

GUIDELINES FOR

Professional Engineers providing

PRIME CONSULTANT SERVICES

1.0 INTRODUCTION

1.1 PURPOSE OF GUIDELINES

The "Guidelines for Professional Engineers providing Prime Consultant Services" have been prepared by a sub-committee of Professional Engineers and Geoscientists of Newfoundland & Labrador (PEG-NL) and have been adopted by the Council of PEG-NL.

The Guidelines have been prepared to set out the standards of practice which *Members* should meet and follow in providing professional engineering services. PEG-NL and its Council have a commitment to maintain the quality of the services *Members* provide to *Clients* and the public, and have published these Guidelines for that purpose.

It is anticipated that variations in the application of these Guidelines may be required. A *Member* must always exercise professional judgement in providing services. It is not intended that the Guidelines be used as a legal document or to alter contracts between *Members* and *Clients*.

However, a variation that detracts from the overall purpose of the Guidelines should never be made. The Guidelines are intended to establish minimum standards of practice which *Members* must meet to fulfil the *Member's* professional obligations, especially in regard to the primary duty to protect the public. The Council of PEGN-NL intends that failure to meet these standards may give rise to disciplinary proceedings.

Finally, PEGN-NL supports the proposition that *Members* should receive fair and adequate compensation for services rendered and that this principle applies to the services provided to comply with these Guidelines. In no event will low fees be justification for services which do not meet all required codes and standards.

Members may wish to discuss these Guidelines with their *Clients* when receiving instructions for assignments and reaching agreements regarding compensation.

1.2 SCOPE OF GUIDELINES

These Guidelines apply to Prime Consulting Services.

The Guidelines outline the professional services which should be provided by the *Prime Consultant*. They specify tasks which should be performed to achieve designs which are in the best interest of the *Client* and the public and which are properly coordinated with the construction team participants. These Guidelines should assist in maintaining the integrity of the overall project.

2.0 DEFINITIONS

Additional Services:

Services, as set out in section 4.3, which the *Prime Consultant* may provide in addition to the *Basic Services*.

As-Built Drawings:

Drawings which are prepared from measurements taken on site to depict accurately the actual sizes of elements of the construction.

Authority Having Jurisdiction:

The governmental body with authority to administer and enforce the applicable codes or the local by-laws.

Basic Services:

The services provided by the *Prime Consultant* as set out hereafter in Section 4.2.

Client:

The party who engages the *Prime Consultant* to provide professional services.

Contract Documents:

All documents including the engineering and architectural drawings and specifications as defined in the construction contract(s) for the project.

Design Engineers of Record:

The *Professional Engineers* who produce and are responsible for the design documents which are issued for construction, for example, the Structural Engineer of Record, the Electrical Engineer of Record, etc.

Field Services:

The services provided by the *Prime Consultant* as set out in Section 4.2.5 to ascertain if the project is generally in accordance with the *Contract Documents*.

General Contractor:

The contractor who has a contract with the *Owner* for the construction of all or a portion of the project.

Member:

A *Member* in good standing with PEGN-NL.

Owner:

The person, company or other entity who controls the property under consideration and has the authority of ownership.

Prime Consultant:

The individual who, or firm which, is registered with PEG-NL or the Newfoundland Association of Architects, and who or which has the responsibility to coordinate the design and the field reviews of the various design professionals (such as structural, mechanical, electrical, geotechnical, architectural) for the project.

Professional Engineer:

The person who holds a certificate of registration to engage in the practice of engineering under the Engineers and Geoscientists Act.

Record Drawings:

Drawings which represent the final drawings issued and which normally incorporate such items as addenda, change orders and significant modifications made during construction. Site measurements need not be incorporated onto these drawings unless significant differences from the specified dimensions occur. Variations from the *Contract Documents* may be noted, where appropriate, with remarks or comments.

Subcontractor:

The person, company or other entity who contracts with the *General Contractor* to perform a specified part of the *General Contractor's* work.

Submittal(s):

Items required by the *Contract Documents* to be submitted such as requests for payment, progress reports, shop drawings, manufacturer's literature on equipment, cost reports, schedules, etc. *Submittals* are normally used to aid in determining if the work and work products conform with the intent of the *Contract Documents*.

