

Improving projects, economy and industry

It is no secret that our industry is examining itself very carefully right now. Geosynthetics are not receiving the attention they deserve, and, subsequently, not achieving their expected market share. This is happening partially because many engineers do not understand plastics, have no confidence in them (“Geomembranes—It’s 50/50 whether or not they work, isn’t it!”), or find their application too complex. During this phase of introspection there has been a popular cry for certification, Certification, CERTIFICATION! The question is, What do we hope to achieve with certification? How can certification help our industry succeed?

- Certification provides a measure of assurance of success. Success bolsters confidence. Confidence promotes use. Therefore, certification promotes use.
- Certification provides a benchmark for quality. Quality drives price. Certification provides a means of establishing quality pricing for materials and services.

To grow the user base and marketplace, we must introduce more engineers to geosynthetics and make them feel confident in their use. Geosynthetic applications can typically be divided into two categories: commodity and specialty applications. For commodity applications, by providing a turnkey package based in standardized design and certification, we can start engineers on the road to understanding and implementing geosynthetics. Specialty applications should be reserved for those with adequate experience who are certified in geosynthetics.

In order to provide this experience, we must first identify several commodity applications, such as golf course ponds, wastewater treatment lagoons, and rectangular cut and fill MSW landfill cells. Certification and specifications can support this effort. By providing the less-experienced participant with checks and balances (specifications/certifications) guiding each of these commodity applications, we will enable them to set forth on the path to success with their geosynthetic and related projects. By building confidence, we will encourage the use of our materials in both traditional and revolutionary applications, thus, expanding our market place.

Table 1. Project critical control points.

	Idea	money	bond	design	specify	bid	sub-contract	insure	build	maintain
Owner	X	X	X					X		X
Insurance Co.			X					X		
Regulators				X	X					X
Engineer				X	X	X				X
General Contractor						X	X	X	X	
Manufacturer						X	X		X	
Installer						X	X	X	X	

It is a measure of the acceptance of geosynthetics that they are now sold as commodity items, but their market can be much larger, not in landfills, but in areas such as wastewater and potable water. The opportunities for specialty applications and specialty products, particularly composites, are outstanding. Certification requires designs and installations to meet specific criteria; how do we achieve valuable certification with so much diversity? *Certification for the sake of certification is not enough.* We must be confident that the certification set forth ensures quality; it must be valuable.

Finally, to be successful in establishing certification programs that will meet our industry goals, we must make certain they are used. As Dr. Koerner pointed out in the May *GFR* Certification column, there is a NICET (National Institute for Certification in Engineering Technologies) certification for CQC/CQA (Construction Quality Control/Construction Quality Assurance) that is rarely discussed, and even more rarely used, rendering it an ineffective tool in reaching our goal.

Promotion and implementation of certifications could perhaps be the most daunting task we face. We, as an industry, benefit from the creation and institution of certifications, but others must be relied upon to use the certifications. Creating certification is only the first step. There must be strong incentive to those outside of our industry to use certification; ultimately, they control its use. We must dissect the process and identify where certification can be help-

ful and how we, as an industry, promote the use of certification to those who make decisions regarding the design and implementation of our products. **Table 1** illustrates the process and participants involved in most projects. The yellow highlighted areas identify critical control points—the points which control whether or not certification is employed on the project.

In order to institute a successful certification, owners, insurance companies, regulators and engineers must have good exposure to, and an understanding of, the value related to our proposed certifications.

Having examined the gross process of a project, the next obvious question is, Who or what needs to be certified? The International Association of Geosynthetic Installers (IAGI) has begun to certify individual installers for installation companies. The value here is quantifiable, and quantifying this value would be a genuine tool in the promotion of the use of this certification. The IAGI certification program should be expanded and implemented in project specifications. *We can write it into the commodity specifications.* Engineers are, however, the critical control point at which the materials and services are specified. The materials, installer and project as a whole will only be as good as the engineer’s design and specification. The engineer needs help.

Since most failures, in I-CORP’s investigations, are caused by improper design, it would seem that standardizing design and certifying engineers would serve our purpose. A well-established group, SWANA

Table 2. Specifications and certifications fall into two application categories.

Commodity Applications

1. Standardized Design Specification
2. Certified Materials
3. Certified Installer
4. Certified CQA

Specialty Applications

1. Certified Engineer/Peer Reviewed Design by Certified Engineer
2. Certified Materials
3. Certified Installer
4. Certified CQA

(Solid Waste Association of North America), has just begun to rally behind landfill design certification. There is no doubt that engineering certification will be an enormous undertaking. In the meantime, we can look to standardized specification of commodity materials as a means to bridge the gap. Specifications for materials of different types, and for different grades within the same material, should be issued. The HDPE used in a liquid hazwaste lagoon should be far more durable than a golf course pond HDPE liner; otherwise, who is being under- or over-sold? Different material options should be identified for the different commodity applications. Then certification of these standard products should be instituted. The Geosynthetic Institute (GSI) has already started such a program. Laboratories are accredited by the Geosynthetic Accreditation Institute (GAI) and should be supported by the same specifications and materials certification.

Standard design specifications should be prepared for the commodity application, so inexperienced engineers can be better assured of getting it right and pick up some useful experience in the process. When the design engineer has a number of commodity applications under her belt, the individual can be certified to work on non-commodity projects. Clearly, P.E. behind a name is not in itself adequate certification.

CQA monitors were being certified by NICET, but this program was not attuned to the real philosophy of CQA monitoring, so it has not been effective. The IAGI program, with a little modification of its hands-on section, would better certify CQA personnel. It is critical that CQA personnel are adequately certified, even for commodity projects; otherwise the procedure is a waste of time and money, except that it might satisfy regulatory requirements.

To be valuable and effective, specifications and certifications should be setup

under two umbrellas: Commodity Applications and Specialty Applications (Table 2).

As each system is being developed, the value of its employment must be studied, quantified and marketed to those in the process who have the power to mandate its use. It is not enough to develop these certifications; we must make them work for us. Once certification is in place, we can capitalize both technically and financially from their benefits. ■

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Resources

- Geosynthetica.net
- International Association of Geosynthetic Installers, www.iagi.org
- The Geosynthetic Institute (GSI) and Geosynthetic Accreditation Institute (GAI) www.geosynthetic-institute.org
- National Institute for Certification in Engineering Technologies (NICET) www.nicet.org
- Solid Waste Association of North America (SWANA), www.swana.org