MMU STORAGE ASSEMBLY

Version 2024-04-05

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INTRODUCTION

THE MMU STORAGE PROJECT

This project is meant to be uses with an MMU like the ERCF (https://github.com/EtteGit/EnragedRabbitProject) and aims add on seamlessly to VORON printers design wise, while keeping your filament dry.

Currently this project has alpha status and is not fully finished. Some prototypes are built, but not all features are present or fully fledged out.

For Example future revision may use a heater to dry up already wet filament, therefore high temperature tolerant materials (e.g. polycarbonate instead of acrylic panels) are used. If the project deviates from that, it might switch to using acrylic panels.

ACKNOWLEDGMENTS

This project is heavily inspired by VORON DESIGN and even uses Parts from the VORON TRIDENT project (https://github.com/VoronDesign/Voron-Trident), namely:

- STLs/Panels/bottom_panel_clip_x4.stl
- STLs/Panels/bottom_panel_hinge_x2.stl
- STLs/Panels/midspan_panel_clip_4mm_x7.stl
- STLs/Panels/corner_panel_clip_4mm_x8.stl
- STLs/Skirt/[a]_corner_baseplate_a_x2.stl
- STLs/Skirt/[a]_corner_baseplate_b_x2.stl
- STLs/Skirt/corner_a_x2.stl
- STLs/Skirt/corner_b_x2.stl

This projects also heavily relies on the INTEGRATED AUTO-REWIND SPOOL HOLDER by VINCENT GROENHUIS (https://www.thingiverse.com/thing:3781815). Without this design, this project would not be possible!

Special Thanks to the VORON TEAM and VINCENT GROENHUIS for their awesome work!

INTRODUCTION

FILE NAMING
The STL file naming convention is the same as for VORON designs, namely

:

PRIMARY COLOR

Example z_joint_lower_x4.stl
These files will have nothing at the start of the filename.

ACCENT COLOR

Example [a]_tensioner_left.stl
We have added "[a]" to the front of any STL file that is intended to be printed with accent color.

QUANTITY REQUIRED

Example [a]_z_belt_clip_lower_x4.stl
If any file ends with "_x#", that is telling you the quantity of that part required to build the machine.

PART PRINTING GUIDELINES
The print guidelines are also the same as for VORON designs, namely :

3D PRINTING PROCESS
Fused Desposition Modeling (FDM)

MATERIAL
ABS

LAYER HEIGHT
Recommended: 0.2mm

EXTRUSION WIDTH
Recommended: Forced 0.4mm

INFILL TYPE
Grid, Gyroid, Honeycomb, Triangle or Cubic

INFILL PERCENTAGE
Recommended: 40%

WALL COUNT
Recommended: 4

SOLID TOP/BOTTOM LAYERS
Recommended: 5

INTRODUCTION

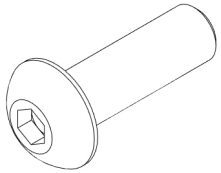
REPORTING ISSUES

Should you find an issue in the documentation or have a suggestion for an improvement please consider opening an issue on GitHub (https://github.com/Zergie/MMU-Filament-Storage/issues). When raising an issue please include the relevant page numbers and a short description; annotated screenshots are also very welcome. We periodically update the manual based on the feedback we get.

THIS IS JUST A REFERENCE

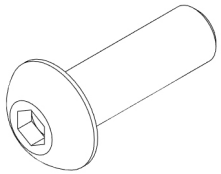
This manual is designed to be a simple reference manual. Building this project can be a complex endeavor and for that reason we recommend downloading the CAD files off our GitHub repository if there are sections you need clarification on. It can sometimes be easier to follow along when you have the whole assembly in front of you.

HARDWARE REFERENCE



BUTTON HEAD CAP BOLT (BHCS)
Metric fastener with a domed shape head and hex drive. Most commonly found in locations where M5 fasteners are used.

