



putting our
experience
in **steel**
construction to **work** ...



STAM has been active in Structural Steel design, fabrication and installation since inception in 2000 and have, in this time, formed a dedicated team of highly experienced Engineers and Designers.

The technical knowledge and Specialist expertise now vested in this team has been acquired by successfully undertaking major structural steel projects in such diverse countries as Australia, China, Hong Kong, the Philippines as well as in the Middle East and Africa.

Here in Malaysia, STAM Engineering is now established as one of the market leaders in Structural Steel Engineering and Design with the successful completion of a spectrum of work ranging from Airports, Aircraft Hangars, Large span roofs, Complex Tubular Space Frames to Stressed Arches and High Rise buildings as well as Industrial complexes.

Moving forward, STAM Engineering has formed strategic partnerships with Visionary Clients, Innovative Architects, Inventive Engineers, Responsive Contractors as well as well capitalised and experienced Fabricators to respond to the increasing demand to provide total solutions.

We are confident of our ability to provide high Quality, Cost effective and Time optimised complete Engineering and project solutions to any Structural Steel challenge.

Please contact the following on any queries:

Ir. Lim Tau Soon
Managing Director
email: tslim@stam.com.my
Mobile: 016-205 6238

Ir. Keh Ching Ann
Executive Director
email: cakeh@stam.com.my
Mobile: 019-655 1510



NATURE OF BUSINESS

- Steel Construction

Material Procurement

Procuring the correct materials of the right dimensions, quality, and quantity, and in a timely manner from the best source is a complex process. The STAM Team stands ready to put its many years of experience to ensure that this is done correctly.

Fabrication

Structural steel fabrication is more than just joining together pieces of steel components to make up required shapes. It is vital that the connections that hold the components together and the resulting assemblies perform in the manner that the structural engineer intended. The STAM Team comprises of professional design engineers who have spent many years in a fabrication environment. They stand ready to reconcile the fabricator's process with the design intent of the structural engineer.



Malaysia Airlines Hangar#4, Subang

Quality Assurance & Control

The greatest benefit that structural steel construction has to offer is that the quality of the structure can be pre-assured ahead of actual construction on site. This, however, can only be achieved if a complete Quality Plan is laid out ahead of fabrication and erection, and adequate control and documentation is maintained throughout both these processes. The STAM Team has much experience in the preparation/vetting of Inspection Test Plans and in implementation of such plans.

Export

Many of STAM's steelworks are designed in one country, materials procured from another, fabrication carried out in a third country, and finally delivered to yet another country to be erected. The STAM

Experience includes for handling matters such as importation of materials for the purpose of re-export, establishing routes and port constraints at both source and destination, selection of suitable packaging methods, liaison with forwarders, monitoring shipping documentation, etc.



Site Erection

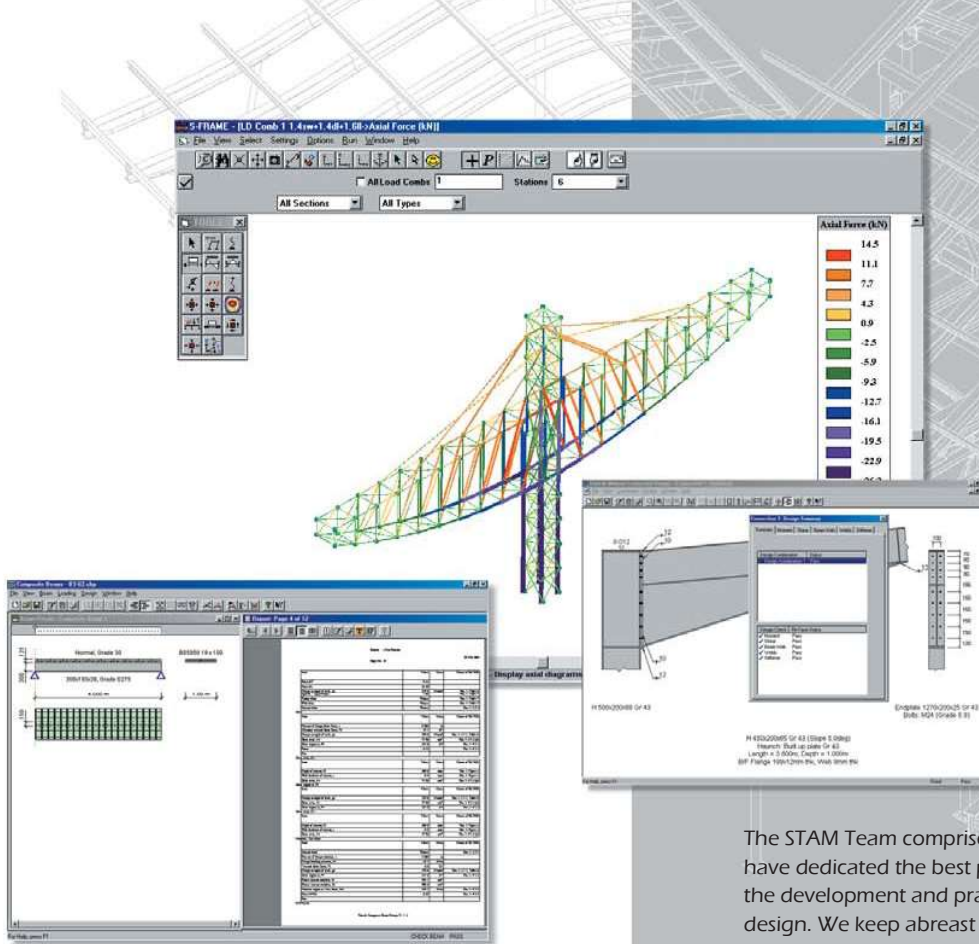
The STAM Team work in close strategic partnership with a number of steel erection companies in various countries. The STAM Team establishes erection methods, reconciles these with design intents and fabrication methods, set out erection Inspection & Tests Plans, and monitor the works.

The Weld, KL, Malaysia



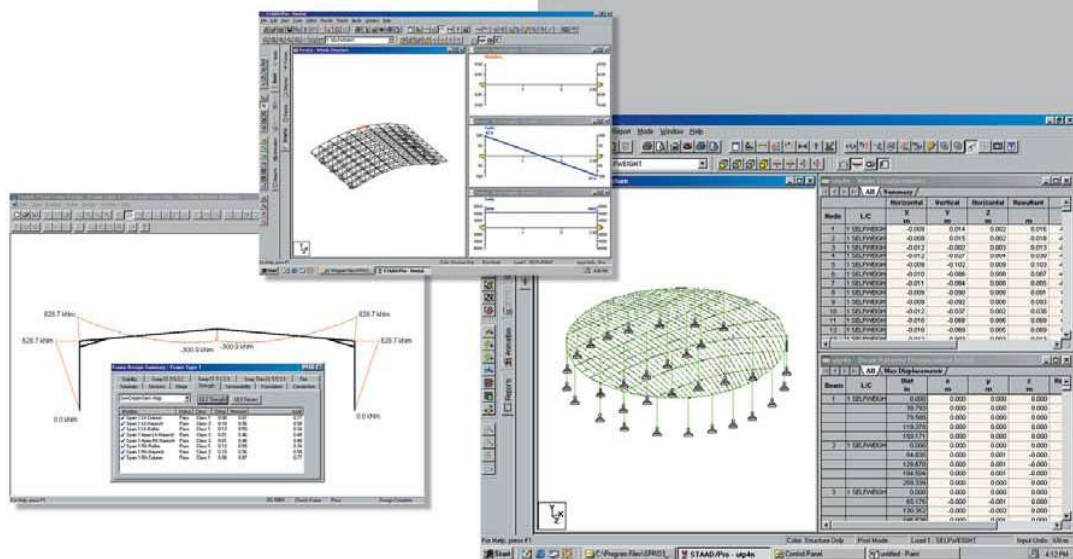
NATURE OF BUSINESS

- Engineering Design



The STAM Team comprises Professional Engineers who have dedicated the best part of their careers towards the development and practice of structural steel design. We keep abreast of the developments in this field of structural engineering through research and through collaboration with fellow structural steel engineers on the international arena.

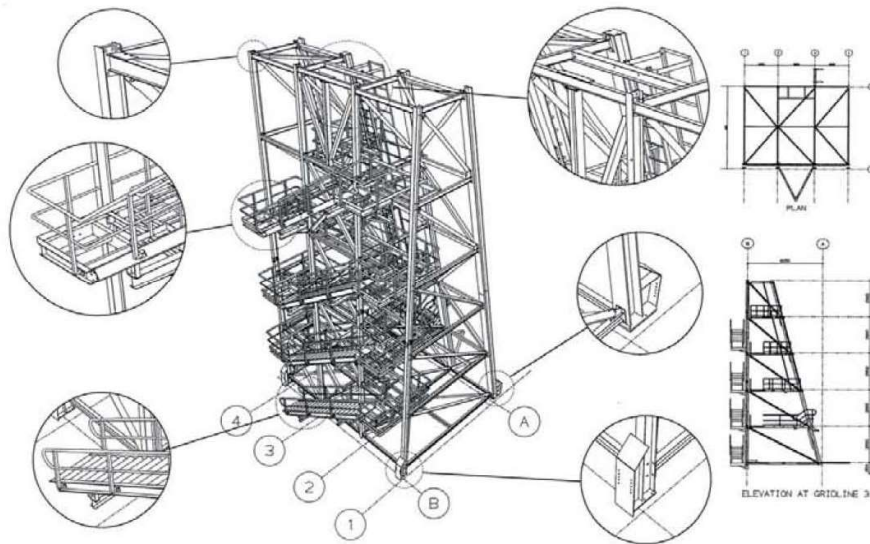
Through the use of state-of-the-art analysis and design computer software, we endeavour to provide optimum design solutions to our clients.





