ZAMIL STEEL

total steel building solutions



product brochure

- pre-engineered steel buildings
- structural steel
- MaxSEAM roofing system

content



General Director's greetings

It is my great pleasure and privilege to extend sincere greetings from Zamil Steel to all our valued customers, consultants, business partners and friends. Please take a few moments and go through our product brochure in order to gain a better idea and understanding of Zamil Steel and its products.

With over 35 years of experience in the business and a strong perception of the economic growth in the region, Zamil Steel entered Vietnam in 1993 and grew successfully to become the Leader in the Steel Buildings Industry in Asia Pacific.

Our international team of professionals is always ready and willing to attend to all your steel buildings requirements, whether they are industrial, commercial or municipal applications.

With our up-to-date, advanced engineering systems and our state of the art manufacturing facilities, our commitment to quality is reflected through more than **65,000 steel buildings that span across the globe**. Each building is uniquely designed to meet a specific need which confirms our commitment to excellence. With a wide range of products to offer like **Pre-Engineered Buildings**, **Structural Steel** and **MaxSEAM roofing system**, we assure you that Zamil Steel is always capable of providing **Total Steel Building Solutions**.

Through ***Knowledge***, ***Efficiency***, ***Innovation and Reliability***, we will constantly seek to achieve design creativity, cost effectiveness, product quality and fast delivery.

Thank you and we look forward to doing business with you.

Sincerely,

General Director – ZSV



vision

To be the world's most premier, reliable and innovative manufacturer, service and solution provider in the steel industry.

mission

To supply high-quality steel products, providing related services and solutions to a worldwide client base while utilizing innovative technologies within an environment of motivated employees, focused on continuous improvement, highest business standards, work ethics and corporate citizenship, leading to added value for our customers and sustained return on investment to our shareholders.

Zamil Steel Vietnam **global experience, local solution**



The establishment of Zamil Steel Vietnam (ZSV) in 1997, brings together a joint venture between **Saudi Arabia's Zamil Industrial Investment Co. (ZIIC)**, an International manufacturing and fabrication group, with Japan's trading giant, **Mitsui & Co**, Currently, with two state-of-the-arts manufacturing facilities in Vietnam, supported by a network of sales operations in Thailand, Singapore, Philippines, Myanmar, Malaysia, Laos, Japan, Indonesia, and Cambodia, ZSV is the premier Pre-Engineered Steel Buildings and fabricated steel manufacturer in Asia Pacific.

Operating from Hanoi, the capital city of Vietnam, ZSV is in a unique position to serve the buoyant Vietnamese market and also exports to other Asia Pacific countries. With almost 2 decades of operation in this region, ZSV has witnessed sustained growth and success by consistently delivering steel buildings of superior quality thanks to the customized, complete solutions and longstanding engineering expertise and manufacturing excellence.

Engineering Expertise

The engineering groups of Zamil Steel collaborate from four different countries (Saudi Arabia, Vietnam, India and Egypt) via electronic connections. Leveraging on the experience of supplying 65,000 steel buildings in over 90 countries, we have the ability to design based on international codes and standards and provide customized best solutions that meet customers' functional, architectural and financial requirements.

Our talented groups of engineers work diligently, within a culture that fosters optimum solutions and perfection to the core. The end result is a consistent flow of design, process and practical solutions unique to Zamil Steel, bolstering our position as a global steel industry leader.

Seamless Quality Assurance

In Zamil Steel Vietnam, stringent quality control procedures are followed in order to ensure the utmost consistency in the quality of "Made by Zamil Steel". The Quality Control department has the best engineers, tools and facilities to reinforce the quality policy of Zamil Steel in accordance with international standards and best practices.

International Quality Standards

Unless otherwise required by local conditions, all Zamil Steel Buildings are designed and manufactured in accordance with the latest editions of the following codes:

Low Rise Building Systems Manual
Metal Building Manufacturer's Association, Inc. **(MBMA)**

Manual of Steel Construction Allowable Stress Design
American Institute of Steel Construction, Inc. **(AISC)**

Cold Formed Steel Design Manual
American Iron and Steel Institute **(AISI)**

Structural Welding Code-Steel Manual
American Welding Society **(AWS)**

Hanoi Plant located in Noi Bai IZ, Hanoi, Vietnam

Constructed in 1997, this plant is specialized in the fabrication of Pre-Engineered Steel Buildings and Heavy Structural Steel Products.

Total Area	41,200 sq.m
Fabrication Capacity	5,000 MT per month

Dong Nai Plant located in Amata IP, Dong Nai Province, Vietnam

Inaugurated in 2008, this new plant posseses cutting edge technologies and machineries for the fabrication of Pre-Engineered Buildings and Heavy Structural Steel.

Area	45,150 sq.m
Fabrication Capacity	4,500 MT per month

Manufacturing Excellence

Our manufacturing facilities, which rank among the most advanced in Southeast Asia, are supported by over 35 years of industry experience and world-wide technical capability, ensuring high production efficiency. Whether your buildings are in Vietnam, Singapore or elsewhere in Asia Pacific, we can ensure top quality finished products delivered on time.

In addition to assuring our customers of quality products and timely delivery, our manufacturing capabilities also enable us to provide broader range of products for the steel building industry. With our ability to fabricate Pre-Engineered Steel Buildings, Structural Steel Buildings and MaxSEAM Roofing, we Zamil Steel are proud to say... **Any Building... Any where... Steel is our Strength**.

Zamil Steel
global network

6 Factories in
- Hanoi, Vietnam
- Dong Nai, Vietnam
- Dammam, Saudi Arabia
- Cairo, Egypt
- Pune, India
- Ras Al-Khaimah, UAE

8 Engineering Offices worldwide
- Hanoi, Vietnam
- HCMC, Vietnam
- Alexandria, Egypt
- Cairo, Egypt
- Chennai, India
- Dammam, Saudi Arabia
- Kochi, India
- Pune, India

And 60 Representative Offices across Asia, Africa, Europe and Oceania

... and international recognition

by BVQI, UK

by BVQI, UK

by BVQI, UK

by BVQI, UK

by MPI, VIETNAM

by MLIT, JAPAN

by MOT, VIETNAM

by FM APPROVAL, US

by SSSS, SINGAPORE

by VET, VIETNAM

Zamil Steel Vietnam
unparalleled solution provider



The willingness of Zamil Steel's professionals to listen, understand, and solve customers' problems promptly and reasonably, has made Zamil Steel an unparalleled steel buildings solution provider in the industry. With broad range of experience and expertise, customers can expect a variety of solutions available that can best fit their needs.

One-Stop Solution
Constructing a steel building can be a complex affair. At Zamil Steel, we simplify matters for you with our One-Stop Solution. From engineering, manufacturing, to the erection of your steel building, we take the burden off your shoulders.

Cost Effective Solution
In the quest for engineering excellence, Zamil Steel has pioneered many notable advancements in software development, ensuring that every inch of the customer's building is designed to perform at its optimum, thus achieving maximum cost effectiveness.

Fast Solution
With every component fabricated with the utmost attention to quality and detail in the factory, the only operation that remains, is on-site erection. Taking into account, the cost-benefit of time, all Zamil Steel components are fabricated for speedy installation, that enable multiple tasking and heavy machineries to work concurrently on site.

Premium Quality Solution
Zamil Steel's integrated manufacturing facilities and seamless quality assurance procedures ensure that every steel building is of premium quality. In Zamil Steel, quality is not by chance but by choice always.

Global Solution
From the snowy plateau of Mongolia to the stormy Tropics, rain or shine over 65,000 Zamil Steel Buildings have stood by their highly satisfied owners in over 90 countries. With representation in 60 global locations, 6 advanced manufacturing facilities and 8 Engineering offices worldwide, Zamil Steel has dedicated people who can design and fabricate your building based on your local requirements.

Innovative Solution
At Zamil Steel, we constantly challenge convention to create value for our customers. Combining the technical know-how of Pre-Engineered Steel Buildings and Structural Steel has enabled us to deliver innovative solutions with commendable results.

Multi-Purpose Solution
From roof systems to floor systems, factories to aircraft hangars, pipe racks to petrochemical plants, Zamil Steel has the experience in engineering, manufacturing, and supplying of steel buildings used for a wide range and variety of applications.

Customized Solution
Leveraging on over 35 years of experience in design and fabrication of Pre-Engineered Steel Buildings, Zamil Steel customizes the perfect fit solution to meet your functional, architecture and financial requirements.

