), licensees shall perform services only within their areas of competence. Licensees should not use AI to work on a project in which they do not already have established competence through education and experience. Use of AI does not diminish the requirement to apply one’s professional judgment and possess professional competence. The licensee should:

- Stay current with technological advancements and understand the capabilities and limitations of any the AI tools employed.
- Continually evaluate and update their processes to ensure that the incorporation of AI does not compromise the quality or integrity of their professional services.

V. Record Keeping

- Keep comprehensive records of all data inputs, processing methods, AI tool assessments, and validation procedures.
- These records shall be kept in a manner that supports the licensee’s claim of responsible charge and compliance with the Board’s rules.

Conclusion

By adhering to these guidelines, licensees ensure that the use of AI enhances their work without undermining the professional responsibility and integrity required by Board Rules. The licensee remains fully responsible for the work performed, including the use of AI, and shall exercise full oversight, control, and professional judgment in every aspect of the project.