

INTRODUCTION

Accumech Building System P. Ltd. provides best quality profiled Roofing, Ceiling and Pre-engineered Building System. The demand in the market and due to our services and goodwill in the market, we have a never ending expansion program to increase our production capacity by incorporating latest technology, Hi speed machinery to yield high quality and zero defect products.

ABS Pre-Fab Building System

ABS Pre-Fab Building System is custom designed to meet client requirement. The basic building parameters are:-

Building Length:

The distance between the outside flanges of end wall columns in opposite end wall is considered the building length.

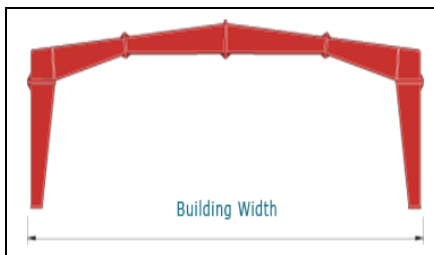
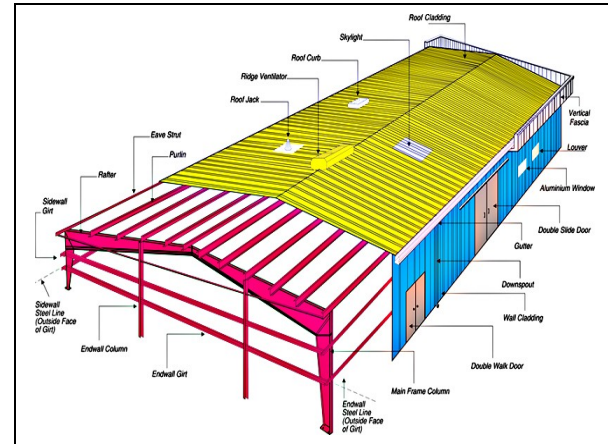
End bay length is the distance from outside of the outer flange of end wall columns of center line of the first interior frame columns.

Interior bay length is the distance between the center lines of two adjacent interior main frame columns.

The most economical bay length is 6m or 7.5m. However 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 30m are possible. When columns are recessed or elevated from finished floor, eave height is the distance from finished floor to top of eave strut.



Roof Slope (x/10):

This is the angle of the roof with respect to the horizontal. The most common roof slopes are 1/10 and 1/20, though any practical roof slope is possible as per customers requirement.

Design Load:

Unless otherwise specified Ambient Building Systems Pre-Fab building system are designed for the following minimum loads.

Roof Live Loads:

0.75 kN/m² Design for snow loads, seismic loads, collateral loads, or any other local climatic condition (if required) must be specified at time of quotation.

Loads are applied in accordance with the latest American codes and standards applicable to pre-engineered buildings unless

otherwise requested at the time of quotation.

Design Wind Speed:

