

Incising for preserved wood products

Incising creates small cuts in the wood to improve the penetration and retention of the preservatives in the wood. Incising is done through a mechanical process where longitudinal incisions are made parallel to the grain with chisel- or knife-type teeth.

The process of incising reduces some of the strength values in structural lumber. The type and amount of strength reduction is dependent on the depth and density of the incisions.

Incising and the impacts on the design values for treated wood are detailed in standards published by the American Wood Protection Association and the American Wood Council.



AWPA standards for incising

The exact attributes of incising are not defined in the AWPA standards. However, the standards do include specifications that ensure products meet the preservative penetration and retention requirements for the appropriate Use Category.

AWPA Standard T1, Section 1.7 notes incising is “required on all faces except for lumber with patterned edges where incising is required for wide faces only.”

The depth of incisions is typically no more than 0.4 inch, or 10 mm. **AWPA Standard T1, Section 1.7.2** states: “Experience has shown that excessive surface damage may result when incising patterns are too dense or incising depths exceed 10 mm (0.4 inch).”

Penetration specifications listed in **AWPA Standard T1, Section 12** defines the incising patterns required. Footnote C states: “Incising patterns of sufficiently high density and depth to obtain the required uniformity of penetration are required. A minimum of 750 incisions per square foot is required except when using ammoniacal preservatives, where fewer incisions are adequate.”

Incising and strength values for wood

The **National Design Specification® (NDS®) for Wood Construction**, published by the American Wood Council, outlines provisions for pressure-preservative treated lumber that include adjustments to strength characteristics for incised wood.

NDS Section 4.3.13 states: “Reference design values apply to sawn lumber pressure treated by an approved process and preservative. Load factors greater than 1.6 shall not apply to structural members pressure-treated with water-borne preservatives.”

For wood that has been incised, **NDS Section 4.3.8** defines adjustment factors to be applied to specific design values: “Reference design values shall be multiplied by the following incising factor, C_i (see table) when dimension lumber is incised to parallel to grain a maximum depth of 0.4", a maximum length of 3/8", and a density of incisions up to 1100/ft².” The design values adjusted for incising include Modulus of Elasticity (E), Extreme Fiber Stress in Bending-Single Member (F_b), Tension Parallel to Grain (F_t), Compression Parallel to Grain (F_c), Horizontal Shear (F_v) and Compression Perpendicular to Grain ($F_{c\perp}$).

Table 4.3.8 Incising Factors, C_i
National Design Specification® for
Wood Construction

Design Value	C_i
E, E_{min}	0.95
F_b , F_t , F_c , F_v	0.80
$F_{c\perp}$	1.0

For additional information on incising and wood design values, go to the websites of the following organizations:

American Wood Protection Association	www.awpa.com
American Wood Council	www.awc.org
Western Wood Products Association	www.wwpa.org