ISO 7380-1



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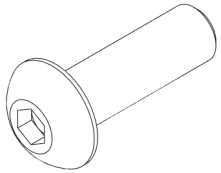

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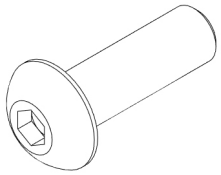

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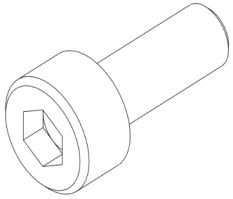
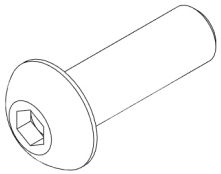


SOCKET HEAD CAP BOLT (SHCS)
Metric fastener with a cylindrical head and hex drive. The most common fastener used in this project.

ISO 4762



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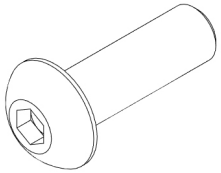

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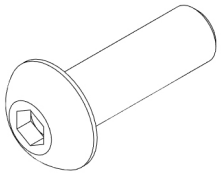

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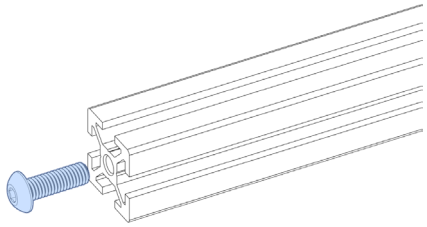
HARDWARE REFERENCE



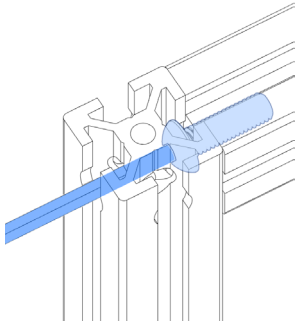
BLIND JOINT BASICS

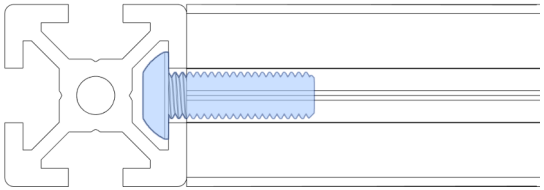
Blind Joints provide a cost effective and rigid assembly method.

The head of the BHCS is slid into the channel of another extrusion and securely fastened through a small access hole in the extrusion.

If you've never assembled one before we recommend you watch the linked guide.