As per IS : 875 for location

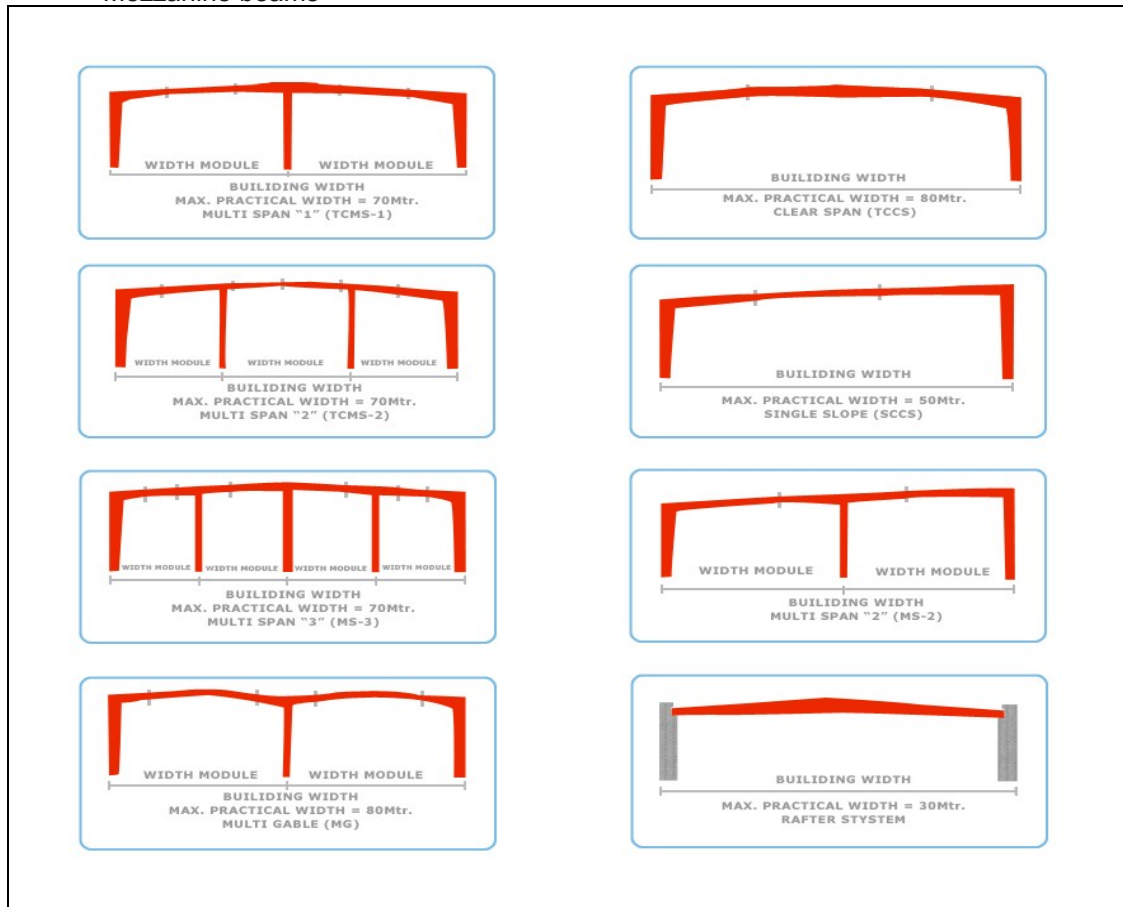
PRIMARY FRAMING SYSTEMS

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 system with unequal width modules are possible but may require more engineering time and probably longer deliveries. Practically any frame geometry is possible. Consult us for your specific Requirements.

PRIMARY FRAMING CONSISTS OF ALL STRUCTURAL ELEMENTS TRANSFERRING LOAD TO THE FOUNDATIONS.

PRIMARY FRAMING MAINLY CONSISTS OF:

- Intermediate frames
- Endwall frames
- Wind Bracings
- Crane brackets
- Mezzanine beams



INTERMEDIATE FRAMES CHARACTERISTICS:

Intermediate frames consist of built up welded primary framing members. These are either C.R.S.sections, hot-rolled profiles, or built-up welded profiles.

Frames are complemented by flange bracing, connection bolts and anchor bolts. Generally, the base of the intermediate frame

is pinned. Certain circumstances demand a fixed base approach.

PROTECTION:

All efforts for protection during transportation and erection are made. All profiles receive a shop primer coat of either red or gray color.

Optionally, a finished coat also can be provided, on request.

WIND BRACING:

Wind bracing provides longitudinal stability for the building. It consists of cross bracing located in the roof and side walls in one or more days depending on loadings and the length of the building. When required, cross bracings can be replaced by wind portal frames or by fixed base wind columns located adjacent and connected to the main frame columns.

Secondary framing Systems

Secondary framing consists of the elements which support the roof wall sheeting and which transfers loads to the primary frames.

