

Construction of a cheap DIY type Face Shield for COVID-19 response in case of PPE shortage

1.0 Materials

1.) A4 transparency film, 2.) 58 cm long and 5mm wide elastic strap (or depending on head size), 3.) Poly foam bar (possibly cut from mattress foam at approx. 16 cm long, 3 cm wide and 1.5cm thick), 4.) Some glue (optional). 5.) A cutter.

The sizes are approximated and may change depending on your needs.

2.0 Steps to make the Face Shield

Step 1 – Ensure you have the materials at hand approximate to the sizes mentioned above. Transparent films are available in bookshops while foam bar can be cut from poly foam mattress. The elastic strap may be found in textile outlets or variety stores and even hardware stores.

Step 2 – Mark the transparent film and poly foam. The marks are where you will slit the transparent film and the foam to insert the elastic strap. Once marked use a cutter to slit the locations as shown in Figure 1 below. You may approximate the distance of the slits from the top of the film. We recommend using a 1.5 cm gap. The A4 film has to have slit exactly where the foam is slit to pass the strap through.

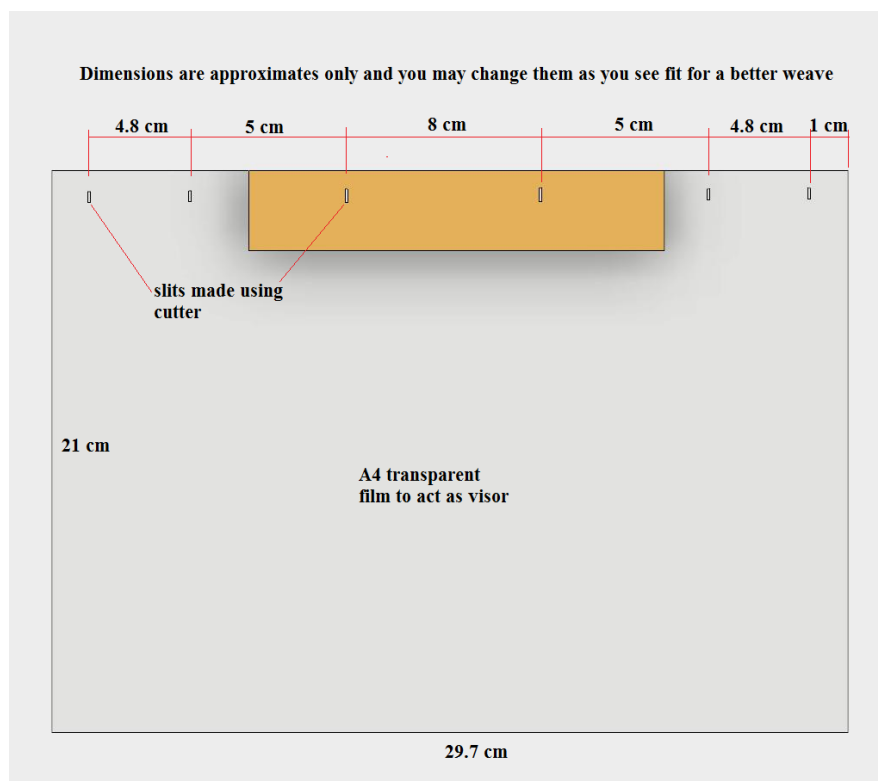


Figure 1 Approximate location of slits

Step 3 – Place the foam bar on the longer side of the A4 transparent film in the center and align the slits on the foam to the slits on the A4 film. Carefully pass the elastic strap through the slits as shown in Figure 2. This will become easier after few tries. In Figure 2 we are looking at the face shield from the top. As you weave the elastic strap in and out, the film will likely bend a bit and take its rounding shape. If the elastic strap is not tied the film will return to its normal flat shape. We don't recommend tying a knot until the user has put it on. This is so that it can be adjusted by the user.

