



Guide to Professional Practice

Electrical Technology Services for Building Projects

This Guide has been approved by the Council of the Applied Science Technologists and Technicians of British Columbia

Applied Science Technologists and Technicians of BC
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PREAMBLE

The *Guide to Professional Practice: Electrical Technology Services for Building Projects* aims to define the competencies and scope of practice for ASTTBC registrants. ASTTBC acknowledges and reminds its registrants and others that while ASTTBC registrants may be fully competent to provide services, the regulatory frameworks such as the BC Building Code and the Vancouver Building Bylaw may not fully recognize ASTTBC registrants' competencies. ASTTBC has managed to achieve for its registrants many areas of Qualified Professional recognition and will be seeking QP recognition for the areas of practice defined in this Guide. This guide will be updated when the regulatory framework is amended to provide further recognition of ASTTBC members as Qualified Professionals (QP).

Registrants are required to comply with the Professional Governance Act, its regulations, ASTTBC Bylaws, including ASTTBC's Standards of Competence, any Guide to Professional Practice approved by the Council, applicable codes and standards of practice, BC Building Code and the Vancouver or other applicable local Building Bylaw as well as other applicable municipal, provincial, and federal legislation relating to the practice of electrical engineering technology for building projects.

1.0. DEFINITIONS

AScT means a person who is certified and registered as an Applied Science Technologist with ASTTBC.

CTech means a person who is registered as a Certified Technician with ASTTBC.

Direct Supervision (as defined in Bylaws of Engineers and Geoscientists BC) means the responsibility for the control and conduct of the activities, work or decisions related to the Regulated Practice that have been delegated to a Subordinate.

Registered Professional (as defined in the BC Building Code) means a person who is registered or licensed to practice as an architect under the Architects Act or a person who is registered or licensed to practice as a professional engineer under the Professional Governance Act. A similar definition is provided in the National Building Code and the City of Vancouver Building Bylaw.

Registrant means a person who is granted admission, enrolment or reinstatement in a class of registrants within a category of registration with ASTTBC.

2.0. PURPOSE

This Guide to Professional Practice for Electrical Technology Services for Building Projects (the "Guide") has been adopted to support ASTTBC registrants in understanding the service areas and taking professional responsibility within their field. The Guide also aims to provide a definition of scope of practice and legal limitations. While not exhaustive, the Guide provides a context for the type of technical functions, which a registrant may be qualified to carry out. The carrying out of additional

professional services is permitted under this Guide provided the services are consistent with the requirements of each project and this Guide.

This Guide recognizes that ASTTBC registrants have attained, by virtue of a combination of education, training and experience, competencies which enables them to apply known engineering technology principles and techniques to the solution of practical engineering technology problems of varying complexity within the ASTTBC definition of scope of practice, this Guide, and other applicable laws.

It is important to note that Letters of Assurance assigning professional responsibility and accountability for electrical design and field review services for buildings covered under the BC Building Code and the City of Vancouver Building Bylaw can only be signed and sealed by a Registered Professional as defined in the BC Building Code, the National Building Code, and the City of Vancouver Building Bylaw.

A registrant generally works within a team of professionals, which may include technologists, technicians, engineers, building officials, architects, or other technical and administrative staff. The role of the registrant will vary depending on the size and complexity of the facilities being designed in the project. There is no restriction on who may 'manage' professional services, with the understanding that the appropriate registered professionals are involved in carrying out the work.

A registrant may be the team leader of a project, which is more complex than the scope of practice contemplated by this Guide when responsibility is assumed by an appropriately qualified and registered professional.

A registrant must be able to recognize any unique characteristics, which, due to their complexity or other issues, are beyond their field of expertise and require the involvement of another qualified professional, whether a registrant of ASTTBC or another professional regulator. Consideration of such matters is especially critical when the risk to the public is increased by factors related to the type and size of project and the degree of impact on public health, safety, and the environment.

