ABIDING TRUTH MINISTRIES
COMMUNITY DEVELOPMENT CORPORATION

THE NECESSARY TRAINING

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CONSTRUCTION COURSE

CARPENTRY, ELECTRICITY, AND PLUMBING

Abiding Truth Ministries CDC • Rev. Benjamin Green • 846 S. 57th St . Phila., PA 19143 • 267-429-4944

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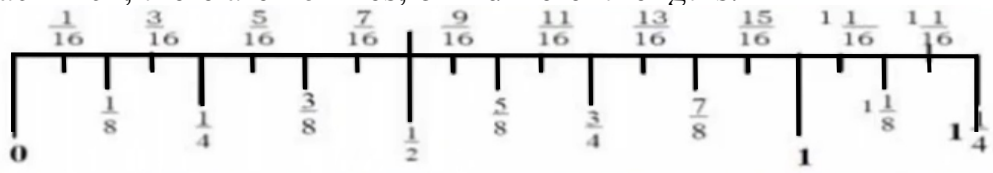
LEARNING THE RULER

READING THE INCH

Ruler - a straight strip or cylinder of plastic, wood, metal, or other material, typically marked at regular intervals, to draw straight lines, or measure distances.
Of all the sophistication of tools and machinery in the carpentry industry, one tool in particular is fundamental to all trades, that is THE RULER or tape measure as it's called.

Between each inch, there are 16 lines, of 4 different lengths.



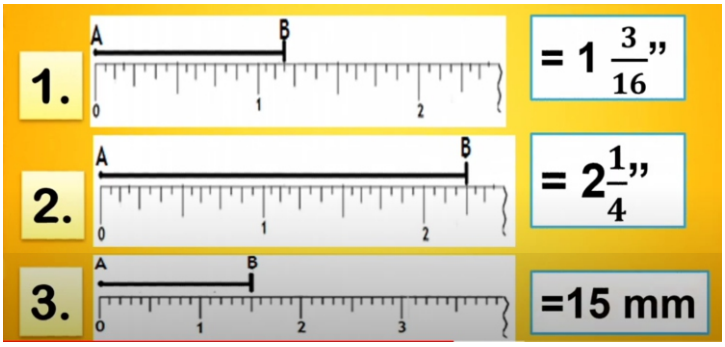
Mark 1: 0.0625
Mark 2: 0.125
Mark 3: 0.1875
Mark 4: 0.25
Mark 5: 0.3125
Mark 6: 0.375
Mark 7: 0.4375
Mark 8: 0.5
Mark 9: 0.5625
Mark 10: 0.625
Mark 11: 0.6875
Mark 12: 0.75
Mark 13: 0.8125
Mark 14: 0.875
Mark 15: 0.9375
Mark 16: 1 inch

Metric Ruler: 1cm = 10mm 25.4 = 1 inch

Tailor's Tape

Sample Solutions in Conversion

A. Foot to inches	3 ft = _____ inches Solution: Multiply 3ft by 12 inches / ft = 36 inches
B. Inch to feet	48 inches = _____ Feet Solution: Divide 48 inches by 12 inches / feet = 4feet
C. Centimeter to millimeter	22 cm = _____ millimeters Solution: Multiply 22 cm by 10 mm / cm = 220mm
D. Inch to centimeter	6 inches = _____ centimeter Solution: Multiply 6 inches by 2.54 cm / inch = 15.24 cm
E. Centimeter to meter	300 cm = _____ meter Solution: Divide 300 cm by 100 cm/ meter = 3 m



INTRODUCTION TO CARPENTRY

CARPENTRY

What is it?

CARPENTRY - The activity or occupation of making things in wood.

Carpentry is a skilled trade and a craft in which the primary work performed is the cutting, shaping, and installation of building materials during the construction of buildings, ships, timber bridges, concrete framework and more.

Carpenters traditionally work with natural wood and did rougher work such as framing, but today many other materials are also used.

The vast majority of carpenters in the United States are men, however more women have migrated to the profession and continue to excel.

There are countless number of tools used in the carpentry field. Depending on the task at hand will determine which tool would be best suited to achieve the desired result. The tools pictured to the left represent some of the basic of carpentry tools, inclusive of a tape measure, hard hat, safety goggles and more!

Carpentry tools, like the equipment of other professions can vary in price. Dollar-store-tools are non-professional, yet can accomplish some menial household tasks when used for the purpose of which it was designed. For example, an inexpensive screwdriver can tighten and un-tighten a screw many times, but will probably prove fatal if ever used as a chisel, etc. As an occupation or profession, tools can be very expensive, but should perform better, last longer, and be more precise.

BASIC (non-powered) CARPENTRY TOOLS

BASIC CARPENTRY POWER TOOLS

any tool that requires electric, battery, or some other power source to make it operate

Drill gun

Circular saw

Mitre saw (chop saw)

Chop saw

Table saw

Jig saw

Nail gun

Router

Orbital sander

BASIC CARPENTRY TERMINOLOGY - 1

LAYOUT - simply means to measure, mark, and arrange all the needed components to complete a project.

SQUARE - refers to checking the face(s), edges or ends to see if what you're building has equal diagonal measurements.

HONE - means to sharpen something.

HEADER - This is a horizontal beam placed over some sort of opening in the frame of a home, such as a door or a window.

JOIST - This is a series of parallel beams that support the floor and ceiling of a building. These beams are often made of wood or concrete for residential construction, but for larger commercial buildings steel is a common joist material as well.

MOLDING - Molding refers to a strip of timber used to create a decorative trim that gives the walls of a home a more finished and elegant look. Moldings can be very plain or ornately detailed.

STUD - Studs are the vertical members of a timber or metal framed wall. The studs are spaced equally to suit the dimensions of the covering sheet materials, usually 600mm between the centers. Studs are used to frame around window and door openings.

