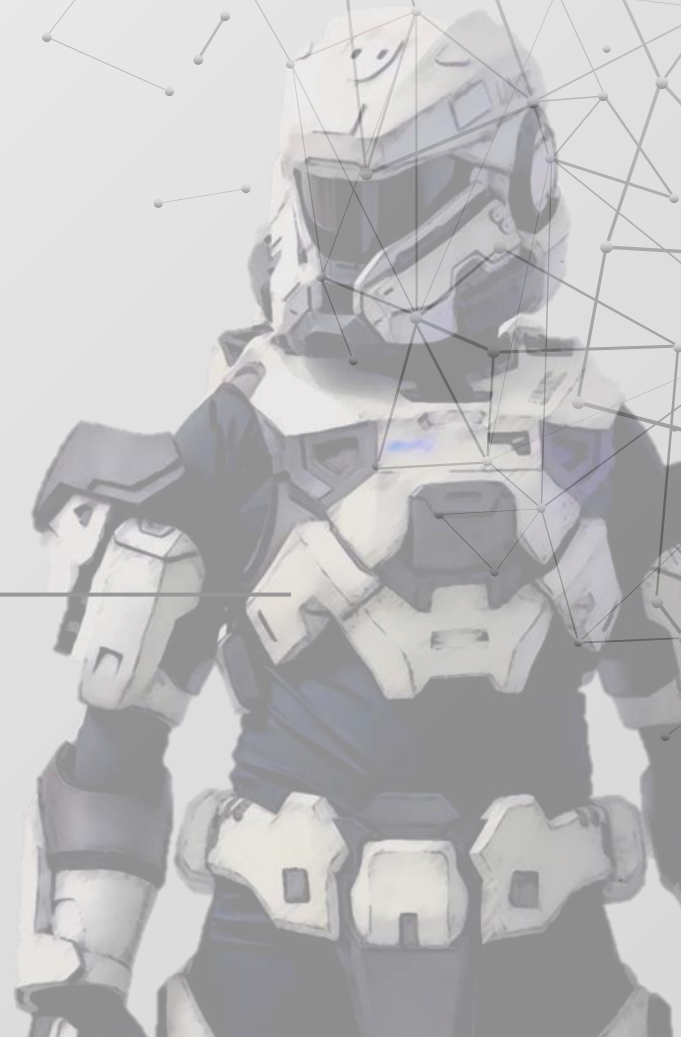
YOUR FIRST STEP

Making **Pepakura** Cosplay Prop and Armor

It's actually much simpler than what our brain tells us

About Me

Nickname: GM
Cosplay experience: 2012-present
Profession: School Teacher



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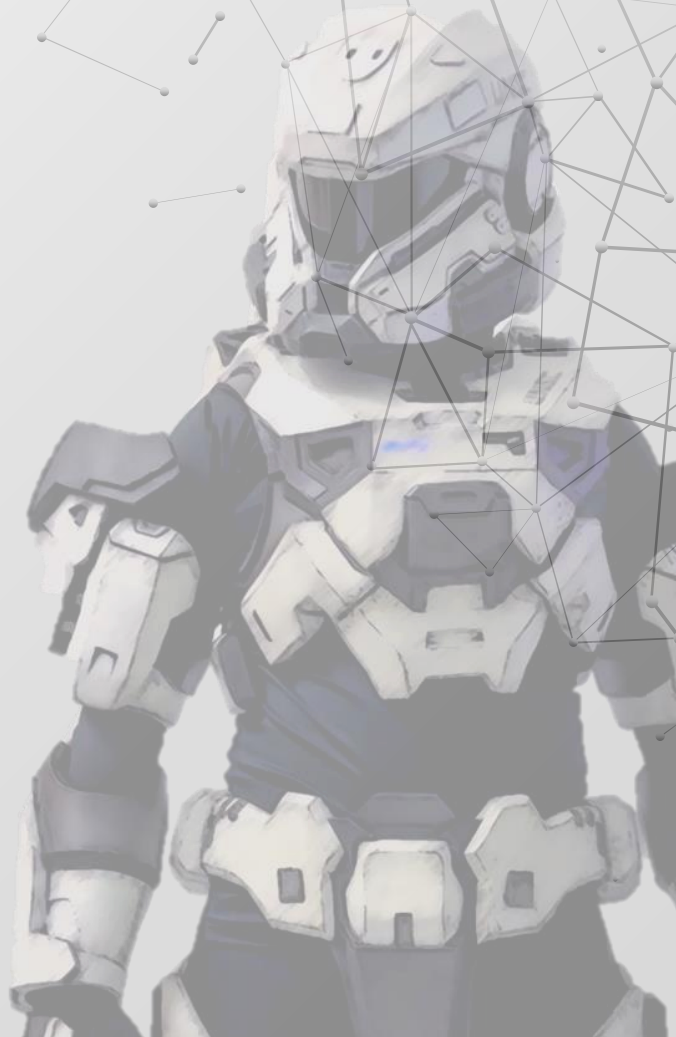

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Getting Started

Knowing is the first step to making

Getting Started with Prop Making

How do we decide?

Making your own costume may sound cheaper, but know that there are hidden costs along the way

But at the end of the day, it's the satisfaction that matters

Getting Started with Prop Making

Process of Building Pepakura Armor

1. Preparing Pepakura Template
2. Transferring Template to Foam
3. Cutting and Gluing Parts
4. Coating and Painting
5. Strapping and Padding

Getting Started with Prop Making

Why evafoam?

