

ANSI/ASABE/NFBA S618 DEC2010 (R2020)
Post Frame Building System Nomenclature



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Post Frame Building System Nomenclature

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1 Purpose and scope

1.1 This Standard provides definitions and classifications associated with post-frame building systems.

1.2 This Standard is intended to establish uniformity in terms used in the design, construction, marketing and regulation of post frame building systems.

2 Normative references

This Standard is intended to be consistent with terminology in the following documents. These documents are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the most recent editions of these documents.

ANSI/AF&PA NDS-2005 National Design Specification (NDS) for Wood Construction with Commentary

ANSI/ASAE EP484.2 Diaphragm Design of Metal-Clad, Wood-Frame Rectangular Buildings

ANSI/ASAE EP 486 Shallow Post Foundation Design

ANSI/ASAE EP559 Design Requirements and Bending Properties for Mechanically Laminated Wood Assemblies

NFBA Post Frame Building Design Manual

NFBA Accepted Practices for Post Frame Building Construction: Framing Tolerances

NFBA Accepted Practices for Post Frame Building Construction: Metal Panel and Trim Installation Tolerances

WTCA/TPI BSCI (Building Component Safety Information) 2008 Guide to Good Practice for Handling, Installing, Restraining & Bracing of Metal Plate Connected Wood Trusses

3 Building systems

3.1 Post-frame building system: A building characterized by primary structural 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 piers, concrete or masonry walls, or slabs-on-grade. Secondary framing members, purlins in the roof and girts in the walls, are attached to the primary framing members to provide lateral support and to transfer sheathing loads, both in-plane and out-of-plane, to the posts and roof framing. See Figures 1–3.

3.1.1 Pole-frame building system: A post-frame building in which all posts are round poles. Commonly referred to as a pole building. See Figure 3.

