

## May 2007 News Letter

Our department has been holding staff uniformity meetings every week to assure ourselves and contractors that we are all inspecting the same way. The following items have recently been addressed; please update your information related to these procedures and codes.

### **TCO's :**

Will only be issues from November to April (based on frost conditions) for the following two items.

- a) Final grade: {Full CO requires grade 6" below exterior sheathing or wood siding and positive drainage away from the building a minimum of 6" at 10' }
- b) Sidewalk / landing (riser height)

This issue will be further addressed around November of 2007 and complete information will be updated at that time.

### **Top Plate squash and enhancers/blocking:**

Bearing on the top plates for girders / point loads has been discussed and after reviewing various loading tables and species of wood calculations, the following rule of thumb loads will be used.

A 2 x 4 wall requires the following cripples or equivalent square inches of bearing.

- Single ply girder truss / enhancer block = 2500 lbs of bearing load.
- Double ply girder truss / enhancer block = 5000 lbs of bearing load.
- Triple ply girder truss/ enhancer block = 7500 lbs of bearing load.

A 2 x 6 wall requires the following cripples or equivalent square inches of bearing.

- Single ply girder truss / enhancer block = 4000 lbs of bearing load.
- Double ply girder truss/ enhancer block = 8000 lbs of bearing load.
- Triple ply girder truss / enhancer block = <12,000 lbs of bearing load. (Greater than 12,000 lbs requires engineering).

Enhancer blocks shall be equal to header material on site or as specified on truss drawing. Minimum of 7½" high (clipped corner) x 12" long and nailed per engineering consultant's suggestion. 3" gun nails are "ok". ¼" steel plate is acceptable equal in length to the required square inches of bearing needed. (contact building inspection for assistance with this formula)

### **Gable end truss bracing: Bracing shall be per the manufacturer's specification requirements and manuals.**

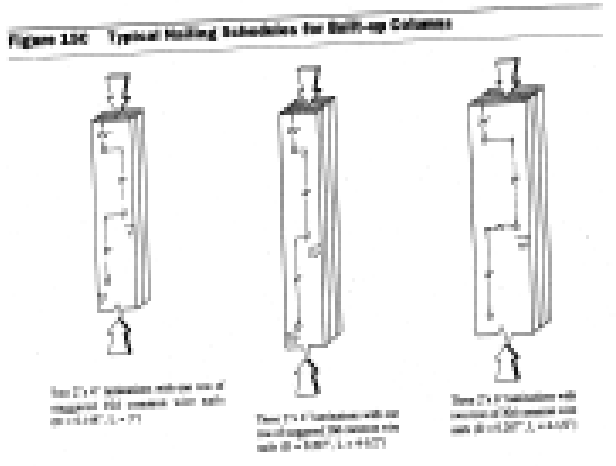
Three types of bracing: T-braced, L-angle braced or lateral braced.

- a) T-braced minimum 90% of length, nailing per specifications.
- b) L-braced: includes 45 degree brace to blocking between trusses (6'o.c. spacing). Nailed 3"o.c. at seams and 6"o.c. in field. End nailed minimum 2-gun nails.
- c) Lateral braced minimum 3-truss spaces back.

Trusses between 4'-6" to 7'-6" must have center brace / top of wall to roof deck. Braced 45 degrees to blocking between top cord of trusses.

**Discussed column nailing:** do we need to identify change from Parallam to Roseburg on inspection sheet? Answer: call back to office to verify loading works.

**Built up column nailing substitute:** 30d nails are required. Follow prescriptive design from American Wood Council.



**15.3.4 Bolted Built-up Columns**

- 15.3.4.1 The provisions in 15.3.1 and 15.3.2 apply to bolted built-up columns in which:
- (a) a metal plate or washer is provided between the wood and the top (and not) between the wood and the nail
  - (b) nails are tightened enough that there is no relative movement of the plates
  - (c) the end-to-end (E-E) and distance (D-D) for built-up: 1.5 x end-to-end (E-E)
  - (d) 400 x spacing between adjacent bolts in a row  $\leq 1.5d_b$
  - (e) 1.50 x spacing between rows of bolts  $\leq 100$
  - (f) 1.00 x edge distance  $\leq 1.50d_b$
  - (g) 2-prong longitudinal reinforcement provided when  $d > 1.5d_b$

where:  
 $d_b$  = bolt diameter  
 $d$  = clear face width (parallel to grain)  
 $d_{min}$  = thickness of metal fastener

15.3.4.2 Figure 15B provides an example of a nailing schedule which meets the preceding connection requirements.

Figure 15B: Typical Nailing Schedules for Built-up Columns.

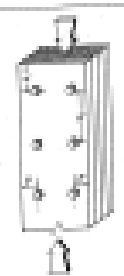


Fig. 15B: Typical Nailing Schedules for Built-up Columns.

