VULCAN

STEEL STRUCTURES, INC.

METAL BUILDING GLOSSARY

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METAL BUILDING GLOSSARY

“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.

“H” Section
A steel member with an “H” cross section.

“Z” Section
A member cold formed from steel sheet in the shape of a “Z”.

AISC
The American Institute of Steel Construction.

AISE
American Iron and Steel Engineers.

AISI
The American Iron and Steel Institute.

Aluminum-Coated Steel
Steel coated with aluminum for corrosion protection.

Anchor Bolt Plan
A plan view showing the size, location and projection of all anchor bolts for the metal building system components, the length and width of the foundation (which may vary from the nominal metal building size). Column reactions (magnitude and direction) and minimum base plate dimensions may also be included.

Anchor Bolts
Bolts used to anchor structural members to a foundation or other support. Usually refers to the bolts at the bottom of all column and door jambs.

Approval Drawings
Approval drawings may include framing drawings, elevations and sections through the building as furnished by the manufacturer for approval of the buyer. Approval by the buyer affirms that the manufacturer has correctly interpreted the overall contract requirements for the metal building system and its accessories, and the exact location of accessories in the building.

Architectural Drawing
A drawing, which shows the plan view and/or elevations of the finished building for the purpose of showing the general appearance of the building, indicating all accessory locations.

ASCE
American Society of Civil Engineers.

Astragal
A closure between the two leaves of a double swing or double slide door to close the joint.

Automatic Welding
A welding operation utilizing a machine to make a continuous, unbroken weld.

Auxiliary Loads
All specified dynamic live loads other than the basic design loads which the building must safely withstand, such as cranes, material handling systems, machinery, elevators, vehicles, and impact loads.

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Awning Window
A window in which the vent or vents pivot outward about the top edge giving the awning effect.

AWS
American Welding Society.

Base Angle
An angle secured to the perimeter of the foundation to support and close wall panels.

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

Bay
The space between frame centerlines or primary supporting members in the longitudinal direction of the building.

BBC
Basic Building Code (See BOCA).

Beam
A primary member, usually horizontal, that is subjected to bending loads. There are three types

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

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

Bent
Primary member of a structural system.

Bill of Materials
A list of items or components used for fabrication, shipping, receiving, and accounting purposes.

Bird Screen
Wire mesh used to prevent birds from entering the building through ventilators and louvers.

Blind Rivet
A small-headed pin with expandable shank for joining light gauge metal. Typically used to attach flashing, gutter, etc.

Block or Board Thermal Insulation
Rigid or semi-rigid thermal insulation preformed into rectangular units.

BOCA
Building Officials and Code Administrators International Inc.

Bonded Roof
A roof which carries a written warranty with respect to weathertightness for a stipulated number of years.

Brace Rods
Rods or cables used in roof and walls to transfer loads such as wind loads, and seismic and crane thrusts to the foundation. (Also often used to plumb buildings but not designed to replace erection cables.)

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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 from a wall or column on which to fasten another structural member. Examples are canopy brackets, lean-to brackets, and crane runway brackets.

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. Loads can be moved to any point within a rectangle formed by the bridge span and runway length.

Builder/Contractor
A general contractor or sub-contractor responsible for providing and erecting metal building systems.

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

Built-Up Section
A structural member, usually an “I” section, made from individual flat plates welded together.

Butt Plate
The end plate of a structural member usually used to rest against a like plate of another member in forming a connection. Sometimes called a split plate or bolted end plate.

Camber
A predetermined curvature designed into a structural member to offset the anticipated deflection when loads are applied.

Canopy
Any overhanging or projecting roof structure with the extreme end usually unsupported.

Cantilever
A projecting beam that is supported and restrained at one end only.

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

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

Caulk
To seal and make weathertight the joints, seams, or voids by filling with a waterproofing compound or material.

Channel Hot Rolled
A member formed while in a semi-molten state at the steel mill to a shape having standard dimensions and properties.

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

Closure Strip
A resilient strip, formed to the contour of ribbed panels used to close openings created by joining metal panels and flashing.

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

Collateral Load
All specified additional dead loads other than the metal building framing, such as sprinklers, mechanical and electrical systems, and ceilings.

