

Building Components

Protect Your Client by Enhancing Your Knowledge of Building Components

How does understanding building components protect the client?

- The Real Estate agent can better understand property inspection reports and respond appropriately on behalf of the client.
- The Real Estate agent will more likely avoid pitfalls for the client and themselves by understanding physical property issues and addressing them before the close of escrow.

How can this knowledge be misused?

- This information is to help the agent understand issues. The Real Estate Agent should never become the Inspector or Tradesperson.
- A little knowledge is dangerous. If an agent tries to explain a physical property issue to a client and the information is wrong, it can hurt later.

Example on how to use the knowledge

- The agent notices damaged foundation concrete. Your knowledge just helped you to notice something. That's great!!! Now consult a foundation expert.

Another Example

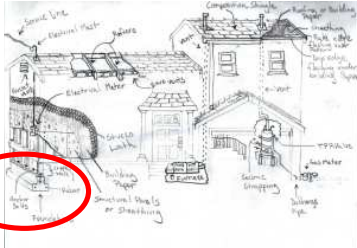
- You learned about water heaters (which you will). You can see the TPR discharge pipe is missing and the vent has a gaping hole in it. Instead of explaining the details, say something like "There are several aspects about this water heater that concern me; lets get a plumber."

What are we going to learn about?

Water Heaters	Heating	Roofs
Plumbing		Foundations
Earthquake Retrofitting	Building Terms	Electrical
	Siding	

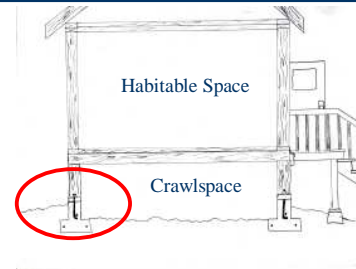
Where to Start?

How about Foundations?



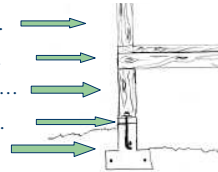
The Foundation: Side View

Foundation



Foundation: Closer Look

Wall sits on top of the ...
Floor, which sits on top of the ...
Cripplewall, which sits on top of the ...
Mudsill, Which sits on top of the ...
Foundation

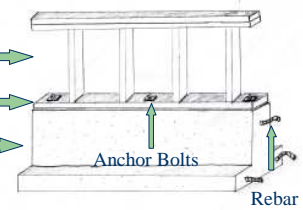


The Cripple Wall View

Cripple Wall

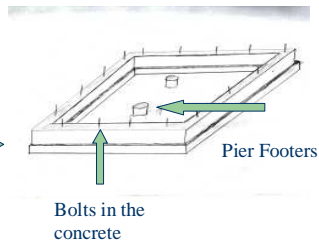
Mudsill

Foundation



Lets Build a Raised Foundation

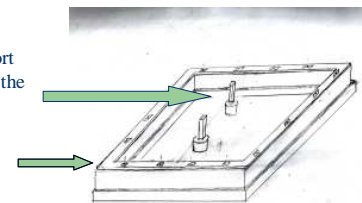
Concrete Foundation



Lets add a mudsill

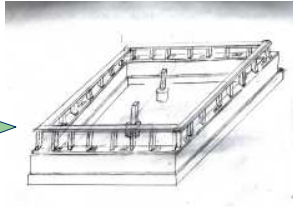
Piers to support the middle of the floor

Mudsill and Anchor bolts



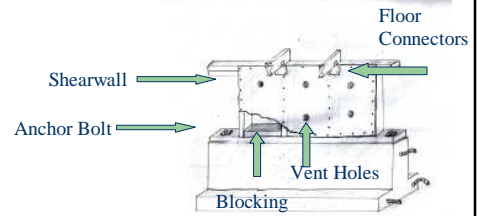
Now for the cripplewall

Cripplewall



Over all of this is the first floor of the house.

Now we can explain retrofitting



Foundation

Missing portion of mud-sill

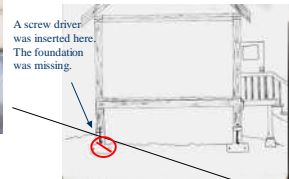


Large Foundation Crack

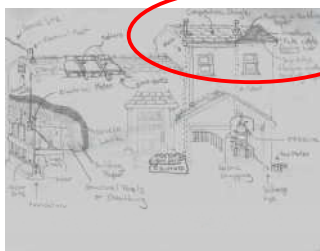
Missing Foundation



A screw driver was inserted here. The foundation was missing.