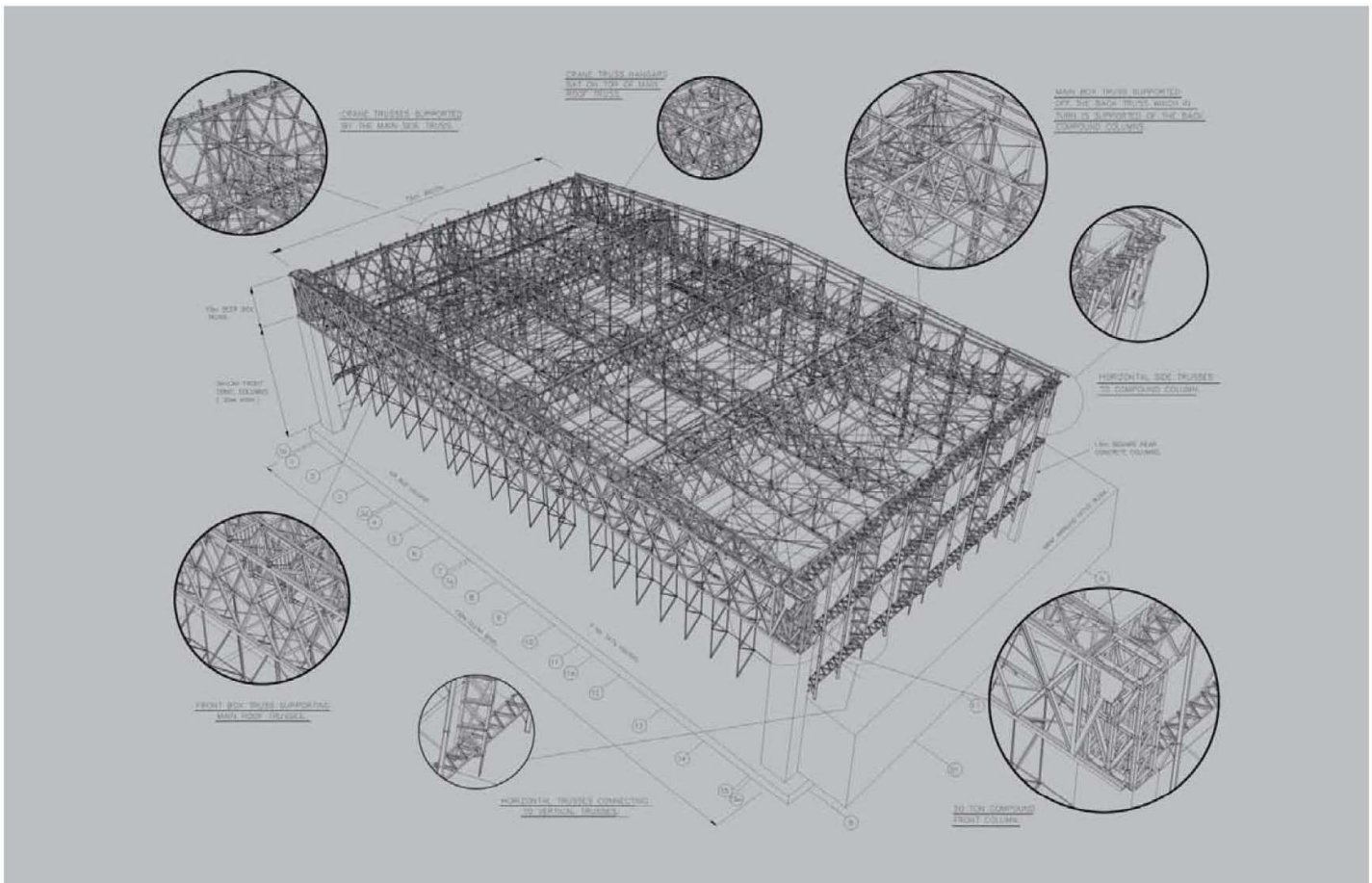
NATURE OF BUSINESS

- 3D Shop Detailing



Computer Aided 3-Dimensional Shop Detailing is a key part of the STAM Team's operation. We have a core group of very experienced detailers who are able to operate on multiple platforms: StruCAD, Bocad, AutoCAD, etc.

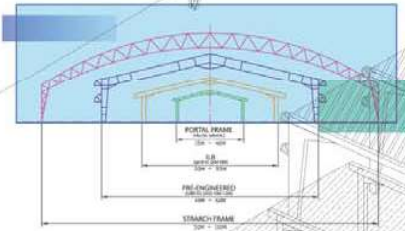
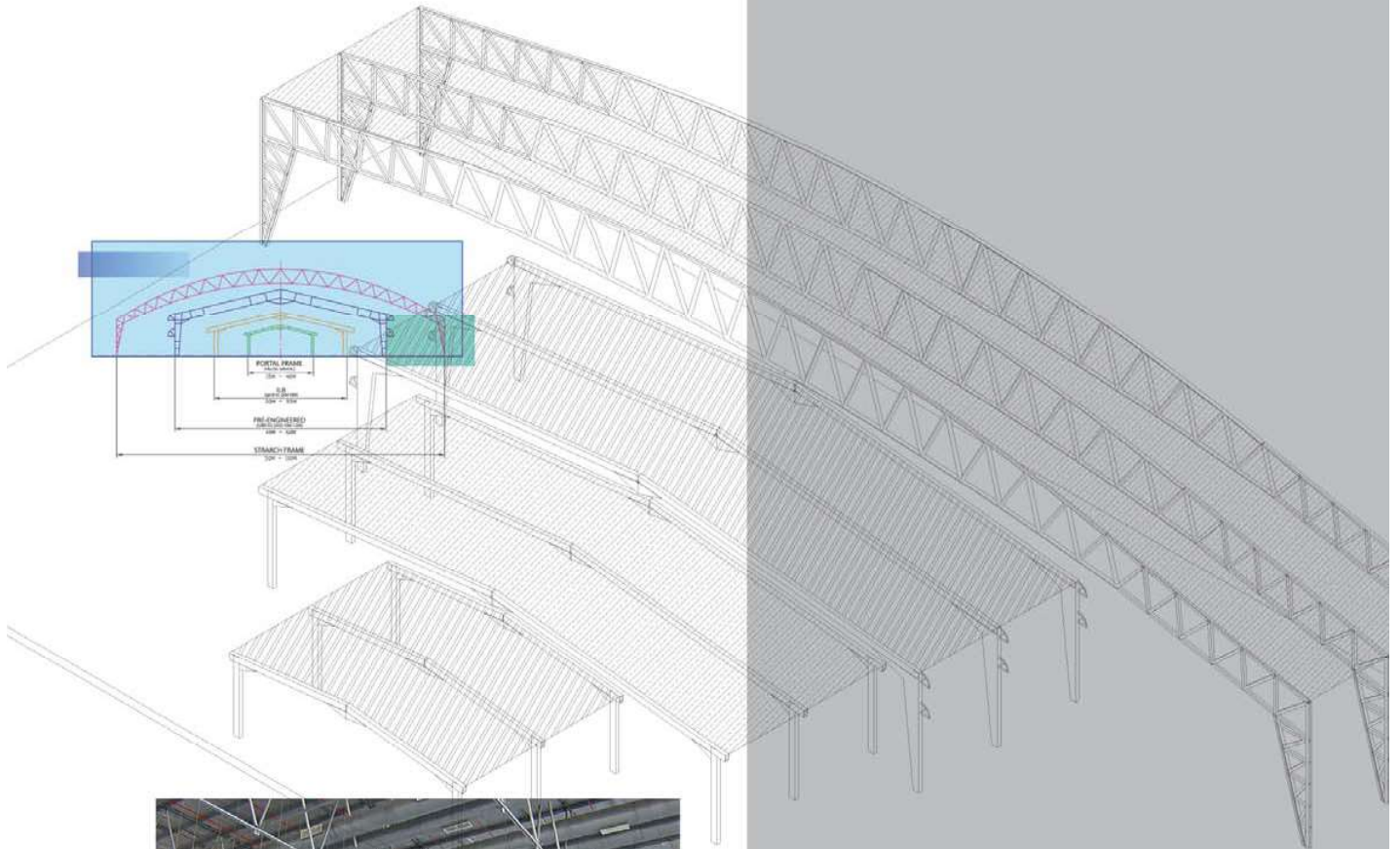
Our steel detailing team is particularly strong in that it is supported full time by our own Professional Structural Engineers.





PARTICULAR EXPERTISE

- Large-span Structures



*Melaka International Trade Centre Convention Hall, Malaysia
93.5m span stressed arch frame*

The STAM Team provides optimum solutions for large span steel frames. Our Stressed Arch design capability enables us to design and implement structures spanning over 100 metres clear. However, when addressing even the smallest spans, we apply elasto-plastic design techniques to achieve optimum results.



*T.U.D.M Hangar, Labuan, Malaysia
4 nos 54m span stressed arch frame*



PARTICULAR EXPERTISE

- High Rise Steel Buildings



The STAM Team has been involved with the design and construction of multi-storey steel-framed buildings for close to ten years now. Starting with the 30-storey WELD TOWER in Kuala Lumpur, we went on to do many other high-rise buildings in Malaysia and the Philippines. The experience has helped us develop many innovative techniques that help make framing multi-storey buildings in steel as competitive as in reinforced concrete.



PARTICULAR EXPERTISE

- Aircraft Maintenance Hangars



Mascot Hangar, Australia.
• Engineering support for
STRARCH International Limited
• Steel tonnage : 758 tonnes

The STAM Team has extensive experience in the design and construction of large span steel roof structures for aircraft maintenance hangars around the world. These would range from dedicated single-bay 80-metre span hangars using stressed-arch technology to multi-bay heavy maintenance hangars. We have also constructed aircraft docking systems for various types of wide-bodied aircraft.

