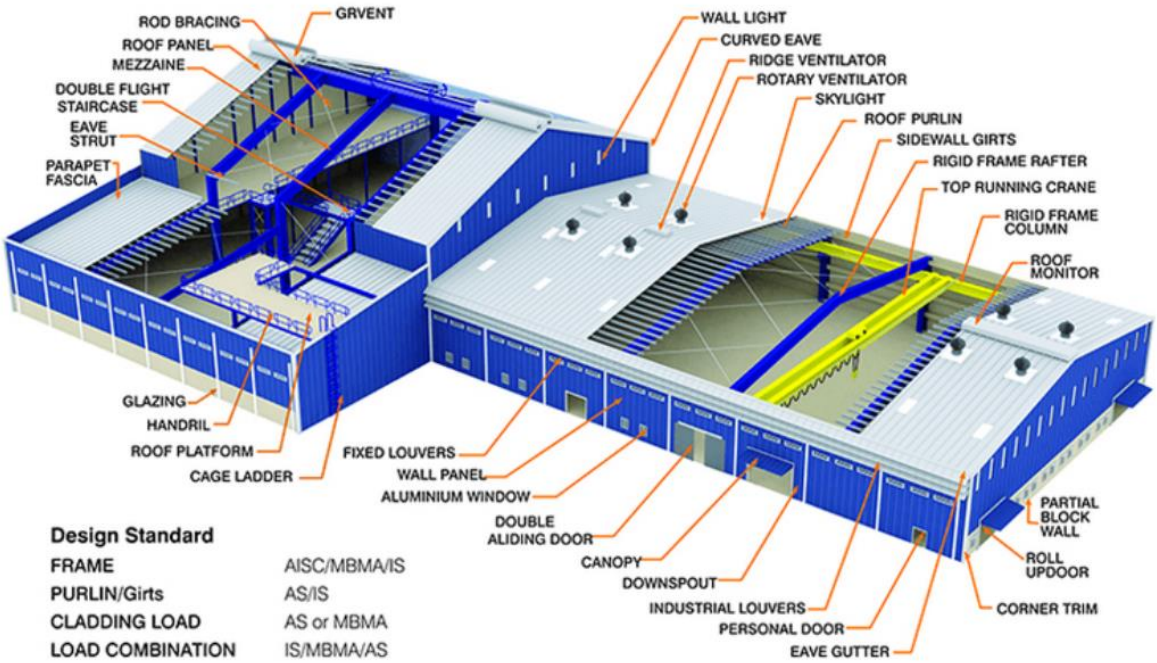

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General

- **1.1 - Definition**
- 1.1.1 - The building, as specified herein, consist of Columns, Rafters, Bracing, connection clips, roof purlins, wall garters, roofand wall sheeting, anchor bolts, flashing, trims, etc.,or as specified all materials shall be new and free from defects.

- 1.1.2 - The main buildingstructure comprises single or multiple gable interior rigid frames with either rigid or "post-and-beam" frames at the end walls.

- 1.1.3 - The standard roof slopes are 0.5 or 1.0 unit of Vertical rise to 10 units of horizontal run.Other Slopes are available upon request.

- 1.1.4 - The sidewall steel line is the plane of the inside vertical surface of the sidewall sheeting.It is also the plane of the outside vertical surface of the eave strut.

- 1.1.5 - The end wall steel line is the plane of the inside vertical surface of the end wall sheeting.It is also he plane of the outside vertical surface of the outer flange of the end wall garters

- 1.1.6 - The building width is the distance between the steel lines of opposite sidewalls.Building width does not include the width of Lean-To buildings or roof extensions.
  The width of a Lean-To building is the distance from the steel line of the exterior sidewalls of the Lean-To building to the (sidewalls or end walls) steel line of the main building to which the Lean-To building is attached.

- 1.1.7 - The building length is the distance between the steel lines of opposite end walls.Building length is a combination of several bay lengths. Building length does not include the width of end wall Lean-To buildings or roof extensions.

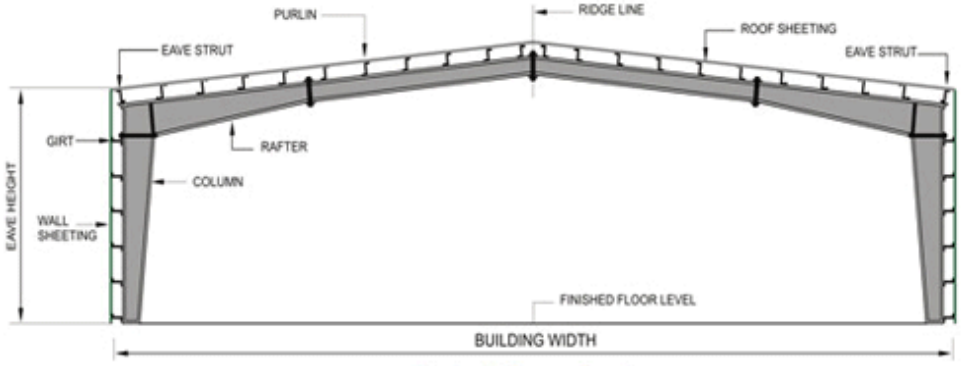
- 1.1.8 - End bay length is the distance from the outside of he outer flange of end wall columns to the center line of the first interior frame.

