

Summary Report: Survey Results for the Reserved Practice of ASTTBC Technologists and Technicians

The Applied Science Technologists and Technicians of British Columbia (ASTTBC) conducted a survey in late 2023 to early 2024 to collect feedback from *Professional Governance Act (PGA)* registrants, the public, and industry on establishing reserved practice for Applied Science Technologists and Certified Technicians.

The survey collected feedback from 422 respondents including 37 employers.

Overall respondents across all categories, including ASTTBC registrants, non-ASTTBC respondents, and employers agreed that:

- Work in the engineering and engineering technology disciplines can pose serious consequences if performed by individuals without the proper training;
- a gap between professional engineers and those with no skills or training in their discipline. This gap is fulfilled by technologists and technicians; and
- There are established codes and standards utilized by technologists and technicians to guide their work.

Regardless of their risk profile, respondents identified seven common areas of work performed by technologists and technicians:

- Field work and inspections,
- Project management,
- Professional collaboration,
- Regulatory compliance,
- Quality assurance,
- Risk assessment and mitigation, and
- Administrative and management tasks.

To the extent that these activities are classified as low, medium, or high risk is largely dependent on how respondents evaluate the work in relation to:

1. Public and environmental safety concerns
2. Working conditions and hazards
3. Project complexity and scope
4. Technical expertise
5. Financial and operational implications
6. Regulatory compliance and oversight

Nearly 82% of respondents agreed that low and medium risk work is an acceptable limit to allow technologists and technicians to review and authenticate their own work.

Overall, there is strong conceptual support for establishing reserved practice for technologist and technicians; however, a significant theme gleaned across the survey data was the caution for more detailed information, including possible implementation, so that impacts can better determine on industry, organizations, and individuals.

Survey and Respondent Overview

From September 19, 2023 to February 15, 2024 ASTTBC conducted a 41 question long-form survey to collect data to inform the establishment of reserved practice for their Applied Science Technologists and Certified Technicians.

Questions were displayed to respondents based on their prior answers and allowed ASTTBC to customize the survey according to the respondent's affiliation with ASTTBC and whether they were representing their own personal views of the view of an employer or organization.

During the data collection period, ASTTBC received complete responses from 422 respondents, of which 37 were collected from employers and organizations while the remaining 385 represented the views and opinions of an individual.

Discipline	Total	ASTTBC Registrants	Non-ASTTBC respondents	Individuals	Employers
Arch. & Building	73	54	19	67	6
Biomedical	3	3	0	3	0
Chemical	2	2	0	2	0
Civil	140	118	22	130	10
Electrical	37	31	6	33	4
Electronics	18	18	0	15	3
Environmental	29	29	0	26	3
Geomatics	18	14	4	15	3
Industrial	4	4	0	4	0
Information Technology	1	1	0	1	0
Instrumentation	10	8	2	9	1
Marine	3	3	0	3	0
Mechanical	33	30	3	30	3
Metallurgical	2	2	0	2	0
Mineral	3	2	1	3	0
Petroleum	1	1	0	1	0
Naval Architecture	2	2	0	2	0
Registered Technical Specialist	41	40	1	37	4
Others	2	0	2	2	0
Total	422	362 (85.7%)	60 (14.3%)	385 (91.2%)	37 (8.8%)

Table 1: Survey respondents by discipline, ASTTBC registration status, and respondent type (as an individual or an employer)¹

Respondents who are not affiliated with ASTTBC are represented under the non-ASTTBC respondent column. For these 60 respondents, their representation is depicted in the table 2.

¹ For classification purposes, ASTTBC registrants holding registration with another.PGA regulator are only counted as ASTTBC registrants.

Non-ASTTBC Respondents	Respondents
Engineers and Geoscientists BC (EGBC)	28
Architectural Institute of BC (AIBC)	3
College of Applied Biologists (CAB)	1
Forest Professionals BC (FPBC)	1
Association not Reported	27
Total	60

Table 2: Non-ASTTBC affiliated survey respondents

Recognizing that a respondent may hold registration with ASTTBC as well as another *PGA* regulatory body, approximately 15% of respondents (64) reported a registration with another *PGA* regulator.

Overall, respondents to this survey averaged over 15 years of experience within their given field, with nearly 50% of all respondents reporting more than 20 years of experience.

Number of years experience in your field?

Answered: 422 Skipped: 0

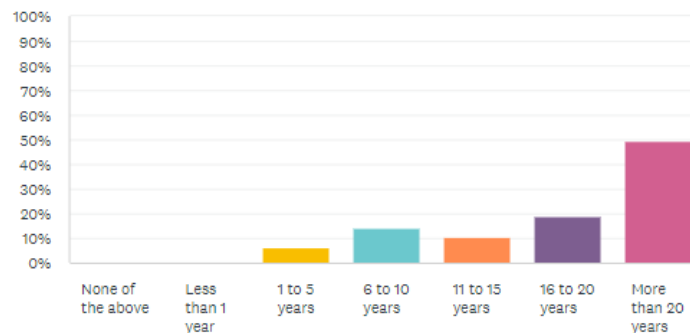


Figure 1: Respondent years of experience within their field of work.