Over a ten-year period, we have engineered and/or constructed the steel roof structures for hangars in Australia, China, Iran, Kenya, Malaysia, Singapore, and Qatar.

We work closely with our sister company, Strarch Australia Pty Ltd, in the design and construction of these aircraft maintenance hangars.



Maintenance Hangar#1 for Hainan Meilan Airport, China.
(98-metre span stressed arch)



PARTICULAR EXPERTISE

- Aircraft Maintenance Hangars



**The Malaysia Airlines Hangar#4, Subang
(2-bay 126-metre span)**



**Single Bay Hangar for the SIAEC, Singapore
(87-metre span stressed arch)**



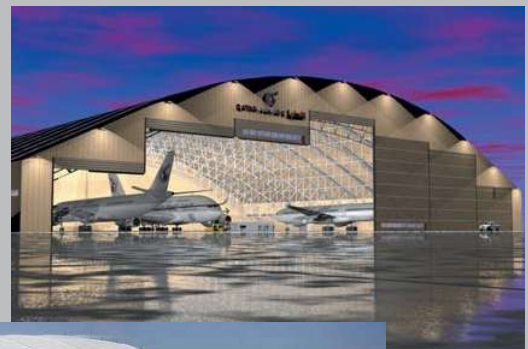
PARTICULAR EXPERTISE

- Aircraft Maintenance Hangars

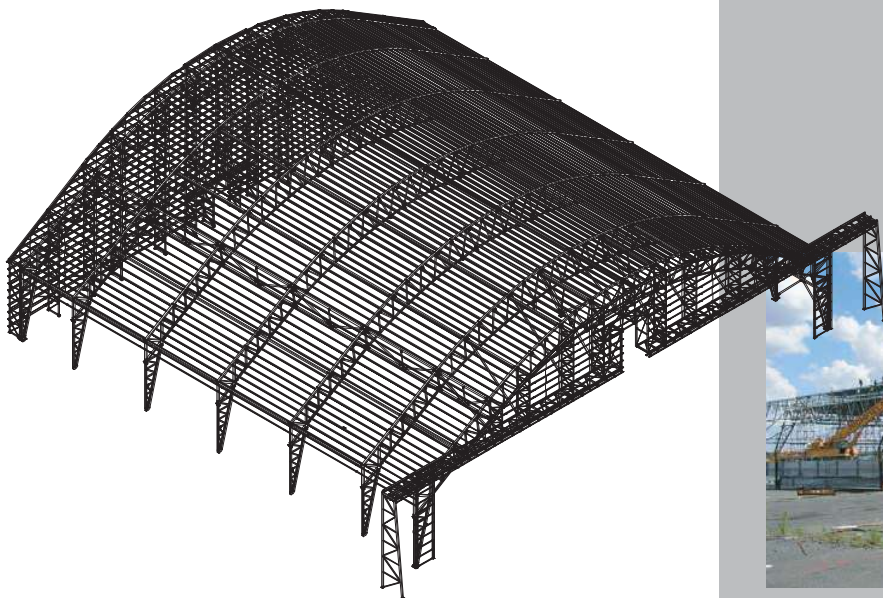


Qantas Hangar at Brisbane, Australia.

- Engineering support for STRARCH International Limited.
- Steel tonnage: 3,000 tonnes
- 170-metre span 2¹/₂-bay Aircraft Hangar



Amiri Flight - Qatar Airways
(155-metre clear span x 140-metre deep)



Kenya Hangar at Nairobi, Kenya.

- 80-metre x 80-metre span stressed arch



PARTICULAR EXPERTISE

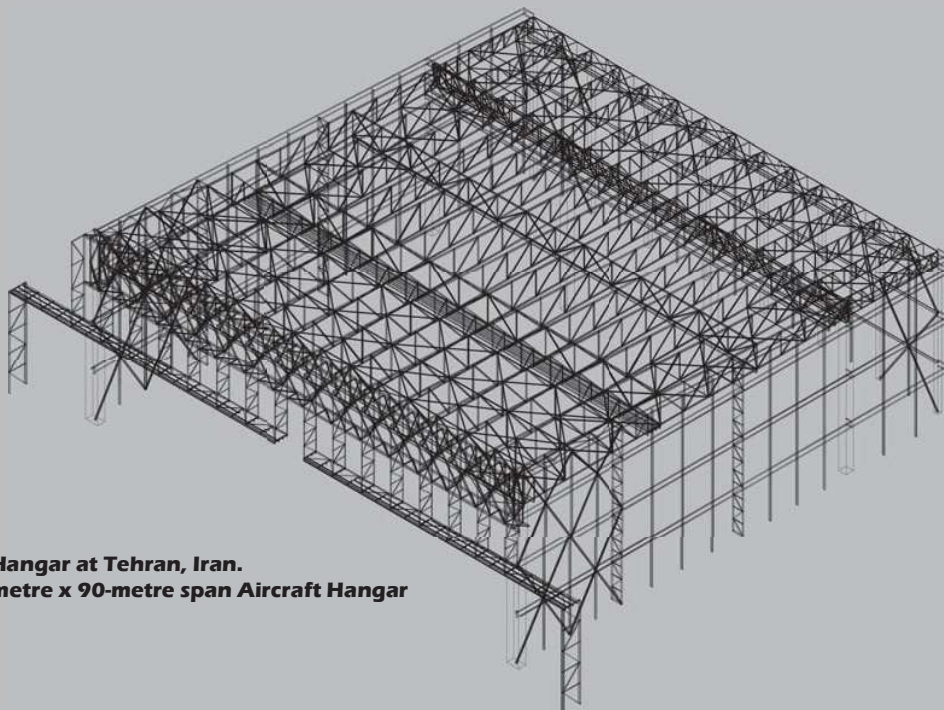
- Aircraft Maintenance Hangars



Gameco Hangar, Guangzhou, China
(60-metre span stressed arch)



**C130 Aircraft Hangar at Pangkalan TUDM
Labuan, Malaysia**



Iran Hangar at Tehran, Iran.
• 90-metre x 90-metre span Aircraft Hangar



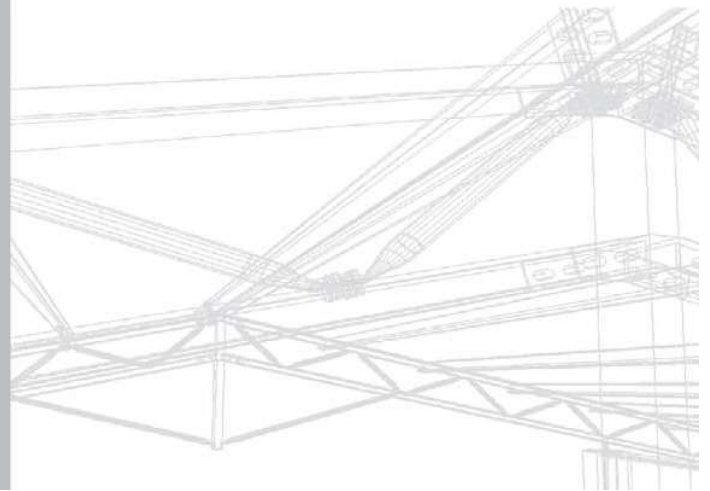
PARTICULAR EXPERTISE

- Space Structures



The design and construction of space frames was where the STAM Team started in 1989. Armed with the Harley Systems Space Frame, we went on to design and build a large number of space structures in Malaysia and Singapore. We are also in constant collaboration with MERO Structures (M) Sdn. Bhd.

The advent of computer assisted 3-D shop detailing together with developments in computer assisted profile cutting of tubular steel have enabled us to design and build complex welded tubular space frames the likes of KL Sentral Station, Menara Telekom, and others.





**The Weld, Kuala Lumpur
(25-Storey steel-framed building)**



**The Matrade, Kuala Lumpur
(23-storey steel-framed building)**



**The Malaysia Airlines Hangar#4, Subang
(2-bay 126-metre span)**



**Welcome Portal,
Subang Airport, Malaysia**



**Hong Kong International Airport
(Northwest concourse roof structure)**



**CP Building,
Kuala Lumpur International Airport
(Hall B roof structure)**



**The Tenaga Nasional Research
& Development Centre,
Bangi, Selangor, Malaysia
(83.5-metre span stressed arch)**



**Gameco Hangar, Guangzhou, China
(60-metre span stressed arch)**



**Putrajaya Bridge No.6,
Putrajaya, Malaysia**



**MBSB Building, Kuala Lumpur
(16-storey steel-framed building)**



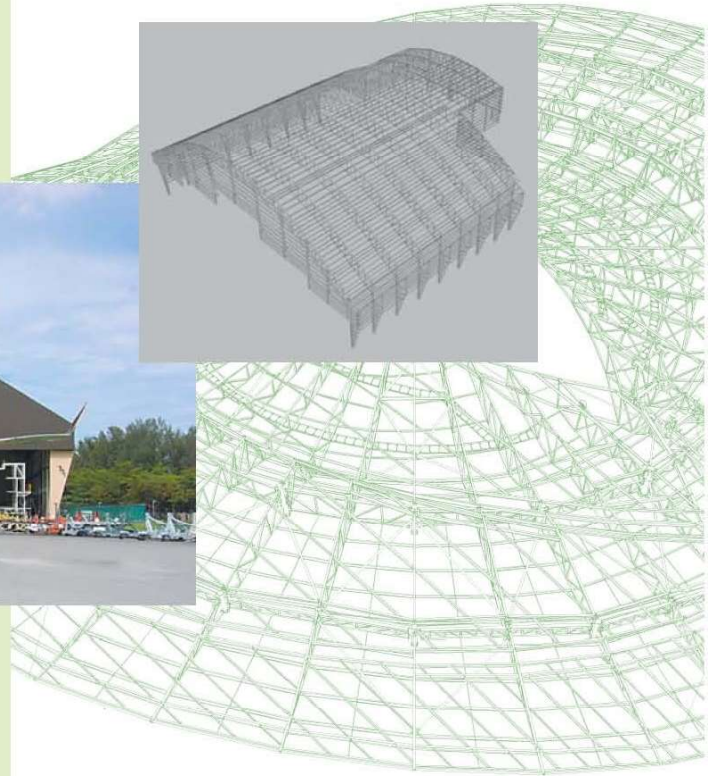
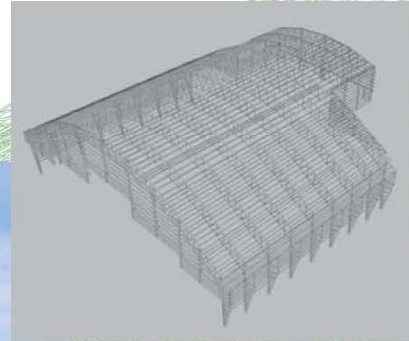
**Titan-Tubular Reactor & Inter Cooler,
Pasir Gudang, Johor, Malaysia**



