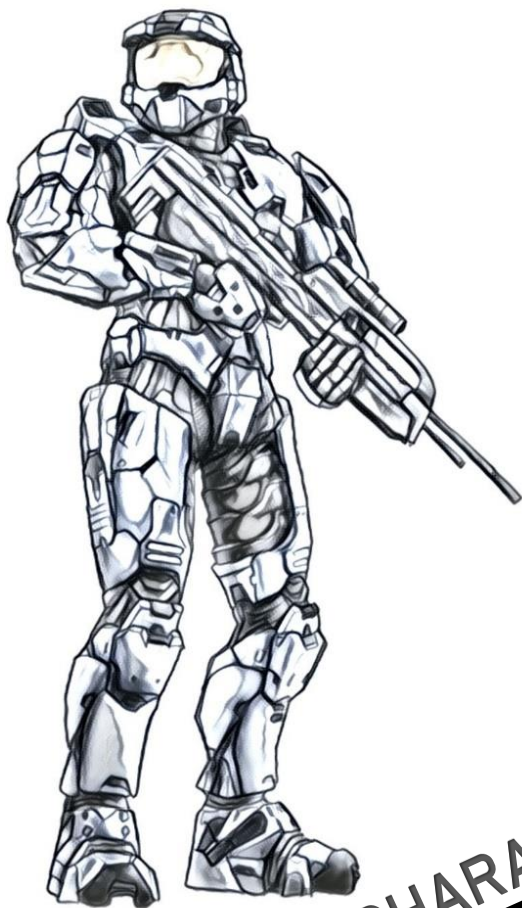




405TH INFANTRY DIVISION

MJOLNIR GUIDE



BUILD YOUR CHARACTER

405th.com

We hold three core values:

UNITY: We value every member and the bond of community they collectively create.

ARMOR: We value the enduring passion and attention to detail our members pour into the creation of their costumes.

HONOR: We value not only honor among our members, but honoring and celebrating the fictional universe of Halo®.

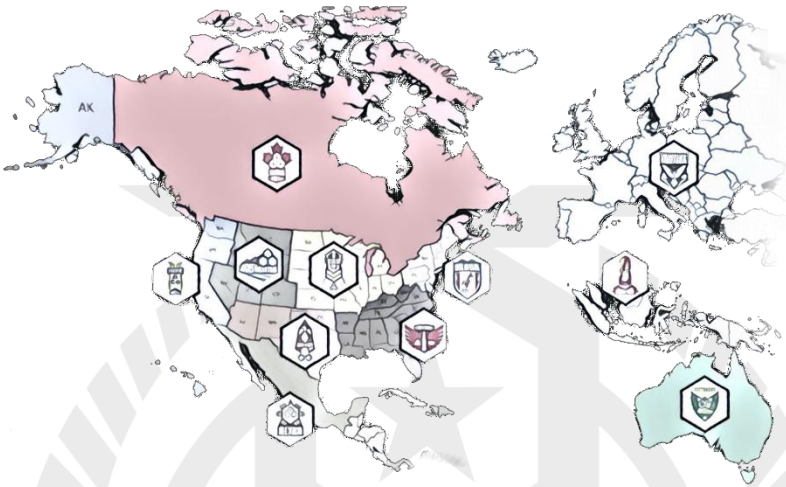


Our members enjoy, express, and share their interest in costuming with others in the fan community by creating and wearing costumes and props that represent characters from the Halo® universe, which includes but is not limited to Halo-based video games, books, comics, and television shows. Our organization was founded in 2005 as an online message board to help fans create the complex costumes and props seen in the Halo® universe and in 2014 expanded its scope to become a costuming fan club.

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Page 3 – Areas of Operation



The 405th currently has 11 active Regiments. A Regiment must have 25 active members in a geographic location and an election for the seat of Regiment Commanding Officer.

To join a Regiment you must:

- live in their Area of Operation
- have a 405th account for 90 days
- have a 405th account with 50 posts

Australia-	Covering Australia
Canadian-	Covering Canada
Colonial-	Covering Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont
European-	Covering Europe including the British Isles and ending at the Russian border.
Mexico-	Covering Mexico, Central America and South America - (Cubriendo México, América Central y América del sur)
Midwest-	Covering Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin
Mountain-	Covering Colorado, Idaho, Montana, Nevada, Utah and Wyoming.
Pacific-	Covering California, Oregon, Alaska, Hawaii, and Washington
Singapore-	Covering Singapore
Southern-	Covering Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.
Southwest-	Covering Arizona, New Mexico, Oklahoma, and Texas.

