

SHIP TERMS AND DEFINITIONS

A

Abaft ----Aft of; farther aft than.

Access Holes---- Holes cut in ship's structure to permit entering or leaving various compartments.

Accommodation Ladder---- A portable set of steps on a ship's side for the accommodation of people boarding from small boats or from a pier.

Aft ----Toward, at, or near stern.

After---- Nearer stern.

Aftermost---- Nearest the stern.

After Body---- Hull form aft of the midship section.

After Peak---- The compartment in the narrow part of the stern, aft of the last water-tight bulkhead.

After Peak Bhd.---- Watertight bulkhead farthest aft.

After Perpendicular (A.P.) ---- A vertical line usually at the after end of the rudder post. If there is no rudder post, it usually is taken at the center of the rudder stock.

Air Hammer---- Hammer driven by compressed air for riveting, or chipping. Sometimes called an air gun or "gun."

Air Port ----A circular opening or window through the ship's, or deck house, for light or ventilation.

Amidships ----At or near the midship section of the ship.

Anchor---- A heavy hook-shaped device for holding a ship at rest in water. The anchor grips the ocean bottom and is fastened to the ship by a chain.

Angle Clip---- A short piece of angle bar.

Angle Collar ----A ring made of angle bar.

Anneal ----To soften metal by heating and allowing it to cool slowly.

Anode ----Zinc or aluminum or some such alloy that is fixed to the hull of a vessel. They are 'eaten' up by electrical currents moving from the vessel to the water. The anode is sacrificed to protect the metal hull of the vessel - without the anode, the hull plating would be dissolved by electrolysis.



This anode has been partly sacrificed by electrolysis on this vessel. It is still in good enough shape to keep on the vessel and is doing its intended job very well.



This is a new anode on a vessel, it has been welded in place. The shipyard did a good job of not painting the anode.

Aperture ----A recess in which the propeller is located.

Assemble ----To fit together small parts, in making a large section, or part .

Athwartship ----Across the ship at right angles to the centerline.

Auxiliaries ----Machinery supplementary to main propulsive units.

Awning Deck ----Shade deck above another deck.

B

Ballast ----Any weight or weights (usually sea water, but could be concrete, scrap steel, etc.) used to keep the ship from becoming "top heavy" or to change her trim. Some of the largest cannons in the navy were on hospital ships - they were in the bilge for ballast.

Ballast Tank ----Watertight compartment to hold ballast.

Barge ----A water tight vessel that floats in water. Picture of 2 loaded inland rivers tank barges, carrying liquid cargo. Barges also come in open and closed hopper styles, and with flat decks.



These 2 **tank barges** are loaded with petrochemicals in the Houston, Texas, USA ship channel. The boat that is pushing them is called a **tow boat**, because it pushes a 'tow of barges'.



Covered
hopper barge loaded with steel.

Barnacle ----Small marine growth which attaches itself to a vessel's hull in large numbers, often greatly retarding her speed.

Base Line ----A straight horizontal line at or near the bottom of the moulded surface from which vertical heights are measured. Usually, the base line is the very lowest part of the moulded surface. In Fig. 2 is shown an exception.

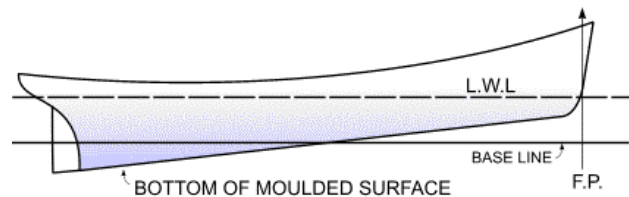


FIG. 2 "UNUSUAL BASE LINE LOCATION"

Battens ----Long strips of wood used in the mold loft for fairing lines; also, wooden protective strips in cargo holds; see hatch battens.

Beam ----An athwartship member supporting a portion of a deck. Also, the width of the ship.

Beam Knee ----(See Bracket)

Below ----Below a deck or decks (corresponding to "downstairs").

Bending Rolls ----Large machine used to give curvature to plates. Also see 'press brake'.

Bending Slab---- Heavy cast iron perforated slabs arranged to form a large floor on which frames, etc., are bent.

Berth ----A place for a ship; a place to sleep; a bunk; also, a specified small section of the hull structure.

Between Decks ----The space between any two decks.

Bevel ----The angle between the flanges of a frame or other member. (When greater than a right angle, open bevel; when less, closed.) Also, to chamfer.

Bilge ----Curved section between the bottom and the side of a ship; the recess into which all water drains.

Bilge Blocks ----Supporting blocks used under bilge for support during construction or drydocking.



Bilge blocks supporting a vessel on a drydock.



More bilge blocks.

Bilge ----A fore and aft member fitted to the outside of the shell plating along the bilge, to prevent excessive rolling of the ship.

Bilge Pump ----Pump for removing bilge water.

Bilge Strake ----Course of plates at the bilge.

Bilge Water ----Water in ship due to leaks, sweat, etc.

Bilge Well ---- A sump to which bilge water drains.

Binnacle ----A case, box, or stand containing a ship's compass, adjusting magnets, and a lamp for use at night.

Bitt ----A vertical post used in making fast lines; a bollard.



Double post bitt. A single post item similar to this would be a bollard. It is easier to secure and remove a rope on a double post bitt.

Bitumastic ----An elastic cement used in place of paint to protect steel.

Boat Deck ----A deck on which lifeboats are kept.

Body Plan ----A drawing which shows frame lines in elevation. The body plan is made in two parts. The right-hand part is a view looking directly aft at the for'd port side of moulded surface, while the left-hand part is a view looking directly forward at the after half of the port side. This arrangement prevents the frame lines at the after end from obliterating or fouling the frame lines at the forward end. This view shows buttocks and waterlines straight, while the frame lines appear in their true shape.

Boiler ----Container in which water is heated to form steam.

Boiler Chocks ----Stay braces which prevent fore and aft movement of boilers.

Boiler Foundation ----A support for a boiler.

Bollard ----A single tie post (see bitt).

Booby Hatch ----A watertight covering over a deck opening, which is used for a stairway or ladder.

Boom ----A long, round, heavy spar, pivoted at one end, usually used for handling cargo, etc.



Here is a **davit**, or a **cargo hose boom**. This one design of several different types of devices designed to assist in lifting heavy items. The **King Post** or **Sampson Post** or **Stanchion** is the vertical pipe on the right side of the picture. The **boom (spar)** extends to the left, and is supported by a boom rest near the tip, and the **boom socket (step)** at the base of the **king post**.

