



CONSTRUCTION TERMINOLOGY

ANCHOR: Metal securing device embedded or driven into masonry, concrete, steel or wood.

ANCHOR BOLT: Heavy, threaded bolt embedded in the foundation to secure sill to foundation wall or bottom plate of exterior wall to concrete floor slab.

BAR JOIST: Open-web, flat truss structural member used to support floor or roof structure. Web section is made from bar or rod stock, and chords are usually fabricated from "T" or angle sections.

BATTEN: Narrow strip of wood, plastic, metal or gypsum board used to conceal an open joint.

BEAM: Load bearing member spanning a distance between supports.

BRIDGING: Members attached between floor joists to distribute concentrated loads over more than one joist and to prevent rotation of the joist. Solid bridging consists of joist-depth lumber installed perpendicular to and between the joists. Cross bridging consists of pairs of braces set in an "X" form between joists.

CARRYING CHANNEL: Main supporting member of a suspended ceiling system. Attached to furring members or channels.

CASING: The trim around windows, doors, columns or piers.

CLADDING: Gypsum panels, gypsum bases, gypsum sheathing, cement board, etc. applied to framing.

COLUMN: Vertical load bearing member.

CORNER BRACE: Structural framing member used to resist diagonal loads that cause racking of walls and panels due to wind and seismic forces. May consist of a panel or diaphragm, or diagonal flat strap or rod. Bracing must function in both tension and compression. If brace only performs in tension, two diagonal tension members must be employed in opposing direction as "X" bracing.

CORNER POST: Timber or other member forming the corner of a frame. May be solid or built-up as a multi-piece member.

CRIPPLE: Short stud such as that used between a door or window header and the top plate.

CURTAIN WALL: Exterior wall of a building that is supported by the structure and carries no part of the vertical load except its own. Curtain walls must be designed to withstand wind loads and transfer them to the structure.

DEAD LOAD: Load on a building element contributed by the weight of the building materials.

DEFORMATION: Change in shape of a body brought about by the application of a force internal or external. Internal forces may result from temperature, humidity or chemical changes. External forces from applied loads can also cause deformation.

DESIGN LOAD: Combination of weight (dead load) and other applied forces (live loads) for which a building or part of a building is designed. Based on the worst possible combination of loads.

EXTERIOR INSULATION AND FINISH SYSTEM (EIFS): Exterior cladding assembly consisting of a polymer finish over a reinforcement adhered to foam plastic insulation that is fastened to masonry, concrete, building sheathing or directly to the structural framing. The sheathing may be cement board or gypsum sheathing.

FASCIA BOARD: Board fastened to the ends of the rafters or joists forming part of a cornice.

FIRE WALL: Fire-resistant partition extending to or through the roof of a building to retard spread of fire. See Area Separation Wall.

FLASHING: Strips of metal or waterproof material used to make joints waterproof, as in the joining of curtain wall panels.

FOOTING: Lower extremity of a foundation or load-bearing member that transmits load to load-bearing substrate.

FORCE: Amount of applied energy to cause motion, deformation or displacement and stress in a body.

FOUNDATION: Component that transfers weight of building and occupants to the earth.

FURRING: Member or means of supporting a finished surfacing material away from the structural wall or framing. Used to level uneven or damaged surfaces or to provide space between substrates. Also an element for mechanical or adhesive attachment of paneling.

GABLE: Uppermost portion of the end wall of a building that comes to a triangular point under a sloping roof.

GIRDER: Beam, especially a long, heavy one; the main beam supporting floor joists or other smaller beams.

GUSSET: Wood or metal plate riveted, bolted, glued or pressed (wood trusses) over joints to transfer stresses between connected members.

HEADER: Horizontal framing member across the ends of the joists. Also the member over a door or window opening in a wall.

HEEL OF RAFTER: Seat cut in a rafter that rests on the wall plate.

HVAC: Heating, ventilating and air conditioning. (ASHRAE Guide is the technical reference

source.)

INSULATION (THERMAL): Any material that measurably retards heat transfer. There is wide variation in the insulating value of different materials. A material having a low density (weight/volume) will usually be a good thermal insulator.

JAMB: One of the finished upright sides of a door or window frame.