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

- 1.1.10 - The building eave height is the distance from finished floor level (FFL) to the top of the eave strut at the sidewalls steel line.

- 1.1.11 - The building clear height is the distance from finished floor level (FFL) to the bottom of the end plate of the rafter at the knee.

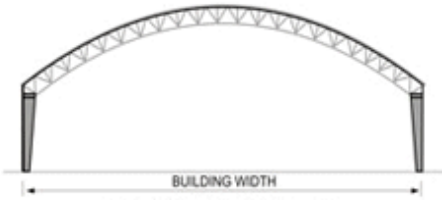
- *1.2 - Standard Structural Framing Systems*



Typical Cross Section

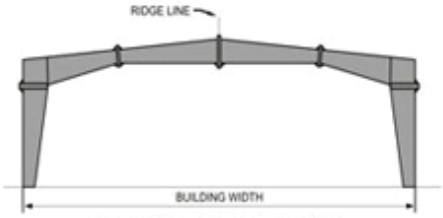
MAX. PRACTICAL WIDTH = 100 m

Built-up Curved Rafter (BU)



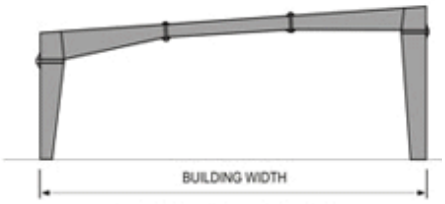
MAX. PRACTICAL WIDTH = 100 m

Open - Web Curved Rafter (OW)



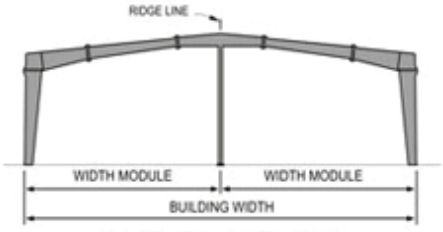
MAX. PRACTICAL WIDTH = 100 m

Clear Span (CS)



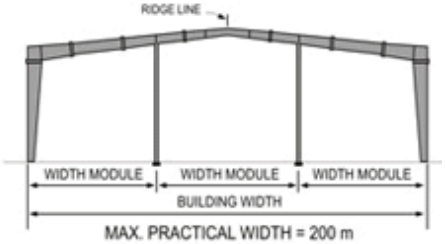
MAX. PRACTICAL WIDTH = 50 m

Single Slope (SS)



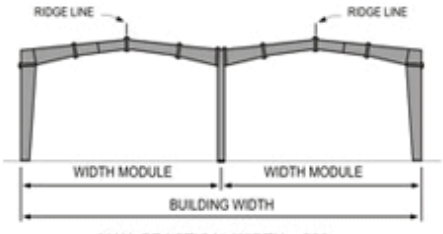
MAX. PRACTICAL WIDTH = 150 m

Multi-Span "1" (MS-1)



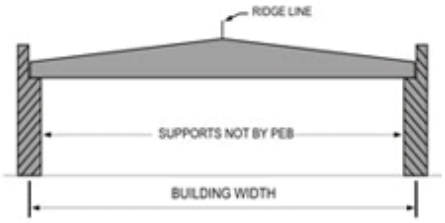
MAX. PRACTICAL WIDTH = 200 m

Multi-Span "2" (MS-2)



MAX. PRACTICAL WIDTH = 200 m

Multi-Gable (MG)



MAX. PRACTICAL WIDTH = 50 m

Roof System (RS)

- 1.2.1 - Clear Span (CS) buildings have a gable roof with vertical sidewalls and end walls. Interior bay frames are clear span rigid frames without interior columns.

- 1.2.2 - Multi-Span (MS) buildings have a gable roof with vertical sidewalls and end walls. Interior bay frames are rigid frames, typically with tapered exterior columns, tapered rafters and square tube or build –up interior columns.

- 1.2.3 - Space Saver (SV) buildings have a gable roof with vertical sidewalls and end walls. Interior bay frames are clear span rigid frames having constant depth columns and tapered rafters typically with horizontal bottom flanges.

- 1.2.4 - Lean-To (LT) buildings consist of outer sidewall columns and simple span rafters attached to the sidewall columns or the end wall posts of the main building. Lean-To columns are of constant depth Lean-To rafters may be tapered or of constant depth.

- 1.2.5 - Multi-Gable (MG) buildings have a roof with two or more gables and vertical sidewalls and end walls.Interior bay frames are rigid frames typically having tapered exterior columns, tapered rafters and built-up interior columns.