15.3.2.3 The slenderness ratio,  $L/d$ , for built-up columns shall not exceed 50, except for design connections  $L/d$  shall not exceed 75.  
 15.3.2.4 The column stability factor shall be calculated as follows:

$$C_p = C_p \left[ \frac{1 - (F_c/F_c^*)}{2} \right] \left[ \frac{1 - (F_c/F_c^*)}{2} + \sqrt{\left( \frac{1 - (F_c/F_c^*)}{2} \right)^2 + \frac{K_1 K_2 C_u}{(L/d)^2}} \right] \leq 1.0$$

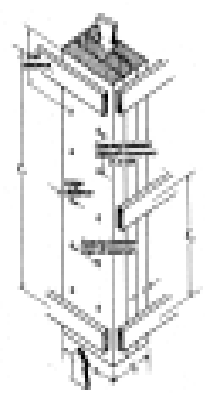
- where:
- $F_c^*$  = adjusted compression design value multiplied by all applicable modification factors except  $C_p$ ,  $C_u$  and  $C_m$
  - $F_c$  =  $F_c^*/1.60$
  - $K_1$  = 0.80 - 0.40  $(L/d)$
  - $K_2$  = for normally graded lumber  
 = 0.80 for machine processed (MP) lumber  
 = 0.80 for products with  $C_M \leq 1.0$  from Appendix D
  - $C_u$  = 1.0 for built-up columns where  $L/d \leq 50$ ; 0.80 for columns where  $L/d > 50$  and the fasteners are installed in accordance with 15.3.4
  - $C_m$  = 0.75 for built-up columns where  $L/d > 50$  is used to calculate  $C_p$  and the fasteners are installed in accordance with 15.3.4
  - $C_u$  = 1.0 for built-up columns where  $L/d > 50$  is used to calculate  $C_p$  and the fasteners are either spaced in accordance with 15.3.4 or 15.3.6, respectively
  - $d$  = 1.50 for glued laminated timber or structural composite lumber

15.3.2.5 Permanently secured service conditions and/or extraordinary loads, use of lower allowable design values may be necessary. See Appendix B for background information concerning column stability calculations and Appendix F for information concerning coefficients of variation in modulus of elasticity (COV).

**15.3.3 Nailed Built-up Columns**

15.3.3.1 The provisions in 15.3.1 and 15.3.2 apply to nailed built-up columns per Figure 15C in which:

Figure 15C: Mechanically Limited Built-up Columns.



- (a) adjacent nails are driven from opposite sides of the column
- (b) all nails penetrate at least 1/4" of the thickness of the last laminae
- (c) 1.50 x end-to-end  $\leq 100$
- (d) 200 x spacing between adjacent nails in a row  $\leq 1.5d_b$
- (e) 100 x spacing between rows of nails  $\leq 200$
- (f) 1.00 x edge distance  $\leq 200$
- (g) 2-prong longitudinal rows of nails are provided when  $d > 1.5d_b$

where:  
 $d_b$  = nail diameter  
 $d$  = clear face width (parallel to grain)  
 $d_{min}$  = thickness of nearest laminae

When only one longitudinal row of nails is required, adjacent nails shall be staggered per Figure 15C. When 2 or more longitudinal rows of nails are used, nails in adjacent rows shall be staggered.

**Discussed: Nail guards and plate straps** need to be installed at plate notches etc. even for unfinished basement walls at time of framing. Bottom plate only requires nail guards to protect plumbing pipes etc.

**Discussed:** Patio doors shall have guards capable of withstanding 200 pound force. Standard procedure is to push/lean on guard and use judgment if safe.

**Discussed: Stair Rise and Runs:** Concrete garage stairs do not have a nosing at top rise/floor level. This caused first step to have larger run than others. There is no desired fix for this problem and we feel that the hazard is minimal because it is first step off/on to floor. This is a floor not a stair nosing!

No enforcement to provide nosing at floor edge.

We need to pay more attention to inconsistent treads in the field; some contractors are using mixed lumber 2x10's and 2x12's in the same stair runs. Tread depth is regulated with the same 3/8" inch tolerance as rises. Must be equal to others.

**Interior stair floor extension beyond door threshold.** Discussed existing policy of February 15, 2006 and agreed this is similar... Revised drawing to show current code run depth minimum required between door and first step/nosing or a maximum of 1”.

