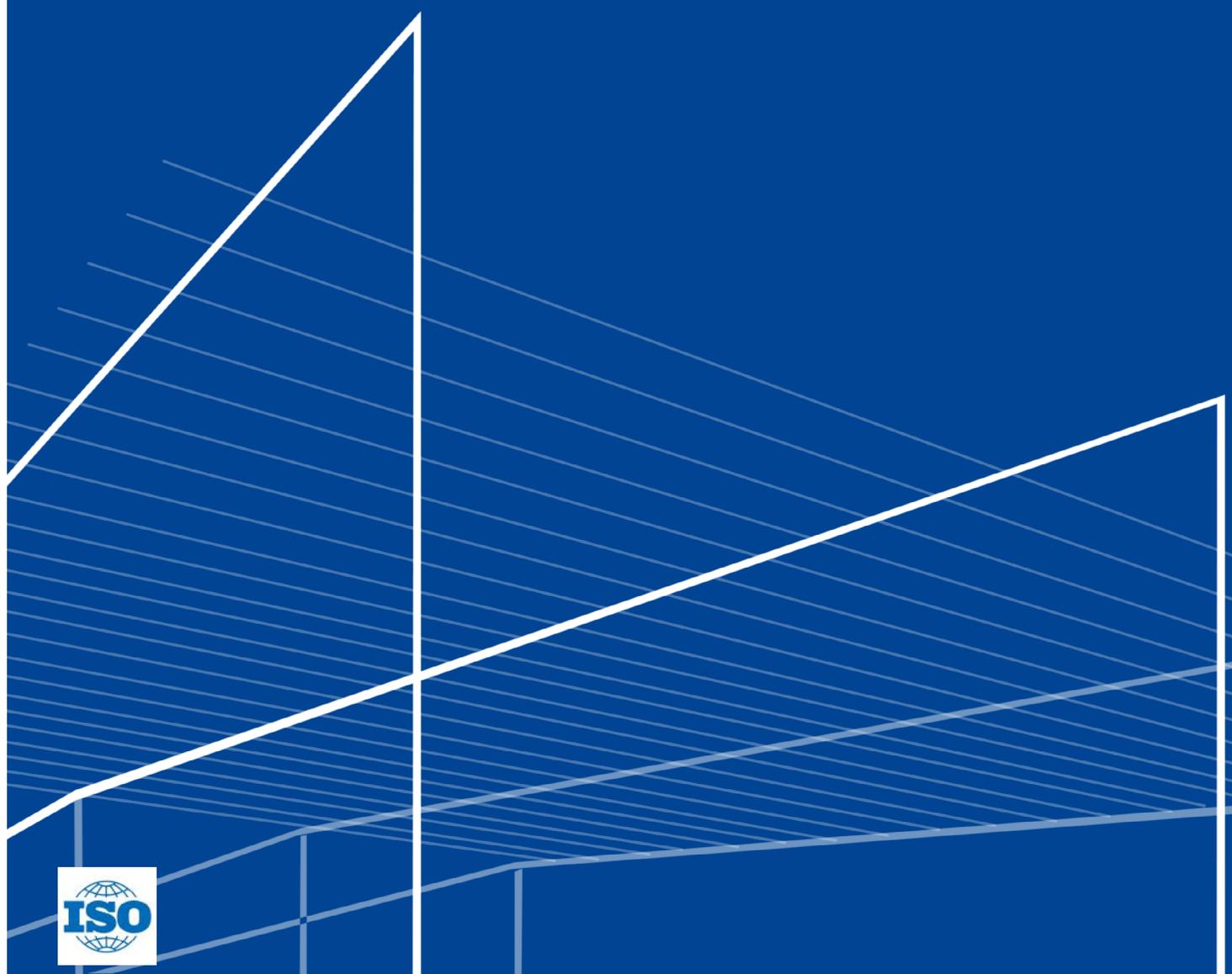




★ Celebrating 30 Years in China ★

# Quality & Reliability

Since 1972



We listen. We understand. We deliver.

