

ACI Nozzleman Certification Sessions: What Not To Do

By William T. Drakeley Jr.

As most of *Shotcrete* magazine's readership is probably aware, the American Concrete Institute (ACI) has a shotcrete nozzleman certification program for both dry- and wet-mix in vertical and overhead orientations. Much, if not the majority, of the required testing for certification is administered through the American Shotcrete Association (ASA), which includes a day of education prior to the written and performance portions of the ACI test criteria. As a very active ASA Examiner for the ACI certification process, I have had my share of testing experiences. On certain occasions, one's best-laid plans can be completely derailed. If you are considering hosting or testing for the **ACI Nozzleman Certification** or are having your employees test for it, read on for some free advice about the trials and tribulations of this certification process. In this somewhat rambling stream of consciousness, you'll find, in my humble opinion, helpful hints about what NOT to do when testing for your nozzleman certification.

Schedule

Do not pack 3 days of testing procedures into 2 days. **Leave enough time for a thorough review of the shotcrete discipline for which you are testing.** Rushing through panel shooting because you need to start a job the next day has negative effects. First, it short-circuits some of the finer points needed to complete the test. You may also give the examiner the impression that you are neither a serious examinee nor a serious contractor, thereby depriving yourself of the benefit of the doubt.

Reference Material

Read the book. Look over the fine print. Study the back pages where the actual performance exam is right in front of your face! All testing documentation is printed in ACI CP-60, "Craftsman Workbook for ACI Certification of Shotcrete Nozzleman." Continuing my point on scheduling, give the crew enough time to read and study before the examiner shows up. Let's face it—many of us feel that the hardest part of the whole certification process is the written test.

Most nozzlemen did not go to Harvard (thank goodness). Having the crew pick up all study reference material the night before the exam almost always yields failed test scores. The workbook comes in both English and Spanish. ASA also makes accommodations for examiners to read the test aloud to those who know the material but have trouble with the written word. **Know the material before the examiner arrives.**

Test Disciplines

Don't take the overhead test if you do not have the required hours or experience in overhead shooting. Don't shoot a dry panel if you only do wet and vice versa. As an examiner, we can immediately tell if someone is not well-versed on a certain shotcrete process or orientation. Knowing which equipment to use based on the application also shows the examiner that you understand the process. For example, a small 2 in. (50 mm) rubber nozzle tip with no accelerator is not the tool to use in an overhead or tunnel environment. An experienced nozzleman would know this. Showing up to a day of testing underprepared in terms of equipment is a really bad sign. I would estimate that the majority of those who choose to take the overhead test do not qualify to take the test. Giving the examiner the dismissive reason that the overhead certification is required on the next job you are bidding on is not a good excuse for lack of knowledge. Even if you do luck out and pass the panel test, you may find yourself, as well as your entire application, in dire straits when you are assigned a job that is significantly more difficult than a panel (refer to Learner's Permit below). It also goes further in terms of verification, such as when an owner or agent starts looking into your overhead background experience and finds out that you have none. Couple this with your examiner's loss of credibility at the ACI testing level for passing you, and it's not just yourself you're hurting. **Test on what you know.**

Preparedness

The day the examiner arrives is not the day to set up for the testing. Make sure the scaffolding is set up at the right height and secured. Build the

test panels with the right size reinforcing bars (refer to Fig. 1) and have them correctly spaced apart. (I have found No. 10 bars [No. 30M] in panels during a session instead of the required No. 8 bars [No. 25M].) Verify the panel integrity. All these items are listed in the nozzleman certification workbook (CP-60). Rushing around and setting up the test site while the examiner is waiting can set the wrong tone for the entire session. It also puts extra stress on the already nervous nozzlemen.

Core Drilling

A handheld grinder with a 4 in. (102 mm) core bit is not a proper core drill setup. In fact, it will put you in the hospital with broken wrists. It is a good idea to have more than one core drill rig with new bits that have been tested prior to the session. If your crew does not core anything or has never seen a core drill in action, hire somebody to do it for you (refer to Fig. 2). Many cores for inspection have been wrecked by novices on the coring rig.

