adequate to carry the cumulative load of the remaining plies.

### 7.5.5.3 Design for Withdrawal Load.
Connections between the individual plies of a member shall be designed for withdrawal loads equal to two percent of the axial compression force in each ply so connected, for each unbraced length of the member, or these connections shall comply with the provisions of the ANSI/AWC NDS for use of $K_f$ when used per Section 7.3.2. For the purposes of this section, for members braced by sheathing, the unbraced length over which the fasteners carrying this withdrawal load are distributed shall be permitted to be 10 times the cross-section dimension parallel to the dimension in which the sheathing prevents buckling.

### 7.5.5.4 Nail Spacing.
Nail spacing shall be the smaller of the two determined from Sections 7.5.5.2 and 7.5.5.3, but in no case shall the spacing exceed 12 in. (305 mm) on center. Nailing patterns shall be specified on the Truss Design Drawing.

### 7.5.5.5 Bolt Spacing.
Bolt spacing shall be the smaller of the two determined from Sections 7.5.5.2 and 7.5.5.3, but in no case shall the spacing exceed 24 in. (610 mm) on center unless the bolts are used solely for reasons other than to carry loads addressed by Sections 7.5.5.2 and 7.5.5.3. bolts shall have a diameter no less than $\frac{1}{2}$ in. (13 mm) and no greater than 1 in. (25 mm).

### 7.6 DEFORMATION

#### 7.6.1 Method of Calculation.
Truss deflection shall be determined by structural analysis in accordance with section 6.1.1.2, except as permitted in section 7.6.2.2 – 7.6.2.3. Deflection due to live load ($\Delta_{LL}$) shall be based on the live load, deflection due to dead load ($\Delta_{DL}$) shall be based on the dead load, and deflection due to total load ($\Delta_{TL}$) shall be based on the full load including both dead and live loads, for each load case. Time dependent deformation under long term loading shall be determined as follows, except for purposes of deflection limitation in accordance with the International Building Code as noted in the next paragraph.

\[
\Delta_{LongTerm} = K_{cr} \times \Delta_{LT} + \Delta_{ST}
\]

where:

- $K_{cr} = \text{Creep factor}$
- \(\geq 2.0\) for for trusses using seasoned lumber used in dry service conditions

#### Table 7.6-1 Deflection Limits for Non-Cantilevered Portions of Trusses,^{b,5}

Values given in the table are divisors that are applied to the clear span length, \(L_s\), to establish a deflection limit (limit = \(L_s / \text{specified value}\)).

<table>
<thead>
<tr>
<th>Member</th>
<th>Deflection due to Live Load Only ($\Delta_{LL}$)</th>
<th>Deflection due to Live Load Plus Creep Component of Deflection due to Dead Load ($\Delta_{CR}$)</th>
<th>Deflection due to Total Load ($\Delta_{TL}$), when specified$^7$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof Truss supporting plaster$^1$</td>
<td>360</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>Roof Truss supporting drywall$^1$</td>
<td>240</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Roof Truss not supporting ceilings$^1$</td>
<td>180</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Floor Trusses$^2$ (see footnotes for Trusses supporting ceramic tile)</td>
<td>360</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>Top Chord panel$^4$</td>
<td>180</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Habitable spaces in Trusses$^6$</td>
<td>360</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Roofs not having sufficient slope or camber to assure adequate drainage shall be investigated for ponding.
2. Certain floor coverings require more restrictive deflection criteria. For ceramic tile, Truss spacing and appropriate dead load for the installation method, and other aspects of design per ANSI A108/A118/A136 shall be such that the system passes the requirements of the Building Designer per Chapter 2 of this Standard.
3. Cantilevered and overhang portions of Trusses are subject to deflection limits using the values shown above applied to twice the length of the cantilever, \(L_s\).
4. Span length for Top Chord panel limits shall be the panel length.
5. Where required by ACI 530/TMS 402 for Trusses used as a beam or lintel providing support of vertical masonry veneer, a minimum of $1/600$ deflection limit shall apply.
6. Limit is for panel deflection of the loaded panel when loaded with 30 psf (14.4 KPa) or greater of live load.
7. The limits for $\Delta_{LL}$ and $\Delta_{CR}$ correspond to limits established by typical building codes and shall be applied to all trusses. The limit for $\Delta_{TL}$ is provided for application when building designers specify such a check due to total load be performed.