Boom Rest ----A support for a boom when the boom is not in use.

Boom Step ----A socket for end of boom.

Bosom Piece ----A short piece of angle riveted over a butt joint of two angles, a butt strap for angle bars; a splice piece.

Boss ----The curved swelling portion of the ship's hull around the propeller shaft.



Propeller on a ferry. Most US ferry's have identical propellers on both ends. This way they do not have to back up to get into the slip, making it much easier for the vehicles to drive on and off. The **boss** and the **oxter plate** is here somewhere.



Propeller on a river towboat. This one has 4 blades and is designed for power rather than speed. 4 blade propellers have less vibration than 2 or 3 blade propellers, benefiting the crew.

Boss Frame ----A hull frame which is bent for clearing propeller shaft tube boss

Boss Plate ----A shell plate covering the curved portion of hull where the propeller shaft passes outboard.

Bow ----The forward end of a vessel. (Usually the pointed end.)



Here is the bow of a tank barge on drydock.

Bowsprit --A spar projecting forward from the bow of a vessel used to attach sails and stays.

Bracket ----A triangular plate used to connect rigidly two or more parts, such as a deck beam to a frame, a frame to a margin plate, etc.

Braze ----To heat and join by means of hard solder (spelter). This may be brass, bronze, or other alloys.

Breakwater ----A braced guard plate which prevents solid water from sweeping the decks.

Breast Cap ----Small plate on top of bulwark, at stem of vessel to stiffen bulwark.

Breast Hook ----A triangular-shaped plate extending horizontally across the bow behind the stem, stiffening the stringers and stem.

Bridge, Navigating ----A deck from which the ship is navigated.

Bridge Deck ----A deck of the superstructure amidships.

Brow ----A watershed over an airport; a small inclined runway to allow passage of trucks over hatch coaming, or through bulkhead door, etc.; sometimes portable.

Buck frame ----In a double skin tank barge, these frames act as spacers in the void tanks. A 4'6" wide void might have 2 vertical 8" channel iron with 3" x 3" x 5/16" angle iron between. Also called a transverse truss.

Building Slip ----A place where the ship is built; a shipway.

Bulb Angle ----An angle shape, which is reinforced at one toe.

Bulb Plate ----A narrow plate reinforced on one edge.

Bulb Tee ----A Tee bar with toe of web reinforced.

Bulkhead ----A vertical partition corresponding to the wall of a room, extending either athwartships or fore and aft. A steel partition in a ship. The vertical partitions that divide the hull into separate compartments are called bulkheads. Some are watertight. These watertight bulkheads are so arranged that in case of accident at sea, water would be confined to one compartment only. The collision bulkhead in the front end is constructed to withstand heavy strain and shock in case the bow be staved in.

Bulkhead Sluice ----A small opening in a watertight bulkhead which can be opened or closed from the deck above.

Bulwark ----The ship's side above the weather deck.

Bull Riveting ----Driving rivets by squeezing them with a high powered air or hydraulic machine.

Bunker ----A compartment used for the stowage of coal or other fuel.

Buoyancy ----Ability to float; lifting power when immersed.

Butt ----The joint formed when two parts are placed edge to edge.

Buttock ----A distance from centerline; The intersection of the moulded surface with a vertical plane at a given distance from the centerline of the ship. Buttocks are shown in the profile in the lines drawing. Shipfitters use a buttock merely as a distance from the centerline. Thus, they have buttocks marked on bulkheads, decks, foundations, etc., for setting and alignment. The buttocks and the waterlines which are marked on the steel members for regulating and setting are usually of some dimension expressed in even feet. That is, they would mark the 10'0" W. L. (waterline) and the 24'0" Btk. (buttock) rather than a 10'7" W.L. or a 23'6" Btk.

Butt Strap ----A small plate used to connect the two parts of a butt joint by overlapping each; a splice piece.

Butterworth (™) Gun ----Butterworth is the name of a company that manufactures automatic tank wash machines. The machines can be hose mounted or permanent. The water flowing through the machine causes the wash nozzles to turn..

Butterworth Hatch ---- An opening on the deck of a vessel opened when cleaning or ventilating the tanks. May be round or square, secured by bolts or dogs.

Button ----A cast or fabricated deck item, usually round, that is used to thread cables between vessels when they are made-up.



A single button.



Button cluster.

C

Camber ----The athwartship rise or crown of a deck. The curvature of the deck transversely. It is measured by the difference in height between the deck at center and the deck at side.

Cant Frame ----A frame which is not square to the keel line.

Capstan ----A revolving drum, with vertical axis, used for heaving in lines.

Cargo ----The freight carried by a ship.

Cargo Battens ----Strips of wood used to keep cargo away from the steel hull.

Cargo Boom ----A heavy boom used in handling cargo.

Cargo Hatch ----A large opening in a deck which permits the loading of cargo into holds.

Cargo Port ----An opening in a ship's side used in loading and unloading cargo.

Casing Bulkheads ----Walls enclosing portion of vessel, as the boiler room casing. Also a covering for parts of machinery.

Caulk ----To make a joint watertight. The old saying 'the devil to pay and a half bucket of pitch' referred to a very big joint to be caulked

(pay) with the pitch and there may not be enough pitch.

Caulker ----One who caulks.

Ceiling Wood ----Sheathing on the tank top, sides of ship, and bulkheads; used to protect cargo.

Center Keelson ----(See vertical keel).

Center Line ----The middle line of the ship, extending from stem to stern. A straight line running from bow to stern, midway between the sides of the ship. All transverse horizontal dimensions are taken from the center line. The center line as applied to a transverse bulkhead is a vertical line in the middle of the ship.

Chafing Plate ----A bent plate used in minimizing chafing of ropes, as at hatches.

Chain Locker ----A compartment in the forward portion of ship in which anchor chain is stowed.

Chain Pipe ----A pipe for passage of anchor chain from deck to chain locker.

Chain Riveting ----Two or more rows of rivets spaces so that the rivets in one row are opposite those in an adjacent row.

Chain Stopper ----A device which prevents anchor chain from running out. It is moved into position after the anchor has been dropped.

Chamfer ----To cut off the sharp edge of a 90o corner. To trim to an acute angle.

Channel Iron ----A steel shape commonly used in vessel construction.

Chart Room ----A small room adjacent to the Pilot House in which charts and navigating instruments are located.

Chock ----A heavy fitting through which ropes or hawsers may be led. A saddle or seat of wood or metal.