Green Solution
Zamil Steel truly believes in sustainable growth. Environmental and human friendliness are the key features of our buildings. We design our buildings to utilize harmony between the natural sources of light and wind. Furthermore, steel being one of the most recyclable material, has many environmental advantages, considering the sustainability and reusability of the materials.

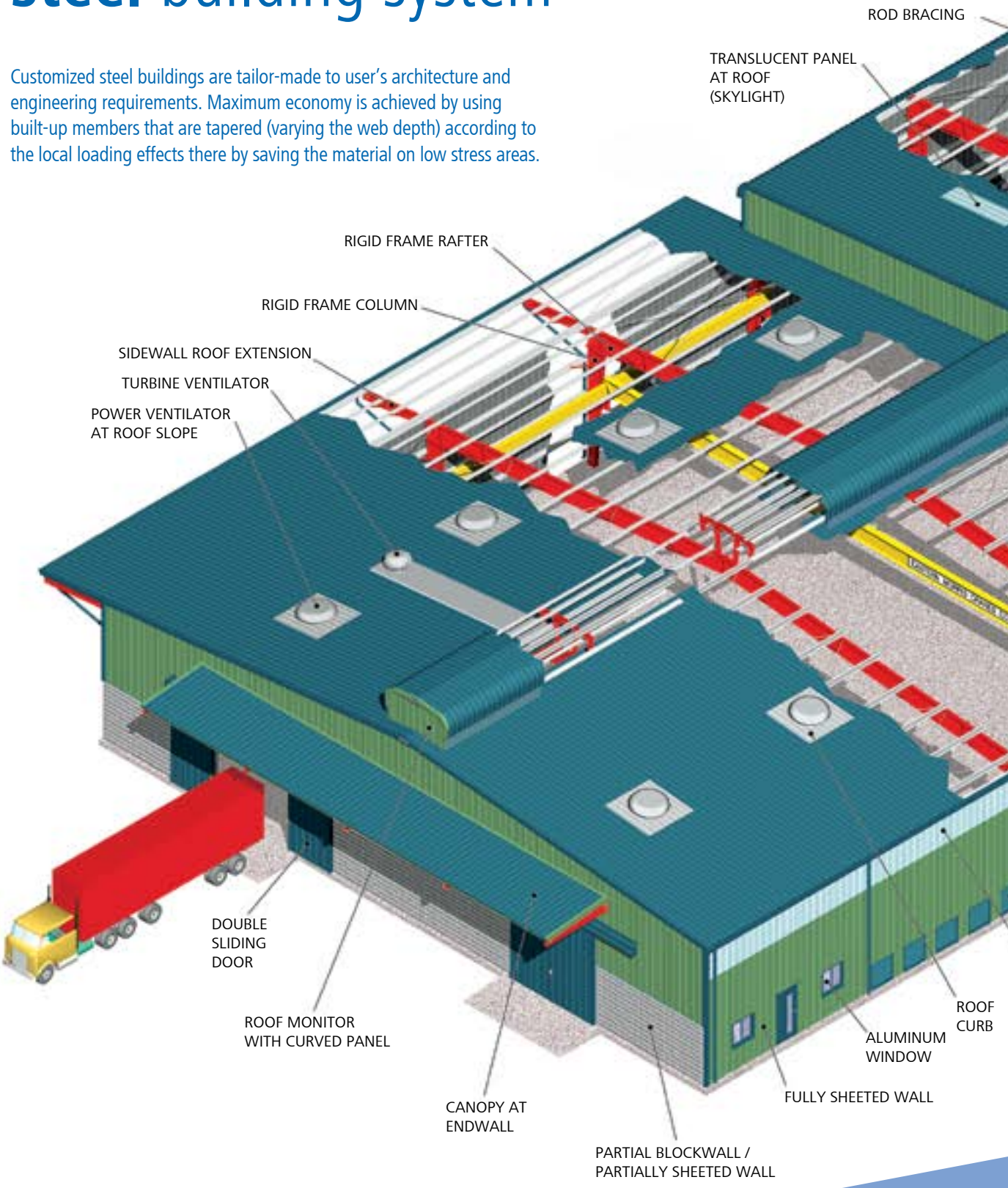
ZAMIL STEEL

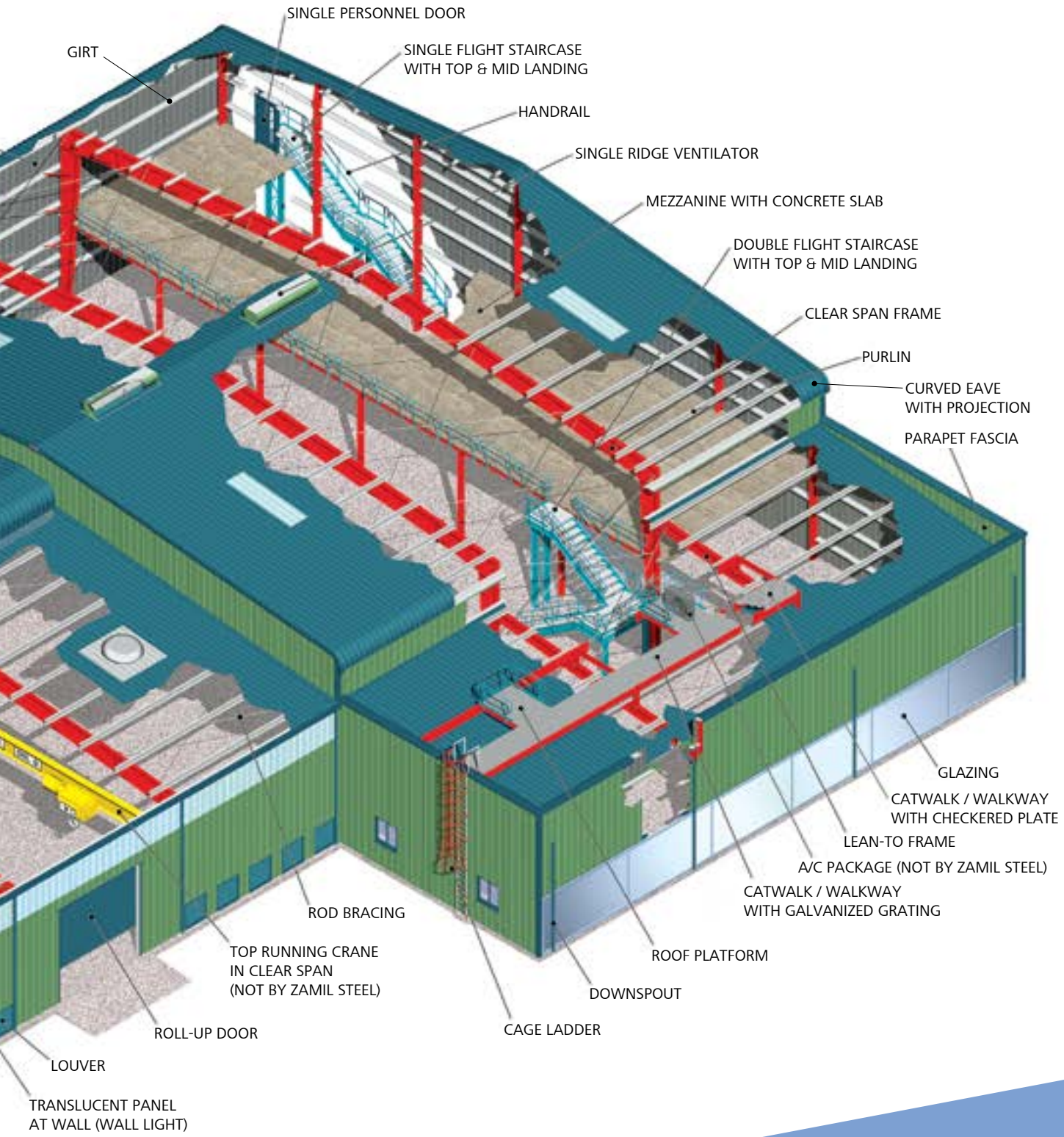
total steel building solutions

pre-engineered steel buildings

the **pre-engineered steel** building system

Customized steel buildings are tailor-made to user's architecture and engineering requirements. Maximum economy is achieved by using built-up members that are tapered (varying the web depth) according to the local loading effects there by saving the material on low stress areas.