- **1.3 - Standard Framing Features**
- 1.3.1 - Main frames are typically constructed from tapered or constant depth columns and rafters

- 1.3.2 - Rigid frames for Clear Span (CS) and Multi-Span (MS) buildings are most commonly spaced from 6000 mm to 10000 mm, center line to center line.

- 1.3.3 - Outside flanges of Clear Span (CS) and Multi-Span (MS) rigid frame columns are inset 200 mm from the sidewall steel line to allow for by-pass grits.

- 1.3.4 - Outside flanges of Space Saver (SV) rigid frame columns shall be placed flush with the sidewalls steel line.

- 1.3.5 - The top flanges of all rigid frame rafters are 200 mm below the bottom of the roof sheeting.

- 1.3.6 - End frames are “post-and-beam” (P&B) load bearing frames with end wall grits flush framed into he webs of the end wall posts so that the outer flanges of the grits are in the same vertical plane as he outer flanges of the posts. Optional rigid frames may be used at the building ends.The center line of the end walls rigid frame shall be 385 mm from the end walls steel line

- 1.3.7 - End wall posts are typically spaced at 6000 mm. Depending on the width of the building and end wall openings, other spacing may also be used When the building width is not evenly divisible by 6000 mm, the interior spacing of the end wall posts is typically kept at 6000 mm with two equal end spacing’s smaller or larger than 6000 mm.

- 1.3.8 - For Clear Span (CS) and Multi-Span (MS) buildings, the sidewall grits are attached (by-passed) to the outer flanges of exterior columns. Sidewall grits are lapped at all interior frames For Space Saver (SV) and Lean-To (LT) buildings, the sidewall grits are flush connected (flush framed) so that the outer flange of the garters is in the same vertical plane as the outer flange of the exterior columns.

- 1.3.9 - The bottom flanges of roof purlins are attached to the outer (top) flanges of the rafters. Purlins are lapped at all interior frames in all structural framing systems.

- **1.4 - Building Components**
- 1.4.1 - Columns and rafters of rigid frames are tapered built-up “I” sections. Interior columns of multi-span frames may be square tube sections.

- 1.4.2 - All rigid frame connections are bolted. Columns and rafters are provided with welded end plates for anchoring to foundations and for member-to-member attachment. Pre-punched holes or welded clips are provided for attachment of purlins and girters, bracing, and other components.

- 1.4.3 - Load bearing “post-and-beam” (P&B) end frames may be constructed from cold-formed channels,hot rolled sections or built-up welded plate sections,as required.

- 1.4.4 - Purlins and girts are pre-punched cold-formed “Z” shaped sections,200 mm in depth with stiffened flanges.

- 1.4.5 - Eave struts are pre-punched cold-formed “C” shaped sections,180mm in depth with 85mm shaped sections,180 mm in depth with 85mm longitudinal structural bracing member in addition to acting as a transition point for walls and roof sheeting.

- 1.4.6 - Panels(roof and walls) are roll formed to the maximum practical length (generally 9000 mm) to minimize end laps in the field.

- 1.4.7 - The standard roof and walls panel is Profile “S” It is a roll formed panel having 4 major high ribs and 4 minor ribs.The panel covers a width of 1000mm.The lapped major rib has a siphon break to prevent capillaric intrusion of water at the side lap. The panel has an extended bearing leg to provide stiffening during installation.

- 1.4.8 - Roof panels have a minimum end lap of 150mm over purlins and are fully protected from siphon action by an end lap mastic.

- 1.4.9 - Wall panels have the same side lapping as the roof panels. End lap is 100mm over the girts Generally no side or end lap mastic is required.

- 1.4.10 - PUF panels are factory-injected sandwich panels. They are constructed of a hard polyurethane foam core between two single skin panels. The rigid foam core has a density of approximately 40 kg/m.

The standard roof PUF panel is the PUF High-Rib (TCSP) panel. The outer panel is the standard Profile “S” panel, described in section 1.4.7.The inner panel is a Profile “T” panel, which is a flat panel that has ten equal minor ribs each 50 mm wide.
The standard wall PUF panel is the PUF Low-Rib (TCTP) panel.Both the outer and inner panels of the TCTP panel are Profile “T” panels. All PUF panels cover a width of 1000 mm.

- 1.4.11 - Profiled ridge panels are provided at the ridge of all buildings with single skin roof panels.

- 1.4.12 - Eave gutters are supplied in lengths of 6000 mm.They are cold-formed to a profiled cross-section that is about 180 mm wide x 168 mm high.

- 1.4.13 - Downspouts for eave gutters are supplied in lengths of up to 9000mm to minimize splicing.They are cold-formed to a ribbed rectangular cross section 105 mm wide x 73 mm deep.

- 1.4.14 - Valley gutters are supplied in maximum lengths of 4500 mm.They are cold-formed in two standard size classifications; 400 mm wide x 190 mm high and 354 mm wide x 190 mm high.