3.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

3.1 RESPONSIBILITIES OF ORGANIZATION PARTICIPANTS

3.1.1 OWNER

It is not the mandate of this guideline to stipulate the responsibilities of the *Owner*. However, in order that the design and construction of the project may be carried out in a manner that meets appropriate standards of public safety and the requirements of applicable regulations, the *Owner* should:

3.1.1.1 Retain or cause to be retained a *Prime Consultant* with responsibility for the design and contract administration of the project;

3.1.1.2 Cooperate with the *Prime Consultant* to set out a written description of the scope of the consulting services, and an adequate written description of the project;

3.1.1.3 Before the commencement of the consulting services, finalize or cause to be finalized a written agreement with the *Prime Consultant*;

3.1.1.4 Cooperate with the *Prime Consultant* in establishing a realistic schedule for the provision of design services;

3.1.1.5 Authorize in writing any *Additional Services* that may be required beyond the scope of the *Basic Services* contract;

3.1.1.6 Assure that all required approvals, licences and permits from the *Authorities Having Jurisdiction* are obtained prior to proceeding with construction;

3.1.1.7 Recognize that drawings, specifications and other documents prepared by the *Prime Consultant* are for the project and that such documents shall not be used or copied for other projects without the agreement of the *Consultant*;

3.1.1.8 Recognize that, because code interpretation of the *Authority Having Jurisdiction* may differ from that of the design team, some changes may occur;

3.1.1.9 Recognize that, even with a well-qualified design team and with a design meeting reasonable criteria and standards, some unforeseen changes may occur and that accordingly a reasonable contingency should be included in the *Owner's* budget.

3.1.2 PRIME CONSULTANT

The *Prime Consultant* is involved from project concept to completion, including responsibilities for all building system design disciplines. He/she is responsible to the *Owner* for the complete design, general contract administration, and other services, necessary to deliver the project.

The *Prime Consultant* should:

- 3.1.2.1 Interpret and define the needs of the *Owner*. The *Prime Consultant* should identify any special design criteria and ensure such are included in the design documents;
- 3.1.2.2 Engage and coordinate the work of all sub-consultants. Ensure that all subconsultants have the appropriate experience and resources to fulfil their discipline responsibilities;
- 3.1.2.3 Arrange for all necessary preliminary studies and estimates, on behalf of the of the *Owner*;
- 3.1.2.4 Arrange for, and coordinate the work of all specialty consultants and testing agencies on behalf of the *Owner*;
- 3.1.2.5 Outline the scope of assignment to each design professional for design, preparation of *Contract Documents*, review of work during construction and contract administration;
- 3.1.2.6 Ensure all design disciplines adhere to project cost and quality parameters during the design process;
- 3.1.2.7 Provide timely information in sufficient detail as required by the design team to adequately perform its duties;
- 3.1.2.8 Ensure proper review of the designs, drawings and other *Contract Documents* produced by the design team including interdisciplinary review;
- 3.1.2.9 Draft the forms of tenders and, if required, arrange for project tendering, review of tenders, and awarding of contract, on behalf of the *Owner*;
- 3.1.2.10 Inform the design team of tender call results;
- 3.1.2.11 Provide the design team with necessary documentation needed for contract administration;
- 3.1.2.12 Ensure proper communication of information between the *Owner*, the contractor and the design team so that the work proceeds in a manner that complies with applicable codes and regulations and meets the *Owner's* needs;

- 3.1.2.13 Process shop drawings, progress claims, and change order requests;
- 3.1.2.14 Ensure that the workmanship, materials, and project executions meet the intent of the design and *Contract documents*;
- 3.1.2.15 Attend job meetings and ensure attendance by all design disciplines;
- 3.1.2.16 Arrange for periodic and final inspections, certificates, system commissioning, and warranty checks.

3.1.3 DESIGN ENGINEERS OF RECORD

- 3.1.3.1 The *Design Engineers of Record* are responsible for the integrity of the design of the building systems shown on *Contract Documents*.
- 3.1.3.2 The *Design Engineers of Record* may rely on other *Members* for information affecting each system but each design discipline has the overall responsibility to see that all design is undertaken as is necessary to achieve the agreed scope-of-work, that meets acceptable engineering standards.
- 3.1.3.3 The *Prime Consultant* is responsible for setting out a written description of the scope of the sub-consultant services sufficient to enable each discipline to meet the design and field review requirements of these Guidelines and applicable codes and regulations.