For employers, private firms related to an engineering and/or engineering technology discipline represented the majority of respondents (29) while public agencies, such as local governments, school districts, utilities, and regulatory agencies, comprised of the remainder.

For the purposes of reporting, the data presented is examined on the basis of whether a respondent is an ASTTBC registrant, a non-ASTTBC respondents, and/or representing the views of a group or employer. Findings unique to employers, as opposed to those represented by individual respondents, will be highlighted as observed.

Perceptions of Technologist and Technician Work

ASTTBC respondents

ASTTBC registrants were asked to evaluate their work in six areas. The results of this show that:

- 48% of respondents believe their work routine receives feedback from their supervising professional;
- 71% of registrants believe their work is highly specialized and can only be completed by a limited number of people;
- 92% of registrants routinely rely on established codes and standards as guidance for their work;
- 69% make technical decisions where there is no established code or standard;
- 88% understand when they are required to engage another professional to provide supervision so that they may complete work; and
- 86% believe their work can result in serious consequences if performed by someone not properly trained.

While the distribution of responses across the levels of agreement are fairly consistent, one area that varied was a registrant's perception that their work routinely received feedback from their supervising professional. In this case, there was only slight agreement with this statement. However, some of this variation can be explained by the fact that 74% of respondents reported that most of their work is completed without the direct supervision of another registered professional.

Non-ASTTBC respondents²

For non-ASTTBC respondents, they were asked to evaluate the work of technologists and technicians on seven factors as well as provide an evaluation of their own work on another factor. For this group, the results show:

- 88% believe the work of technologists and technicians typically meets quality standards and accepted practices;
- 78% believe work completed by more experienced technologists and technicians typically requires less scrutiny than those newer to the industry;
- 86% believe technologists and technicians fulfill a gap between Professional Engineers and those with no skill and training in their discipline;
- 75% reported having established codes and standards to guide the work of technologists and technicians;
- 59% rely on the recommendations from technologists and technicians to make informed technical decisions when there are no established codes and standards;
- 67% understand when a technologist and technician requires supervision from another professional to complete work; and
- 76% agree that their work can have serious consequences if completed by individuals with no skill or training.

² Includes respondents who hold registration with ASTTBC but primarily identify as a registrant with another PGA regulator or group.

When examining the results from across the two groups of respondents, there is general agreement that:

- Each believes their work poses serious consequences if performed by individuals without proper training;
- There is a gap between professional engineers and those with no skills or training in their discipline. This gap is fulfilled by technologists and technicians.
- There are established codes and standards utilized by technologists and technicians to guide their work;
- Where there are no codes and standards, technologists and technicians are relied upon to provide their technical opinion and aid in decision making; and
- Within their respective disciplines, there is an understanding by each group when to seek out direct supervision and when the other needs to provide it.

Scope of Work

While the survey asked respondents to identify specific areas of their work to help define their scope of work, the results are highly dependent on their discipline and fields of practice. The results presented in this section provides an overarching summary and identify common themes across disciplines.

Defining work by risk

Respondents were asked for their specific insights on what they found as low, medium, and high-risk work within their fields and what factors led them to this conclusion.

Across all respondent groups as well as risk types, the most common work performed by technologists and technicians were:

- Design and drafting
- Field work and inspections (includes data collection, technical analysis and report writing)
- Project management
- Professional collaboration (collaborating with professional engineers and consultations on design reviews while providing technical support and guidance to clients and contractors)
- Regulatory compliance (ensuring compliance with regulatory requirements and industry standards)
- Quality assurance
- Risk assessment and mitigation
- Administrative and management tasks

While these tasks were common across all risk profiles, what made them a low versus high-risk work were the factors considered. In particular, respondents identified six key factors they considered when assessing the risk:

1. Public and environmental safety concerns

- High-risk work is defined as work that can lead to the direct endanger of the public or environment. Respondents noted design errors, improper construction, or failure to adhere to regulations as typical risk sources.
2. Working conditions and hazards
 - High-risk work is often associated with adverse environments, remote locations, or heavily congested urban areas, exposing them to various risks such as adverse weather, heavy machinery, and traffic hazards.
 3. Project complexity and scope
 - Higher complexity projects are often associated with higher risk levels.
 4. Technical expertise
 - Higher risk work is often equated with increased technical expertise that is not described and/or contemplated within the requirements listed in guidelines, bylaws, and published codes and standards.
 5. Financial and operational implications
 - Evaluation of timelines and costs associated with a project. Higher risk work in this factor is defined by timelines and the potential higher financial costs associated as well as the potential for long-term liabilities.
 6. Regulatory compliance and oversight
 - The higher the level of compliance requirements and regulatory oversight resulted in higher levels of assessed risk.

Interesting to note that while each of these risk factors were consistently identified across all respondent groups, how each group prioritized the risk level was different. In particular, employers rated the regulatory compliance and oversight factor as the primary consideration when assessing risk, while those responding as individuals (ASTTBC registrants and non-ASTTBC respondents) cited project complexity and scope as the primary consideration followed by public and environmental safety concerns.