- ❑ Flexible
- ❑ Light
- ❑ Cheap
- ❑ Safe (it won't hurt you)
- ❑ Long lasting

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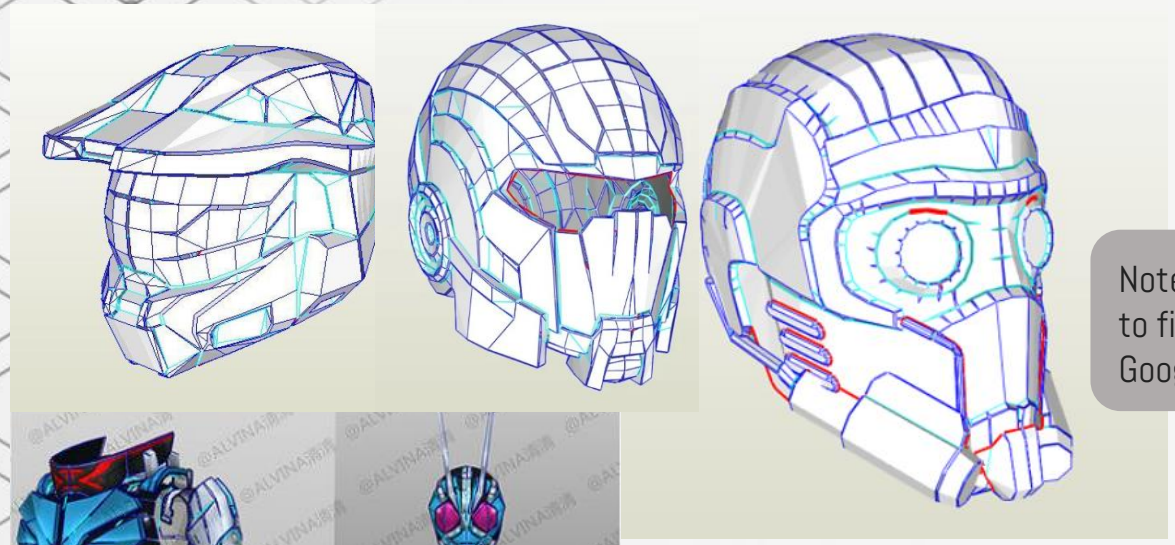
Pepakura Designer

Right tool for the right job

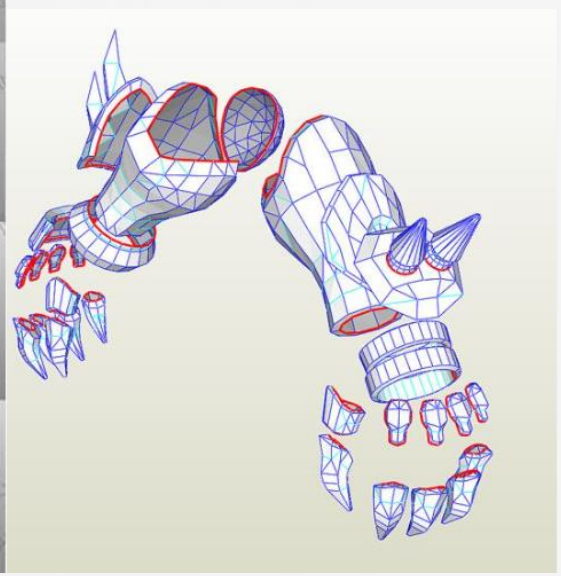
What is Pepakura Designer?

The tool that seamlessly turns 3D models into 2D patterns ready for cutting, gluing, and assembling. Made for paper, but also suitable for evafoam (with some knowledge)

Introduction to Pepakura Designer



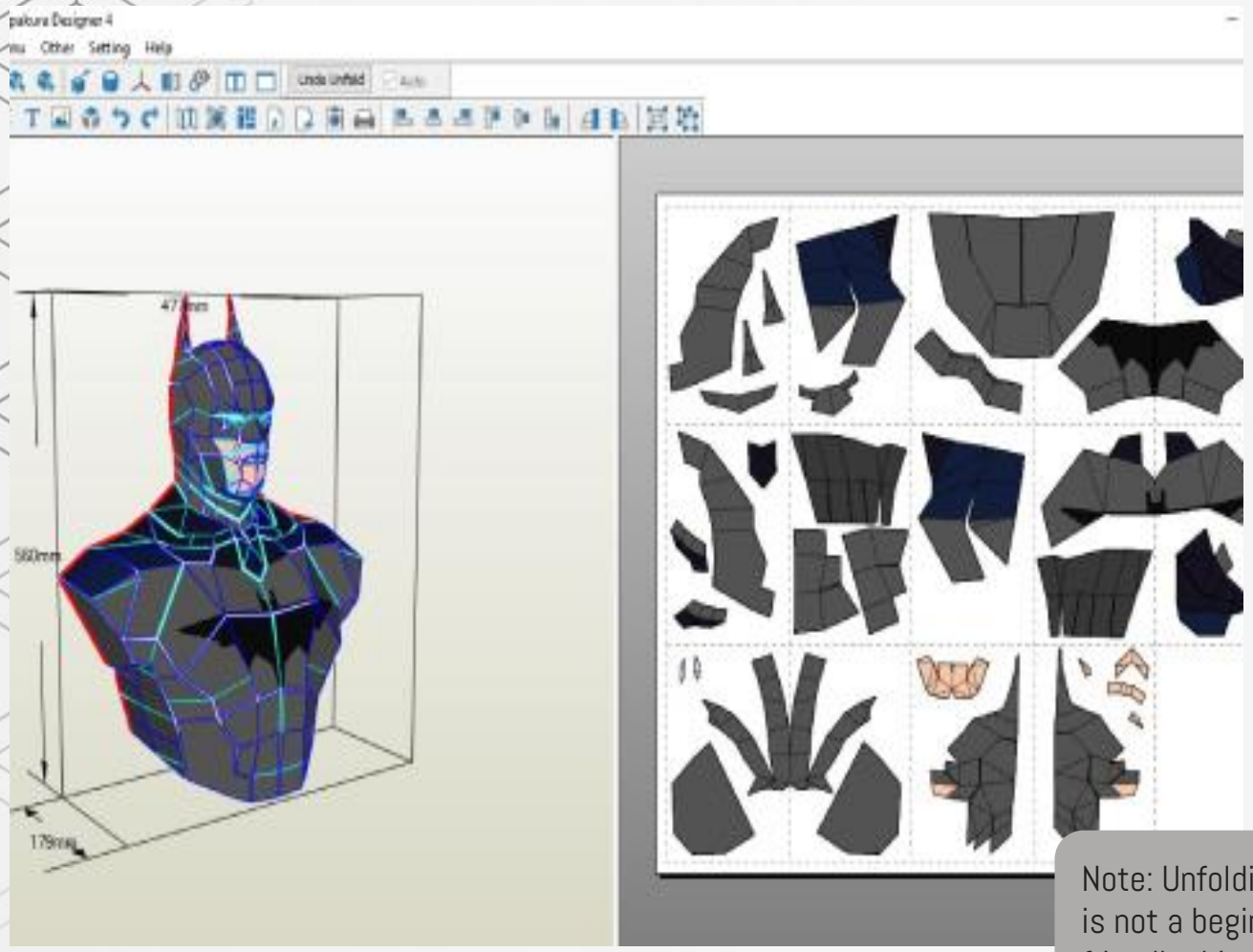
Note: it is possible to find free file if you Google properly



What can we build?