PRIMARY FRAMING MAINLY CONSISTS

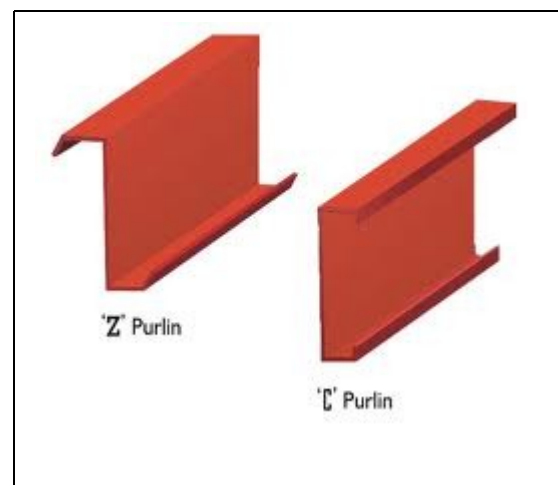
OF: Intermediate frames

Endwall frames

ABS Z- purlins are cold roll framed Z Profiles of 100mm – 300 mm deep formed out of 1mm – 3mm thick steel (245MPa/345MPa); fixed to the rafters of the primary structures.

The purlins are usually joined by means of galvanized bolts as per the jointing details mentioned.

ABS Wall grits are cold roll framed in “C” & “Z” shape profiles of 100mm-300mm deep formed out of 1mm-3mm thick steel and connected as per details.



Surface Treatment of “C” & “Z” Profiles:

ABS “C” & “Z” profiles are cold roll formed out of steel coils. They are first degreased, phosphated and then primer finished with Zinc Chromate Red Oxide paint matching test requirement of IS : 4777 and IS : 2074

For adverse climatic conditions, special corrosion treatment is offered as and when needed.

ABS “C” & “Z” profiles offers galvanized coated steel in 120 GSM/ 175 GSM and 275 GSM coating as per requirement.

MATERIALS

The materials that we use for manufacturing are of high quality Galvalume, PPGI, G.I., CR and high tensile steel for Pre-Fab structures and are sourced from the best manufacturer.

Technical specification of Ambient Building Systems Pre-coated G.I. Steel

| | |
|------------------------------|--------------------------|
| Substrate | IS 513 Cold Rolled Steel |
| Coils Tensile Strength | 240 Mpa-550 Mpa |
| Galvanizing | As per IS 277 |
| Zinc Coating | 120 GSM – 150 |
| GSM Pre-painting | IS 14246 |
| Type of Coating | RMP/SMP |
| Total Coated Thickness (TCT) | 0.50mm – 0.80mm |

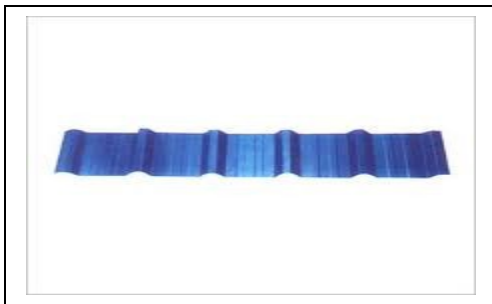
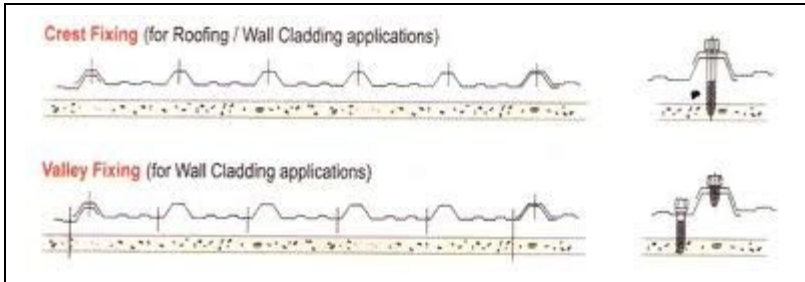
Technical Specification of Galvalume

| | |
|------------------------------|---|
| Substrate | 55% Aluminum, 43.4% Zinc & 1.6% Silicon |
| Tensile Strength | 550Mpa |
| Coating Standard | As per AS 1397-1993 |
| Coating Mass | AZ 150 |
| Base Metal | High Tensile Steel |
| Total Coated Thickness (TCT) | 0.47mm- 0.60mm |

