January 2024

ERRATA

to the 2018 Edition of Commentary for the
National Design Specification (NDS) for Wood Construction

(All prior PDF and print versions)

Page  Revision
256  Revise equation C12.2.2-2 as shown in red below:

\[ K_W = 1.2 \left( \frac{14250}{6} \right) \]  

(C12.2.2-2)
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to the 2018 and Prior Editions of
the National Design Specification® (NDS®) for Wood Construction

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<tr>
<td>91</td>
<td>Revise footnote 1 in Table 12.5.1D as follows:</td>
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1. The $\ell/D$ ratio used to determine the minimum edge distance spacing between rows shall be the lesser of:
   (a) length of fastener in wood main member/D = $\ell_m/D$
   (b) total length of fastener in wood side member(s)/D = $\ell_s/D$
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Clarifies that the following calculations in Example E.7 Sample Solution of Row of Bolts is intended for a single-row bolted connection with a 3-1/2” thick main member and 1-1/2” thick side member:

E.7 Sample Solution of Row of Bolts

Calculate the net section area tension and row tear-out adjusted ASD design capacities for the single-shear single-row bolted connection represented in Figure E2.

Main and Side Members:
#2 grade Hem-Fir 2x4 lumber. See NDS Supplement Table 4A – Visually Graded Dimension Lumber for reference design values. Adjustment factors C_D, C_T, C_M, and C_i are assumed to equal 1.0 in this example for calculation of adjusted design values.

\[ F_t' = 525 \text{ psi} \times C_T = 525(1.5) = 788 \text{ psi} \]
\[ F_{v'} = 150 \text{ psi} \]

Connection Details:
Bolt diameter, D: 1/2 in.
Bolt hole diameter, D_h: 0.5625 in.
Adjusted ASD bolt design value, \( Z_{||}' \): 550 lbs
(See NDS Table 12A for 3-1/2” main member thickness and 1-1/2” side member thickness. For this trial design, the group action factor, C_g, is taken as 1.0).

Adjusted ASD Connection Capacity, \( n Z_{||}' \):
\[ nZ_{||}' = (3 \text{ bolts})(550 \text{ lbs}) = 1,650 \text{ lbs} \]

Adjusted For side member, adjusted ASD Net Section Area Tension Capacity, \( Z_{NT}' \):
\[ Z_{NT}' = F_t' \cdot t \cdot [w - n_{row} D_h] \]
\[ Z_{NT}' = (788 \text{ psi})(1.5^\prime)(3.5^\prime - 1(0.5625^\prime)) = 3,470 \text{ lbs} \]

Connection Details:
Bolt diameter, D: 1/2 in.
Bolt hole diameter, D_h: 0.5625 in.
Adjusted ASD bolt design value, \( Z_{||}' \): 550 lbs
(See NDS Table 12A for 3-1/2” main member thickness and 1-1/2” side member thickness. For this trial design, the group action factor, C_g, is taken as 1.0).

Adjusted ASD Connection Capacity, \( n Z_{||}' \):
\[ nZ_{||}' = (3 \text{ bolts})(550 \text{ lbs}) = 1,650 \text{ lbs} \]

Adjusted For side member, adjusted ASD Row Tear-Out Capacity, \( Z_{RT}' \):
\[ Z_{RT}' = nF_{v'} \cdot t_{critical} \]
\[ Z_{RT}' = 3(150 \text{ psi})(1.5^\prime)(2^\prime) = 1,350 \text{ lbs} \]

In this sample calculation, the adjusted ASD connection capacity is limited to 1,350 pounds by row tear-out, \( Z_{RT}' \).
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Revised Example E.8 Sample Solution of Row of Split Rings (remainder of example is unchanged):

E.8 Sample Solution of Row of Split Rings

Calculate the net section area tension and row tear-out adjusted ASD design capacities for the single-shear single-row split ring connection represented in Figure E3.

Main and Side Members:

#2 grade Southern Pine 2x4 lumber. See NDS Supplement Table 4B – Visually Graded Southern Pine Dimension Lumber for reference design values. Adjustment factors CD, CT, CM, and Ci are assumed to equal 1.0 in this example for calculation of adjusted design values.

\[ F_t' = 825 \text{ psi} \]

\[ F_v' = 175 \text{ psi} \]

Main member thickness, \( t_m \): 1.5 in.  
Side member thickness, \( t_s \): 1.5 in.  
Main and side member width, \( w \): 3.5 in.

Connection Details:

Split ring diameter, \( D \): 2.5 in. (see Appendix K for connector dimensions)  
Adjusted ASD split ring design value, \( P' \): 2,730 lbs (see Table 13.2A. For this trial design, the group action factor, \( C_g \), is taken as 1.0).

Adjusted ASD Connection Capacity, \( nP' \):

\[ nP' = (2 \text{ split rings})(2,730 \text{ lbs}) = 5,460 \text{ lbs} \]

Adjusted ASD Net Section Area Tension Capacity, \( Z_{NT'} \):

\[ Z_{NT'} = F_t' A_{net} \]

\[ Z_{NT'} = (825 \text{ psi})[5.25 \text{ in.}^2 - 1.5''(0.5625'') - 1.1 \text{ in.}^2] \]

\[ = 2,728 \text{ lbs} \]

Adjusted ASD Row Tear-Out Capacity, \( Z_{RT'} \):

\[ Z_{RT'} = n F_v' A_{critical} \]

\[ Z_{RT1'} = [(2 \text{ connectors})(175 \text{ psi})/2][21.735 \text{ in.}^2] \]

\[ = 3,804 \text{ lbs} \]

where:

\[ A_{critical} = 21.735 \text{ in.}^2 \] (See Figures E4 and E5)

In this sample calculation, the adjusted ASD connection capacity is limited to 2,728 2,232 pounds by net section area tension capacity, \( Z_{NT'} \).
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to the 2018 Edition of
the National Design Specification® (NDS®) for Wood Construction
(web version dated 11-17)

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Revise $K_{rs}$ as described in Equation (5.4-3) as follows (replace $d_\text{e}$ with $d_\text{c}$):

$$K_{rs} = \text{empirical radial stress factor} = 0.29 \left( \frac{d_c d_e}{R_m} \right) + 0.32 \tan^{1.2} \phi_T$$