

# Schaub Purifier

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For printable brochure PDF go to <https://JoyfulCatholics.com/Schaub-Purifier-brochure/>

For too many people in this world the only water available is unsafe to drink. We can empower everyone everywhere to independently make unsafe water into clean, safe water.

3rd world households all around the world can stop dying for lack of safe water. Disaster relief can send 10s of Schaub Purifiers in place of 1,000s of water bottles. 1st world households can recycle at least half of the water they use on site.

The guiding principle is the universal one for distilling. Evaporate the desired liquid (in this case water) and then re-condense and collect it. Boiling an entire pot of water is too energy intensive. So, just heat a little at a time.

The best source of heat is sunlight. In addition to using sunlight, we can also run Chimneys under the Box to heat the Cloth. These Chimneys do NOT have to be from a dedicated fire. These Chimneys can capture some of the waste heat from: engine exhaust, a cooking fire, a fire place, a flame used as a lamp, etc.

How much water gets purified will depend on how much heat is applied.

## ADVANTAGES

- Uses solar power and wasted heat
- Distills clean water from pretty much any water, including salt water
- No moving parts
- Can be used on boats and moving vehicles
- Simple to understand, build, and manually operate
- Can be built by anyone good with tools, anywhere in the world.

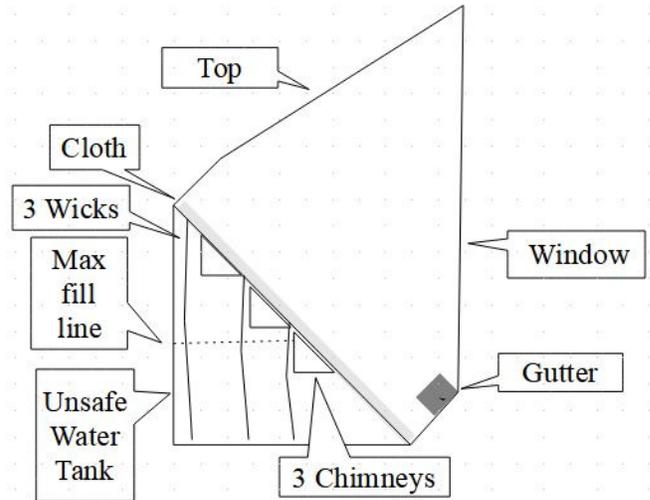
## DISADVANTAGES

- Frequent cleaning needed because of residue, mold, etc.
- Dissolved liquids with lower enthalpies than water can come through into the clean water; alcohol and gasoline for examples.
- Distilled water does not taste good. We human beings will want flavoring.
- The water tanks are filled and emptied manually.

I cannot think of any more disadvantages at the moment ;-)

# Schaub Purifier

DESIGN EXAMPLE: cutaway view from side



# Schaub Purifier

## HOW IT WORKS

1. Wicks hang down from the Cloth and into the Unsafe Water Tank.
2. Water climbs by osmosis up the Wicks and into the Cloth. The Cloth will always be wet, but not over loaded.
3. The Cloth gets heated by sunshine or by hot air flowing through the Chimneys.
4. As air and unsafe water get heated, the air collects evaporated water.
5. Warmed, moistened air rises past the waxed Top with minimal condensation.
6. Clean water condenses onto Window.
7. Clean water drips down into Gutter.
8. Gutter gets clean water to a container.
9. Cooled, dried air falls to the Cloth to begin the cycle again.

## DESIGN SUGGESTIONS

1. OVERALL
  1. Evaporation will leave solid contaminants, germs, etc behind.
  2. All joints should be sealed watertight. The holes for the Wicks will balance air pressure inside with ambient air pressure.
  3. While professionally manufactured systems would be best, serviceable DIY versions can be built using scraps salvaged from junk yards. For example, pipes can be assembled by cutting and gluing aluminum cans and/or plastic bottles.
  4. Exact sizes, shapes, count etc. of chimneys, wicks, etc are up to you.
  5. There are no supporting structures discussed because they do not matter to the functioning of the device.
  6. Schaub Purifiers can be mounted on moving vehicles and boats.

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## DESIGN SUGGESTIONS (cont)

### 2. BOX

1. Water proof and rigid with all joints sealed water tight.
2. Shown at 45 degrees off horizontal. Optimal angle will vary by location and time of year

3. TOP - Wax the inside of the top to minimize condensation as the hot moistened air travels to the Window.

### 4. WINDOW

1. Window has to be clear to let maximum sunlight through to the Cloth. Glass, acrylic sheets, plastic sheets, even plastic film will work.
2. Set the Window to just past vertical leaning slightly away from the Cloth. This will help keep descending drops of water on the Window even when the Window vibrates.

5. GUTTER –Seal connection to collection container.

### 6. CLOTH

1. Should be black to maximize sunlight absorption.
2. Choose a cloth that facilitates capillary action. Cotton works well, but beware of rotting.

### 7. WICKS

1. Select cloth or string that facilitate capillary action strong enough to bring water up from the Unsafe Water Tank and let it spread into the Cloth. Cotton and nylon ropes are good options.
2. Space the Wicks so that all of the Cloth is always damp.
  1. The lowest Wick defines the maximum fill line for the Unsafe Water Tank so that water does not flow into the Box through the hole for the Wick.

### 8. CHIMNEYS

1. Should be level to allow for widely varied levels of left over heat.
2. Placed against the bottom of the box to heat the cloth.
3. Wicks need to get past the Chimneys and to holes in the bottom of the box.
4. Triangle shape should work well.

## Do it Yourself Green Energy

For ideas for your own independent source of energy, go to:

[www.joyfulcatholics.com/DIY-green-energy-overview](http://www.joyfulcatholics.com/DIY-green-energy-overview)

[www.joyfulcatholics.com/DIY-green-energy-math](http://www.joyfulcatholics.com/DIY-green-energy-math)