Page 4 – Intro to Building

First and foremost, building or buying armor is not required to be a 405th Member, but contributing to the community is. Many members do not have suits, but contribute as handlers, photographers, social media helpers, community organizers, graphic designers and really anything you think of that might help out the 405th on a local or worldwide level.

But for those that came to build... we are here to help!

Choose Your Character

- Selecting Your Character
<https://www.405th.com/forums/threads/selecting-your-character-guide.49554/>

Learn Your Method

- Tutorial Index <https://www.405th.com/forums/threads/tutorial-index.45940/>
- Everything you want to ask has probably already been asked before
Please do the community a favor and use the search bar at the top of the page before starting a thread to ask a question

Post Your Progress

- Create a build thread by clicking “post thread..”, select “Halo Costumes and Props” and add the prefix “1st Build”
- Give your thread a title that is descriptive and unique to you
ex. [your forum name] 's [where your character is from] + [the character type]
ex. SgtJoJo's Halo Infinite Marine
- Post lots of pictures!

Join the Conversations

- Search the tag “1st Build” to see how first time builder's approach the challenge of building props and armor
- Check out the other builds in the Costume and Props section and ask veteran builders how they did things

Join Your Regiment

- Once you have 50 posts + 90 days *post in this thread* with what Regiment you would like to join
<https://www.405th.com/forums/threads/regiment-membership-please-all-read.40958/>
- Find your regiments sub forum and see what they are up to
- Ask to join your regiments Facebook group to be alerted about upcoming appearances

Page 5 – Universal Supplies

(things that will come in handy for any build)

Software

Pepakura Designer – Free program used to look at and scale armor files (.pdo). Paid version allows you to save file. Used for both Foam and Pep Methods.

<https://tamasoft.co.jp/pepakura-en/download/index.html>



Armorsmith Designer – Paid program that allows you to put multiple .pdo armor files on a virtual mannequin scaled to your body size.

<https://www.thearmoredgarage.com>



Hardware

Fabric Tape Measure – Used to measure your body to help scale armor.



Self-Healing Cutting Mat – Whether cutting paper, foam or decals a nice firm surface is needed for clean cuts.



Knives – You'll want to have several types, but two that are really handy to have are a hobby knife (Xacto brand) and a breakaway craft knife.



Knife Sharpener – Spend the little extra to get one and it will save you so much frustration in rough cuts and time/money in changing blades.



Glue – You can never have too many kinds. Ones that are always good to keep on hand: CA (super) glue, Contact Adhesive, 5-minute Epoxy and Hot glue.

Dremel® (Rotary Tool) – Sanding attachment lets you sand foam seams and sand small crevices in hard armor. Grinding attachment lets you make battle damage in foam or decorative grooves in hard armor. Cutting attachment lets you cut away extra fiberglass or cut out visor holes.



Page 6 – Pepakura Method

Centuries of Japanese paper crafting has culminated into now being able to input a 3d image into **Pepakura Designer** and having it show us what it looks like unfolded into two dimensions. This allows us to then print that pattern onto paper, cut it out and fold it back together.

Tutorial

<https://www.405th.com/forums/resources/how-to-assemble-pepakura.33/>

Results

Rigid armor with details taken directly from the game

Costs

Cheap (\$150 US) to expensive (\$1000 US) depending on desired results

Time

300-1000 work hours depending on desired results

Pros

Durable
Easy to follow step-by-step process
Money is spent in stages over time

Cons

Heavy to wear
Time sanding/shaping
Respirator needed to make

Specific Supplies

Cardstock Paper (110lb)
Resin (polyester, epoxy)
Fiberglass (cloth or mat)
Body Filler (Bondo®)

