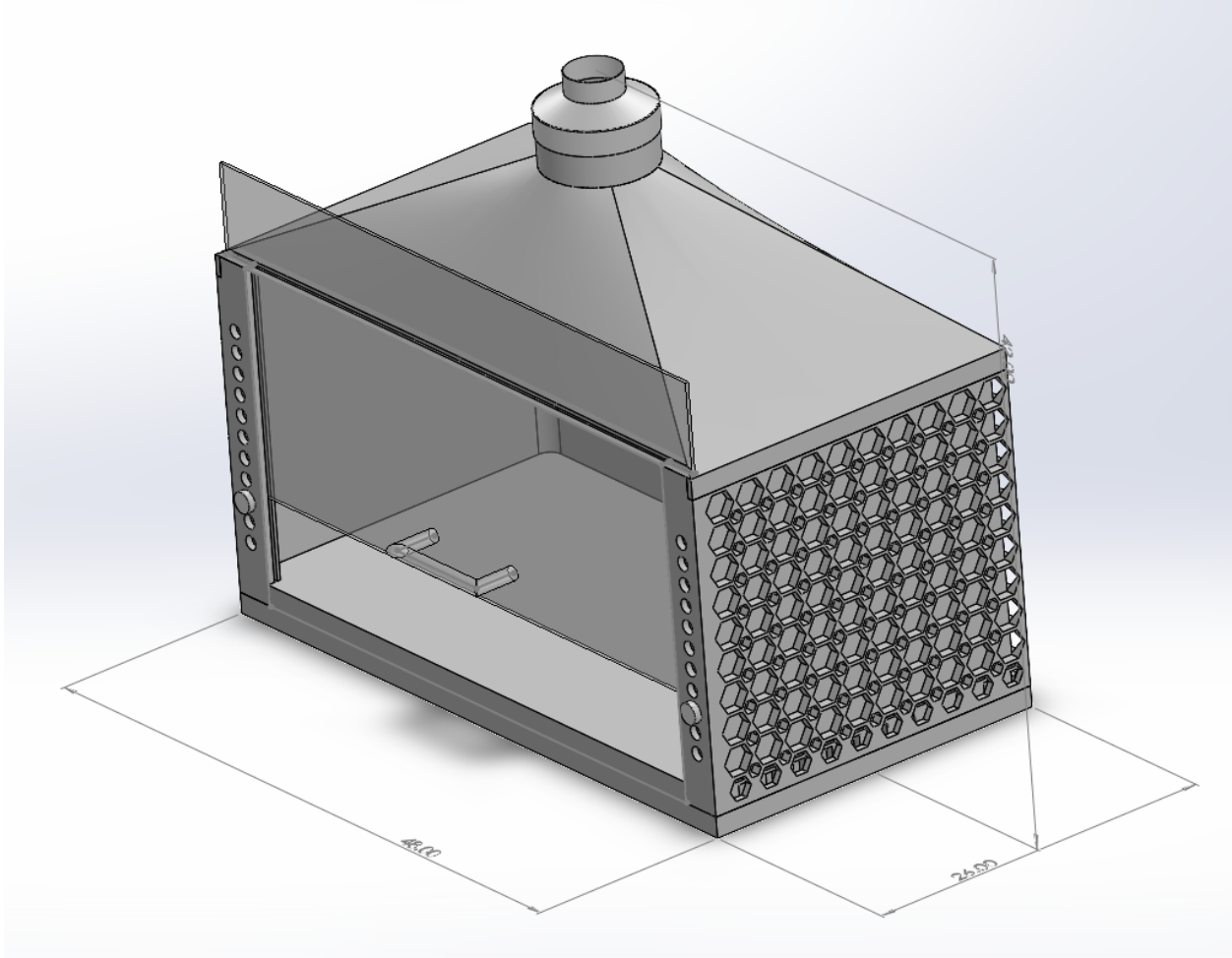


# Fume Hood Manual



*Figure 1 Fume Hood Design*

## Applications

This Fume Hood was designed accordingly to meet Dr. Lerner specification for the Biomechanics lab at Northern Arizona University as a capstone project from Spring 2020 – Summer 2020. It is designed to be used with the EBR-50 exhauster provided by Dr. Lerner, the client of this project. This fume hood was designed to neutralize the danger of the carbon fiber particulates and epoxy fumes. The LEVOIT LV-H132 air filter will be attached to the stack of the fume hood to filter, capture, and retain the epoxy fumes and carbon fiber particulates which run through the system.

## Fume Hood Benefits and Specifications

- Cost of manufacturing and material cost is approximately \$600
- Material used is Polyethylene.
- The weight of the entire fume hood including the sash, the reduction cap, and the knobs = 115 Pounds
- Differential pressure system.
- LED lights for pressure indications.

