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The Most Advanced Shoring Devices

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SLIDE RAIL SHORING

SLIDING STRUT SHORING

TRENCH SHIELD

SELF PROPELLED SHIELD

MANHOLE BOXES

MAXSHORES

BEDDING BOXES

ARCHES

MODULAR STRUCTURES

CUSTOM DESIGN



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Primax represents the ultimate shoring design in various Sliding Shoring Systems combining practice with ingenious ideas and adept functional principles to provide the most reliable, versatile and user friendly shoring systems in the construction industry. In addition to conceptual novelties **Primax** shoring systems come with lighter but stronger components for easier operation and transportation.

SLIDE RAIL SHORING SYSTEM

From a system having two distinctive shoring panels, each one using partial connections (US Pat 6,848,865 B2), for the first time, **Primax** introduced a slide rail shoring system having **A UNIQUE SHORING PANEL WHILE USING PARTIAL CONNECTIONS** within rail post. Thus, the resistive forces are reduced during installation and removal of the system for both inner and outer shoring wall. A unique panel design applies for both outer and inner

shoring walls. In a job site this means *No more headaches which or where, or how many panels are outer or inner.*

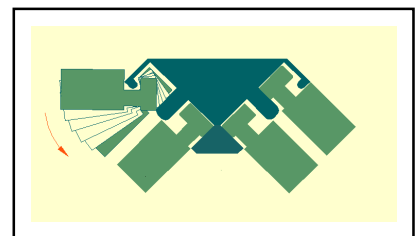
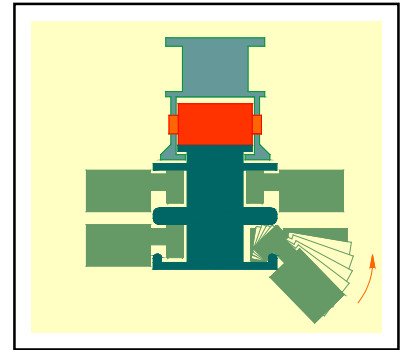
The frontal guide of the linear post allows for a full travel of the sliding strut assembly, which can access the post from either end. The design of the linear rail post allows for maximum section modulus of the embodied material, which is obtained by specific distribution of the steel material so that capacity of the cantilever of the post is increased while the total weight of the post is maintained the same or decreased. Thus, the overall clearance of shoring system is considerably increased. Recently, a new guide of circular cross section is designed in the center front of the linear rail post for a smoother slide of the sliding strut assembly (US Pat. 7,309,191).

PANELS THAT SWING - Shoring panels access the rail post at ground level. Each panel just simply swings into the outer guide of the rail post. For the inner wall, the panel enters simply from the front side of the rail into inner guide to slide within. This is valid for both linear and corner rail posts. The guide of the inner shoring wall is half way of the rail post easing the insertion and removal of shoring panels into and from the ground. In addition, the weight of the rail post is consequently reduced

while its strength is highly concentrated at the cantilever.

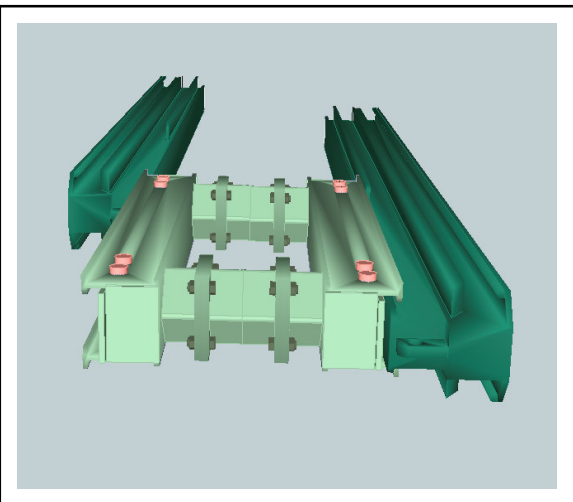
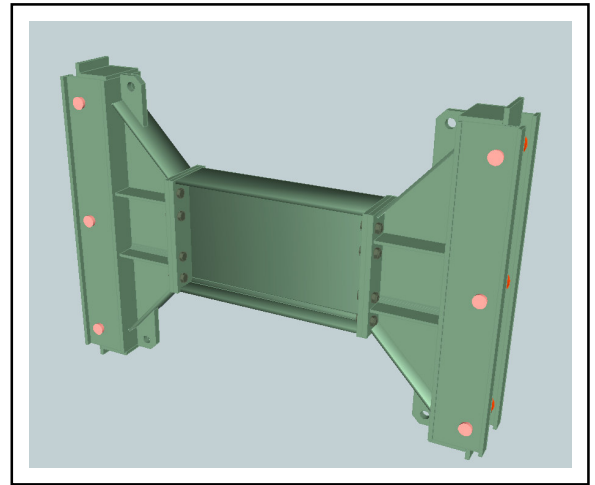
PANEL WITH PUSHING BLOCK & CUTTING EDGE ONLY - **PRIMAX** have eliminated the concept of top or base panels by providing all panels with a cutting edge while their stacking is secured by panel connectors embodied within panel itself. Each panel is provided with a strong pushing block to handle eventual abuses during installation and removal in the job site.

