

Certification Program for Public Works Technicians

Report #3

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Prepared by:
Jim Andersen,
Consultant for the
Applied Science Technologists and Technicians of B.C.

Executive Summary

This report has been commissioned by the Applied Science Technologists and Technicians of BC (ASTTBC). It is the third, in a series of reports from our project to support Public Works operations in BC. This report describes work to date and outlines next steps for development of our registration program for Public Works Technicians.

Phase one was a Needs Assessment. Consultations with industry stakeholders and a survey of public works managers and supervisors were used to examine employment and training needs for Public Works operations. A report was published March 31, 2013 (available on request). The summarized conclusions were as follows:

- Stakeholders indicate a need for new training opportunities for entry level public works technicians.
- Stakeholders generally support ASTTBC's proposal to serve as the certifying body for public works technicians.

Phase two was an Occupational Analysis. Workshops with subject matter experts were held to examine the essential skills required for employment in Public Works operations. A report was published October 18, 2013 (available on request), including an occupational analysis chart summarizing the essential skills and a listing of detailed occupational competencies with specific performance objectives. Competencies were developed for three levels of registration as follows:

- Level 1 for entry level workers
- Level 2 for experienced and skilled front line workers
- Level 3 for specialized technicians with advanced competencies and perhaps supervisory or managerial experience

Phase three is underway, to complete the development of logbooks, training standards and a challenge process.

Highlights of the proposed program are as follows:

- Provide a multi-level registration framework to support a career pathway from entry level worker, to skilled specialist, to manager/supervisor.
- Offer Technical Specialists a 'ladder' approach to achieve the current ASTTBC advanced registration categories of Certified Technician (CTech) and Applied Science Technologist (AScT).
- Offer a challenge process for experienced workers who wish to achieve Technical Specialist certification without completing formal in-class entry level training.
- Provide a Logbook to clarify the competency expectations for applicants and to support ASTTBC's evaluation of applications for registration.
- Implement training standards to support ASTTBC accreditation of training programs and endorsement of continuing professional development courses.

Outline of Proposed Registration Program

ASTTBC proposes to offer certification for Public Works Technicians within our Technical Specialist registration category. This category of registration is intended for front line workers that require some degree of technical expertise to supplement their hands-on competencies.

For example, ASTTBC currently provides Technical Specialist certification for House and Property Inspection, Fire Protection, Onsite Wastewater Practitioners and others.

The Technical Specialist designation is distinct from our professional accreditations of Certified Technician (CTech) and Applied Science Technologist (AScT) – which are generally applicable to a more advanced level of technical competency.

Registration framework:

Technical Specialist Registration for Public Works Technicians will be offered within a multi-level framework.

- Level 1 for entry level workers
- Level 2 for experienced and skilled front line workers
- Level 3 for specialized technicians with advanced competencies and perhaps supervisory or managerial experience

Within each level, there will be endorsements for each of the following areas of practice:

- Water Distribution Systems;
- Sewer and Wastewater Systems;
- Roads and Sidewalks;
- Parks Maintenance;
- Buildings Maintenance

Registration will be subject to minimum experience requirements and specific competencies. The required occupational competencies were developed by extensive consultation with industry, and are listed within our Occupational Analysis report. These are intended to be a 'living document' subject to revision based on stakeholder input and our initial experience as the registration program rolls out.

The specific amount of required workplace experience is under consideration and we invite further input from industry. Our current proposal for entry level registration is in the 1000 to 2000 hours range.

Alignment with ITA and EOCP:

Existing certifications related to public works include the Industry Training Authority (ITA) Certificate of Qualification for Parks and Public Works Operations Workers (<http://bcworks.ca/certify/>), and the Environmental Operators Certification Program (EOCP) (<http://www.eocp.ca/program-info/>). The ASTTBC registration program is not intended to duplicate those certification programs. Our registration program will be part of a career pathway progressing from entry level front line work, to advanced technical and managerial positions. ASTTBC registration requirements include a broader set of competencies than those encompassed by the ITA Certificate of Qualification or EOCP certification.

Our listing of occupational competencies includes the ITA Certificate of Qualification as a recommended competency for our Level 1 registrants. EOCP certification is a required competency for endorsements for water or sewer, within our level 2 and 3 ASTTBC Technical Specialist registration.

'Ladder' approach:

Technical Specialists can achieve the ASTTBC advanced registration categories of Certified Technician (CTech) and Applied Science Technologist (AScT). These categories could be considered as the 'next step' for Level 3 Technical Specialists with considerable experience and technical competency. Existing ASTTBC Registration Policy and procedures will apply.

Challenge process:

A challenge process will be incorporated for experienced workers who wish to achieve entry level Technical Specialist certification. The goal is to avoid unnecessary restrictions to certification and to recognize that the required skills and knowledge could be achieved in the workplace, without completing an accredited, formal in-class training program. Shorter term courses could be a valuable addition to workplace experience. In-house training can be an alternative to training by third-party training providers. Self-study, mentoring and continuing professional development strategies can provide essential skills and knowledge.

The challenge procedures will be based on our existing Prior Learning Assessment and Recognition initiative. Challengers will be assessed to ensure they have the essential skills as per our Occupational Competencies. A listing of those Competencies will be available on line so that potential applicants can determine ASTTBC expectations, identify 'gaps', and develop learning strategies.

The traditional approach to assessing applicants relies heavily on transcripts from accredited training providers. In contrast, our approach for challengers will emphasize skills development on the job. We propose enhanced assessment techniques including the following:

- Written 'challenge' exam, to assess theoretical competencies.
- Review of the applicant's portfolio, expected to include evidence and examples of previous work; relevant transcripts and certifications from training; references and resumes.
- Competency conversations - a technical conversation/interview with a fully qualified assessor to confirm required knowledge.
- Practical assessment - direct observation and evaluation by a fully qualified assessor of the challenger/applicant performing practical tasks.