3.0. AREA OF PROFESSIONAL PRACTICE

A registrant may provide professional services for the electrical design and field review of buildings that is carried out within the terms of this Guide. The Canadian Electrical Code and the BC Building Code are examples of a range of codes and standards related to electrical design services for building projects that can be used as resources in the carrying out of such services. Currently, if a registrant provides services within Part 3 of the BC Building Code or Vancouver Building Bylaw, they must only provide these services while under the "direct supervision" of a Professional Engineer or Professional Licensee Engineering, as defined in the Professional Governance Act. This applies to renovations as well as new building projects.

A registrant will normally provide services in one or more of the following building types:

- Commercial
- Healthcare
- Industrial
- Institutional
- Municipal
- Residential

The registrant providing electrical design services may also be involved in other project related activities such as:

- preparation, evaluation, and adjudication of tenders
- project field review, supervision, and contract administration
- management of a project, or aspects of a project
- planning and scheduling
- teaching and mentoring
- operations and maintenance

A registrant shall take note of practice restrictions incorporated in other professional legislation and govern themselves accordingly and shall take note of the definition of the practice of professional engineering as defined under the Professional Governance Act and corresponding regulations of the Engineers & Geoscientists of BC, including where working under the direct supervision of a Professional Engineer or Professional Licensee Engineering.

4.0 ELECTRICAL TECHNOLOGY DESIGN SERVICES

This Guide recognizes the services that ASTTBC registrants have traditionally carried out in the provision of electrical design and field review services for building projects. Under the authority of the Professional Governance Act, ASTTBC Bylaws and this Guide, a registrant may carry out one or more of the services itemized under section 3.0.

A registrant can apply judgement in the selection of the applicable code or standard to be used.

The application of an appropriate code or standard to one component of a service does not permit completion of other components if there are not the appropriate codes or standards in place which can be referenced. The registrant is advised to identify, in their design, the code and/or standard used in carrying out the relevant service(s). When working under the supervision of a Professional Engineer or Engineering Licensee, the registrant must identify the code and/or standard of practice and it must be agreed upon by the supervising professional. This code or standard of practice may guide most of the work unless otherwise directed by the supervising engineer.

Depending on the size and complexity of the facilities being designed, the member may be called upon as the designer of a particular technical function as in those listed in section 4.0. or might alternately work as a member of a team.

This Guide does not deal with electrical technology design services outside of those required as part of the electrical services for a building. For example, electrical services for industrial processes or controls are not covered by this Guide.

ASTTBC registrants usually complete building design services up to distribution voltage levels as provided by the electrical utility (usually no greater than 35kV). The services a registrant may provide include:

- Design of distribution boards for three phase power requirements, which includes the sizing of busbars and the correct selection of equipment based on fault level calculations.
- Selection of fuse and protective switchgear to be installed in distribution equipment, including characteristic tests, the selection of the correct operating characteristics to meet with particular applications and determination of characteristic time and current operational curves.
- Design and specification of switchgear and panels for distribution.
- Service entrance design.
- Design of lighting systems including, for example, the calculation of illumination levels and visual comfort probability.
- Design of power cable networks, calculation of load levels, voltage drops and diversity factors including correct selection and sizing of cables to meet particular applications and fault levels.
- Design of motor control centres including motor control systems, the sizing of busbars and the correct selection of insulation and equipment based on load and fault level calculations.
- Design of under-floor heating which includes the specification and evaluation of the control system.
- Design/selection of energy management systems and energy metering including the evaluation of metering systems and tariffs.
- Design and selection of power failure automatic generating plant.
- Selection of Surge protection and Harmonic equipment.
- Lightning protection and grounding system design.
- Design and specification of control, network, and communication systems.
- Design and specification of fire protection, security and alarm systems and emergency lighting equipment.
- Field reviews of electrical installations to determine that the constructed works are in general compliance with the design intent.

5.0. CONTINUING PROFESSIONAL DEVELOPMENT (CPD)

Registrants must ensure that they are continuously updating and advancing their knowledge, skills, and competence through continued education and professional development studies. Continuing education requirements include, but are not limited to, trainings, workshops, certifications, and other requirements to support professional development in areas of practice, ethics, and competence. It is mandatory for a practising registrant to complete CPD requirements as detailed in ASTTBC Bylaws, Part VI and Schedule F.