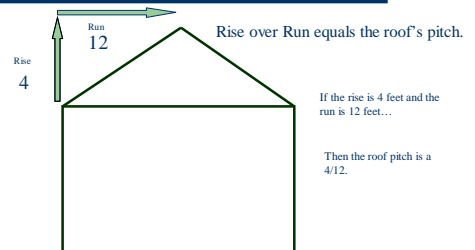


Where to Next?



How about the roof?

Roof Pitch



Why is pitch important?

Pitch helps us decide which kind of roof we should have.

If the roof has a steep pitch, then we can install shingles.

If the roof pitch is low (a 3/12 or less) we need a more waterproof roofing material.

Aren't all roofs waterproof?

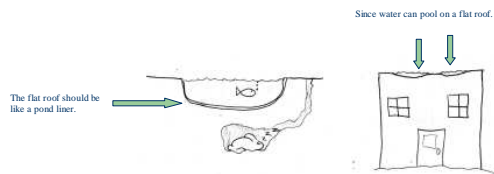
Yes, but in different ways. Here's how a shingled roof takes care of water.

Shingled roofs rely more on gravity to remove the water. It is not impermeable.

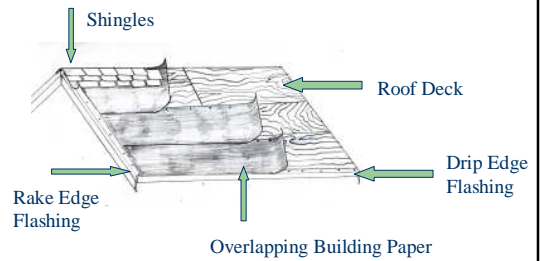


Flat roofs are impermeable

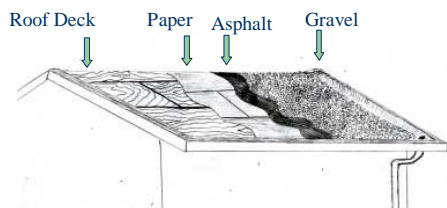
Flat or low slope roofs are more likely to have water pond on them. They need to be impermeable.



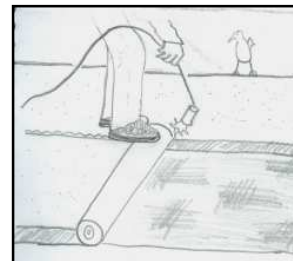
A Shingle Roof



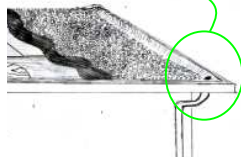
Built-Up Gravel Surface Roof



Modified Bitumen



Worn Edges

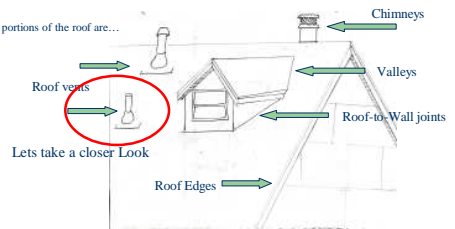


Often, edges are not protected by U.V. resistant paint. These edges prematurely wear.

Roof Flashing

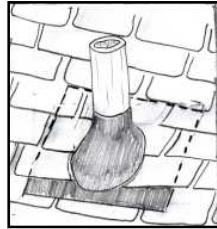
Roof flashing is used to protect vulnerable portions of the roof from leaks. In most cases, flashing consists of sheet metal cut and installed in a prescribed manner.

Vulnerable portions of the roof are...

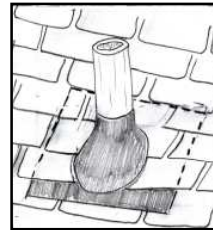


Vent Flashing

Note how the metal flashing is partially tucked under the shingles.
Now the sheet metal becomes one of the umbrellas.

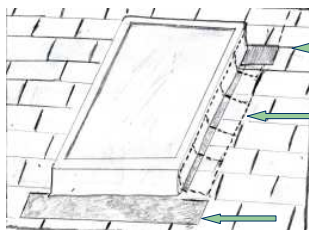


Poor Flashing



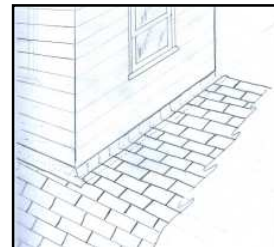
Flashing not properly placed under shingles.

