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"Hammer Strut®" A New Efficient Earth Retaining Structure

— A simplified Angle Brace of Earth-Retaining Structure Reduces Cost —

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Summary

Angle braces or blocks are installed in joints between struts and wall elements to support an earth retaining structure. Generally, assembling and dismantling of those members are time consuming because a large number of heavy members must be installed following a highly complex procedure. "Hammer Strut" employs general-purpose I-beams of the same size as the wall elements instead of angle braces. These I-beams are installed parallel to wall elements at the joints between the struts and wall elements. By doing so, the axial forces acting on the struts can be sufficiently dispersed.

Features

1) Lighter shoring system weight reduces lease costs.
- Substantial reduction in member weight, cutting lease costs of shoring system
- Only one-fourth to half of weight compared to angle pieces leased at temporary construction material providers, improving work efficiency
2) Shorter required time for assembling and dismantling of a shoring system.
- Reductions in member weights and the number of installed bolts, decreasing work time
- The position of the center of gravity getting closer to the wall, resulting in improved stability of the support during assembling and dismantling works
3) Larger openings allow easier construction of underground works.
- The absence of diagonal struts enabling to provide larger openings
Smoother loading and unloading of earth, sand, materials and equipment allowing underground excavation and construction work to be done more efficiently

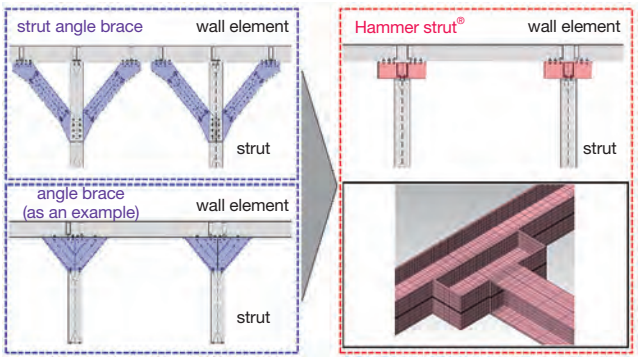

Fig. Comparing Hammer Strut (R) with a usual joint between a strut and wall element (L)

Photo An example Hammer strut

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Inventory Management System "Fair-Stock®"

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Background

The under-construction mountain tunnel in Japan, inventory management takes time and effort. That is usually carried out by young construction staffs in Japan. They couldn't recognize the shortage of materials because they don't know when and how many materials are used in construction process. It may cause the construction delays. As distributors of construction products, we needed to develop a system that is user-friendly and capable of preventing mistakes.

Summary of the System

To solve the problem, we have developed the system called "fair-stock®" (Fig.1). This system is designed to be user-friendly and mistakes-preventive for anyone utilizing it. It has convenient features for users (Fig.2). The features of this system are as follows:

1) This system facilitates easy inventory management through both PC and smartphone. This is cloud-based system, so it enables information sharing across multiple locations and related companies.

2) The system is designed to prevent mistakes by providing a calendar that is intuitive and easy to grasp the current status, and a simulation function that can predict future material usage.

3) It is possible to place an order for a fixed quantity or for the same quantity as in the past with a single click. This streamlines operations and contributes to increased productivity.

4) Since delivery slips are automatically output on the system, there is no need to print them on paper. This makes us to go paperless.

5) Actual material usage can be automatically calculated in the system by entering construction progress. By connecting to construction machinery, material usage can be obtained from the machinery and reflected in the inventory.

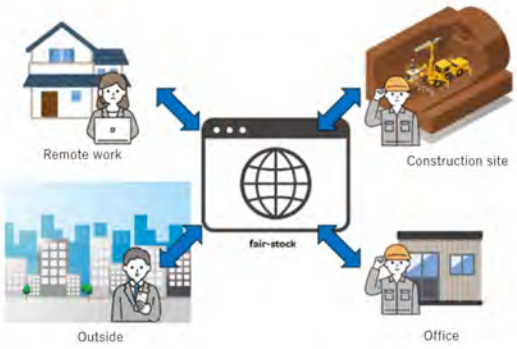

Fig.1 conceptual diagram

Fig.2 features of system