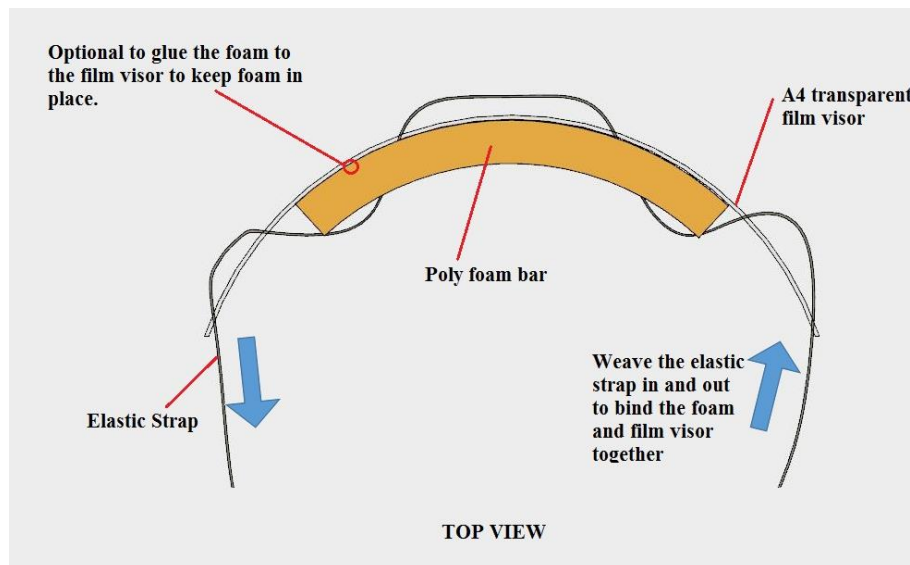


Figure 2 Passing the elastic strap through the slits

Step 4 – The disposable face shield is now ready. As an option you may want to glue the foam to the A4 film to keep it firmly in position however it is unlikely to move unless the slits are too large. You may also want to cut the sharp corners to make them round. Since the film is very flexible its sharp corners do not pose any real hazard. The final product should be ready as shown in Figure 3 below. You may always improve the design with additional work. What we have given is a very basic model which you can build on if you wish. We recommend it as a single use PPE in case of severe shortage. While it is a far cry from the standard medical face shields, this will still be better than no face shield.

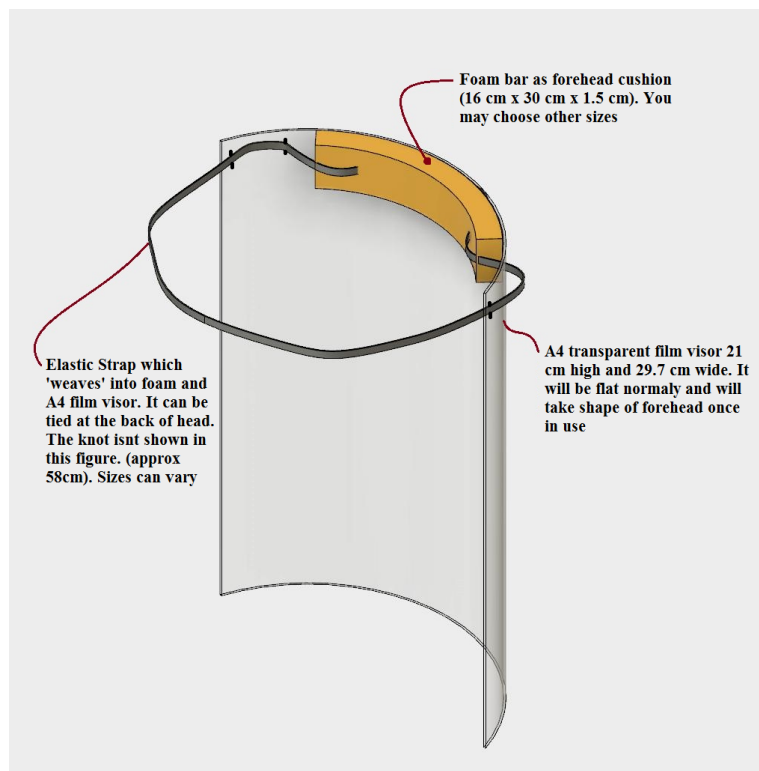


Figure 3 The basic face shield is ready for use.

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