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

Continuity
The terminology given to a structural member, as if there were no connections.

Contractor
See builder.

Coverings
The exterior roof and wall covering for a metal building system.

Crane
A machine designed to move material by means of a hoist.

Crane Rail
A track supporting and guiding the wheels of a bridge crane or trolley system.

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 under hung bridge cranes, a runway beam also acts as a crane rail.

Curb
A raised edge on a concrete floor slab or skylight.

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

Damper
A baffle used to open or close the throats of ventilators.

Dead Load
The dead load of a building is the weight of all permanent construction, such as floor, roof, framing, and covering members.

Deflection
The displacement of a structural member or system under load.

Design Loads
Those loads specified in building codes published by Federal, State, County, or City agencies, or in owners' specifications to be used in the design of a building.

Diagonal Bracing
See Brace Rods.

Diaphragm Action
The resistance to racking generally offered by the covering system, fasteners and secondary framing.

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

Downspout
A conduit used to carry water from the gutter of a building to the ground or storm drain.

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 Height
The vertical dimension from finished floor to the eave.

Eave Strut
A structural member at the eave to support roof panels and wall panels. It may also transmit wind forced from roof bracing to wall bracing.

Elastic Design
A design concept utilizing the proportional behavior of materials when all stresses are limited to specified allowable values.

End Frame
A frame at the endwall of a building to support the roof load from one-half the end bay.

End Wall
An exterior wall, which is parallel to the interior main frame of the building.

Erection
The on-site assembling of fabricated components to form a complete structure.

Erection Drawings
See framing drawings.

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 raw material into finished metal building components. The main operations are coldforming, cutting, punching, welding, cleaning and painting.

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

Fenestration
Windows or other panels of glass; their numbers and location.

Field
The “job site”, “building site”, or general market area.

Filler Strip
See closure strip.

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Finial
Gable closure at ridge.

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 bracing member used to provide lateral support to the flange of a beam, girder or column.

Flashing
A sheet metal closure which functions primarily to provide weathertightness in a structure and secondarily, to enhance appearance.

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 supporting soil.

Force
The action of one body on another body, which changes or tends to change its state of rest or motion. A force may be expressed in pounds (Newton's), kips, or other similar units and may act in any one of the following ways

A. Compression force: force acting on a body tending to compress the body, (Pushing action).
B. Shear force: force acting on a body, which tends to slide one portion of the body against the other portion of the body. (Sliding action).
C. Tension force: force acting on a body tending to elongate the body. (Sliding action).
D. Torsion force: force acting on a body, which tends to twist the body.

Foundation
The substructure, which supports a building or other structure.

Framed Opening
Frame work (headers and jambs) and flashing which surround an opening in the wall or roof of a building; usually for field-installed accessories such as overhead doors or powered roof exhausters.

Framing
The primary and secondary structural members (columns, rafters, girts, purlins, brace rods, etc.), which go together to make up the skeleton of a structure to which the covering can be applied.

Framing Drawings
Plans and erection instructions which identify all individual parts in sufficient detail to permit the proper erection and installation of all parts of the metal building system furnished by the seller (also known as Erection Drawings).

Gable
A triangular portion of the endwall of a building directly under the sloping roof and above the eave line.

Gable Roof
A roof consisting of two sloping sides that form a ridge and a gable at each.

Galvanized
Coated with zinc for corrosion resistance.

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

Girt
A secondary horizontal structural member attached to sidewall or endwall columns to which wall covering is attached and supported horizontally.

Glaze or Glazing
The process of installing glass in windows and doors.

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

Grade Beam
A concrete beam around the perimeter of a building carrying an exterior wall.

Grout
A mixture of cement, sand, and water used to fill cracks and cavities. Often-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 channel member installed at the eave of the roof for the purpose of carrying water from the roof to the drains or downspouts.

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

Header
A horizontal framing structural member over a door, window or other framed opening.

High Strength Bolts
Any bolt made from steel having a tensile strength in excess of 100,000 lbs. per square inch. Some examples are ASTM A-325 and A-490.

Hinged Base
See pin connection.

Hip Roof
A roof, which rises by inclined planes from all four sides of a building. The line where two adjacent sloping sides of a roof meet is called the Hip.