JAMB STUD: Wood or metal stud adjacent to the doorjamb.

JOIST: Small beam that supports part of the floor, ceiling or roof of a building.

JOIST HANGER: Metal shape formed for hanging on the main beam to provide support for the end of a joist.

LEDGER STRIP: Strip fastened to the bottom edge of a flush girder to help support the floor joists.

LINTEL: Horizontal member spanning an open such as a window or door. Also referred to as a Header.

LIVE LOAD: Part of the total load on structural members that is not a permanent part of the structure. May be variable, as in the case of loads contributed by the occupancy, and wind and snow loads.

LOAD: Force provided by weight, external or environmental sources such as wind, water, and temperature, or other sources of energy.

MITER: Joint formed by two pieces of material cut to meet at an angle.

MOULDING (ALSO MOLDING): Narrow decorative strip applied to a surface.

MULLION: Vertical bar or division in a window frame separating two or more panes.

MUNTIN: Horizontal bar or division in a window frame separating multiple panes or lights.

PARAPET WALL: Extension of an exterior wall above and/or through the roof surface.

PITCH OF ROOF: Slope of the surface, generally expressed in inches of vertical rise per 12" horizontal distance, such as "4-in-12 pitch."

PLATE: "Top" plate is the horizontal member fastened to the top of the studs or wall on which the rafters, joists or trusses rest; "sole" plate is positioned at bottom of studs or wall.

PLATFORM: Floor surface raised above the ground or floor level.

PLATFORM FRAMING: Technique of framing where walls can be built and tilted-up on a platform floor, and in multistory construction is erected sequentially from one platform to another. Also known as "Western" framing.

PLENUM: Chamber in which the pressure of the air is higher (as in a forced-air furnace system) than that of the surrounding air. Frequently a description of the space above a

suspended ceiling.

PURLIN: Horizontal member in a roof supporting common rafters, such as at the break in a gable roof. Also, horizontal structural member perpendicular to main beams in a flat roof.

RACKING: Forcing out of plumb of structural components, usually by wind, seismic stress or thermal expansion or contraction.

RAFTER: That member forming the slanting frame of a roof or top chord of a truss. Also known as hip, jack or valley rafter depending on its location and use.

RAFTER TAIL: That part of a rafter that extends beyond the wall plate -- the overhang.

RIDGE: Peak of a roof where the roof surfaces meet at an angle. Also may refer to the framing member that runs along the ridge and supports the rafters.

RISE: Measurement in height of an object; the amount it rises. The converse is "fall".

RISER: Vertical face of a step supporting the tread in the staircase.

SCAB: Small piece or block of wood that bridges several members or provides a connection or fastening between them.

SHEATHING: Plywood, gypsum, wood fiber, expanded plastic or composition boards encasing walls, ceilings, floors and roofs of framed buildings. May be structural or non-structural, thermal insulating or non-insulating, fire-resistant or combustible.

SHEETROCK: Leading brand of gypsum panel for interior wall and ceiling surfaces, developed and improved by United States Gypsum Company. There is only one SHEETROCK brand Gypsum Panel.

SHORING: Temporary member placed to support part of a building during construction, repair or alteration; also may support the walls of an excavation.

SILL: Horizontal member at the bottom of door or window frames to provide support and closure.

SILL PLATE: Horizontal member laid directly on a foundation on which the framework of a building is erected.

SLAB: Flat (although sometimes ribbed on the underside) reinforced concrete element of a building that provides the base for the floor or roofing materials.

SOFFIT: Under surface of a projection or opening; bottom of a cornice between the fascia board and the outside of the building; underside of a stair, floor or lintel.

SPAN: Distance between supports, usually a beam or joist.

SPANDREL BEAM: Horizontal member, spanning between exterior columns, that supports the floor or roof.

SPANDREL WALL: Exterior wall panel (usually between columns) that extends from the

window opening on one floor to one on the next floor.

STILE: Vertical outside member in a piece of sill work, as a door or sash.

STIRRUP: Hanger to support the end of the joist at the beam.

STOP: Strip of wood fastened to the jambs and head of a door or window frame against which the door or window closes.

