Introduction
Oriental Sheet Piling maintains one of the largest fleet of temporary steel in Asia. Our leasing inventories consists of in-house produced cold formed steel sheet piling and imported hot rolled steel sheet piling as well as a complementary temporary steel which includes of H-beams, plates, and structural steel accessories.

Temporary steel materials are available for sale or rental from our stocking yards located in Malaysia, Singapore, Indonesia, Thailand, Vietnam and China.
One of the leading one stop solutions provider and having one of the largest fleet of rental materials in Asia, OSP is well recognized as a provider of innovative, cost-effective solutions to customers.

OSP is a team of creative and respected industry experts. We have proven ourselves in many projects in Asia, and together, we apply our expertise in a focused, rigorous manner. We are able to offer the most appropriate solutions for each individual customer and project. Today OSP is synonymous with efficient and cost effective construction partner, providing unique and compelling solutions for temporary steel solutions in Asia.
Foundation Solutions
Steel Sheet Pile - Applications

Foundation solutions made of steel offer advantages to reduce both construction time and costs:

- Speed of installation and extraction
- Minimizing excavation and disposal volumes
- Reducing excavation time
- Re-usability of temporary sheet-piling solutions
- Protection of people or structures during construction work

Water features
Water poses special problems for retaining structures. Apart from static and operational loads, the corrosion and erosion effects of water need to be managed. Steel sheet piling has proven to be an exceptional performer in waterfront structures such as quay walls, berthing areas, wharves and breakwaters but also in water-management applications such as river embankments or flood protection.

Infrastructure network
By retaining the earth, outside of a construction site, steel sheet piles accelerate the extension of the infrastructure network of a nation – its highways, bridges, railways, tunnels and canals.

Underground parking
OSP has developed a revolutionary solution for underground parking and similar subterranean structures. Underground foundations face specific design and construction constraints that, traditionally, have made them so expensive that they are only considered when all else has failed. Through the innovative use of steel sheet piling as the permanent foundation wall, OSP is changing the economics of underground construction completely. By eliminating the need to construct a permanent wall both the cost and speed of construction are improved.

Power plants
Temporary cofferdams are constructed in power plants to facilitate deep excavations, for example to build settling basins, water treatment areas, pump stations or storage tanks.

Environmental protection
The flow-restricting qualities of sheet piles mean that they are not just useful for water retaining cofferdams, but also can be used to manage the movement of ground water or to counteract the subsidence of the ground. Similarly, steel sheet piling can provide coastal protection to withstand tidal erosion or even storm surges which can threaten a shoreline development.
Steel Sheet Pile: U sections

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Per Steel Sheet Pile</th>
<th>Per Linear Meter of Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effective Width w mm</td>
<td>Height h mm</td>
</tr>
<tr>
<td>Cold Formed</td>
<td></td>
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</tr>
<tr>
<td>OT14</td>
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<td>265</td>
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<tr>
<td>Hot Rolled – Europe</td>
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<td></td>
</tr>
<tr>
<td>PU18</td>
<td>600</td>
<td>430</td>
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<td>PU22</td>
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<tr>
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</table>

Steel Sheet Piles

Our piling series are suitable for building reliable structure in fast and cost effective manner. They are characterized by properties like weight/section modulus ratios, drivability advantages, corrosion resistance and high moment of inertia. This allows us to offer wide selection of the most economical type of sheet pile to meet the design requirements and the intended construction method.
Retaining Wall
Sheet piling is an ideal material for constructing retaining wall due to its water resistant feature. They are commonly used in the structure of river banks from erosion and collapse.

Temporary works
For construction projects where a supported excavation is required, steel sheet piling should be the first choice. The fundamental properties of strength and ease of use - which steel offers - are fully utilised in temporary works.

Basements
Sheet piling is an ideal material for constructing basement walls as it requires minimal construction width. Its properties are fully utilised in both the temporary and permanent cases and it offers significant cost and programme savings. Sheet piles can also support vertical loads from the structure above.

Environment Friendly
Installable by silent piler for vibration-free installation or extraction of sheet piles for projects in environmentally sensitive areas, such as towns and city centres, hospitals, adjacent to existing structures, or embankment slopes.
Inclined Strutting (Raker)
Suitable for large and shallow excavation pit where the use of internal strutting was not possible due to long distance to the opposite wall.
Commonly used for large scale basement or underground car park construction with complex layout.

Diagonal Bracing
Suitable for small excavation pit but required large working space
Primarily used in temporary cofferdam for generating plant, pumping station, bridge pier construction, etc.

Strutting with temporary access
Suitable where heavy construction vehicle are required to move on top of strutting system.
Typically used in underground construction in urban area where total closure for excavation pit is not possible.