[www.spaceframe.com.cn](http://www.spaceframe.com.cn)



# Safety $\neq$ First

Protecting our most valuable asset...  
Our people

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SAFETY+FIRST calls for commitment from employees, business partners, subcontractors and clients alike to adhere to its principles. SAFETY+FIRST is our individual and collective undertaking to:

- Deploy effective work policies and training programs that strive to ensure safety and proper risk management for everyone at all times

- Conduct ourselves in the safest possible manner, eliminating hazards and ensuring safety across all our operations

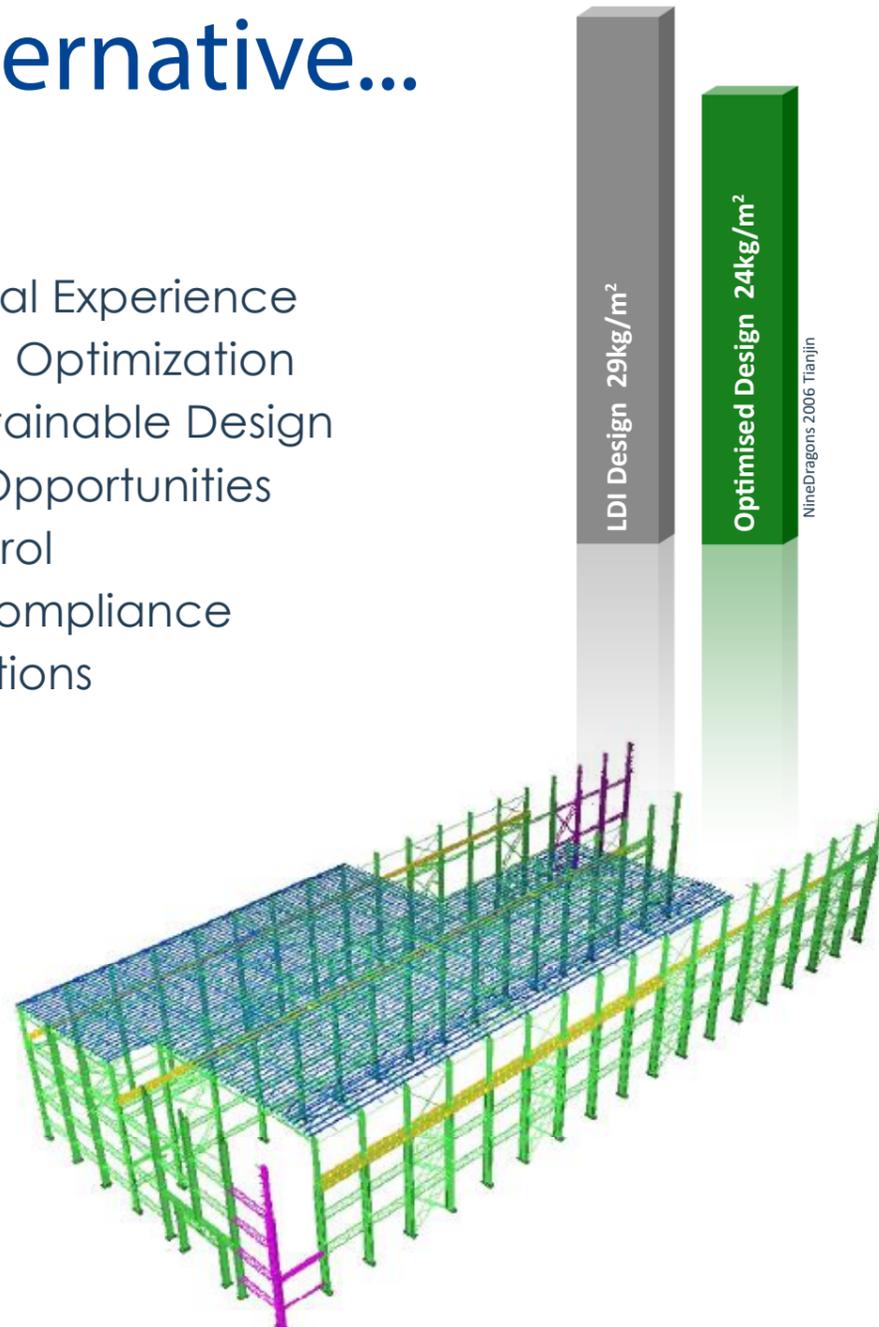
- Provide each person with a safe and healthy workplace environment

