GLOSSARY OF STEELWORKS TERMINOLOGY

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N.B. A definition of underlined words appears elsewhere in the glossary.

*Annealing Furnace : A furnace for heating steel products so as to relieve the metallurgical stresses created during rolling or forging processes.

*Bar : A steel product typically about 12mm x 12mm ($\frac{1}{2}$" x $\frac{1}{2}$") crossection and several meters in length. An end product as far as the steel works is concerned.

*Bar Mill : A mill which rolls billets into bars.

*Billet : A steel product or intermediate product typically 5cm x 5cm (2" x 2") crossection and several meters in length.

*Billet Mill : A mill which rolls blooms into billets.

*Blast Furnace : The vessel in which iron ore is smelted, with the aid of coke and limestone, to produce crude iron. It is so named because pre-heated air is forced (or blasted) in so as to produce a high temperature.

*Bloom : An intermediate product produced on a blooming or universal mill. Typically 20cm (9 inches) square and 10 or 12 meters (30 or 40 feet) in length.

*Blooming Mill : A primary mill which rolls blooms from ingots.

*Cast Iron : Crude iron which has been cast into some shape by the method of pouring it, while molten, into an ingot mould.

*Coke Ovens : The furnaces in which coal is processed to obtain coke. Gas is an important byproduct and is used for heating in other processes or sold to the local gas company.

*Coking Coal : A specially hard type of coal used to produce the physically strong type of coke needed for efficient blast furnace operation.

*Cold Strip Mill : For further reducing the thickness of coiled strip which has already been through the Hot Strip Mill and Pickle Line. A typical reduction is about 10 per cent, the strip is rolled cold.

*Continuous Casting : The process of forming a solid slab of steel directly from the molten state, continuously. Slabs of required lengths are cut from the emerging continuous slab. This process obviates the need for a slabbing mill but at present cannot be used satisfactorily for all types of steel.

*Convertor (LD or BOS) : A type of steel-making furnace currently considered to be the most efficient known. It requires no heat as such, oxygen is blown in and the resulting reactions refine the iron into steel by transferring the unwanted elements into the slag which is later discarded.

*Cooling Banks : An area where red hot products can be placed while they cool down.

*Crude Iron : Iron as obtained directly from the Blast Furnace and before any refining.

*Cut-up Line	:	A machine which cuts up coiled strip into flat pieces then called sheets, typically a few meters in length.
*Electric Arc Furnace	:	A type of steel-making furnace powered by electricity through carbon electrodes and very suitable for using a high percentage of steel scrap. Often used for special alloy steels.
*Electrolytic Tinning Line	:	Applies an especially thin coating of tin onto steel or coils for corrosion resistance.
*Flying Shear	:	A cutting device which is used to cut billets, etc. to given lengths while rolling continues at high speed.
*Forge	:	A machine which hammers red-hot steel into a required shape.
*Galvanizing Line	:	Applies a zinc coating to coils of steel strip for corrosion resistance.
*Hot Saw	:	A circular saw used to cut steel sections or similar products to required lengths while the section is still red hot.
*Hot Strip Mill	:	A rolling mill comprising several, typically 8, mill stands all in series for rolling slabs into coiled steel strip. Material passes from each stand directly into the next where it is further reduced. The end product is often referred to as "hot coil" or "hot strip" even after it has cooled.

*Ingot : The first solid form after steel making (except when continuous casting is used). Ingots can weigh anything from a few tons up to 50 tons or more and are typically 60 cm square by 1½ meters high.

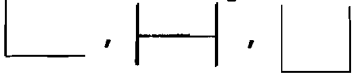
*Ingot Mould : The mould, usually made of cast iron itself, into which molten steel is poured in order to form an ingot.

*Iron Ore : Family of minerals mined for their iron content. The iron can be found in a variety of chemical combinations, usually oxides and salts, and these ores constitute the basic raw material for making iron and steel.

*Ladle : A large cup shaped, insulated container used for transporting molten iron or steel. Some can hold 100 tons or more and are usually moved by an overhead crane.

*Limestone : A basic raw material (mostly calcium and magnesium carbonate) used as a flux in both the iron and steel making process. It acts as a chemical sponge and soaks up impurities and other elements not wanted in the metal

*Machine Shop : Not a place where one can buy machines but an engineering facility, usually for maintenance or repair purposes. The shop normally includes lathes, grinders, drilling machines and cutting devices.

*Merchant Mill : Rolls a variety of crossectional shapes e.g.  from billets.