ABS Hi Rib Roofing Systems

ABS Hi Rib roofing profile is manufactured from Pre-painted galvanized steel (PPGI)/Al-Zn alloy coated steel (Bare Galvalume) and color coated Al-Zn alloy coated steel (Color Coated Galvalume) with a cover width of 1010mm, overall width of

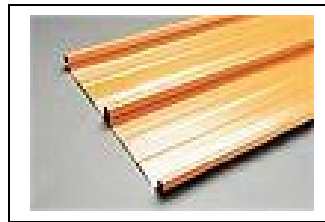
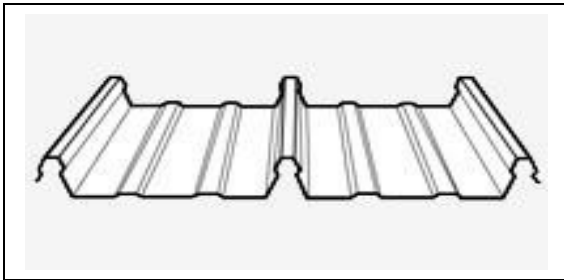
1050mm, pitch of 200mm and a crest height of 30mm with two stiffening Hi Ribs in between. ABS Hi Rib roofing can be fixed on both roof and wall cladding and any slope and height as per the designer's choice.



| DATA TABLE | Thickness of Base Metal (mm) | Thickness of Total Coated (mm) | Mass Per Unit Area (Kg./m²) |
|---|-------------------------------------|---------------------------------------|---|
| Galvalume – AZ 150, 550Mpa (Bare) | 0.42 | 0.47 | 4.28 |
| Color Coated Galvalume –AZ 150, 550 Mpa | 0.45 | 0.50 | 4.40 |
| Color Coated Galvanized Steel- AZ-120 GSM, 240 Mpa | 0.45 | 0.50 | 4.50 |

ABS Clip Lock Roofing System:

This profile is designed to be fixed to roof purlins or wall cladding in order to have a puncture free roof with concealed fastening. This system is manufactured from Galvalume- Bare and Color Coated and PPGI. The profile is formed in the standard width of 435mm with a pitch of 217.50mm and crest height of 41mm. ABS Clip-Clip Lock system is available up-to any length depending upon the requirement of the size.



ABS roofing sheet is available in the following base materials in standard execution.

| Description | Total Coated Thickness (mm) | Approx. mass per unit area Kg/m² | Approx. mass coverage m²/mT |
|-------------------------------|------------------------------------|--|---|
| Bare Galvalume | 0.47mm | 5.16 | 193.79 |
| Color Coated Galvalume | 0.50mm | 5.50 | 181.80 |
| Color Coated Galvalume | 0.55mm | 6.04 | 165.56 |
| Color Coated Galvalume | 0.58mm | 6.40 | 156.25 |

FIXING PROCEDURE

ABS Clip Lock roofing profile is fixed using specially designed clips, for strongly holding the roofing panels. While using these clips, the lap is placed just clear of and on the high side of the clip. These clips provide allowance for expansion.