Only when we work together can we eliminate hazards and ensure safety.



# A better alternative...

- Safety First
- In-depth International Experience
- Leaders in Structural Optimization
- Environmentally Sustainable Design
- Value Engineering Opportunities
- Robust Quality Control
- Global Standards Compliance
- Factory Mutual Solutions
- Specialist Structures
- Remote Locations
- Global Exports



## Over 400 Projects Globally and still counting.

We're more than a steel building provider. With an established tradition of 40 years in industry innovation and service excellence, we provide real quality and reliability to our customers.

Our global expertise allows us to provide specialist structures and products for a variety of challenging sectors and locations.

We always aim to establish outcomes for our customers that exceed expectations.

## On time. On Budget.

Spaceframe is a large enough company to provide in-depth strategic capability while small enough to still be aware of serviceability. We provide the accountability and the cost effective solutions.

We do this because we are clear about what's important. We understand, that:

- safety first
- performance
- speed to market
- value
- quality

are all key drivers that will form the basis of the decisions you will make regarding the way forward in your project and in selecting your project partners.

Our value to our customers is our constant goal to continually improve and ensure guaranteed outcomes.



David Martin  
Managing Director





Founded in Australia by Werner Raspotnik in 1972, a pioneer of the design and construct model in Australia and renowned for his depth of experience in the industry.

Spaceframe is a privately owned group focused on delivering every project in line with structured timelines and established project methodologies. Through superior customer service and a genuine commitment to 'on time, on budget' project delivery, Spaceframe works in a collaborative effort with a core group of trusted companies to achieve consistent quality outcomes.

Spaceframe pioneered the China Pre-Engineered Building Market in 1984 and with offices in Australia and China we are internationally recognised as a pre-engineered building and products supplier for a wide range of industrial applications. This group provides an all-encompassing solution. Whatever the scale, the Spaceframe Group of Companies has the expertise and network of resources to quite literally 'provide it all' as a single source design build pre-engineered building and specialist structures solution provider.



Spaceframe China

# What we do

Entering new markets or projects is not without its risks. Establishing successful outcomes is more often than not simply a matter of finding the right partners. At Spaceframe we have 40 years of tradition and an enviable track record of successful partnerships. We have a brand that we are proud of and protect through exceptional performance.

Whether you are considering undertaking your first project in China or have already undertaken projects, you will understand that integrity in your partners is everything and cannot



be undervalued. At Spaceframe we combine our values of integrity and trust with many years of international and local experience and knowledge.

Through a thorough understanding of the risk environment, skilled mitigation, design and planning, supported by robust quality systems, we ensure that our clients project meet or exceed all of its defined objectives. It is our systems and this attention to detail that now enables us to be currently one of the pre-eminent suppliers of pre-engineered building and cladding systems.



