

**APEGGA**

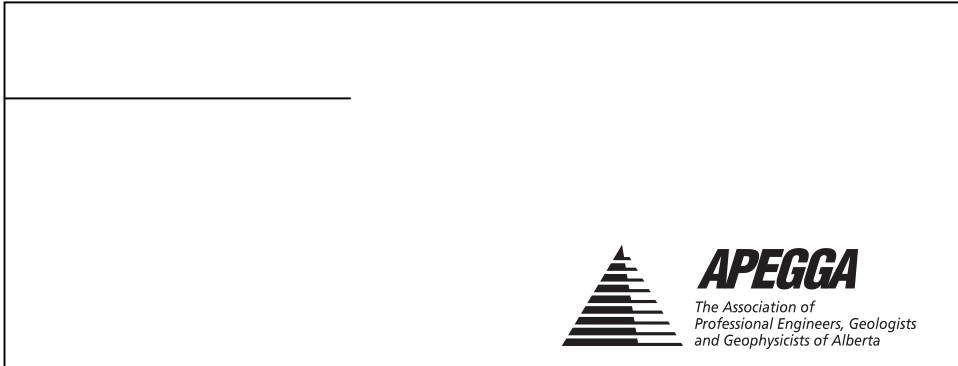
*The Association of  
Professional Engineers, Geologists  
and Geophysicists of Alberta*

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***Professional  
Practice for  
Preserved Wood  
Foundations***

***A Guideline***





This Guideline was prepared by a subcommittee of the Practice Standards Committee whose mandate is "to enhance the quality of professional service provided to the public". Practicing Engineers and others representing Consultants, Authorities and Contractors participated directly in developing the contents of the Guideline. It was approved for publication by the Council of the Association in April, 1991.

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# **FOREWORD**

This Guideline has been developed to identify to Professional Engineers and the public in general, the concerns associated with unprofessional conduct or unskilled practice respecting Preserved Wood Foundations. It reflects the intent of the Engineering, Geological and Geophysical Professions Act and may serve as a reference for the Discipline Committee of the Association in adjudicating allegations of unprofessional conduct or unskilled practice.

**Any Engineer engaging in the design and/or inspection of a Preserved Wood Foundation must be knowledgeable in the area of structural analysis and should be a person normally engaged in the design of structures. (See APEGGA Guideline on Professional Designations, Professional Stamps and Permit Stamps.)**

An Engineer who intends to provide professional services for a Preserved Wood Foundation is responsible to ensure compliance with the applicable sections of the Alberta Building Code.

**The concepts described in this Guideline represent a standard of practice all members are encouraged to adopt. Variations in its application can be made to accommodate special circumstances without detracting from its intent. It is not a legal document and is not intended to supersede or replace contractual arrangements designed to satisfy specific situations.**

# **SECTION 1**

## **SCOPE OF GUIDELINE**

### **1.1 INTRODUCTION**

This Guideline applies to the design and inspection of Preserved Wood Foundations (PWF) by Professional Engineers, as specified in the applicable sections of the Alberta Building Code.

### **1.2 APPLICATION**

This Guideline focuses on the practices and responsibilities of Professional Engineers in connection with the design, construction and inspection of a PWF. It also provides for certification by the Professional Engineer that the design and inspection have been carried out under his personal supervision and that the design, construction and inspection meet the requirements of the various codes and standards that apply to the specific foundation and site.

### **1.3 CRITICAL DETAILS**

Experience shows that there are a number of critical parts of the design of a PWF that require specific attention to detail or adherence to standards. Some of the particular problem areas are listed and described in Appendix B for the guidance of those undertaking this work. A Professional Engineer will recognize that this list is not all inclusive and that there may be other parts of a design which require careful attention to detail.

### **1.4 CODES AND STANDARDS**

It is not intended that this Guideline will supersede or replace the Alberta Building Code or the various standards referenced therein.

