

GLOSSARY OF TERMS

A

Aluminum Tape: Tape used to cover the top end of a multiwall sheet to prevent water, dust, debris, and bugs from entering flutes.

ANSI - American National Standards Institute

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

Anchor Bolt Plan - Anchor Bolt Plans (a plan view) show the size, location and projection of all anchor bolts for the components of the metal building system, the length and width of the foundation (which may vary from the nominal size of the metal building system) and column reaction (magnitude and direction). The maximum base plate dimensions may also be shown.

Approval Plans - Approval plans may include framing plans, elevations, and sections through the building for approval of the buyer.

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

Auxiliary Loads - All dynamic live loads required by the contract document, such as cranes and material handling systems.

Axial Force - A force tending to elongate and shorten a member.

B

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

Bay - The space between the primary frames measured parallel to the ridge.

Beam - A member, usually horizontal, that is subjected to bending loads. There are three types; simple, continuous and cantilever.

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

Bending Radius: The minimum radius a sheet can bend without damaging or shortening its life

Bent - The main member of a structural system.

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

BOCA - Building Officials and Code Administrators International, Inc..

Brace Rods, Angles, and Cables - Braces 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).

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.

British Thermal Unit (BTU) - That amount of heat required to raise the temperature of one pound (2.2 kg) of water by 1° F

(0.56°C.).

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.).

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

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

Capillary Action - That action which causes movement of liquids when in contact with two adjacent surfaces.

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

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

Collateral Load - All additional dead loads required by the contract documents other than the weight of the metal building system, such as sprinklers, mechanical and electrical systems, and ceilings.

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 of a building system.

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

Contract Documents - The documents which define the responsibilities of the parties involved in the sale, supply, and erection of a metal building system. Such documents normally consist of a contract and specification. Plans may be included.

Corner Post - An end wall column located at the corner of the building.

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

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

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

D

Dead Load - The weight of the metal building system construction, such as roof, framing, and covering members.

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

Design Loads - The loads expressly specified in the contract documents which the metal building system is designed to safely resist.

Diagonal Bracing - See "Brace Rods".

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

Difussion: To spread in all directions. In horticultural terms, it is how the sun beams are scattered when passing

through polycarbonate sheets.

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

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

E

Eave - The line along the side wall formed by the intersection of the planes of the roof and wall.

Eave Height - The vertical dimension from finished floor to the eave.

End Bay - The bays adjacent to the end walls of a building. Usually the distance from the end wall to the first interior primary frame measured parallel to the ridge.

End Frame - A frame located at the end wall of a building which supports the loads from a portion of the end bay.

End Wall - An exterior wall which is perpendicular to the ridge of the building.

End Wall Column - A vertical member located at the end wall of a building which supports the girts. In beam and column end frames, end wall columns also support the beam.

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

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

F

Fabrication - The manufacturing process performed in a plant to convert raw material into finished metal building components. The main operations are cold forming, cutting, punching, welding, cleaning, and painting.

Field - The "job site", "building site", or general marketing area.

Flashing - A sheet metal closure which functions primarily to provide weather tightness in a structure and secondarily to enhance appearance.

Flame Spread: The burning characteristics of building materials.

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.

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

Frame - Primary structural member (columns and rafters) which support the secondary framing.

Framed Openings - Jambs, headers, and flashing which surround an opening in the wall of a metal building.

Framing Plans - Roof and wall framing (erection) plans that identify individual components and accessories furnished by the manufacturer in sufficient detail to permit proper erection of the metal building system.

G

Gable - The triangular portion of the end wall located above the elevation of the eave. Can be A-framed or lean-to shape.

Gable Roof - A ridged roof that terminates in gables.

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 side wall or end wall columns and supports paneling.

Glaze of 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.

Ground Snow Load - The load from snow that has accumulated on the ground. The actual load applied to the roof design is generally reduced to 70% of the Ground Snow Load. This is done because some of the snow blows off the roof instead of accumulating. (See Roof Snow Load)

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. Not normally used in conjunction with metal building systems.

Gusset Plate - A steel plate used to reinforce or connect structural elements.

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

H

Hairpin - U-shaped reinforcing steel used to transfer anchor bolt shear (due to column thrust) to 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 connection of column and rafter at the eave).

Haunch Brace - A diagonal brace from the intersection of the column and rafter section of the rigid frame to the eave to prevent lateral buckling of the haunch.