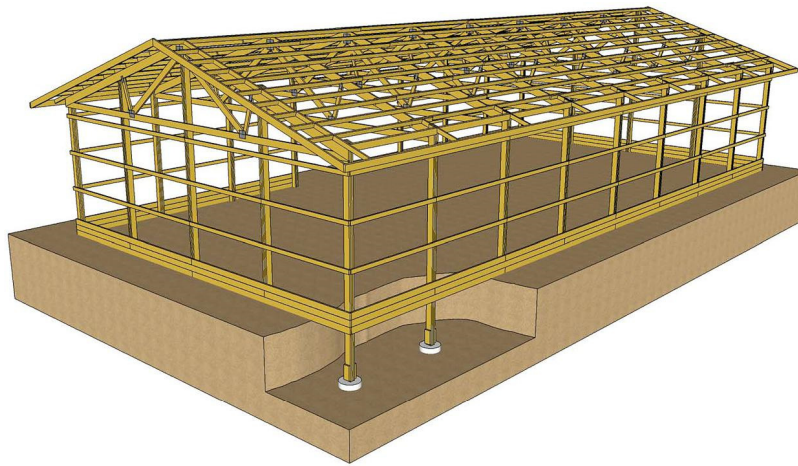


Figure 1 – Post-frame building with trusses supported directly by embedded posts

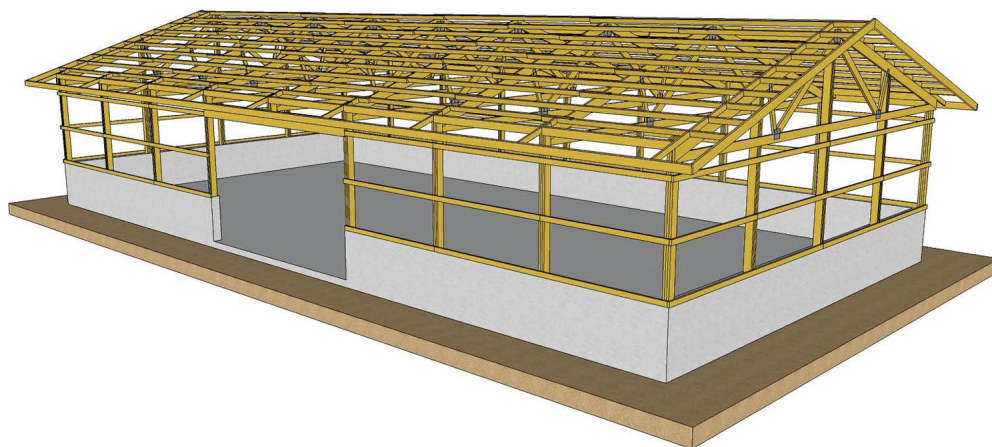


Figure 2 – Post-frame building mounted on a concrete stem wall

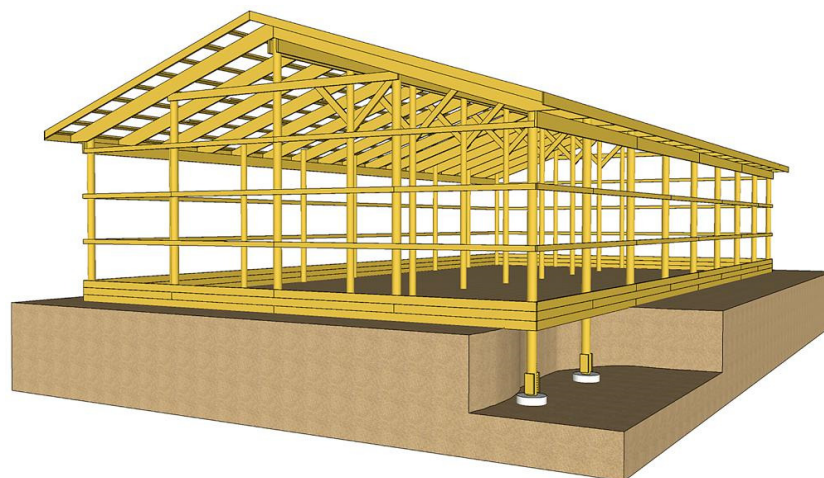


Figure 3 – Post-frame building featuring girder supported rafters and embedded poles. Since all posts are round poles, this post-frame building could also be identified as a pole building.

4 Building subsystems

4.1 Primary frame: The two-dimensional interior frame that is formed by the direct attachment of a roof truss/rafter to its respective posts. Also known as a post-frame or a main frame. See Figures 4–9.

4.1.1 Single-span primary frame: Primary frame without any interior supports. Also known as a clear span primary frame. See Figure 4.

4.1.2 Multi-span primary frame: Primary frame with one or more interior supports. See Figures 5–9.

4.1.3 Solid-web primary frame: Primary frame assembled without using any open-web trusses. See Figures 6 and 8.

4.1.4 Open-web primary frame: Primary frame fabricated with open-web trusses and no solid-web members for roof support. See Figures 4, 5, and 7.

4.1.5 Hybrid primary frame: Primary frame assembled with both open-web trusses and solid-web members for roof support. See Figure 9.

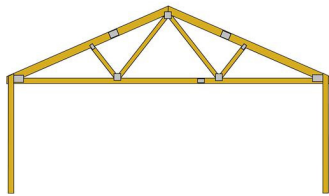


Figure 4 – A single-span, open-web primary frame

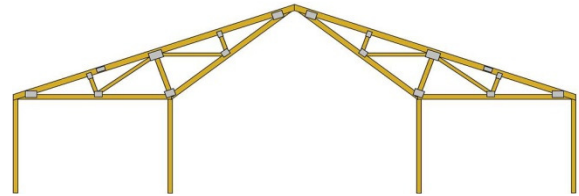


Figure 5 – A three-span, open-web primary frame featuring twin inverted trusses

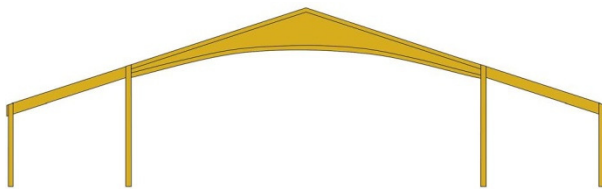


Figure 6 – A three-span, solid-web primary frame

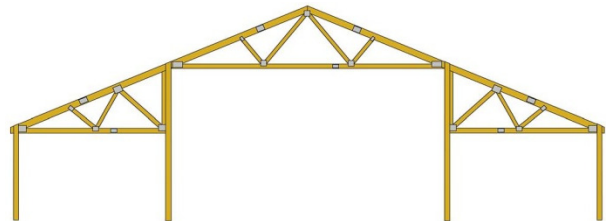


Figure 7 – A three-span, open-web primary frame featuring a raised center bay

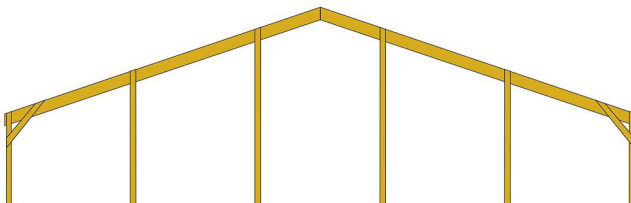


Figure 8 – A five-span, solid-web primary frame utilizing knee-braces on the sidewall posts

