

# NATIONAL READY MIXED CONCRETE ASSOCIATION

Text reference for

## Pervious Concrete Contractor Certification



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# A World of Opportunity:

## NRMCA Pervious Concrete Contractor Certification

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**G**reen building! Sustainable development! Stormwater management! LEED certification! Low-impact development!

These initiatives provide tremendous opportunities for concrete as a construction material and specifically for pervious concrete pavements. The need to promote pervious concrete pavements was realized very early, and these efforts have been very successful. In fact, the resulting demand for pervious concrete pavement as a stormwater management option often exceeds the available expertise for the placement of pervious pavements.

There are some important aspects of pervious concrete pavements that differ from conventional pavement design and construction:

- The primary design focus is stormwater management, with a secondary focus on structural capacity. Pavement structural design is more empirical, based on experience, because the strength of pervious concrete generally is lower than that of

conventional concrete, and testing standards pertinent to pervious concrete do not exist at this point.

- Production of pervious concrete mixtures needs special attention to aggregate grading and moisture control and the possible use of admixtures not typically used for conventional concrete. Delivery and discharge varies because of the stiff nature of the pervious concrete mixture, the need to retemper at the jobsite, the slower rate of discharge from truck mixers and scheduling the delivery rate of subsequent loads.

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- Procedures and equipment for placement, compaction, finishing and curing differ significantly from those used for conventional concrete pavement. Improper techniques are immediately evident.
- The tolerances and techniques for the placement of pervious concrete make it very specific and require a narrow range of timing and techniques.
- The owner needs to consider additional maintenance strategies to ensure continued performance for the intended function.

Local and regional groups promoting pervious concrete pavements realized that unsuccessful placements would create a negative perception of the technology. To prevent this problem, training and certification programs were developed by state ready mixed concrete associations and other local groups.

Soon it became clear that a national certification program would be more beneficial

in establishing uniform guidelines and certification criteria. This effort was initiated by interested members of ACI Committee 522 on Pervious Concrete Pavements, led by Dan Brown of the Georgia Concrete and Products Association. ACI Committee 522 was developing a specification for pervious concrete pavements and needed to include qualification requirements for contractors. The task group established the preliminary criteria for the certification program to be administered by NRMCA. Matt Offenberg, the chair of ACI 522, committed to get a training and certification off the ground and running by the fall of 2004. With the assistance of several volunteer experts, the NRMCA Pervious Concrete Contractor Certification program was instituted in October 2004.

The RMC Research & Education Foundation approved funding to develop a text that would represent the body of knowledge deemed necessary to successfully install pervious concrete. The text would serve as the basis of the certification program written examination and performance evaluation. The text document was

finalized in September 2004. There have been two subsequent revisions to keep pace with the rapidly changing technology. Regarding the certification program, it was decided to essentially use the same certification policies and criteria as used in the ACI Flatwork Finisher certification program. Two certification levels were instituted:

- Pervious Concrete Technician – successfully passing the written exam with a 70% score
- Pervious Concrete Craftsman – successfully passing the written exam, possessing a current ACI Flatwork Technician certification and documenting work experience of 3,000 hours of placing pervious concrete OR 1,500 hours work experience and passing a performance evaluation administered by the local sponsoring group.

NRMCA solicited the interest of local sponsoring groups, with preference given to its state affiliate partners, to administer the certification program at the local level. Local sponsoring groups offer training, the written exam and the performance evaluation and verify work experience. NRMCA grades

exams and evaluations and verifies that candidates meet all the necessary prerequisites and work experience before awarding certification.

NRMCA developed a standard presentation that follows the text as a resource for the local sponsoring group to help make the task of training certification candidates easier. Two “Train the Trainer” sessions were organized along with placement demonstrations. Potential trainers from local sponsoring groups were invited to these events. Although training is not a requirement of certification, it is recommended that every candidate go through a training program in preparation for the written examination and performance evaluation.

The certification program has been very well received. Many local groups that had their own programs have adopted the NRMCA program. As of October 2007, there are 37 local sponsoring groups administering the certification program. The American Society of Concrete Contractors (ASCC) is also a sponsoring group (national) and plans to administer this program for its members at its biannual meetings when there is interest. There are about 2,000 certified pervious concrete technicians and five pervious concrete craftsmen. In its proposed specification for pervious concrete, which is working its way through the ACI approval process, ACI Committee 522 has included a requirement for one NRMCA pervious concrete craftsman or five pervious concrete technicians to be on a crew for a pervious concrete pavement installation.

NRMCA maintains an online resource for the local sponsoring groups and people interested in obtaining certification at <http://www.nrmca.org/certifications/pervious/>. It also includes a list of currently certified personnel.

As with any new program, policies and criteria will need to be updated to suit the needs of the technology. The technology is evolving, and there are significant innovations in concrete mixtures relative to the use of admixtures and fiber reinforcement and in construction methods for a wide variety of applications, from recreational and residential pavement applications to more industrial-type applications with higher anticipated traffic loading. Construction techniques will change based on the application and the certification text will need to be updated continually to

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Pervious concrete is a technology that can help designers, property owners and stormwater regulators meet the latest stormwater regulations and green building standards.

accommodate innovation. NRMCA solicits feedback to update its text and will incorporate revisions as needed.

In looking back at the established certification criteria, there is a large difference between the numbers for technician and craftsman. This is understandable because placing pervious concrete pavements is often not the primary business of a concrete contractor. Further, among those certified as a technician, there is no clear distinction between qualified contractors and those who passed the written exam because of an interest in the technology.

NRMCA polled the Pervious Concrete Contractor Certification Committee on revising the certification levels and criteria to incorporate an intermediate level called “Installer,” which acknowledges that there are many contractors who are installing pervious concrete successfully but have not gained the 1,500 or 3,000 hours of experience required for craftsman certification. In recognition of this fact, the committee has approved the following changes:

- Pervious Concrete Technician – successfully passing the written exam with a 75 percent score.
- Pervious Concrete Installer – possessing a current ACI flatwork technician certification, successfully passing the

written exam at 75 percent, successfully passing a performance evaluation administered by the local sponsoring group, and documenting at least three successful installations totaling a minimum of 10,000 square feet.

- Pervious Concrete Craftsman – possessing a current ACI flatwork technician certification, successfully passing the written exam with a 75 percent score, and documenting work experience (3,000 hours of placing pervious concrete OR 1,500 hours work experience and passing a performance evaluation administered by the local sponsoring group).

Contractors who have passed the written exam in the past will be permitted to apply for the Pervious Concrete Installer certification.

NRMCA is currently developing an application for accreditation by the American National Standards Institute (ANSI) for the Pervious Concrete Contractor Certification Program. The accreditation is based on ISO Guide 17024, and the intent of obtaining accreditation is to elevate the credibility of the certification program to designers and specifiers of pervious concrete. Regardless of whether NRMCA is successful in obtaining accreditation

status for this program, this process will incorporate several useful changes in the policies and administration of the certification program.

Finally, a word of caution on certified personnel under any certification program. Certification programs only ensure that the person has completed established certification criteria and do not speak to reputation or quality of work. Owners wanting to construct pervious concrete pavements are encouraged to follow normal selection processes to ensure successful projects. These include ensuring that the selected contractor has an established reputation and has completed successful projects constructing pervious concrete pavements verified by appropriate references.

Pervious concrete is a technology that can help designers, property owners and stormwater regulators meet the latest stormwater regulations and green building standards. NRMCA, its state affiliates and other national partners are dedicated to maximizing the success of pervious concrete installations through the NRMCA Pervious Concrete Certification Program. ■

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