BEAM - a long, sturdy piece of squared timber or metal spanning an opening or part of a building, usually to support the roof or floor above.

PLUMB - A plumb is simply a straight vertical line. When an object is referred to as being plumb, it means it is perfectly straight. In terms of construction, a plumb line is a line on the wall that goes straight from ceiling to floor and are useful when it comes times to install windows, doors and tiling.

DEAD LOADS AND LIVE LOADS - A load refers to any type of force exerted on an object. The force of a **dead load** is referring to the weight of a building material that stays constant throughout a structure's life. For instance, a wall of a home is a dead load because it exerts a constant force on the ground. **A live load** is a force that is not constant, but rather a load that comes and goes during the use of a structure. In a staircase, a live load would be the force of footsteps on the stairs.

DOVETAIL JOINT
A dovetail joint is one of the most popular joints used in carpentry thanks to its superior strength. This is because it has a strong tensile strength that helps it resist being pulled apart. Its name comes from its shape, as part of the joint is shaped roughly like a dove's tail. This joint is used more often in furniture construction (specifically in drawers) than for the framing carpentry.

FRAME - a rigid structure that surrounds or encloses something such as a door or window. If you slam your bedroom door hard enough, the entire frame might shake.

SHAPE - Shaping is used to change the size and shape of a workpiece. Like planing, it will remove material from the workpiece. The cutting tool will press against the stationary workpiece while removing material from it. Unlike planing, however, it doesn't create a sculpted surface.

BASIC CARPENTRY TERMINOLOGY - 2

POSTS AND BEAMS: Along with the foundation, posts and beams are the backbone of a house frame.

ON-CENTER: When placing joists, studs, rafters or trusses, carpenters need to know how far apart to install them. The distance is indicated on building plans and is commonly referred to as "on-center" measurement.

FLOOR JOIST: Framing members that support the floor and walls above them.

RIM JOIST: The parts of the floor frame that run perpendicular to the floor joists and function to enclose the ends of the floor joist assembly and to hold the joists in position.

BLOCKING: Short lengths of wood or engineered lumber that are cut to fit between joists, studs or trusses.

SUBFLOOR: Nailed or screwed to the top of the floor joists, the subfloor provides a platform for the walls above and a base for the finished floor materials.

WALL PLATE: The horizontal members that are found at the top and bottom of walls and function to hold the wall studs in position.

STUD: The vertical members that, together with the plates, make up the wall frames.

TRIMMER OR JACK STUD: The studs that run vertically along the sides of window and door openings.

CRIPPLES OR CRIPPLE STUD: Studs that are cut short to fit below or above window and door openings.

HEADER: Beams that are placed above window and door openings to support the weight above.

LOAD-BEARING WALL: A wall that is required to support the weight above it.

STRINGER: The angled stair supports that run from the ground to the main floor or from floor to floor.

WALL SHEATHING: Material applied to the outside of the wall framing to enclose the structure.

RAFTER: The angled framing members that make up the roof structure.

ROOF SLOPE: The incline of a roof, or how steep it is.

ROOF TRUSS: Developed to replace rafter assemblies, roof trusses are designed and built in a factory to match the roof slope.

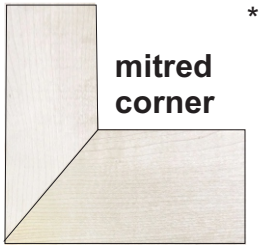
ROOF SHEATHING: Sheathing is nailed to the top side of rafters or trusses to provide a base for the installation of roofing materials.

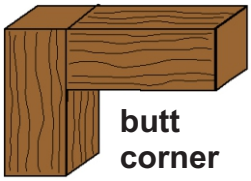
WOOD / LUMBER / PLYWOOD

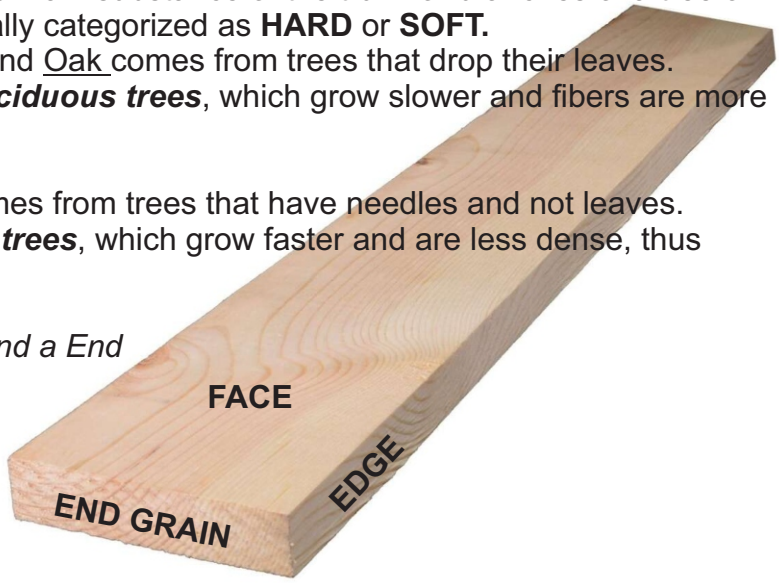
WOOD - the hard fibrous material that forms the main substance of the trunk or branches of a tree or shrub, used for fuel or timber. Wood is basically categorized as **HARD** or **SOFT.**
Hardwood, such as Maple, Cherry, Poplar, and Oak comes from trees that drop their leaves. These trees are part of a group known as ***deciduous trees***, which grow slower and fibers are more dense, thus making it hard.

Softwood, such as Pine, Fur, and Cedar comes from trees that have needles and not leaves. This grouping of trees are known as ***Conifer trees***, which grow faster and are less dense, thus making it soft.