STRINGER: Heavy horizontal timber supporting other members of the frame in a wood or brick structure; a support also for steps.

STRUT: Slender structural element that resists compressive forces acting lengthwise.

STUD: Vertical load-bearing or non-load bearing framing member.

SUBFLOOR: Rough or structural floor placed directly on the floor joists or beams to which the finished floor is applied. As with resilient flooring, an under-layment may be required between sub-floor and finished floor.

SUBSTRATE: Underlying material to which a finish is applied or by which it is supported.

THRESHOLD: Raised member at the floor within the doorjamb. Its purpose is to provide a divider between dissimilar flooring materials or serve as a thermal, sound or water barrier.

TOENAIL: Method of fastening two boards together as in a "T" by driving nails into the board that forms the stem of the "T" at an angle so they enter the other board and cross each other.

TONGUE-AND-GROOVE JOINT: Joint where the projection or "tongue" of one member engages the mating grooves of the adjacent member to minimize relative deflection and air infiltration; widely used in sheathing, flooring and paneling. Tongues may be in "V", round or square shapes.

TREAD: Horizontal plane or surface of a stair step.

TRIMMER: Double joists or rafters framing the opening of a stairway well, dormer opening, etc.

TRUSS: Open, lightweight framework of members, usually designed to replace a large beam where spans are great.

WEEP HOLE: Small aperture at the base of an exterior wall cavity intended to drain out trapped moisture.

TERMS CONCERNING STEEL FRAMING

ACCEPTED ENGINEERING PRACTICE: That which conforms to accepted principles, tests, or standards of nationally recognized technical or scientific authorities.

APPROVED: Refers to approval by the code official or other authority having jurisdiction as the result of investigation and tests conducted by him, or by reason of accepted principles or tests by nationally recognized organizations.

AXIAL LOAD: The longitudinal force acting on a member. Examples are the gravity loads carried by columns or studs.

BUCKLING: The bending, warping or crumpling of a member (such as a wall stud) subjected to axial, bending, or shear loads.

CEILING JOIST: A horizontal structural framing member which supports a ceiling and/or attic loads. Refer to *Figure 2*.

C-SECTION: Used for structural framing members (such as studs, joists, headers, beams, girders, and rafters). The name comes from the member's "C" shaped cross-sectional configuration consisting of a web, flange and lip. *Figure 1* shows this cross-section and defines the different parts of the C-section. C-section web depth measurements are taken to the outside of the flanges. C-section flange width measurements also use outside dimensions.

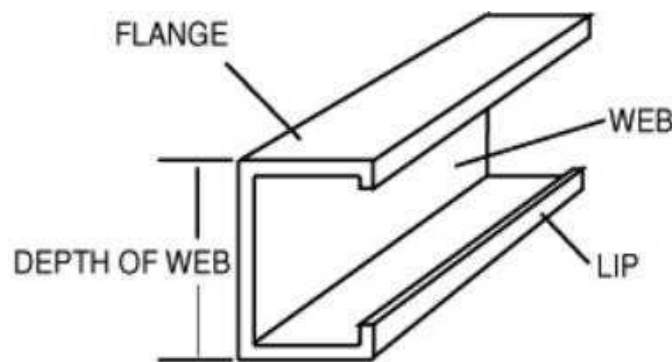


FIGURE 1
C-SECTION CONFIGURATION

CLIP ANGLE:

An L shaped short piece of metal (normally with a 90 degree bend). It is typically used for connections.

COLD-FORMING: A process where light-gauge steel members are manufactured by (1) press-braking blanks sheared from sheets or cut length of coils or plates, or by (2) roll forming cold- or hot-rolled coils of sheet steel; both forming operations are performed as ambient room temperature, that is, without manifest addition of heat such as would be required for hot forming.

FLANGE: The part of a C-section or track that is perpendicular to the web. Refer to *Figure 1*.

FLAT STRAP: Sheet steel cut to a specified width without any bends (typically used for bracing and other flat applications). Refer to *Figure 2*.

FLOOR JOIST: A horizontal structural framing member that supports floor loads. Refer to *Figure 2*.

