

PRE-ENGINEERED BUILDING GLOSSARY

ACCESSORY

A Building product which supplements a basic solid panel building such as a door, window, skylight, ventilator, etc.

AGRICULTURAL BUILDING

A structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. Such structure shall not include habitable or occupiable spaces, spaces in which agricultural products are processed, treated or packaged, nor shall an agricultural building be a place of occupancy by the general public.

ALUMINIUM COATED STEEL

Steel coated aluminum for corrosion resistance.

ANCHOR BOLTS

Bolts used to anchor members to a foundation or other support.

ANCHOR BOLT PLAN

A plan view drawing showing the diameter, location and projection of all anchor bolts for the component of the Metal Building System and may show column reactions (magnitude and direction). The maximum base plate dimensions may also be shown.

APPROVAL DRAWINGS

A set of drawings that may include framing plans, elevations and sections through the building for the approval of the Buyer/Owner.

ASD

Allowable Stress Design.

ASSEMBLY

A group of mutually dependent and compatible components or subassemblies of components.

ASTRAGAL

A closure between the two leaves of a double swing door or double slide door.

AUTOMATIC CRANE

A crane which when activated operates through a pre-set cycle or cycles.

AUTOMATIC WELDING

A welding procedure utilizing a machine to make a weld.

AUXILIARY CRANE GIRDER

A girder arranged parallel to the main girder for supporting the platform, motor base, operator's cab, control panels, etc., to reduce the torsional forces that such load would otherwise impose on the main crane girder.

AUXILIARY HOIST

A supplemental hoisting unit, usually designed to handle lighter loads at a higher speed than the main crane hoist.

AUXILIARY LOADS

Dynamic live loads such as those induced by cranes and material handling systems.

AXIAL FORCE

A force tending to elongate or shorten a member.

BAR JOIST

A name commonly used for "Open Web Steel Joists".

BASE ANGLE/CHANNEL

An angle secured to a wall or foundation used to attach the bottom of the wall paneling.

BASE PLATE

A plate attached to the bottom of a column which rests on a foundation or other support, usually secured by anchor bolts.

BASE TUBE

A continuous member imbedded in the edge of the foundation to which the wall panels are attached.

BAY

The space between the main frames measured normal to the frame.

BEAM

A member, usually horizontal, that is subjected to bending loads. There are three types, single, continuous or cantilever.

BEAM AND COLUMNS

A structural system consisting of a series of rafter beams supported by columns. Often used as the end frame of a building.

BEARING FRAME ENDWALL

Frame composed of corner columns, wind columns, flush girts and rafter sections which is designed to carry one half bay loading, also referred to as "Light Endwall"

BEARING PLATE

A steel plate that is set on the top of a masonry support on which a beam or purlin can rest.

BENT

See "Main Frame".

BILL OF MATERIALS

A list that enumerates by part number or description each piece of material or assembly to be shipped. Also called tally sheet or shipping list.

BIRD SCREEN

Wire mesh used to prevent birds from entering the building through ventilators or louvers.

BLIND RIVET

A small headed pin with expandable shank for joining light gauge metal. Typically used to attached flashings, gutters, etc.

BOX GIRDER

Girders, trucks or other members of rectangular cross section enclosed on four corners.

BRACING

Rods, angles or cables used in the plane of the roof and walls to transfer loads, such as wind, seismic and crane thrusts to the foundation.

BRACKET

A structural support projecting to a structural member. Example are canopy brackets, lean-to brackets, and crane runway brackets.

BRIDGE (CRANE)

That part of an overhead crane consisting of girders, trucks, end ties, walkway and drive mechanism which carries the trolley and travels in a direction parallel to the runway

BRIDGE CRANE

A load lifting system consisting of a hoist which moves laterally on a beam, girder or bridge which in turn moves longitudinally on a runway made of beams and rails.

BRIDGING

Bracing or systems of bracing used between structural members.

BRITISH THERMAL UNIT (BTU)

That amount of heat required to raise the temperature of one pound of water by 1°F.

BUILDING

A structure forming an open, partially enclosed, or enclosed space constructed by a planned process of combining materials, components, and subsystems to meet specific condition of use.