SINGLE GUIDE FOR SHALLOW APPLICATIONS – A variation of slide rail having a single panel guide only, is also available for both linear and corner rail posts. Light and easy to use, the single guide slide rail shoring



system is used in shallow applications. However, as shown subsequently other sliding shoring devices outperform the single guide slide rail shoring system.

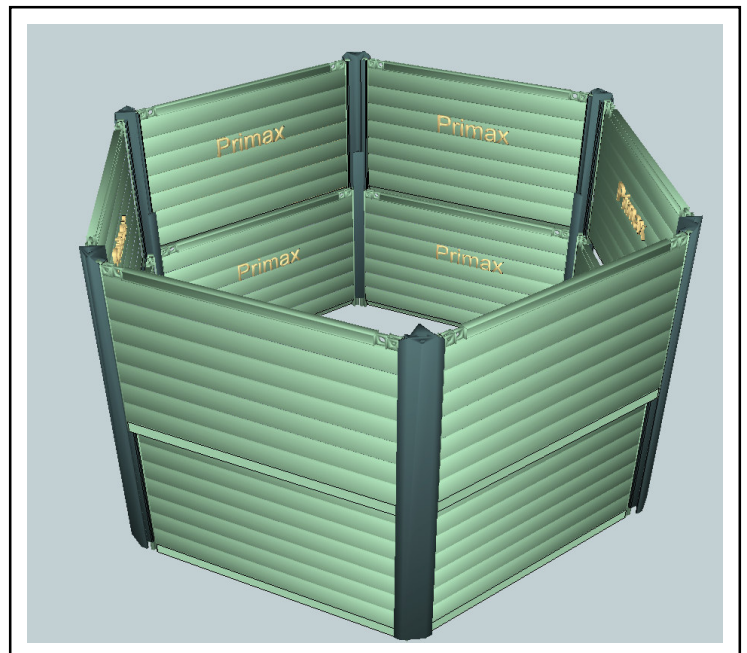
VERSATILE SLIDING STRUT ASSEMBLY - The sliding strut assembly comes in two configurations, a single strut or double strut assemblies adaptable to fit various types of applications. The single sliding strut assembly provides a higher clearance, which is very much needed in shallow applications and facilitate the insertion of longer joints of pipe. The combination of two or more single strutting assembly eases their crossing in applications for pits having a big or very big cross section. Each type of sliding strut assembly takes advantage of their featured properties when it comes to any particular application by being, in addition, able to access or leave the rail post



through either end. The single strutting assemblies are designed in the way that two or more of them may be assembled together to create a double or triple strut sliding strut assembly. A particular feature of the design of both types of sliding strut assemblies is the way of their assemblage within linear rail post. The operator of the excavator, by it self, has just to align side way on the ground the linear posts which are set opposite to each other and push the strutting assembly in between. No need of rigging or other labor and no matter how long the spreader struts are. Other variations of the sliding strut assemblies are available such as articulated strutting assemblies allowing for the opening and closing of spreaders in tank installation, big pre-cast vaults, or other type of applications where this feature is needed.

