

Is Board Certification of Engineers the Key to Future Quality Assurance in Hydro Design?

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BACKGROUND

The American Academy of Water Resources Engineers (AAWRE) was founded in October 2004 under the leadership and guidance of members from ASCE's Environmental and Water Resources Institute (EWRI), and was the first Academy created within Civil Engineering Certification, Inc. (CEC). AAWRE started the Diplomate, Water Resources Engineer (D.WRE) certification program to adhere to ASCE's Policy 465- to broaden and deepen the body of knowledge for practicing engineers and to elevate the standards in civil engineering. Board certifications in engineering have existing since the mid-1950s.



Figure 1. AAWRE celebrated its 10th anniversary in 2014. Credentials are an important tool in any engineer's toolbox for future success. As stated in Engineer Your Own Success "It's your responsibility to obtain the credential that will help you advance in your career. Failure to do so can set you back in your engineering career..." Almost all of us recognize that the pathway to project manager and project engineer status consists of first passing the Engineering Intern Exam and then passing the Professional Engineer's Exam and completing those applications. A significant percentage of engineers practicing in the hydro sector (whether as consultants, government engineers, or engineers in industry such as water and power) will achieve these milestones. But what does it take to set yourself apart from the pack? What truly demonstrates you are a leader and or expert in your field? As in many professions, certification by a professional board provides a mark of distinction.

Why would one desire a credential beyond the Professional Engineer's License and what are some of the characteristics of the D.WRE?

SHARING KNOWLEDGE

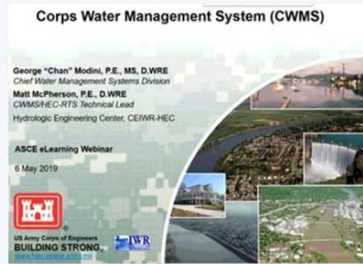


Figure 2. Credentialed engineers share their knowledge with other engineers moving towards licensure and certification and push the state of the art.

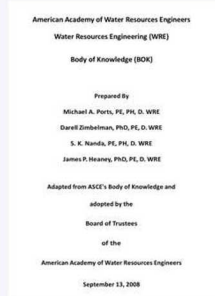


Figure 3. D.WREs subscribe to mastering a body of knowledge. (BOK).

APPLYING A COMPLEX BOK AND FOCUS ON MISSION

In 2019 in the world of techniques like computational fluid dynamics and finite element modeling, graduate education beyond the bachelor's degree is important to be an effective practitioner. Today's civil engineer must not just possess the technical skills, but also the expertise to work with other scientists and design for environmental and other objectives, as well as have a basic understanding of water laws and a host of environmental regulations.

As stated in *The Civil Engineering Body of Knowledge 3rd Edition*, "the increasing complexity of engineering projects and growing volume of technical knowledge combined with the specialized nature of civil engineering practice requires civil engineers to develop a depth of expertise within a specialty area. This depth may be reflected in emerging efforts for certifications, specialty licensing, and post-licensure credentialing in some areas of practice. Depth of specialized knowledge is one of the hallmarks of a learned profession such as civil engineering." To that end, AAWRE has also developed a body of knowledge specific to water resources engineering at the board certified level..

The mission of AAWRE is to provide excellence in leadership by elevating the professional practice of water resources engineering through advanced certification, continuing education, and ethical practice. Our vision is to develop board certified water resources engineers who are global leaders serving society in advancing the sustainable management of the world's water. Sustainable management of water is particularly important for hydroelectric power generation, since water provides the fuel that enables power generation.. Objectives include:

- identifying and certifying engineers with specialized knowledge in water resources for the benefit of the public.
- Recognizing the ethical practice of water resources engineering at the expert level.
- Enhancing the practice of water resources engineering.
- Supporting and promoting positions on water resources issues important to the public health, safety and welfare.
- Encouraging life-long learning and continued professional development.

ETHICAL PRACTICE OF ENGINEERING

Board certification assures employers and clients of water resources engineers that they have hired an accomplished professional with independently validated advanced specialty knowledge and experience. This can greatly enhance the brand of an organization as one that places great value on technical and leadership excellence. It demonstrates an organization's commitment to the public health, safety, and welfare. It can also reward an organization's commitment to cost-effective, innovative, and sustainable outcomes. Lastly, it ensures clients and employers that the board-certified engineers they hire will maintain high ethics and integrity in the engineering practice.

- CANON 1. HOLD SAFETY PARAMOUNT
- CANON 2. SERVICE WITH COMPETENCE
- CANON 3. ISSUE TRUE STATEMENTS
- CANON 4. ACT AS A FAITHFUL AGENT
- CANON 5. REPUTATION BY MERIT
- CANON 6. UPHOLD PROFESSIONAL HONOR
- CANON 7. CONTINUE PROFESSIONAL DEVELOPMENT
- CANON 8. TREAT ALL PERSONS FAIRLY

Figure 4. D.WREs know the importance of practice guided by a code of ethics.

The AAWRE Board certification process is relatively simple, and begins with an applicant visiting the website www.aawre.org to download an application. The application can be submitted via email, or online, and must include 3 references and an application fee. Once the application has been submitted, it is reviewed by a committee to ensure that the applicant meets the requirements

NEXT STEPS

Applicants with 15 or fewer years of experience require an oral examination that is conducted to validate the applicants experience and mastery of water resources engineering. For applicants with 16 to 24-years of experience, an oral exam may be required on case by case basis. For experienced engineers with 25 years or more of experience the exam is often times waived altogether. The exam is generally conducted by three Diplomates with at least one having expertise in the applicants specialization..

BENEFITS OF CERTIFICATION

It recognizes you as an industry leader in your specialty, with commitments to ethics, sustainability, and continuing education.

It identifies you to clients and employers as offering specialized knowledge and experience.

It demonstrates your commitment to the public health, safety, and welfare, as well as to improving your profession.

It provides an objective validation of your specialty knowledge and experience for employers and clients to see.

It identifies you on an online directory listing of board-certified engineers, and provides you with a network of experts to connect with and who can serve as mentors.

•It meets preferences and requirements for board certified engineers in Requests for Proposals (RFPs) and other similar contractor selection processes and reduced insurance premiums.

•It provides incentives and opportunities for lifelong learning, insurance and training (PDHs).

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