BUILDING AISLE

A space defined by the length of the building and the space between building columns.

BUILDING CODE

Regulations established by a recognized agency describing design loads, procedures and construction details for structures usually applying to a designated political jurisdiction (city, county, state, etc.)

BUILT-UP MEMBER OR SECTION

A structural member, usually an I-shaped section, made from individual flat plates welded together.

BUILT-UP ROOFING

A roof covering made up of alternating layers of tar and asphaltic materials.

BUMPER

An energy-absorbing device for reducing impact when a moving crane or trolley reaches the end of its permitted travel, or when two moving cranes or trolleys come into contact.

BUTT PLATE

The end plate of a structural member usually used to rest against a like plate of another member forming a connection. Usually called a splice plate or bolted end plate

BY-PASS GIRT

Girts which overlap at outside column flange to form a continuous member.

“C” SECTION

A member formed from steel sheet in the shape of a block “C”, that may be used either singularly or back to back.

CAB-OPERATED CRANE

A crane controlled by an operator in a cab supported on the bridge or trolley.

CAMBER

Curvature of a flexural member in the plane of its web before loading

CANOPY

A projecting roof system that is supported and restrained at one end only.

CANTILEVER BEAM

A beam supported at one end having a free end and a fixed end.

CAPILLARY ACTION

That action which causes movement of liquids when in contact with two adjacent surfaces such as panel side laps.

CAP PLATE

A plate located at the top of a column or end of a beam for capping the exposed end of the member.

CAPACITY

The maximum load (usually stated in tons) which a crane is designed to support.

CAULK

To seal and make weather-tight joints, seams or voids by filling with a weatherproofing compound or material.

CHANNEL, HOT ROLLED

A C-shaped member formed while semi-molten state at the steel mill to a shape having standard dimensions and properties.

CLADDING

The exterior metal roof and wall paneling of a Metal Building System. See also "Components & Cladding".

CLIP

A plate or angle used to fasten two or more members.

CLOSURE STRIP

A resilient strip, formed to the contour of ribbed panels and used to close openings created by ribbed panels joining other components.

COLD-FORMING

The process of using press brakes or rolling mills to shape steel into desired cross sections at room temperature.

COLUMN

A main member used in a vertical position on a building to transfer loads from main roof beams, trusses, or rafters to the foundation.

COMPONENT

A part used in a Metal Building System. See also "Components and Cladding".

COMPONENTS AND CLADDING

For wind load consideration, members that do not qualify as part of a Main Wind Force Resisting System. They include girts, joists, purlins, studs, wall and roof panels, fasteners, end wall columns and end wall rafters of bearing end frames, roof overhung beams, canopy beams, and masonry walls when acting as other than shear walls.

CONNECTION

The means of attachment of one structural member to another.

CONTINUITY

The terminology given to a structural system denoting the transfer of loads and stresses from member to member as if there were no connection.

CONTINUOUS GIRT OR PURLIN

Girts or Purlins that overlaps at columns or frames to form a continuous member

CONTINUOUS RIDGE VENT

Series of Roof Ventilators connected to each other located along roof peak line.

CONTRACT DOCUMENT

The Documents that define the material and work to be provided by a Contractor or the General Contractor for a Construction Project.

CORNER COLUMN

Usually a "C" shape, located at the corner of a bearing frame end wall.

CORNER TRIM

Pre-formed sheet metal trim used to close the junction of side and end wall panels or sheets.

CRANE

A machine designated to move material by means of a hoist.

CRANE AISLE

That portion of a building aisle in which a crane operates, defined by the crane span and the uninterrupted length of a crane runway.

CRANE GIRDER

The principal horizontal beams of the crane bridge which supports the trolley and is supported by the end tracks.

CRANE RAIL

A track supporting and guiding the wheels of a bridge crane or trolley system. On Underhung cranes, the crane rail also acts as the runway beam.

CRANE RUNWAY BEAM

The member that supports a crane rail and is supported by columns or rafters depending on the type of crane system. On Underhung bridge cranes, the runway beam also acts as the crane rail.

CRANE SPAN

The horizontal distance center to center of runway beam.

