



## **NFBA Technical and Research Committee**

The NFBA's T&R Committee brings you Post-Frame Construction's best practices and technical information in this concise bulletin format.

For more in-depth technical resources, or to request your copy of *National Frame Builder Magazine*, please visit our website at [www.nfba.org](http://www.nfba.org).

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# **Post-Frame Construction and Best Practices**

## **Post-Frame Design Webinar Series**

### **Post-Frame Building System:**

A building characterized by primary frames of wood posts as columns and trusses or rafters as roof framing. Roof framing is attached to the posts, either directly or indirectly through girders. Posts are embedded in the soil and supported on isolated footings, or are attached to the top of peers, concrete or masonry walls, or slab on grade. (National Frame Building Association)

### **Pole Barn:**

A farm building with no foundation and with sides consisting of steel or aluminum panels supported by poles set in the ground typically at 8 foot intervals. (Oxford dictionaries)

Does it seem like a great difference between the definitions? Post-Frame talks about foundations where a pole barn does not, but both refer to posts as columns or poles.

As the old saying goes "the devil is in the details" and how important the details are in true post-frame building design. There is no better way to learn about the engineering design details or post-frame construction than to gain an education through the Post Frame Advantage Online University series of webinars dedicated to the engineering design of post-frame buildings. This eleven webinar series, presented by Dr. Harvey Manbeck, provides detailed information on the important design aspects of post-frame construction. More than just post and beam design, these webinars investigate a number of critical aspects that a designer/engineer must be aware of to properly design post-frame buildings.

A listing of the webinar series includes:

### **Introduction to Post Frame Building Systems**

In this section you will be introduced to post-frame building systems. Building elements in the structural features that make post-frame building systems unique will be discussed. An initial presentation of the primary structural design and the key performance characteristics of post-frame construction will be outlined.



## **Post-Frame Construction and Best Practices**

### **Post-Frame Building Design Manual – 2nd Edition**

This session is dedicated to one of the principal support elements for post-frame construction created by the National Frame Building Association in 2015. This manual contains a great deal of information about the history and design of post-frame construction. Each of the design elements from foundation to diaphragm design of the roof and wall sheathing are explained with examples.

### **Architectural Alternatives for Post-Frame Building Systems**

In this webinar session the unique features of post-frame construction are discussed as well as the means by which post-frame buildings obtain code compliance. Energy efficiency and sustainability are reviewed as well as completed post-frame project case studies with a range of architectural features used on post frame construction.

### **Modern Post-Frame Structural Design Practice: An Introduction**

This webinar is dedicated to the actual structural design of post-frame buildings. Primary structural components are identified and their importance discussed. Structural design of post-frame systems, with and without diaphragm design, as well as how to design isolated post/pier foundations are all reviewed in great detail. A review of available resources is also discussed.

### **Diaphragm Design of Post-Frame Using Sway & Shear Modifiers**

Determine how to design sidewall post sizes using Sway and Shear modifiers (mD and mS) through presentation of the principles and case study examples. This webinar will also discuss how diaphragm design reduces the structural load carried by sidewall posts. A key consideration in post-frame design, this webinar is a critical tool in the design process.

### **Diaphragm Design of Post-Frame Using DAFI**

One of the key tools in post-frame design is a computer program known as DAFI. This tool will provide a 2D design of a post-frame system. The results of this program in addition to diaphragm design, which is discussed in depth in this webinar, provides the information on how the structural loads imposed on the sidewall posts is reduced for post-frame systems.



## **Post Frame Construction and Best Practices**

There are also three webinar sessions dedicated to post-frame foundation design. Each session addresses a specific topic, and all are important to the designer/engineer. The details of these webinar sessions are as follows:

### **Simplified Method for Shallow Post and Pier Foundation Design**

In this webinar, the design of shallow post/pier foundations is discussed and both bearing and uplift resistance is shown in great detail. The “Simplified Method” of foundation design is reviewed including ground line shear and moment design. Embedment depths are also discussed using this design method.

### **Universal Method for Shallow Post and Pier Foundation Design**

Another method for foundation design, the Universal Method, is discussed in this webinar going into great detail as to when this method should be used in lieu of the Simplified Method. When and how to use this method, as well as design information such as how to determine ground line shear and moments are discussed and examples are provided.

### **Design Aid for Shallow Post and Pier Foundations**

In this final webinar on foundations, the Shallow Post and Pier Foundation Design is introduced. A range of foundation design applications are discussed and resolved using this tool. This tool involves a number of different design inputs which are discussed throughout the examples. This tool provides information about the adequacy of shallow post or pier foundations to resist bearing loads, uplift loads, and lateral loads.

The final two sessions in this webinar series discuss non-diaphragm post-frame building design. This new engineering guide discusses buildings that are open sided and do not involve wall diaphragm load distribution. The two-part series includes:

### **Non-Diaphragm Post-Frame Building Design Guide**

Discussion about the design guide and lateral force resisting system (LRFS) design. This webinar goes into great detail about the structural analysis, key structural components, and key connections involved in this unique type of post-frame building design.

### **Non-Diaphragm Post-Frame Structural Design Examples: Engineering Details**

This final webinar in the current National Frame Building Association series explains the significant engineering details required for non-diaphragm construction. Examples showing the structural analysis of a primary frame as well as the sidewall frame are shown by example. Key structural elements and connections are all examined in the examples provided.

Each of these webinars provide valuable information regarding the structural design of post-frame construction. A proper understanding, based on these webinars and the Post-Frame Building Design Manual, will help ensure successful construction and resistance to design load for a post-frame structure.

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Founded in 1969, the National Frame Building Association brings together builders, suppliers, designers, and engineers for the purpose of expanding the use of post-frame construction in all types of applications. NFBA promotes the benefits of post-frame construction through:

- Technical guidance
- Educational and awareness programs
- Advocating for the interests of our industry
- Recognition of industry-achievement awards
- Monitoring of industry issues, such as codes and standards
- Research to develop improved post-frame construction products and practices
- Promotional and marketing support for the post-frame construction industry
- Publications to promote use of post-frame construction
- Promoting safety in all aspects of post-frame construction

For more information, please visit the NFBA website at [www.nfba.org](http://www.nfba.org).

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