We listen

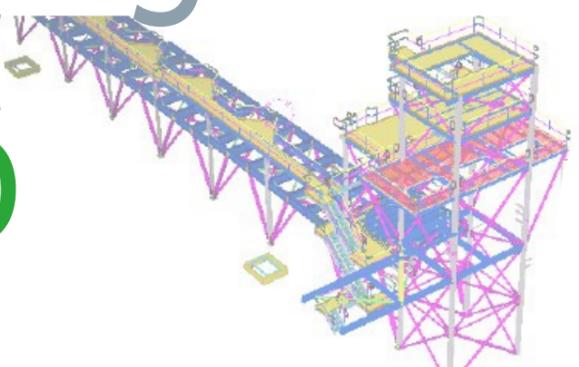
We understand

We deliver



# Design

## CO



Our Design Suite in Shanghai opened in 2003. This suite and its capacity enables us to meet the needs of our growing market without under resourcing our projects and existing clientele. Its purpose is twofold, to support our ongoing commitment in establishment the best possible design and value engineering outcomes for our clients and to provide the required make-up gaps in detail so often found from local providers.

Our advanced 3-D modelling software and a stringent document control system allows all shop drawings to be precisely drafted to ensure accurate manufacturing of components to desired tolerances and thereby allowing precise assembly and mitigating the potential for abortive rework on site.

With a genuine social conscience, Spaceframe is also committed to responsible design and believe in incorporating sound sustainability principles into everything we do. In China, as a member of the United States Green Building Council and a contributor China Greentech Initiative we take an active part in initiatives that strive to reduce carbon footprint and energy demands in the communities where we live and work. We see these initiatives as a vital part of who we are and how we contribute to the community.

### Innovating for a custom solution

Good Design:

- Fulfils its function
- Respects its materials
- Is suited to method of production
- Combines these in imaginative expression



# Fabricate

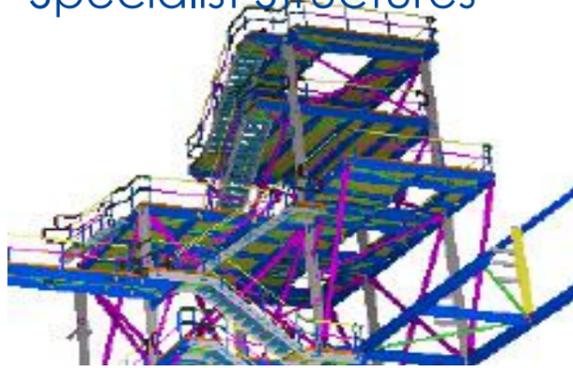
### Controlling every step

From the first arrival of steel plate into the workshop, through to the factory pre-assembly of large span trusses every step of our fabrication process is constantly monitored by our QC engineers. Motivated structural steel specialists with an eye for detail and non-conformance.

Starting with material sampling and testing we maintain a complete traceability of materials through to the finished products. We fully control the manufacture of components and assemblies ensuring 100% compliance with the local or international standards required by our customers. All the key elements of welding, shot blasting and anti-corrosion systems are completely witnessed and documented before the product leaves the factory ensuring the safety, reliability and maintainability.



Specialist Structures



Series 250 Portal Frames



Large Span Truss



Logistics Systems



SS-468 Standing Seam



Ball And Tube



Overhead Cranes



ISOPANEL



Cladding Systems



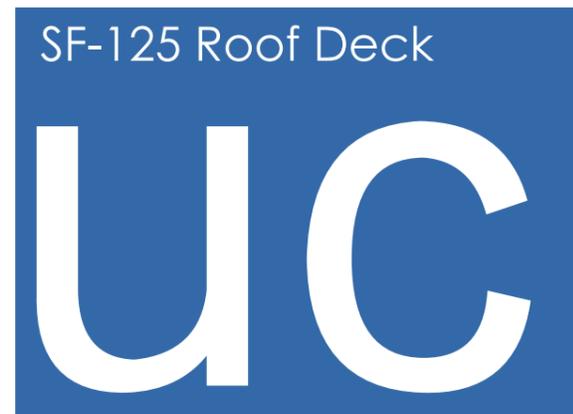
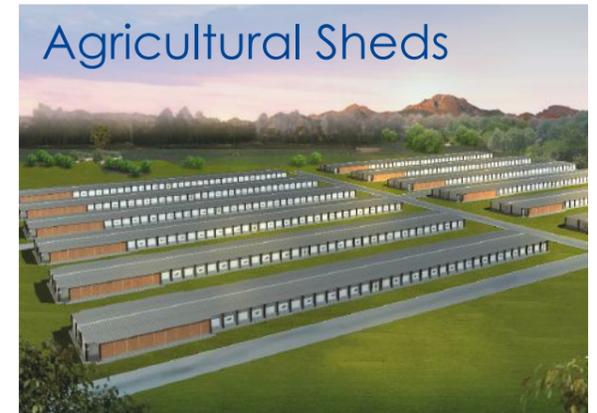
Ventilation



