ERRATA to the 2015 Edition of the National Design Specification® (NDS®) for Wood Construction (all versions)

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Revise the following calculations in 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.

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

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

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, \( Z_{NT}' \):

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

\[
Z_{NT}' = \left(825 \text{ psi}\right)[5.25 \text{ in.}^2 - 1.5\text{ in.} - 1.1\text{ in.}^2] = 2,728,2232 \text{ lbs}
\]

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

\[
Z_{RT}' = \eta \frac{F_v'A_{critical}}{2}
\]

\[
Z_{RT}' = [(2 \text{ connectors})(175 \text{ psi})/2](21.735 \text{ in.}^2) = 3,804 \text{ lbs}
\]

where:

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

In this sample calculation, the adjusted ASD connection capacity is limited to 2,728,2232 pounds by net section area tension capacity, \( Z_{NT}' \).