



City of North Miami Beach, Florida

BUILDING DEPARTMENT

PROCEDURES OF WOOD TRUSSES PERMITS (MASTER PERMIT & SHOP DRAWINGS)

Following is the procedure for the permits for roof trusses. These design principles are based upon the Florida Building Code and shall be complied with, either at the master permit stage or the shop drawing stage, whatever the case may be. The shop drawing stage is shown in bold. If the design is required at both master permit and shop drawing stage, it is underlined.

- 1) The Architect or Engineer of Record shall show the following details on the structural drawings.
 - a) Configuration of trusses
 - b) Pitch of the roof section
 - c) Location of trusses
 - d) Location of Girders
 - e) Location of Jacks or Outriggers
 - f) Uplift and Gravity Reactions
 - g) NOA# of hurricane straps with the model selection and its design rating
 - h) Nailing schedule for the hurricane straps
 - i) Location of isolated gravity load such as mechanical equipments
 - j) Lateral bracings for winds
 - k) Cross bracing for winds
 - l) Tie downs and connectors
 - m) Hangers or bearing ledgers with identified types
 - n) Details of intersecting roof planes such as hips, ridges, valleys, gable ends including blocking
 - o) Attachment of wood sheathing, fascia etc.
 - p) Copies of the NOAs of the truss connectors.
 - q) Load design criteria
 - r) Code references
 - s) Specification of wood
- 2) **Trusses shall be designed in accordance with National Design Standard for Metal Plate Connected Wood Truss Construction of the Truss Plate Institute (TPI) by the Delegated Engineer. (Florida registered)**
- 3) **Truss shop drawings shall be reviewed by the Architect or Engineer of Record for compliance with the layout, design criteria and the applicable sections of the codes.**
- 4) If the Delegated Engineer reframes the trusses and the Architect or Engineer of Record approves it, then revised structural drawings along with the shop drawings shall be submitted to the Building Department for the approval.
- 5) **Required permanent bracing shall be designed and detailed by the Delegated Engineer.**
- 6) **A size 8-1/2 x 11 cut sheets showing typical truss design shall be furnished to the Architect or Engineer of Record.**
- 7) **The size and location of all plates at each joint shall be shown on the truss design drawings.**
- 8) **The connections between trusses shall be detailed in the shop drawings. Hip sets shall be detailed in a manner to indicate all connections according to engineering drawings for the attachment of skewed members.**

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- 9) Truss design drawings shall indicate the support and minimum bearing of the roof structural system, the permanent cross/lateral bracing, bracing to transfer member buckling forces to the structure and all bracing and anchorage required to resist uplift and lateral forces.
- 10) Flat and floor trusses must be clearly marked so that they will be installed right side up.
- 11) Trusses shall be designed for wind loads per Chapter 16 (High Velocity Hurricane Zones), uniformly distributed live, dead and concentrated loads, and such loads shall be indicated on the roof framing plans and the truss design drawings. Where a girder or truss is subjected to concentrated loads or any unusual loading condition, such conditions must be clearly indicated on the roof framing plans and on the truss design drawings. Where truss members have been cut, shifted or altered in any manner to meet construction needs or for any other reason, additional drawings and additional calculations must be prepared, signed and sealed by the truss designer (a Florida delegated Engineer). Such additional drawings and calculations must be approved by the Engineer or Architect of Record and must be submitted to the building official for review and approval.
- 12) For roof trusses the minimum live load shall be 30 psf, the minimum top chord dead load shall be 15 psf and the minimum bottom chord dead load shall be 10 psf.
- 13) If the slope of the roof is greater than 1.5:12, then it can be designed for a minimum live load of 20 psf and a minimum total load of 45 psf.
- 14) **The allowable deflection under live load for trusses shall not exceed span/360 for plastered ceilings, span/240 for unplastered finished ceilings, or span/180 for trusses without a ceiling.**
- 15) Flat roof trusses shall be designed for not less than the loads shown above, except that the dead load on the top chord may be taken as 10 psf in lieu of 15 psf, and the total load reduced to 50 psf.
- 16) Gable end trusses shall be designed for a minimum live load of 30 psf and a minimum dead load of 15 psf on the top chord. The minimum load of 10 psf on the bottom chord may be omitted where continuous support is provided. In addition, the gable end trusses shall be designed to sustain wind load as specified in Chapter 16 (High Velocity Hurricane Zones) but not less than 30 psf perpendicular to the plane of the truss. Such trusses shall use a rationally designed system to resist lateral wind loads and be anchored to the substructure at intervals no greater than 4 feet on center to resist the uplift forces and shall be designed to transfer the loads to the substructure. The design of the system used to resist the lateral loads imposed on the truss shall be prepared by the Engineer or Architect of Record.
- 17) When girders exceed two members and when girder reactions exceed the capacity of standard connectors or hangers, these reactions shall be shown on the drawings and the connection must be designed, signed and sealed by a Registered Professional Engineer or Registered Architect proficient in structural design and such design shall be included as part of the shop drawings.
- 18) All trusses shall be properly braced to act as a system. Such bracing shall be included as part of the design document.
- 19) Top and bottom chords shall be of No. 2 Grade or better. Web members shall be of No.3 Grade or better.
- 20) For trusses having an overall length of the bottom chord in excess of 35 feet or overall height erection shall be supervised by either a Registered Professional Engineer or Registered Architect retained by the contractor. A retainer letter from the Registered Professional Engineer or Registered Architect shall be submitted along with the shop drawings as part of the permit document.
- 21) Where a ceiling is to be attached directly to the underside of trusses, the trusses shall be laterally braced with continuous 1x4 members nailed with 8d common nails to the upper side of the bottom chord at panel points but not to exceed 10 feet apart. This lateral bracing shall be restrained at each end and at 20 foot intervals.