Skylight Flashing

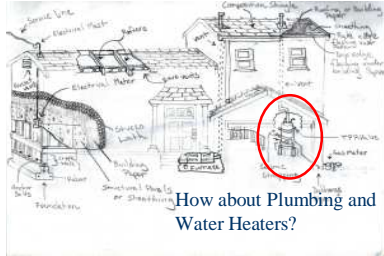


As long as water flows down. The umbrella effect will work here as well.

Roof to wall step flashing

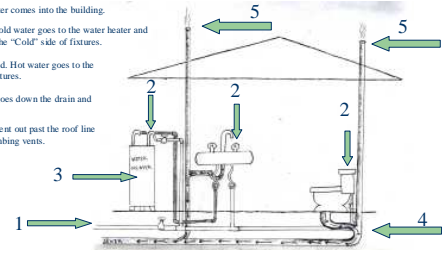


Where to Next?



Plumbing

1. First, cold water comes into the building.
2. Some of the cold water goes to the water heater and the rest goes to the "Cold" side of fixtures.
3. Water is heated. Hot water goes to the "Hot" side of fixtures.
4. Waste water goes down the drain and to the sewer.
5. Sewer gases vent out past the roof line through the plumbing vents.

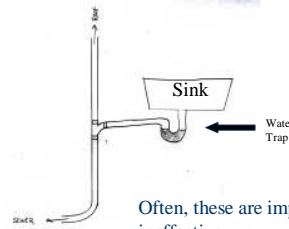


Sewer Gases ???!!!

What kind of gas is this?

Sewer gases contain a mixture of toxic and non-toxic gases. Sewer gases, such as Hydrogen Sulfide, can be poisonous. Methane gases can cause asphyxiation in the same way as Carbon Monoxide by blocking oxygen to the blood. Both Methane and Hydrogen Sulfide are flammable and highly explosive.

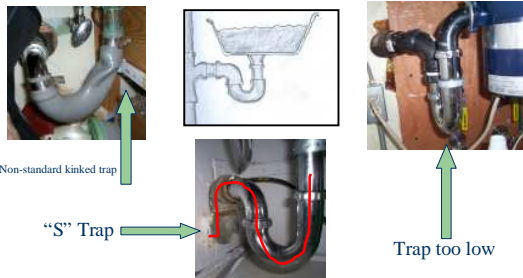
What keeps sewer gases from coming back my drain?



Every drain has some type of water trap. Water trapped in the wastepipe blocks sewer gases from coming up the drain.

Often, these are improperly installed and ineffective.