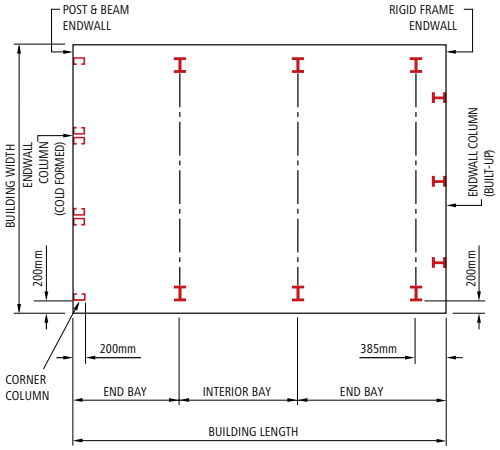


From planning to occupancy, nothing matches Zamil Steel Pre-Engineered Steel Building System in term of speed, value and flexibility.



basic building **parameters**

Zamil Steel Pre-Engineered Steel Buildings are custom designed to meet your exact requirements. The basic parameters that define a Pre-Engineered Steel Building are:



Building Length: Whenever possible maintain equal bay lengths throughout the building. When this is not possible, make all interior bays equal and make the end bays equal but shorter than the interior bays.

Example: A 100m long building will have 10 interior bays at 9m and 2 end bays at 5m or 11 interior bays at 8m and 2 end bays at 6m.

Building Width: Whenever possible make building width a multiple of 3m. This is because roof purlins are spaced at 1.5m and 3m is equal to two purlin spacings one on each side of the ridge.

Building Width: No matter what primary framing system is used, the building width is defined as the distance from outside of eave strut of one sidewall to outside of eave strut of the opposite sidewall.

Building Length: The building length is the distance between the outside flanges of the endwall columns in opposite endwalls. Building length is a combination of several bay lengths.

End bay length is the distance from outside of the endwall columns' outer flange to centerline of the first interior frame columns.

Design Loads: Unless otherwise specified Zamil Steel Pre-Engineered Steel Buildings are designed for the following minimum loads:
Roof Live Load: 0.57 kN/m^2
Design Wind Speed: 110 km/h

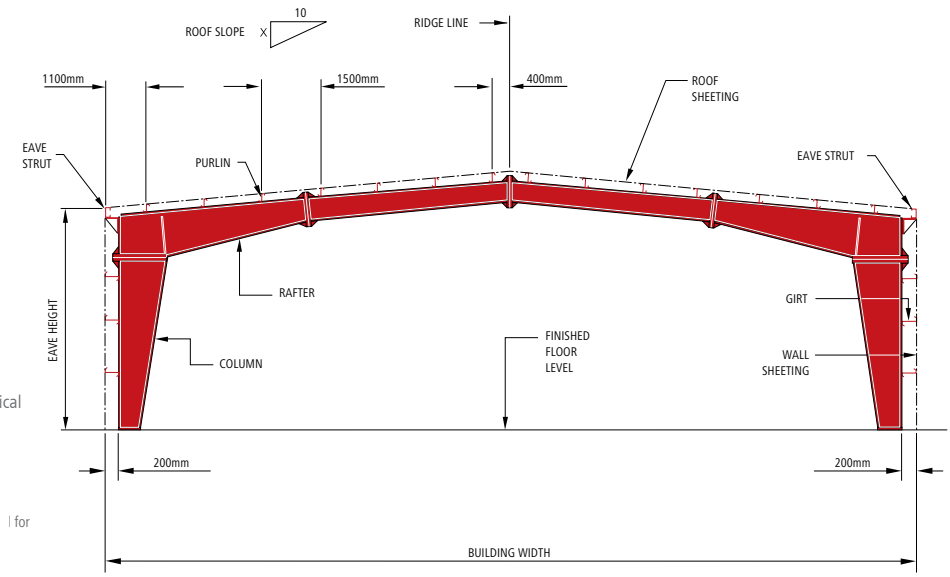
Design parameters for snow loads, earthquake loads, collateral loads, or any other local climatic condition (if required) must be specified at the time of quotation.

Loads are applied in accordance with the latest American Codes and Standards applicable to Pre-Engineered Steel Buildings unless otherwise requested at the time of quotation.

Interior bay length is the distance between the center lines of two adjacent interior main frame columns. The most common bay lengths are 6m, 7.5m and 9m. Any bay length up to 15m is possible.

Building Height: Building height is the eave height which usually is the distance from the bottom of the main frame column base plate to the top outer point of the eave strut. Eave heights up to 30 m are possible. When columns are recessed or elevated from finished floor, eave height is the distance from finished floor level to top of eave strut.

Roof Slope (x/10): This is the tangent of the roof with respect to the horizontal. The most common roof slopes are 0.5/10 and 1/10. Any practical roof slope is possible.

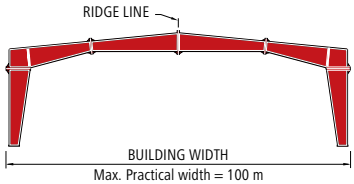


For more details refer to the Zamil Steel's Technical Manual for Pre-Engineered Steel Buildings



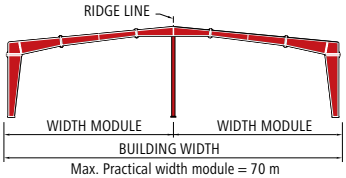
primary **framing systems**

The most common primary framing systems are shown below. All are shown symmetrical about the ridge line. **Framing systems unsymmetrical about the ridge line** and **Multi-span Framing Systems with unequal width modules** are possible but may require more engineering time and possibly longer deliveries. Practically any frame geometry is possible. Consult Zamil Steel's representatives for your specific requirements.



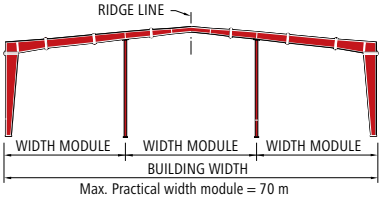
Max. Practical width = 100 m

Clear Span (CS)



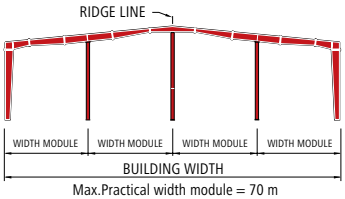
Max. Practical width module = 70 m
Max Practical building with = 140 m

Multi-span "1" (MS-1)



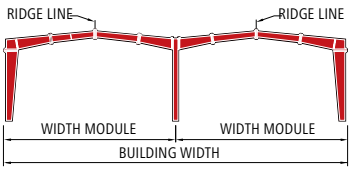
Max. Practical width module = 70 m
Max Practical building width = 210 m

Multi-Span"2" (MS-2)



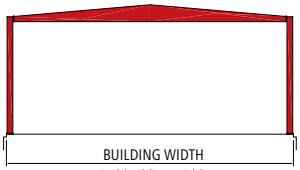
Max.Practical width module = 70 m
Max Practical building width = 280 m

Multi-Span "3" (MS-3)



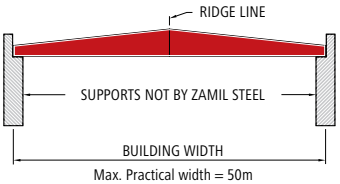
Max.Practical width module = 100 m
Max Practical building width = 200 m

Multi-Gable (MG)



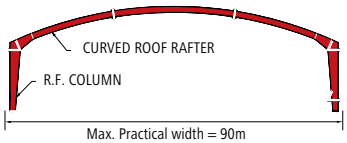
Max Practical building width = 50 m

Spacesaver Building



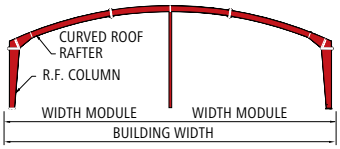
Max. Practical width = 50m

Roof System (RS)



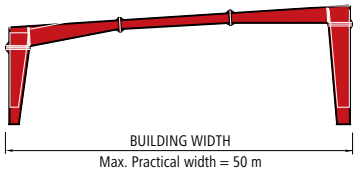
Max. Practical width = 90m

Arched Clear-Span (AS)



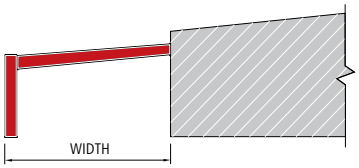
Max. Practical width module = 70 m
More Multi-Spans are possible (AMS-2, AMS-3,...)