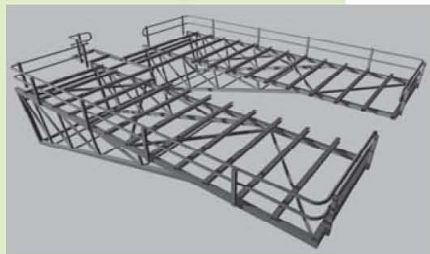
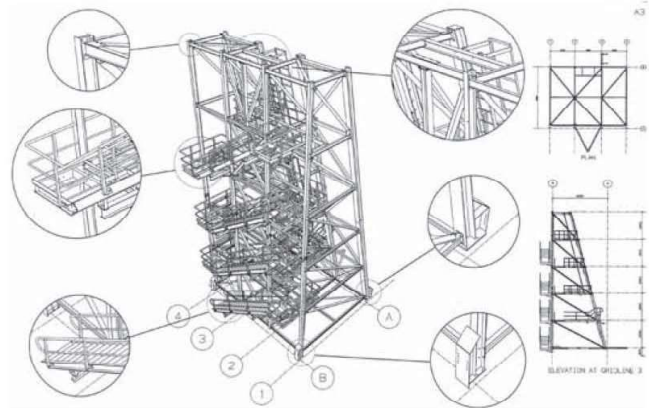
**Grande Subic Legenda
Luxury Hotel and Casino,
Subic Bay, The Philippines
(24-storey steel-framed building)**



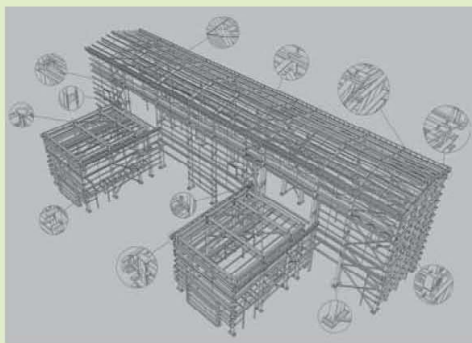
**Single Bay Hangar for the SIAEC, Singapore
(87-metre span stressed arch)**



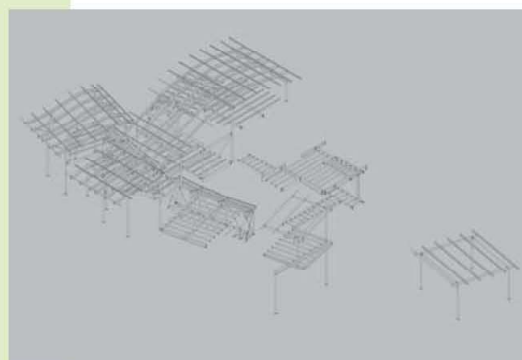
**Maintenance Hangar#1 for Hainan Meilan Airport, China.
(98-metre span stressed arch)**



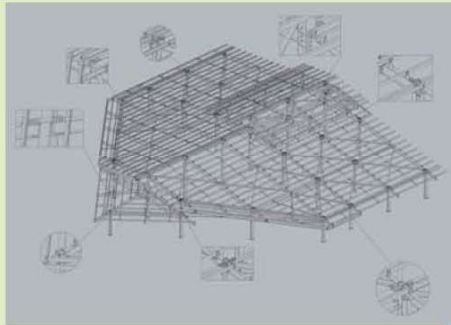
**Docking Facilities for
Royal Brunei Airlines, Brunei.**



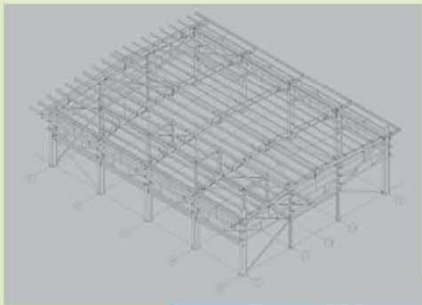
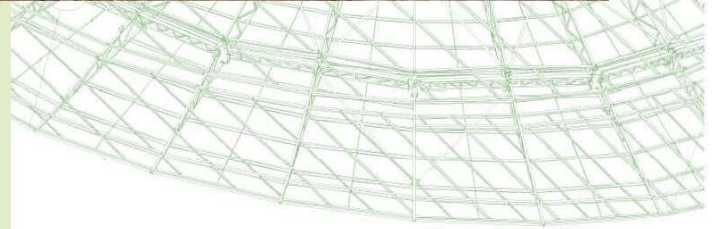
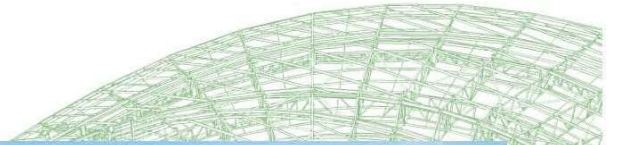
Panglima CCGT Power Plant, Melaka, Malaysia



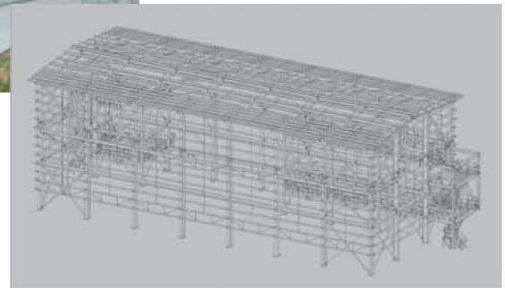
Tay Residence Bungalow Tropicana, Malaysia

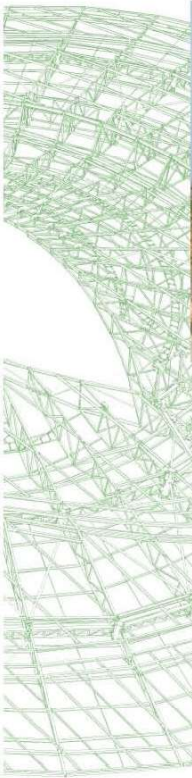


**Gopeng Matriculation College,
Perak, Malaysia.**



**Synthomer Latex Processing Plant,
Kluang, Johor, Malaysia**

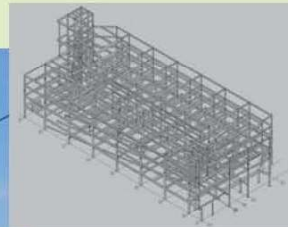




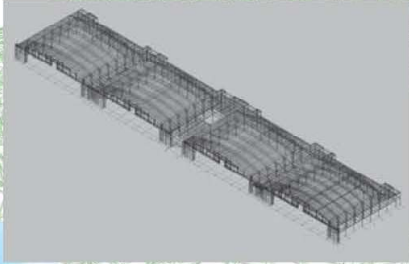
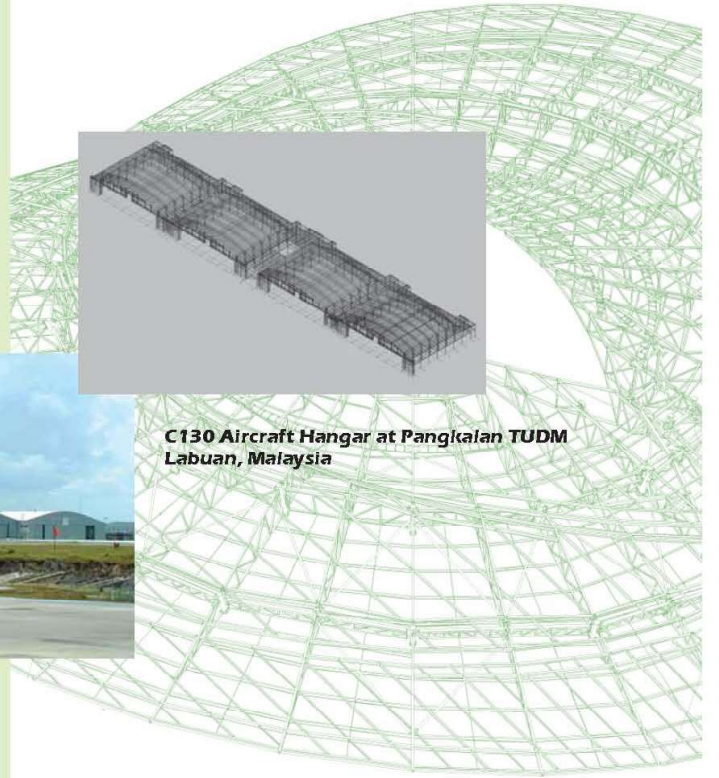
Putrajaya Convention Centre, Malaysia



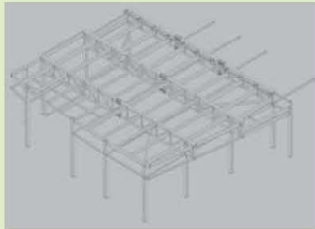
**Johor Port Warehouses (5A & 5B),
Pasir Gudang, Malaysia**



**5 Storey Commercial & Car Park Development,
Melaka, Malaysia**



**C130 Aircraft Hangar at Pangkalan TUDM
Labuan, Malaysia**



**Westin Hotel,
Kuala Lumpur, Malaysia
(Swimming pool deck over ballroom)**



The Melaka International Trade Centre (MITC), Malaysia.