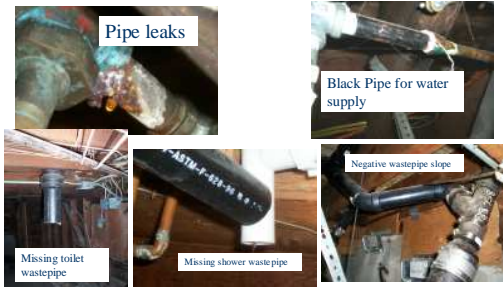
Improper Traps



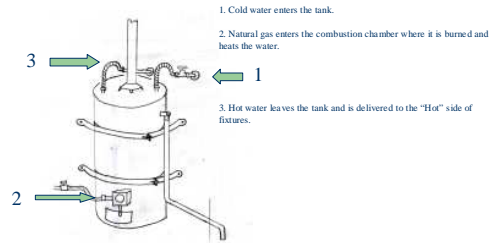
"S" Trap



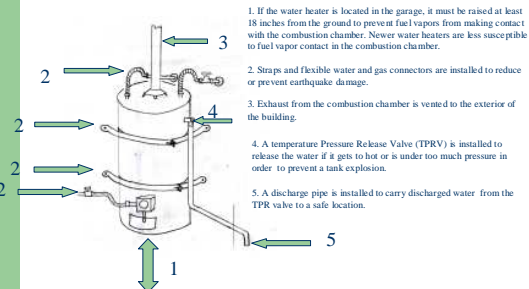
Other Plumbing Issues



Water Heater: How it Works



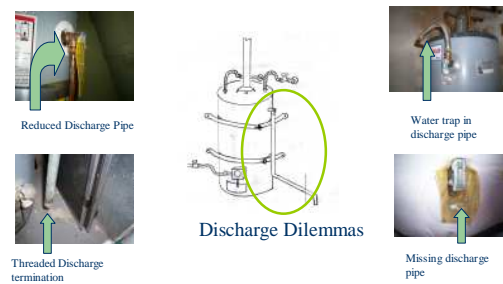
Water Heater: Safety



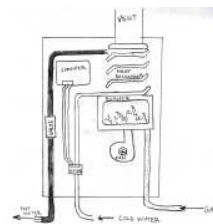
Obvious Tank Failure



Less Obvious Issues



Tankless Water Heaters



Tankless water heaters, or on-demand water heaters, heat water as needed. Instead of the water heater maintaining water temperature in a storage tank, this type of water heater heats the water as it passes through.

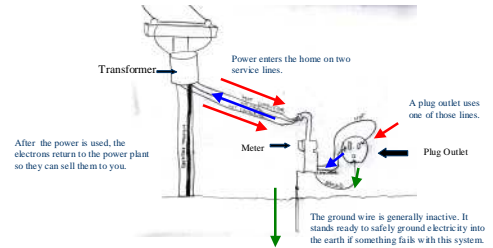
This is an energy-efficient appliance.

Where to Next?

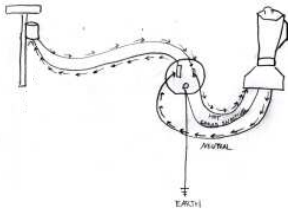
Let's go to Electrical



Basic Electrical

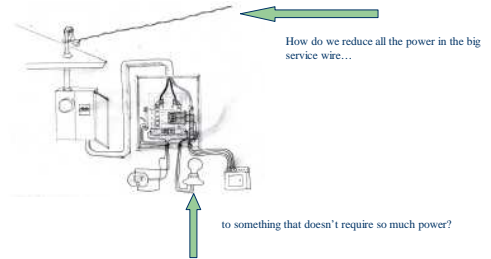


Basic Electrical



Basically, the power goes in and spins the blender blades. Then the power returns to the transformer.

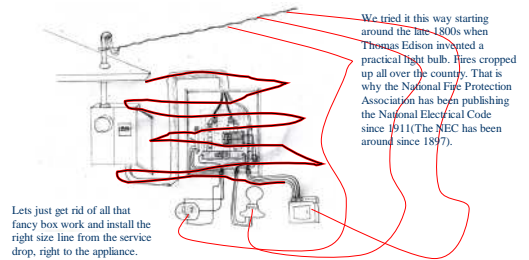
Overcurrent protection



Answer

Based on Ohm's law, we only need to reduce the actual size of the wire to reduce the power.

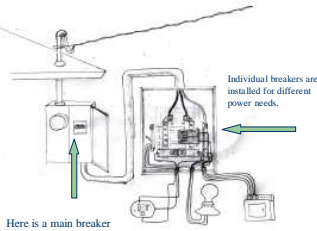
Okay, lets simplify our system



Overcurrent Protection

Overcurrent protection originally came in the form of fuses that would pop when wires became too hot. Breakers are commonly used today.

Breakers have a bimetallic element that shuts off the breaker if the wire is too hot. It is easier to reset breakers than to replace fuses. They are safer because incorrect fuses can be accidentally installed.



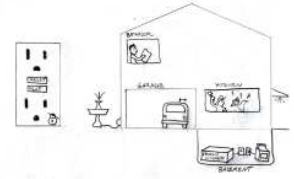
GFCI Outlets

GFCI stands for Ground Fault Circuit Interrupters.

While fuses and breakers protect buildings from fires, GFCI outlets protect people from shock.

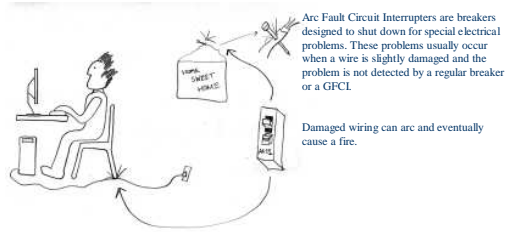
GFCI outlets are generally installed in bathrooms, kitchens, garages, basements (except for single appliance outlets), exterior outlets, and sometimes on sump pumps depending on the authority having jurisdiction of the building.

