

Arc-flow formulation for a two-stage two-dimensional dual bin packing problem to optimize wood reuse

We aim to manage wood waste more efficiently through optimization techniques to recycle it into Cross-Laminated Timber (CLT) panels of variable dimensions. The inputs are slats with heterogeneous lengths. In the literature, our problem is a two-stage two-dimensional multiple bin size dual bin packing problem that we apply to wood reuse optimization.

We propose a description of the problem and an arc-flow formulation that maximizes the wood reused, and present the results of numerical experiments based on realistic instances from the wood industry.

Keywords: Dual bin packing, Cutting and Packing, Arc-flow formulation, Combinatorial Optimization