- 1.4.15 - Downspouts for valley gutters in Multi-Gable (MG) buildings are PVC pipes supplied in three sizes; 110 mm, 160 mm and 200 mm (outside diameter).Fiberglass or PVC outlets connecting the valley gutter to the downspouts are also supplied.

- 1.4.16 - Diagonal bracing, providing longitudinal stability against wind, seismic or other forces, is attached to the web of the rigid frame near the outer flange of columns and rafters. The standard diagonal bracing is a galvanized steel 7-wire strand cable with an eye bolt with an adjusting nut and hillside washer at each end. Solid round bars or hot rolled angles may be used as required by design.

- 1.4.17 - Flange braces, in the form of angles, are provided to stabilize the interior flanges of rigid frame rafters and columns at certain purlin and girter locations.

- 1.4.18 - Base angles are provided in fully sheeted walls 6000 mm in length for attachment of the wall panel to the concrete slab.The concrete floor slab must have a 40 mm x 40 mm notch at the perimeter (below the finished floor level) to accommodatethe bottom of the wall panel to prevent ingress of dust and water.The base angle is a light gauge bent plate.

Design

- **2.1 - Codes**
- 2.1.1 - Frame members (hot rolled or built-up) are designed in accordance with the American Institute of Steel Construction (AISC): “Manual of Steel Construction, Allowable Stress Design.”

- 2.1.2 - Cold-formed members are designed in accordance with the American Iron and Steel Institute (AISI):“Cold-formed Steel Design Manual.”

- 2.1.3 - All welds are designed in accordance with the American Welding Society (AWS):“Structural Welding Code - Steel”.

- 2.1.4 - Loads are applied in accordance with the requirements of the Metal Building Manufacturers Association (MBMA) of the USA:“Low Rise Building Systems Manual”.Systems Manual”.

- 2.1.5 - Other codes can be accommodated if specified.

- **2.2 - Loads**
- 2.2.1 - The building is designed to withstand the dead load(DL) of the structure plus a specified live load (LL) and wind load (WL).

- 2.2.2 - Auxiliary (Collateral) loads, if any, must be specified by the customer at the time of request for quotation.

- 2.2.3 - When snow load is of concern, the customer will specify the snow load where applicable, in accordance with local codes.

- 2.2.4 - Load combinations shall be in accordance with the requirements of the "Low Rise Building Systems Manual" published by MBMA.

- 2.2.5 - Other loads and load combinations can be accommodated and must be specified at the time of request for quotation.

- 2.2.6 - CREATIVE BUILDING SOLUTIONS will not be responsible for any static or dynamic loads that are transferred to its building from the plant machinery and equipment, unless the loads are specifically requested at the time of request for quotation.

Material Specifications

- **3.1 - Structural Members**
- 3.1.1 - Built-up sections are fabricated from hot rolled steel plates conforming to ASTM A 572M Grade 345 Type I (or equivalent), with a minimum yield strength of 34.5 kN/cm2 (50 ksi).Flanges are welded to the web by a continuous single side fillet weld deposited by an automatic submerged arc welding process.

- 3.1.2 - Hot rolled sections are mill produced according to EN 10025 g Grade S355JR (or equivalent) with a minimum yield strength of 34.5 kN/cm2 (50 ksi).

- 3.1.3 - Tube sections,(used as interior columns in some Multi-Span buildings) are mill formed steel sections conforming to JIS 3466 STKR 490 (or equivalent), with a minimum yield strength of 32.5 kN/cm2 (47 ksi).

- 3.1.4.1 - Secondary members(comprised mostly of purlins & girts)are cold-formed from hot rolled steel coils conforming to ASTM A 607 Grade 50 or ASTM A 1011M HSLAS Grade 340 Class 1 Type 1 (or equivalent) having a minimum Class 1 Type 1 (or equivalent)having a minimum yield strength of 34.0 kN/cm2 and then factory.Painted with CREATIVE BUILDING SOLUTIONS standard primer.

- 3.1.4.2 - Galvanized secondary members are cold-formed from steel coils conforming to ASTM A 653M Grade SS 340 Class 1 (or equivalent),with zinc coating to Z275 (G 90) designation (275 g/m2), having a minimum yield strength of 34.0 kN/cm2 (50 ksi).

- 3.1.5 - Bracing cables are 12 mm diameter, zinc coated 7-wire strand steel cables of extra high strength.The strand wires conform to ASTM A 475 (or equivalent) with a minimum breaking load of 119.7 kN.

- 3.1.6 - Bracing rods, used in sidewalls of buildings supporting cranes, are solid plain round steel bars conforming to ASTM A 615M Grade 300 (or equivalent) with a minimum tensile strength of 50 kN/cm2 (72 ksi).