CORNER RAIL POST FOR HEXAGONAL PIT - The novelties of **PRIMAX** are not limited in the pipeline applications. For pit applications, various combinations are now available. A new

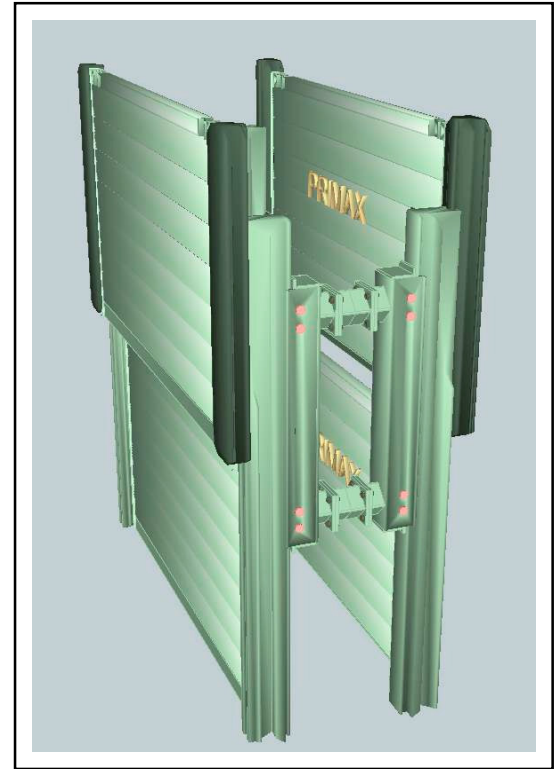
corner rail post designed to shore polygonal pits of six or more sides is recently being introduced. By using a hexagonal and/or octagonal shoring, there is no need for linear rail posts and long cumbersome spreaders in between allowing therefore a completely free working space to build any required structure within. Thus, even by using short panels it is possible to obtain large while obstacle free cross section for the excavation. This feature is critical when shoring the excavation for bents or columns of aerial structures of bridges, highway overpasses, rail tracks, etc., while mandatory when shoring around any existing structures. An important aspect of the hexagonal shoring is the fact that whole shoring structure is under compressive load. Therefore, lighter panels and bigger tolerances in connections panel-rail post allow for easier installation and removal of the shoring. The hexagonal slide rail shoring is very simple to use and comes in single and in double guide (US Pat.7, 309,191).



TELESCOPIC SLIDE RAIL SHORING SYSTEM

(Patent Pending)

TELESCOPIC FOR CONFINED AREAS - The newest and yet another remarkable innovation of **PRIMAX** Shoring Inc. is the fully Telescopic Slide Rail Shoring system, the **TSRS**. It's very known that a major limitation of slide-rail shoring systems is the overhead obstacles such as electric cables, buildings, road or highway underpasses, or other objects encountered in inner-city applications. Although **PRIMAX** slide rail shoring systems allow to swing the panels at ground level, it is impossible however, to use long rail post for deep excavations, when being inside a building or having very low overhead obstacles. Unlike any other slide rail shoring system, the TSRS comes with a rail post



comprising an outer post and an inner post sliding vertically and interlockingly relative to each other. The panels of outer shoring wall create with outer rail posts an upper shoring box which is independent and frictionless to the lower shoring box created by the panels of inner shoring wall and the inner rail posts. The set up of shoring system is very handy because the outer posts are as tall (or less), than average human height, and the panels do not need to swing within. In the case of pit application, the inner posts are inserted once the upper or outer shoring box is already fully installed. Afterward, the panels of inner shoring wall are inserted in between adjacent inner rail posts and