** Wood has a Face, Edge, and a End*







LUMBER - a collective term for harvested wood, whether cut into logs, heavy timbers, or members used in light-frame construction. Lumber is classified as hardwood or softwood. The term often refers specifically to the products derived from logs in sawmill. This wood has been processed (milled and cut into boards or planks in a lumbermill, and the finished product is sold at a lumberyard.

Dimensional Lumber - lumber that is sized to a standard final dimension.
i.e. - 1x4, 1x6, 2x4, 2x6, 2x8**. Dimensional Lumber** *is sold using its rough size, not its actual size.*
i.e 2x4 is actually 1.5x3.5 (one-and-a-half by three-and-a-half)

S4S - smooth surface on all four sides (both faces and both edges)
S2S - smooth surface on two sides (both faces, but not the edges)
S2S1E - smooth surface on two sides and one edge. other examples are: S1SE, S1S2E

Dressed Lumber - is sized down, shaped, and smoothed to a nice flat surface. D4S

PT Lumber - is Pressure Treated with chemicals to resist rot and insects. Good for outdoor use.

RGH - (Rough Cut) still see the rough marks by the cutting mills

PLYWOOD - a type of strong thin wooden board consisting of two or more layers glued and pressed together with the direction of the grain alternating, and usually sold in sheets of four by eight feet.

Baltic Birch Plywood has 13 plys

CARPENTRY PROJECT(S)

PRACTICE WITH TOOLS

Drilling
Hammering
Screwing
SAW

CONSTRUCT WALL

INTRODUCTION TO ELECTRICITY

ELECTRICITY

What is it?

ELECTRICITY - A form of energy resulting from the existence of charged particles such as electrons or protons, either statically as an accumulation of charge or dynamically as a current.
A fundamental form of energy observable in positive and negative forms that occurs naturally as in lightning or is produced as in a generator.

Electricity is the flow of electrical power or charge. It is a secondary energy source which means we get it from the conversion of other sources of energy, like coal, natural gas, oil, nuclear power, fossil fuels, petroleum, and renewable sources of energy.

Electrical Lineman, as pictured to the left are the workers that install and keep power flowing to businesses and residences, even under the most dangerous conditions. They are the first responders during an outage or some other catastrophe to repair or replace power lines and other equipment used in electrical distribution and transmission systems.

The three main types of electricians are Apprentice, Journeyman, and Master Electrician all of which who installs, operates, maintain or repair electric devices or wiring.

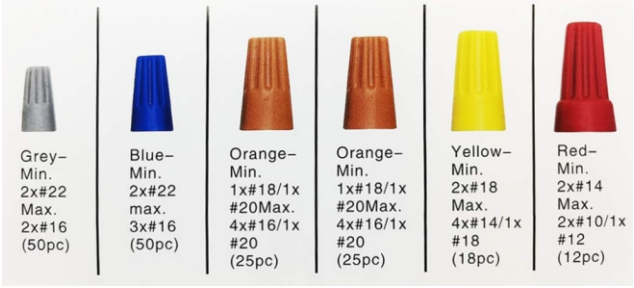
some basic tools

BASIC ELECTRICAL TOOLS
(including many Carpentry tools)

Tape measure

Hack Saw

Wire Nuts



PLIERS

Channel Lock

Lineman's

Diagonal Cutter

Regular Pliers

Magnetic Torpedo Level

Romex wire strippers

Cable Ties (Tie Ties, zip ties)