Header - The horizontal framing member located at the top of a framed opening.

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.

I

ICBO - International Conference of Building Officials.

Ice Dam - A buildup of ice which forms a dam on the roof covering along the eave of the building.

Impact Load - A dynamic load resulting from the motion of machinery, elevators, craneways, vehicles, and other similar moving forces. See "Auxiliary Loads"

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

Intermediate Bay - The distance between two primary frames within a building, other than end frames.

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

J

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

K

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

Knee Brace - A diagonal brace designed to resist horizontal loads usually from wind or moving equipment.

L

Lean-To - A structure such as a shed, having only one slope and depending upon another structure for partial support.

Light Transmission: Light transmission is the percentage of light that passes through a polycarbonate sheet. When a light beam strikes a polycarbonate sheet, some light is reflected, some absorbed, and the rest is transmitted. Light transmission depends on the reflectance of both surfaces of the sheet and the absorption of light into the sheet. Light transmission decreases with an increase in thickness.

Live Load - See "Roof Live Load"

Longitudinal - The direction parallel to the ridge.

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

M

Main Frame - A frame located between end walls of a building which supports the loads from a portion of each adjacent bay.

Main Members - The main load carrying members of a structural system including columns, end wall posts, rafters, and other main support members.

Mansard - A tilted fascia system mounted to the wall, outside the steel line, and extending above the roof line to form a decorative fascia appearance and hide the roof line.

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

Metal Building System - A metal building system consists of a group of coordinated components, including structural members, exterior covering panels, fastening devices and accessories, which have been designed for specific loads, which

will work together compatibly and which have been engineered so that they may be mass produced and assembled in various combinations, or in a combination with various collateral materials, to provide an enclosed or partially enclosed structure.

Mezzanine - An intermediate floor placed in any story or room. When the total area of any "mezzanine floor" exceeds 33 1/3 percent of the total floor area in that room, it will be considered as an additional story.

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

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

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.

and single gable buildings with interior columns are examples.

N

NBC - National Building Code

NC - North Carolina Code

Newton - SI unit of measure for force (N).

O

Overhead Doors - See "Sectional Overhead Doors"

P

Parapet - That portion of the vertical wall of a building which extends above the roof line at the intersection of the wall and roof.

Pascal - SI unit of measure for force per unit area (N/m^2).

Peak - The uppermost point of a gable.

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

Pig Spout - A sheet metal section designed to direct the flow of water out through the face of the gutter rather than through a downspout.

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 connection members, but not moments.

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.

Plastic Panels - See "Translucent Light Panels"

Ponding - The gathering of water at low or irregular areas on a roof.

Portal Frame - A rigid frame structure so designed that it offers rigidity and stability in its plane. It is used to resist longitudinal loads where diagonal bracing is not permitted. (Also "Wind Bent").

Post (End Post; Corner Post) - See "End Wall Column"

Pre-Stressed Concrete - Concrete in which the reinforcing cables, wires, or rods in the concrete are tensioned before there is load on the member, holding the concrete in compression for greater strength.

Prismatic Beam - A beam with uniform cross section.

Purlin - A purlin is a horizontal structural member often made from wood or steel that directly supports the roofing material. Purlins run perpendicular to the slope of the roof as opposed to rafters that run up and down the slope of the roof. Purlins transfer the roof load to the main roof structure such as trusses, load bearing walls, or large rafters. Purlins vary in size depending on the type of structure, loading requirements, and local codes. The distance between purlins is depended on the type of roofing material, loading requirements, and local codes. Be sure to check with your local building inspector or check local code requirements.

R

R-Value: Measures heat gain. A higher r-value is better. To calculate the r-value take 1 and divide by the u-value.

Rafter - The main beam supporting the roof system.

Rake - The intersection of the plane of the roof and the plane of the gable. (As opposed to end walls meeting hip roofs).

Reactions - The resisting forces at the column bases of a frame, holding the frame in equilibrium under a given loading condition.

Ridge - Highest point on the roof of the building which describes a horizontal line running the length of the building.

Ridge Cap - 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 rigid (or moment) connections so as to render the frame stable with respect to the design loads, without the need for bracing in its plane.

Roof Covering - The exposed exterior roof skin consisting of panels or sheets.