- 3.1.7 - Sag rods,used to brace purlins and girts in bays longer than 8500 mm or in buildings with slopes larger than 2.5 to 10,are 12 mm or 16 mm solid threaded, round steel bars conforming to ASTM A 615M Grade 300 or ASTM A 36M (or equivalent) with a minimum tensile strength of 40 kN/cm2 (58 ksi).

- 3.1.8 - Flange braces used to stabilize the inner flanges of main frame columns and rafters are 50 mm x 50 mm x 4 mm steel angles conforming to ASTM A 36M (or equivalent) with a minimum yield strength of 25 kN/cm2 (36 ksi).

- 3.1.9 - Base / gable angles are 45 mm x 73 mm x 1.5 mm thick angles supplied in 6000 mm long pieces, cold-formed from galvanized steel and conforming to ASTM A 653M SS Grade 340 Class 1 (orequivalent), with zinc coating to Z275 (G 90) designation (275 g/m2) having a minimum yield strength of 34.0 kN/cm2(50 ksi).

- **3.2 - Panels**
- 3.2.1 - Roof Panels are roll formed from 0.5 mm (nominal) thick cold-rolled steel coated with an aluminum / zinc alloy (Zincalume).The material conforms to ASTM A 792M Grade 345 B, with alloy (Aluminum / Zinc) coating AZM150 (or equivalent), having a minimum yield strength of 34.5 kN/cm2 (50 ksi).The coating is achieved through a hot dip process, which is 55% aluminum and the balance zinc,by weight.Pre-painted roof panels are optional.

- 3.2.2 - Wall Panels have the same specifications as the roof panels (as described in section 3.2.1 above), but they are mill painted.Paint finish film thickness shall be 25 microns of high durability polyester (ZSP) on the exterior (weather) face and 12.5 microns of plain polyester on the interior face.

- 3.2.3 - Interior liner panels have the same specifications as the wall panels (as described in section 3.2.2 above).

- 3.2.4 - Standard colors for pre-painted wall panels are those standard colors mentioned in CREATIVE BUILDING SOLUTIONS Steel's product brochure and panel chart.

- 3.2.5 - Mezzanine deck panels are roll-formed from 0.7 mm thick cold-rolled galvanized steel.The material conforms to ASTM A 653M SS Grade 550, zinc coating Z180 (G60), and has a minimum yield strength of 55.0 kN/cm2 (80 ksi).

- 3.2.6 - Roof and walls panel upgrades.Other premium durability paint finishes are available upon request, such as Polyvinylidene Fluoride finish (ZPF).

- **3.3 - Trims & Gutters**
- 3.3.1 - Walls flashing and trims(gable, corner, framed opening, accessories, etc.)are cold-formed from the same material (color & finish) as wall panels.

- 3.3.2 - Roof flashing and trims (parapet flashing, 3.3.2 Roof flashing and trims(parapet flashing, caps) are cold-formed from the same material (color & finish) as roof panels.

- 3.3.3 - Eave gutters and downspouts are cold-formed from the same material as wall panels.

- 3.3.4 - Valley gutters (used in parapet fascias and valley conditions) are cold-formed from a 1.0 mm (minimum) thick (nominal) bare Zincalume coated cold-rolled steel coil,conforming to ASTM A 792M Grade 345 B, with zinc alloy coating AZM150 or bare Galvanized/Zinc coated cold rolled steel coil con- forming to ASTM A 653M SS Grade 340 Class 1, with Z275 coating (or equivalent) having a minimum yield strength of 34.0 kN/cm2 (50 ksi).A protective zinc phosphate pigmented epoxy coating system is applied to the exposed surface, having a total average dry film thickness of 150 microns.

- **3.4 Bolts**
- 3.4.1 - High strength bolts are hot-dip galvanized and conform to ASTM A 325M (full thread), Type 1 (or equivalent).They are used to connect primary members.

- 3.4.2 - Machine bolts are electro-galvanized with a yellow chromate color conversion coating and conform to DIN 933 Class 4.6 (or equivalent).They are used to connect secondary members (mainly purlins and girts).

- 3.4.3 - Anchor bolts are manufactured from rods conforming to ASTM A 36M (or equivalent) with a minimum yield strength of 25.0 kN/cm2 and an ultimate strength of 40.0 – 50.0 kN/cm2.

- **3.5 Fasteners**
- 3.5.1 - Roof fasteners are metallic-polyester coated,heat treated carbon steel,conforming to AS 3566 Class 3 (or equivalent).They are 5.5 mm diameter, hex-head self-drilling screws,assembled with galvanized steel washers bonded with EPDM seals.

- 3.5.2 - Wall fasteners are metallic-polyester coated heat-treated carbon steel, conforming to AS 3566 Class 3 (or equivalent).They are 5.5 mm diameter, hex-head, self-drilling screws with integral washers bonded with EPDM seals.The heads of wall fasteners are painted to match the color of the wall panels (as per section 3.2.4).