ABS Crimp

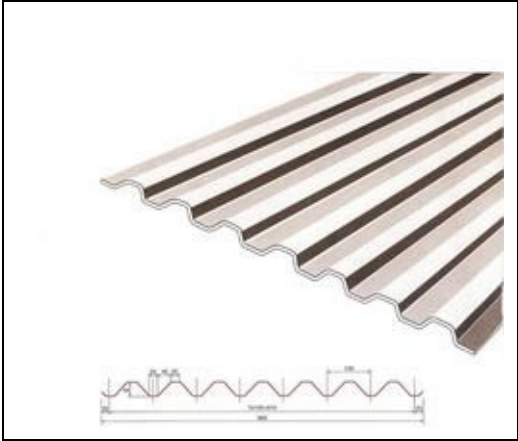
ABS Crimp Profile – ABS Hi Rib profiles are available in concave and convex curved sheets to give architectural aesthetic to the building. The minimum recommended radius is 500mm.



ABS Deck

ABS Deck can be used as composite floor system or as a permanent form work. The fast and simple installation of this high strength platform gives immediate access to a walking platform. It save considerable construction time which in turn saves in overall cost, safety and accessibility of the project.

ABS Deck is cold formed in 44mm depth, 130mm pitch, cover width of 910mm and overall width of 960mm out of galvanized and HR Coils in the thickness of 0.80mm to 2.5mm.



Used in composite design, Accumech Building System P. Ltd. Decking System which performs as positive reinforcement and a permanent formwork providing saving in concrete and reinforcement.

| | | | |
|---|------|-------|-------|
| 1 | 0.60 | 6.37 | 5.80 |
| 2 | 0.80 | 8.50 | 7.74 |
| 3 | 1.00 | 12.29 | 10.20 |
| 4 | 1.20 | 12.43 | 11.56 |
| 5 | 1.60 | 16.57 | 15.37 |
| 6 | 2.00 | 20.71 | 19.14 |
| 7 | 2.50 | 25.89 | 23.94 |

| | | | |
|------------------|-------------------|-------------------|-------------------|
| Material | Galvalume | Pre-Coated | Galvanized |
| Thickness | 0.47 – 1.6 | 0.5 – 1.6 | 0.45 – 1.6 |
| Coating | Alu-Zin 150GSM | Zinc 120GSM | Zinc 120GSM |
| Length | Upto 12 Mtr | Upto 12 Mtr | Upto 12 Mtr |
| Color | As per Color Shed | As per Color Shed | As per Color Shed |
| Strength | 340 | 240 – 340 | 240 - 700 |