# **SECTION 2**

## **RESPONSIBILITIES**

### **2.1 INTRODUCTION**

An Engineer who designs and seals a drawing for a PWF, or an Engineer who inspects the construction of a PWF, accepts significant responsibilities. These include responsibilities to:

- the building owner, public at large and/or contractor for the safety and serviceability of the foundation;
- the authority having jurisdiction, who will rely on the Engineer's certification that the foundation meets the relevant codes and good engineering and construction practice,
- a lender who relies on the Engineer's certification as a precondition of advancing mortgage funds.

### **2.2 SITE LOCATION**

The Engineer must ensure that the drawings and specifications are site and building specific and show the legal land description of the site, as well as the municipal address, if applicable.

### **2.3 DRAWINGS AND SPECIFICATIONS**

The Engineer is responsible for preparing construction drawings, details and specifications sufficient for the contractor or home builder to fully comprehend all stud sizing and spacing, material specifications, drainage and water control requirements, special framing details, and nailing and framing attachments.

### **2.4 CODE AND STANDARD COMPLIANCE**

The Engineer is responsible for ensuring that the design complies with the current Alberta Building Code and the standards referenced therein.

## **2.5 NOTIFICATION TO OWNER**

Upon completion of the PWF design, the Design Engineer must advise the owner in writing, with a copy to the Authority having jurisdiction, that an Engineer must be retained to inspect the construction and the backfill material to be used. Unless otherwise specified by the Engineer retained for inspection, the inspection has to be carried out before backfilling and in accordance with the schedule of inspection established by the Design Engineer.

## **2.6 DESIGN AND INSPECTION CERTIFICATION**

Where an Engineer is responsible for the design and inspection of a PWF, he shall issue the appropriate Certificate (see Section 4) when the inspection is completed and all deficiencies have been corrected.

Where an Engineer is responsible for design only of a PWF, he shall issue the appropriate Certificate when the design is completed.

Where an Engineer is responsible for the inspection only of a PWF, he shall issue the appropriate Certificate when the inspection is completed and all deficiencies have been corrected.

# **SECTION 3**

## **PROCEDURAL GUIDELINES**

### **3.1 INTRODUCTION**

The following procedures are recommended in respect to the Engineer's responsibilities in preparing, inspecting, and certifying a PWF design.

### **3.2 FAMILIARIZATION**

- a) Review current Codes
- b) Determine site grades and subsoil conditions.
- c) Review architectural plan to identify:
  - (i) unbalanced backfills
  - (ii) window openings
  - (iii) stairwell location(s)
  - (iv) garage pad elevation
  - (v) drops or raised areas in subfloors
  - (vi) brick veneer locations
  - (vii) basement wall heights
  - (viii) other relevant components

### **3.3 DRAWINGS AND SPECIFICATIONS**

- a) The Engineer should ensure that the drawings, specifications, and framing details prepared for a PWF are explicit enough to be understood by the builder.
- b) A site and building specific drawing must be prepared for each foundation. It should show the following information:
  - (i) location of foundation with respect to property boundaries or be referenced to another drawing which provides that information.
  - (ii) outside dimensions of the foundation wall.
  - (iii) typical vertical section(s) through the foundation wall showing floor elevations and the elevation at bottom of footing, or equivalent detail.



- (iv) portions of the foundation for which each detail design applies.
- (v) maximum backfill heights
- c) Special framing details required around stairwells, window openings and dropped or raised floors should be detailed on the drawings.
- d) Drainage material, nail-fastening connection specifications, dampproofing requirement, lumber specifications and backfill material specifications shall all be shown on the drawings or in the specifications.
- e) The Engineer responsible for design should review the drawings and specifications with the Client prior to start of construction.
- f) The site specific drawing must bear the seal of the Design Engineer, signature and date it was sealed, and where applicable, the permit stamp of the firm preparing the design.