Description

In September of 2001, the Perbadanan Kemajuan Negeri Melaka, PKNM (the Malacca State Economic Development Corporation, SEDC) called for the design and construct of a new trade exhibition facility at Ayer Keroh, Melaka. The brief called for an exhibition hall area of at least 12,000m², the structure of which is to be column free and which is able to sustain imposed loads of appropriate mechanical and electrical services, suspended exhibits and partition doors.

The Main Contract was awarded to Messrs PGL Sdn. Bhd., a Kuala Lumpur-based contractor. The sub-contract for the design and construction of the steel superstructure was awarded to STAMsteel Sdn. Bhd. on a Starch design.

The clear span of the structure is 93.5m but wing trusses rising from ground and hinged to the eaves of the Starch trusses give a "visual" span of some 138.5m. The height at eaves of the Starch trusses is 11.23m and at apex is 18.2m. The building is 136.0m long. The Starch frames are spaced at 8.5m and there are a total of 16 frames. Side and gable end walls are of brick masonry. Roof cladding is of BHP Lysaght HR-29 Hi-Ten profile.

Construction

Fabrication works commenced in March 2002. The truss depth of 4.7m made site fabrication the method of choice.

The structure was stressed-erected in two (2) instalments comprising of firstly seven (7) then nine (9) sets of stressed-trusses each. The building was stressed utilising 8 nos. of $\phi 15.2\text{mm}$ 7-wire low relaxation strands in each frame. The strand has an ultimate load capacity of 250kN.

Comparison with Conventional Construction Schedule

The Starch design faced a number of would-be competitors during the tender stage. In the final stages, some Pre-engineered Building Systems companies were offering solutions for the "right" price but which could not be substantiated in terms of design and constructability. The span and the service loads requirements of the Owner's Brief made the Starch solution the only viable one. The joint experience of STAMsteel and Starch International also gave the Consultant Architect and Engineer the confidence to recommend the adoption of the Starch option.

At a span of 93.5m, the Starch trusses alone weigh in at 25 kg/m² of covered floor plan area. A conventional portal frame spanning 30-35m or a conventional truss frame spanning 60m would have the same weight.

Schedule

The steel superstructure sub-contract was awarded to STAMsteel in December 2001. The structure was fully stressed-erected on 20th July 2002.



Figure A : Artist Impression of the MITC Convention Centre

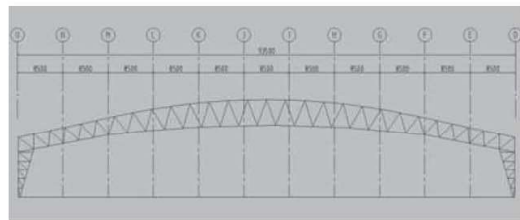
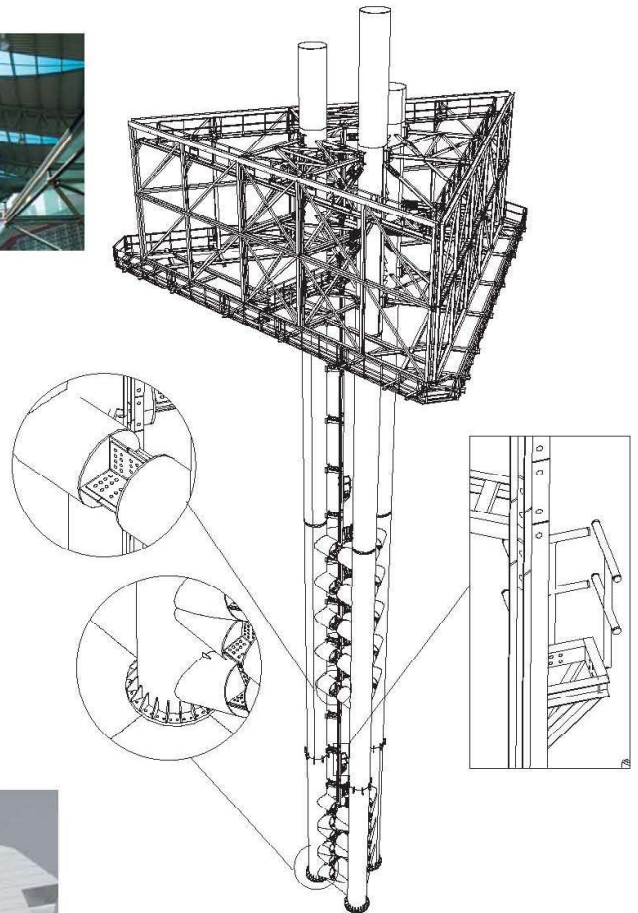


Figure B : Section





**JB Kota Raya Redevelopment,
Johor Bahru, Johor, Malaysia**
• Design and build roof steelworks and finishes



Mascot Hangar, Australia.
• Engineering support for
STRARCH International Limited
• Steel tonnage : 758 tonnes



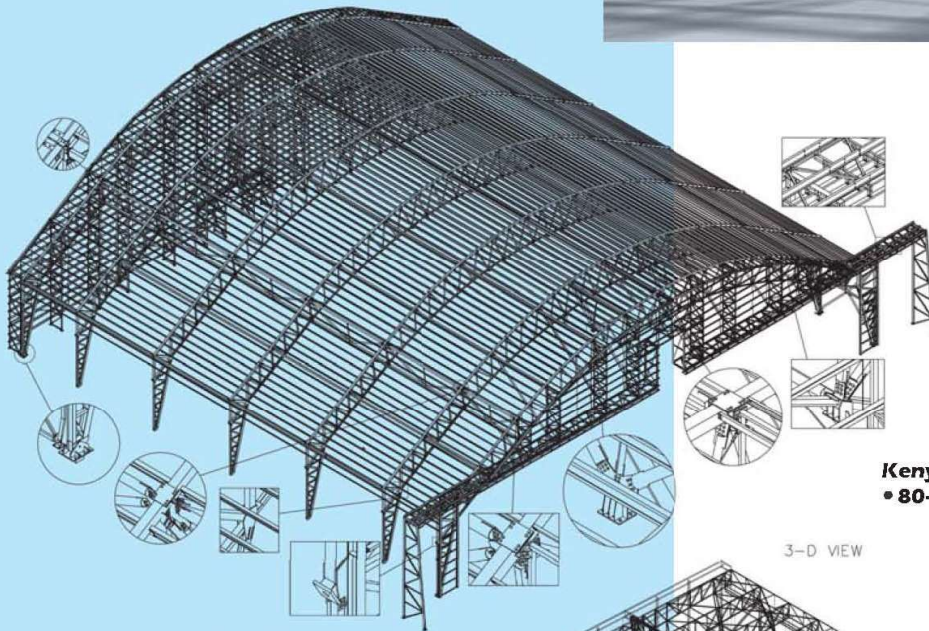
Ikea Sign Tower, Kuala Lumpur, Malaysia
• Steel tonnage : 250 tonnes
• 56-metre height



Naza Automotive Factory at Gurun, Kedah, Malaysia.
• Engineer and erect in JV with Namfatt Fabricators Sdn. Bhd.
• Steel tonnage : 3,000 tonnes

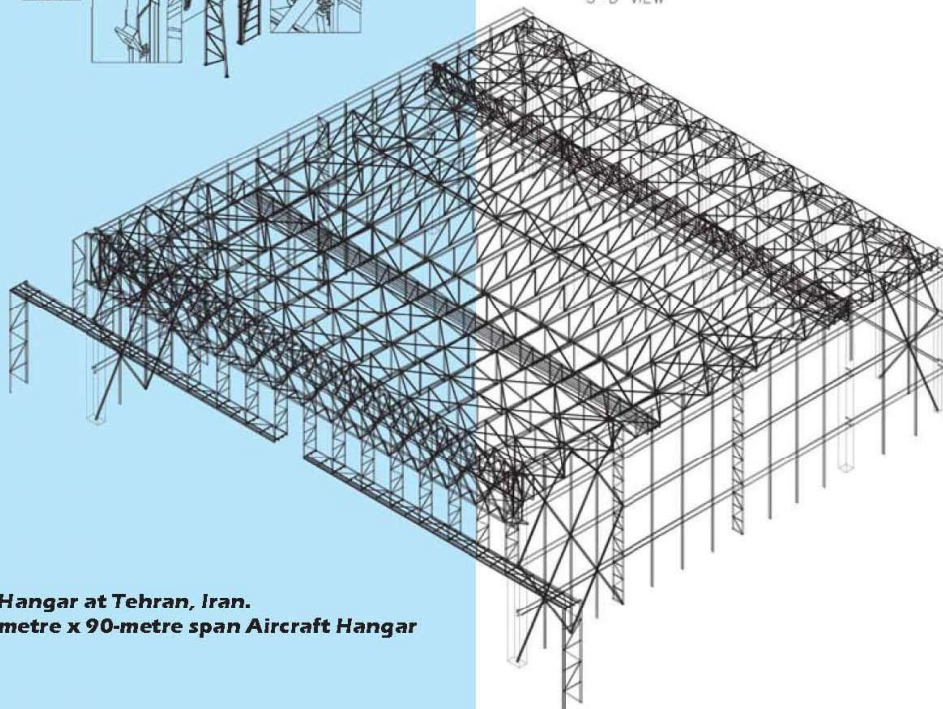


- Qantas Hangar at Brisbane, Australia.**
- Engineering support for STRARCH International Limited.
 - Steel tonnage: 3,000 tonnes
 - 170-metre span 2¹/₂-bay Aircraft Hangar