CRANE STOP

A Device to limit travel of a trolley or crane bridge. This device normally attached to a fixed structure and normally does not have energy-absorbing ability.

CRANE SUPPORT COLUMN

A separate column which supports the runway beam of a top running crane.

CURB

A raised edge on a concrete floor slab or roof accessory.

CURTAIN WALL

Perimeter wall panels which carry only their own weight and wind load.

DAMPER

A baffle used to open or close the throat of ventilators.

DEAD LOAD

The weight of the Building System construction consisting of members such as framing and covering.

DEALER

A party who, as a routine part of his business, buys Metal Building Systems from a manufacturer for the purpose of resale.

DEFLECTION

The displacement of a structural member relative to its supports due to applied loads. Deflection should not be confused with "Drift".

DESIGN LOADS

The loads expressly specified in the contract document which the Metal Building System is designed to safely resist.

DIAPHRAGM ACTION

The resistance to racking generally offered by the panels, fasteners, and members to which they are attached.

DOOR GUIDE

An angle or channel used to stabilize or keep plumb a sliding or rolling door during its operation.

DOUBLE FACED TAPE

An adhesive tape used to secure fiberglass blanket insulation to base angles/channels, eave struts/purlins, and purlins.

DOWNSPOUT

A conduit used to carry water from the gutter of a building.

DRIFT (SIDESWAY)

Horizontal displacement at the top of a vertical element due to lateral loads. Drift should not be confused with "Deflection".

DRIFT PIN

A tapered pin used during erection to align holes in steel members to be connected by bolting.

EAVE

The line along the sidewall formed by the intersection of the planes of the roof and wall.

EAVE GUTTER

See "Gutter".

EAVE HEIGHT

The vertical dimension from finish floor to the eave.

EAVE PURLIN/STRUT

A structural member located at the eave of a building which supports roof and wall panels.

EAVE TRIM

The trim used to close off top of sidewall panels in lieu of eave gutter.

ELASTIC DESIGN

A design concept utilizing the proportional behavior of materials when all stresses are limited to specified allowable values in the elastic range.

END BAY

The bay adjacent to the endwalls of a building. Usually the distance from the endwall to the first interior main frame measured normal to the endwall.

ERECTION

The on-site assembling of Fabricated Metal Building System components to form a complete structure.

ERECTION DRAWINGS

Roof and Wall erection (framing) drawings that identify individual components and accessories furnished by the manufacturer in sufficient detail to permit proper erection of the Metal Building System.

ERECTOR

A party who assembles or erects a Metal Building System.

EXPANSION JOINT

A break or space in construction to allow for thermal expansion and contraction of the materials used in the structure.

FABRICATION

The manufacturing process performed in a plant to convert material into finished Metal Building System components. The main operations are cold forming, cutting, punching, welding, cleaning and painting.

FACADE

An architectural treatment, partially covering a wall, usually concealing the eave and or rake of the building.

FASCIA

A decorative trim or panel projecting from the face of a wall.

FIXED BASE

A column base that is designed to resist rotation as well as horizontal or vertical movement.

FLANGE

The projecting edge of a structural member.

FLANGE BRACE

A member used to provide lateral support to the flange of a structural member.

FLASHING

A sheet metal closure to ensure weather tightness.

FOOTING

A pad or mat, usually of concrete, located under a column, wall or other structural member, that is used to distribute the loads from that member into the soil.

FOUNDATION

The substructure which supports a building or structure.

FRAME

The primary steel structure members, made up of columns and rafters which supports the secondary framing.

FRAMED OPENING

Framing members and flashing which surround an opening

GABLE

The triangular portion of the endwall from the level of the eave to the ridge of the roof.

GABLE ANGLE

An angle attached to purlins at gable for attachment of endwall sheets or panels.

GAGE

The distance between holes punched in flanges, base plates, and splice plates.

GALVANIZED

Steel coated with zinc for corrosion resistance.

GANTRY CRANE

A crane similar to an overhead crane except that the bridge for carrying trolley or trolleys is rigidly supported on one or more legs running on a fixed rails or other runway.

GIRDER

A main horizontal or near horizontal structural member that supports vertical loads. It may consist of several pieces.