### Policy

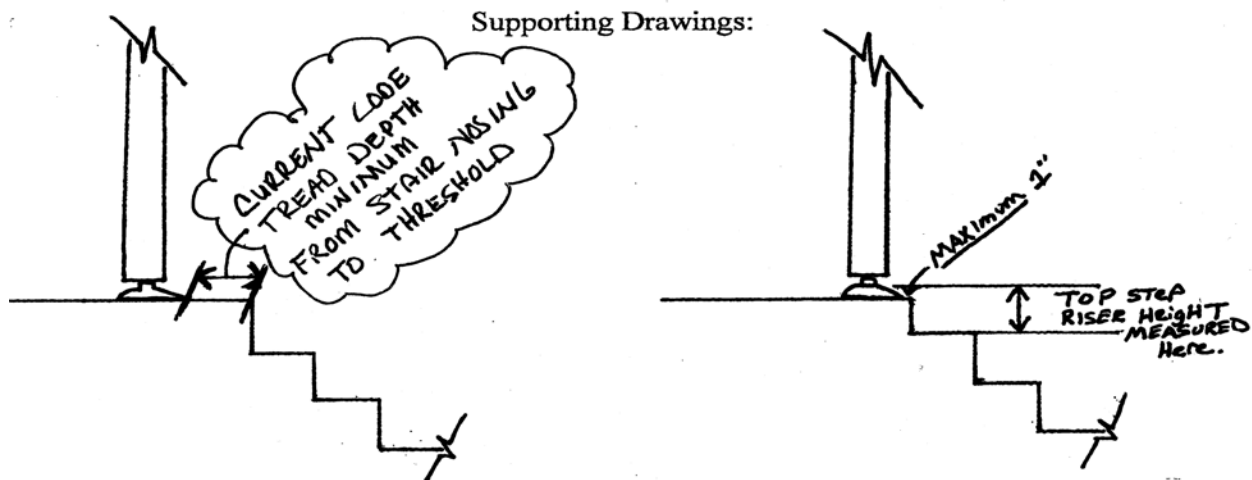
February 15, 2006

Revised March 28<sup>th</sup>, 2007

Issue: Door position at top of stairs.

It is the decision of this division that doors placed at the top of the stairs (example: exterior door with threshold at top of stairs leading from garage floor to basement) shall have a (current code tread depth) of floor width between the threshold and the first nosing edge or the threshold shall be placed no more than 1 inch from the leading edge of the threshold to the stair nosing. The door shall not swing over the stair without a code compliant landing.

**Discussion:** A person using the stairs must first swing the door towards them then approach the stair. Most people do not step on the threshold thus having to extend their stride to make the first step or attempt to step on a reduced non-conforming floor area before transversing the stairs. This can cause the person to be off balance or create a tripping hazard.



**This policy only applies to doors with thresholds**

Code: 2000 IRC with MN amendments.

Stair headroom was discussed: 6’8” headroom is minimum but typically can’t be measured until final due to carpet and finished tread materials not installed, etc. Discussed acceptable tolerance at final. “6’-8” is code minimum”. Discussed construction tolerances, agreed upon measuring techniques.

**Discussed:** Fire stopping around penetrations in garage/house wall. Penetrations larger than 1/8 inch shall be sealed with one of three methods:

- 1) Firestopping material such as 3M or Hitli etc.
- 2) Seal around pipe etc. with mud-tape-mud application. (Tape is required)

- 3) Use of **Great Stuff {pro-polyurethane foam}**. Only products with ICC evaluation report (specific product not generic great stuff or other look knockoff products).

Horizontal gaps shall be mud-tape-mud application. Judgment on gap is up to inspector, paper thickness or less acceptable.

**Discussed:** City ordinance regarding detached buildings. All sheds and detached building plans shall be routed to Planning and Zoning for approval. Changes in the field or after approval shall be re-approved by P & Z department. A maximum of 2 detached buildings and up to 1000 square foot combined is allowed. Buildings over 15' in height require increased setbacks and buildings over 20' in height require a conditional use permit and 20 foot setbacks.

- Lofts with headroom over 6' in height are counted in the square footage allowed.
- A maximum size building to be allowed on skid type foundation is to be determined soon.
- Siding is regulated to match the dwellings siding. Metal roofs are allowed if factory colored.
- Corner lots require a 20 foot side yard setback.

**Discussed:** Attic accesses in garage. Access opening located in the garage ceiling shall have sheetrock with 3/4" plywood or framed backing, hinges and positive latching devise, door shall open less than 90 degrees to assure gravity closing. The intent is to have protection in the ceiling membrane equal to the opening protection required in the wall separation. Hinges and latch are to prevent the opening from being left open. Self closing hinges are not required on the house door, however, this door is typically shut by owners after going through. (Intent)

Pull down stairs shall have framed and sheetrock enclosures around and above the opening. A plywood or framed hatch door shall be installed as described above.

\*\*\*A revised policy will be completed soon with updated drawings and included in future minutes.\*\*\*

**Discussed:** Basement light and ventilation: The requirement for mechanical ventilation and artificial light has changed in the codes, scrutiny of the 4% / 8% rules is typically not necessary during plan review.

**Discussed:** Inspection of roofs: Roofs should be inspected from the top of a ladder (1-story roofs). New construction roofing applications shall be inspected during other inspection visits if possible. Existing roofs, hot roofs shall be noted on inspection sheets when encounter. Hot roofs should be discouraged. New construction shall not have hot roofs allowed.

May 2<sup>nd</sup>, 2007

The above minutes were reviewed and approved for email.