Vise Grip

Wire Stripper

Electrical Tape

Staple Gun

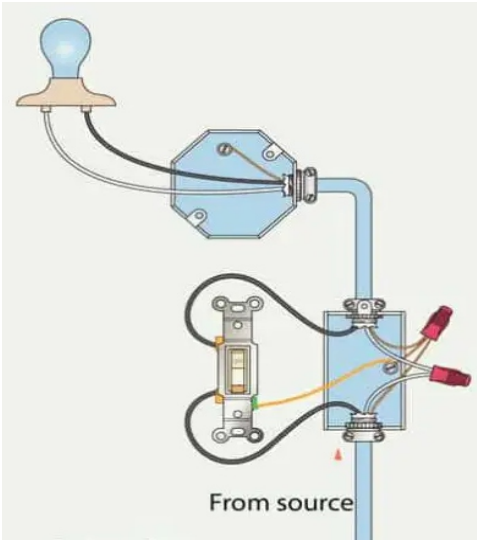
Screwdrivers
Flat Head & Phillips Head

Voltage Testers

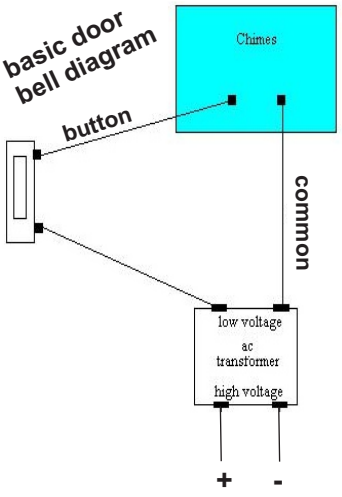
Electrician's Knife

BASIC ELECTRICAL LIGHT / BELL CIRCUITS

Single Pole Switch & Circuit

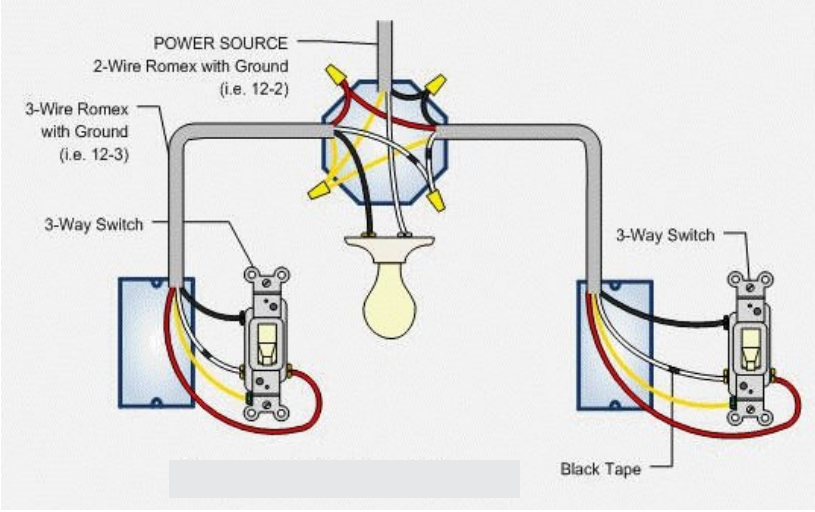


Turn one light on/off from one location

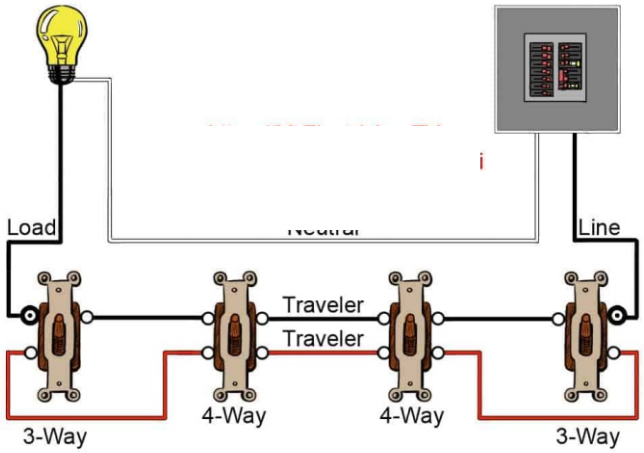


3-way Switch & Circuit

Turn one light on/off from two different locations



4-way Switch & Circuit

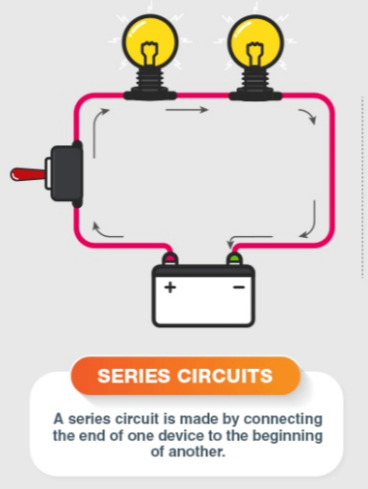


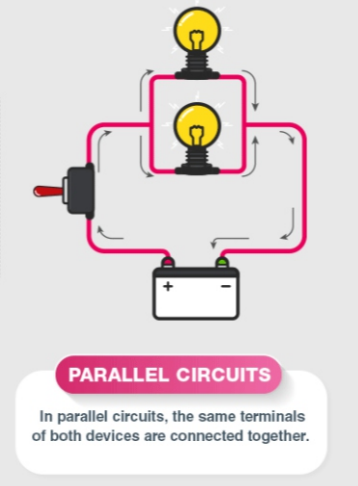
Turn one light on/off from multiple locations

BASIC ELECTRICAL TERMINOLOGY - 1

PARALLEL - has two or more paths for current to flow through. Voltage is the same across each component of the parallel circuit. The sum of the currents through each path is equal to the total current that flows from the source.

SERIES - all components are connected end-to-end to form a single path for current flow.





RECEPTACLE - provides a place in a wiring system where current can be taken to run electrical devices.

SHOCK - An electrical shock is a physical reaction to electrical currents passing through the body.

SHORT - an electrical circuit that allows a current to travel along an unintended path with no or very low electrical impedance.

SOURCE - a device delivering energy into a system, while a load is a device extracting energy from a system.

SWITCH - an electrical component that can disconnect or connect the conducting path in an electrical circuit.

TRAVERSE LINES - a series of connected lines whose lengths and directions are to be measured and the process of surveying to find such measurements is known as traversing.

TRIP CIRCUIT - it means that circuit has detected what's known as a fault condition and has shut itself off to prevent the wiring from overheating and potentially igniting itself.

WATT - is the unit of power or radiant flux in the International System of Units (SI).

ELECTRIC PANEL

BALLAST
for fluorescent tube lights

BASIC ELECTRICAL TERMINOLOGY - 2

AMPERE (Amp) (I) - The ampere is a measure of the amount of electric charge in motion per unit time that is, electric current. But the quantity of electric charge by itself, whether in motion or not, is expressed by another SI unit, the coulomb.

ANALOG - relating to or using signals or information represented by a continuously variable physical quantity such as spatial position, voltage, etc.

BALLAST - An electrical ballast is a device placed in series with a load to limit the amount of current in an electrical circuit.

CIRCUIT - path for transmitting electric current. An electric circuit includes a device that gives energy to the charged particles
- **closed** - a circuit without interruption, providing a continuous path through which a current can flow.
- **open** - A circuit in which the continuity is broken due to which the electric current can not flow.

CIRCUIT BREAKER - an electrical safety device designed to protect an electrical circuit from damage caused by overcurrent. Its basic function is to interrupt current flow to protect equipment and to prevent the risk of fire.

COMMON - the terminal to which the live core wire is attached

CONDUCTOR - In physics and electrical engineering, a conductor is an object or type of material that allows the flow of charge (electric current) in one or more directions.

CURRENT - a stream of charged particles, such as electrons or ions, moving through an electrical conductor or space
- **AC** - an electric current that reverses its direction many times a second at regular intervals, typically used in power supplies.
- **DC** - an electric current flowing in one direction only.

