

Why Raise the Bar for Civil Engineers in Vermont?

- The civil engineering profession has defined the body of knowledge required to meet the responsibilities of licensure, which includes both technical and non-technical knowledge, with both breadth and depth. To achieve that body of knowledge requires an accredited undergraduate degree and an additional 30 advanced credits, either inside or outside the university environment, plus experience. The needed knowledge won't fit in a B.S. alone.
 - A number of capabilities outlined in the *ASCE Civil Engineering Body of Knowledge (ASCE BOK)*, and half of the capabilities outlined in the NSPE Engineering Body of Knowledge, are not addressed by the ABET undergraduate civil engineering accreditation criteria.
 - Areas of capability critical to protecting public health, safety and welfare contained in the *ASCE BOK*, such as thorough technical depth, advanced aspects of problem solving, and advanced experimental design are typically not addressed at the undergraduate level. Given the significant gap and the complex nature of many of these areas, these capabilities cannot be mastered appropriately prior to licensure relying on the traditional four-year BS in civil engineering degree and experience alone.
- Civil engineers, including those in Vermont, are grappling with more environmental regulations, more complex codes and standards, more needs for communicating with stakeholders and more complex plans and specifications than ever before. These trends will only continue, necessitating more education for Vermont's future licensed civil engineers, and for those from other parts of the country who will be licensed in the future.
- Requiring a master's degree or an equivalent 30 credits prior to licensure will ensure that the knowledge, skills, and attitudes documented in the *Civil Engineering Body of Knowledge for the 21st Century* can be met. Given the two alternative paths to meet the requirement (a master's degree or an equivalent 30 credits through a variety of possible education sources), Vermont students will have a great deal of flexibility in gaining the needed education.
- If Vermont does not act now, the state will attempt to meet its 21st century demands with educational requirements for civil engineering that date back to 1900. The fact remains that credit hours in civil engineering programs have declined nationwide, while the complexity of civil engineering practice continues to expand.
- Engineering leaders in Vermont—including the boards of the ASCE Vermont Section and the Vermont Society of Professional Engineers, the only professional engineer serving in the Vermont Legislature, Bob Krebs, and Brad Aldrich, vice chair of the Vermont Board for Professional Engineering,—strongly support additional education before licensure. Those civil engineers who have studied the issue the most have strongly concluded that Vermont must act.
- Clearly Vermont is not unique in the need to Raise the Bar for civil engineers—this change needs to happen everywhere. Civil engineers in many states across the country are active in organizing the movement for change. Vermont is, however, special with respect to the civil engineering leadership that is in a position to drive this important change. In addition, Vermont is a discipline-specific state for licensure, so implementing the need for civil engineers fits well into that system.

To maintain the future health, safety and welfare of the public in Vermont, future civil engineers will need additional education to expand their technical, leadership, communications and business skills and thereby deliver projects that protect the public.