GALVANIZED STEEL: Steel that has a zinc protective coating for resistance against corrosion, The level of protection provided is measured by the weight of the galvanized coating applied to the surface area of the steel (e.g., G-40 or G-60).

HEADER: A horizontal built-up structural framing member used over wall or roof openings to carry loads across the opening. Refer to *Figure 2*.

IN-LINE FRAMING: Framing method where all vertical and horizontal load-carrying members are aligned. Refer to *Figure 2*.

JACK STUD: A vertical structural member that does not span the full height of the wall and supports vertical loads and/or transfers lateral loads. Jack studs are used to support headers. Refer to *Figure 2*.

KING STUD: vertical structural member that span the full height of the wall and supports vertical loads and lateral loads. Usually located at both ends of a header adjacent to the jack studs to resist lateral loads. Refer to *Figure 2*.

LIP: The part of a C-section, which extends from the flange at the open end. The lip increases the strength characteristics of the member and acts as a stiffener to the flange. Refer to *Figure 1*.

LOADS, LIVE AND DEAD: Dead loads are the weight of the walls, partitions, framing, floors, ceilings, roofs, and all other permanent stationary construction entering into and becoming a part of a building. Live loads are all loads except dead and lateral loads.

MATERIAL PROPERTIES: The chemical, mechanical, and physical properties of steel before or after the cold-forming process.

MATERIAL THICKNESS: The base metal thickness excluding any protective coatings. Thickness is expressed in mils (1/1000 of an inch).

MIL: A unit of measurement typically used in measuring the thickness of thin elements. One mil equals 1/1000 of an inch.

MULTIPLE SPAN: The span made by a continuous member having intermediate supports.

NON-LOAD BEARING WALLS (NON-STRUCTURAL WALLS)

Refer to walls.

PUNCHOUT: A hole in the web of a steel framing member allowing for the installation of plumbing, electrical, and other trade installation. Also another term for finish work.

RAFTER: A structural framing member (sloped), which supports roof loads. Refer to *Figure 2*.

SEISMIC ZONE: Seismic zones designate areas with varying degrees of seismic risk and associated seismic design parameters (i.e. effective peak ground acceleration). Seismic zones 1, 2, 3, and 4 correspond to effective peak ground acceleration of 0.1g, 0.2g, 0.3g, and 0.4g, respectively (1g is the acceleration of the earth's gravity at sea level). Refer to ASCE 7-93 for more details.

SHEARWALL: A wall assembly capable of resisting lateral forces to prevent racking from wind or seismic loads acting parallel to the plane of the wall.

SINGLE SPAN: The span made by one continuous structural member without any intermediate supports.

SPAN: The clear horizontal distance between bearing supports.

STRUCTURAL SHEATHING: The covering (e.g. plywood) used directly over structural members (e.g. studs or joists) to distribute loads, brace walls, and strengthen the assembly. Refer to *Figure 2*.

STUD: Vertical structural element of a wall assembly which supports vertical loads and/or transfers lateral loads.

TRACK: Used for applications such as top and bottom plate for walls and bands joists for flooring systems. The track has a web and flanges, but no lips. Track web depth measurements are taken to the inside of the flanges. Refer to *Figure 2*.

WALLS: 1. Structural or load bearing: (i.e. transverse and/or axial load bearing). Steel framing systems that exceed the limits for a non-structural system (e.g. wall studs). 2. Non-structural: (i.e. non-load bearing). Steel framing systems that are limited to 10 psf (0.479 kN/m²) maximum lateral (transverse) load and/or limited, exclusive of sheathing materials, to 100 pounds (450 N) per lineal foot (305 mm) or 200 pounds (900 N) maximum superimposed vertical load per member (e.g. partitions).

WEB: The part of a C-section or track that connects the two flanges.

WEB CRIPPLING: The bending, warping or crumpling of the web of a member subjected to concentrated load. Refer to *Figure 1*.

WEB STIFFENER: Additional material that is attached to the web to strengthen the member against web crippling. Also called bearing stiffener.

WIND EXPOSURE: Wind exposure is determined by site conditions that affect the ground level wind speeds experienced at a given site. For the purpose of this document, Exposure B represents a suburban or wooded terrain and Exposure C represents open terrain with scattered obstructions. Refer to ASCE 7-93 for more details.