Basically anything, as long as you got the file for it. Pepakura files are available widely all across various websites, usually for free (unless you look in marketplace like Etsy)

Introduction to Pepakura Designer



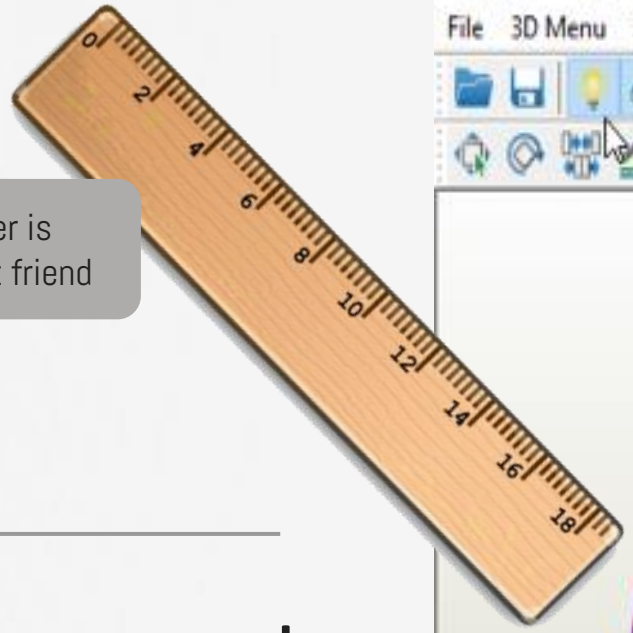
Note: Unfolding file is not a beginner-friendly things to do

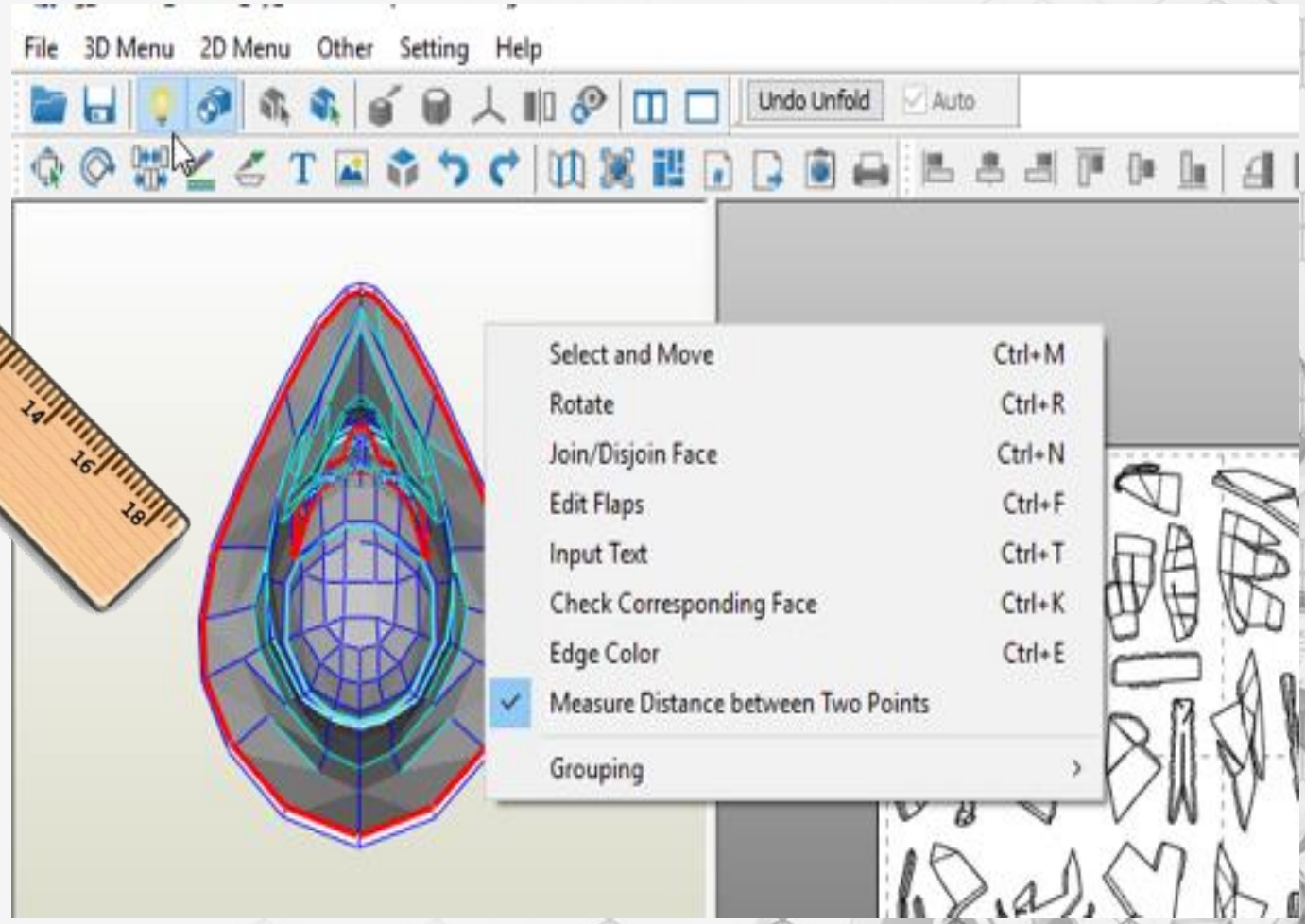
Importing pep file

- You can import either a 3D file (STL) or already unfold pepakura file (PEP) into the software
- The easiest way is just to import ready made pepakura file (as you don't need to unfold it yourself)

Introduction to Pepakura Designer

Note: ruler is your best friend





Making measurement

Before printing your template, it is important to make full measurement of the model in order to ensure it fit your body nicely. Be aware that we can only change the scale of the model (not extending it horizontally or vertically), so it might not be suitable for all body types without extra modifications.