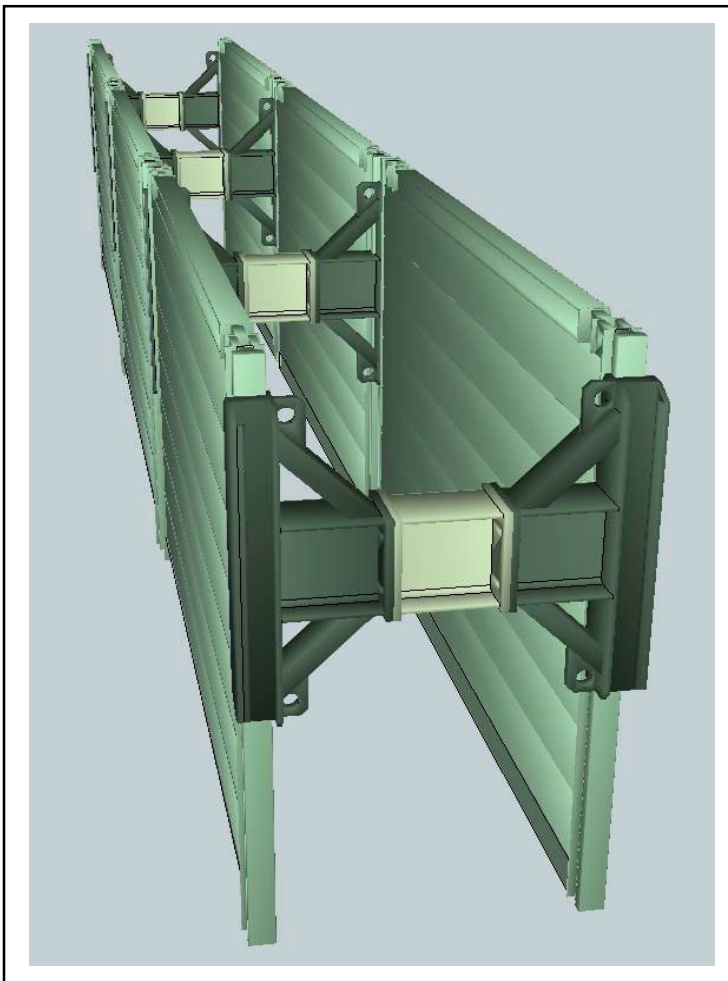
pushed down as excavation progresses. This design allows a far better control of the shoring system while drastically facilitating the installation and removal of shoring. This, as well as other features, notes the supremacy of the TSRS when retrofitting existing structures in inner-city applications. In these cases, the sliding strut assembly uses additional members acting simultaneously on the upper and the lower rail posts.

TELESCOPIC FOR DEEP APPLICATIONS - Another limitation of slide rail shoring system is the depth of excavation, which often requires the stacking of multiple panels making very difficult the installation and removal of the system. The use of triple-guide slide rail system creates other issues related to the length and size of the rail posts. The TSRS eliminates those concerns by using telescopic mono-guide rail posts: outer, inner and intermediate, which slide relative to each other. In this way the installation and removal is facilitated while the

depth excavation largely increased. The outer and inner posts (intermediate when needed as well) are designed as mono or double guide and, any of them could be combined with each other. Thus a mono-guide outer post could be paired with a double-guide inner post and vice versa. With **PRIMAX** it's possible to shore not only in confined areas, but also very deep excavations by using short rail posts sliding vertically relative to each other, creating thereby two, three or even four or more shoring walls. The TSRS resolves innumerable issues when shoring various excavations of any type and configuration. A variation of TSRS is also designed for shoring hexagonal or polygonal shaped pits. Also, other customized designs by **PRIMAX** allows for using sliding shoring systems in tight and cumbersome circumstances. In addition, the telescopic system allows the use of lighter components resulting on easier installation and removal of shoring. These components are compatible with other shoring systems creating a versatility of choices for various applications.



SLIDING SRUT SHORING SYSTEM (NO RAIL POSTS)

