

Checking and splitting

Checking occurs when lumber is rapidly dried. The surface dries quickly, while the core remains at a higher moisture content for some time. As a result, the surface attempts to shrink but is restrained by the core. This restraint causes tensile stresses at the surface, which if large enough, can pull the fibres apart, thereby creating a check.

Splits are through checks that generally occur at the end of wood members. When a wood member dries, moisture is lost very rapidly from the end of the member. At midlength, however, the wood is still at a higher moisture content. This difference in moisture content creates tensile stresses at the end of the member. When the stresses exceed the strength of the wood, a split is formed.

Large dimension solid sawn timbers are susceptible to checking and splitting since they are always dressed green (S-Grn). Furthermore, due to their large size, the core dries slowly and the tensile stresses at the surface and at the ends can be large.

Minor checks confined to the surface areas of a wood member very rarely have any effect on the strength of the member. Deep checks could be significant if they occur at a point of high shear stress. Checks in columns are not of structural importance, unless the check develops into a through split that will increase the slenderness ratio of the column. The specified shear strengths of dimension lumber and timbers have been developed to consider the maximum amount of checking or splitting permitted by the applicable grading rule.

The possibility and severity of splitting and checking can be reduced by controlling the rate at which drying occurs. This may be done by keeping wood out of direct sunlight and away from any artificial heat sources. Furthermore, the ends may be coated with an end sealer to retard moisture loss. Other actions which will minimize dimension change and the possibility of checking or splitting are:

- specifying wood products that are as close as possible in moisture content to the expected equilibrium moisture content of the end use
- ensuring dry wood products are protected by proper storage and handling