



## Truss Plates for Use as Wood-Concrete Composite Shear Connectors

<https://research.thinkwood.com/en/permalink/catalogue732>

Author: Clouston, Peggi  
Schreyer, Alexander

Organization: Structures Congress

Publisher: American Society of Civil Engineers

Year of Publication: 2012

Country of Publication: United States

Format: Conference Paper

Material: Timber-Concrete Composite  
LVL (Laminated Veneer Lumber)

Application: Beams

Topic: Connections  
Design and Systems  
Mechanical Properties

Keywords: shear connectors  
Truss Plates  
Slip-modulus  
Ultimate Shear Capacity  
Push-Out  
Bending Stiffness  
Strength  
Four Point Bending Test

Language: English

Conference: Structures Congress 2011

Research Status: Complete

Notes: April 14-16, 2011, Las Vegas, Nevada, United States

### Summary:

Wood-concrete composite systems are well established, structurally efficient building systems for both new construction and rehabilitation of old timber structures. Composite action is achieved through a mechanical device to integrally connect in shear the two material components, wood and concrete. Depending on the device, different levels of composite action and thus efficiency are achieved. The purpose of this study was to investigate the structural feasibility and effectiveness of using truss plates, typically used in the making of metal-plate-connected wood trusses, as shear connectors for laminated veneer lumber (LVL)-concrete composite systems. The experimental program consisted of two studies. The first study established slip-modulus and ultimate shear capacity of the truss plates when used in an LVL-concrete push out assembly. The second study evaluated overall composite bending stiffness and strength in two full size T-beams when subjected to four-point bending. One beam employed two continuous rows of truss plates and the other employed one row. It was found that the initial stiffness of both T-beams was similar for one and two rows of truss plates but that the ultimate capacity was approximately 20% less with the use of only one row.

Online Access:            Payment Required

### Resource Link

---

[https://doi.org/10.1061/41171\(401\)55](https://doi.org/10.1061/41171(401)55) 