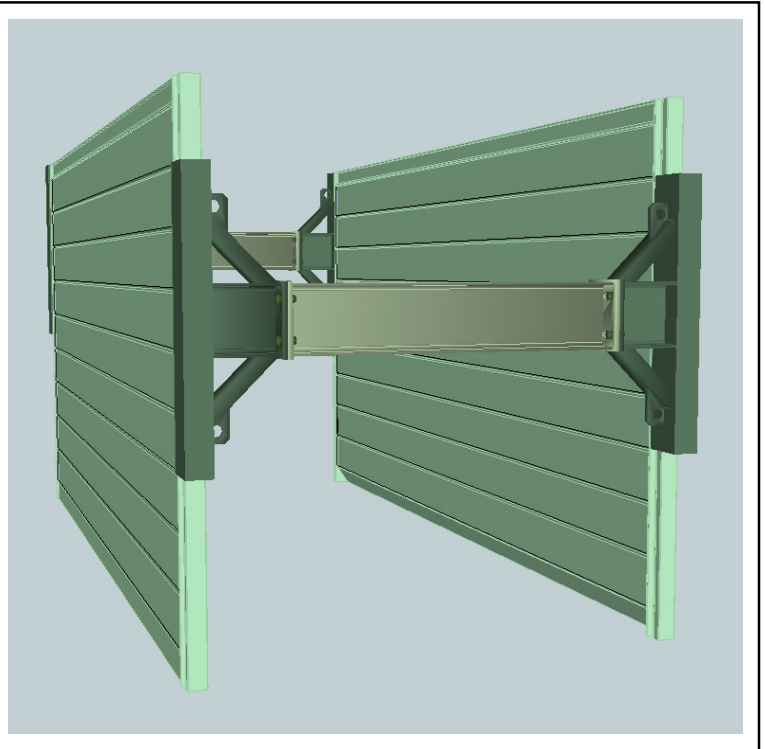


Primax comes to present a very new sliding shoring system designed to be used in shallow excavations up to 12 ft deep. Ideal for inner city applications, this sliding shoring system **discards** heavy and cumbersome **rail posts**; it uses only large shoring panels and special strutting assemblies. The strutting assembly has a pair of short vertical members provided on either side with guides for sliding shoring panels which are to be arranged in pairs against opposite walls of the trench. Adjacent strutting assemblies, which are spaced apart along the trench, hold shoring panels vertically. Each strutting assembly has at least one horizontal strut fastened in between the pair of vertical members. For deeper excavation a double strut strutting assemblies can be used. Also, two or more single strutting assemblies could be stacked together if necessary. When needed, the horizontal strut is **hydraulically activated** to exert pressure on either shoring wall. Like the slide rail shoring, the Sliding Strut Shoring is a “dig and push system”. It is assembled before or after excavating two or more feet of trench, and the system is lowered down as excavation progresses. However, in rare cases the sliding strut shoring system can be dragged for short distances within excavation in order to get close to a utility giving a dual nature to the system: **trench shield & slide rail**. What makes this shoring system more useful, and economically very efficient,

is the fact that it uses the same shoring panels as Slide Rail Shoring System. Also, lighter, **single wall shoring panels ranging from 4 ft. to 10 ft. tall** are available upon users request. Depending on the application, the vertical members of strutting assembly, when needed are provided **with rollers** to ease sliding of shoring panels. In another variation (US Patent 7,056,068).

TRENCH SHIELD WITH SLIDING SPREADER -

A trench shield provided with strutting assemblies allowing to adjust the spreaders at any level of the shoring walls means “adjustable pipe clearance”, it means “no more cumbersome arches for big pipes and box culverts, or in boring pits”. Also, it means assembling and lowering the trench shield within excavation while keeping the shoring walls aplomb. **Primax** introduces a trench shield that works both ways, as a sliding shore, dig and push, and as standard trench shield, pull inside



the trench. Each shoring panel slide interlockingly within guides of adjacent strutting assemblies. Similarly to a slide rail shoring system, the panels slide independently downward when digging within the shield. When required, the strutting assembly is hydraulically activated, to pressure the wall of the excavation. The spreaders are secured at various heights of the shoring walls by special pins. Furthermore, special panels designed to have reverse cutting edges at their top and bottom allow them to be used all ways, upside down, inside out, while their staking is extremely facilitated. In any case, the guides of the strutting assembly are compatibly designed to the panels of slide rail shoring to allow these lasts to be used as trench shields as well (US Patent 7,056,067).

