

## CHAPTER 6

### Summary

The results of the tensile tests showed that ultimate tensile stress and tensile modulus increased significantly after all densification treatments at both 25 and 50 % strain levels.

There was no significant thermal degradation detected in the tensile specimens.

The degree of densification was not significantly affected by the environment during compression. The strain level employed during compression had the greatest influence on increasing specific gravity and tensile properties. The degree of densification was dependent on the species and type of wood, with southern pine and juvenile wood exhibiting the greatest increases of specific gravity.

Temperature alone did not affect the wood structure. Densification treatments had the greatest effect on the degree of damage to the cell walls. The type of cellular collapse was different in southern pine and yellow-poplar specimens. The southern pine was more susceptible to cell wall fractures. Similarly, juvenile wood showed more cellular damage, than mature wood.

Chemical analysis revealed no significant changes in chemical composition of wood specimens subjected to 160 °C, pure steam for up to 8 hours.