Panel Movement

If you find yourself underneath the shotcreted panel on the floor, it usually means you tried to move it by yourself or without adequate support and help. SLOW DOWN. Be safe and take your time. Also, do not be in a rush to trowel off excess concrete while the material is still in its plastic state. You receive no bonus points for the best-looking bottom of a panel. Besides, rushing to work or trowel the fresh shotcrete may also cause undesirable movement in the panel, which leads to cracking or other internal damage.

Ask Questions

During the educational portion of the session, please ask questions. I know the testing makes everyone uncomfortable, and examiners are not allowed to aid or assist in any way during testing. This means you must **ask questions beforehand**, even if you think those around you may know the answer, or you feel too embarrassed to say something. Most people taking the test have similar questions. Those who ask “what does this mean?” or “how will the test go and what should I look out for?” are the ones who pass.

Show and Tell

Do not invite inspectors, job owners, or future contract parties to your certi-

fication session. Something may go awry and you will need to react or switch gears. Having an audience watch you perform may be unfavorable, especially when there are pumpability issues, nozzle plugging, overhead fallout, or air-compressor troubles, which are not things you want a future client to see. Always separate a certification session from a pretest or mockup session. Too many eyes watching your every move in shotcrete testing takes the focus off the tasks at hand (refer to Fig. 3).

PAID ADVERTISEMENT



Fig. 1: Overhead panels prepared prior to the day of shooting, braced and set in an orderly fashion



Fig. 2: More than one core drilling rig with crews who have experience in the operation



Fig. 3: ACI panels adjacent to mockup underground section, along with 30 or so inspectors, owners, and bystanders. A small space with a big group, which is less than ideal

Learner's Permit

Do not be fooled by this certification. Passing the test gives nobody the right to take on all shotcrete applications. **This is just a simple certification identifying those nozzlemen who know the basics and can implement remedial to average placement techniques.** Successfully shotcreting sophisticated infrastructural work, underground, dome, or heavy reinforcing bar congestion is not covered in this certification. One would need to be a qualified contractor with competent crews and/or a company that has the equipment and experience to do the job. There are many in this field who take the certification and proclaim expertise in all aspects of shotcrete right away. With a job that goes sour, you not only hurt your reputation but all in the industry as well.

The ACI Nozzleman Certification is a great first step in achieving correct shotcrete application. Being prepared, testing for your strengths, and taking advantage of the educational opportunities are all practices that allow you to pass this entry-level criterion. It is a step forward into the shotcrete world. By observing and not repeating the aforementioned mistakes, this journey will not be prematurely derailed.



William T. Drakeley Jr. is President of Drakeley Industries and W. Drakeley Swimming Pool Company. Drakeley Industries is a shotcrete consulting firm that is dedicated to the training and implementation of the shotcrete process in regards to building water-retaining structures, ground support, and underground shotcrete application. Drakeley Pool Company is a design/build construction and service firm specializing in in-ground, high-end commercial and residential pools. Drakeley is an active member of ACI Committee 506, Shotcreting. He is the first ACI Certified Shotcrete Examiner from the pool industry nationwide. Drakeley is also an ACI Certified Nozzleman, ASA Board of Direction member, ASA Technical Advisor, and Chair of the ASA Pool & Recreational Shotcrete Committee. His writings have been published in national and international trade magazines, including Shotcrete, Watershapes, Pool and Spa, and Luxury Pools magazines. In addition, Drakeley is a Platinum Member of the Genesis 3 Group, a licensed member of the Society of Water Shape Designers, and a member of the Association of Pool and Spa Professionals (APSP). He is also the Concrete/Shotcrete Instructor at the Genesis 3 Pool Construction Schools and NESPA Region 1 Show in Atlantic City. As an Instructor/Trainer, Drakeley has given lectures on shotcrete applications for various pool trade shows and for World of Concrete. Drakeley is an Expert Witness regarding shotcrete applications for the swimming pool industry.