### **3.4 INSPECTION**

- (a) An Engineer, or a suitably qualified person working under the direction of an Engineer, must examine the completed construction of the PWF project to confirm that it has been constructed in accordance with the intent of the drawings and specifications. The inspection may be performed by, or under the supervision of, an Engineer who is not the design engineer.
- (b) If the inspecting Engineer is not also the Design Engineer, he/she should examine the drawings and specific details of the PWF prior to visiting the site. Any uncertainty concerning the design or details must be resolved through discussion with the Design Engineer.
- (c) The inspecting Engineer must not accept or approve any changes in the design of the PWF without notifying the Design Engineer.

# **SECTION 4 CERTIFICATION**

## **4.1 INTRODUCTION**

Certificates, as shown in Appendix A, shall be issued in accordance with Section 2.6, by the appropriate engineers.

## **4.2 COMPLETION OF CERTIFICATE**

The Engineer(s), responsible for the design and/or inspection, shall initial the appropriate paragraph of the compliance certificate and delete the non-applicable paragraphs.

The Engineer shall comply with the standards outlined in the APEGGA guideline on Professional Designations, Professional Stamps and Permits Stamps.

# **PRESERVED WOOD FOUNDATION COMPLIANCE CERTIFICATE**


Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_


Project Name: \_\_\_\_\_

Municipal Address: \_\_\_\_\_

Legal Description: \_\_\_\_\_

 I, the Professional Engineer engaged to design and inspect the Preserved Wood Foundation hereby certify that the Preserved Wood Foundation, to the best of my knowledge, complies with the Alberta Building Code requirements in force at the time this certificate was signed.

 I, the Professional Engineer engaged to design only the Preserved Wood Foundation, hereby certify that the design of the Preserved Wood Foundation, to the best of my knowledge, complies with the Alberta Building Code requirements in force at the time this certificate was signed.

 I, the Professional Engineer engaged to inspect only the Preserved Wood Foundation, hereby certify that the inspection of the Preserved Wood Foundation, to the best of my knowledge, complies with the Alberta Building Code requirements in force at the time this certificate was signed.

Signature: \_\_\_\_\_

Seal

Firm Name: \_\_\_\_\_

Permit Stamp (If Applicable)

**Note:** In order to meet the Alberta Building Code, the owner must have certification for both the design and inspection.

## **TYPICAL PROBLEM AREAS**

This Guideline was initiated as a result of on-going problems with the design and construction of Preserved Wood Foundations. Some of the more common problems related to design and inspection are:

1. Failure to recognize unbalanced backfill loads.
2. Use of an unqualified inspector to inspect the constructed Preserved Wood Foundation, with the result that improper construction is accepted.
3. The significance of the design assumptions in the CSA S406 Standard and/or the CAN3 086 Standard are not considered or understood.
4. Failure to prepare and provide a site specific plan.
5. Inadequate communication between Client and Design Engineer, resulting in failure to obtain adequate design input information.
6. Failure to detail special framing, nailing and other requirements for:
  - a. Main floor construction
  - b. Window openings
  - c. End wall blocking
  - d. Stairwell openings
  - e. Basement floor to wall connection
  - f. Dropped Floors
  - g. Racking loads on walls
  - h. Stepped footings
  - i. Drainage system
  - j. Frost protection
7. Specification of materials that are not available in the market place.
8. Details and specifications are not understood or followed during construction.
9. Work is covered-up before inspection.
10. Owners see the engineering requirements as only being needed to get the necessary permits; once the permits are obtained, the engineered design is not used for construction.

11. The Authority having jurisdiction does not require that the Code requirements relating to engineering of Preserved Wood Foundations be followed.
12. Improper backfill material and backfilling procedures.

**This list is not intended to include all of the problems that may exist with the engineering of Preserved Wood Foundations. The Engineer is responsible to ensure that the engineering services provided on Preserved Wood Foundations comply with all of the relevant codes, standards and the intent of this Guideline.**