Newer GFCI outlets have a symbol of a padlock with a lightning bolt passing through it on the face. These are safer than older outlets.

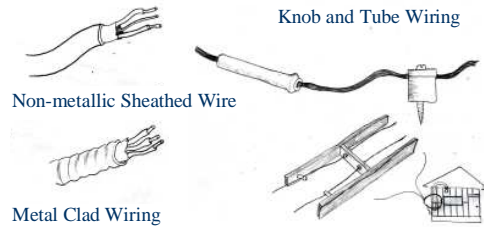


AFCI

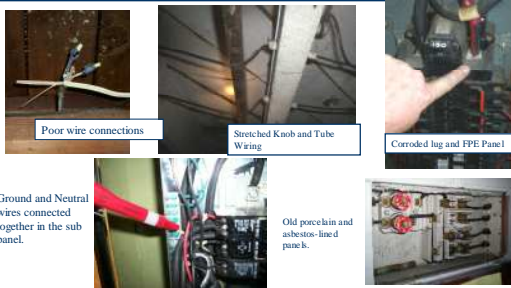
AFCI stands for Arc Fault Circuit Interrupter.



Wire Types



Electrical Issues

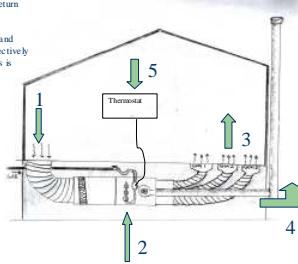


Where to next?

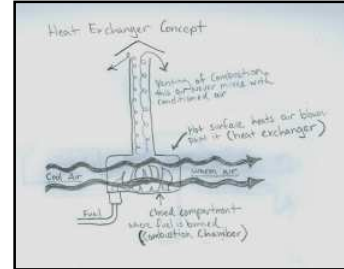


Furnace

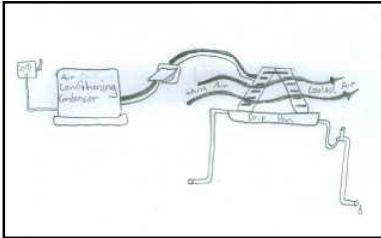
1. Air enters the furnace through the cold air return vent.
2. Gas enters the combustion chamber, burns, and heats the walls of the chamber, which are collectively known as "the heat exchanger". Air from the house is heated by flowing past the heat exchanger.
3. A fan forces warm air back into the building.
4. Exhaust from the combustion chamber is vented out.
5. Based on the temperature of the house, the thermostat tells the furnace to turn on or off.



Heat Exchanger



Air Conditioning



Heating Issues



Heating Issues



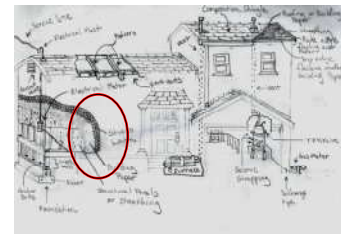
Insufficient clearance between hot vent and combustibles



Heating vent terminating in the attic

Where to next?

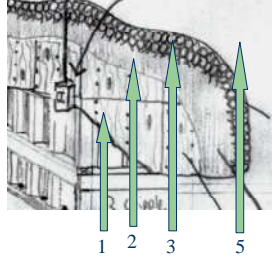
Let's visit siding



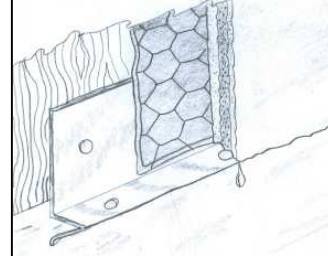
Stucco Siding

1. Sheathing is installed on the building. This is often plywood.
2. Building paper is installed.
3. Wire lath is then installed. It looks like chicken wire.
4. Stucco is applied, often in two to three coats.

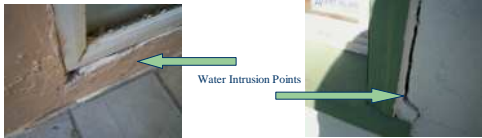
Other types of siding, like wood, still have the plywood and building paper applied underneath.



Weep Screed



Stucco Issues



Efflorescence and staining suggest water behind stucco



That's it for now!