3.1.4 GENERAL CONTRACTOR

It is not the mandate of this guideline to stipulate the responsibilities of the *General Contractor*, however, the *Contract Documents* should clearly state that:

- 3.1.4.1 The *General Contractor* is responsible for all labour, materials, equipment and plant required to complete the work;
- 3.1.4.2 The *General Contractor* is responsible for the construction methods, techniques, sequences, procedures, safety precautions and programs associated with the construction work, all as set out in the *Contract Documents*;
- 3.1.4.3 The *General Contractor* is responsible for coordinating the work of the *Sub-Contractors* and for checking the *Sub-Contractors'* work;
- 3.1.4.4 The *General Contractor* is responsible for verifying that the work is complete prior to requesting a field review by the *Prime Consultant*;
- 3.1.4.5 The *General Contractor* is responsible for providing reasonable written notice to the *Prime Consultant* when components are ready for field review;

3.1.4.6 The *Prime Consultant's* field review does not relieve the *General Contractor* from his responsibilities to complete the work in conformance with the *Contract Documents*;

3.1.4.7 All potential *General Contractors* and *Subcontractors* submitting bids are advised to visit the site prior to the tender closing.

3.2 SELECTION OF CONSULTANTS

The recommended procedures for selecting a consultant are as described in the "Selection by Ability" booklet published by PEG-NL.

4.0 GUIDELINES FOR PROFESSIONAL PRACTICE

The following are guidelines for the services which a *Prime Consultant* should consider providing as part of good practice. These guidelines deal in an advisory way

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with manners of practice and procedure rather than with matters of substantive engineering.

4.1 SCOPE OF SERVICES

Before commencement of design services, the *Prime Consultant* shall meet with the *Client* to:

4.1.1 Determine the terms of reference and the scope of work for *Basic Services* and *Additional Services*;

4.1.2 Reach agreement on fees, payment schedule and professional liability insurance coverage;

4.1.3 Reach agreement on a contract.

4.2 BASIC SERVICES

The usual stages of the *Basic Services*, discussed as follows, are generally organized in an agreement according to the sequential stages of a typical project. Because of the requirements of the specific project, certain *Basic Services* activities may be required to be performed out of the normal sequence or in different stages than indicated in the scope of services.

4.2.1 CONCEPTUAL OR SCHEMATIC DESIGN STAGE

In the Conceptual or Schematic Stage, the *Prime Consultant* will:

4.2.1.1 Arrange meetings with the *Client* and design team to obtain the *Client's* instructions regarding functional, aesthetic, cost and scheduling requirements, to prepare a concept design, and to report on the various building systems;

4.2.1.2 Advise the *Owner* on:

(a) Any adjustments or review of the building program and any liaison with the Program Consultant;

(b) The need for any specialist consultants who may be required for the project such as geotechnical, testing, costing, food services, etc.;

(c) The project schedule, including any milestone dates;

(d) The project costing plan;

(e) Channels of communication;

(f) The project quality control strategy;

(g) The number and timing of project team meetings during each stage of the project;

4.2.1.3 Establish milestone dates for transfer of information between design disciplines;

4.2.1.4 Conduct field reviews and review existing documentation where appropriate;

4.2.1.5 Establish building criteria required of the geotechnical consultant and other consultants as required;

4.2.1.6 Establish design criteria for building systems;

4.2.1.7 Define applicable codes, regulations, restrictions, insurance requirements and other factors affecting the design of the project;

4.2.1.8 Establish a conceptual cost estimate;

4.2.1.9 Establish, where appropriate, comparative information to be used in selection of building systems for the project;

4.2.1.10 Inform the *Client* of all new construction materials or new techniques proposed for the project and the alternatives, including the risks, advantages and disadvantages over the life of the project, so that the *Client* can make an informed decision before project implementation;

4.2.2 DESIGN DEVELOPMENT STAGE

In the Design Development Stage, when the selected scheme is developed in sufficient detail to enable commencement of the final design and construction documents by all participants of the design team, the *Prime Consultant* will:

