

ACADEMY OF GEO-PROFESSIONALS BODY OF KNOWLEDGE FOR ATTAINMENT OF D.GE STATUS

In 2008, the American Society of Civil Engineers published its *Body of Knowledge, Second Edition* (BOK2). This document provided a total of 24 Foundational, Technical, and Professional Outcomes in Civil Engineering practice, and a description of six Levels of Achievement for each outcome. The six Levels of Achievement start with Knowledge (Level 1) and are progressive with increasing experience through Comprehension, Application, Analysis, Synthesis, and Evaluation (Levels 2 through 6, respectively). The document further discusses which of these six Levels of Achievement should be attained for each of the 24 outcomes prior to entering the practice of civil engineering at the professional level (licensure), and subdivides those Levels into those that should be fulfilled through attainment of the bachelor's degree, the master's degree or equivalent, and pre-licensure experience (Appendix I of BOK2). It should be noted that it is not expected that an individual would have attained all six Levels of Achievement in all 24 outcomes at the time of licensure. This publication is available on-line for free viewing or download at <http://www.asce.org/Content.aspx?id=2147486178>.

Candidates for certification by the Academy of Geo-Professionals (AGP) are expected to have attained those Levels of Achievement defined in BOK2 as being required for licensure. In addition, as part of the 8 years of progressive *post-licensure* experience required by AGP for certification, they should have attained the following additional Levels of Achievement for the following five outcomes:

7. Experiments.

Level 6. **Evaluate** the effectiveness of a designed experiment in meeting an ill-defined real-world need.

Experiments are defined by this Body of Knowledge as not only including the traditional form of experimentation where outcomes are not known, but also in the development, evaluation, and application of geotechnical observations, testing programs, and/or instrumentation programs.

8. Problem recognition and solving.

Level 5. **Synthesize** the solution to an ill-defined engineering problem into a broader context that may include public policy, social impact, or business objectives.

Level 6. **Compare** the initial and final problem statements, the effectiveness of alternative techniques and tools, and **evaluate** the effectiveness of the solution.

Candidates for certification by AGP should be able to demonstrate that they have been successful at taking into consideration more than just the technical aspect of problems by integrating the multifaceted needs of their clients in their recommended solutions.

12. Risk and uncertainty.

Level 5. **Develop** criteria (such as required safety factors) for the ill-defined design of an engineering system within an acceptable risk measure.

This Level of Achievement does not necessarily require advanced understanding and application of statistical and probability analysis to geotechnical problems, but it does require an understanding of uncertainty and how to appropriately quantify it for any given problem. As a minimum, candidates for certification by AGP should be able to

demonstrate an ability to select appropriate safety factors based on the level of uncertainty in their measured soil/rock parameters.

13. Project management.

Level 5. **Create** project plans.

The term "plans" in this context refers to internal project management plans that set forth how a project will be executed and its progress measured.

15. Technical specialization.

Level 7 (Expertise). **Implement** the design of a complex project, or newly created knowledge or technologies in geotechnical engineering. **Demonstrate** expertise in one or more of the following technical specialty areas of practice.

- Site characterization
- Laboratory testing and analysis
- Foundation design
- Slope stability
- Excavations and retaining structures
- Tunnels and underground construction
- Embankments, earth and rockfill dams
- Geosynthetics
- Ground improvement
- Soil and rock dynamics
- Geo-environmental engineering
- Earthquake engineering
- Other (self-designated)

The above-described Body of Knowledge will be used by the Academy of Geo-Professionals to evaluate the applications of candidates for certification, and to determine the requirement for an oral examination of the applicant.

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