Chock-Boat ----A cradle or support for a lifeboat.

Chock-Roller ----A chock with a sheave to prevent chafing of ropes.

Cleat ----A fitting having two arms or horns around which ropes may be made fast. Also called a kevel. A clip on the frames of a ship used to hold cargo battens in place.

Clinching Pan ----A flat plate for clinching nails. (Used in the mold loft.)

Coaming ----The vertical boundary of a hatch or skylight.

Cofferdam ----A narrow vacant space between two bulkheads. A double watertight bulkhead.

Collar ----A flanged band or ring. A welded plate used to close a frame or beam penetration through plating.

Collision Bulkhead ----The watertight bulkhead nearest the bow of a ship; forepeak bulkhead.

Companionway ----A covered stairway leading downward from an open deck. A series of steps leading from the deck to a cabin or saloon below; also, the space occupied by these steps.

Compartment ----A subdivision of space or room in a ship.

Corrugated ----Having a series of wrinkles or grooves arranged so as to produce stiffness.

Corrugated Bulkheads ----Bulkheads with corrugated plating, eliminating the need for many welded stiffeners.

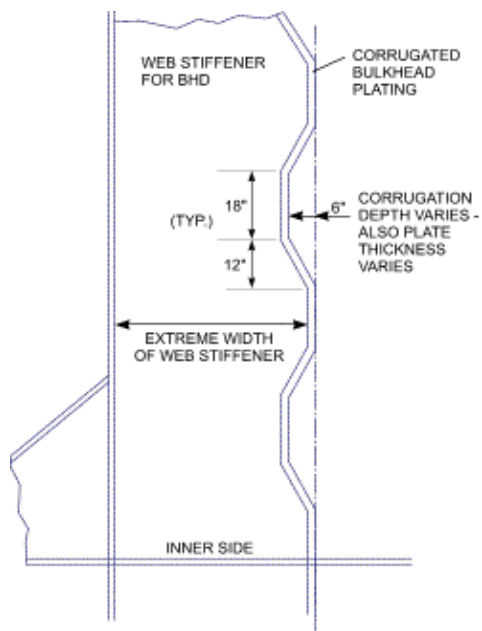


Fig. 9 Corrugated Bulkhead (looking down)

Counter ----Overhang of the stern of a ship.

Countersink ----To taper a hole for a flush rivet or bolt.

Cowl ----The hood-shaped top of a ventilator pipe.

Cradle ----A form on which bows, etc., are assembled. The support in which a ship rests during launching; a launching cradle.

Crossheader ----A pipeline that crosses over a tank providing a transit for cargo without tying into the vessel.

Cyclodial propulsion system ----A system of vertical blades that have taken the place of propellers for propulsion in some applications. Made by Voith Hydro GmbH & Co..

Generically referred to as a "tractor system".



Five blades

of a Voith Tractor system.

D

Davit ----A crane arm used in handling small boats, lifeboats, stores, gear, etc.

Dead Flat ----A portion of a ship's side or bottom where the plating has no curvature; also, the midship portion of constant cross section. (The parallel middle body.)

Dead Man ----A buried timber (etc.) that has an attached pipe or cable going to the surface for the purpose of securing a vessel at a dock or along a riverbank.



This pipe is attached to a dead man under the ground, and the vessel is attached to the cable going to the left.

Dead Rise ----The rise or upward slant of the bottom of a ship from the keel to the bilge. It is the difference in height between the base line and the point where the straight line through the bottom flat surface intersects the vertical line through the side of the moulded surface at its widest point. (See A and B in Fig. 1; also, Fig. 3) **BEAM** -- The width-of-the ship (moulded surface) at the widest point. (See Fig. 3)

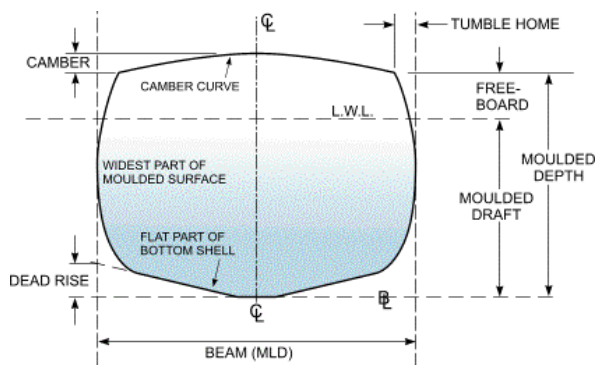


Fig. 3 Moulded Dimensions of Midship Section

Deadweight----The total weight of cargo, fuel, water, stores, passengers and crew, and their effects, which a ship can carry.

Deck ----A part of a ship corresponding to the floor of a building.

Deck-House ----A shelter built on deck.

Declivity ----Inclination of shipways to provide for launching.

Deep Tank ----A deep compartment usually extending from tank top to lower deck.

Depth ---- The height of the ship at the midship section from the base line to the moulded line of the deck at side (underneath).

Derrick ----A device for hoisting heavy weights, cargo, etc.

Die ----A tool for forming a rivet head (applied to rivet dies).

Displacement ----The total weight of the ship when afloat, including everything on board, (equals weight of water displaced.) Usually expressed in long tons.

Dog ----A small bent metal fitting used in closing doors, hatch covers, manhole covers, etc.; a bent bar of round iron used in holding shapes on bending slab; any small flat lug temporarily welded to structure as backing for a wedge.

Dolly Bar ----A heavy bar to hold against a rivet, to give backing when riveting.

Double Bottom ----Compartments at bottom of ship between inner and outer bottoms, used for ballast tanks, water, fuel, oil, etc. The double bottom extends from the flat keel to the tank top. It is strongly constructed and is water tight so that in case of accident causing an inrush of water into the double bottom, the ship would still be able to keep afloat. The principal parts of the double bottom are the flat keel, vertical keel, floors, intercostal girders, bilge, brackets, tank top, longitudinals, bounding bars and angle clips.



Frames in the void wing tank of a river barge. In this photo, the knuckle plate has been cut away so that bent frames can be renewed. The **double bottom** is exposed. New knuckle plate will be installed once the frames are renewed.

The USCG inspects all phases of tank barge repair and construction. This wing tank will be pressurized with air and each seam will be sprayed with a soap mixture to check for the smallest of leaks. The hulls of tank barges are literally air tight.

The first 'bottom' may be the one that contacts the water and a void space and the second 'bottom' may be the one that contacts the cargo and the void space.

Doubling Plate ----A plate fitted outside or inside of another to give extra strength or stiffness.