4.2.2.1 Arrange and attend meetings with the *Client* and design team;

4.2.2.2 Identify desired standards of quality and the effect of such standards on serviceability requirements of all building systems;

4.2.2.3 Review reports by specialist consultants;

4.2.2.4 Have all design disciplines prepare associated design briefs on all systems;

4.2.2.5 Prepare or edit the "outline Specifications" for all building systems;

4.2.2.6 Prepare a preliminary project schedule;

4.2.2.7 Prepare a preliminary cost estimate or cooperate appropriately with others responsible for reporting the estimate;

4.2.2.8 Submit a design development report for review and approval by the *Client*.

4.2.3 CONTRACT DOCUMENT STAGE

4.2.3.1 General:

(a) Coordinate detail design documents for all building systems;

(b) Arrange and attend periodic design coordination meetings, as required;

(c) Coordinate with the *Authorities Having Jurisdiction*, as required;

(d) Establish testing and inspection requirements;

(e) Establish all building code requirements;

(f) Ensure all inter-disciplinary checks are made;

(g) Ensure that all documents are sealed as per Engineers & Geoscientists Act.

4.2.3.2 Design Calculations

Ensure that proper design calculations are prepared for all building systems. These should be available for presentation to the owner or authorities having jurisdiction as required.

4.2.3.3 Drawings

Coordinate the preparation of all design drawings in accordance with project requirements, and as per design criteria in all applicable discipline guidelines.

4.2.3.3 Specifications

Coordinate the preparation of all project specifications and ensure they are arranged to establish quality of the work and to aid in inspection of work.

4.2.4 TENDERING STAGE

4.2.4.1 Prepare pre-qualification documents, if required;

4.2.4.2 Prepare the contract, as required;

4.2.4.3 Review bidder's qualifications, if required;

4.2.4.4 Assist the *Client* in obtaining required approvals, licences and permits, as required. Prepare documents required by the *Authority Having Jurisdiction*;

4.2.4.5 Analyze and evaluate tenders submitted, as required;

4.2.4.6 Provide any addenda and clarifications, as required.

4.2.5 CONSTRUCTION STAGE

It is essential that *Field Services* during construction be provided for all building systems.

It is preferable that the *Field Services* during construction be provided by the design consultants. However, where practical the design consultant may delegate these duties to others, while still retaining responsibility.

Field Services during construction will not be construed to relieve the contractor of responsibility for executing the project in accordance with the *Contract Documents*, controlling the project schedule, providing safe working conditions, and correcting any deviations from the *Contract Documents*.

4.2.5.1 General Services During Construction

General Services, which may vary according to the complexity of the job, should include, but not necessarily be limited to, the following:

- (a) Establish schedule for and attend construction meetings, if required;
- (b) Establish communication channels and procedures;
- (c) Establish and schedule procedures for testing and inspections;
- (d) Recommendations to the *Client* on the timing and number of site visits;
- (e) Establish procedures for shop drawings and other *Submittals*;
- (f) Ensure that the quality of materials and workmanship meet the contract documentation;
- (g) Advise the contractor on the interpretation of the drawings and specifications and, if required, issuing supplementary details and instructions during the construction period;
- (h) Advise, the *Client* on the validity of charges for additions or deletions from the contract and on the issue of change orders, if requested;
- (i) Develop an acceptable format and price breakdown structure to facilitate certification of construction progress payments;
- (j) Review and process the contractor's applications for progress payments;
- (k) Review reports from the testing and inspection agencies to determine if the agency has verified compliance of the reported item of work with the *Contract Documents*. Initiate any necessary action;
- (l) Obtain from the contractor necessary certification stating that the work is in accordance with the drawings and specifications;
- (m) Ensure that substantial and total performance inspections of all components of the project are conducted noting deficiencies observed and corrected;
- (n) Submit *Record Drawings* to the *Authority Having Jurisdiction*.

4.2.5.2 Review of *Submittals*

Submittals should be reviewed for general compliance with the *Contract Documents*. This review does not alleviate the contractor from ensuring that the *Submittals* are in accordance with the *Contract Documents*.