- Kenya Hangar at Nairobi, Kenya.**
- 80-metre x 80-metre span stressed arch

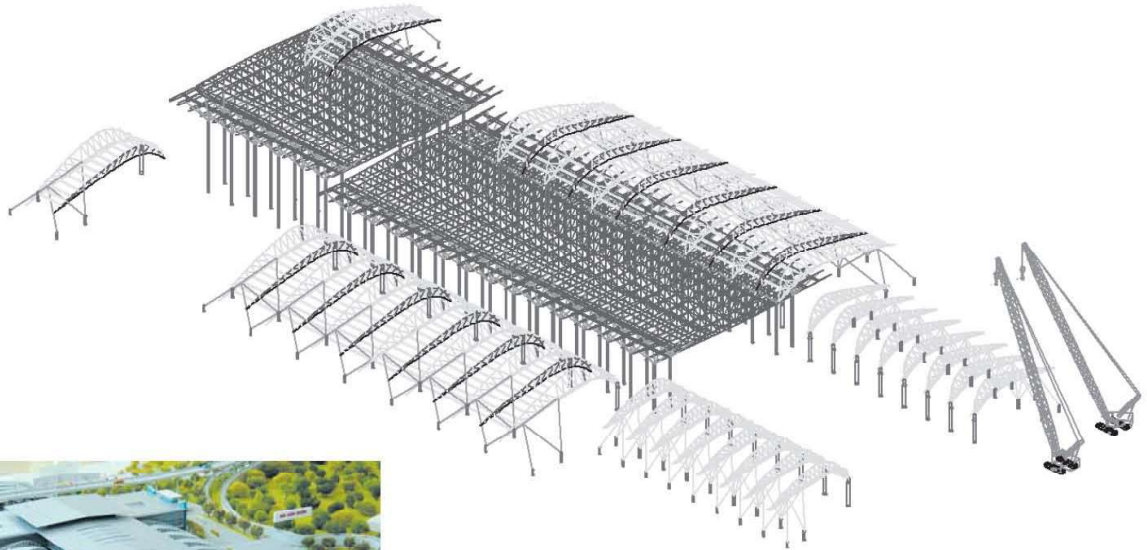
3-D VIEW



- Iran Hangar at Tehran, Iran.**
- 90-metre x 90-metre span Aircraft Hangar



The Integrated Custom, Immigration and Quarantine Complex (ICIQ), Johor Bahru, Malaysia.



The Project

Dubbed "The Southern Unification Gateway", the new Integrated Customs, Immigration & Quarantine (ICIQ) Complex in Johor Bahru, Malaysia will, on its completion in 2005, be the largest such facility in Malaysia. As the prime gateway between Malaysia and Singapore, the design of the complex had to be both functional and iconic, the latter achieved mainly by the beautiful sweeping curves of the complex's roof structures.

The ICIQ Complex comprises the following major facilities:

- The tallest building is the Main Concourse which is flanked by two blocks of administrative buildings.
- The largest single zone is the Passenger Hall, a long spacious concourse through which passengers on public transport go through immigration and customs. These passengers alight from public transport vehicles which pass through on a level below the passenger concourse.
- Private and light goods vehicles go through what is referred to as the LGV Buildings, a maze of vehicular lanes over which is a sophisticated structural leaf-shaped roof truss system.
- Heavy goods inspection is carried out in a remote HGV Building.

The new ICIQ complex is situated on Bukit Cagar and will replace the old complex on the Johor Bahru waterfront. The city will benefit from a new waterfront uncluttered by the old complex and traffic between Malaysia and Singapore will no longer go through the city centre, alleviating the present congestion experienced by Johor Bahru residents.

The ICIQ Complex is one of four main parcels to this Southern Gateway development, the others being the multi-tiered road system surrounding the complex, the Johor Bahru Railway Station and the Road & Railway Bridges that will replace the Causeway.



Parties to the Project

Gerbang Perdana Sdn Bhd is the Turnkey developer of the project. All four parcels were awarded to them by the Government of Malaysia for a reported RM2.4 billion. Gerbang Perdana has been developing the designs for the project for many years and was awarded the contract in March of 2003.

The Main Builder for the ICIQ Complex is Namfatt Construction Sdn Bhd. Namfatt Construction, a subsidiary of Namfatt Corporation Berhad. Namfatt Construction was awarded the contract in September of 2003.

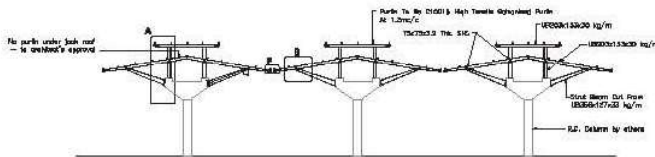
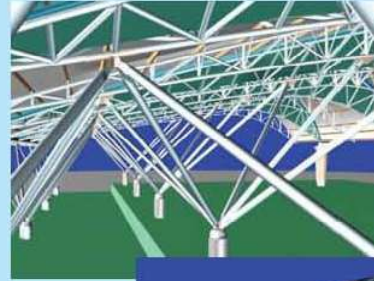
The Roof Cladding and Structural Steelworks contract was awarded to HL Engineering Sdn Bhd (HL Engineering and STAMsteel have common major shareholders, in effect, sister companies). HL Engineering and STAMsteel undertook the contract on a 60%:40% joint venture. The roof cladding works were sub-contracted to European Profiles Marketing Sdn Bhd.

Statistics

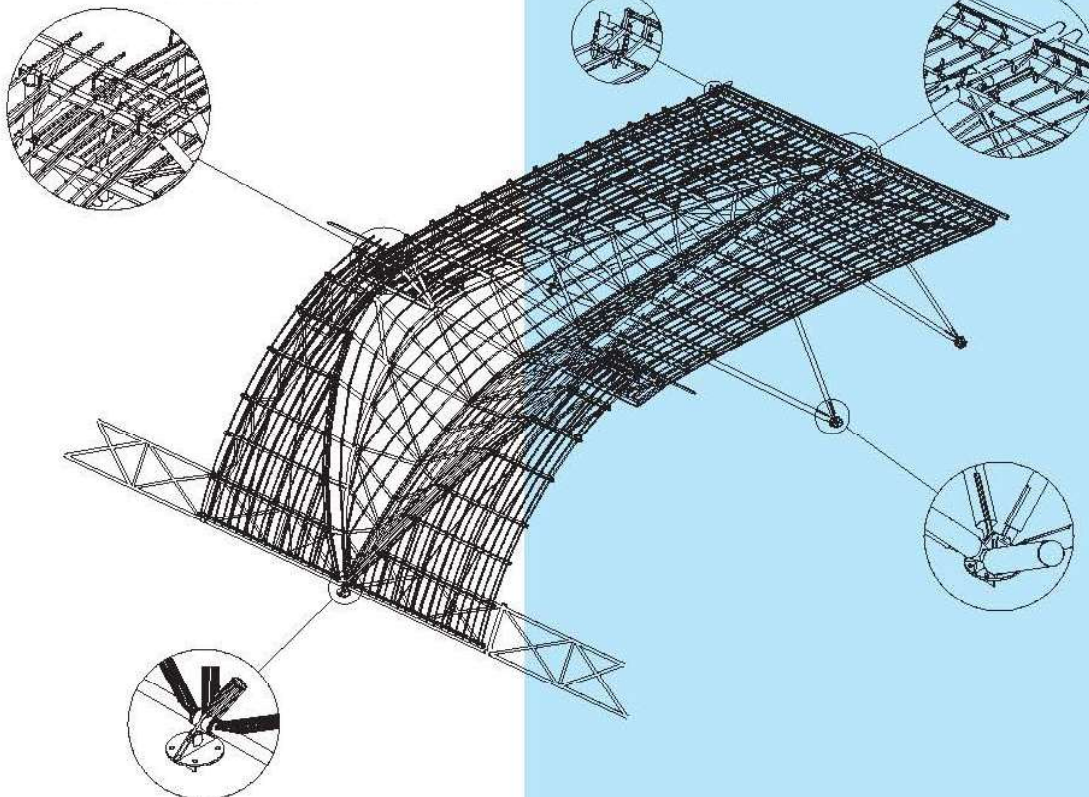
Contract value : RM131 million
Roof area : 82,875 sq meters
Total steel weight : 6,000 tonnes

Schedule

The roof cladding and steelworks is scheduled for completion in June of 2005. The ICIQ Complex is scheduled for completion in September of 2005.