Logbook:

The goal for the proposed logbook is to clarify the competency expectations for applicants and to support ASTTBC's evaluation of application submissions.

The logbooks will be used for two main functions, first to record the time spent on the job, secondly to record the practical competencies achieved.

The logbook will list the minimum required occupational competencies that are primarily practical, rather than theoretical ... and that lend themselves to practical evaluation rather than written examinations. The practical competencies will be defined in the Logbook, together with performance criteria to guide the evaluation by a competent assessor. A fully qualified technician would 'sign off' to confirm the trainee has mastered each of the practical competencies.

The logbook will indicate the minimum hours of work experience required for certification at each level and for distinct endorsements. The applicant will enter the hours worked and a brief description of tasks. An immediate supervisor would 'sign off' entries in the logbook to validate the record of experience.

Logbooks would then be submitted to ASTTBC as confirmation of the experience and competency requirements.

A digital version of the logbook is being considered. This could function as a smart phone app or online version hosted on the ASTTBC server.

Training standards:

To ensure consistent, high quality training for our members, ASTTBC generally requires that training and education programs be accredited. This involves submission by potential training providers to ASTTBC of course outlines, learning resources, and similar supporting information. ASTTBC reviews the submissions to ensure the proposals meet our Training Standards. After initial accreditation, reviews are conducted regularly to ensure quality of training over the long term.

Training standards include our listing of Occupational Competencies, plus requirements for training facilities, instructor qualifications, educational resources, and recommended time allotments for training. Training providers are expected to align their learning outcomes with the essential skills specified within our Occupational Competencies.

The Path Forward

Consult with Industry stakeholders:

ASTTBC will continue to consult with our existing partners and subject matter experts from industry. Industry groups, training providers and government agencies. Any other interested parties are invited to provide input.

Specific issues targeted for further consultation include the following:

- Determine experiential requirements for registration. Currently anticipated in the 1000 to 2000 hours range.
- Validate our current listing of Occupational competencies and identify any potential improvements.
- Seek technical input for development of the challenge processes and logbook.

Complete the logbook, enhanced assessment instruments and training standards:

ASTTBC will develop a logbook for public works, based in part on our existing logbooks and e-portfolios for other registration categories.

To support the challenge process, ASTTBC will develop written exams; guidelines for portfolios, guidelines for conducting the competency conversation/technical interview, and evaluation criteria for practical assessments.

Training standards will incorporate our Occupational Competencies (already developed), with the addition of requirements for training facilities, learning resources, instructor qualifications and time allotments. These will be substantially based on existing ASTTBC training standards for other areas of practice.

Continued partnership with First Nations:

Our initial (and continuing) partners in this initiative are First Nations. Our goals have expanded to serve the broader community, but our primary goal remains to enhance employment opportunities for First Nations members and grow technical capacity within First Nations Public Works operations.

ASTTBC will support the development of a standardized public works training program that addresses the specific needs of First Nations communities. To support this goal, here is an outline of our findings and objectives specifically related to First Nations.

- First Nation communities are often located in remote areas with limited access. This poses logistical challenges to Public Works operations and “changes the mindset”. The work is different. Attending training in major centres involves high travel expenses. Good internet connections are limited in some cases.

ASTTBC will ensure the remote nature of communities is considered within training standards, registration requirements and processes. ASTTBC will support distance learning and other strategies to deliver training in a practical manner to remote communities. A training strategy is contemplated that involves distance e-learning, supported by existing First Nation educators in the community, and practical on the job training within the community’s public works operations.

- There is a wide diversity in the types and complexity of infrastructure within First Nation communities. Many of the respondents said that training programs are often tailored for modern, large scale, complex infrastructure systems rather than the infrastructure types commonly used in smaller communities.

ASTTBC will include provisions in the training standard that encourage curriculum and learner evaluations (written and practical evaluations) that are not 'metropolitan centric', and recognize the different types of infrastructure and unique public works challenges for First Nation communities.

- Respondents told us there is considerable reluctance amongst First Nations people, especially men, to participate in conventional classroom education. They also told us they need workers who can solve 'real world' problems and perform practical tasks. They told us that existing training programs don't always deliver relevant competencies and trainees sometimes return feeling intimidated by the experience. They consistently refer to difficulty in absorbing information from a lecture, or from a textbook. They describe better results from relational and conversational approaches, with a heavy reliance on hands-on learning tasks.

ASTTBC will include provisions in the training standard that encourage instructional methods that are predominantly relational, oral, cooperative, collaborative, and practical (hands on). Some specific ideas for teaching methods and evaluation of learning include:

- Dialogue ... conversational styles
 - Relational approaches, group work, sharing
 - Discussion of relevant experiences
 - Peer teaching, peer discussions, peer evaluation
 - Case study methods
 - Critical thinking, problem solving
 - Practical, hands-on learning tasks
 - Authentic assessment tasks, portfolios and process-folios, narrative evaluations
- Respondents pointed out that a unique aspect of Public Works operations for First Nations communities is maintenance and repair of buildings. In many cases, the personnel who look after Public Works are the same crew who look after band owned buildings. Although there are some existing training programs related to building maintenance, several respondents expressed overall dissatisfaction with the content and scope. There is a perceived need for new training opportunities that provide entry level competencies for building maintenance and repair.

The ASTTBC endorsement categories include a distinct category for Buildings Maintenance. Our listing of Occupational Competencies include a section specifically for buildings maintenance. The training standard will include provisions that encourage training for Building Maintenance workers.