## Filter Benefits and Specifications

- Model: Levoit LV-H132 Air Filter.
- Cost: \$16.99
- Neutralizes 99.97% of dust, pollen, smoke, odor, mold spores, and pet dander.
- Replaceable every six months

## Accessory Parts & Dimensions

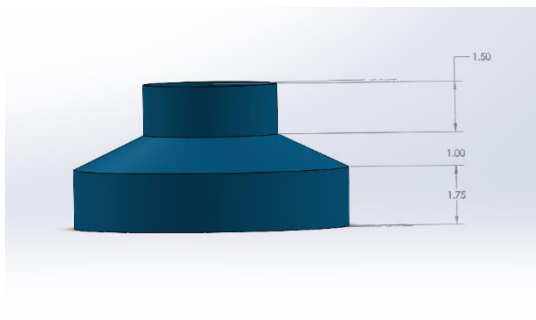


Figure 2: Reduction cap front view

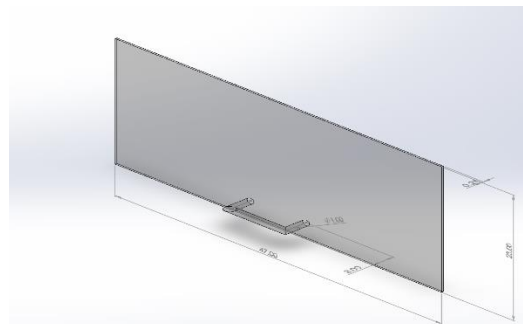


Figure 3: Isometric view of sash

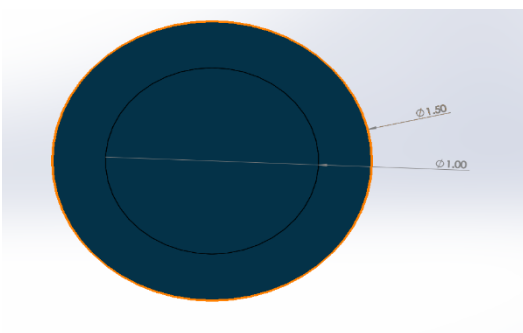


Figure 4: Bottom View of dimensioned sash knob

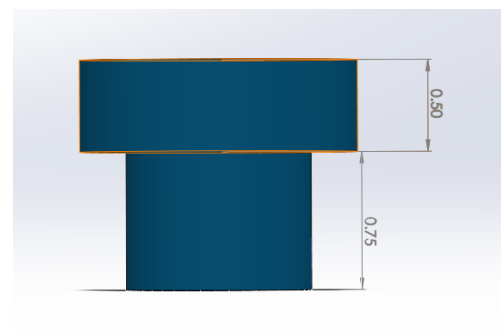


Figure 5: Front view of sash knob



Figure 6: Bottom Shell Plate top view

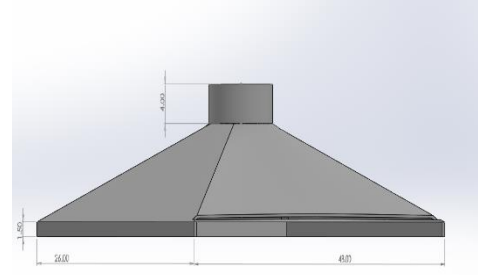


Figure 7: Front angled view of rounded pyramidal top section

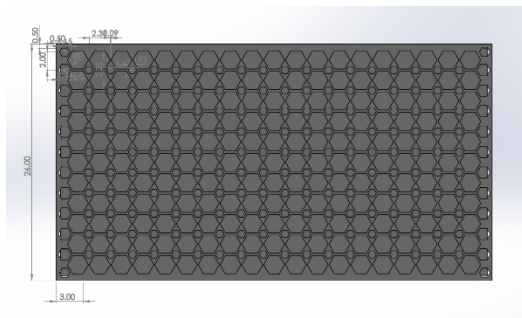


Figure 8: Hexagonal Latticing on bottom shell section

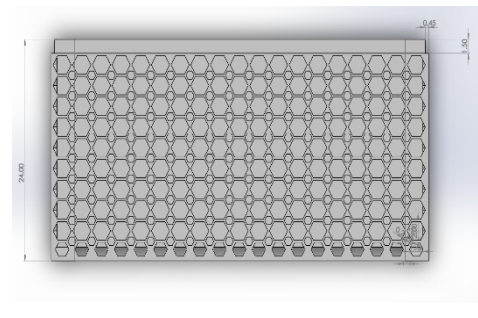


Figure 9: Hexagonal Latticing on Side shell section

## Assembly Instructions

1. Place the central section on the bottom section and use heat to fuse the parts together.
2. Attach pull handle to polycarbonate sash
3. Slide polycarbonate sash into guide rails on central section
4. place top section on central section and use heat to fuse the parts together
5. place O-ring on exhaust part in the center of the top section
6. place reduction cap over exhaust part and O-ring until seated firmly
7. connect hose from exhaust fan to the top of the reduction cap
8. Lift sash above any of the cut outs on guide rails.
9. Place knobs in the cutout on guide rails to hold the sash in place.

## Device Testing Procedure

- Attach both the filter and the exhauster to the fume hood.
- Put some colored powder into the work environment.
- Make sure that the fume hood sash is fully closed.
- Start the exhauster and make sure that the colored powder is vacuumed through.
- Observe the edges of the fume hood and the joint section of the parts.
- Repeat those steps twice:
  - The sash up by 2-3 knobs.
  - The sash up by 4-6 Knobs.
- If there is no leaking, clean up the work environment and the device would be good to go.

## Warnings

- Avoiding the assembly instructions could result in a lack of functioning.
- Using a different exhauster than EBR-50 could result in a lack of functioning.
- DO NOT start any experiment without following the device testing instruction.