



Contacts:

Renee Mailhot, Museum of Science and Industry, (773) 947-3133

VOCABULARY BUILDERS: A GLOSSARY OF TERMS

Arch: A curved structure capable of spanning a space while supporting significant weight.

Aggregate: Stones and sand used as filler in concrete, asphalt and other construction materials.

Buttress: A vertical projection from a wall that stabilizes the wall.

Cantilever: An unsupported overhang acting as a lever, like a flagpole sticking out of the side of a wall.

Catenary curve: The U shape that a hanging string or cable takes when each end is supported and gravity pulls down. The Gateway Arch in St. Louis is an inverted catenary curve.

Caryatid: A sculpted female figure serving as an architectural support taking the place of a column or a pillar supporting an entablature on her head.

Cladding: The building's "skin." Materials include metal, wood, stone, glass and more.

Cleat: A steel plate or angle with holes for bolting. Used to connect pieces of a steel frame together.

Compression: A squeezing force that causes an object to become compacted.

Cupola: A small, usually domed structure on top of a building.

Dead load: The weight of the materials which make up the *permanent* structure. Imposed load is the weight added to the structure—for example, cars and trucks to a bridge.

Dowel: A steel bar used for transferring load across a joint.

Flashing: Durable metal sheets used for water protection. Used in the junction where the roofs and walls meet.

Gable: A triangular portion of an end wall between the edges of a sloping roof.

Ginny wheel: A pulley used for hoisting things up a scaffold.

Girder: A large beam that supports the ends of smaller beams.

Gravity loads: Vertical forces that act on a structure.

High-tensile steel: Extra strong steel often used in structural work and to reinforce concrete.

Joist: One of the horizontal structures that supports a ceiling or floor.

Keystone: The architectural piece at the top of a vault or arch. This piece locks the other pieces into place.

Lateral loads: Horizontal forces acting on a structure (e.g. from wind or earthquakes).

Lintel: A horizontal block that spans the space between two supports.

Padstone: A block of concrete that spreads the weight of a beam or joist, preventing the wall from crushing.

Parapet: A low wall built up above the level of a roof, to hide the roof or to prevent it from falling.

Pile: A deep column driven deep into the ground as a foundation. Used primarily when the foundation needs extra support from a deeper, stronger, and more stable layer.

Precast concrete: Concrete made in a factory and transported to the building site.

Reinforced concrete: Concrete made strong with steel bars. Reinforced concrete often is used in to withstand bending, shear, tension and compression, whereas plain concrete which is best used only in compression.

Shear: A force that is not aligned—it pushes part of a structure in one direction and in another part, in the opposite direction.

Sheathing: Boards or panels that cover the building.

Slurry wall: A technique used to reinforce walls built near water. Slurry is a sludgy mixture of water, bentonite clay and other materials. Many foundations, including the Museum of Science and Industry's parking garage, feature slurry walls.

Spandrel: The space between two arches or between an arch and a rectangular enclosure.

Squinch: A piece of construction used for filling in the upper angles of a square room. Primarily used to provide a base for an octagonal or spherical dome.

Tension: A force that pulls materials apart (e.g. weight on a cable).

Torsion: A force that twists an object. The Tacoma Bridge disaster is an example of what happens when engineering does not adequately anticipate torsion forces.

Truss: A structural element comprised of triangular pieces that supports a bridge's deck or roadway.

Underpinning: Extending existing foundations even deeper.

###