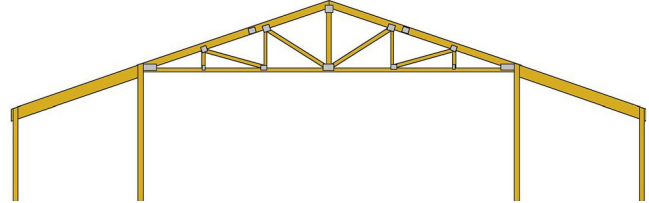


Figure 9 – A three-span, hybrid primary frame

4.2 Sidewall: An exterior wall oriented perpendicular to individual primary frames.

4.3 Endwall: An exterior wall oriented parallel to individual primary frames.

4.3.1 Endwall frame: Consists of endwall posts and the attached endwall truss or rake rafters.

4.3.2 Expandable endwall: Endwall frame designed with the load-bearing capability of an interior frame (i.e. primary frame) so it can serve as an interior frame when the building is expanded. See Figures 1–3.

4.4 Diaphragm: A structural assembly comprised of structural sheathing (e.g., plywood, metal cladding) that is fastened to roof, ceiling, floor or floor framing in such a manner that the entire assembly is capable of transferring in-plane shear forces.

4.4.1 Shearwall: A vertical diaphragm. Any endwall, sidewall, intermediate wall or portion thereof that is capable of transferring in-plane shear forces.

5 Primary framing members

Primary framing members are the main structural framing members in a building. In a post-frame building they include the posts, roof trusses/rafters, and any girders that transfer load between roof trusses/rafters and posts.

5.1 Post: A structural column. Functions as a major foundation element when it is embedded in the soil. Post-frame building posts include solid-sawn posts, structural composite lumber posts, glulam posts, mechanically-laminated lumber posts, and poles.

5.1.1 Solid-sawn post: Post comprised of a single piece of sawn lumber.

5.1.2 Structural composite lumber post (SCL post): Post comprised of a single piece of structural composite lumber. Structural composite lumber (SCL) includes, but is not limited to: parallel strand lumber (PSL), laminated veneer lumber (LVL), and laminated stand lumber (LSL).

5.1.3 Glued-laminated post (or glulam post): Post consisting of suitably selected sawn lumber laminations joined with a structural adhesive.

5.1.4 Mechanically-laminated post (or mechlum post): Post consisting of suitably selected sawn lumber laminations or structural composite lumber (SCL) laminations joined with nails, screws, bolts, and/or other mechanical fasteners.

5.1.4.1 Nail-laminated post (or nail-lam post): A mechanically laminated post in which only nails have been used to join individual wood layers.

5.1.4.2 Screw-laminated post (or screw-lam post): A mechanically laminated post in which only screws have been used to join individual wood layers.

5.1.4.3 Spliced post: A mechanically laminated post in which individual laminations are fabricated by end-joining shorter wood members. End joints are generally unreinforced butt joints, mechanically-reinforced butt joints, glued scarf joints, or glued finger joints.

5.1.4.4 Unspliced post: A mechanically laminated post in which individual laminations do not contain end joints.

5.1.5 Pole: A round, naturally tapered, unsawn, wood post. Poles are sometimes slabbed to aid in fastening framing members.

5.1.6 Endwall post: Post located in an endwall.

5.1.7 Sidewall post: Post located in a sidewall.

5.1.8 Corner post: Post that is part of both a sidewall and an endwall.

5.1.9 Jamb post: Post that frames the side of a door, window, or other framed opening.



5.2 Truss: A structural framework, generally two-dimensional (i.e. planar), whose members are almost always assembled to form a series of inter-connected triangles. Perimeter members of the assembly are called truss chords and interior members are called truss webs.

5.2.1 Light wood truss: A truss manufactured from wood members whose narrowest dimension is less than 5 nominal inches. Wood members include solid-sawn lumber, structural composite lumber, and glulams. Members may be connected with metal connector plates (MCP), bolts, timber connectors, and screwed- or nailed-on plywood gusset plates.