- 3.5.3 - PUF panel fasteners are chromate dipped, zinc coated, heat-treated carbon steel, 5.5 mm diameter self-drilling screws assembled with stainless steel washers bonded with EPDM seals.

- 3.5.4 - Stitch fasteners for the roof are metallic-polyester coated, heat-treated carbon steel, conforming to AS 3566 Class 3 (or equivalent).They are 4.8 mm diameter, hex-head, self-drilling screws, assembled with galvanized steel washers bonded with EPDM seals.They are used on the side laps of roof panels, and in trim-to-trim and trim-to panel fixing applications.

- 3.5.5 - Stitch fasteners for the walls are metallic-polyester coated, heat-treated carbon steel, conforming to AS 3566 Class 3 (or equivalent).They are 4.8 mm diameter, hex-head,self-drilling screws with hex-head integral washers bonded with EPDM seals.The heads of stitch fasteners for the walls are painted to match the color of the wall panels (per section 3.2.4).They are used on the side laps of panels, and in trim-to-trim and trim-to-panel fixing applications.

- 3.5.6 - Mezzanine deck fasteners are 5.5 mm diameter metallic-polyester coated, heat-treated carbon steel, self-drilling screws, with hex head, capable of drilling through steel up to 12 mm thick.They conform to AS 3566 Class 3 (or equivalent).

- 3.5.7 - Rivets are 4.0 mm diameter and made from Aluminum.They are used in gutter splicing, fixing trim-to-trim, or trim-to-panel, and fastening accessories to roof or wall claddings.They are available in all standard colors.

- 3.5.8 - Stainless steel fasteners For Aluminum panels are 5.5 mm diameter, hex-head, self-drilling, stainless steel screws,assembled with stainless steel washers bonded with EPDM seals.Material grade is AISI 304.

- **3.6 - Other Items**
- 3.6.1 - Skylights and wall lights are made of translucent white acrylic modified, ultra violet stabilized Fiberglass with a tensile strength of 10.3 kN/cm2 (using ASTM D 638 test method) with a flexural strength of 20.7 kN/cm2(using ASTM D 790 test method).Translucent panels weigh 2.4 kg/m2(nominal) and provide the same coverage as the panel width with a maximum length of 3600 mm.The profile of the translucent panels matches that of the adjoining roof/wall panels so that weather tightness is achieved through the same lapping tightness is achieved through the same lapping translucent panels meet the light transmission value of 80% (+5%) according to ASTM D 1494.

- 3.6.2 - Foam closures match the panel profile.They are made of expanded polyethylene or similar material.

- 3.6.3 - Bead mastic is an extruded elastomeric butyl rubber based sealant supplied in rolls on silicon release paper conforming to Federal Specification TT-C-1796 A Type II Class B (or equivalent).

- 3.6.4 - Flowable mastic (caulking sealant) is a neutral cure silicone rubber sealant that is chemically inert and non-corrosive.It is UV resistant and suitable for exterior applications against weathering and rainwater.When cured, it is non-toxic and will accommodate high thermal and shrinkage changes in structural movement joints.

- 3.6.5 - Fiberglass insulation meets UL 25/50 fire rating and is supplied in 50 mm, 75 mm and 100 mm thicknesses with a factory laminated Reinforced White

Metalized film Scrim Kraft (RWMSK) faced vapor barrier.The fiberglass density is 10 kg\m3. Other facings, densities and thicknesses are available upon request.Fiberglass insulation is supplied with double face tape, patching tape, stapler and staples.

Shop Paint

- **4.1 - Structural Members**
- 4.1.1 - Primary and secondary steel is cleaned and prime painted according to the Steel Structures Painting Council SSPC-PS Guide 7.00 specification to a dry film thickness of not less than 38 microns.

- 4.1.2 - Primer paint conforms to the performance requirements of Steel Structures Painting Council SSPC Paint 15 Type 1.

- 4.1.3 - Shop primer is intended to provide temporary Shop primer is intended to provide temporary and erection.It is not intended to provide and erection.It is not intended to provide case of exposed steel.

- 4.1.4 - When special paint supplier is specified by the consultant/client, and paint is found to have application problems and (or) extended drying times, CREATIVE BUILDING SOLUTIONS Steel will recommend to substitute it with an equivalent and suitable supplier,subject to final approval by the consultant/client.

Building Accessories

- **5.1 - Personnel Doors**
- 5.1.1 - Personnel doors are flush-finished and 44 mm thick.Single leaf doors are 915 mm wide x 2135 mm high.Double leaf doors are 1830 mm wide x 2135 mm high.

- 5.1.2 - Door leaves are reinforced, stiffened and soundproofed with an expanded polystyrene core laminated to the inside faces of door panels, completely filling the inside cavity of the door leaf.

- 5.1.3 - Steel door panels are 0.9 mm (nominal) thick, hot dip galvanized, 180 g/m2 as per ASTM A 653M (Z180) cold-rolled steel,thoroughly cleaned phosphated and painted with a white finish to ensure optimal corrosion protection.