GIRT

A horizontal structural member that is attached to sidewall or endwall columns that supports paneling.

GLAZE

The process of installing glass in windows and doors.

GLAZING

Glass panes of paneling used in windows and doors.

GRADE

The term used when referring to the ground elevation around a building.

GROUT

A mixture of cement, sand and water used to fill cracks and cavities. Sometimes used under base plates or leveling plates to obtain uniform bearing surfaces.

GUSSET PLATE

A steel plate used to reinforce or connect structural elements

GUTTER

A light gauge metal member at an eave, valley or parapet designed to carry water from the roof to downspouts or drains.

HAIR PIN

"V" shaped reinforcing steel used to transfer anchor bolt shear to the concrete floor mass.

HAUNCH

The deepened portion of a column or rafter designed to accommodate the higher bending moments at such points. (Usually occurs at the intersection of column and rafter).

HAUNCH BRACE

A diagonal member from the intersection of the column and rafter section of the rigid frame to the eave member to prevent lateral buckling of the haunch.

HEADER

A horizontal framing member located on top of a framed opening.

HIGH STRENGTH BOLTS

Any bolt made from steel having a tensile strength in excess of 100,000 pounds per square inch.

HIGH STRENGTH STEEL

Structural Steel having a yield stress in excess of 36,000 pounds per square inch.

HIP ROOF

A roof which is formed by sloping planes from all four sides.

HOIST

A mechanical lifting device usually attached to a trolley which travels along a bridge, monorail or jib crane. May be chain or electric operated.

HOT-ROLLED SHAPES

Steel sections (angles, channels, S-shapes, W-shapes, etc.) which are formed by rolling mills while steel is in a semi-molten state.

IMPACT WRENCH

A power tool used to tighten nuts on bolts.

INNER LINER

Liner paneling on the inside of walls

INSIDE CORNER TRIM

Trim which flashes inside corners.

INSULATION

Any material used in building construction to reduce heat transfer

JACK BEAM

A beam used to support another beam, rafter or truss and eliminate column support.

JACK TRUSS

A truss used to support another beam, rafter or truss and eliminate column support.

JAMB

The vertical framing members located at the sides of an opening.

JIB CRANE

A cantilevered or suspended beam with hoist and trolley. This lifting device may pick-up loads in all part of a circle around column to which it is attached.

JIG

A device used to hold pieces of material in a certain position during fabrication

JOIST

Light beam for supporting a floor or roof.

KIP

A unit of measure equal to 1,000 pounds.

KNEE

The connecting area of a column and rafter of a structural frame such as a rigid frame.

KNEE BRACE

A diagonal member at a column and rafter intersection designed to resist horizontal loads.

LEAN-TO

A structure having only one slope and depending upon another structure for partial support.

LENGTH

The dimension of the building measured perpendicular to the main framing from end wall to end wall.

LEVELING PLATE

A steel plate used on top of a foundation or other support on which a structural column can rest.

LINER PANEL

A metal panel attached to the inside flange of the girts or inside of a wall panel.

LIP

A flange stiffener on cold-formed sections.

LIVE LOAD

Any variable load that results from intended use of the structure during its life time.

LOUVER

An opening provided with fixed or movable, slanted fins to allow flow of air.

LOW RISE BUILDING

A description of a class of building usually less than 60 feet eave height. Commonly, they are single story, But do not exceed four stories.

MAIN FRAME

An assemblage of rafters and columns that support the secondary framing members and transfer loads directly to the foundation.

MASTIC

See "Sealant".

MASONRY

Anything constructed of materials such as bricks, concrete blocks, ceramic blocks and concrete.

MEZZANINE

An intermediate level between floor and ceiling occupying a partial area of the floor space.

MEZZANINE BEAM

Primary framing for Mezzanine Floors. شركة تكامل لأنظمة المباني

MEZZANINE JOIST

Secondary framing for Mezzanine Floor.

MOMENT

The tendency of a force to cause rotation about a point of axis.

MOMENT CONNECTION

A connection designed to transfer moment as well as axial and shear forces between connecting members.

MONITORS

Superstructure located above the ridge of a building used for ventilation or additional light.

MULLIONS

Vertical member connecting two windows located side by side.