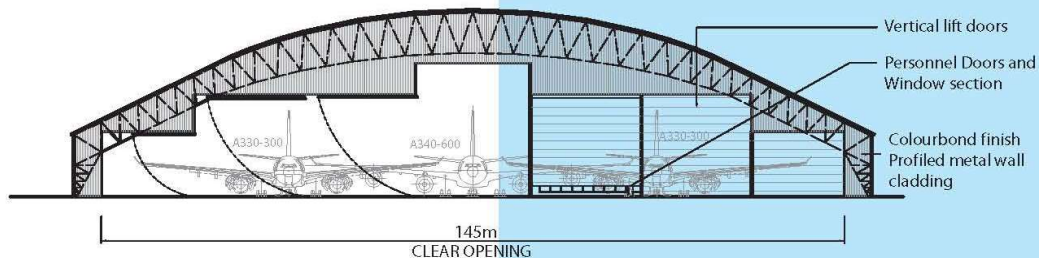


Section Y-Y

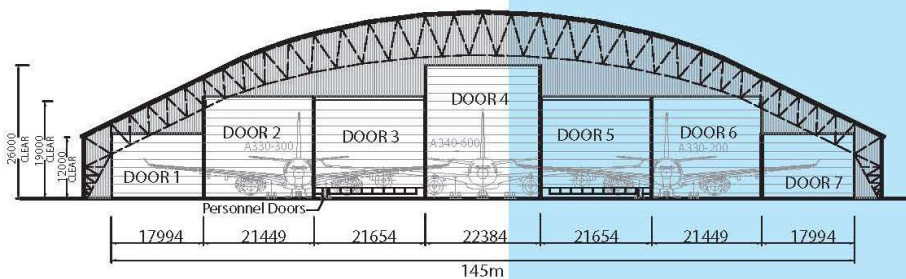




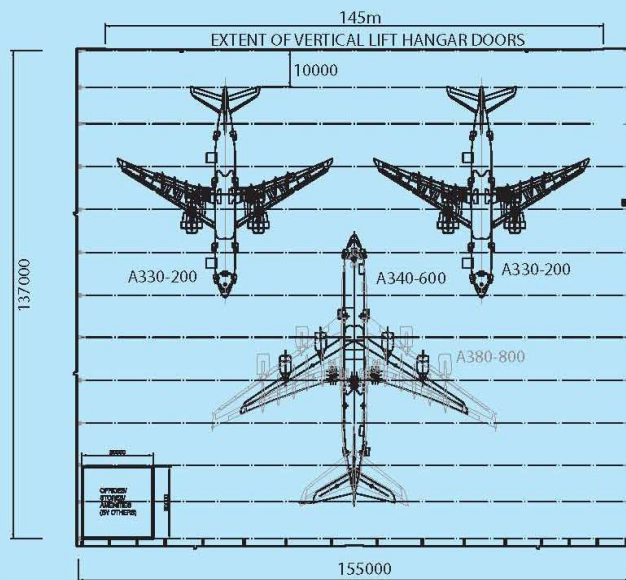
Amiri Flight - Qatar Airways (155-metre clear span x 140-metre deep)



FRONT ELEVATION



VERTICAL LIFT HANGAR
 DOOR ARRANGEMENT





HAECO Aircraft Maintenance Hangar No. 2 , Hong Kong International Airport.

Hong Kong

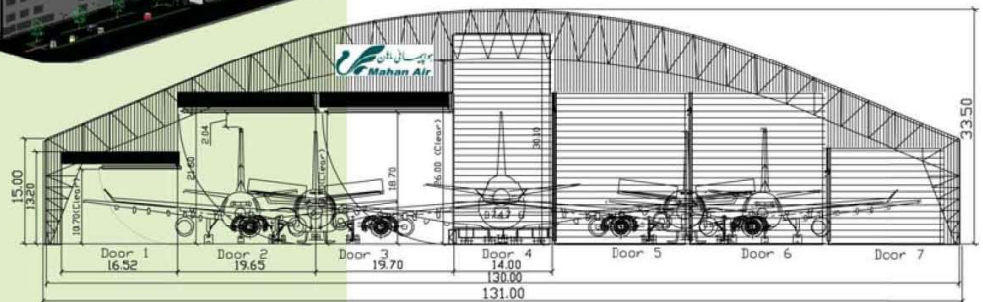




JB Sentral at Johor Bahru, Malaysia.



Mahan Air Heavy Maintenance Hangar at Imam Khomeini International Airport, Tehran, Iran

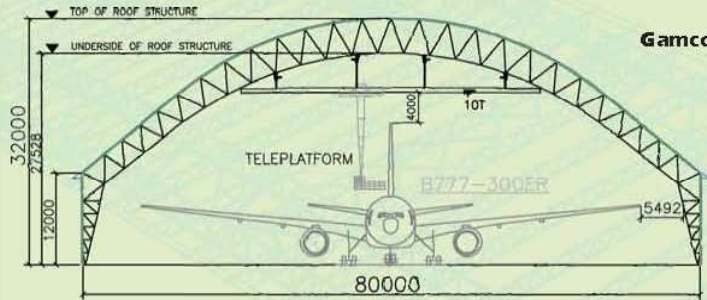




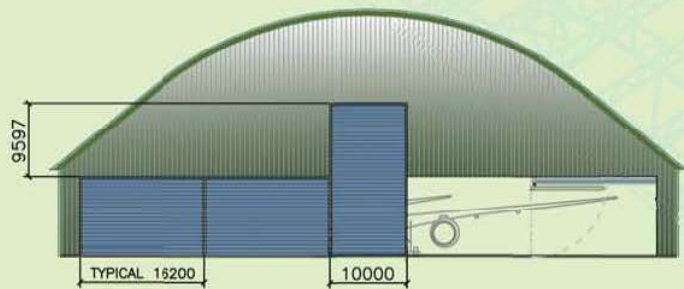
**Hong Kong Business Aviation Centre-
Hangar Two at Hong Kong SAR, China.**



One Bay Wide Body Aircraft Hangar Lufthansa Technik Philippines Villamor Air Base, Pasay City, Philippines.

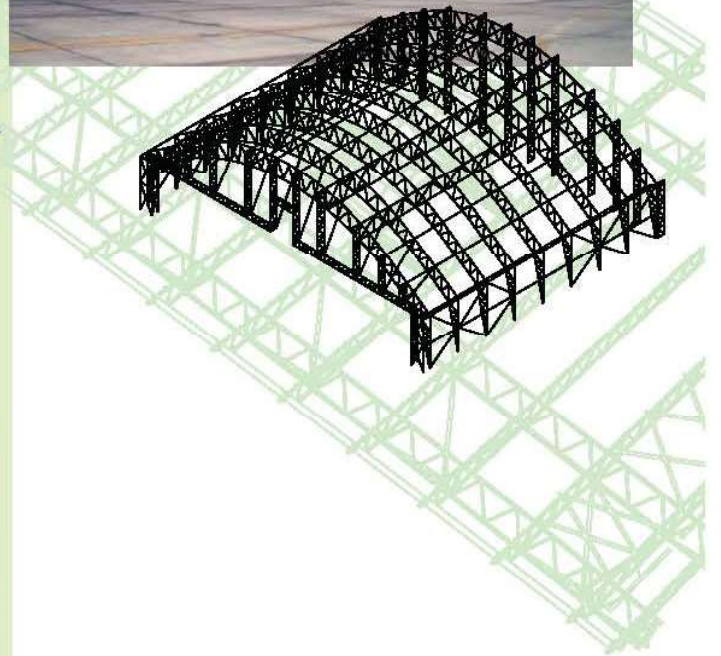


CROSS SECTION



FRONT ELEVATION

Gamco Hangar, Abu Dhabi, UAE.



CASL Hangar, Hong Kong SAR, China.





MAS Wide Body & Narrow Body Docking System, Malaysia.

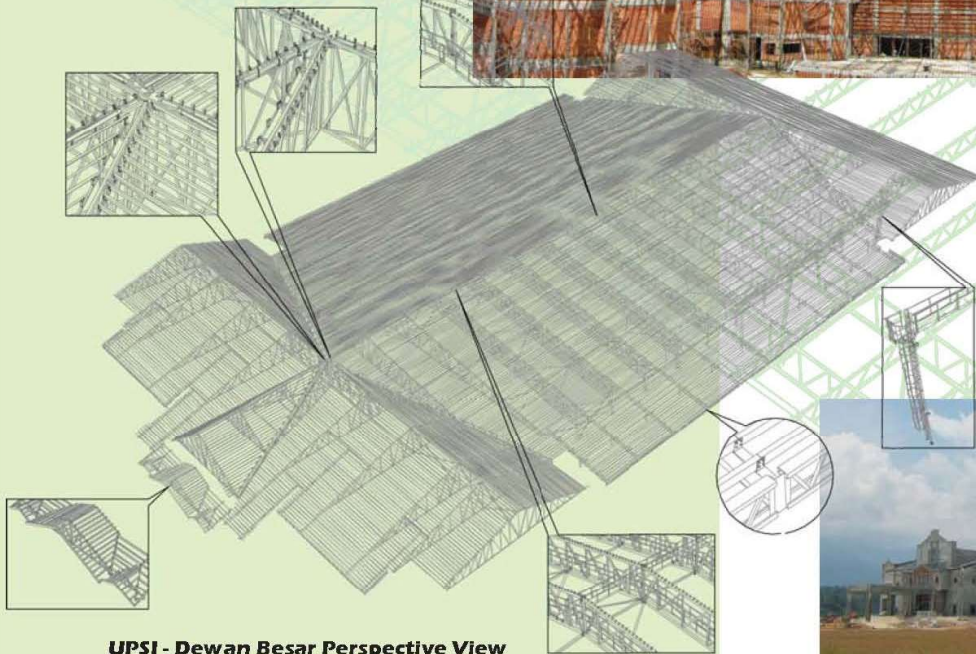


Melaka Airport - Main Terminal Building Design & Build Structural Steelworks, Malaysia.

