



Variations of Moisture Content in Manufacturing CLT-Concrete Composite Slab Using Wet Construction Method

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Summary:

Construction of eco-friendly high-rise buildings using cross-laminated timber (CLT)-concrete composite (CCC) slabs is increasing. CLT and concrete, which are major component materials of the CCC slab, are significantly affected by moisture. In particular, the moisture content of concrete in the production process affects the quality of both materials. In this study, the effects of the wet construction method on CLT and concrete component materials are examined by monitoring the behavior of the CCC slab during curing time (28 d) and by evaluating the quality of the concrete and CLT after curing. When manufacturing the CCC using the wet construction method, moisture penetration from the concrete into the CLT during the curing time is suppressed by the shear bonding between the concrete and the CLT when an adhesive is used. This minimizes the effect of the moisture on both component materials, consequently yielding uniform compressive strength to the concrete after curing and preventing the deterioration of the CLT's delamination performance. Therefore, the shear bonding method using an adhesive is expected to minimize the quality deterioration observed in concrete and CLT after curing.

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