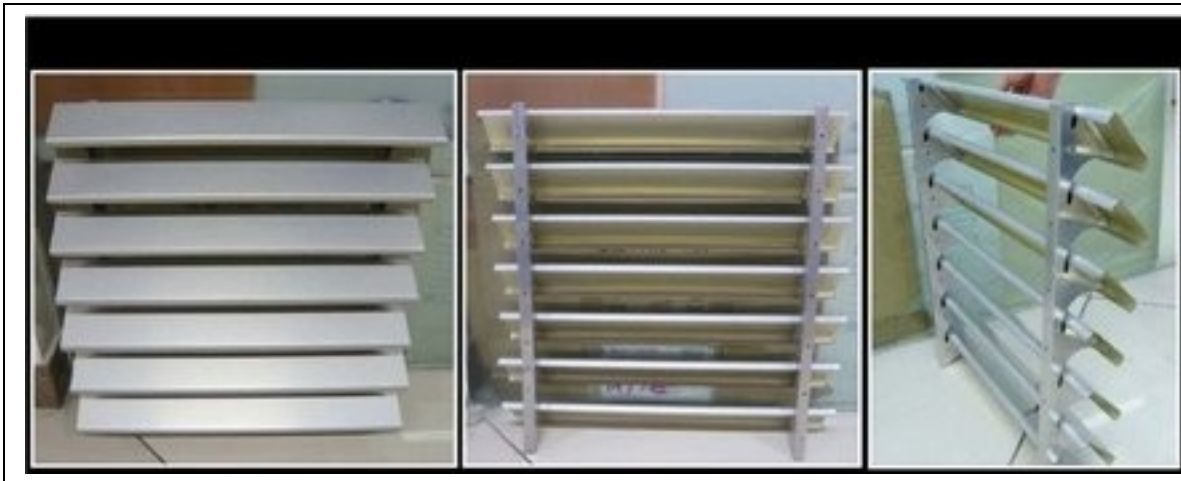
LOAD BEARING CAPACITY OF DECK

| S. No. | Thickness | SPAN in Meter | | | | | |
|--------|-----------|---------------|-------|-------|-------|-------|-------|
| | | 1 | 1.2 | 1.4 | 1.5 | 1.6 | 1.7 |
| 1 | 0.45 | 500.0 | 370.0 | 270.0 | 235.0 | 205.0 | 185.0 |
| 2 | 0.50 | 590.0 | 410.0 | 300.0 | 260.0 | 230.0 | 205.0 |
| 3 | 0.55 | 645.0 | 445.0 | 329.0 | 285.0 | 250.0 | 220.0 |
| 4 | 0.60 | 700.0 | 485.0 | 355.0 | 310.0 | 275.0 | 240.0 |
| 5 | 0.65 | 760.0 | 525.0 | 385.0 | 335.0 | 295.0 | 260.0 |
| 6 | 0.80 | 930.0 | 640.0 | 475.0 | 410.0 | 360.0 | 320.0 |

ABS Louvers

ABS Louvers are designed and applied in custom lengths ready for quick installation. The special designs allow free flow of air, restricting entry of water and dust. They are light in weight and ready to install with a long and are maintenance free and

can be supplied in various colors and formed using Galvalume and Color Coated Steel.



ABS Vents

ABS Vents are designed to run without electricity maintenance. It generates fresh air inside round the cClip Lock. It improves work efficiency and increase productivity. It is silent, economical and ecological.



ABS Vents required for particular area:-

$$\text{1. No. of Ventilators required} = \frac{\text{Ventilation Rate (Q)}}{\text{Exhaust Capacity}}$$

2.Required Ventilation rate ventilated (H3) =
Volume x Air Charge Rate

600

3.Volume of space to be ventilated (H3) = LxWxH

4.Select Air Change Rate from Table A

5.Select Exhaust Capacity from Table B as per your requirement

6.Temperature differences (OC) and wind velocity

TABLE A : REQUIRED AIR CHANGE RATES

| Type of Building | Air Change @per hour | Type of Building | Air Change @per hour |
|---|----------------------|---|----------------------|
| Ware House | 4 – 6 | Engine room /Laundry & Plastic Fatory | 10 - 30 |
| Textile Mill / Auditorium | 8 – 15 | | |
| Factories(Light) / Hall | 6 – 12 | Heavy Factory / Transformer Room | 15 - 40 |
| Paper Mill / Brewery Oil Mill / Packing Room | 8 – 30 | Paper Mill / Brewery Oil Mill / Packing Room | 15 - 60 |

TABLE A : REQUIRED AIR CHANGE RATES

| WIND Velocity (mph) | | 5 | | | 8 | | | 10 | | |
|---------------------|----------------------|-------------------------|------|------|------|------|------|------|------|------|
| Temp Diff. OC | | 3 | 5 | 10 | 3 | 5 | 10 | 3 | 5 | 10 |
| Model No. | STACK (Height (Ft.)) | Exhaust Capacity in CPM | | | | | | | | |
| HAV. 500 | 10 | 939 | 1000 | 1102 | 1436 | 1498 | 1600 | 1792 | 1858 | 1958 |
| | 20 | 1005 | 1084 | 1216 | 1503 | 1582 | 1714 | 1859 | 1938 | 2070 |
| | 30 | 1058 | 1154 | 1314 | 1556 | 1652 | 1812 | 1916 | 2010 | 2168 |
| | 40 | 1107 | 1216 | 1394 | 1605 | 1714 | 1896 | 1961 | 2070 | 2252 |