1. COMPANY INTRODUCTION

SUPPORTEC Co., Ltd.
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Supportec Co., Ltd. announced that the most effective and innovative soil supporting system – Innovative Prestressed Support (IPS) System – has been successfully developed by adapting prestressing technology, which expands the length of wale more than 10 times and reduces the construction cost and time, significantly.

Supportec has 6 international patents and 16 korean patents for IPS system. IPS system obtained certification of 'New Excellent Technology No.433' by Ministry of Construction & Transportation in 2004, and governmental authorization '2007 Korea Ten Best New Technology No.2007-10' by Ministry of Commerce, Industry & Energy.

IPS system extends into China actively through set up a Joint-Stock Company with technology transfer, so Supportec wants to find ways to extend IPS system in USA.

Supportec Co. Ltd. will continue to develop supporting technology and becomes a leader of both the construction technology and globalization of the developed technology.
IPS system is new technology for a temporary support construction of earth retention method to replace current method. Current construction method is called 'Strut Method' has many problems as below.

1. Difficulties of excavation and main structure construction due to narrow space.
2. Danger of collapse of soil support system due to an abrupt buckling failure of struts of conventional system.
3. High possibility of accident due to complex procedure.
4. High cost due to large amount of steel and also, labor.
5. Long construction period due to inefficient work.
6. Significant ground movement due to limited confining pressure.

**Current Method (Strut Method)**

**IPS system**

![Basic Concept of IPS system](image-url)
The IPS Earth Retention system is a new wale system prestressed by tensioning of steel wires. The IPS Earth Retention system consists of wales, H-beam support legs, and steel wires.

The IPS Earth Retention system provides a highly flexural performance to resist a bending by lateral earth pressures. The IPS Earth Retention system provides the spacing of struts drastically larger than those of struts of conventional earth support systems. Therefore, the IPS Earth Retention system can reduce the quantity of steel beam than conventional support systems.

The IPS Earth Retention system has a preloading effect on the wall and restricts wall deformation by tensioning of steel wires.

<Advantages>
- Retention system and main construction COSTS are reduced.
- Retention system and main construction PERIOD are reduced.
- Increased Safety by ductile flexural failure mode.
- Ground settlement is prevented by preload effect.
- Construction work becomes easier such as excavation, moving soil and construction materials.

Design by Strut method

Change Design by IPS system

Design Example

IPS system construction and Excavation

Main structure work after IPS system