MULTI-GABLE BUILDING

Buildings consisting of more than one gable across the width of the building.

MULTI-SPAN BUILDING

Buildings consisting of more than one span across the width of the building. Multiple gable buildings and Single gable buildings with interior columns are examples.

NIBBLER

An electrical hand tool used to cut steel, roof or wall sheet openings.

PARAPET

That portion of the vertical wall of a building which extends above the roof line.

PARTITION

An interior dividing wall.

PEAK

The uppermost point of a gable

PEAK BOX

A pre-engineered trim piece that trims gable trim connection and bear the name of the building manufacturer.

PERSONNEL DOOR

A door used by personnel for access to and exit from a building.

PIECE MARK

A number given to each separate part of the building for erection identification. Also called mark number or part number.

PIER

A concrete structure designed to transfer vertical load from the base of a column to the footing.

PILASTER

A reinforced or enlarged portion of a masonry wall to provide support for roof loads or lateral loads on the wall.

PINNED BASE

A column base that is designed to resist horizontal and vertical movement, but not rotation.

PIN CONNECTION

A connection designed to transfer axial and shear forces between connecting members but not moments.

PITCH

The peak height of a gabled building divided by its overall span.

PLASTIC DESIGN

A design concept based on multiplying the actual loads by a suitable load factor, and using the yield stress as the maximum stress in any member, and taking into consideration moment redistribution.

POP RIVET

A small headed pin with expandable shank for joining light gauge metal, used to attach flashings, gutters, etc.

PORTAL FRAME

A rigid frame so designed that it offers rigidity and stability in its plane, it is generally used to resist longitudinal loads where other bracing methods are not permitted.

PRIMER PAINT

Initial coat of paint applied at factory to steel structure framings for protection against elements during shipping and erection only.

PURLIN

A horizontal structural member which supports roof covering

PURLIN STRUT

Additional purlin added at or near intersection of wind bracing members at the rigid frame where a series of wind bracing is required in the roof plane. This strut may or may not be a continuous member throughout the length of the building.

RAFTER

The main beam supporting the roof system.

REACTIONS

The resisting forces at the column bases holding the structure in equilibrium under a given loading condition.

REINFORCING STEEL

The steel placed in concrete as required to carry the tension, compression and shear stresses.

RIDGE

The horizontal line formed by opposing sloping sides of a roof running parallel with the building length.

RIDGE PANEL

A transition of the roofing materials along the ridge of a roof, sometimes called ridge roll or ridge flashing.

RIGID FRAME

A structural frame consisting of members joined together with moment connections so as to render the frame stable with respect to the design loads, without the need for bracing in its plane.

ROLL-UP DOOR

A door that opens by traveling vertically.

ROOF SLOPE

The tangent of the angle that a roof surface makes with the horizontal, usually expressed in units of vertical rise to 12 units of horizontal run.

SAG MEMBER

A tension member such as rods, straps or angles used to limit the deflection of a girt or purlin in the direction of its weak axis.

SANDWICH PANELS

A panel used as covering consisting of an insulating core materials with inner and outer metal skins.

SCREEDING

The process of striking of the excess concrete to bring the top surface to proper finish and elevation.

SEALANT

Any material which is used to seal cracks, joints or laps.

SECONDARY FRAMING

Members which carry loads from the building surface to the main framing. Example are purlins and girts.

SEISMIC LOAD

The lateral load acting in any horizontal direction on a structural system due to the action of an earthquake.

SELF DRILLING SCREW (SDS)

A fastener which combines the function of drilling and tapping.

SELF TAPPING SCREW (STS)

A fastener which taps its own threads in a predrilled hole.

SHEETING ANGLE OR EAVE ANGLE

An angle used for securing sheet panels.

SHEAR

The force tending to make two contacting parts to slide upon each other in opposite directions parallel to their plane of contact.

SHIMS

A piece of steel used to level base plates or aligns columns or beams.

SHIPPING LIST

A list that enumerates each piece to be shipped.

SHOP PRIMER PAINT

The initial coat of primer paint applied in the shop.

SIDE WALL

An exterior wall which is perpendicular to the frames of a building system.