We assist our customers from earliest phase of the project to ensure they get the best value from us. With the Temporary Steel business line, Oriental Sheet Piling moves beyond the traditional realm of steel supply, adding value through design, consultancy, and engineering and project management services.
Deep Excavation
Excavation is an important part of foundation construction. For example, in the construction of the foundations or basements of high rise buildings, underground oil tanks, sewerage treatment plant, power plant pump station, subways or mass rapid systems, etc.

Selection of the shoring system is a critical function of every excavation project. The shoring system is the first thing constructed inside an excavation, construction of everything else revolves on being able to work inside the shoring. The choice of shoring system will have an effect on the cost of construction and quality of the production work whether it is pipeline or structure. Selecting the wrong shoring system can easily lead to failure the point where the whole excavation has to be abandoned and started over or where an accident can occur.

Our dedicated team are continuously at your disposal to assist with specialized skills and expertise to maximize project value. With our strong presence in Asia, we are always nearby in creating best innovative and customized steel solutions for foundation steel solutions.

One stop solutions for your temporary steel solutions
Products

Steel Platform & Strutting System

Beam

<table>
<thead>
<tr>
<th>Ref No</th>
<th>Section No &amp; Normal Size mm (in)</th>
<th>Unit Weight W kg/m</th>
<th>Section Area A cm²</th>
<th>Section Depth D mm</th>
<th>Width B mm</th>
<th>Thickness t mm</th>
<th>Flange Moment of Inertia iₓ cm⁴</th>
<th>Flange Moment of Inertia iᵧ cm⁴</th>
<th>Corner radius r mm</th>
<th>Web Thickness tₓ mm</th>
<th>Flange Radius of Gyration  iₓ cm</th>
<th>Flange Radius of Gyration  iᵧ cm</th>
<th>Section Modulus Sₓ cm³</th>
<th>Section Modulus Sᵧ cm³</th>
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Mild Steel Plate

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<th>Dimensions</th>
<th>Weight</th>
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<tr>
<td>25</td>
<td>5</td>
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<tr>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>20</td>
<td>6</td>
</tr>
</tbody>
</table>

Metrodeck
Project References

Him Lam District 6 HCMC
Country: Vietnam
Application: Basement

Crystal Hall – Phu My Hung
Country: Vietnam
Application: Shoring - strut

S 25 Pumping House
Country: Vietnam
Application: Basement

Riverside Residence
Country: Vietnam
Application: Basement

Saigon West East Highway
Country: Vietnam
Application: Shoring

Golden Square – Da Nang
Country: Vietnam
Application: Shoring - strut
Saigon South International School
Country: Vietnam
Application: Deep excavation

Nhon Trach Power Plant, Dong Nai
Country: Vietnam
Application: Shoring

Phu My Underpass
Country: Vietnam
Application: Deep excavation

S District Sewerage Treatment Factory
Country: Vietnam
Application: Basement

Punggol East C31
Country: Singapore
Application: Deep basement excavation

Housing at Barker Road
Country: Singapore
Application: Retaining wall
Project References

Singapore Chancery
Country : Malaysia
Application : Basement

Factory Expansion, Selayang
Country : Malaysia
Application : Basement

CCGT Power Station, Perlis
Country : Malaysia
Application : Shoring

Kimanis Power Plant
Country : Malaysia
Application : Deep excavation

Ivory Time Square, Penang
Country : Malaysia
Application : Basement

Sukhumvit
Country : Thailand
Application : Basement
Tarahan Port Expansion
Country: Indonesia
Application: Deep excavation

Alila Hotel, Jakarta
Country: Indonesia
Application: Deep excavation - basement

JICT, Scope 2
Country: Indonesia
Application: Retaining wall

Sungai Ular, Medan
Country: Indonesia
Application: Shoring

Huzhou Bridge Cofferdam
Country: China
Application: Cofferdam

Sentosa Cove Drive
Country: Singapore
Application: Basement
Service and Support

Project management
- Dedicated project team
- Progress monitoring and reporting
- Managing subcontractors
- Managing scope & change control
- Consulting

Design & consultation
- Design solution to cater for unique project’s requirements
- Dedicated project team
- Progress monitoring and reporting
- Managing subcontractors
- Consulting

Materials supply
- Carry wide range of products in many location
- Quick delivery time
- Accessories

Processing, storage & handling
- Cutting, welding, pre-fabrication
- Shot blasting and coating
- Transport solutions: sea freight, land

Installation & dismantle
- Silent piler, vibratory hammer
- Driving and installation plans

Design & engineering support
A team of engineers is at your disposal to assist you in creating the best solution. Our people can translate your, and your clients’ needs into a best fit design taking into account all important conditions. We provide:
- Calculations
- Driving plans
- Technical support: expert advice, training and research

Rental & buy-back program
In many cases, the material we supply is facilitating the real construction work. Once the project is finalized, these structures are removed. For these temporary applications we provide either a rental or a buy-back service, depending on the specific circumstances of the foundation project.