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.

Hood (Door)
The metal flashing used over exterior slide door track along the full length of the door header to protect the tracks from weather and to conceal them for aesthetic purposes.

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Hot-Rolled Shapes
Steel sections (angles, channels, I-beams, etc.), which are formed by rolling mills while the steel is in a semimolten state.

ICBO
International Conference of Building Officials.

Impact Load
An assumed dynamic load resulting from the motion of machinery, elevators, craneways, vehicles, and other similar moving forces.

Impact Wrench
An electric or pneumatic device used to tighten nuts on bolts.

Insulation
Any material used in building construction to reduce heat transfer.

Internal Pressure
Pressure inside a building, which is a function of wind velocity, and number and location of openings.

Jack Beam
A beam used to support another beam or truss and eliminate a column support.

Jack Truss
A truss used to support another truss or beam and eliminate a column support.

Jib Crane
A cantilevered boom or horizontal beam with hoist and trolley. This lifting machine may pick up loads in all or part of a circle around the column to which it is attached.

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

Kick-Out (Elbow)
(Turn-out) A lower downspouts section used to direct water away from a wall.

Kip
A unit of measure equal to 1,000 pounds. (4.4 KN)

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

Knee Brace
A diagonal brace designed to resist horizontal loads usually from wind or moving equipment. This member normally has the lower end connected to a column and the upper end connected to an eave strut.

Lean-to
A structure such as a shed, having only one slope or pitch 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.

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Liner Panel
A panel applied as an interior finish.

Live Load
Live load means all loads, including snow, exerted on a roof except dead, wind and lateral loads.

Load Indicator Washer
A washer for high-strength bolts in which pre-tension load can be measured as a function of amount of compression on raised portions of the washer.

Loads
Anything that causes a force to be exerted on a structural member. Examples of different types are:

A. Dead Load
B. Impact Load
C. Roof Live Load
D. Seismic Load
E. Wind Load
F. Crane Load
G. Collateral Load
H. Auxiliary Load

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

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

Manufacturer
A party who designs and fabricates a Metal Building System.

Manufacturer's Engineer
An engineer employed by a manufacturer who is in responsible charge of the structural design of a Metal Building System fabricated by the manufacturer. The manufacturer's engineer is typically not the Engineer of Record.

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

Mastic
Caulking or sealant normally used in sealing roof panel laps.

MBMA
Metal Building Manufacturers Association.

Metal Building Fiber Glass Insulation
A grade of fiberglass insulation blanket specifically manufactured for lamination to a vapor retarder.

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

Moment Connection
A connection between two members which transfers the moment from one side of the connection to the other side, and maintains under application of load the same angle between the connected members that exist prior to the loading. Also, a connection that maintains continuity.

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Moment of Inertia
A physical property of a member, which helps define strength and deflection characteristics.

Monolithic Construction
A method of pouring concrete grade beam and floor slab together to form the building foundation without forming and pouring each separately.

Monorail
A single rail support for a material handling system. Normally a standard hot- rolled I-Beam.

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 posts are examples.

Oil Canning
A waviness that may occur in flat areas of light gage, formed metal products. Structural integrity is not normally affected by this inherent characteristic and therefore is only and aesthetic issue.

Overhead Doors
See “Sectional Overhead Doors”.

Parapet
That portion of the vertical wall of a building, which extends above the roofline.

Peak
The uppermost point of a gable.

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

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

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.

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

Post
See” Column”

Post and Beam
See “Beam and Column”.

Pre-painted Coil
Coil of metal, which has received a paint coating.

Primary Framing
See “Main Frame”.

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Public Assembly
A building or space where 300 or more persons may congregate in one area.

Purlin
A horizontal structural member, which supports roof covering.

Rafter
The main beam supporting the roof system.

Rake
The intersection of the plane of the roof and the plane of the endwall.

Rake Angle
Angle fastened to purlins at rake for attachment of endwall panels.

Rake Trim
A flashing designed to close the opening between the roof and endwall panels.

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

Rib
The longitudinal raised profile of a panel that provides much of the panels bending strength.