Modular Buildings



Agricultural Sheds



IVANHOE  
MINES  
NEW HORIZONS

Rio Tinto

Oyu  
Tolgoi

FLUOR

space  
frame

# The World's Largest

**Oyu Tolgoi: the world's largest undeveloped copper-gold project, is located in the South Gobi region of Mongolia, approximately 550 km south of the capital, Ulaanbaatar, and 80 km north of the Mongolia-China border and a joint venture between Rio Tinto, Ivanhoe Mines and the Mongolian Government.**

Spaceframe were engaged by Ivanhoe as designers for the pre-engineered building, supplier for the cladding systems, QC managers of the steel fabrication in China and QC and surveillance services on site during construction.

Due to the harsh nature of the Mongolian winter where

temperatures can often be below  $-40^{\circ}\text{C}$  a controlled environment was required to ensure all year around production of the copper concentrate. These climatic conditions offered significant challenges for both the design and construction teams.

A large span truss type structure was employed for the design model using Chinese design standards and Chinese steel. The structure supports several bridge cranes for future maintenance capable of lifting up to 120 tons. The tallest column is 45 meters in height and weighs in excess of 30 tonnes with the entire structure having a total weight of 7,500 tonnes. With a roof area of 38,000m<sup>2</sup> this building

is the largest by floor area and volume in Mongolia and the largest copper concentrator building in the world.