5.2.1.1 Metal plate connected wood truss (MPCWT): A truss composed of wood members joined with metal connector plates (also known as truss plates). Metal connector plates (MCP) are light-gauge, toothed steel plates. The most common type of light wood truss.

5.2.2 Heavy timber truss: A truss manufactured from wood members whose narrowest dimension is equal to or greater than 5 nominal inches. Wood members include solid-sawn timber, structural composite lumber, and glulams. Members generally connected with steel gusset plates that are bolted in place.

5.2.3 Ganged wood truss: A truss designed to be installed as an assembly of two or more individual light wood trusses fastened together to act as one.

5.2.4 Girder truss: Truss designed to carry heavy loads from other structural members framing into it. Frequently a ganged wood truss.

5.2.5 Parallel chord truss: Truss with top and bottom chords with equal slopes

5.2.6 Roof truss: A truss that directly supports a roof.

5.3 Rafter: One of a series of sloped, structural beams that support a roof.

5.3.1 Rake rafter: A rafter located in an end wall. See Figure 11.

5.3.2 Fly rafter: Rafter at the rake overhang that is supported out from the endwall by rake purlins. See Figure 10.

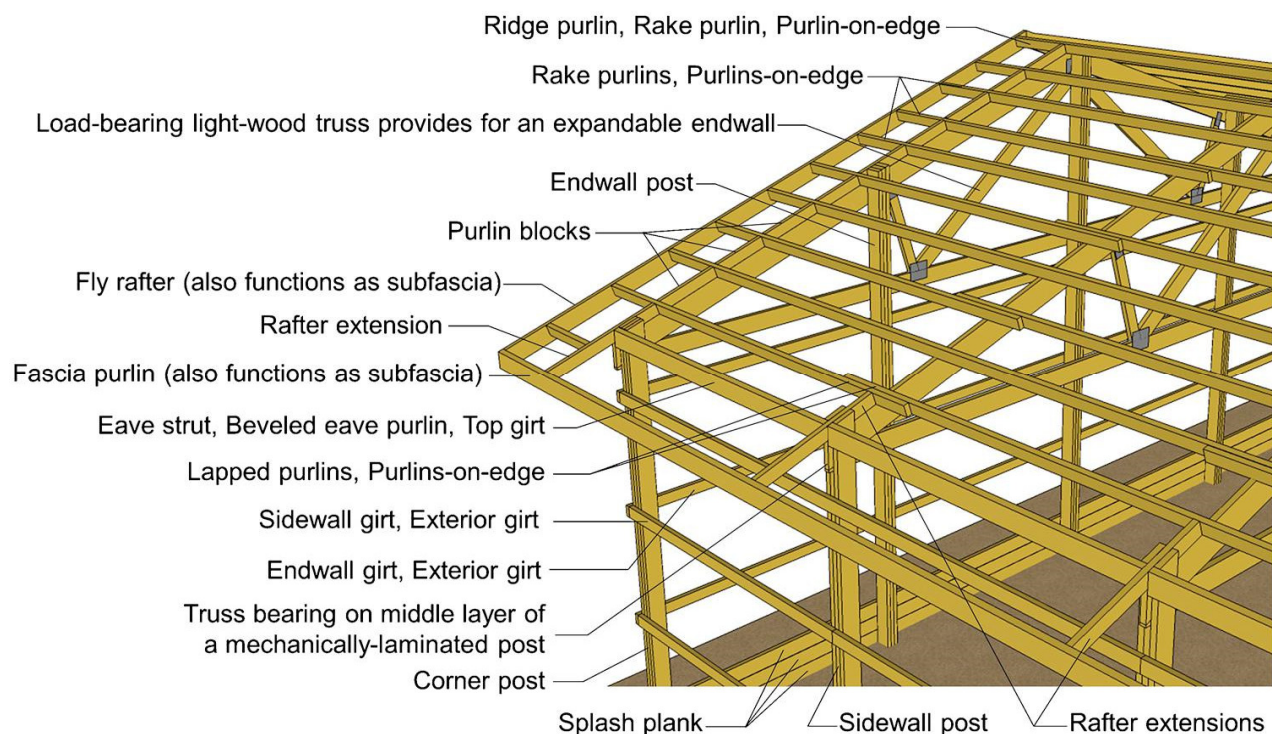


Figure 10 – Typical corner framing