Advantages vs Limitations

Advantages

- Small starting budget
- Foam is flexible and durable
- Material easily available

Limitations

- May not be suitable for all body types (due to model scaling)
- Steep leaning curve (foamsmithing)
- Skill oriented

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Tools & Materials

Preparation is the first step to completion

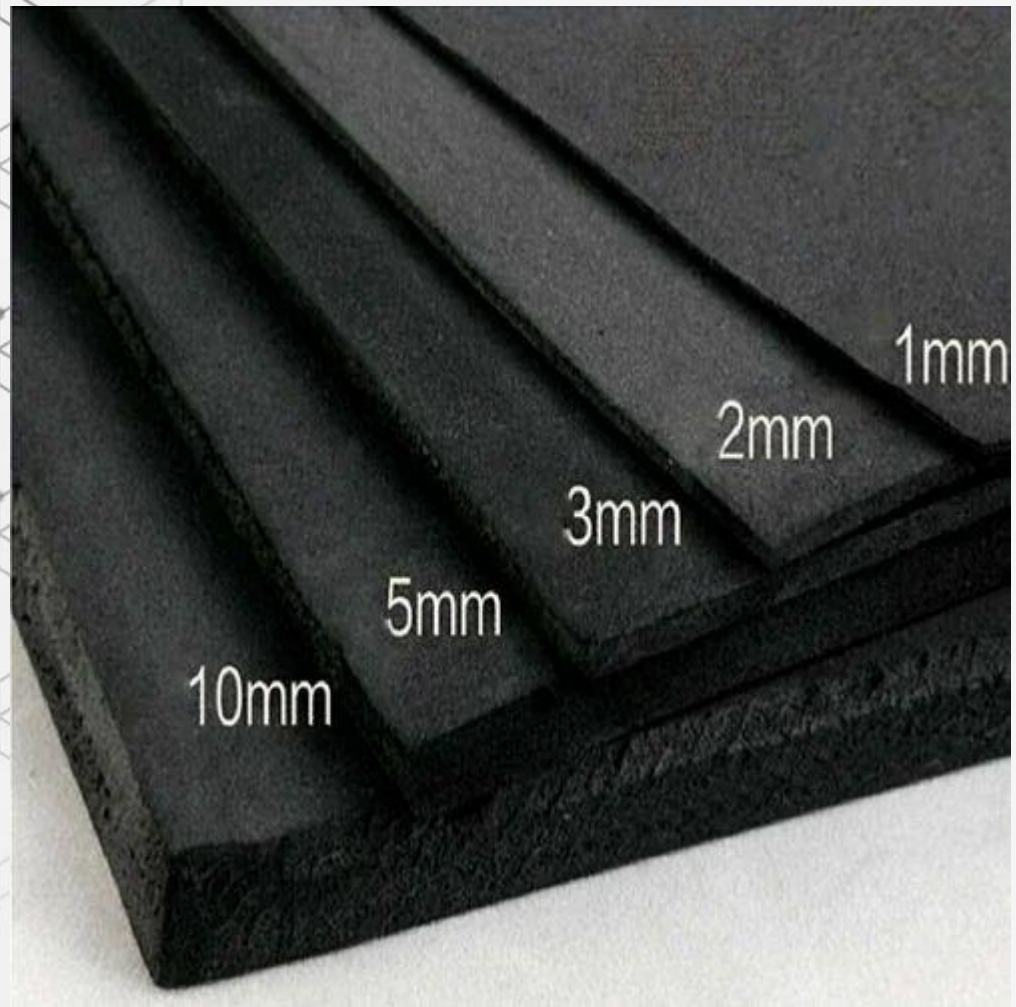
Preparing Your Tools and Materials

- EVA foam
- Superglue
- Cutter knife
- Cutting mat
- Hotglue gun
- Rubber paint

Preparing Your Tools and Materials

- Acrylic paint
- 60 degree blade
- White pen
- Sponge
- Hot gun

Preparing Your Tools and Materials



Knowing your foam thickness

1-2mm : for minor detailing
3mm : for flexible suit
5-8mm : for standard armor build
10mm : generally for large armor

Preparing Your Tools and Materials

Choosing your glue

I personally prefer superglue over contact cement due to ease of use, faster curing and less messy.

But in some cases, you need to use contact cement for flexibility (boots / gloves)

Preparing Your Tools and Materials

Type of paint

I personally prefer acrylic paint, mainly due to my painting method. Also, acrylic can be used during the nightime as it doesn't require proper ventilation or sunlight to cure properly.

Anyway, spray paint is perfectly fine too.

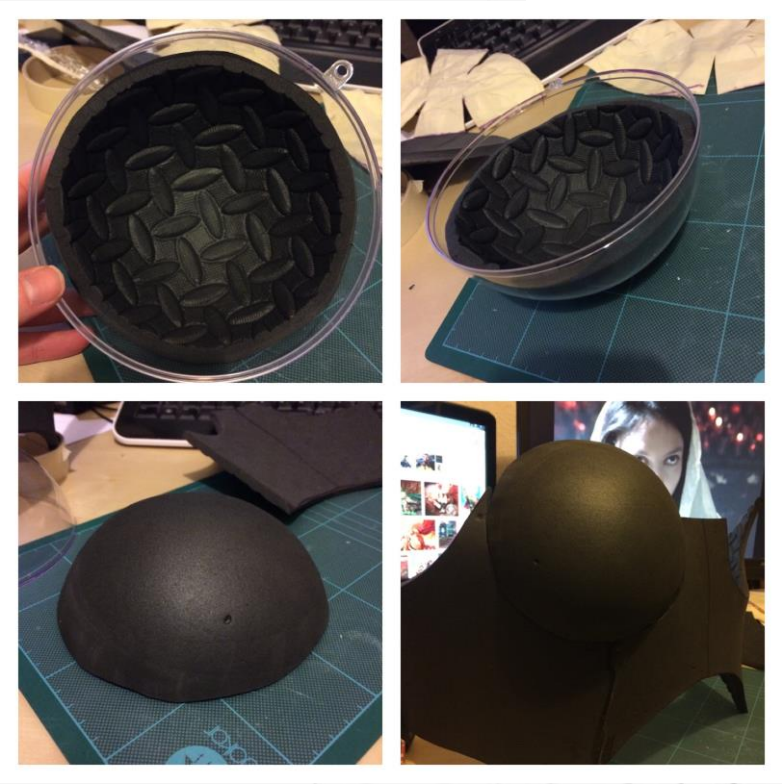
Preparing Your Tools and Materials

Undercoat spray

Every foam prop needs to be undercoated with rubber spray (Plastidip preferrable, but automotive rubber paint is a cheaper alternative) before it gets painted.

This is to ensure the paint sticks well to the foam, and also to ensure the foam pores don't affect the painting quality.

Preparing Your Tools and Materials



Shaping your foam

Heated foam can be bent into curve / dome shape. Sometimes your shape needs a lot of bending that it becomes hard to glue the foam pieces together. So, your foam pieces must be shaped first before they get glued together.

