

## The Performance Analysis to Identify the Reuse and Assembly Impact of Temporary Equipment

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### Abstract

Temporary work that utilizes temporary equipment (e.g., system scaffold and system pipe support) in construction work is one of the most vulnerable work from a safety perspective in South Korea. Typically, temporary equipment is reused at construction sites. The Korea Occupational Safety and Health Agency announced guidelines regarding the performance standards for reusable temporary equipment to prevent the accidental collapse of temporary facilities. Nevertheless, temporary facilities' collapse still occurs, which could be attributed to a degradation in the performance due to the reuse of temporary equipment. Therefore, this study investigated the performance of simple temporary structures assembled with new and reused equipment. To this end, an experimental module was designed based on previous research cases, and two experimental models were constructed, in which one was assembled using new equipment (Model A), and the other was built using reused equipment (Model B). To determine the performance of each model, a load test was conducted to measure the maximum load that each model could withstand. The experimental results revealed that the maximum load of Model B was 15% lower than that of Model A. This indicates that there is a meaningful performance difference between those two models. Based on this result, the authors decided to perform additional tests with more realistic models than previous ones. The new experimental module was designed to ensure compliance with the Korean design guidelines. In this presentation, the authors show details of the first tests and their results and plan for the additional test.

**Key words:** Temporary equipment, Assembled temporary equipment, Reuse, Performance

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