*Mixer Furnace : A furnace used to store and keep hot, crude iron until needed for steel making. Since its capacity is many times that of a ladle, the contents of many ladles become mixed together. This averages out the chemical analysis of the contents and a more consistent metal is available for steel making.

*Open Hearth Furnace (OH) : The traditional type of steel making furnace now obsolescent.

*Ore Blending Bed : Used to mix specific quantities of different iron ores to form a blend with a calculated composition. It consists of a long rectangular area (50 meters by 8 meters typically) over which layers of different iron ores are placed in horizontal strata. The ores are picked up again in vertical crossections, thus a mixture is obtained with proportions governed by the depth and number of strata.

*Pickle Line : A process in which coiled strip from the hot strip mill is cleaned by the action of acids prior to being rolled in a cold rolling mill.

*Pig Iron : Small ingots usually about 50 kilo (one hundredweight) of solidified crude iron. The name is also used to refer (incorrectly) to molten crude iron.

*Plate : A steel works end product, typically 10 mm to 50 mm (½" to 2") thick and 2 or 3 meters (6 to 8 feet) wide by 6 or more meters long.

*Plate Mill : A mill for rolling slabs into plates.

*Press : Similar in function to a forge but the force is applied by steady hydraulic pressure as opposed to hammering.

*Primary Mill : A class of rolling mill which takes ingots through the first reduction stages. They are usually reversing mills, that is to say the steel is passed backwards and forwards through the rolls which are set closer to each other after each pass.

*Rod : A steel works end product, round in crossection and typically 12 mm (½") diameter. Frequently handled in coils.

*Rod Mill : A mill for rolling billets into rods.

*Rolling Mill : There are many forms of rolling mills; the common feature is that steel is squeezed through a pair of rotating steel rolls referred to as a mill stand. This reduces the thickness while the length of the piece increases.

*Scarfing : The use of oxy-acetylene flames to burn away flaws or blemishes in ingots, slabs, blooms or billets prior to further processing.

*Screening : A sieve like process used to separate the dust and small-sized pieces of a material such as iron ore from larger pieces.

*Secondary Mill : A class of rolling mill in which an intermediate product such as a bloom or a slab is rolled to a product of smaller thickenss, e.g. strip or plate.

*Section Mill : A secondary mill used to roll blooms into shaped crossections such as  or  .

*Sheet : A steel product typically 60 to 80 cm (2 or 3 feet) by 2 to 3 meters (6 or 8 feet) and only a few millimeters thick.

*Sinter : An agglomerate of coke and iron ore dust forming a composite material which is physically strong enough to be used in a blast furnace.

*Sinter Plant : The equipment used to make sinter.

*Slab : A solid piece of steel typically 8 meters (25 feet) long by 1½ meters (5 feet) wide by 15 cm (6 inches) thick. Slabs go on to be futher rolled in plate mills and hot strip mills.

*Slabbing Mill : A primary mill which rolls ingots into slabs.

*Slag : The scum or dross which, being lighter than iron or steel, forms on the top of molten metal. It comprises many non-metallic substances, a large part is the limestone, and its job during steel making is to attract and absorb elements not wanted in the refined metal. Slag is drawn off from the furnace separately from the steel and can be used for road making or agricultural fertilizers.

*Slitting Line : Used to slit a coil of steel longitudinally into two or more coils of a narrower width but the same length.

*Soaking pits : Furnaces in which newly formed ingots are placed until the still molten core solidifies and a reasonably uniform temperature exists throughout the ingot. Also used to heat up cold ingots.

*Steel-Making Furnace : Several Types exist (e.g. open hearth, basic oxygen or LD convertor, electric arc), but all are designed to refine crude iron into steel of a specified metallurgical composition.

*Strip : Material used for car bodies, refrigerators, food cans, etc. Typically a few millimeters thick, 2 meters (6 feet) wide and in coils containing several hundred meters. A coil can weigh from 10 to 40 tons.

*Teeming : The activity of pouring molten steel into ingot moulds.

*Teeming Bay : The part of a steel plant where teeming takes place.

*Temper Mill : A cold strip mill designed to improve the quality and surface condition of steel strip rather than significantly reduce thickness.

*Tinning Line : The equipment used to apply a coating of tin to steel strip.

*Torpedo Ladle : Similar to a ladle but the vessel is torpedo shaped and fully enclosed. It runs on railway lines and can be used to store molten metal for several hours.

*Universal Mill : A primary mill used to roll ingots into either blooms or slabs.