- 5.1.4 - A white or galvanized finished “Z” shaped astragal is field attached to the inactive leaf of all double doors.

- 5.1.5 - Doors are factory prepared for a cylindrical lockset.

- 5.1.6 - Door frames are 1.5 mm (nominal) thick hot-dip galvanized steel, prepared to ASTM A 653M (Z180) classification(or equivalent),thoroughly cleaned, phosphated and painted with a modified alkyd primer, plus a white finish coat.

- 5.1.7 - Door frames are delivered knocked-down.Mitered corners have brackets with pre-drilled holes for field assembly and are supplied with all fasteners necessary for assembly.

- 5.1.8 - The lockset is a keyed cylindrical type with satin chrome finish.Optional panic devices and auto closer are available.

- 5.1.9 - Each door leaf has three mortise 115 mm x 115 mm ball bearing hinges with a security set screw in the barrel to prevent removal of the hinge pin with the door in a closed position.

- **5.2 - Steel Sliding Doors**

- 5.2.1 - The frames of horizontal steel sliding doors are manufactured from 2 mm (nominal) thick,cold formed channels and girts and are delivered knocked-down for field assembly.All clips, fasteners, etc., necessary for assembly are provided.

- 5.2.2 - The exterior face of the door leaf is sheeted with 0.5 mm (nominal) thick, pre-painted profiled panels.The panel ribs run vertically.The door panel profile matches the profile and material of the wall panels.

- 5.2.3 - Door leaves are either suspended from an exterior mounted trolley rail attached to a structural header beam or bottom, and supported by rollers on a fixed track anchored on the ground.The door hood trim designed to conceal and protect the header and rail,is supplied in the same materialas the wall panels.

- 5.2.4 - Doors are bottom or top guided by a specially designed steel rail track.

- 5.2.5 - Door widths range from 1500 mm to 3000 mm, for single sliding doors,and from 3000 mm to 6000 mm ,for double sliding doors.The height of the sliding doors range from 3000 mm to 6000 mm.

- 5.2.6 - Sliding doors may also be provided with flush-hinged pilot doors.A pilot door is a personnel door within a leaf of the sliding door

- **5.3 Steel Roll Up Doors**
- 5.3.1 Roll-up door sizes conform to the following table:

Width (mm)	Length (mm)
3000	3000
3000	4000
4000	4000
4000	5000
5000	5000

- 5.3.2 - The door curtain is cold-formed from hot-dip galvanized steel and painted with a polyester paint in Frost White color.The bottom rail of the door curtain is an extruded Aluminum angle.

- 5.3.3 - Guides are 95 mm deep channels roll formed from 2.5 mm (nominal) thick hot-dip galvanized steel.

- 5.3.4 - The door drum (supporting the door curtain) is a 165 mm (nominal) diameter and 3.2 mm (nominal) thick pipe.The drum houses safety springs,end shafts,collars and bearings and conforms to Australian Standard AS 1905 for safety.

- 5.3.5 - Doors are supplied complete with guides,axle,curtain and a manual chain and reduction gear operating mechanism.Electric operators are available as an option.

- **5.4 - Windows**
- Window frames are made of anodized Aluminum extrusions with natural color finish conforming to ASTM B 221M Alloy 6063-T5 tempered aluminum alloy (or equivalent). Windows are horizontal double slide type, 1000 mm high and 1000 mm wide, specifically designed for installation in profiled exterior wall panels

- Windows are factory glazed with minimum 6 mm thick clear glass and are equipped with latches and a removable insect screen.

- **5.5 - Adjustable / Fixed Steel Louvers**
- Adjustable steel louvers are 1000 mm wide x 1000 mm high.They are supplied complete with a galvanized steel mesh, blades and framing.

- They are made from the same material, finish and color as wall panels.Fixed steel louvers are available in 1000 mm wide x 1000 mm high, 1000 mm wide x 1500 mm high and 1500 mm wide x 1000 mm high.

- **5.6 Gravity Ventilators**
- Gravity flow ridge ventilators are 3000 mm long with a throat opening of 300 mm or 600 mm.They are installed as either individual units or as continuous (i.e.joined) units.The outer skin of the ventilators is white pre-painted Zincalume steel.

- The ventilators are supplied complete with bird screens. A damper system to close the throat opening is optional on 300 mm throat ventilators For export shipments, ventilators are shipped knocked-down to be field assembled by the Erector before installation.

Structural Sub-systems

- **6.1 - Roof Extensions**
- 6.1.1 - Sidewall roof extensions extend beyond the defined building width and are generally a continuation of the main building roof slope.

- 6.1.2 - End wall roof extensions extend beyond the defined building length and are constructed by extending the end bay purlins and eave struts of the main building past the endwall rafters.

- 6.1.3 - Standard widths for roof extensions range from 900 mm to 1500 mm.Wider roof extensions can be used but may require heavier or additional framing.