Drag ----The amount the stern end of the keel is below the bow end when the ship is afloat, but not on an even keel.

Draft ----The vertical distance of the lowest point of the ship below the surface of the water, when afloat. Draft marks are the painted numbers on the side of a vessel.



Draft

marks on the stern end of a river barge.

Drift Pin ----A small tapered tool used in aligning holes in adjacent members.

Drop Strake ----A strake discontinued near the bow or stern.

Drydock ----A watertight vessel fitted with pumps and valves usually built in a u-shape. The valves are opened, the vessel sinks, the vessel to be docked is pulled over the drydock deck, the valves are closed and the pumps are started, as the drydock becomes more buoyant, drydocking the vessel to be repaired.

E

Erecting ----The process of hoisting into place and bolting the various parts of a ship's hull.

Even Keel ----A ship is said to be on an even keel when the keel is level or parallel to the surface of the water.

Expansion Trunk ----Raised portion of tank used on some oil tankers to allow for the expansion of oil when temperature changes.

Eye Bolt ----Bolt whose head is in the form of a ring or eye.

F

Fabricate ----To make assemblies from 'raw' material.

Face Plate ----A narrow stiffening plate welded along the edge of any web frame or stiffener.

Fairing or Fairing Up ----Correcting or fairing up a ship's lines or structural members; assembling the parts of ship so that they will be fair, that is, without kinks, bumps, or waves.

Fairlead ----A fitting through or over which a rope, line, etc., may be led so as to change its direction without excessive friction.

Fairwater ----Plate or casting used to preserve streamline flow past hull structure or propeller hub.

Fathom ----Six feet.

Fathometer ----A device to measure the depth of water, by timing the travel of a sound wave from the ship to the ocean bottom and return.

Faying Surface ----The contact surface between two adjoining parts.

Fender ----A portable device to protect a ship when bumping a pier; sometimes made of wood, rope, etc.; permanently installed extension which protects the hull of a ship in docking.

Fidley ----Casing top over boiler room.

Fidley Hatch ----A hatch over boiler room.

Figurehead -- The bust, often of a woman, on the bow of a vessel, just under the bowsprit.

Flagstaff ----Flagpole at stern of ship; ensign staff.

Flange ----A part of a plate or shape at, or nearly at, right angles to main part; to bend over to form an angle.

Flare ----The sudden widening of the shell at top near the bow.

Flat ----A small partial deck (built level) without curvature.

Floor ----The lower portion of a transverse frame, usually a vertical plate extending from center line to bilge, and from inner to outer bottom.

Flotsam ----Floating objects or debris in the water - wreckage that floats after a vessel sinks.

Fore and Aft ----In line with the length of the ship, longitudinally.

Fore and Aft Gangway ----A walkway between deckhouses at or near centerline of ship.

Forebody ----A hull form forward of the midship section.

Forecastle ----The forward upper portion of the hull, sometimes used for the crew's quarters.

Forefoot ----The part of the keel which curves and rises to meet the Stem.

Forepeak ----The large compartment or tank, at the bow in the lower part of the ship.

Forepeak Bulkhead ----Collision bulkhead; bulkhead nearest bow.

Forging ----Steel worked to special shape by hammering while red hot.

Forward----Near, at, or toward, the bow of the ship.

Forward Perpendicular (F.P.)----A vertical line through the intersection of the stem with the load water line.

Foundations ----Supports for boilers, engines, and auxiliary machinery.

Foundations, Auxiliary ----Supports for small machinery, such as winches, condensers, heaters, etc.

Frames ----Ribs forming the skeleton of a ship.

Frames ----Continuous Frames combining side frames and floors.

Frame Line ----The intersection of the moulded surface with a vertical plane perpendicular to the centerline (transverse plane). Frame lines are shown in the body plan of the lines drawing. They get their name from the fact that shell "frames" or ribs usually are made to this shape and installed transversely in the ship. The lines drawing consists of three views; a half-breadth plan, a profile view, and a body plan (See Fig. 7). These views each show only one side of the ship (usually, the port side), because all dimensions for the starboard are equal and to the opposite 'hand'; that is, the ship is symmetrical about the center line.

Frame, Side ----Frame inside a ship, above and connecting to margin plate or floor plates.

Frame Spacing ----The fore and aft distance between adjacent frames.

Frame, Web ----A heavy side or continuous frame, made with web plate for extra stiffness.

Freeboard ----The vertical distance from the upper watertight deck to waterline, when the ship is fully loaded.

Freeboard Mark ----(See Plimsoll mark.)

Freeing Port ----Hole through bulwark which provides ready drainage of water from deck.

Funnel ----A smokestack of a vessel.

Furnace ----A heater or large forge for heating plates or shapes for bending; to bend by heating in furnace.

G

Galley ----A cook room or kitchen.

Galley Dresser ----A cook's work table.

Galvanizing ----Coating metal parts with zinc for protection from rust.

Gangway ----A passageway, a ladder, or other means of boarding a ship.

Garboard Strake ----The course of plates next to the keel of a ship.

Gasket ----Packing of canvas composition, or other material, used in making a tight joint.

Girder ----Fore and aft stiffening member for deck or bottom shell.

Girth ----Any expanded length.

Grab Rods ----Bent rods welded to bulkheads or ship's side to form a ladder.

Grating ----Light platform or walkway built up of metal bars, used for access to machinery.

Graving Dock ----A arrangement for getting vessels out of the water so that bottom work can be done. Usually a slip is dug in the shore, a vessel is floated in, a wall is placed across the open end of the slip and the water is pumped out of the 'tank'. Often used for very heavy objects.

Grommet ----A soft ring used under a nut or bolt head to maintain water tightness.

Ground Ways ----Timbers secured to the ground, under the hull on each side of the keel, on which a ship is launched.

Gudgeons ----Bosses on stern post drilled for pins (Pintles) on which rudder swings.

Gunwale ----The junction of deck and shell at top of sheer strake.

Gunwale Bar ----Angle iron which connects stringer plate and shell plates. (Riveted work)

Gyro-Compass ----A mechanical compass operated by means of a gyroscope. This compass indicated true north rather than magnetic north.

Gyro-Repeater ----An apparatus to show the reading of the gyro compass at a distance from the main gyroscope equipment.

H

Hatch ----An opening in a deck for passage of cargo, etc.

Hatch Battens ----Flat bars which are wedged against hatch coamings to secure tarpaulins.

Hatch Beam ----A portable beam used to support wooden hatch covers.

