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## 道産材を用いた木質 I 形梁の力学特性 (第 1 報)

曲げ, せん断, めり込み特性

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### Mechanical Properties of Wooden I-beams with Plantation Timber Materials in Hokkaido I. Bending, shear and partial bearing properties

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Wooden I-beams with Todomatsu (*Abies sachalinensis*) lumber and Karamatsu (*Larix kaempferi*) plywood were developed to meet the demand for a stable and quality controlled supply of floor framing members for wood frame construction from plantation timber resources. In this study, wooden I-beams of 235 mm depth and three flange sizes were manufactured by common wood working machines, and their bending, shear and partial bearing properties were examined. The tolerance limits of bending and partial bearing properties of the I-beams developed in this study were equal to or higher than those of dimension lumber with the same beam depth, although statistical analyses showed that their characteristic values were lower than those of North American I-beams of similarly shaped cross sections with MSR lumber flanges and OSB webs. From the results of examination, it was confirmed that the I-beams developed in this study could be satisfactorily substituted for dimension lumber of the same depth as joists and rafters for wood frame construction under ordinary loads, although careful consideration should be given to exceptional cases when shear force is critical in the structural design.

*Key words:* wooden I-beam, bending property, shear property, partial bearing property, characteristic value

木質 I 形梁, 曲げ特性, せん断特性, めり込み特性, 特性値

北海道産人工林材を用いた品質の高い枠組壁工法用床組部材の安定供給に対する要望に応えるべく、トドマツ製材とカラマツ合板を用いた木質 I 形梁を開発した。梁せい 235mm，梁幅 3 種類の I 形梁を一般的な木材加工設備で製造し，それらの曲げ，せん断，めり込みに関する力学特性を調べた。統計解析による道産 I 形梁の特性値は，同形状の北米産 I 形梁に比べて低かったが，同じ梁せいの枠組壁工法用製材と比べるとせん断性能は低いものの曲げ性能とめり込み性能は同等以上であった。道産 I 形梁は床根太やたるきとして用いるときに大きなせん断力が生じる荷重条件では設計上の留意が必要であるが，通常の荷重条件では枠組壁工法用製材に代替可能な性能を有することが明らかとなった。

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