WIND SPEED: Wind speed is the design wind speed related to winds that could be expected to occur once every 50 years at a given site (i.e. 50-year return period). Wind speeds in this document are given in units of miles per hour by "fastest-mile" measurements. Refer to ASCE 7-93 for more details.

YIELD STRENGTH: A characteristic of the basic strength of the steel material. It is the highest unit stress that the material can endure before permanent deformation occurs.

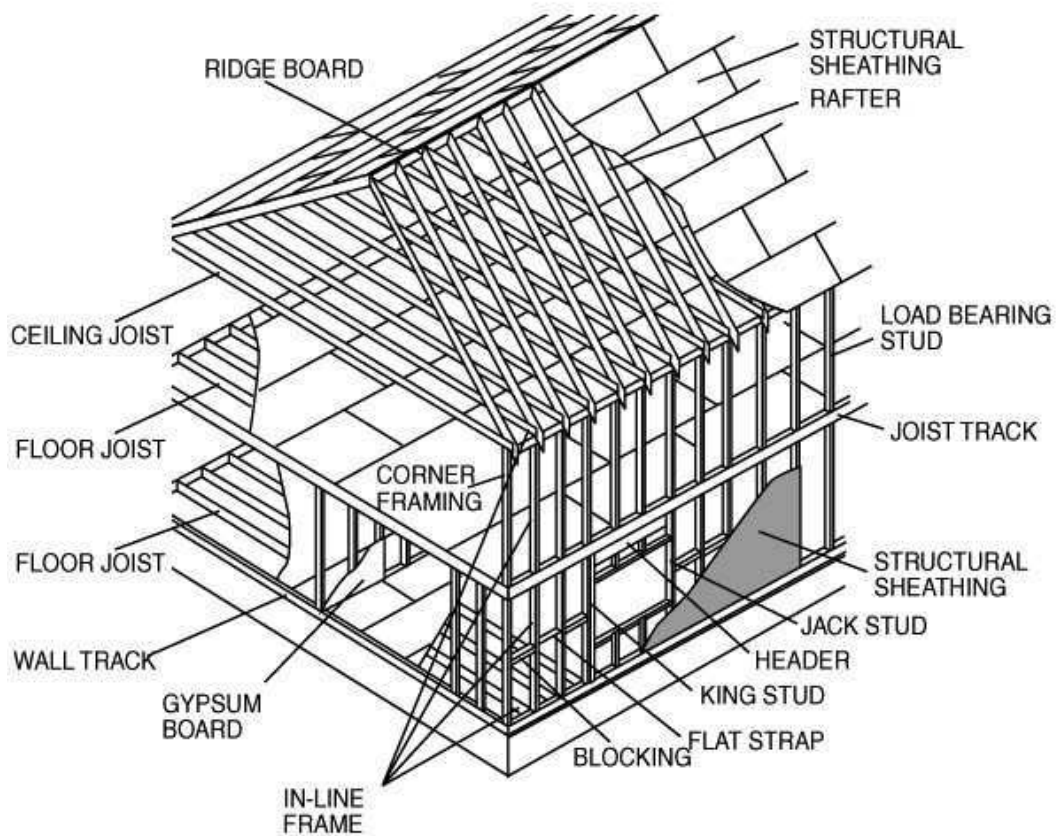


FIGURE 2
STEEL FRAMED BUILDING

ORGANIZATIONS

ACCA: Air Conditioning Contractors of America

AISI: American Iron and Steel Institute

ASHRAE: American Society of Heating, Refrigeration and Air-Conditioning Engineers

ASTM: American Society for Testing and Materials

AWCI: Association of the Wall and Ceiling Industries

CABO: Council of American Building Officials

CSI: Construction Specifiers Institute

HUD: Housing and Urban Development, federal agency.

ICBO: International Conference of Building Officials

ICC: International Codes Council

IFI: Industrial Fastener Institute

IISI: International Iron and Steel Institute

IRC: International Residential Code

LGSEA: Light Gauge Steel Engineers Association

NAHB: National Association of Home Builders

SAE: Society of Automotive Engineers

UBC: Uniform Building Code