DIAGRAM - drawings which are used to represent electrical circuits, these circuits are represented by using lines, symbols, and number combinations. Electrical diagrams show the wiring between components.

ELECTRIC CHARGE - the physical property of matter that causes that matter to experience a force when placed in an electromagnetic field.

GROUND - ground or earth is a reference point in an electrical circuit from which voltages are measured, a common return path for electric current, or a direct physical connection to the Earth.

HOT (wire) - is used as the initial power feed to a circuit. It carries the current from the power source to the outlet.

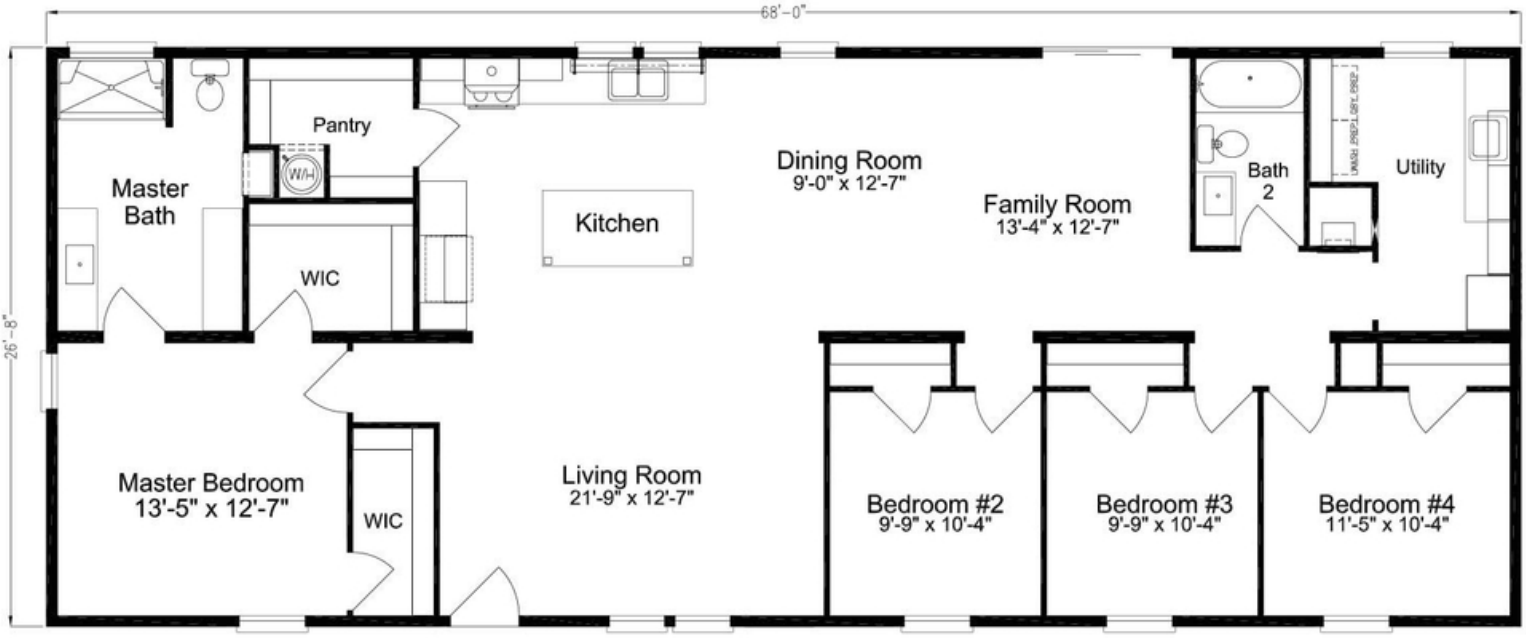
NEUTRAL - is a current-carrying conductor that brings current back to the power source to establish control over the voltage. Usually identified by its white color.

OHM'S LAW - a law stating that electric current is proportional to voltage and inversely proportional to resistance.
I=P/E E=P/I P=E*I (I=amps, P=watts, E=voltage)