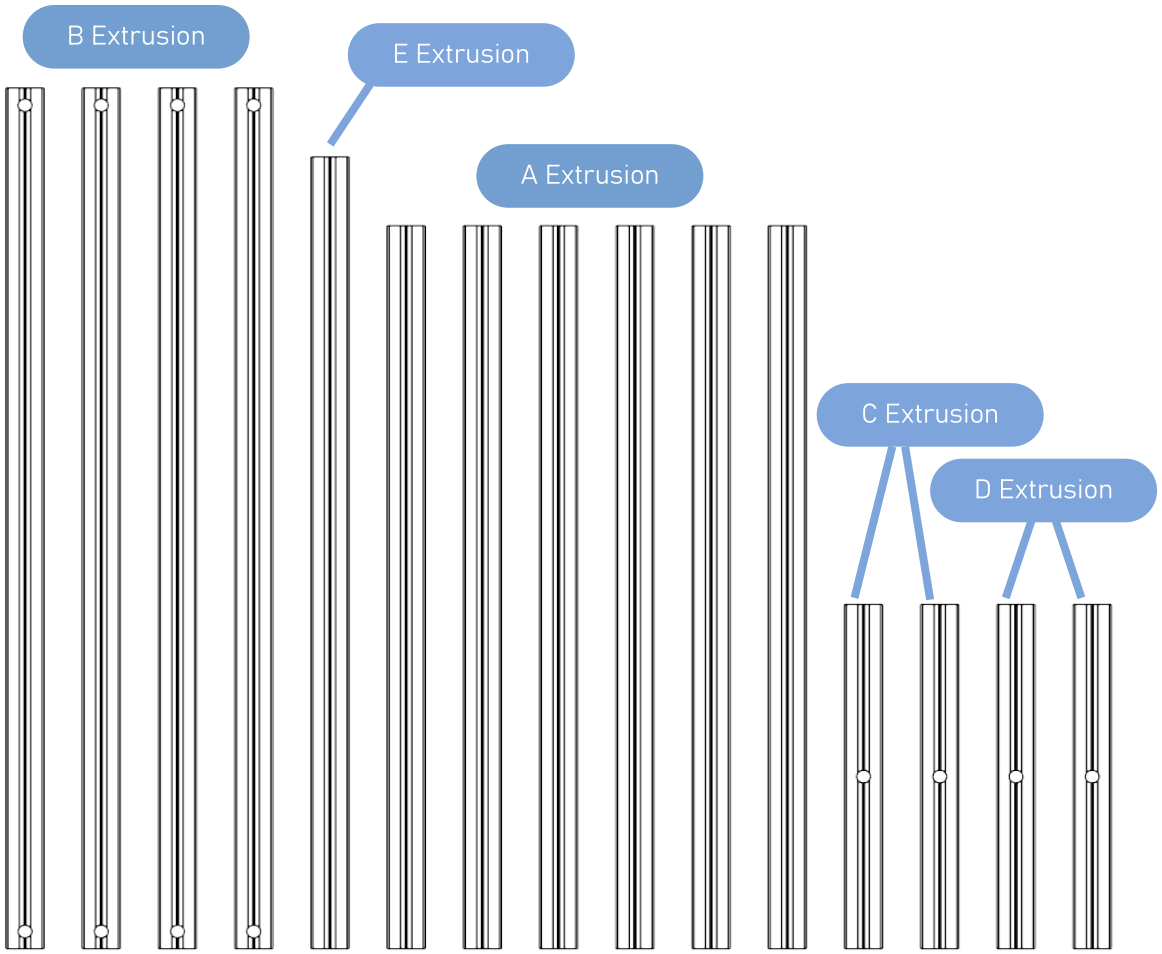
https://voron.link/onjwmcd





FRAME

FRAME

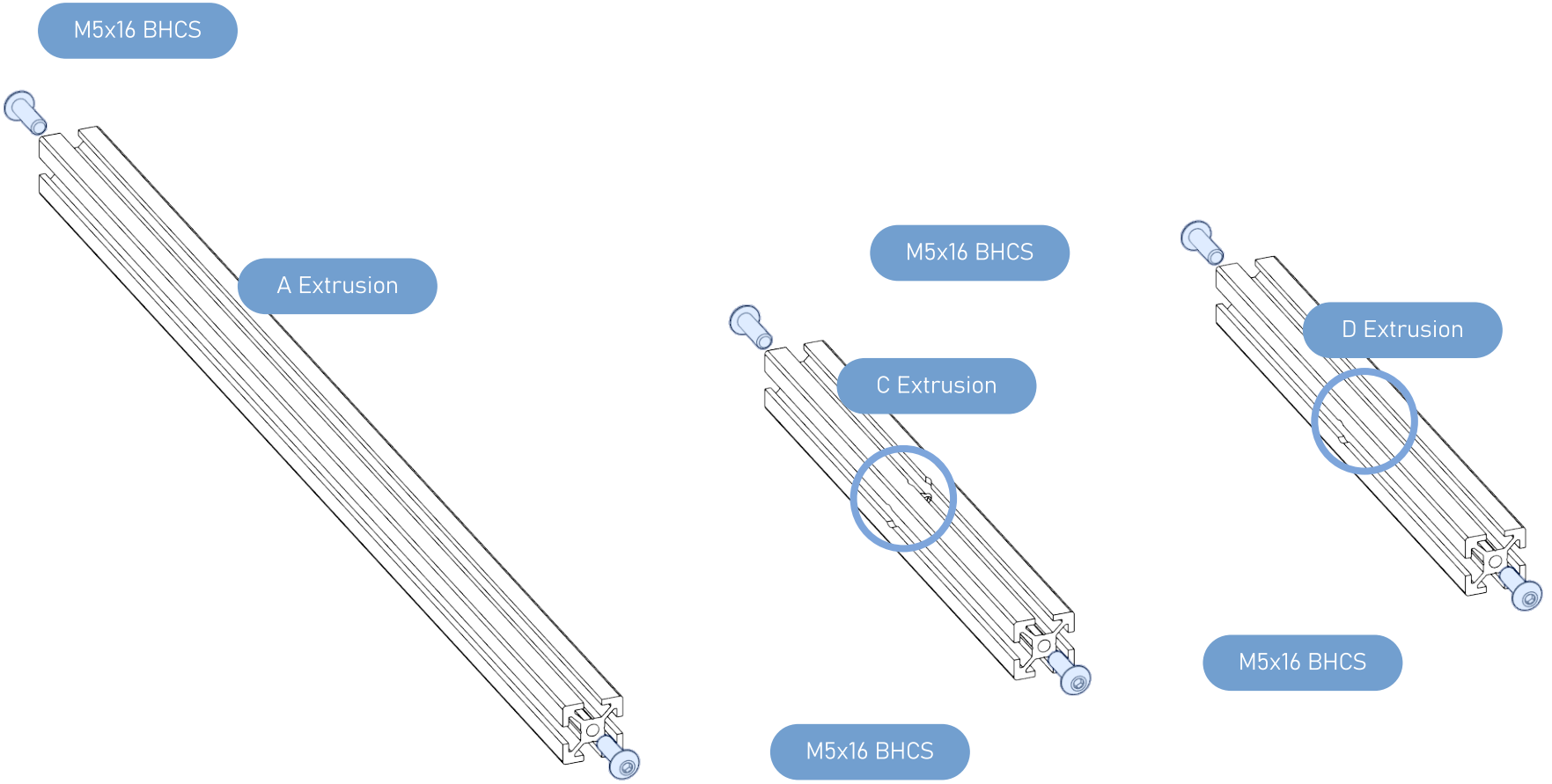


SORT EXTRUSIONS

Collect your extrusions and sort them by length. We will highlight the extrusions used in each step and label them as shown on this page

A Extrusion – 420mm Length – 0 Holes