SILL

The bottom horizontal framing member of a wall opening such as window or door.

SINGLE SLOPE

A sloping roof in one plane. The slope is from one wall to the opposite wall.

SINGLE SPAN

A building or structural member without intermediate support.

SKYLIGHT

A roof accessory to admit light, normally mounted on a curbed framed opening.

SLIDE DOOR

A single or double leaf door which opens horizontally by means of sliding on an overhead trolley.

SNUG TIGHT

The tightness of a bolt in a connection that exists when all plies in a joint are in firm contact.

SOFFIT

A material which covers the underside of an overhang.

SOIL PRESSURE

The load per unit area a structure will exert through its foundation on the soil.

SPAN

The distance between supports of beams, girders, or trusses.

SPLICE

A connection in a structural member.

SPLICE PLATE

A plate used to connect two steel structure members

SPUD WRENCH

A tool used by erectors to line up holes and to make up bolted connections; a wrench with tapered handle.

STEEL LINE

The outside perimeter of a steel structure or inside of wall panels.

STIFFENER

A member used to strengthen a plate against lateral or local buckling. Usually a flat bar welded perpendicular to the longitudinal axis of the member.

STITCH SCREW

A fastener connecting panels together at the sidelap.

STRESS

A measure of the load on a structural member in terms of force per unit area.

STRUT

A member fitted into a framework which resist axial compressive forces.

STUD

A vertical wall member to which exterior or interior covering or collateral material may be attached. May be either load bearing or non-load bearing.

SWEEP

The amount of deviation of straightness of a structural section measured perpendicular to the web of the member.

TAPERED MEMBERS

A built up plate member consisting of flanges welded to a variable depth web.

TENSILE STRENGTH

The longitudinal pulling stress a material can bear without tearing apart.

TENSION FORCES

Forces acting on a member tending to elongate it.

THRUST

A horizontal component of a reaction usually at the column base.

TIE

A structural member that is loaded in tension.

TORQUE WRENCH

A wrench containing an adjustable mechanism for measuring and controlling the amount of torque of turning force to be exerted, used in tightening nuts of high strength bolts.

TRIM

The light gauge metal used in the finish of a building, especially around openings and at intersections of surfaces, often referred to as flashing.

TRUSS

A structure made up of three or more elements, with each member designed to carry a tension or compression force. The entire structure in turn acts as a beam.

TURN OF THE NUT METHOD

A method of pre-tensioning high strength bolts. The nut is turned from the "Snug Tight" position, corresponding to a few blows of an impact wrench of the full effort of a man using an ordinary spud wrench, the amount of rotation required being a function of the bolt diameter and length.

UNIT STRESS

Stresses per unit area.

UNSUPPORTED COLUMN

The condition that exists when a column has no lateral support. A column is unsupported when there are no braces attached to the flanges.

UPLIFT

Wind load on a building which causes a load in the upward direction.

VALLEY GUTTER

A channel used to carry off water from the "V" of roofs of multi-gabled buildings.

VAPOR BARRIER

Material used to retard the flow of vapor or moisture to prevent condensation from forming on a surface.

WAINSCOT

Wall material, used in the lower portion of a wall, that is different from the material in the rest of the wall.

WALL, BEARING

Wall capable of supporting a structural system.

WALL, NON-BEARING

Wall not capable of supporting a structural system.

WALL COVERING

The exterior wall surface consisting of panels.

WEB

That portion of a structural member between the flanges.

WEB MEMBERS

The system members connecting the chords of a truss.

WHEEL BASE

Distance from center to center of outermost crane wheels.

WHEEL LOAD

The vertical force without impact produced on a crane wheel bearing on a runway rail or suspended from a runway beam. Maximum wheel load occurs with the crane at rated capacity and the trolley positioned to provide maximum vertical force at one set of wheel

WIND BENT

A wind bracing system used in sidewalls when diagonal brace rods are not permitted.

WIND COLUMN

A vertical member designed to withstand horizontal wind loads.

WIND LOAD

The load caused by the wind from any horizontal direction

YIELD STRESS

The stress at which the strain ceases to be directly proportional to the stress.

"Z" SECTION

A member cold formed from steel sheet in the shape of a "Z".