- 6.1.4 - Soffit panels for roof extensions are optional.

- 6.1.5 - Main building eave gutters are normally relocated to the edge of the roof extensions.Gutter drainage is achieved by downspouts located at the building sidewalls.

- **6.2 - Canopies**
- 6.2.1 - Sidewall canopies are cantilevered rafters attached to the sidewall columns at any point below the eave and support 200 mm deep by-pass “Z” purlins supporting the canopy roof panels.

- 6.2.2 - End wall canopies are cantilevered rafters along a uniform elevation attached to the end wall posts below the roof line and support by-passed 200 mm deep “Z” purlins supporting the canopy roof panels.

- 6.2.3 - Optional canopy soffits conceal only the canopy purlins,leaving rafters exposed,unless otherwise specified.

- 6.2.4 - Unless otherwise specified,the roof panels of the canopies shall match the color and profile of the main building roof panels.

- 6.2.5 - The width of a canopy depends on the size of the sidewall columns or end wall posts supporting it.Practical widths range from 1500 mm to 3000 mm.

- Wider canopies are possible but require heavier sidewall columns or end wall posts

- 6.2.6 - The length of a canopy is ideally a multiple of bay lengths of the sidewalls or a multiple of column spacings of the end walls.

- **6.3 - Fascias and Parapets**
- 6.3.1 - Vertical fascias consist of 200 mm deep vertical posts supported by brackets from sidewall columns or endwall posts.Cold-formed 200 mm deep “C” section top and bottom girts are flush-framed to the vertical fascia posts.An intermediate “C” girert positioned vertically is supplied to support a valley gutter, when required.Standard vertical fascias project 600 mm from the building sidewall or end wall steel lines.Projections exceeding 600 mm are possible but may require heavier sidewall columns and end wall posts.

The height of the fascia varies depending on actual requirements.Typical heights range between 1000 mm to 1600 mm.Fascia sheeting is supplied in 0.5 mm (nominal) thick, pre painted panels matching the sidewalls profile. Soffit panels and back-up panels are provided only when specified.

- 6.3.2 Curve line fascias are of the same type of construction as vertical fascias but are sheeted with curved profiled panels and are available in three types:
    - Bottom curved fascias that have a curved panel at the bottom of the fascia only.
    - Top and bottom curved fascias that have a curved panel at the top and bottom of the fascia.
    - Center curved fascias that have a single panel curved at the mid height of the fascia

6.3.3 - A parapet fascia is an extension of the sidewalls and end walls above the roof line.The wall sheeting of the building will continue to the top of the parapet.

6.3.4 - Standard eave gutters and downspouts are used in buildings with sidewall vertical fascias. Valley gutters are used in buildings having sidewall parapet fascias.

Foundation and Anchorage

- 7.1.1 - Foundations,tie beams and concrete floor slabs should be designed by a licensed engineer.CREATIVE BUILDING SOLUTIONS does not provide this service.

- 7.1.2 - The design should be based on the building column specifications stated on “Issued For Construction” anchor bolt setting Plans.

- 7.1.3 - Anchor bolts must be set in strict accordance with CREATIVE BUILDING SOLUTIONS anchor bolt setting plans.CREATIVE BUILDING SOLUTIONS is not be responsible for incorrectly set anchor bolts

Submittals

- **8.1 - Approval Drawings**
- 8.1.1 - Approval drawings are submitted upon request. If approval drawings are requested,fabrication will not start until one set of the approval drawings has been signed by the buyer or his representative as “Approved As Is” or “Approved As Noted” and returned to CREATIVE BUILDING SOLUTIONS.

- 8.1.2 - Approval drawings are issued as “Not For Construction” drawings; the contractor is specifically instructed not to use dimensions shown on approval drawings for his civil work foundation work, etc. CREATIVE BUILDING SOLUTIONS shall not be responsible for any consequences arising from the premature use of information provided in drawings that are not issued for construction.

- **8.2 - Erection Drawings**
- 8.2.1 - Erection Drawings, “Issued For Construction”, are provided for the assembly of the building(s) and consist of an anchor bolt setting plan, a frame cross-section,a roof framing plan, walls framing details and roof and wall sheeting details.Part designations for all Bill of Materials (BOM) components are shown on erection drawings.

- 8.2.2 - Bolt schedules identifying the required bolt diameter and length for specific connections are shown on erection drawings.

- **8.3 - Design Calculations**
- Structural calculations may be provided upon request, duly certified by the Engineering Manager.

- **8.4 - Design Certification**
- A letter of certification, in lieu of design calculations, may be provided upon request, duly certified by the Engineering Manager.

- Statements, descriptions, specifications and dimensions contained herein are in effect as of the date of this issue.

- CREATIVE BUILDING SOLUTIONS reserves the right to make material substitutions and changes in specifications and construction methodology as and when deemed necessary.