B Extrusion – 500mm Length – 8 Holes
C Extrusion - 200mm Length – 2 Holes
D Extrusion - 200mm Length – 4 Holes
E Extrusion – 460mm Length – 0 Holes

FRAME



PREPARE A EXTRUSIONS

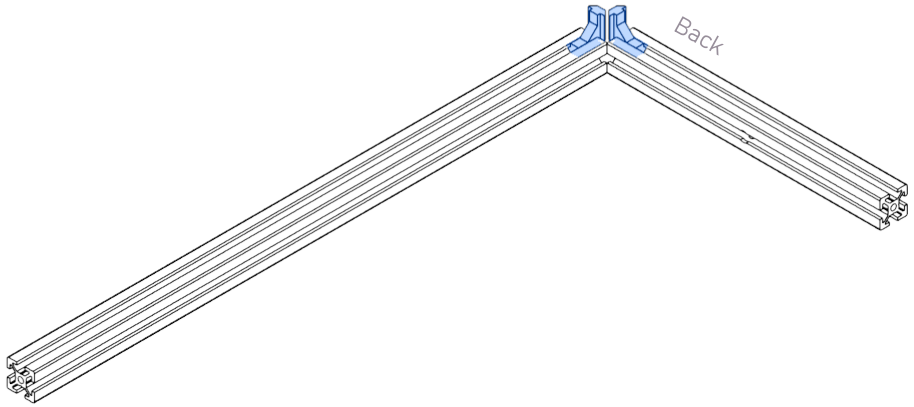
The extrusions are going to be used in this section. Prepare them as shown above.