Installation & dismantle
Our teams able to provide on site installation & dismantle advice, machines, site preparation, logistic, when required.
Our dedicated project teams focus on developing mutually beneficial partnerships with our key customers who are major infrastructure companies, contractors and engineering firms. Specialized skills enable us to play a significant role in the completion of challenging and dynamic projects.

<table>
<thead>
<tr>
<th>Main products</th>
<th>Main applications</th>
<th>Our approach</th>
<th>why doing business with us</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Steel sheet piles</td>
<td>- Basement</td>
<td>- Early involvement in the project</td>
<td>- Savings on capital investment on equipment and materials whose long term utilization is likely to be low</td>
</tr>
<tr>
<td>- Strut</td>
<td>- Waterfront</td>
<td>- Support and advice throughout the entire project tenure</td>
<td>- Avoid the trouble of maintenance and storage costs</td>
</tr>
<tr>
<td>- Plates</td>
<td>- Canalization</td>
<td>- Close interaction and cooperation with project players</td>
<td>- Rental expenses are fully tax deductible</td>
</tr>
<tr>
<td>- Metal decks</td>
<td>- Bridge, Highway, Railway</td>
<td>- Cost effective solutions</td>
<td>- (Technical) product &amp; engineering support</td>
</tr>
<tr>
<td></td>
<td>- Slope Stabilization</td>
<td></td>
<td>- Dedicated and single ally for complete package supply</td>
</tr>
<tr>
<td></td>
<td>- Dam</td>
<td></td>
<td>- Flexible solutions and (tailor-made) services on project management, documentation, qa/qc &amp; logistics</td>
</tr>
<tr>
<td></td>
<td>- Plants – Water Treatment, Power, Sewerage</td>
<td></td>
<td>- Broad range of products</td>
</tr>
</tbody>
</table>

- Our approach
- Why doing business with us
Head Offices:

Malaysia
Block I, Unit 11
Dataran Prima, Jalan PJU 1/37
47301 Petaling Jaya
Selangor, Malaysia
Tel: +603 7949 6000
Fax: +603 7949 6111

China
Oriental Sheet Piling (Shanghai) Leasing Co. Ltd
2410, 3574, Tongmao Hotel,
Songlin Road, Pudong Area,
Shanghai 200122, P.R. China
Tel: +86 21 3126 8700
Fax: +86 21 6840 5305
http://www.orientalsheetpiling.com.cn/

ASEAN Offices:

Indonesia
PT. Oriental Sheet Piling
Grand Skrip Tower
Lrt Unit A
Jl. Letjen. S. Parman Kav. 22 – 24
Jakarta Barat 11480, Indonesia
Tel: +62 21 290 22 421
Fax: +62 21 290 22 481

Philippines
Philippines Representative Office
20/F, U-2008 San Miguel Avenue cor.
Shaw Blvd., Ortigas Center,
Pasig City 1600, Philippines
Tel: +632 914 5073
Fax: +632 914 5074

Singapore
Oriental Sheet Piling Pte Ltd
15 Jurong Port Road,
Level 2 Block 6, Singapore 619119
Tel: +65 6681 5225
Fax: +65 6681 5226

China Offices:

Oriental Sheet Piling (GuangZhou)
RM. 2408, Full Jinx Business Center, 5F,
Fuchang Rd., Haizhu District,
Guangzhou, 510235, P.R. China
Tel: +86 20 3446 5295
Fax: +86 20 3446 5296

ASEAN Offices:

Indonesia
PT. Oriental Sheet Piling
Grand Skrip Tower
Lrt Unit A
Jl. Letjen. S. Parman Kav. 22 – 24
Jakarta Barat 11480, Indonesia
Tel: +62 21 290 22 421
Fax: +62 21 290 22 481

Philippines
Philippines Representative Office
20/F, U-2008 San Miguel Avenue cor.
Shaw Blvd., Ortigas Center,
Pasig City 1600, Philippines
Tel: +632 914 5073
Fax: +632 914 5074

Singapore
Oriental Sheet Piling Pte Ltd
15 Jurong Port Road,
Level 2 Block 6, Singapore 619119
Tel: +65 6681 5225
Fax: +65 6681 5226

Website
www.orientalsheetpiling.com

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