Hawse Pipe ----Casting, or castings, through deck and side of ship at bow for passage of anchor chain.

Hawser ----A large rope used in towing or mooring.

Headlog ----The bow plate on a vessel that is made of thick steel plate.

Heeling ----The inclination of a vessel to one side.

Hogging ----Straining of the ship which tends to make the bow and stern lower than the middle portion.

Hold ----The inside of a hull; cargo space.

Hold Beams ----Structural members placed in a hold, similar to deck beams, but having no plating or planking on them.

Holder-On ----One who "backs up" or "holds on" the head of a rivet while the point is being "driven", or upset.

Horn ----To line or square-up; also, part of a cleat.

Hull ----The body of a ship, including shell plating, framing, decks, bulkheads.

I

I-Beam ----A structural shape with cross section resembling the letter I.

Inboard ----Inside the ship; toward or nearer the center line.

Inboard Profile ----A drawing of the longitudinal section at center line of ship.

Inert Gas ----A gas such as carbon dioxide or nitrogen that is used to make an oxygen deficient atmosphere. Inerted tanks are useful for preserving cargo integrity and reducing the explosive potential of cargo tanks.

Inerted ----Implies that a tank is filled with an inert gas.

Innage ---- A measurement of liquid cargo in a tank. It is the distance from the top of the cargo to the bottom of the tank. It is the opposite of ullage.

Inner Bottom ----Plating forming the upper surface of the double bottom. Also called tank top.

Inner Shell ----A plated surface or "shell" inside the outer shell plating, used as additional protection in case of collision or other accidents. The space between the inner and outer shells is often used as a storage space for liquid ballast or cargo.

Inserted Packing Red lead ----soaked canvas strips placed between connections that cannot be caulked successfully; stop waters.

Intercostal ----Made in separate parts; between frames, beams, etc., the opposite of continuous. (Floors are continuous; longitudinal girders are intercostal in most cargo vessels.)

Isherwood System ----A system of building ships in which the main framing is longitudinal or fore and aft, instead of transverse as in ordinary ships.

J

Jack Staff ----A flag staff at the bow of a ship.

Jetsam ----Items that are thrown overboard from a vessel in distress. Discarded cargo that washes ashore.

Joggle ----An abrupt bend or offset in a plate, bar, or frame to eliminate the use of liners.

K

Keel ----The principal fore and aft member of a ship's frame. The keel runs along the bottom, connecting the stem and stern, and to it are attached the frames of the ship.

Keel-blocks ----Heavy blocks which support the keel of the ship during construction.

Keel, Flat ----The bottom shell strake on centerline of ship.

Keelson, Side ----Fore and aft member placed on either side of, and similar to, the vertical keel.

Keel, Vertical ----Vertical plate used as reinforcement for keel, often called center-keelson.

Kevel ----A deck fitting used to secure a line or a cable to a vessel



Kevel

King Post ----A stub mast, outboard from center line, used to carry cargo booms; kingposts also serve as ventilators.

Knot ----A tie in a line (for instance a square knot). A nautical mile. (About one and one-seventh statute miles.)

Knuckle Plate ----A plate bent to form a knuckle. A nuckle is a rounded corner usually found on the bottom of a vessel. It is believed that if a vessel contacts the river bank, a vessel with rounded 'nuckle' plates can be dislodged easier than one that has sharp corners.



Knuckle plates. These plates have been shaped to the exact radius needed for the vessel. They have been sandblasted and coated on the inside to stop corrosion inside the vessel.

Kort Nozzles ----A steel tube that surrounds a propeller, directing the water and improving efficiency.



Kort nozzles are engineered to improve the flow around the propellers. They are similar in some ways to an airplane propeller. The propeller shaft on this vessel is being 'pulled'. Propulsion systems on vessels are inspected and worn parts are replaced at each drydock opportunity.

L

Ladder ----Inclined steps, used aboard ship in place of "stairs."

Lap ----A joint in which one part overlaps the other, thus avoiding the use of a butt strap; also, the amount of overlap.

Launching ----The operation of placing a hull in the water by allowing it to slide down on greased skids, called launching ways.

Laying Out ----Marking plates or shapes, for shearing, punching, etc.

Lazarette ----Ship's storeroom between decks.

Length Between Perpendiculars----The length of a ship measured from the forward perpendicular to the after perpendicular.

Length Over All ----The length of a ship measured from the extreme forward end to the aftermost point of the stern.

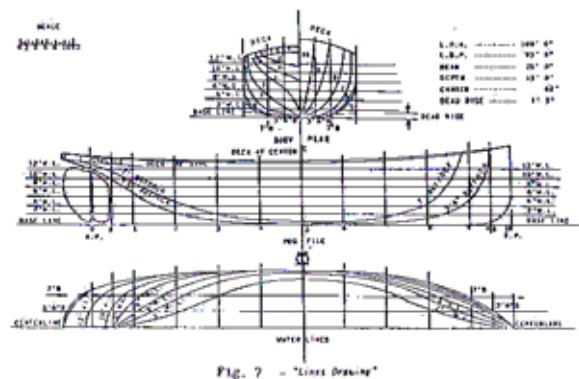
Lift ----To make a template from measurements taken from the job.

Lightening Hole ----A hole cut in a member to reduce its weight.

Limber Hole ----A small hole cut in a plate near the bottom to permit the passage of water.

Liner ----A flat or tapered strip of steel placed under a plate or shape to bring the member in line with another which it overlaps. A filler.

Lines ----The form of a ship as represented by its moulded surface.



List ----To lean over to one side.

Load Waterline ----Line of surface of water on a ship when loaded to designed draft.

Loftsmen ----A workman in the mold loft, who lays down ship lines and makes templates.

Longitudinal ----A shell, deck, or bulkhead stiffener running fore and aft. These run fore and aft from bulkhead to bulkhead, except in the shelter and upper decks, where some are broken by hatch interference. They give strength and

rigidity to the framework and shell. They are connected and welded at the flange of the channel to the shell or deck.

Lug Pad ---A projection on deck with hole for fastening a block for a lead.

M

Main Deck ----Usually the deck immediately below the shelter or weather deck.

Manhole ----A hole cut in a bulkhead, tank top, etc., to allow the passage of a man.

Margin Plate ----The outboard row of plates of the inner bottom, connecting to the shell plating to the bilge.

Marlinspike ----A pointed tapering tool which is used in separating strands of rope or cable in splicing.

Mast ----A large long spar, placed nearly vertical on the center line of a ship.

