ASTTBC Professional Practice Guideline – Electrical Technology Services for Building Projects

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Preamble

Registrants are required to comply with the Professional Governance Act, its regulations, ASTTBC Bylaws, including ASTTBC's Standards of Competence, any Professional Practice Guideline approved by the Board, 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.

Specifically, all registrants are required to understand and adhere to the following ASTTBC guidelines:

- Continuing Professional Development
- Professional Practice & Conduct, and
- Professional Seal

1.0 DEFINITIONS

Term	Definition
Registrant	a person who is granted admission, enrolment, or reinstatement in a class of registrants within a category of registration with ASTTBC.
AScT	a person who is certified and registered as an Applied Science Technologist with ASTTBC.
CTech	a person who is registered as a Certified Technician with ASTTBC.
Direct Supervision	the responsibility for the control and conduct of the engineering technology work of subordinates where required by ASTTBC bylaws or by other legislation.

2.0 PURPOSE

This Guideline for Professional Practice for Electrical Technology Services for Building Projects has been adopted to support ASTTBC registrants in understanding the service areas and taking professional responsibility within their field. The Guideline also aims to provide a definition of the scope of practice and legal limitations. While not exhaustive, the Guideline 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 Guideline provided the services are consistent with the requirements of each project and this Guideline.

This Guideline recognizes that ASTTBC registrants have attained, by a combination of education, training, and experience, competencies that enable 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 Guideline, 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 Guideline 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 the 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 Guideline. 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 Guideline 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 Guideline, a registrant may carry out one or more of the services itemized under section 3.0.

A registrant can apply judgment 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 the completion of other components if there are no appropriate codes or standards in place that 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 Guideline.

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 centers 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, training, 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, Schedule E, and Continuing Professional Development Guideline.

6.0 PROFESSIONAL SEAL

In accordance with section 84 of ASTTBC's bylaws, temporary and practising registrants in good standing are authorized to affix their professional seal, with signature and date, to all designs, reports, specifications, or other documents which may require a 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 seal concerning which portions of the work have been undertaken without supervision.

Where a registrant has completed work under the direct supervision of a registered professional, the registrant may affix their 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 seal noting their role as the professional providing 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 agreeing to provide applied science and engineering technology services, registrants must provide written notification to their clients 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 acknowledgment 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 concerning the conduct of its registrants 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 Guideline. 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. ASTTBC Continuing Professional Development Guideline
7. ASTTBC Professional Practice & Conduct Guideline
8. ASTTBC Professional Seal Guideline
9. Other ASTTBC Guides to Professional Practice in related practice areas
10. 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.
- Amended to ADD definitions – for review September 20, 2015, Approved by ASTTBC Council, September 24, 2015 – Resolution 15-71
- Revised May 6, 2021, to incorporate PGA and ASTTBC Bylaw information
- Revised August 2021 with format changes for Council Approval
- Approved by ASTTBC Council on September 30, 2021
- Revised November 2023, to incorporate updates to ASTTBC Guidelines and bylaws and reviewed for consistency with ATTBC EDI policy.