The *Prime Consultant* shall:

- (a) Confirm that the *Submittals* have been reviewed and stamped by the *General Contractor* and relevant *Subcontractors* before review by each design discipline;
- (b) Ensure proper review of shop drawings and other *Submittals* for general conformance with the *Contract Documents* and the intent of the design.
- (c) The following is the recommended stamp affixed to all *Submittals* signed and dated by the *Prime Consultant*:

ABC ENGINEERING LIMITED	
Shop Drawing review is solely for purpose of determining adherence to general design concept. Contractor shall remain responsible for any detail design inherent in the shop drawings and for all errors and omissions. Contractor shall remain responsible for confirmation and correlation of all dimensions for fabricated components at the job site.	
REVIEWED	()
REVIEWED & MODIFIED	()
REVISE & RESUBMIT	()
Date Returned	Shop Drawing No.
Reviewed by	Job No.

4.2.5.3 Field Reviews

The *Prime Consultant* must ensure that a responsible person from each building design discipline shall;

- (a) Visit the site at intervals as agreed with the *Client* to observe the quality and the progress of the construction;
- (b) Prepare site visit reports outlining observations and deficiencies in the work and bring them to the attention of the contractor's site representative;

- (c) Prepare site visit reports for the *Prime Consultant* to include in necessary instructions to the contractor;
- (d) Conduct a final project review and advise the *Prime Consultant* of all observed defects or deficiencies whether or not they have been previously reported. Include in this report any action recommended for correction or resolution of these defects or deficiencies;
- (e) Conduct warranty inspection, if required.

The *Prime Consultant* shall advise the *Client* of all observed deviations from the *Contract Documents*, budgets, or project schedules, and necessary actions to address such deviations.

4.3 ADDITIONAL SERVICES

In addition to the *Basic Services*, the *Prime Consultant* may provide the following *Additional Services* if the *Prime Consultant* and the *Client* reach appropriate mutual agreements. They are generally not considered intrinsic parts of the basic design services, as discussed in Section 4.3, and are not part of the minimum services which the *Prime Consultant* should provide under these guidelines.

Examples of *Additional Services* are:

- 4.3.1 Design work resulting from changes to the project as originally described and agreed to under the contract between the *Prime Consultant* and *Client*, such as changes in scope, complexity, diversity or magnitude of the project;
- 4.3.2 Preparation of alternate designs and related documentation after selection of the project systems made during the conceptual and schematic design stage;
- 4.3.3 Review, design and preparation of documentation of alternate systems, if requested by the *Client*;
- 4.3.4 Work connected with the preparation of documents for tendering segregated contracts, pre-tendered contracts, phased or fast-track construction;
- 4.3.5 Review of alternate designs or products after completion of the *Contract Documents*;
- 4.3.6 Work resulting from changes necessary because of construction cost over-run which is outside the control of the *Prime Consultant*;
- 4.3.7 Translation of *Contract Documents* into a second language, conversion to other units, or special preparation of drawings for reduction;
- 4.3.8 Work associated with building systems beyond those described under *Basic Services*;
- 4.3.9 Preparing detailed cost estimates;
- 4.3.10 Quantity take-offs and preparation of bills of materials;
- 4.3.11 Preparation of building or site models;
- 4.3.12 Field investigation of existing buildings and structures including surveys of existing construction;
- 4.3.13 Tenant-related design services;

- 4.3.14 Design or review of the contractor's methods, procedures and construction equipment with respect to the effect on the building;
- 4.3.15 Review of additional *Submittals* when occasioned by improper or incomplete *Submittals*;
- 4.3.16 Work resulting from corrections or revisions required because of errors or omissions in construction by the contractor;
- 4.3.17 Full time field supervisor;
- 4.3.18 Extra work arising from disputes due to problems outside the control of the *Prime Consultant*;
- 4.3.19 Preparation of *Record Drawings* of the buildings;
- 4.3.20 Work due to extended time schedules for design or construction beyond the control of the *Prime Consultant*;
- 4.3.21 Services as an expert witness in connection with any public hearing, arbitration, or court proceedings concerning the project, including attendant preparation for same;
- 4.3.22 Work resulting from damage as the result of fires, man-made disasters, or natural disasters;
- 4.3.23 Travelling time outside of normal requirements.

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