Mess Room ----A dining room for officers or crew.

Midship ----At or near the middle point of a ship's length.

Midship Section ----A cross section through the ship, midway between the forward and after perpendiculars.

Mold Loft ----A shed or building with large, smooth floor on which the lines of a ship can be drawn to full scale.

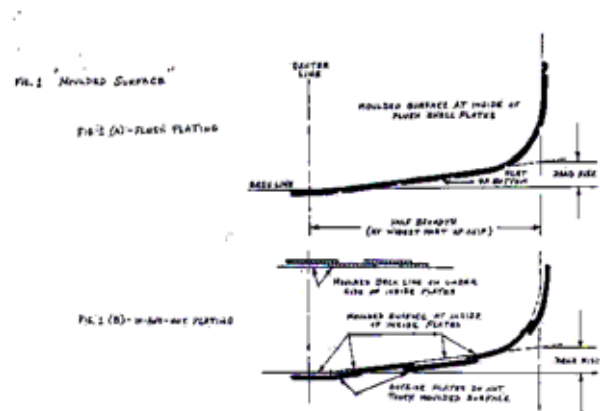
Mooring ----Securing a ship in position by several lines or cables, so that she cannot move or swing; anchoring.

Mooring Pipe ----A casting which prevents chafing of mooring lines passing through bulwark plating.

Mould or Mold ----A light pattern of a part of a ship usually made of thin wood or paper. Also called a template.

Moulded Surface ----The inside surface of the skin, or plating, of a ship. The moulded surface has no thickness, and is fair and smooth.

Actually, when the ship has been built, the thickness of the plating will extend outside of the moulded surface. "Outside" strakes of plating do not touch the moulded surface if they have a liner against the shell frame. The heel of each shell frame is in this moulded surface (unless joggled). It should be remembered that this moulded surface is not an actual part of the ship. It is almost exactly the shape which a thin piece of sheet rubber would take if stretched tightly over the shell frames and main deck beams with no plating in place. (See Fig. 1)



N

Net Tonnage ----A figure obtained by making deduction from the gross tonnage for space not available for carrying cargo.

O

Oakum ----Untwisted fibers of old rope treated with a composition of resin and pitch, used to fill seams of wooden decks.

Offset ----To move out of line or position.

Offsets ----A table of moulded dimensions for waterlines, decks, etc.

Oil Tight ----Sealed by welding or caulking to prevent oil leakage.

Old Man ----A rig for holding a drilling machine.

On Board ----On or in the ship.

On Deck ----On the upper deck; in the open air.

Outboard ----Away from the centerline, towards the side of a ship.

Overboard ----Outside; over the side of a ship, into the water.

Overhang ----That portion of the hull which is over and unsupported by the water.

Oxter Plate ----Bent shell plate which fits around upper part of stern post; also called tuck plate.

P

Packing ----Material which is placed between plates or shapes to make them watertight; wooden blocks and wedges which support a ship on sliding ways; spacers.

Pad Eye ----An eye located on deck which is used for fastening cables or on the hull for hanging tires or an attachment for hanging a block and fall for lifting the propeller or rudder.



This pad eye is just forward of the rudder, and would be used to hold a chain fall when the crew are working on the propeller. In this picture, the vessel is on dry-dock, and we are looking up at the bottom of the hull.

Painting a vessel hull ----Vessels must be removed from the water to apply coatings. This

vessel is on a dry-dock. The painter is using an air-less paint system. The paint is under very high pressure (1,000 lbs or more). The coating protects the steel hull from corrosion.



Painter applying a coating to a vessel hull.

Palm ----Flattened top portion of rudder stock (for bolted connection). Also, a flat surface at the end of a strut or stanchion.

Panama chock ----A steel casting used for line handling - from one vessel to another vessel or to the dock. Developed for use in the Panama canal (?).

Panting ----An in-and-out movement of plating; to pulsate or throb. Panting may be caused by the lift and fall of a ship in a seaway, or by engine vibration.

Parallel Middle Body ---- The straight part at the center of the ship where the water lines and buttocks have no curvature; that is, where all the fore and aft lines are parallel.

Peak ----A narrow compartment at either end of a vessel.

Pillar ----A vertical member or column which provides support to a deck girder. (Also termed a stanchion.)

Pilot House ----An enclosed place in which the main steering wheel, controls, engine room, telegraph, etc., are located. A wheel house.

Pintle ----A pin on which a rudder hinges.

Pitch ----Spacing; as of rivets or gear teeth.

Planking ----Wood covering for decks, etc.

Plating ----The plates of a hull, a deck, a bulkhead, etc.



A stack of plates that will be used for side shell replacement, frames, brackets, etc.... These plates have been sandblasted and coated to reduce corrosion inside the vessel once they are installed.

Plimsoll Mark ----A mark placed on the ship's side to indicate maximum allowable draft.

Pontoon Hatch Cover ----A steel box-shaped member sometimes used in place of hatch beams to close in a cargo hatch.

Poop ----The after, upper portion of the hull, often containing the steering gear.

Poop Deck ----The first deck above the shelter deck at after end of a vessel.

Port ----A harbor; or opening in the side of a ship. The left hand side of a ship (looking toward the bow.) Originally called larboard.

Porthole ----A circular opening in the ship's side such as a window (see airport).

Press break ----A hydraulic or mechanical device for bending and shaping steel plate. In shipyards the plate is usually shaped cold. Plates bent in a press may be referred to as 'shaped' or 'flanged' plate.

Profile ----A side elevation of a ship's form. A view looking at the moulded lines from starboard to port. The waterlines and the frame lines are straight when observed from this direction. The deck line, or "sheer" curve (Figure 4) shows up clearly in the profile, which for this reason is sometimes called the sheer plan.

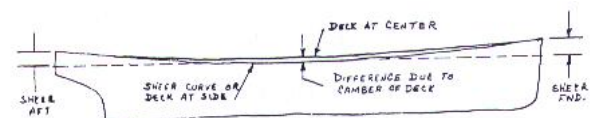


FIG. 4 -- Sheer Curve

Propeller ----A rotating device which drives a ship through the water. Also see cyclodial propulsion system

Propeller Post ----The forward post of stern frame, which is bored for propeller shaft.

Propeller Shaft ----Rotating bar by means of which the engine turns the propeller.

Q

Quarters ----Living or sleeping rooms.

R

Rabbit ----A depression or offset designed to take some other adjoining part; as for example, the rabbit in the stem to take the shell plating.