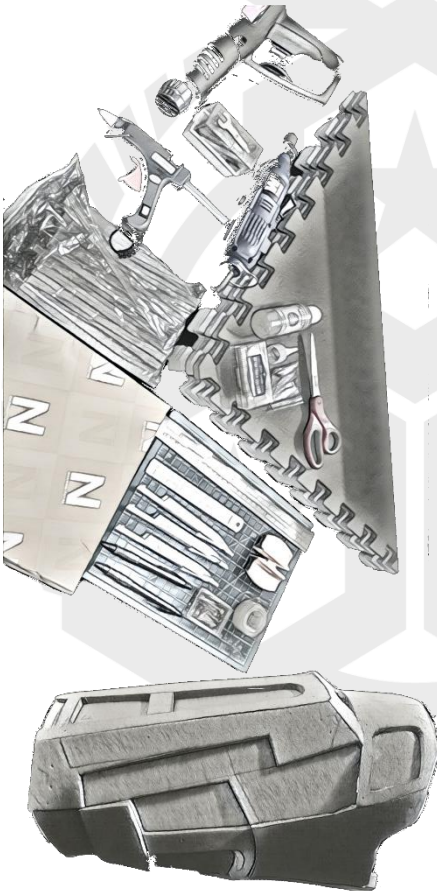


Page 7 – Foam Method

Using foam sold as **Anti-Fatigue floor mats** in stores or as **EVA foam** from industrial suppliers, this method allows crafters to build up armor quickly and effectively. Pepakura Designer is still used, but the templates need to be modified for foam to account for the extra thickness.

Tutorial Index – scroll to Foam Method

<https://www.405th.com/forums/threads/tutorial-index.45940/>



Results

Flexible armor that can be built indoors

Costs

Cheap (\$100 US) to expensive (\$700 US)
depending on desired results

Time

150-500 work hours
depending on desired results

Pros

Light and easy to wear
High Mobility
Quick to construct
No harsh chemicals

Cons

High skill curve
Damageable

Specific Supplies

EVA Foam (2mm, 5mm and 10mm)
Seam Filler (caulking or foam putty)
Heat Gun (to shape)
Super sharp knives

Foam overview:

<https://www.405th.com/forums/threads/foam-guide.50964/>

Page 8 – 3d Printing

This is definitely a preferred method from *weapons and props*, but printing entire suits is becoming more popular as well. This method is still new and due to the amount of time it takes to make a game file “printable” many people will charge for the file download through sites like Etsy. 405th members can help, but a lot of the knowledge you will need to run a printer will be located on dedicated websites.

Tutorial

Google search: [your printer name + help](#)

Trouble Shooting

<https://www.simplify3d.com/support/print-quality-troubleshooting/>

Results

Rigid armor built by machines

Costs

Printer (\$200 - \$5000 US)

Spartan Suit (\$150 - \$1500 US)

Time (full suit)

480 - 1440 printing hours

20 - 300 finishing hours

Pros

Durable

Exact copy of computer model

Easy to re-print

Cons

High cost to start

Troubleshooting

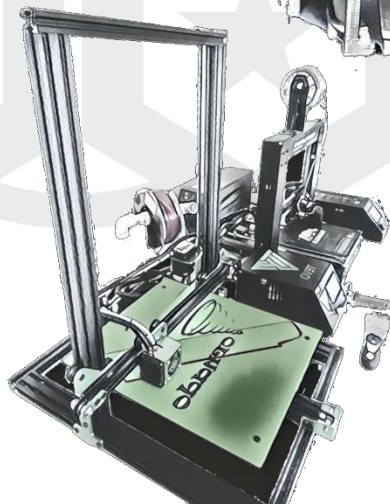
Upkeep on Equipment

Specific Supplies

3d Printer

Filament (ABS, PLA, PLA+)

+Supplies from Pep Method



Page 9 – Softparts & More

Regardless of the method you've chosen there are some things we all must do once the armor construction is done. These things can also be found in the tutorial section under the category "Detailing."

Undersuits

Can be anything from street clothes to rubberized custom techsuits. Commonly used are Morphsuits®, Zenati® suits or warm water diving suits made from Lycra. Be aware that cold water Neoprene suits do not breathe and can lead to extreme overheating. And don't forget a *neck seal*, often used is a balaclava.

Boots, Gloves & Pouches

Search for anything Military Surplus or include the word "tactical" in your online searches and you will likely find something usable. Keep in mind that Halo is future SciFi so current surplus gear may not match in-game aesthetics.

Strapping

Typically used are *nylon webbing* (like on backpacks) with Velcro® or snaps. You can also buy military suspension systems and pistol belts.

Visors

Lots of different ways to approach this. One very common method is buying a motorcycle visor. You can also build a vacuum form table at home for cheap and make your own custom shaped visor. Then tinting you can use car window tints/mirrors or thin coats of reflective paint. An airbrush is good for this.