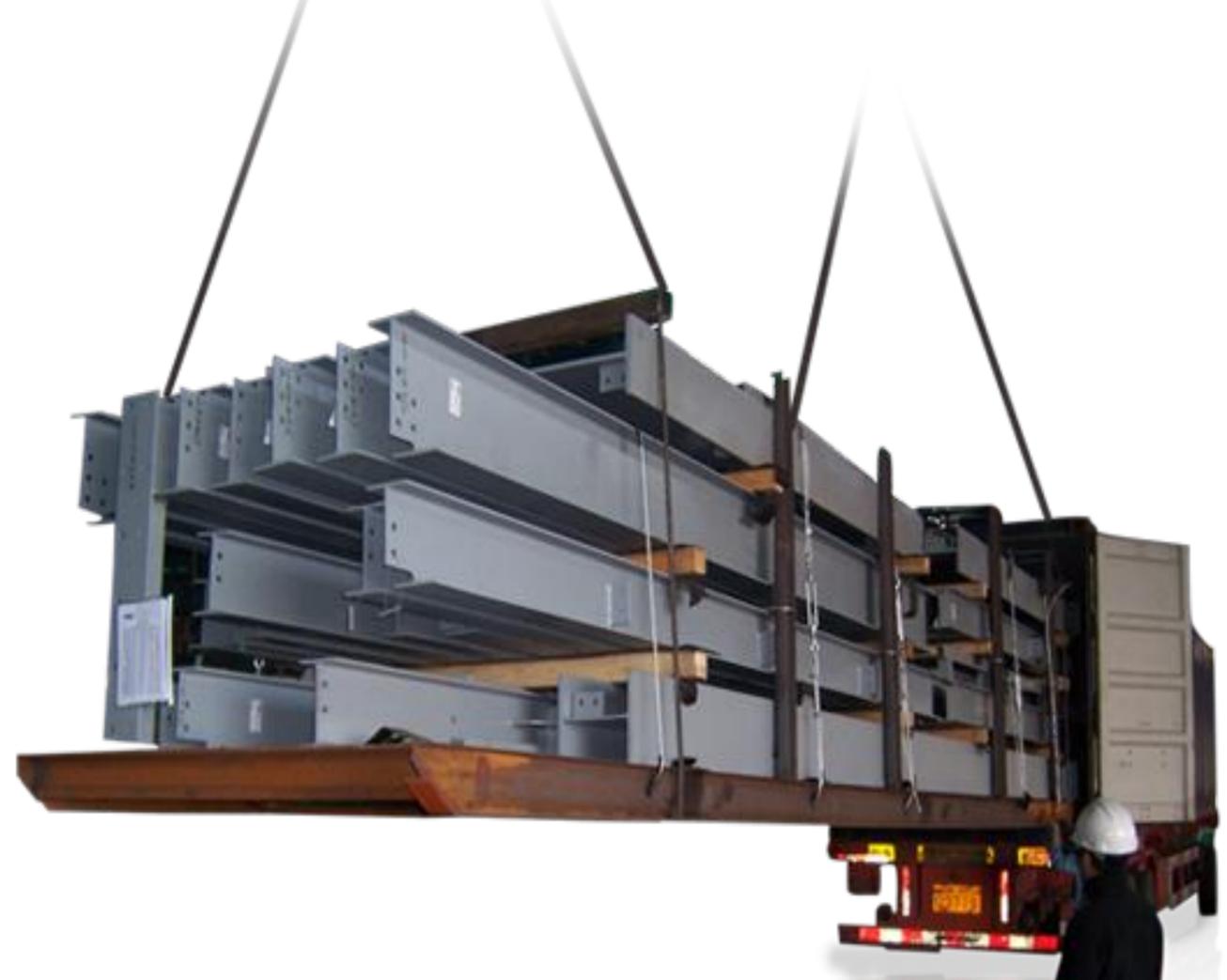
Completely designed in China our team worked closely through the design evolution and change management phases with the client's process designers in Vancouver, Canada. Data management and document controls were achieved through close collaboration and Projects On-Line

Monitored by the Spaceframe QA/QC, the main steel components were fabricated and pre-painted to exacting standards by our consortium partner in Taiyuan. Some components were pre-assembled prior to transport but this

strategy was limited by truck tray dimensions. As there were no established road systems for the last 100 kilometers of the journey, the project offered a significant logistics challenge. A complete journey of 2,500 kilometers for a single delivery vehicle took on average 7 days. With over 200 deliveries being consigned to the project the transport component topped 500,000 kilometers in total on the main structure alone.

The project was completed on time and with no LTI's. Our compliments to Fluor our partners CMCC for their very professional Project Management.





## Quality Management

### We make the difference

Spaceframe is committed to quality management and meeting the high standards required of us by our diverse client base. For our pre-engineered buildings and specialist structures our quality management system is broken down into three distinct phases:

- Design and design detailing
- Fabrication, surface treatment and packing
- Steel erection and cladding system installation

The strict management of each phase is critical to the quality and serviceability of the final product be it a simple warehouse or a complex processing plant in a highly corrosive environment.

Our comprehensive and accurate design detailing supported by stringent document control is the backbone of our QA system in managing, monitoring and controlling every detail of the fabrication and erection processes.

Through effective quality control we enhance our speed to market capabilities in the factory and provide the tools for our project teams to efficiently manage the steel erection and cladding installation process by eradicating re-work. We are totally committed to continually reviewing and improving our quality management systems and providing the highest quality of engineering expertise to our clients.

## Packing & Logistics

### Protecting your product

At Spaceframe we understand the importance of your product arriving on time, within budget and in pristine condition – in the same condition as when they leave our factory. The same principals apply whether trucking 500km in China or shipping 15,000km half way around the world to northern Europe. We are able to manage your projects entire logistical process – from factory to site – accepting both the logistics management and the associated responsibilities.