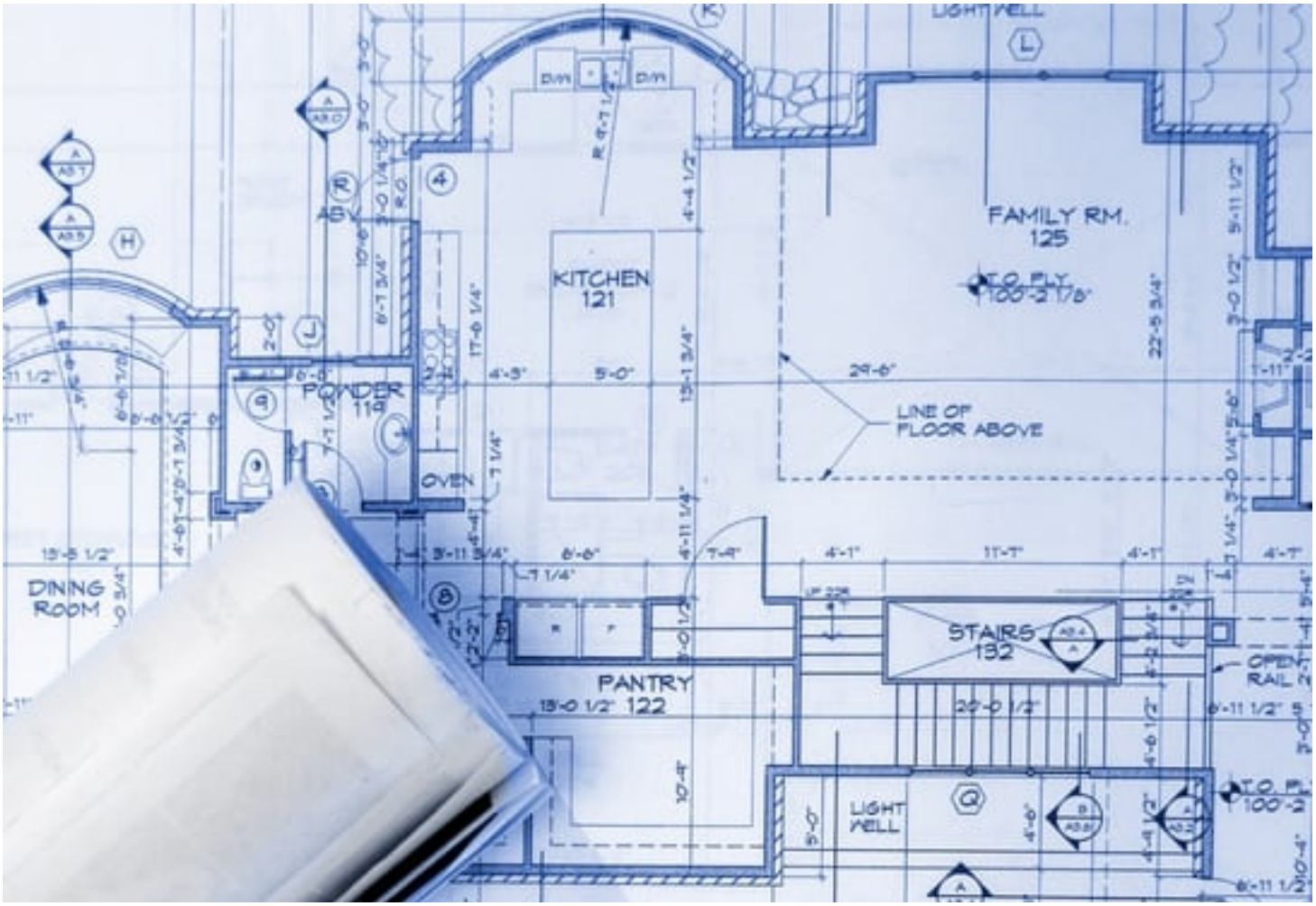
OPEN - a circuit where the path has been interrupted or "opened" at some point so that current will not flow.

PANEL - a service box that connects a main power line to a home, and distributes electrical currents to the various circuits within the home.

FLOOR PLANS - a scale diagram of the arrangement of rooms in one story of a building.



BLUE PRINT - a detailed outline or plan of action. A photographic print made by a process that produces white lines on a blue background or vice-a-versa. An early plan or design that explains how something might be achieved.



ELECTRICAL PROJECT(S)

PRACTICE WITH TOOLS

Drilling
Hammering
Screw (Drill and manual)
SAW (Hand and Power)

INSTALLATION ON WALL

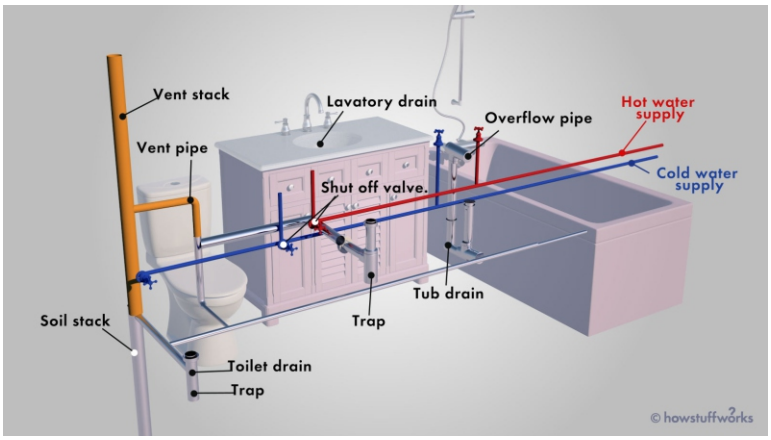
Simple lighting circuit
Three-way lighting circuit
Door bell circuit (front & rear)

INTRODUCTION TO PLUMBING

PLUMBING

What is it?

PLUMBING - A system of pipes and other apparatus required for the water supply, heating, and sanitation in a building. The professional person(s) performing this type of work are referred to as a plumbers.



A plumbing system consists of three parts: an adequate potable (able to drink) water supply system; a safe, adequate drainage system; and ample fixtures and equipment.

As the plumber is working, take note to what he's wearing: a hard hat, goggles, and gloves. Safety, Safety, Safety should always be the mind-set and goal in every aspect of the profession.

some basic tools

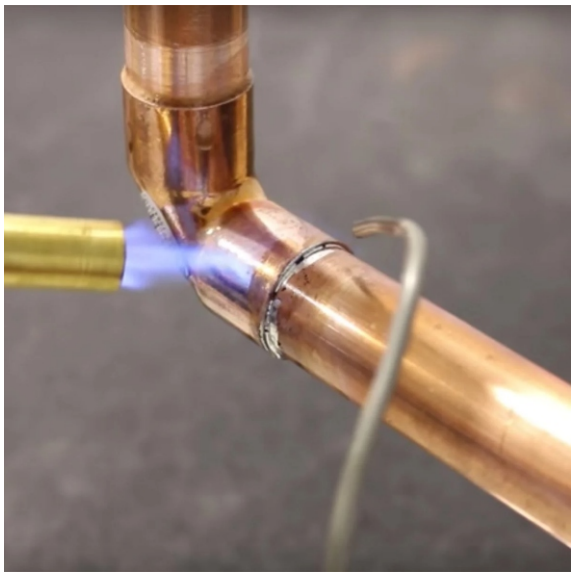
BASIC PLUMBING TOOLS
(including some Carpentry tools)

PVC Cement and various PVC angles

Types of pipe fittings

COPPER PIPING

Copper piping is a tube-like material made from copper, a red-brown metal with the chemical symbol Cu and atomic number 29. Copper tubing is used worldwide and most often used for transferring liquids, and heating systems and as a refrigerant line in HVAC systems. Copper tubing is slowly being replaced by PEX tubing in hot and cold water applications. There are two basic types of copper tubing, soft copper and rigid copper. Copper tubing is joined using flare connection, compression connection, pressed connection, or solder. Copper offers a high level of corrosion resistance but has become very costly.