Arched Multi-Span (AMS-1)



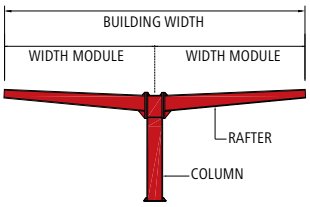
Max. Practical width = 50 m

Single Slope (SS)



Max. Practical width = 24 m

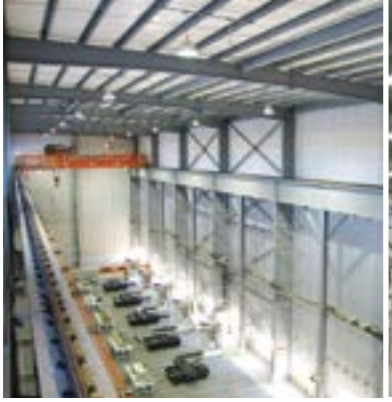
Lean-To (LT)



Max. Practical width module = 6 m
Max Practical building width = 12 m

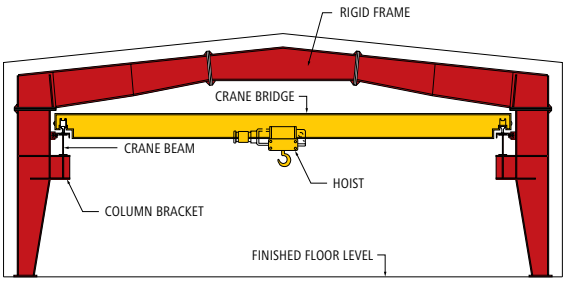
Butterfly (Car Canopy)



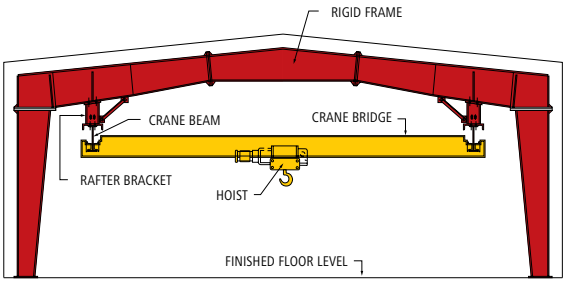



crane systems

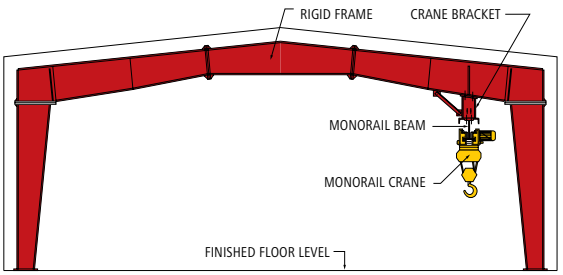
For buildings that require crane system, Zamil Steel will supply the column and rafter brackets based on the requirement of the crane system. While the crane runway beams for top-running and under-running crane systems will be supplied by Zamil Steel; the runway beam for mono-rail crane systems shall be supplied by the crane supplier. Complete crane system details, data, and supplier's name are required for accurate design and estimation of all crane equipped buildings.



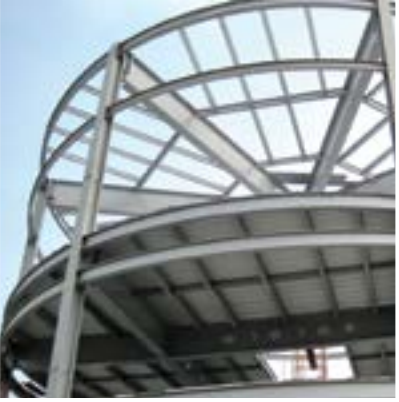
TOP RUNNING CRANE



UNDERHUNG CRANE



MONORAIL CRANE

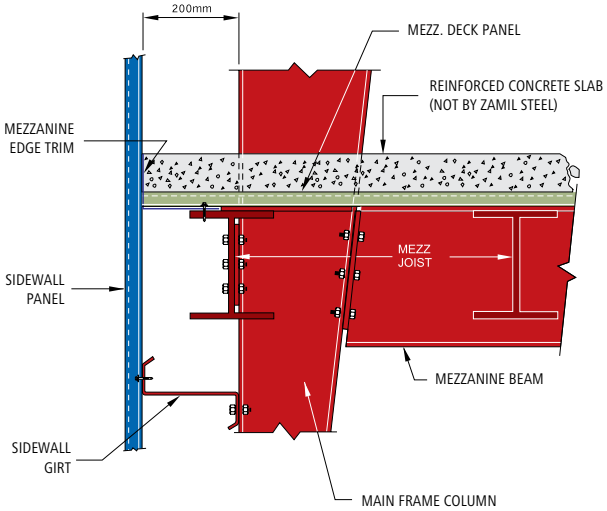


mezzanine systems

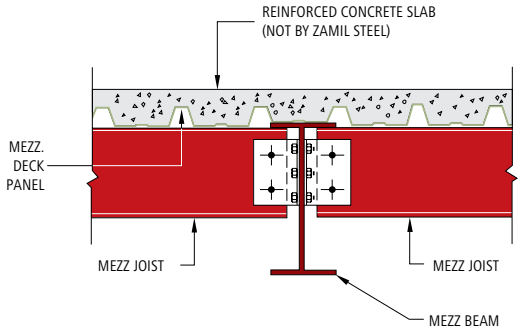
The standard Zamil Steel Mezzanine Framing System consists of a steel deck supported by joists framed onto main mezzanine beams. The main beams may also be supported by intermediate columns if required by design loads. The top flange of the joists fits immediately below the top flange of the primary beams.

The economy of a mezzanine system is affected by the applied loads (dead, live and collateral) and mezzanine column spacing. Consult Zamil Steel's representatives for advice on the most economical mezzanine design. Wherever possible, the primary mezzanine beams should run across the width of the building, in line with the primary frame rafters. Joists should run parallel to the roof purlins along the length of the building.

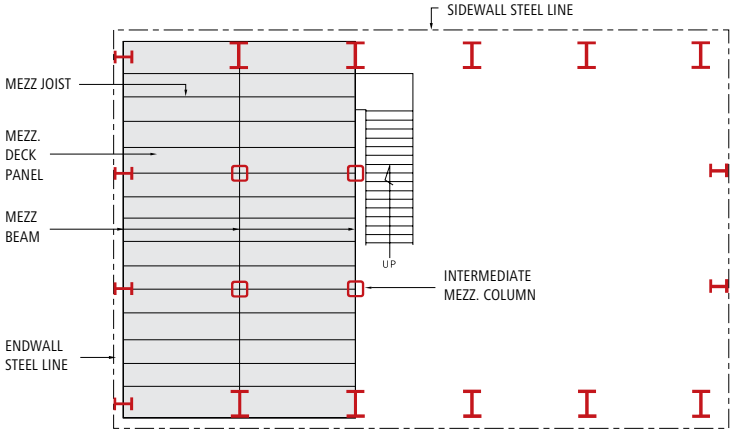
Multi-level mezzanines, interior equipment platforms, catwalks and staircases may also be accommodated if complete design data is available at the time of quotation.