Successful planning of your projects logistical needs are an integral part of establishing a successful project outcome. At Spaceframe we have the required experience to expedite freight and packing arrangements, whether to local or international destinations including both sea and

air freight. Our packaging solutions are second to none; a skill we have acquired over time.

With our gained knowledge we are able to properly investigate the available options with our clients and to select the logistics plan that provides speed to market and a reasonable cost.

We have the flexibility to meet all the logistics needs of our client and offer truck, containerized, or break bulk solutions with commercial terms ranging from ex-factory, FOB, CIF through to DDP. We have the experience and capability to understand your project and are able to assist you to arrive at the solution that best suits your needs.



# Manufacturing

## Creating your space

As a manufacturer in our own right, we fully understand the primary importance of our clients manufacturing processes and our role to provide practical and cost effective solutions.

In our primary design we must be able to balance the structural requirements for internal columns against the optimum manufacturers' demands for open flexible floor areas. In many industrial manufacturing facilities overhead cranes are intrinsic to the process flow and in designing our PEB solution we need make careful allowance for lifting capacity, frequency of use and complex combinations of loads where many cranes are working simultaneously. To

create the optimum manufacturing environment for your industry our solutions need to be more than just structural stability and a water-tight building envelope, we need to fully consider and meet a wide range of secondary design criteria including air-tightness, day lighting, ventilation and acoustic performance.

No matter what manufacturing industry - we have the experience and capability to provide the PEB solution that best suits your needs.



# Warehousing

## Speed to Market

Following our first ex-China projects to Europe, Spaceframe has continued its growth in both the local and international export markets supporting warehousing clients with easily assembled pre-engineered buildings to a variety of different dimensions and configurations. In wide span, truss or portal frame, we provide brand quality as well as competitive price in combination with our guaranteed commitment to time.

Our Warehouse PEB's can include symphonic or gravity based drainage systems, accommodate climate control systems and refrigeration units as well as high specification double skin insulated panel systems. Amongst others, our recent clients have included Walmart, Nine Dragons & Havi Logistics.

The above PEB project, a CRCC Corporation's first rolling stock plant an export Project was undertaken in cooperation with Sino hydro Group Ltd. The 33,000m<sup>2</sup> project comprised

1,700 tons of main structure and a truss roof system. The project was designed and fabricated to comply with the Malaysia standards and utilized Chinese Q345B & Q235B steel that met the requirements. Over and above our robust QA/QC system during the fabrication process were verified by third party testing laboratory authorized by CRCC.

To optimise space and reduce shipping cost we designed truss systems to utilise the internal dimension of the shipping containers. After final inspections, the structure was packed according to the export standard of Spaceframe and shipped from Shanghai over 200 NOS 40' containers and completely met the client's requirement for value, quality and time. Goods arrived in Malaysia in pristine condition.



# Specialist Structures



Hidden Valley is an open pit gold and silver mine project in the remote highlands of Papua New Guinea, approximately 200km NNW of the Papua New Guinea capital Port Moresby. The

expected annual production from the mine is 300,000oz of gold and 4.5Moz of silver per annum.

Our scope consisted of the shop

detailing, supply, fabrication, packing and delivery of structural steelwork including stairs, ladders, handrails, bolts and some ancillary pre-engineered metal buildings.

Every project is different, but attention to detail is crucial to all

#### Project Highlights:

- Due to the highly corrosive processes involved in some areas of the project, the structural steel required a high level surface protection with dry film paint thicknesses up to 450µm.
- Full product traceability
- 2,200 tonnes of steel fabricated in over 5,000 unique assemblies
- 130 containers packed for rough terrain transportation
- Break bulk packing for over-sized modules



### Shanghai

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726 Yan'An West Road  
200050 Shanghai, P.R.China

### Brisbane

#### Head Office

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Australia

### Beijing

#### Branch Office

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### Changsha

#### Branch Office

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Planning

Contractors

Ventilation

Refrigeration

Pre-Engineered