6.0. STAMPING

In accordance with section 84 of ASTTBC's bylaws, temporary and practising registrants in good standing are authorized to affix their stamp and/or seal, with signature and date, to all designs, reports, specifications or other documents which may require stamp or seal, either as required by law or ASTTBC practice guidelines. Where such work is a part of a total service or product, the registrant will qualify the application of the stamp with respect to which portions of the work have been undertaken without supervision.

Where a registrant has completed work under direct supervision of a registered professional, the registrant may affix their stamp or seal only for those aspects of the work completed by the registrant. The supervising Professional Engineer, Engineering Licensee or other supervising

professional will affix their stamp clearly noting their role as the professional providing the direct supervision and taking responsibility for the work.

7.0. PROFESSIONAL LIABILITY

ASTTBC registrants are required to hold paramount the safety, health and welfare of the public, the protection of the environment and the promotion of health and safety within the workplace. In accordance with section 86 of ASTTBC Bylaws, registrants must carry and maintain professional liability insurance either through the employer or a third-party organisation. In keeping with section 86.1 of ASTTBC's bylaws, before entering into an agreement to provide applied science and engineering technology services, registrants must provide a written notification to their client of the status of their professional liability insurance and confirm whether it covers the services to be provided. Registrants must also request the client to provide a written acknowledgement of receipt of the written notification.

8.0. PROFESSIONAL GOVERNANCE ACT AND ASTTBC BYLAWS

In February 2021, the *Applied Science Technologists and Technicians Act* was repealed and ASTTBC was continued as a regulatory body under the Professional Governance Act. As a regulatory body under the Professional Governance Act, ASTTBC has the duty to serve and protect the public interest with respect to the conduct of its registrants and to exercise its powers and discharge its responsibilities in the public interest. ASTTBC is subject to the oversight of the Office of the Superintendent of Professional Governance (OSPG), which operates under the Ministry of Attorney General.

ASTTBC's bylaws create various categories of registration, including practising and trainee, as well as requirements for maintaining registration with ASTTBC in good standing. ASTTBC is responsible for ensuring that registrants conduct themselves in a professional, competent, and ethical manner in the provision of services to the public. This includes by creating and disseminating practice guidelines, standards of competence and a Code of Ethics to ASTTBC registrants with which registrants must comply. This practice guideline should be read in conjunction with section 85 and Schedule D of ASTTBC's bylaws.

In accordance with the Professional Governance Act and the ASTT Regulation, registrants of ASTTBC are permitted to engage in the regulated practice of applied science technology and are granted exclusive use of reserved titles. In accordance with the ASTT Regulation, registrants of ASTTBC have exclusive use of the titles of Applied Science Technologist (AScT), Applied Science Technologist Trainee, Certified Technician (CTech), Certified Technician Trainee, and Registered Technical Specialist (RTS).

9.0. LIMITATIONS

Every effort has been made to ensure the accuracy and completeness of this Guide. Any error or omission does not relieve a registrant from making decisions and assuming professional responsibility appropriate to the circumstances.

REFERENCES

The following documents are suggested as reference material:

1. Professional Governance Act & ASTTBC Bylaws
2. BC Building Code
3. City of Vancouver Bylaws
4. Canadian Electrical Code*
5. APEGBC's Guidelines for Electrical Engineering Services for Building Projects
6. Other applicable codes and standards

*Note: Effective January 1, 2020, the Canadian Electrical Code, Part I, 24th Edition, is adopted as the B.C. Electrical Code. All electrical work that is subject to the B.C. Electrical Code must be in compliance with the updated edition.

REVISION HISTORY

Approved by ASTTBC Council, September 27, 2007

Revised May 22, 2008, to include reference to the Engineers & Geoscientists Act

Amended May 17, 2014 to address APEGBC Concerns

Amended to reflect September 9, 2015, SME Elect Guide Review.

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