INVESTIGATION OF STEEL JOIST SUPPORTED WOOD FLOOR SYSTEMS

by

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(ABSTRACT)

This study investigates four aspects associated with steel joist supported wood floor systems: 1) acceptability, 2) prediction of deflection, 3) prediction of frequency, and 4) effects of diagonal bracing. Six full scale floor systems and two two-joist floor systems were constructed in the laboratory. Span length, joist spacing and diagonal bracing were the only parameters modified for each floor. Four tests were performed for each floor setup: heel drop impact, walking perpendicular and parallel to the floor joists, static concentrated load at midspan, and testing to determine subjective evaluation.

Five acceptability criteria were investigated: Swedish Building Technology Design Guide, *Australian Standard Domestic Metal Framing Code*, Canadian Timber Floor Criterion, Murray's Criterion, and Johnson's Criterion. The results from these criteria were compared to the measured results of each floor system. Four methods to predict vertical deflection due to a static load at midspan were compared to measured values of each floor system. The effect of diagonal bracing on floor stiffness was also investigated. Results and concusions were made for each aspect investigated.

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