Review and Authentication of work

Respondents were asked to provide their insight into the type of work that a technologist and technician can complete safely without the need for further review or authentication by a supervising professional.

Both employers and individual respondents agree that technologists and technicians should be able to complete and sign off on specific tasks within their field of expertise and competency without the need for supervision, as that is in the regulated practice of engineering, especially where regulatory requirements and standards already exist. This can include, but is not limited to, drafting, maintenance, field investigations, small-scale design work, basic civil designs, technical memos, feasibility studies, field inspections, testing, and commissioning, as well as handling specific systems and equipment.

ASTTBC respondents recognize the importance of complying with existing regulations but also express a desire for greater independence in signing off on their work when appropriate. This result is varied across disciplines. For example, respondents in the Civil Engineering

Technology discipline noted the high-risk profile often associated with civil projects and hence saw limited opportunities for application. Moreover, respondents noted that larger disciplines, such as Civil, tend to have well defined standards and processes for review and sign off of work that is often dictated by regulatory requirements.

Limited Licensure

The reserved practice survey explored the concept of ASTTBC applying a limited licensure credentialing model similar to those utilized by other *PGA* regulatory agencies. In the survey, respondents were asked if limited licensure could complement the establishment of reserved practice for technologists and technicians.

Overall, 75% of respondents expressed no concerns with the ASTTBC using limited licensure however, when reviewing the comments regarding possible opportunities for this type of credentialing could pose for their organization, the responses show that there is a wide interpretation on what it necessarily entails.

In particular the themes emerging from the comments included:

- Misinterpreting limited licensure for technologists and technicians as an ASTTBC administered P.L.Eng. program.
- Respondents reported limited opportunities to apply this within their organizations as their structure already requires minimum levels of training set at the technician and technologist levels.
- Seeing the value in allowing individuals, who are already performing the work, an alternate pathway to becoming credentialled that may not involve formal schooling.
- Current registrants identified an opportunity to use limited licensure as a form of specialized endorsements within a discipline.

In the end, while respondents are open to the possibility of using limited licensure, further definition and use cases would be required to assess the utility for most organizations.

Impact of Reserved Practice

To measure the impact of introducing reserved practice for technologists and technicians may have, respondents were asked to provide their level of agreement with various impact statements.

Arising from this question, it was noted that:

- while the majority of respondents (52%) believe there will be minimal impacts to industry and work practices with the introduction of a reserved practice, there is a significant portion (31%) that are undecided; and
- nearly 82% of respondents agreed that low and medium risk work within their disciplines could be independently reviewed and authenticated by technologists and technicians.

The level of agreement across all impact statements is consistent when examined across all respondent segments (ASTTBC registrants, non-ASTTBC respondents, and employers).

Concerns

While the majority of respondents explicitly expressed no concerns with introducing technologist and technician reserved practice (40% - 168 responses) or did not provide an answer (21% - 89 responses), for those who did provide an answer, there were three distinctive and consistent concerns expressed across all respondent groups:

- 1. Uncertainty arising from limited information regarding implementation**
 - Respondents questioned how the implementation would work in practice and whether it would address underlying issues effectively.
 - Questions arose about the specifics of implementation, verification of qualifications, and scope of practice.
 - Uncertainties remain regarding potential organizational impacts and downstream effects.
- 2. Impact of skilled labour on industry and business**
 - Respondents worried that additional requirements could exacerbate existing challenges in finding qualified workers.
 - Concerns about the impact on industry operations, small businesses, or job availability.
- 3. Potential conflicts with other professional designations**
 - Respondents noted potential for overlap in responsibilities with professional engineers and limited licenses issued by the Engineers and Geoscientists of BC.
 - Some respondents expressed concern that implementation of technologist and technician reserved practice may exclude engineers and geoscientists.

Key Messages for ASTTBC

As the final question within the survey, respondents were given the opportunity to provide direct feedback to ASTTBC regarding reserved practice and were asked:

What key message would you like ASTTBC to know?

Across all 422 responses, four key messages emerged and are presented in descending order from the highest mentioned item:

- 1. Expressions of support for reserved practice**
 - Respondents were supportive of establishing reserved practice for technologists and technicians and expressed appreciation for the work and collaboration to date.

2. Recognizing the value of Technologists and Technicians

- Establishing reserved practice recognizes the value, capability, and expertise of technologists and technicians.

3. Requests for more information and/or suggestions to improve ASTTBC's processes and systems

- Respondents recognized the improvement to safety that come with reserved practice but requested more details so that they may better determine the impacts.
- Requests for more clarity, information, or guidance regarding reserved practice and the limited licensure credentialing model.
- Respondents identified specific aspects of ASTTBC policies, processes and systems and suggested improvements.

4. Upholding Safety and Public Interest

- Respondents emphasized the importance of safety, public protection, and professional responsibility for all registrants as ASTTBC explores reserved practice.
- Adding reserved practice for Technologists and Technicians will complement the current system of public safety by adding another group of technical professionals that the public may rely upon.