

Wood 474 Assignment 2013

Impact of technological developments on roundwood demand

This assignment examines the implications for forestry of technological developments in the structural wood products industry. As mentioned in class, OSB has substituted for a large proportion of plywood in house construction and EWPs are substituting for lumber.

This assignment requires you to determine the consequences that the change in market demand from 1980 to 2005 has had on the amounts and types of roundwood needed to meet the requirements of US single family homes for structural panels. Use the data presented in lectures and any other information that you consider necessary.

Construction data for 2005 should be used as the basis for the comparison. Calculate the amount of roundwood required to meet the demand of US single family homes for structural panels given the market shares in 1980 and 2005 and answer the question 'what would the change in roundwood demand and quality be if the 1980 market shares had still existed in 2005'.

The following data are relevant:

- a) In 2005, 388 million m² of single family home floor area were constructed in the USA.
- b) Plywood and OSB are the dominant structural panel products. In 1980 the market shares were 95%plywood:5%OSB. By 2005, the market shares were 20%plywood:80%OSB.
- c) In 2005, the total consumption of structural panels was 25.1 kg/m² floor area built.
- d) Assume that the product yields are:
 - plywood: 50% m³ dry product/m³ green roundwood
 - OSB: 88% m³ dry product/m³ green roundwood
- e) Assume that the product densities are:
 - plywood: 475 kg/m³ dry product
 - OSB: 640 kg/m³ dry product

A report of about two pages is required. In addition to the calculations you should assess the implications of this change on the volume and type of the roundwood needed for each product and what the impacts would be for forest managers. Also, discuss the impact that developments in engineered wood products may have on forest practices in North America.

Show all of your calculations.

Due date:

