

ACI's Shotcrete Nozzleman Certification Program Arrives in Asia

Shotcrete is used on many projects in Asia today. Currently, however, there are no governing standards for assessing the quality of the shotcrete applied and the workmanship employed during the shotcreting process. It is also not uncommon for shotcrete nozzlemen to be replaced more than once during a single project and, in fact, none of them are required to have any form of certification.

The Society of Rock Mechanics and Engineering Geology Singapore (SRMEG), with the support of the Building and Construction Authority Singapore (BCA), proudly introduced Singapore's first ACI Shotcrete Nozzleman Certification Program in October this year. Conducted by Associate

Professor Marc Jolin, an ACI-approved Shotcrete Nozzleman Examiner and ASA Educator, and SRMEG, this program was an important milestone for the construction industry in Singapore and Asia. Prior to this event, the ACI Shotcrete Nozzleman Certification Program had never been conducted in Asia. The program was held October 7-9, 2009, and was attended by 10 nozzlemen from six companies. All who attended were experienced nozzlemen with at least 500 hours of experience with wet-mix shotcrete hand nuzzling. Participants came from countries around the region (Thailand, Australia, Hong Kong, the Philippines, and Singapore), which has created the opportunity for Singapore to become a center of shotcrete excellence in Asia.

No certification program can address all potential variables; but the ACI Shotcrete Nozzleman Certification ASA Education Program aimed to provide the nozzlemen with improved shotcreting knowledge and skills and, more importantly, international recognition as professional craftsmen. Upon successful completion of the program, the nozzlemen's certificate is valid for 5 years. It will be beneficial for projects to employ ACI-certified shotcrete nozzlemen, which assures shotcrete



Fig. 1: The participants listening to Associate Professor Marc Jolin



Fig. 2: (from right to left) Yang Kin Seng (BCA), Vice-President of SRMEG; Associate Professor Marc Jolin; SRMEG Shotcrete subcommittee members; and the participating nozzlemen



Fig. 3: Associate Professor Marc Jolin conducting the training session



Fig. 4: Nozzleman participating in the vertical performance examination



Fig. 5: Participating nozzlemen after the vertical and overhead spraying sessions



Fig. 6: Nozzleman coring the test panels

specifiers (or consulting engineers) that the nozzleman has the required professional knowledge and capabilities to properly apply shotcrete.

Working Timeline

May 5, 2009, to October 5, 2009—The Shotcrete Subcommittee, comprising Gan Cheng Chian, Ong Perng Fey, and Lee Kah Fai of SRMEG, worked to bring the ACI Shotcrete Nozzleman Certification Program from North America to Singapore.

October 6, 2009—Jolin from Laval University, Quebec City, QC, Canada, gave a seminar on the ACI Shotcrete Nozzleman Certification Program at the Shaw Foundation Alumni House in Kent Ridge. The seminar aimed to inform people in the construction industry about the aforementioned program in greater detail.

October 7, 2009—Ten shotcrete nozzlemen from around Asia attended an ACI Shotcrete Nozzleman Certification session. The session was conducted by Jolin, an ASA-approved Educator.

October 8, 2009—Jolin, an American Concrete Institute (ACI)-approved Examiner, conducted the certification testing. The 10 shotcrete nozzlemen had to complete a written examination before going to a site for the performance examination that required shooting/spraying vertical and overhead panels using wet-mix shotcrete. By 6:30 p.m., all of the nozzlemen had completed the written and performance examinations of the ACI Shotcrete Nozzleman Certification Program.

October 9, 2009—Jolin and a team of concrete coring specialists proceeded to core five concrete

cores from each shotcreted panel. By 5:00 p.m., all coring was completed and all cores were examined and assessed by Jolin.

The following individuals are the first shotcrete nozzlemen in Asia to pass the ACI Shotcrete Nozzleman Certification for both vertical and overhead positions in the wet-mix category:

- Lim Choon Teck (Singapore) from Tunnel and Shaft Pte Ltd;
- Lee Kah Fai (Singapore) from Tam International Pte Ltd;
- Ritchard Hood (Hong Kong) from Tam International Pte Ltd;
- Steven Tan Boon Peow (Singapore) from SembCorp Design and Construction Pte Ltd;
- Tun Thein Naing (Myanmar) from SembCorp Design and Construction Pte Ltd;
- Alve Kjell Robert Rutgersson (Australia) from Tam International Pte Ltd;
- Kachagorn Sakuna (Thailand) from Right Tunnelling Co., Ltd; and
- Ramir Navarro Cagot (Philippines) from Normet International Ltd.

The following individual is the first shotcrete nozzleman in Asia to pass the ACI Shotcrete Nozzleman Certification for vertical application in the wet-mix category:

- Chayanatthapon Khoonchan (Thailand) from Right Tunnelling Co., Ltd.

SRMEG, with the support of BCA, will be conducting Singapore's second ACI Shotcrete Nozzleman Certification Program in March 2010.