MEZZ. BEAM CONNECTION TO MAIN FRAME COLUMN



MEZZ. JOIST CONNECTION TO MEZZ. BEAM

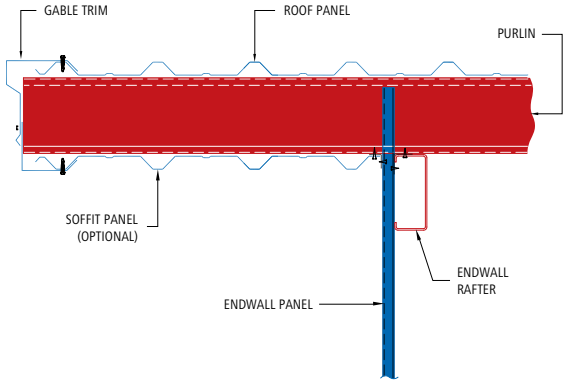


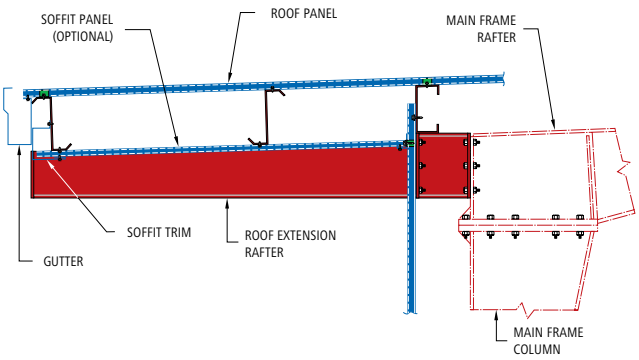
MEZZANINE PLAN

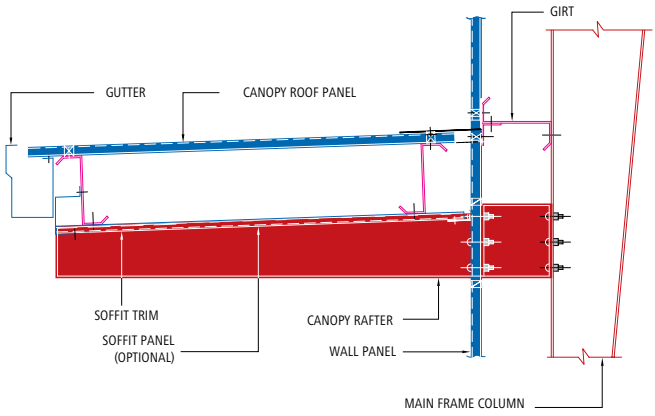
structural **subsystems**

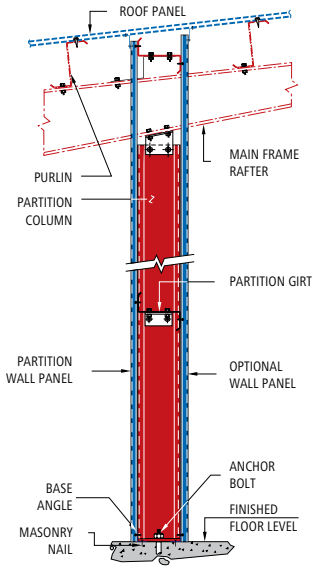
ENDWALL ROOF EXTENSION

SIDEWALL ROOF EXTENSION





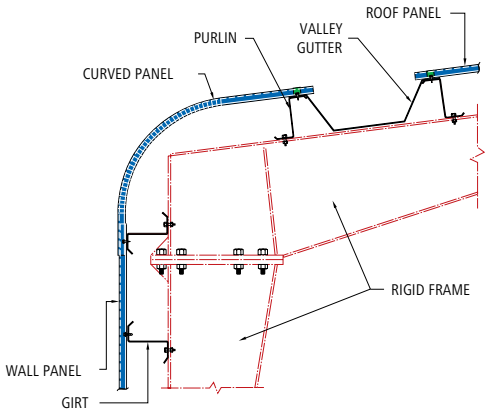




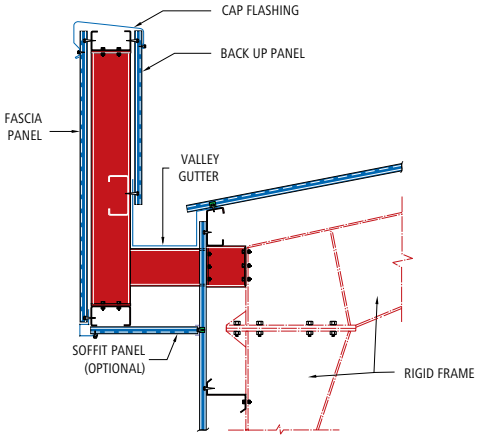
CANOPY

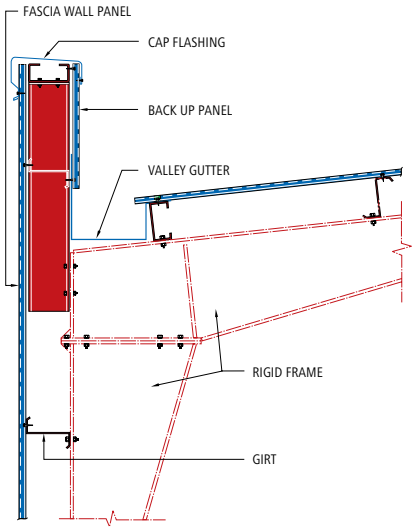
LONGITUDINAL PARTITION

CURVED EAVE WITHOUT PROJECTION (WITH VALLEY GUTTER)

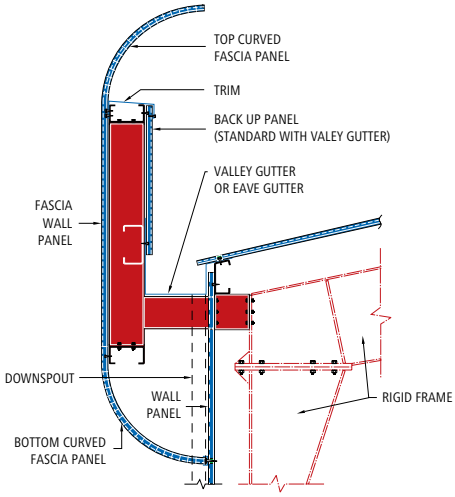


VERTICAL FASCIA WITH BACK UP PANEL AND VALLEY GUTTER

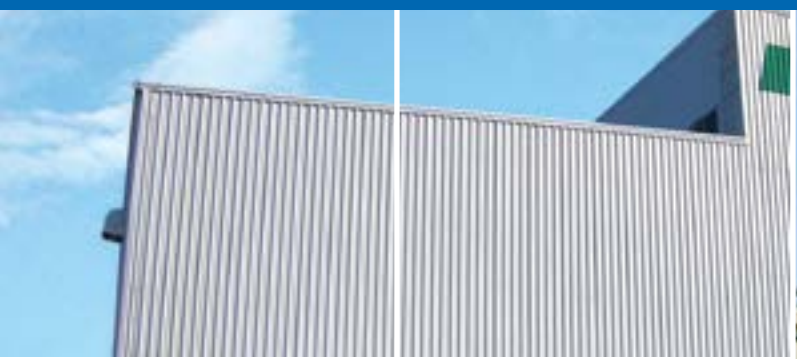




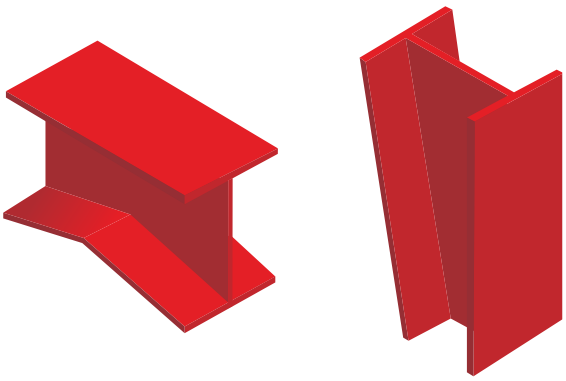
PARAPET FASCIA



TOP AND BOTTOM CURVED FASCIA PANEL



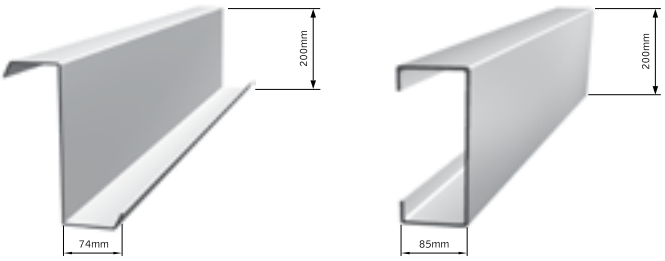
structural **components**



TYPICAL RAFTER TYPICAL COLUMN

PRIMARY BUILT UP MEMBERS
(Minimum Yield Strength is 34.5 kN/cm²)

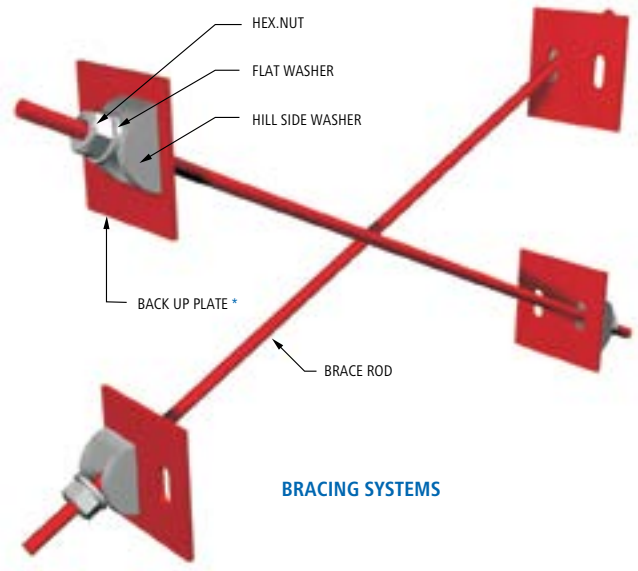
High grade steel plates conforming to ASTM A572M Grade 345 Type 1 (or equivalent). Factory painted with a minimum thickness of 38 microns DFT of red/grey oxide primer.