Heatgun is the best tool for this. Avoid heating the foam too long or else it will melt.

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Tips and Techniques

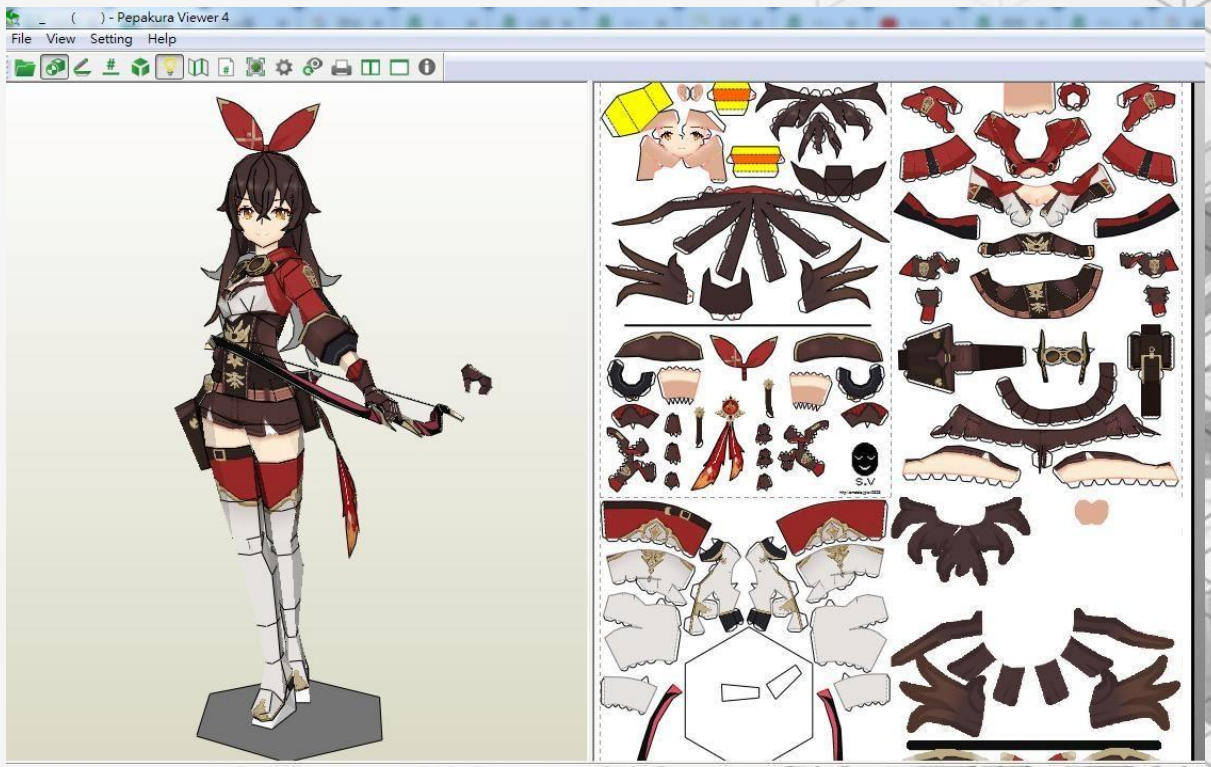
Utilizing your knowledge to make artistic work

Free or Paid Pepakura Designer?

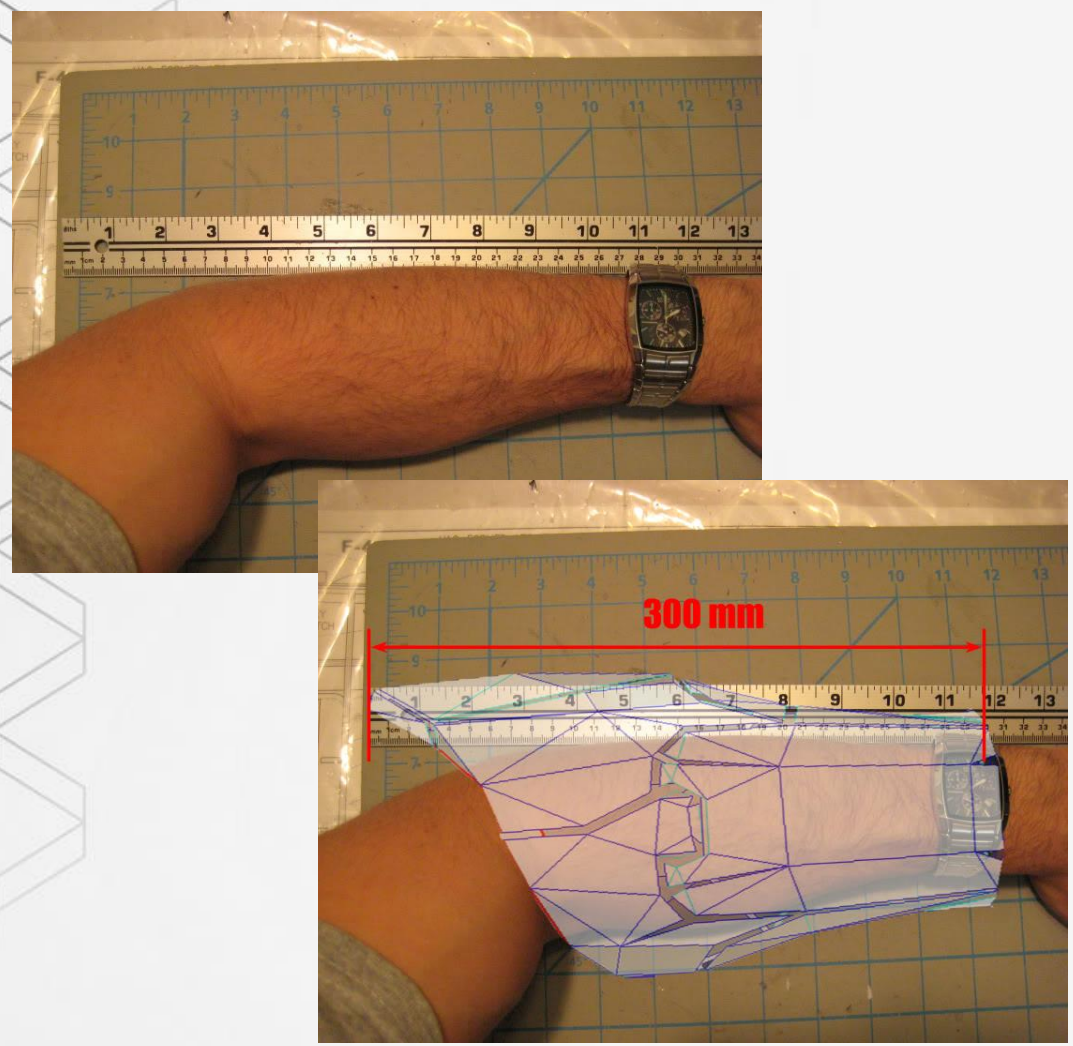
Using Pepakura Designer is totally free, with just one little difference. It **cannot** save your progress.