FRAME

B Extrusion

ADD BLIND JOINT PLUGS

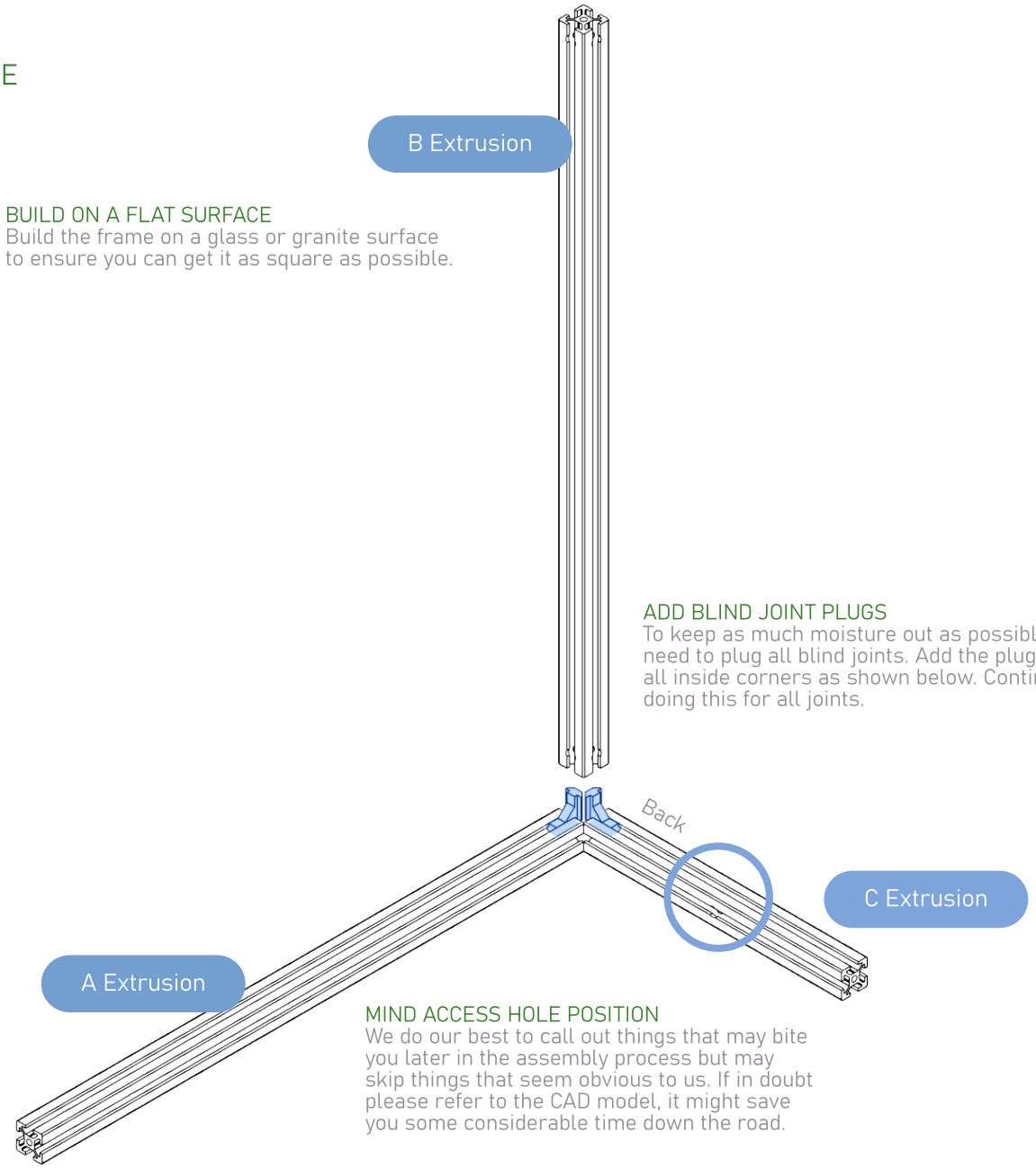
To keep as much moisture out as possible, we need to plug all blind joints. Add the plugs to all inside corners as shown below. Continue doing this for all joints.



C Extrusion

A Extrusion

FRAME



BUILD ON A FLAT SURFACE
Build the frame on a glass or granite surface to ensure you can get it as square as possible.