Ribbed Panel
A panel, which has ribs with sloping sides and forms a trapezoidal shaped void at the side lap.

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

Ridge Cap
A transition of the roofing materials along the ridge of a roof; sometimes- called ridge roll or ridge flashing.

Rigid Connection
See “Moment Connection”.

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.

Rolling Doors
Doors that are supported at the bottom on wheels, which run on a track.

Roof Covering
The exposed exterior roof surface consisting of panels.

Roof Live Load
Loads that are produced (1) during maintenance by workers, equipment, and materials, and (2) during the life of the structure by movable objects and do not include wind, snow, seismic or dead loads.

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Roof Overhang
A roof extension beyond the endwall or sidewall of a building.

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.

Roof Snow Load
That load induced by the weight of snow on the roof of the structure. Usually obtained by taking a fraction of the “Ground Snow Load”.

Ropeseal
See “Sealant”.

Runway Beam
See “Crane Runway Beam”.

Runway Bracket
A bracket attached to the column of a building frame which supports the runway beam for top-running cranes.

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.

Screwed Down Roof System
See “Through-fastened roof system”.

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. For example, purlins and girts.

Sectional Overhead Doors
Doors constructed in horizontally hinged sections. They are equipped with springs, tracks, counter balancers, and other hardware, which roll the sections into an overhead position, clear of the opening.

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

Self-Drilling Screw
A fastener, which combines the functions of drilling and tapping.

Self-Tapping Screw
A fastener, which taps its own threads in a predrilled hole.

Shipping List
See “Bill of Materials”.

Shop Primer Paint
The initial coat of primer paint applied in the shop.

Side Lap Fastener
A fastener used to connect panels together at their side lap.

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

Sidewall Overhang
See “Roof Overhang”.

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

Simple Connection
See “Pin Connection”.

Simple Span
A term used in structural design to describe a beam support condition at two points which offers no resistance to rotation at the supports.

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.

Slope
See “Roof Slope”.

Snow Load
See “Roof Snow Load”.

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.

Soldier Column
An intermediate column used to support secondary structures, not part of a main frame or beam and column system.

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

Specification (Metal Building System)
A statement of a set of Metal Building System requirements describing the loading conditions, design practices, materials and finishes.

Splice
A connection in a structural member.

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

Square
The term used for an area of 100 square feet.

Standing Seam
Side joints of roof panels that are arranged in a vertical position above the roofline.

Standing Seam Roof System
A standing seam roof system is one in which the side laps between the roof panels are arranged in a vertical position above the roof line. The roof panel system is secured to the roof substructure by means of concealed hold down clips attached with screws to the substructure, except that through fasteners may be used at limited locations such as at ends of panels and at roof penetrations.

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 side lap.

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 resists axial compressive forces.

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.

Thermal Block
A spacer of low thermal conductance material.

Thermal Resistance (R-Value)
Under steady conditions, the mean temperature difference between two defined surfaces of material or construction that induces unit heat flow through unit area.

Through-Fastened Roof System
A through-fastened roof system is one in which the roof panels are attached directly to the roof substructure with fasteners which penetrate through the roof sheets and into the substructure.

Ton
2000 pounds.

Track
A metal way for wheeled components; specifically, one or more lines of ways, with fastenings, ties, etc., for a craneway, monorail or slide door.

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Translucent Light Panels
Panels used to admit light.

Transverse
The direction parallel to the main frames.

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

Turn-of-the-Nut Method
A method for pre-tensioning high strength bolts. The nut is turned from the “Snug tight” position, corresponding to a few blows of an impact wrench or 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.

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.

Ventilator
An accessory, usually used on the roof that allows the air to pass through.

Walk Door
See “Personnel Door”.

Wall Covering
The exterior wall surface consisting of panels.

Web
That portion of a structural member between the flanges.

Web Stiffener
See “Stiffener”.

Width
The dimension of the building measured parallel to the main framing from sidewall to sidewall.

Wind Bent
See “Portal Frame”.

Wind Column
A vertical member designed to withstand horizontal wind loads.

Wind Load
The load caused by the wind from any horizontal direction.

X-Bracing
Bracing system with members arranged diagonally in both directions to form an “X”. See “Bracing”.