For someone who wants to work on various projects with pepakura for years to come, I totally recommend you to buy the software license, it helps a lot with being able to save your project (let's say you're already done sorting the parts, make changes etc).

But again, you can totally use it for free and still makes awesome props anyway.



Building Tips and Techniques



Scaling your pepakura

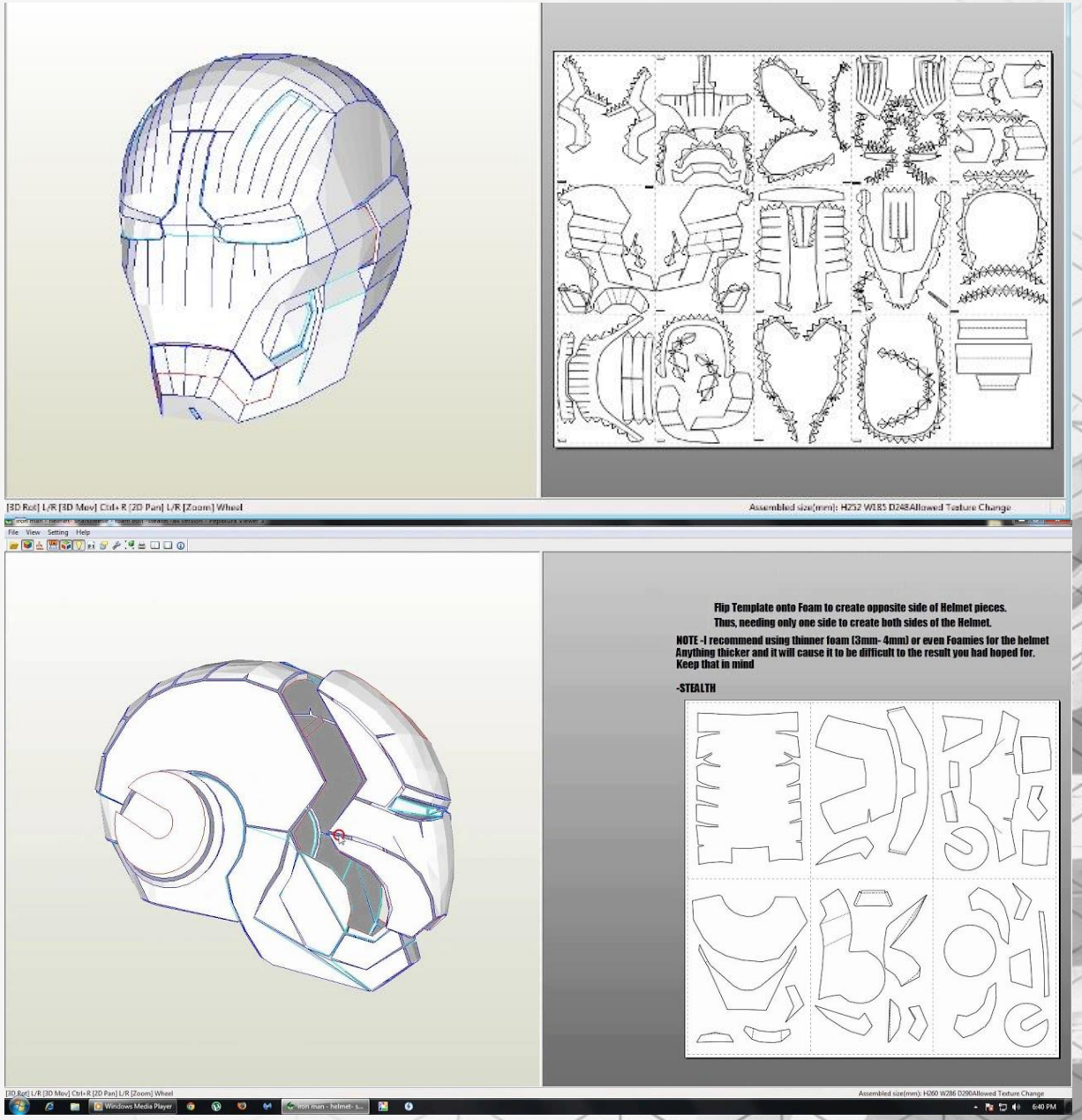
- Take measurement of your body part using ruler
- Use "**measure distance bertween two points**" to know your pepakura file length
- Adjust the file length accordingly based on your body measurement

- Note that moving body part needs some space to move, avoid covering moving parts with armor (restrict movement)

Building Tips and Techniques

Simplifying your pepakura template

There is a big different between a DIFFICULT template and EASY template. Experienced Pepakura builder will know excatly what to remove from the original template to make it much easier for assembling.



Knowing your bevel cut

Both 45 degree cut

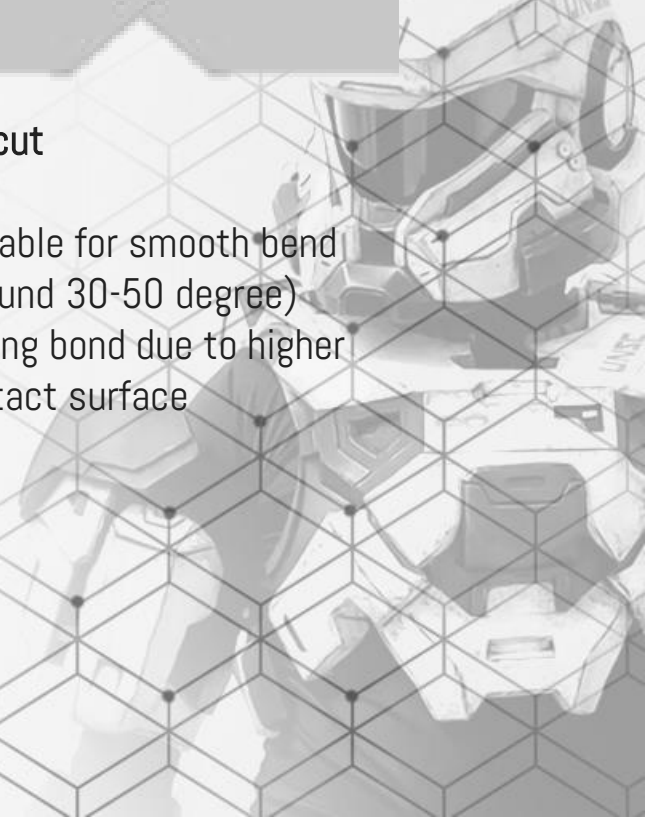
- Suitable for sharp 90 degree corner
- The safest option for extreme bend
- Weakest bond due to small contact surface