Roof Live Load - Those loads induced by the use and occupancy of the building, not including wind load, snow load, seismic load or dead load.

Roof Overhang - A roof extension beyond the end wall or side wall of a building.

Roof Pitch - Ratio of rise to total width.

Roof Slope - 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. (See Ground Snow Load)

S

Sag Member - A tension member used to limit the deflection of a girt or purlin in the deflection of the weak axis.

Sandwich Panel - A panel assembly used as covering consists of an insulating core material with inner and outer skins.

SBCCI (sometimes SBC) - Southern Building Code Congress International, Inc.

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

Sealant - Any material which is used to seal cracks, joints, or laps. Silicone or urethane.

Section Modulus - A physical property of a structural member. It is used to design and basically describes the bending strength of a member.

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 assumed 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. It is used for attaching panels to purlins and girts.

Self Tapping Screw - A fastener which taps its own threads in a pre-drilled hole. It is for attaching panels to purlins and girts and for connecting trim and flashing.

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

Shim - A piece of steel used to level base plates or square beams.

Shipping List - A list that enumerates by part number or description each piece of material or assembly to be shipped. Also called tally sheet, bill of materials, or packing list.

SI - The International symbol for the metric unit used by the United States (Le Systeme International d' Unites).

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

Side Wall - An exterior wall which is parallel to the ridge of the building.

Side Wall Overhang - A projection of the roof past the side wall.

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

Simple Span - A term used in structural analysis to describe a support condition for a beam, girt, purlin, etc., 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.

Siphon Break - A small groove to arrest the capillary action of two adjacent surfaces. (Anti-Capillary Groove).

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 overhead trolleys.

Snow Load - See "Roof Snow Load"

Soffit - A metal panel which covers the underside of an overhang or mansard.

So. Fla. - South Florida Code

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

Spall - A chip or fragment of concrete which has chipped, weathered, or otherwise broken from the main mass of concrete.

Span - The distance between supports of beams, bidders, or trusses.

Splice - A connection in a structural member.

Square - The term used for an area of 100 square feet (9.29 M²).

Stainless Steel - An alloy of steel which contains a high percentage of chromium. Also may contain nickel or copper.

Stiles - The vertical side members of framed and paneled doors.

Stitch Screw - A fastener used to connect panels at the side lap or to connect flashing to the panels.

Stress - A measure of the load on a structural member in terms of forces per unit area (kips per sq. in.) (Mpa).

Strut - A brace fitted into a frame work which resists axial 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.

Suction - A partial vacuum resulting from wind loads on a building which cause a load in the outward direction.

T

Thermal Break (block) - A spacer of low thermal conductance material.

Thermal Conductivity, (k) - The rate of heat flow, in BTU's per hour, through a square foot of material exactly one inch thick whose surfaces have a temperature differential of 1° F.

Thermal Conductance (C) - The rate of heat flow in BTU's per hour, through a square foot of material or a combination of material whose surfaces have a temperature differential of 1° F.

Thermal Resistance (R) - Resistance to heat flow. The reciprocal of conductance. (C)

Thermal Transmittance (U) - The rate of heat flow per square foot under steady conditions from the air on the warm side of a barrier to the air on the cold side, for 1° F of temperature difference between the two (BTU/Ft²/hr./1° F).

Thrust - The horizontal component of a reaction.

Tie - A structural member that is loaded in tension.

Translucent Light Panels - Translucent plastic panels used to admit sunlight.

Transverse - The direction perpendicular to the ridge.

Tributary Area - The area which contributes load to a specific structural component.

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

Truss - A structure made up of three or more members, 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 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.

U

U-Value: Measures heat loss. The amount of energy transmitted through a material per square foot of glazing and per degree temperature difference. A lower u-value is better. To calculate the u-value take the k-value and divide by 5.678

UBC - Uniform Building Code.

Uplift - Wind load on a building which causes a load in the upward direction. See "Suction"

V

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

W

Wall Covering - The exterior wall skin consisting of panels or sheets.

Web - That portion of a structural member between the flanges.

Web Member - A secondary structural member interposed between the top and bottom chords of a truss.

Wind Bent - See "Portal Frame"

Wind Column - A vertical member supporting a wall system designed to withstand horizontal wind loads.

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

Z

Zinc-Aluminum Coated - Steel coated with zinc and aluminum for corrosion resistance.