

DEVELOPMENT OF ENGINEERED WOOD PRODUCT USING SCOTTISH SITKA SPRUCE SIDE-BOARDS

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INTRODUCTION

Due to the market saturation of side-boards, the impact on sales and profits have been affected adversely. Therefore, the aim of the KTP project is to develop an engineered wood product that utilizes side-boards to produce an added value product. In turn this would lead to significant competitive advantage and increased profits for James Callander and Son and knowledge to Napier University. In order to achieve this goal the characterisation of the side-boards is paramount, while also understanding the market for a new engineered product. The combination of these two objectives will allow the manufacture of an engineered product that is competitive and structurally sound.



BACKGROUND

Once the sorted and but-end reduced logs are brought from the woodyard to the sawmill, they are placed on a conveyor belt that carries the log to the debarker. The debarker removes the bark before the log reaches the first saw, called the headsaw. After the saw slices off two boards from the outer parts of the log it proceeds to the second saw, called the second bandsaw. This then cuts off the two remaining sides leaving a cant that continues on to form battens.



SIDE-BOARDS

Sitka spruce is a predominant species found in Scotland forests. The main feature of this species is the rapid growth rates that lead to a low density material. The boards produced from the logs have a tendency to twist when dried below 18% moisture content. This is due to the presence of spiral grain in the log. The severity of the distortion is higher at the juvenile core region, leaving the side boards with better twist properties. Side boards are also known to have better mechanical properties and thus would offer good potential for use in Engineered Wood Products (EWPs).

In order to add value to the side boards potential EWPs are being looked at, specifically glued-laminated beams and cross-laminated panels known as massive wood.



CHARACTERISATION

The characterisation of the side boards is an integral part of the project, as it would indicate the use of the boards in an EWP. The procedure adopted is mainly based on the recommendations of BS EN 408:2003 which specifies test methods for determining various mechanical properties. The testing therefore will be carried out in accordance with the requirements of BS EN 408 to determine their true engineering properties and hence their grades.