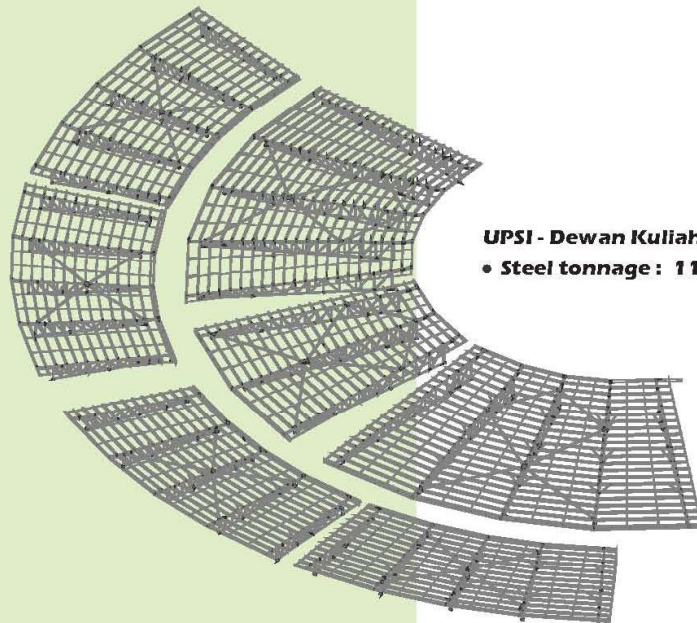




Universiti Pendidikan Sultan Idris (UPSI), Perak, Malaysia.



UPSI - Dewan Besar Perspective View
• Steel tonnage : 250.763 tonnes



UPSI - Dewan Kuliah Perspective View
• Steel tonnage : 110 tonnes



SunPower Manufacturing (M) Sdn Bhd, Melaka, Malaysia.





Pedestrian Foot Bridge for Garden Plaza Skybridge, Cyberjaya





WISMA MIE - STRUCTURAL STEEL FRAMING FOR SOLAR PANEL





Kerteh Factory for Hi-Essence Sdn Bhd, Terengganu





Kerteh Factory for Hi-Essence Sdn Bhd, Terengganu



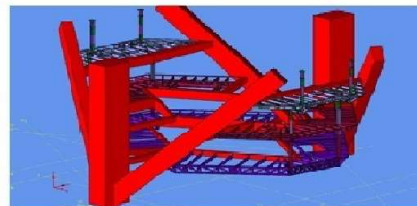


Kerteh Factory for Hi-Essence Sdn Bhd, Terengganu





ILHAM BARU TOWER, KUALA LUMPUR, MALAYSIA



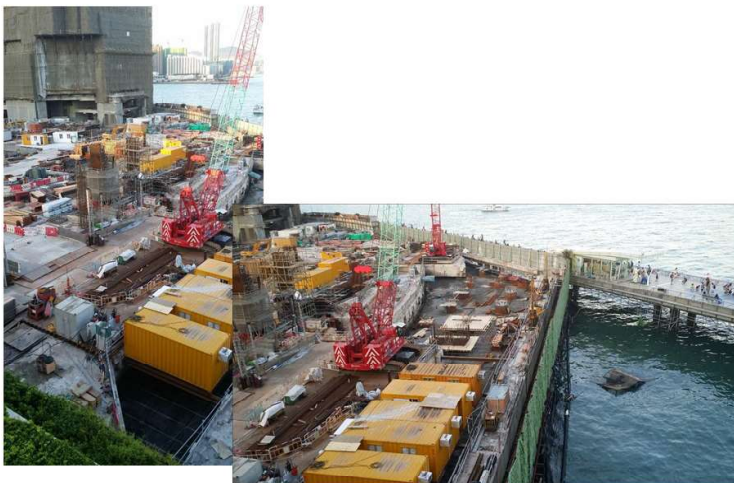
- Level 38 to 40 steel structure in between rc floors
- Level 38 to 40 hanged by Level 41, creating open sky garden at Level 37



- Steelwork, Bondek and RC Slab completed



NEW WORLD CENTRE REMODELING PROJECT, HONG KONG - SEA DECK



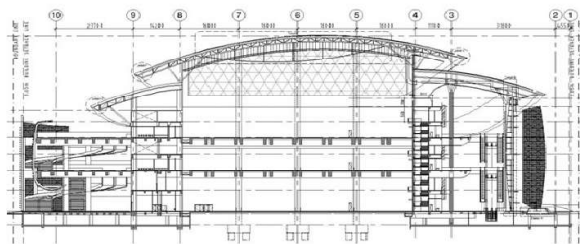
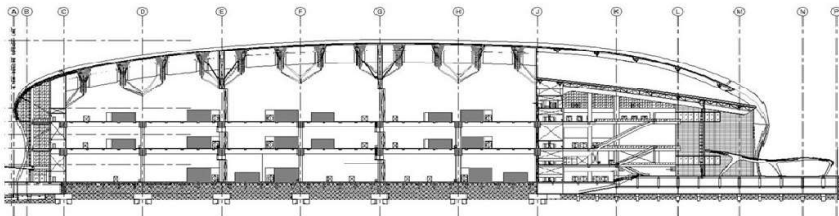
- Sea Front Environment
- Close to Star Avenue
- Extremely Limited Space at Site



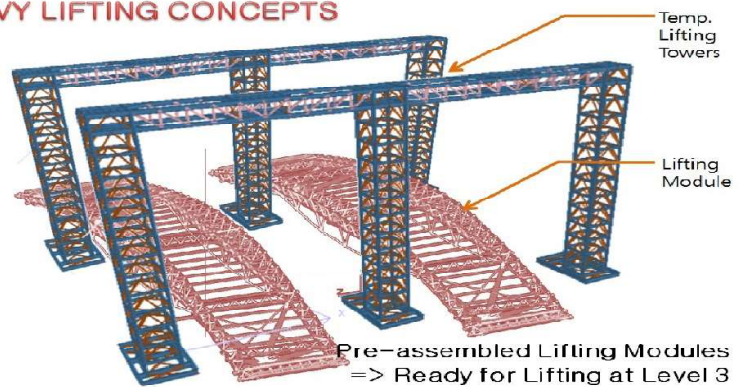
MATRADE EXHIBITION CENTRE, MALAYSIA



Architect's Impression



HEAVY LIFTING CONCEPTS





Matrade Convention Centre – Multi Purpose Hall



Truss MTR1



Truss MTR2



Truss MTR4



**LAKEVIEW TERRACES DEVELOPMENT, MALAYSIA
MODULAR CONSTRUCTION**





**LAKEVIEW TERRACES DEVELOPMENT, MALAYSIA
MODULAR CONSTRUCTION**



FABRICATION

TRANSPORTATION



ERECTION



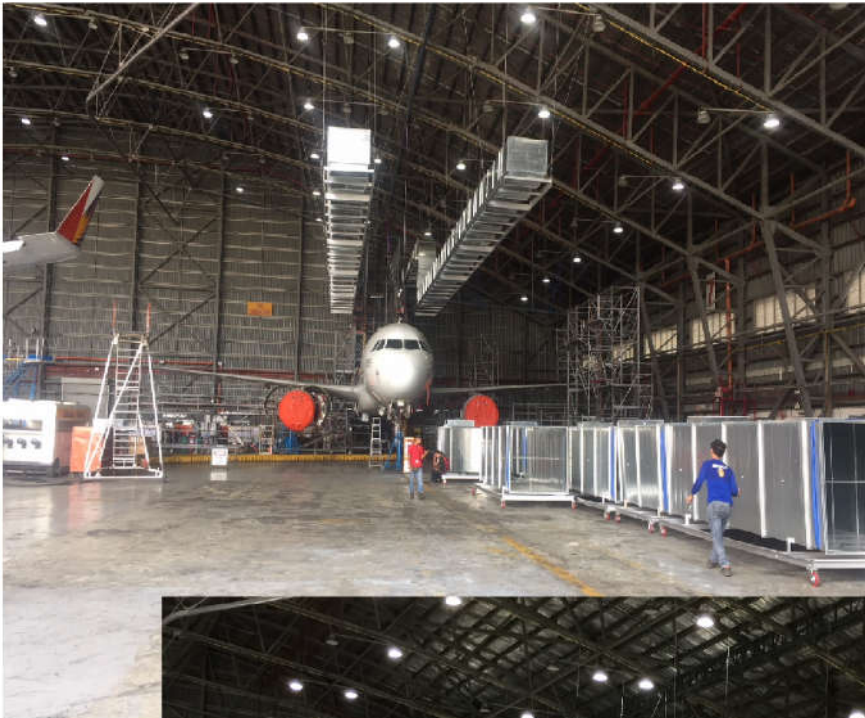
**LAKEVIEW TERRACES DEVELOPMENT, MALAYSIA
MODULAR CONSTRUCTION**





LUFTHANSA TECHNIK PHILIPPINES - BAY 4 & BAY 7 HANGAR UPGRADING

Bay 4



Bay 7





East Coast Economic Region, Kuala Terangganu Drawbridge- Heavy lifting of 2 nos skybridges



1st Lifting for Structure at P5



2nd Lifting for Structure at P4



CANTARA SKYBRIDGE, ARA DAMANSARA, SELANGOR





RANTHARIVILLA DEVELOPMENT, MALDIVES





Bay 1A Hangar for Lufthansa Technik Philippines
105.7 meter clear span x 83.5 meter deep





Bay 1A Hangar for Lufthansa Technik Philippines
105.7 meter clear span x 83.5 meter deep





The Steel Structure Work for Pipe Rack to Water Treatment Plant/Waste Water Treatment Plant Work for ND Paper Malaysia





STAM Engineering SDN. BHD. (1032242-V)

Main Office : B-3-08, CAPITAL 2, Oasis Square,
2, Jalan PJU 1A/7A, Ara Damansara
47301, Petaling Jaya. Malaysia.
Email : tslim@stam.com.my
cakeh@stam.com.my

|| **Website :** <http://www.stam.com.my>