TYPICAL "Z" SECTION TYPICAL "C" SECTION

SECONDARY MEMBERS
(Minimum Yield Strength is 34.0 kN/cm²)

(Available in 1.5mm, 1.75mm, 2.0mm and 2.5mm thickness) Cold formed from Steel coils, this component conforms to ASTM A653M SS Grade 340 Class 1 (or equivalent) with zinc coating to Z275 designation (275 g/m²).



BRACING SYSTEMS

Rod bracings conforms to JIS G3101 SS400 (or equivalent) with a ultimate tensile strength of 40.0 kN/cm² (other bracing systems are available at the options of ZS Engineering Department).

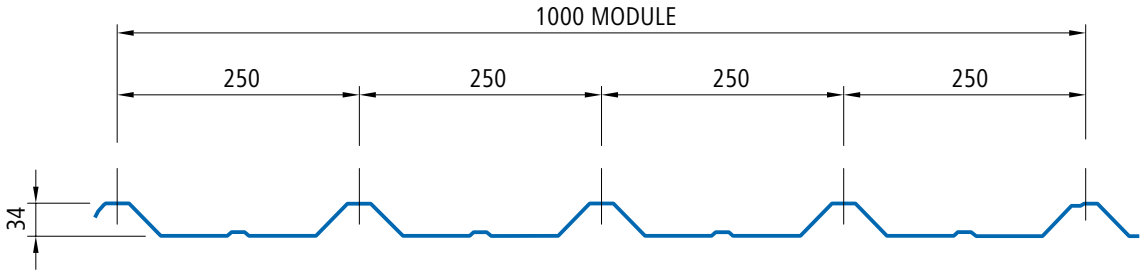
NOTE APPLICABLE AT KNEE:
* For Cases where the knee depth is less than 400mm and web thickness at knee is 8mm and above, **Back-up Plate is generally not provided.**

panels

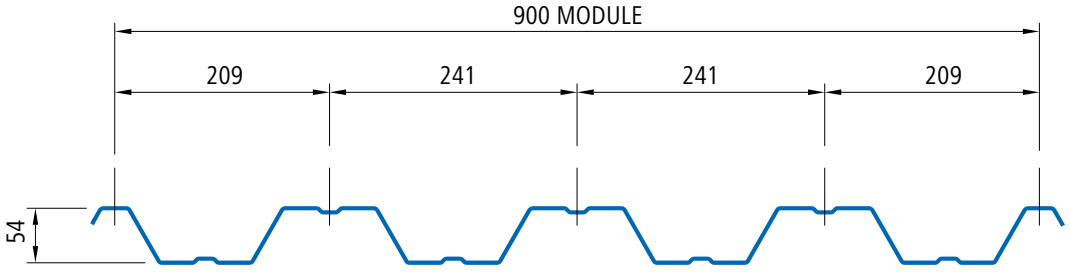
The panels used for Zamil Steel Pre-Engineered Steel Buildings are composed of the followings:

- Base Metal of Zamil Steel Single Skin Panels (Minimum Yield Strength of 34.0 kN/m^2) are coated with Zinc (approximately 55%) & Aluminum (45%), conforming to ASTM A792M-SS Grade 340 Class 2 (or equivalents)
- An exterior surface or weather face coating on pained panels of 5 microns epoxy + 20 microns of high durability polyester
- An interior surface coating on painted panels of 5 microns epoxy + 5 to 7 microns of regular polyester

See Page 21 for color options



0.5MM THICK - TYPE "S" PROFILE PANEL
(For roof and wall application)



0.7MM THICK - TYPE "K" PROFILE PANEL
(For mezzanine decking)

building **accessories**

Aluminum Window

Fixed Louver

Adjustable Louver

Double Sliding Door

Roll-up Door

Personnel Door

Turbine Ventilator

Ridge Ventilator

Power Ventilator

Translucent Panel (Skylight)

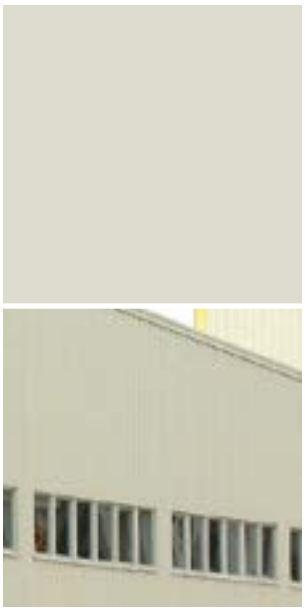
Wall Light

Insulation

standard **panel colors**


Bare Zincalume


Cactus Green


Frost White


Shasta Blue


Galaxy Blue

Actual color may differ slightly from printed examples. Refer to Zamil Steel's "Panel Chart (colors and profiles)" for actual color samples. (Bare Zincalume Steel, panels are available in 0.5mm, nominal thickness in all standard colors).
Panels may be specially ordered to any base metal specification, coating, finish, color and thickness. Consult Zamil Steel's representatives for price and delivery.

* Other colors are available upon request and shall be advised / requested in advance.

sundry items

Anchor Bolts

Bolts & Nuts

Hillside Washers


Coupling Nuts


Fasteners

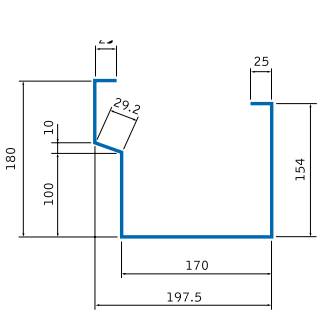

Sealants and Closures

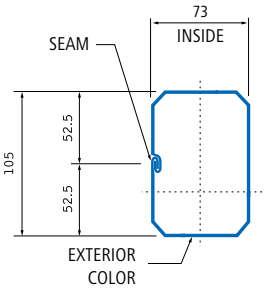
roof drainage components

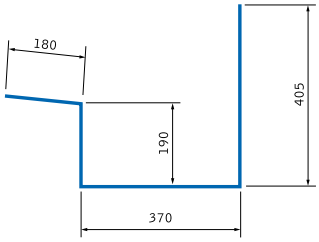
Eave gutters and downspouts are made of the same material as standard single skin panels and available in all standard panel colors.

Valley gutters are made of 1.0mm thick plain Zincalume.

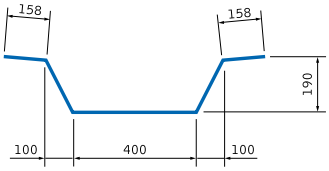
Internal downspouts for valley gutters are not included in Zamil Steel's supply.







TYPE I



TYPE II

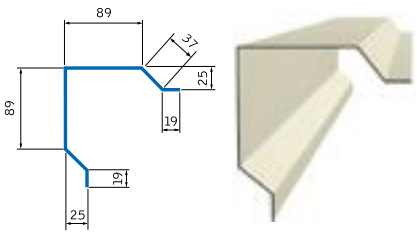
EAVE GUTTER

DOWNSPOUT

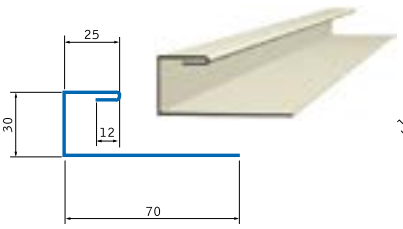
VALLEY GUTTER

trims

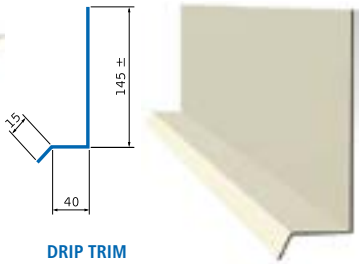
Trims are made of the same material as single skin panels and are available in all standard panel colors. Shown below are the most common trims used in Zamil Steel Pre-Engineered Steel Buildings.



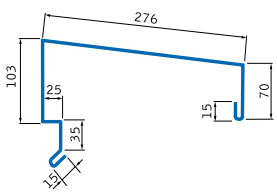
OUTSIDE CORNER TRIM
(at intersection of endwall and sidewall)



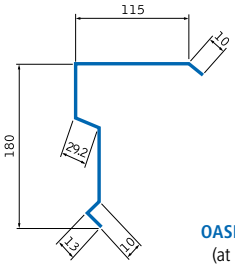
FRAMED OPENING TRIM



DRIP TRIM



CAP FLASHING



OASIS GABLE TRIM
(at endwalls only)

ZAMIL STEEL

total steel building solutions

structural steel



Zamil Steel's strength on structural steel

Besides being the world's largest Pre-Engineered Steel Buildings manufacturer, in 1983, Zamil Steel also diversified into the fabrication of structural steel and plate works for various industrial and commercial applications. Growing with sustainable successes, Zamil Steel is now widely recognized as the Middle East leading structural steel fabricator.