Rail ----The upper rounded edge of the bulwarks.

Railway ----An inclined slope fitted with railroad track. A carriage is lowered down the track into the water, the vessel is floated over the carriage and both are brought up the slope until the vessel is drawn out of the water. Requires a very stout winch to pull the carriage up the slope.

Rake ----Slope aft of a mast, kingpost or stack.

Reaming ----Enlarging a rivet hole by means of a revolving, cylindrical, slightly tapered tool with cutting edges running along its sides.

Reverse Frame ----An angle bar or other shape riveted to the inner edge of a transverse frame as reinforcement.

Ribband ----A fore and aft steel strip or heavy batten which is used to temporarily align the transverse frames after erection.

Rigging ----Ropes, wire ropes, lashings, masts, booms, etc.; also, the handling and placing on board the ship of heavy weights and machinery.

Rivet ----A short round metal connection used to fasten two or more members together by clinching after being heated red hot.

Roll ----To impart curvature to a plate. Also, the motion of the ship from side to side, alternately raising and lowering each side of the deck.

Roller Chock ----(See Chock Roller.)

Rose Box ----A screen or strainer placed around the end of a bilge suction pipe.

Rudder ----A flat piece or structure of wood or metal attached upright to the sternpost (or in single screw-vessels, to the rudder post) of a vessel by hinges, or pintles and gudgeons, so that it can be turned, as by a tiller, causing the vessel's head to turn in the same direction, because of the resistance offered to the water by the rudder.



Here is a rudder on an inland river towboat.

Rudder Post ----After post of stern frame to which the rudder is hung. (Also called stern post.)

Rudder Stock ----The shank of a rudder which extends through shell upward to the steering engine.



Some vessel operators have spare rudders built and in storage at a shipyard so they will be ready on short notice.

Rudder Stop ----Lug to limit the swing of the rudder.

S

Sagging ----Straining of the ship which tends to make the middle portion lower than the bow and stern.

Samson Post ----A heavy vertical post which supports cargo booms; kingpost.

Scantlings ----The dimensions of various shapes.

Scarf ----To thin out or taper a corner or edge of a plate or shape to make a lap. A joint in a stem, bar keel or stern frame.

Screen Bulkhead ----A bulkhead, usually placed between the engine room and boiler room, which is fire proof, dust proof, and gas tight.

Scupper ----A deck drain.

Scupper Pipe ----A pipe which drains water from scuppers throughout the side of a ship.

Scuttle ----A very small hatch; a manhole.

Sea Chest ----A compartment through which sea water is admitted or discharged.

Seam ----A riveted or welded plate edge connection. A riveted seam overlaps; welded seam may or may not overlap.

Serrated frame----Sometimes pieces of an angle iron are cut to allow for ventilation, reduce weight or as a shortcut that saves material in the vessel construction. These cutouts may be spaced regularly - every few inches or so and the frame is called a serrated frame.

Set ----Metal mold or template for use on bending slab.

Set Iron ----A bar of soft iron used on bending slab to give shape of frames.

Shaft Alley ----A casing (large enough in which to walk), covering the propeller shaft and extending from engine room to after peak.

Shaft Tunnel ----(See Shaft Alley.)

Shape ----A bar of constant cross section, such as a channel, T-bar, angle bar, etc. Also, to impart curvature to a plate or other member.

Shear Line ----A line at which a shearing cut is to be made.

Shears ----A large machine for cutting plates and shapes.

Sheer ----Curvature of deck in a fore and aft direction as seen in profile. The amount of sheer forward is the difference in height between the deck line (at side) amidships and the deck line at the forward end (see Fig. 4) The amount of sheer aft is the difference in height between the deck (at side) amidships and the deck at the after end. The line of the deck at center, in the profile, is higher than the line of the deck at side, owing to the camber, or transverse curvature of the deck. In Fig. 4 is illustrated the difference between the deck at the side and the deck at the center, owing to camber. The camber curve, as usually designed, is a circle of very large radius, but sometimes it is made as a series of straight lines, as in Fig. 5. The camber curve is the moulded line of the deck.

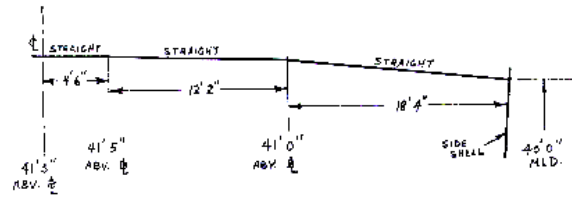


FIG. 5 -- Camber Curve -- (Composed of Straight Lines)

Sheer Strake ----The top full course of side shell plating.

Shell Expansion ----A plan showing details of all shell plating and shell longitudinals. (Longitudinals would appear only on tankers)

Shell Landings ----Points on the frames where the edges of shell plates are to be located.

Shell, or Shell Plating ----The plates forming the outer skin of the hull. The principal function of the shell is to act as a watertight skin. It also gives strength to the construction of intermediate parts.

Shelter Deck ----A continuous superstructure deck above the freeboard deck.

Shore ----A temporary brace or prop.

Side Thruster ----A propeller in a tube that is mounted through the hull. They are particularly handy for maneuvering by providing side thrust.

Sight Edges ----Visible edges of plating (outside shell and above decks.)

Skylight ----An opening in a deck to give air and light to the compartment below it.

Sliding Way ----That part of launching way which moves with the ship.

Slop Chute ----Chute for dumping garbage overboard.

Sounding Pipe ----Vertical pipe in oil or water tank used in measuring depth of liquid in tank.

Spar ----Long, round member such as mast or boom; part of rigging.

Stability ----The tendency of a ship to remain upright.

Staging ----Planks or scaffolding on which to stand when working on sides or under decks.

Stanchion ----A pillar or upright post.

Starboard ----The right hand side of a ship, looking forward.

Stay ----A guy line.

Stealer ----A plate extending into an adjoining strake as at the end of a drop strake.

Steering Gear ----Apparatus for controlling the rudder.

Stem ----Forging, casting, or plating forming extreme bow of ship and extending from keel to forecastle deck.

Step ----To set in place (as applied to a mast); also, a socket for the end of a mast; a support for the fixed or "hinged" end of a boom.

Stern ----The after or back end of a vessel.

Stern Frame ----A large casting or forging attached to the after end of a hull to form the ship's stern. It includes rudder post, propeller post, and aperture for the propeller.

Stern Tube ----A long bushing or bearing through the stern to support the end of a propeller shaft.