Single 45 degree cut

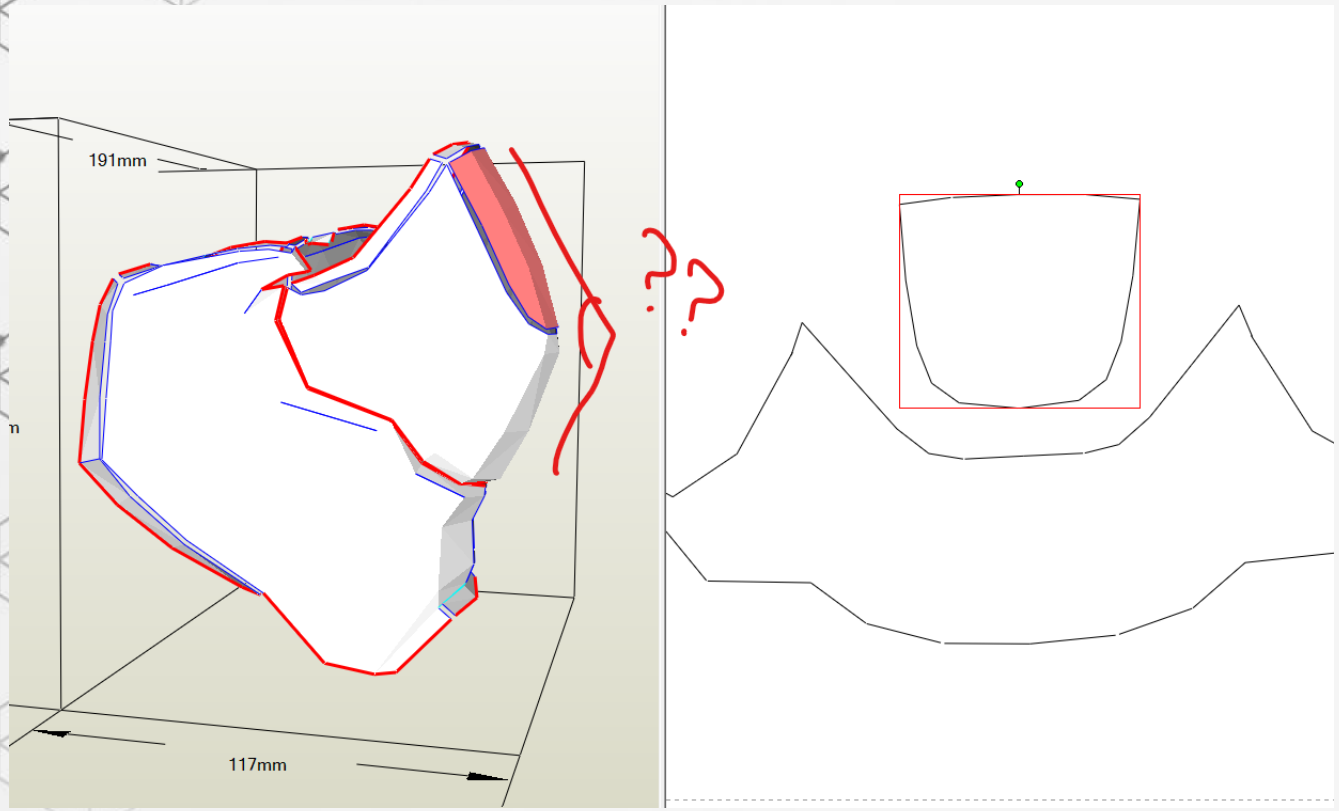
- Suitable for 45 degree sharp bend
- Strongest bond due to big contact surface

Trench cut

- Suitable for smooth bend (around 30-50 degree)
- Strong bond due to higher contact surface



Building Tips and Techniques



When to bevel cut?

Study your Pepakura model before starting your cut, this would save you a lot of trouble later on.

Determine what angle the bend is, then decides on your bevel cut.