With the proficiency of over two decades of excellent track record in the Middle East, Zamil Steel has expanded its structural steel fabrication to Vietnam in 2008. Zamil Steel Vietnam has in the new Dong Nai factory, invested in a comprehensive fabrication line specializing in structural steel and plate works.

Short Turn-over Days and Practical Conceptual Estimating Strategy

Zamil Steel Vietnam Structural Steel Department (SSD) Estimation Section, adopts Conceptual Estimating and Pricing Strategy.

Whereas, Conceptual Estimating is not just making a good guess at the cost of the steel in a project. It is listening to the owner and understanding the project's goals. It is understanding structural systems, assemblies and their costs. It is comprehending the price of steel, not when it leaves the fabricating shop, but when it is in place on the structure. It is the search for a more efficient and productive way to manage the steel process."

Zamil Steel Vietnam Estimating Team has the skill, expertise and experience to look at the performance specifications and footprint of a structure for the specific project and develop a budget for all of the activities relating to steel in the structure: detailing, fabricating, painting, transporting and erecting.

After receiving New Request for Quotation, Customers BOQ, Drawings and other relevant documents from our Sales Office, Estimating Team conducts initial conceptualization per project basis, in where they can immediately raised some relevant concerns and address clarifications.

Once all relevant information are provided and clarifications were addressed by the customer, Estimating Engineer will proceed with the pricing stage and preparation of Proposal Offer.

A series of review will be set-up to make sure that All assumptions and Deviations was made and the price is reasonable enough to meet Customer Satisfaction.

Zamil Steel Structural Steel Estimating Section's objective focuses on the vision to be the "Provider of the Most Competitive & Precise Structural Steel Prices in the Market in this Region and achieved Total Customer Satisfaction".

Systematic Project Management

In order to achieve the desired outcome on every project, Zamil Steel has a project management team of experienced engineers and skillful professionals dedicated to plan and manage all products and services related activities throughout the project life cycle.

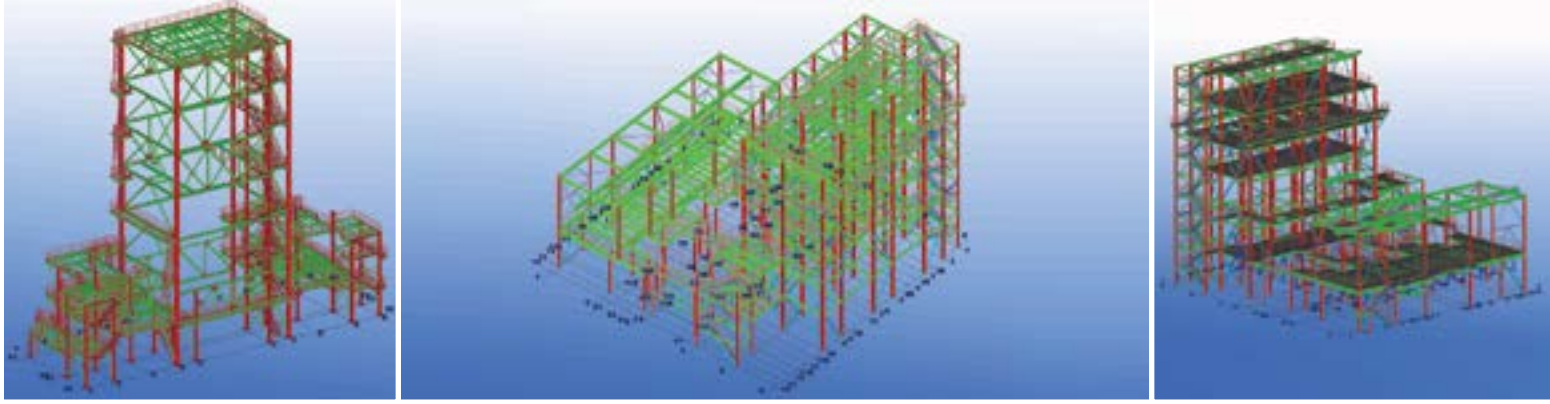
Upon the awarding of a project to Zamil Steel, a Project Engineer will be assigned to handle all technical and commercial matters associated with the project from inception to completion. The project Engineer will also prepare a master delivery plan using our in-house scheduling software defining all milestones and activities taking account into special requirements, size and complexity of the project.

Throughout the execution phase, the Project Engineer proactively monitors, coordinates and reports the progress of the project by Zamil Steel tracking software (Oracle ERP System) within internal departments, resulting in effective and efficient production, thus cutting production lead time, ensuring faster delivery schedules.

Technical and Engineering Expertise

Zamil Steel can serve clients in various engineering and contracting sectors and offer professional expertise that covers all stages of design from conceptual to completion with due consideration of budget and time limitations. In the design stage, especially in the preliminary stages, we give a great value on the optimization of the design for both structural systems and materials.

The experienced and professional detailing engineers of Zamil Steel utilize up-to-date software for detailing and connection design such as:



3D MODELLING USING ZAMIL STRUCTURAL STEEL SOFTWARE

- STAAD PRO for structural analysis design.
- Ram connection design for structural steel system.
- Up-to-date CAD packages such as TEKLA steel structure and AutoCAD to provide accurate and high quality engineering drawings.
- In-house design softwares for detailing.
- Team of professional engineers for CAD data linkage to our Computer Numerical Coded (CNC) equipment for accelerated fabrication.

State-of-the-art Manufacturing

With a covered area of more than 50,000sqm of manufacturing facilities in Vietnam, Zamil Steel ensures products of highest quality and precision by combining up-to-date engineering software with comprehensive modern production equipment like:

- Computer Numerical Coded (CNC) Drill Lines complete with drills and band saws for raw materials and plates drillings.
- CNC flame cutting equipment.
- CNC fully automatic Plate Drilling machines.
- CNC Band Saw.
- CNC Intersecting Bevel Pipe Cutting Machine and the AR-160 Section bending Machine can precisely handle the profile cutting of round or square tubes and bending hollow and HR sections to produce elegant architecture.
- CNC fully automatic Angle line.
- CNC Torch cutting equipment.
- CNC Plasma cutting equipment.
- Fully Automatic Submerged Arc Welding (SAW) Lines.
- Mig Welding machines.
- Stud Welding machines.
- In house 16 wheel shot blasting machinery.
- 75 Overhead and Jib Cranes.
- NTD equipment for weld quality verification.
- Comprehensive container loading facilities.
- Highly qualified fitters and welders certified to AWS/ASME.

Seamless Quality Assurance and Control

An internal Quality Control department ensures all Zamil Steel products are manufactured accordance to stringent international standards and specification. All inspection activities are carried out by engineers certified by professional bodies as follows:

- America Society of Non-destructive Testing (ASNT) Level III, Level II,
- America Welding Society (AWS)
- British Gas Approved Scheme-Certification Scheme for Welding and Inspection Personnel. (BGAS-CSWIP)

Site Support Supervision Services

As part of Zamil Steel Vietnam long term strategy to provide proper support and services to our Customers before and after Sales Services, Structure Steel department who has the role of keeping our Customers satisfied from the date of placing the order with us until building erection is completed. The site support supervision services provided by this department are; but not limited to:

Provide, free of charge, a professional Erection Coordinator to assist the Customer / Client or his engineers and / or the contractor by:

- Directing the contractor to the best way of material unloading as standard procedure.
- Checking jointly the received materials against the Packing List.
- Directing contractor on the proper storage of unloaded materials.
- Supervising and technical assisting during all installation stages, such as: setting up of Anchor Bolts, inspecting of high-strengthen bolts, checking the tolerance of main frame, etc.
- Acting as Zamil Steel representative and promptly responding to customer's requirements at site.
- Advising Erector/Installer how to modify/repair materials at job site (minor repairs).
- Reporting and resolving the claims, materials shortage, materials damages, mismatches, etc. with assistance from Head office.

With this added support and assistance to our customer Zamil Steel want to ensure that the buildings erected in accordance with Zamil Steel Erection Drawings, and following the proper and safe erection procedure.