PVC PIPING

Polyvinyl chloride (alternatively: poly(vinyl chloride), colloquial: polyvinyl, or simply vinyl; abbreviated: PVC) is the world's third-most widely produced synthetic polymer of plastic (after polyethylene and polypropylene).

PVC CEMENT

PVC PIPES CONNECTED WITH PVC CEMENT

PVC S-TRAP

PVC PARTS

PVC PARTS

PVC UNDER-THE-SINK CONNECTION

PVC CUTTER

PEX PIPING

Cross-linked polyethylene, commonly abbreviated PEX, XPE or XLPE, is a form of polyethylene with cross-links. It is used predominantly in building services pipework systems, hydronic radiant heating and cooling systems, domestic water piping, insulation for high tension (high voltage) electrical cables, and baby play mats. It is also used for natural gas and offshore oil applications, chemical transportation, and transportation of sewage and slurries. PEX is an alternative to polyvinyl chloride (PVC), chlorinated polyvinyl chloride (CPVC) or copper tubing for use as residential water pipes.

Properties

Low-temperature impact strength, abrasion resistance and environmental stress cracking resistance can be increased significantly by crosslinking, whereas hardness and rigidity are somewhat reduced. Compared to thermoplastic polyethylene, PEX does not melt (analogous to elastomers) and is thermally resistant (over longer periods of up to 120 °C, for short periods without electrical or mechanical load up to 250 °C). With increasing crosslinking density also the maximum shear modulus increases (even at higher temperatures).[1][2] PEX has significantly enhanced properties compared with ordinary PE.[3]

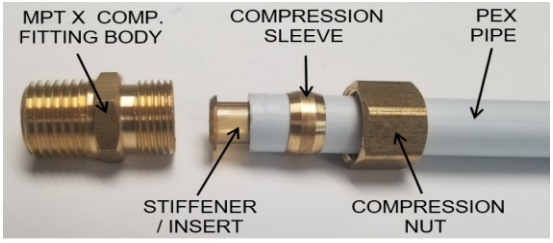
Almost all PEX used for pipe and tubing is made from high-density polyethylene (HDPE). PEX contains cross-linked bonds in the polymer structure, changing the thermoplastic to a thermoset. Cross-linking is accomplished during or after the extrusion of the tubing. The required degree of cross-linking, according to ASTM Standard F876, is between 65% and 89%. A higher degree of cross-linking could result in brittleness and stress cracking of the material, while a lower degree of cross-linking could result in product with poorer physical properties.

PEX compression connectors make it possible to join a PEX plumbing pipe, as well as copper pipes, together simply by pushing them into each other for a watertight fit. This technology is replacing copper pipe installations for indoor plumbing.

1. **Drop Ear Elbow**
2. **PEX to copper solder adapter**
3. **PEX to copper Threaded Adapter**
4. **PEX to Female Threaded Adapter**
5. **PEX Plug (end the flow of water)**
6. **PEX to PEX coupling**
7. **PEX to PEX 90-degree Elbow**
8. **PEX to Copper Adapter**
9. **PEX to Copper 90-degree Elbow**
10. **PEX to PEX to PEX 3-way Tee**

PEX Clamp tool with LED light

PEX pipe cutter

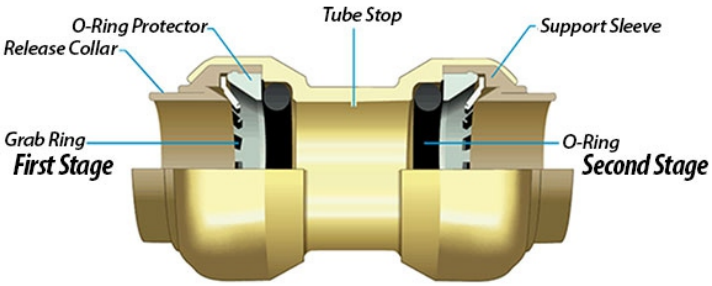


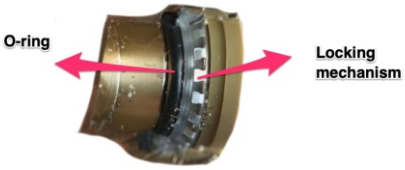
SHARKBITE CONNECTIONS

"Push-to-connect" plumbing

SharkBite fittings are most commonly used in household plumbing. The household plumbing fittings range from half-inch, three-quarter, inch and a quarter, and a little bigger. As long ask you're installing the fitting onto CPVC or PEX, you can use them for water anywhere in your plumbing system.

SharkBite fittings last a long time. In fact, SharkBite warrants the fittings for 25 years when used with SharkBite tubing.