Paint

Really any type of paint works. Spray paints are popular as well as acrylic craft paints. You will want to use a primer so the paint will stick. You will also want to use a clear matte coat afterwards so the paint won't rub off. If you are using foam be sure to seal the porous surfaces before painting. To seal foam you can use a heat gun and rubber paint before the primer.

*Always allow the paint layers to cure (dry fully) to avoid chemical reactions that might ruin your paint finish.



Page 10 – The Armory

The holy grail of Halo® armor files. The Armory is what we call our database of files that we can use to create armor. Please remember that all of these files were created for free by members. If something is not to your liking then consider learning how to fix it and contribute back to the group

File Location

- Click the tab at the top of the page marked “The Armory”
- Select the Category best suited to what you are looking for, or type keywords into the search bar
- Keep in mind character armor may have a different name (ie Locke’s armor is called the Hunter variant)

Acquisition

- All armor pieces within a set are contained in a single zip file
- Download the zip file using the button in the top right of the set’s page
- Extract the files using programs like WinZip or WinRAR
- These files are not for use by mobile devices



Viewing the Files

- OBJ – use Blender, 3D Paint or similar
 - These are game assets, the 3d models from the games. They are here as reference material and as the base to create usable PDO and STL files
- PDO – use Pepakura Designer or ArmorSmith Designer
 - These are the main file types used to make both Pep and Foam armor
- STL – use FreeCAD, Meshmixer or similar
 - These are 3d printable files that someone has taken a lot of time to make available

Can't find what you were looking for?

You can make a request from the community to unfold a 3d OBJ game asset into a PDO armor file. Filling the request is completely voluntary and should be praised graciously. <https://www.405th.com/forums/threads/pepakura-model-requests-second-edition.41399/>

*There is no request thread for 3d printable files due to the extended time it takes to make a file printable. ***But, there is a free 3d Model Index <https://www.405th.com/forums/threads/free-3d-model-index.49376/>

*Please be respectful of other people’s work. Do not claim it as your own. Do not modify and sell it without their consent.

Page 11 – Maintenance & Tips

These costumes are not permanent, but we can do things to make them last longer or be more comfortable to wear or own.

Storage

Best to store with no pressure applied, boxes or totes with rigid walls. Try packing the suit with a couple dryer sheets to keep the post con odors down. *CARS are the bane of cosplay.* If it doesn't get crushed in a door it will get warped in a hot car. Be careful with costumes and cars.



Reinforce

With foam be sure to fill in the back side of seams with something like hot glue, fabric, shoe goo® etc. If you're doing pep or 3d printing, maybe give an extra piece of fiberglass to high stress points or parts that might bend a lot.

Measure Twice

Scale and scale again! Use the "measure distance tool" in Pepakura Designer until your clicker finger turns blue. But, even if you didn't get it right it is not the end. Lots of people end up making the same part twice or even many more just to get it the way they want it.

Test it first

Whether it is your footwear or where you want the helmet fan to be, give it a test first. Tape things or use small amounts of hot glue to hold them in place and give it a try before you epoxy putty that thing down forever! Wear the clothes and shoes before spending 8 hours at a convention on your feet!

Traveling

If you plan to ship your suit or prop weapons then take care in packaging it. Put a label on the outside saying "costume/props." Put a picture inside the crate of you wearing your armor. You don't want TSA to come pull you off the plane because of the Battle Rifle and Plasma Grenades in your suitcase. Be respectful at all times.

WEARING HALO ARMOUR TO CONVENTIONS

Part of the
COVENTION CONDUCT
series by
JAYLUVLL

CONVENTION CONDUCT

Halo Armour is bulky, stiff, cumbersome, restricts your vision and reduces feeling in your extremities. It's difficult to wear at the best of times, let alone at a crowded convention!

This guide will give a brief overview of things to be aware of when wearing Halo Armour to conventions.

CONVENTION CONDUCT

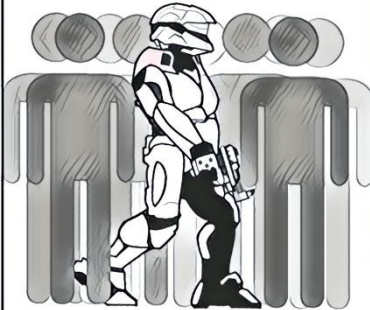
When you wear your armour, you become much bigger than you normally are - you are wider, taller and more solid than you think.



This means your normal actions will be enhanced - which can make crowded places dangerous!

CONVENTION CONDUCT

The main thing to be wary of is your shoulders.