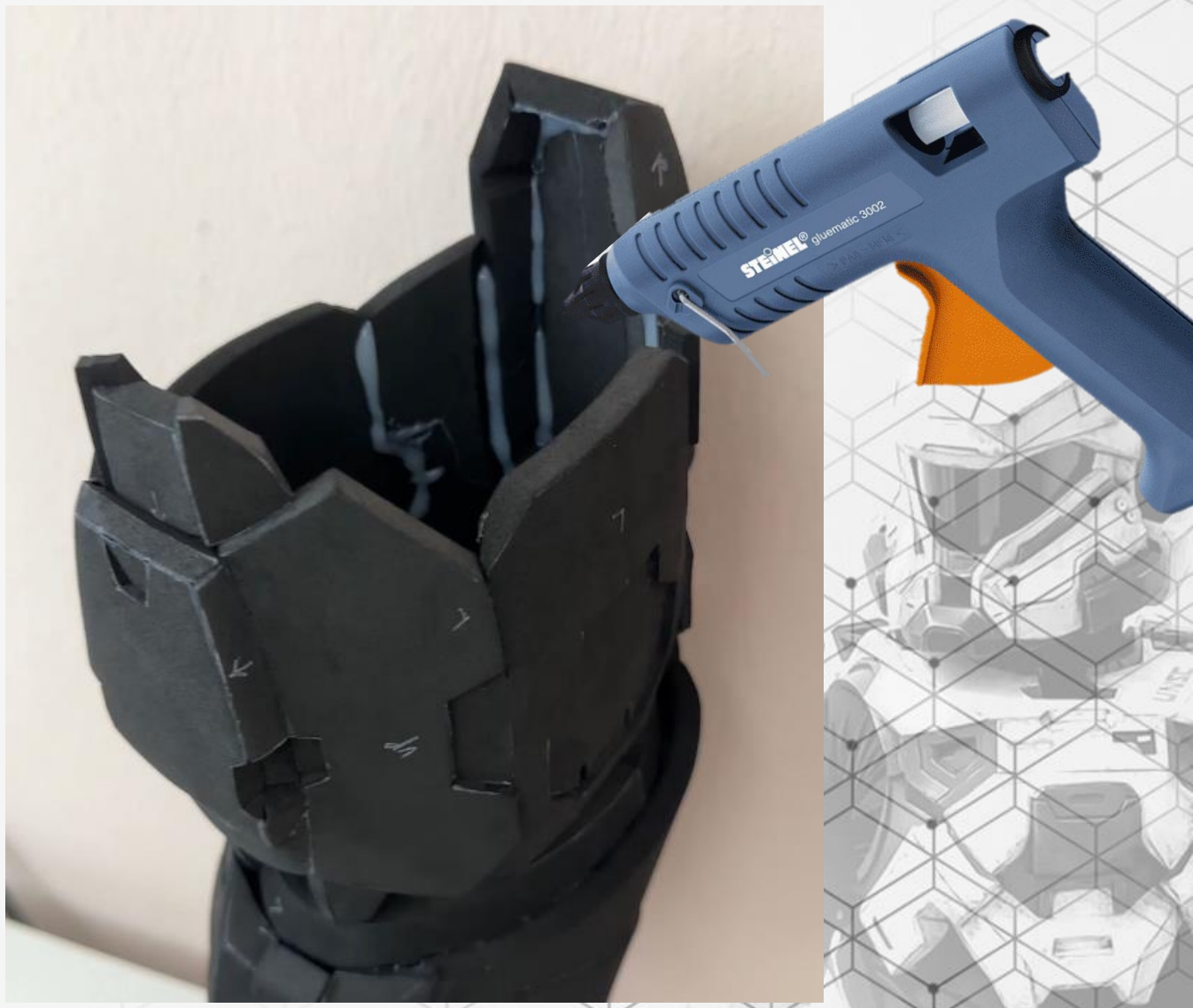
Mastering this will make you a very capable foamsmith

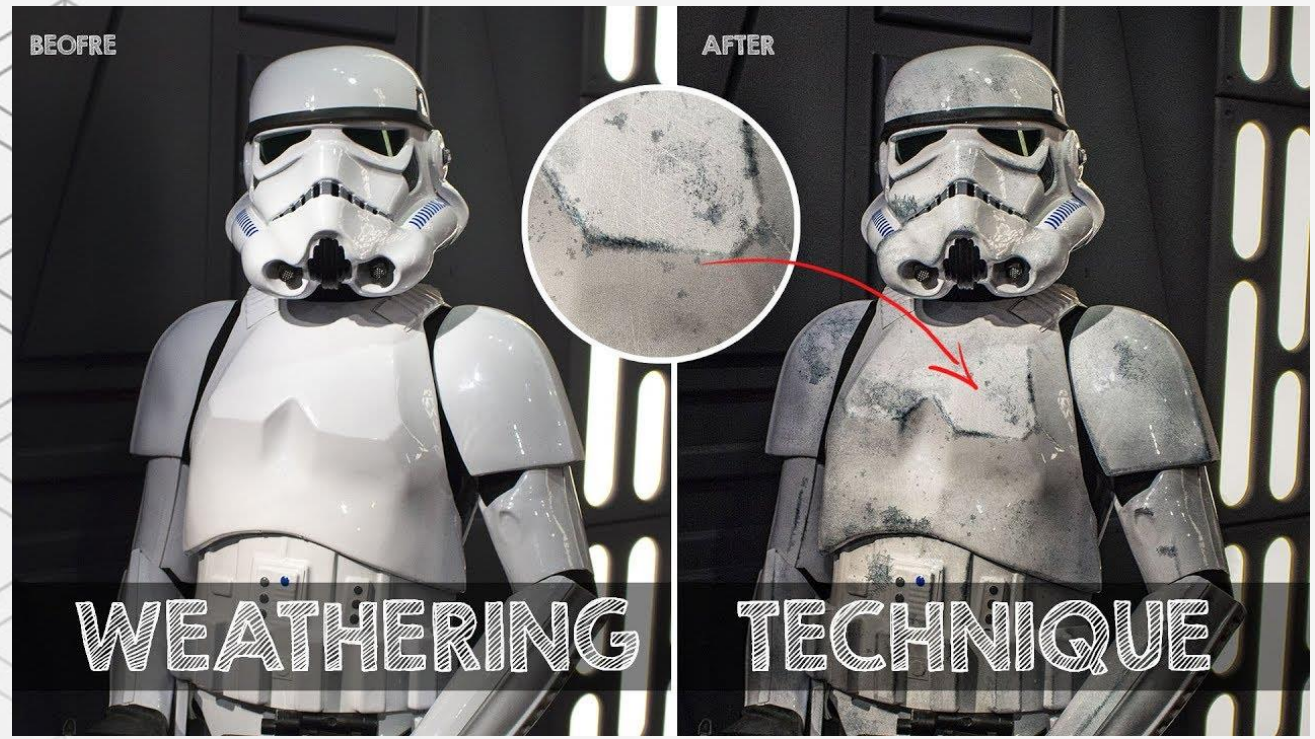
Building Tips and Techniques

Strengthening your pepakura armor

After assembling your parts with superglue, it is important to reinforce the bond with hot glue.

Fill in the gap between parts connection with hot glue. This will ensure your prop connections are strong enough to last long





Weathering Your Armor

Blackwash (weathering) will makes your plain-colored armor stands out much more

- For dark-colored armor, go with full black acrylic wash.
- For light color such as white, go with grey (mix in a little black)

Lastly, don‘t forget to drybrush your highlights

Strapping and Padding your pepakura armor

The final process: Getting those armor parts onto your body. This can be done with the use of buckle, magnets, zipper or even velcro.

As for paddings, you can go from as simple as using sponge, to the commercial helmet paddings

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FAQ

What people commonly ask me

How long does it take usually to build one full set of armor?

If you‘re consistent spending hours per day, maybe within 3 months. If you procrastinate, 3 years perhaps.

Where to start looking for pepakura files?

I took most of my Halo files from 405th forum. But you can even find pepakura file in DeviantArt, it’s everywhere actually

Where can I buy Halo armor? And how much does it cost?

I personally do not take commission work, as it is too time consuming for the little free time I have. You can always consult your local propmaker for pricing.