Propeller on a river towboat. This one has 4 blades and is designed for power rather than speed. 4 blade propellers have less vibration than 2 or 3 blade propellers, benefiting the crew.

Stiffener ----An angle bar, T-bar, channel, etc., used to stiffen plating of a bulkhead or other member.

Stool ----A support for a propeller shaft bearing in the shaft alley. A foundation, etc.

Stop Water ----Canvas and red lead, or other material, fitted between two metal parts to make a watertight joint.

Stowage ----A support or fastening for any gear, as, anchor or boat stowage.

Strake ----A fore and aft course, or row, of shell or other plating

Stringer ----A fore and aft member used to give longitudinal strength. Depending on location, these are called hold stringers, bilge stringers, side stringers, etc.

Stringer Deck ----The strake of deck plating which contacts the shell.

Stringer Plate ----A deck plate at the outboard edge of deck connected to the shell of a ship with an angle or a welded joint.

Strong Back ----A supporting girder for a hatch cover; a rig used in straightening bent plates; a bar for locking cargo ports.

Strut ----A support for a propeller tail shaft (used on ships with more than one propeller).

Super structure ----Deck houses, etc., which are located above shelter deck.

Swash Plate ----A baffle plate in a tank which prevents excessive surging of a liquid.

Syncrolift (TM) ----A platform fitted with winches and anchor chain. The winches lower the platform into the water, the vessel is floated on and the platform is raised. Sometimes the vessel can be rolled to a repair station on railroad track.

T

Tail Shaft ----A short section of a propeller shaft extending through the stern tube and carrying the propeller.

Tank barge ----A vessel designed for carrying - usually- liquid cargo. Often has an engine and a pump to assist in transferring cargo, but does not have main propulsion equipment.

Tank Top ----The plating over the double bottom.

Tankerman ----The official USCG classification of the person that supervises the transfer of cargo between vessels or vessel and shore. There are different grades of expertise A, B, C, D and LFG - relating to the degree of hazard in relation to fire.

Tee-bar ----A structural shape with cross section resembling the letter T.

Template ----A mold or pattern. Sometimes made of plywood or paper.

Thrust Bearing ----A bearing or block to resist end thrust. A bearing on propeller line shaft which relieves the engine from the driving force of the propeller.

Thwart ----A seat in a lifeboat. Something that runs transverse.

Tiller ----An arm, attached to rudder head, which operates the rudder.

Tow Boat ----A vessel generally used on inland rivers to push barges.

Tow Knee ----On a tow boat (so named because they push a bunch of barges called a 'tow') there are almost always 2 vertical supports for the barges to rest on. These are called tow knees and they have stairs built in for the crew to get to the barges.



Tow Knees.

Tractor propulsion ----A system of vertical blades used to propel a vessel in the water. Used on some harbor tugs and ferries. Made by Volith. Sometimes called a cyclonic system in

reference to the way the blades are mounted under the hull, and the way they turn.

Transom ----The main frame at the rudder stock (cant frames usually radiate from the transom frame). The very last (most aft) plate on a welded vessel.

Transverse ----Athwartships; at right angles to the keel.

Transverse Frames ----Athwartship members forming the ship's "ribs." Also see Buck frame. These are the ribs or frames of the ship, and when placed in position, give the principal shape or contour, Transverses are not all the same distance apart; amidships, where there is the greatest strain, they are spaced more closely. The transverses are cut or notched where they connect on the shell, to allow the longitudinals to pass through. They are strengthened by clips at these points.

Travelift (TM) ----A device for lifting vessels out of the water. Has rubber tires and slings. The slings are lowered in the water, the vessel is floated in and lifted out of the water with cable winches. Once raised, the vessel can be moved to a station, blocked, etc. and the Travelift can return to the slip to move another vessel.

Trim ----To shift ballast; to cause a ship to change its position in the water; drag.

Trunk ----A small casing passing through a deck, such as is used for ladders or ventilation.

Tug Boat ----A relatively small vessel with a big engine used to 1/ assist ships when the ships are being docked 2/ tow barges by pulling them with a cable in the ocean 3/

Tumble Home ----An inboard slant of a ship's side above the bilge. The amount the top of the side shell slopes back toward the centerline between the point of widest breadth and the deck at side (see Fig. 3)

U

Ullage Hatch ---- A small hinged opening on a tank for gauging or sampling cargo. The ullage is the distance from the top of this hatch to the top of the cargo. It is the 'opposite' of innage.



Ullage hatch used for gauging the ullage or innage of a cargo.

Uptake ----Connection between boilers and smokestack.

V

Vapor Header ----A pipeline connected to the top of a cargo tank that channels the displaced tank vapors to a shoreside control system.

Vertical Keel ----A row of vertical plates extending along the center of the flat plate keel. It sometimes is called the center keelson.

Voice Tube ----A large speaking tube that goes from one operating station to another. Very effective.

Void Tank ----A watertight space that does not carry ballast or cargo. For floatation.

W

Water Line ----Any one of certain lines of a ship parallel with (and at various heights above) the base line. In half-breadth plans the waterlines are smooth curves showing the shape

of the ship; in profile plans they are projected as straight lines

The intersection of the moulded surface with a horizontal plane at a given height above the base line. The six foot water line is exactly six feet higher than the base line.

These intersections are shown in the half breadth plan in the lines drawing. They should not be confused with the "load line" marked on the outside of a ship when built. Ship fitters use a waterline merely as a height above the base line and in this sense waterlines are marked on bulkheads, frames, and other members, for the purpose of properly setting and aligning the structure.

Watertight ----So riveted, caulked, or welded as to prevent the passage of water.

Waterway ----A narrow passage along the edge of a deck for drainage. A gutter.

Ways ----Timbers, etc., on which a ship is built or launched. (See Launching.)

Weather Deck ----A deck exposed to the weather.

Web ----The vertical portion of a beam, the athwartship portion of a frame, etc.

Web Frame ----A frame with a deep web.

Welding ----Fusing together two or more members with electric arc or by other means.

Well ---- A cofferdam or a sump in the double bottom.

Wheel ----Nickname for propeller; steering gear control.

Winch ----A small hoisting device; used in pulling lines or cables in handling cargo. Can be hand, air motor, electric, steam, engine, etc... powered.

Windlass ----A machine used to hoist the anchors by winding in the anchor chain.

Wind Scoop ----A device used to divert air into a compartment of a ship.

Z

Zee-bar ----A structural shape with a cross section resembling the letter Z.

Reference: <http://www.purgit.com/shippart.html>

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