Press Release

April 2007, Rev. 1

5 Jean Dempsey Gate
West Hill, Ontario
CANADA M1C 3C1

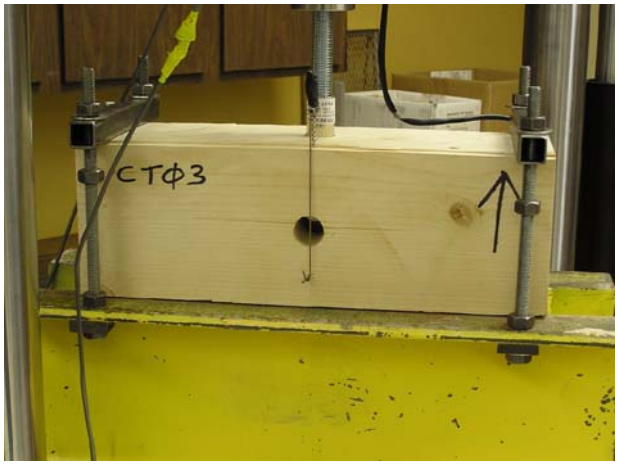
http://www.timberlinx.com
info@timberlinx.com
877.900.3111

Timberlinx has recently completed a new strength testing program based on ASTM D 1761 at the Universityof Wyoming to determine the performance of the Timberlinx connector in a wider variety of timber materials. New design values developed from this testing program are currently under review by the Canadian Construction Materials Centre (CCMC). This press release compares the new design values to those determined in the original test program in October 2000 and contained in CCMC Evaluation Report 13091-R, which remains in force until the new design values are approved.

Details of the Testing Program

Timberlinx conducted its initial testing program in October 2000 to develop design values that could be used in virtually any application. The A095 tension tube was tested in Eastern White Pine specimens with end distance for tension parallel to grain that was less than the minimum specified value in the governing design specifications. The edge distance for tension perpencicular to grain did satisfy the specification requirements. The recent testing program included newer, improved connection hardware, standard dimensions for both end and edge distance, and a wider variety of timber species (Eastern White Pine, Port Orford Cedar, and White Oak). Hence, designers will soon have greater flexibility, higher preformance, and lower cost when designing with Timberlinx.

a. Tension Parallel to Grain



b. Tension Perpendicular to Grain

Figure 1 — Typical Test Specimens

The CSA O86-01 design standard specifies minimum end distance of 7*D* and minimum edge distance of 4*D*, where *D* is the diameter of the dowel-type fastener and all timber is presumed to be softwood. The AF&PA NDS© specifies minimum end distances of 7*D* and 5*D* for softwoods and hardwoods, respectively, and a minimum edge distance of 4*D* for all wood species. The diameter of the Timberlinx expansion pin is 0.75 inches, but the drill hole for the expansion pin is significantly oversized to permit expansion of the pin during joint assembly. Thus, the minimum end and edge distances for the tension parallel to grain tests were achieved by providing clear distances from the edge of the drill hole to the end of the specimen of 6.5*D* and 4.5*D* in the softwood and hardwood specimens, respectively. Likewise, tension perpendicular to grain tests used a clear distance from the edge of the drill hole to the face of the specimen of 3.5*D* in all test specimens.

All tests used the A475 tension tube and the standard expansion pin. Typical test assemblies are shown in Figure 1. For the tension parallel to grain tests, a second tube was secured in the bottom of the specimen to hold it in the test machine. For tension perpendicular to grain, the specimen was clamped in the test frame. In both cases, uniaxial tension was applied to the A475 tension tube through a threaded rod secured in the load frame. Shear loading was not included in this testing program. Only tension loading is considered.

Currently Approved Design Values

The design values approved by CCMC Evaluation Report 13091-R for both limit states design and working stress design are contained in Table 1. See Timberlinx Technical Bulletin No. 1 for additional information.

Table 1 — Current Design Values, Standard-term Loading, Single Connector

Load Configuration	CSA Limit States Design	CSA Working Stress Design
Tension parallel to grain	2700 lb	1870 lb
Tension perpendicular to grain	2520 lb	1740 lb

Proposed New Design Values

The new design values are contained in Table 2. The strength of the Eastern White Pine Specimens was controlled by the timber strength. Tensile strength of the tension tube limited the strength of the White Oak specimens. Port Orford Cedar specimens showed both localized failure of the timber at the expansion pin as well as tensile failure of the tension tube. Design values for White Oak are governed by CSA S16-01 for steel design, rather than CSA O86-01. Correlation functions are being developed so that the new design values can be applied to other timber species.

Table 2 — Proposed New Design Values, Standard-term Loading, Single Connector

Load Configuration	Species	CSA Limit States Design	CSA Working Stress Design
Tension parallel to grain	Eastern White Pine	4700 lb	3270 lb
	Port Orford Cedar	5080 lb	3530 lb
	White Oak	7640 lb	5320 lb
Tension perpendicular to grain	Eastern White Pine	2780 lb	1930 lb
	Port Orford Cedar	3500 lb	2440 lb
	White Oak	7640 lb	5320 lb