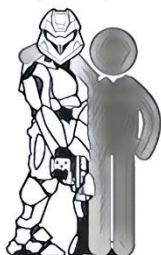


They make you much wider - go slowly and sideways through tight spaces and crowds.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Your chestpiece can make getting close to others difficult - be careful when people come in for hugs or posing for photos.



This is especially dangerous for shorter people or kids - sharper edges on shoulders or chest pieces can be at EYE level. Be careful!

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

If you have long weapons or props, either back-mounted or carried, be careful when turning around.



You could take someone out, hurting them and you and possibly damaging your armour or prop.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Your gloves can quickly become quite annoying to wear at conventions - they interfere with everything:

- Using your phone
- Putting on wristbands/lanyards
- Paying for merchandise/food
- Eating/drinking
- Picking things up off the ground



Try not to drop anything - between your chestpiece, thigh armour and gloves, it will be very difficult to pick anything up (especially paper) off the ground.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Sitting down in armour can be difficult - try it at home first. If you can, make your rear and thigh pieces detachable.



CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

As sitting is difficult, plan your footwear carefully. You will most likely be on your feet all day.



CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Keep in mind a toilet plan - your suit will be difficult to take off, especially when you are...*desperate*.



Keep this in mind especially around mealtimes - conventions tend to only have oily/fatty foods available, which will interfere with your toilet needs.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Adequate food is important, however the MOST important thing of all is to STAY HYDRATED.



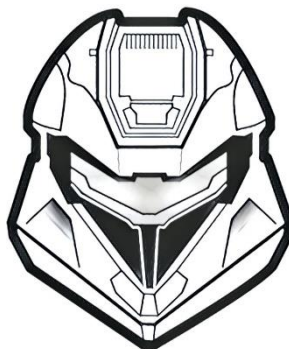
It will be very hot in your suit - you will sweat and become dehydrated faster than you realise.

Drink WATER - not soda, not energy drinks, not alcohol, plain old water to keep you healthy, cool and on your feet.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Your visor will fog up without adequate ventilation or a fog-resistant visor gel.



If you can, build vents or fans into your helmet.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Storage space in your armour can be extremely limited - prioritise what to bring with you and what to leave behind.



Also consider if there is a "coat check" or lockers at your convention's facilities or if you can park and leave your equipment in the car.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

If you have a particularly, large, heavy, awkward or cumbersome suit, you may wish to enlist the help of a friend or squadmate to act as your "minder" or "helper".

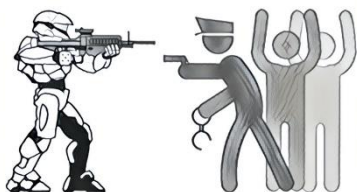
This person can be your eyes and hands at a convention - warn you of obstacles, point out photo requests, put on wristbands/lanyards, mind your armour while you're in the bathroom, hold your stuff and generally make your time in your costume easier.

However, make sure to treat them with respect - they're sacrificing their convention time to make your life easier, don't make them your personal slave or be disrespectful / dismissive of their requests and needs.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Lastly, be aware of your body language.



People not familiar with your suit or armour can take aggressive or threatening actions negatively, especially OUTSIDE or on the way to/from conventions.

CONVENTION CONDUCT

JAYLUVLL's COSPLAY TIPS

Final thoughts:

Use common sense

Take care of yourself

Be respectful of others

Above all - be safe!

Thanks for reading!
- JayLuvLL

Originally published August 2015 at www.facebook.com/jayluvll

CONVENTION CONDUCT

Our Mission

We promote the development of artistic skill and the honing of artistic talent through the creation of Halo® costumes and props. We accomplish this by providing makers and cosplayers a global community in which they can share their knowledge and experience, which in turn nurtures and sustains their passion for the Halo® universe.

The full Mantle can be found here:

<https://www.405th.com/forums/pages/mantle/>

Forum Etiquette

Necroposting: Please only comment on active threads. If there has not been a new post in 3 months then the thread is considered Dead and should only be revived by the Original Poster (OP). You can private message the OP if you have a question.

Double Posting: If it has been less than 24 hours and no one has commented below your post then please EDIT your post before making a new one. Spamming is also discouraged.

Credits

Cover art by Jonathan Groves @S117warhawk

Convention Conduct Comic used with permission by @JayLuvLL

Booklet created by Chris Pense @perniciouscosplay

Edit by 405th members and staff

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