ZSV Structural Steel lines of expertise include:

- Structural Steel Buildings,
- High rise Buildings,
- Oil & Gas, Petrochemical Plants,
- Heavy Industrial Plants,
- Equipment Support Structures,
- Process Structures,
- Pipe Racks,
- Built-up Girders and Columns.

MaxSEAM™

the **ultimate roofing** system

The Zamil Steel MaxSEAM roof system is one of the strongest and most weather-tight standing seam roof systems available in the industry today. The 360 deg. seam along the side laps of the panel; the special Articulating clip-ArtiFloat; and the carefully engineered system for strength, durability and weatherability are but a few of its outstanding features.

The MaxSEAM roof system acts as a monolithic membrane that completely protects your building. It is the most recommended roof system for tropical, rainy, snowy or high wind (cyclonic) regions.

Using the Zamil Steel SuperSEAMER machine, the side laps of adjacent panels are seamed together creating a 360 deg. double lock seam, which has machine-applied butyl sealant to ensure a secure, weathertight leak-proof joint.

To further improve the weathertightness of this roof system, the end laps may be eliminated by rolling MaxSEAM panels on site, using a mobile roll former. Standard MaxSEAM panels (rolled formed in the factory) have a maximum length of 11.5m, while Panels rolled on site can achieve a length up to 90 meters.

Weathertightness

MaxSEAM acts as a monolithic membrane that completely protects your building from adverse weather. Designed as a water barrier, the raised seam assists drainage at critical areas and, along with the machine-applied sealant (inside the seams), it increases the lap sealing to 100% tightness.

Thermal Movement

The fastening system of MaxSEAM is designed to handle the potentially damaging effects of thermal movement (especially heat expansion). The ArtiFloat clip, that holds the panels in place, is concealed inside the raised seam. It is a unique clip with a moveable feature allowing the panel to expand and contract freely with temperature changes without restraint, i.e., giving the roof surface a "floating" action and correcting the out-of plane sub-framing alignment to a maximum of 7 deg. The concealed clip system; a boltless connection to sidelaps also results in fewer through roof fasteners, minimizing the probability of leakages.

Cost Effectiveness

The life cycle cost of the MaxSEAM roof system is lower than any other conventional steel panel roof system. Using Zincalume-coated steel panel, its life expectancy is longer and lesser maintenance is required Zincalume is a corrosion resistant Zinc/Aluminum alloy coating (AZM 150) that comprises of approximately 55% aluminum and 45% Zinc, by weight).

Testing Credentials

MaxSEAM has been tested under ASTM E1646 -95 "Standard Test Method for Water Penetration through Exterior Metal Roof Panel System" and ASTM E1680-95" Test Method for Rate of Air Leakage through Exterior Metal Roof Panel System".

FM Approvals also certifies MaxSEAM as Class 1 Panel Roofs, conforming to FM Approvals Standard 4471 (1995) with examination included simulated wind uplift pressure testing, resistance to foot traffic testing, ASTM E108 spread of flame testing, and hail damage testing.

Uplift Ratings

MaxSEAM carries UL90 Uplift ratings, tested with a wide range of installation procedures. MaxSEAM has met all test requirements as specified in CEGS 07416 Standing Seam Metal Roof System Guide Specification.

MOBILE ROLL-FORMER MACHINE

SUPER SEAMER

FM APPROVED

Starts and Ends with Raised Seam

Most other Standing Seam Roof systems are unable to achieve a high rib profile at gable end due to field cutting of final panel. With MaxSEAM, the gable at both ends of the roof, finishes with a 76mm high raised seam made possible by our SuperSEAMER; thus avoiding finishing in the low, flat part of the final panel where the greatest possibilities for leaks occur.

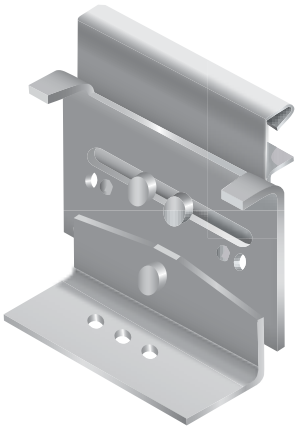
Field Seamer and Mobile Roll-Former

MaxSEAM roof panel can be roll-formed up to a length of 90m on site by our Mobile Roll-Former to reduce the endlaps on large span structures. After which, the SuperSEAMER machine will be used to seam the side laps of adjacent panels together to create a 360^0 double lock seam, which has a factory-applied mastic to ensure a secure and weather-tight leak proof seam.

Quality Materials

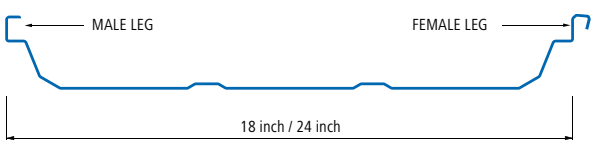
MaxSEAM panels are available in 18" width, 0.5mm and 0.53 mm thickness steel with a total of 150g/m^2 Zincalume coated on both sides.

It is no wonder that MaxSEAM is fast becoming the preferred roof system for a growing number of commercial, industrial and institutional buildings.



Artifloat clip eliminates binding and friction

The sliding clip consists of a single component steel base interlocks with two components sliding steel tab



MAXSEAM PANEL CROSS-SECTION


Canon Manufacturing Factory in Thang Long IP, Hanoi City


Nike Shoes Factory in Dong Nai Province


Nghi Son Refinery And Petrochemical Complex in Vietnam


Ariston Factory in Tien Son IP, Bac Ninh Province


Intel Factory in District 9, HCM City

Honda Manufacturing Facility in Vinh Phuc Province


Texhong Ngan Long Textile Factory in Quang Ninh Province


Lotus Steel Factory in Song Than IP, Binh Duong Province


Marketing Center in Bac Anh Khanh IP, Hanoi

Yamaha Manufacturing Plant in Noi Bai IZ, Hanoi City


Crown D & I Beverage Cans Plant in Da Nang City

Samsung Electronics Factory in Bac Ninh Province

Phu My Fertilizer Plant in Phu My, Vung Tau Province

Foxconn Factory in Que Vo IP, Bac Ninh Province

Pomina Steel Factory in Ba Ria Vung Tau

Nui Phao Mining Project in Thai Nguyen Province

SSC Dinh Vu Steel Mill in Hai Phong City

major projects in Vietnam

Sanyo Vietnam Electronics Factory in Tan Thuan EPZ, HCMC

Yazaki Manufacturing Plan in Hai Phong City

Lotus Phu My Factory in Vung Tau Province

Fujitsu Factory in Bien Hoa EPZ, Dong Nai Province

Braun Building Project in Bac An Khanh, Hanoi

Airasia Aircraft Hangar in Malaysia

Ruby Hall in Nay Pyi Taw, Myanmar

Caterpillar Factory in Batam Island, Indonesia

Royal Interpack Factory in Thailand

Boro Gold Mill Plant in Mongolia

Pipe rack structure for Jurong Aromatics Complex in Singapore

Ikegai Machinery Manufacturing Facility in Japan

Santics Laos Factory in Laos

Crown Factory in Thailand

Bulk Urea Storage Building in Sabah, Malaysia

Megamal Project in Philippines


Aviation Hangar Using 60m OWSJ Rafters in Myanmar


Changi Airshow Exhibition Center in Singapore

New Cold Rolling Mill for Bahru Stainless in Malaysia


Sentosa 5 storey Office in Singapore


NPK Fertilizer Plant in Malaysia


Petrosea Conveyer System in Indonesia

major projects in Asia Pacific


Suds Sugar Mill in Mauritius


Epanggar Facilities Hangar in Malaysia


Crown D & I Beverage Can Plant Sihanoukville Factory in Cambodia


Tonasa Coal Fired Plant in South Sulawesi, Indonesia

Posco Warehouse in Philippines

ZAMIL STEEL

total steel building solutions

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Fax (84-4) 3582 0801
Email zsv.marketing@zamilsteel.com

Hanoi Factory
Noi Bai Industrial Zone, Quang Tien Village,
Soc Son District, Hanoi, Vietnam

Dong Nai Factory
Amata Industrial Park, Bien Hoa City, Dong Nai Province, Vietnam

Representative Offices
Vietnam • Thailand • Singapore
Philippines • Myanmar • Malaysia
Laos • Indonesia • Cambodia • Bangladesh

Other Factories
Saudi Arabia • Egypt • India • United Arab Emirates

www.zamilsteel.com.vn

As of March 2016