MAXSHORES – It's a variation of the trench shield with sliding spreaders where the sliding strut is hydraulically activated and the shoring panels are used vertically. The size of shoring panels varies in ranges, from 8'x12' to 10'x20' maximum. The panels are of same design as panels used with slide rail shoring system. Custom design is also available. The hydraulic jacks are lodged inside a moment transmitting box, exerting up to 30 ton force at each extremity

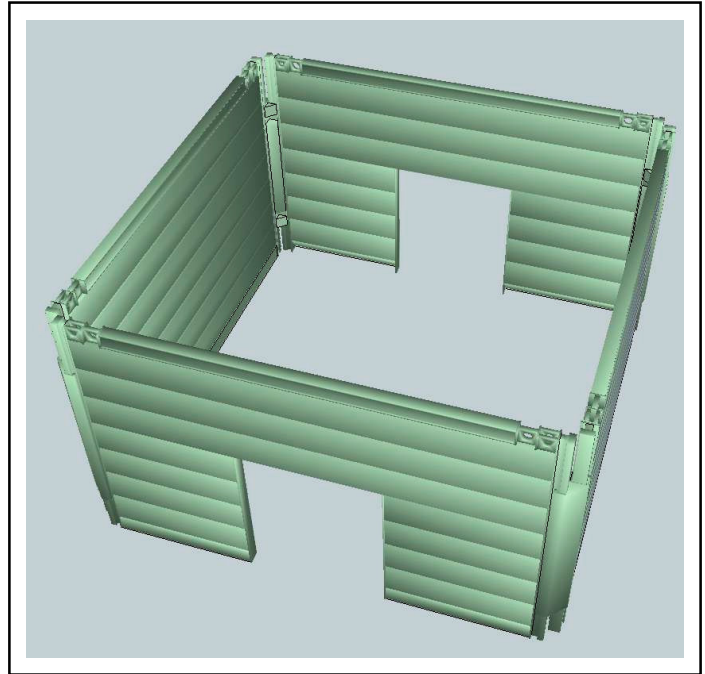
of horizontal strut. The “Maxshore” is lowered within excavation and pressed against the excavation walls. Its use is often combined with slide rail shoring or behind trench shield.

MANHOLE SHIELDS

Primax provides Manhole Shields and Tap Hole Boxes of basically three types:

- four sided, all welded;
- two sided, pre-assembled;
- four sided, modular;

which are designed with optional cutouts for incoming utilities. Each cutout is provided with a hinged door allowing simpler and easier functioning. Available in single-wall and double-wall configuration, these manhole shields and tap hole boxes come in a full array of heights and sizes. Matching stacker units are also available for added depth requirement. Pioneered by Primax Shoring Inc., **modular manhole shields or tap hole boxes** are unique and capable to adjust the side-lengths according to the size and depth of application ranging from 6' to 25' long. They are made of special panels which are assembled together using special sliding connectors and lowered during or after the excavation. The specifications of modular manhole shields and tap boxes are provided upon request.



OTHER PRODUCTS

Primax provides many others shoring products and devices used in construction industry such as self propelled shield, vertical shores, arches for trench shields, bedding boxes and more.

BEDDING BOXES - **Primax** Bedding Boxes are designed to meet the most basic requirement of the users: **Durability**, **Higher Clearance of the Lifting Bar** and **"Clean Sweep"**. Several models are available to handle from seven to fifteen cubic yard of gravel, washed rock or other material. Each model features a full three dimensional structural frame preventing deformation of various parts observed on the bedding boxes provided by other manufacturers. Made of a square tube to ensure better contact with the bucket of excavator, the lifting bar is fully double welded onto either side of main support in tubes. Reinforced plates are added at all critical stress points. Also, additional diagonal supporting elements are used for high volume bedding boxes in order to form triangular cells technically undeformable. Unless specified otherwise by the customer, all bedding boxes have a ½" steel bottom plate provided with wear strips on the inside to guard against damages by bucket teeth.



CUSTOMIZED SHORING PRODUCTS AND DESIGNS ARE ALSO AVAILABLE

FOR MORE INFORMATION PLEASE CONTACT US



Slide Rail **Unique Panel**: Trench 75'x11' @ 32' deep in cobblestones.



Slide Rail: Trench 65'x4' @20' deep in Bay Mud.



Project: Sliding Strut Shoring System.
NO RAIL POSTS



Telescopic Slide Rail Shoring: 35' Deep.



Trench Shields: two stacked 36' long x 13 ft wide x 10" wall



Hydraulic Trench Shield: very high clearance, **'MAXSHORES'**.