Compression Brass Angle Stop Valve

Tee Stop Valve

PEX-to-Copper 90-degree elbow

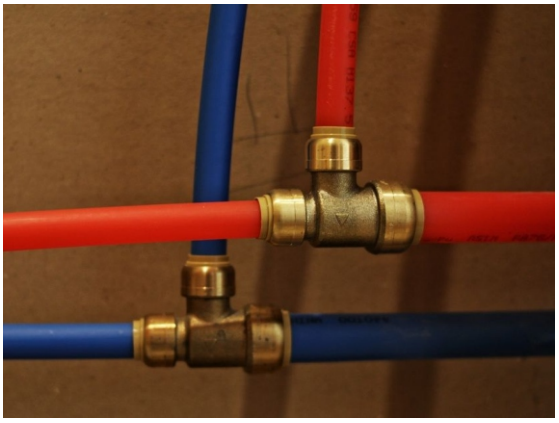
90-degree elbow

Shut-off Ball Valve

45-degree elbow

straight coupler

Blue, for cold water and Red, for hot water



Sharkbite removal tool

Standard Tee

BASIC PLUMBING TERMINOLOGY

ACCESS PANEL - a door or piece of plywood that can be easily removed to gain access to a shut-off valve, drain or other..
ANGLE STOP - a small valve often used in household plumbing that is placed where a pipe changes directions at a right angle
ANODE ROD - a metal rod that runs down the center of your hot water tank, usually made from magnesium, aluminum, or alloy.
BACKWATER VALVE - a backflow prevention device used to prevent outbound water from re-entering
BALL CHECK VALVE - functions by means of a ball that moves up and down inside the valve.
BALLCOCK - a valve that automatically fills a tank after liquid has been drawn from it. (a flushed toilet)
BRANCH - a drain is a waste pipe that collects the waste from two or more fixtures and conveys it to the sewer.
BRANCH VENT - Any part of the piping system other than the main, riser, or stack.
CHECK VALVE - a valve that closes to prevent backward flow of liquid.
CLEANOUT / PLUG - provides access to your main sewer line and is located outside of your home.
CLOSET (Toilet) - a plumbing fixture having a water-containing receptor which receives liquid and solid body waste.
CLOSET AUGER - is a relatively short and slender cable made from coiled wire that's used to clear clogged toilets.
CLOSET BEND - a 90-degree toilet elbow fitting, but it doesn't form a sharp angle.
CLOSET FLANGE - a pipe fitting that secures a toilet unit to the drain pipe in the bathroom floor.
COUPLING - is a very hort length of pipe/tube with a socket at one/both ends that allows two pipes/tubes to connect.
DIAPHRAGM - A type of compression adapter that connects tubular brass fittings to PVC pipe.
DIP TUBE - an internal pipe that extends from the cold water inlet nearly to the bottom of the hot water heater.
DRAIN - is the primary vessel or conduit for unwanted water or waste liquids to flow away.
DRAIN WASTE VENT SYSTEM -is a system that allows air to enter the system to maintain proper air pressure...
FALL/FLOW - The proper slope or pitch of a pipe for adequate drainage.
FAUCET - a fixture that is attached to a pipe that normally serves a sink or tub and can discharge hot/cold water.
FIXTURE - is an exchangeable device which can be connected to a plumbing system to deliver and drain water.
FLAPPER VALVE - is a relatively small rubber plug that fits over an opening at the bottom of your toilet tank.
FLOAT BALL - regulates the water level within the tank.
FLOAT VALVE - a simple mechanical liquid level controller. Based on the liquid elevation can open/close valves.
FLOOR FLANGE - is a pipe fitting that mounts a toilet to the floor and also connects the toilet drain to a drain pipe.
FRENCH DRAIN - is a gravel-filled trench that includes a perforated or slotted pipe.
GAS COCK - control the flow of natural gas or propane through a pipe, thus can increase/decrease gas flow.
GATE VALVE - the most common valve for water supply systems and has a function to stop or allow the flow.
GRAY WATER - is wastewater from hand basins, washing machines, showers, and baths.
HORIZONTAL BRANCH - a drainpipe that connects horizontally to a major segment of a DWV system.
HOSE BIB (common outdoor faucet) -the small faucet on the exterior of your house.
MAIN LINE - a line located underground that carries all wastewater from your home to a municipal connection.
NIPPLE - a fitting consisting of a short piece of pipe, usually with a male pipe thread at each end, for connecting two.
PEX - is a type of plastic tubing made from high-density polyethylene.
POWER FLUSH SYSTEM - sends water at high velocity through the system to dislodge the deposits of sludge, etc.
PRESSURE REDUCING VALVE (PRV) - to control or limit surges of pressure within pipelines, acting as protection.
PVC (PolyVinyl Chloride) - the white plastic pipe commonly used for plumbing, water supply and drainage.
RIM HOLES - a series of small holes around the toilet bowl that washes over the surface of the bowl and to refill.
RISER - the vertical pipes in a building that allow fresh water to rise from lower floors to upper floors.
SADDLE VALVE - a valve used to supply liquid where a low volume, low pressure stream is required.
SEAT - It is located at the base of the device that's used to turn the water on and off.
SEPTIC TANK - a buried water-tight container usually made of concrete/fiberglass/polyethylene...holds wastewater.
STACK - is a long vertical pipe extending out of your roof that directs wastewater from all the fixtures in your home.
STOP VALVE / SHUT-OFF VALVE - they control water flow to individual plumbing fixtures, such as faucets & toilets.
SUMP PUMP - a device used to remove water that has accumulated in a water-collecting sump basin.
SUPPLY LINE - a metal or plastic water line that helps transfer water from the main line to home fixtures.
SWEAT / SODDER - refers to soldering a pipe or the joint. Sweating seals a new joint or mends a fault.
TAILPIECE - the section of piping that connects to the drain fitting. It carries water away from the sink, etc...
TRAP - is a U-shaped portion of pipe designed to trap liquid or gas to prevent unwanted flow;
TRAPWAY - is a U-shaped portion of pipe designed to trap liquid or gas to prevent unwanted flow.
VALVE - a type of fitting that allows for regulation, control, and direction of fluids passing through a pipe
VENT - regulates the air pressure within your home's plumbing system.
WAX RING - works like a gasket around the base of the toilet. It attaches to the toilet flange,

PROJECTS(S)

ABIDING TRUTH MINISTRIES

COMMUNITY DEVELOPMENT CORPORATION