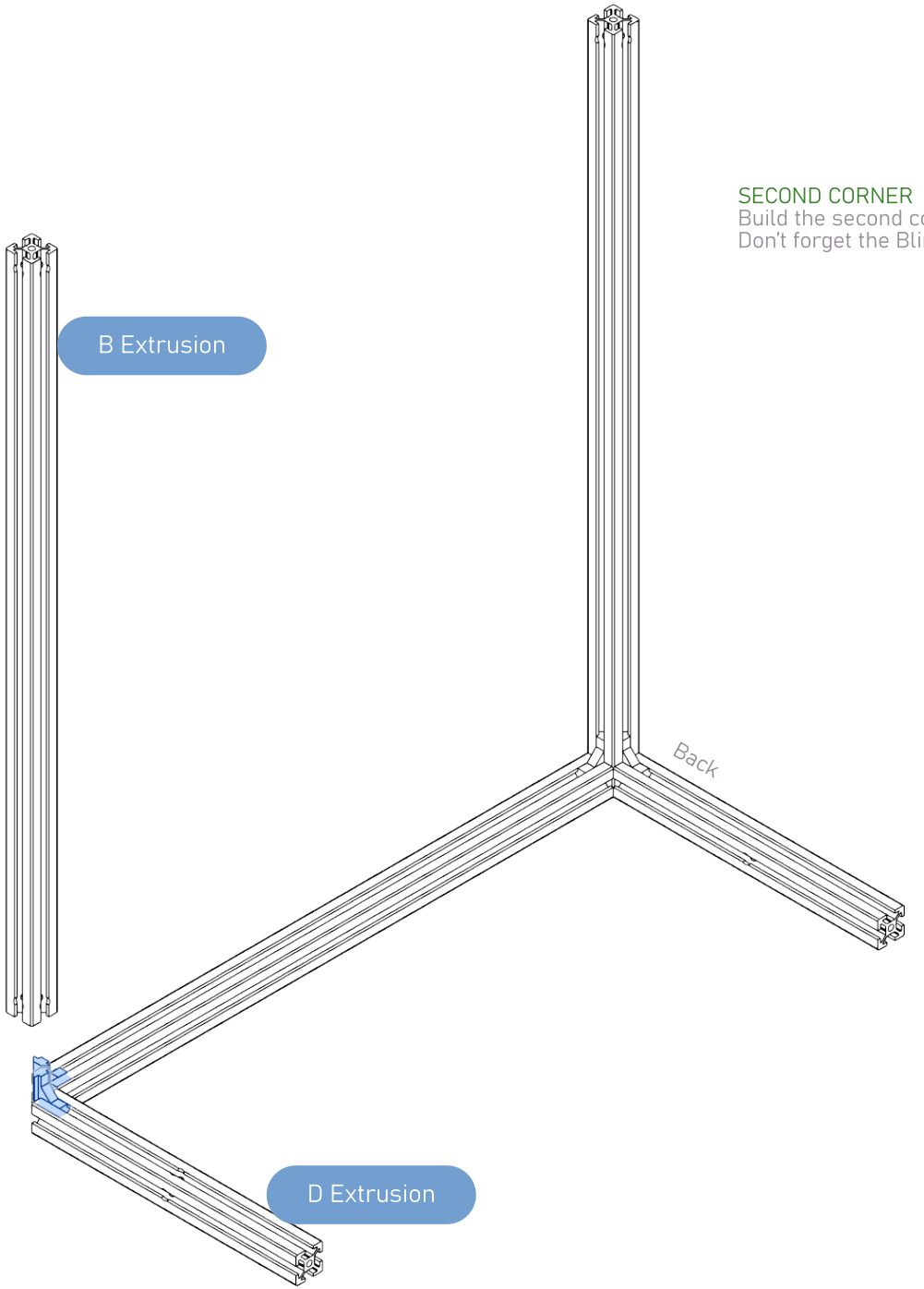
ADD BLIND JOINT PLUGS
To keep as much moisture out as possible, we need to plug all blind joints. Add the plugs to all inside corners as shown below. Continue doing this for all joints.

MIND ACCESS HOLE POSITION
We do our best to call out things that may bite you later in the assembly process but may skip things that seem obvious to us. If in doubt please refer to the CAD model, it might save you some considerable time down the road.

FIRST BLIND JOINT
This design relies on blind joints to assemble the frame. We outlined the basics of blind joints on page 7
.
If you've never assembled one before we recommend you watch the linked guide.

https://voron.link/onjwmcd

FRAME



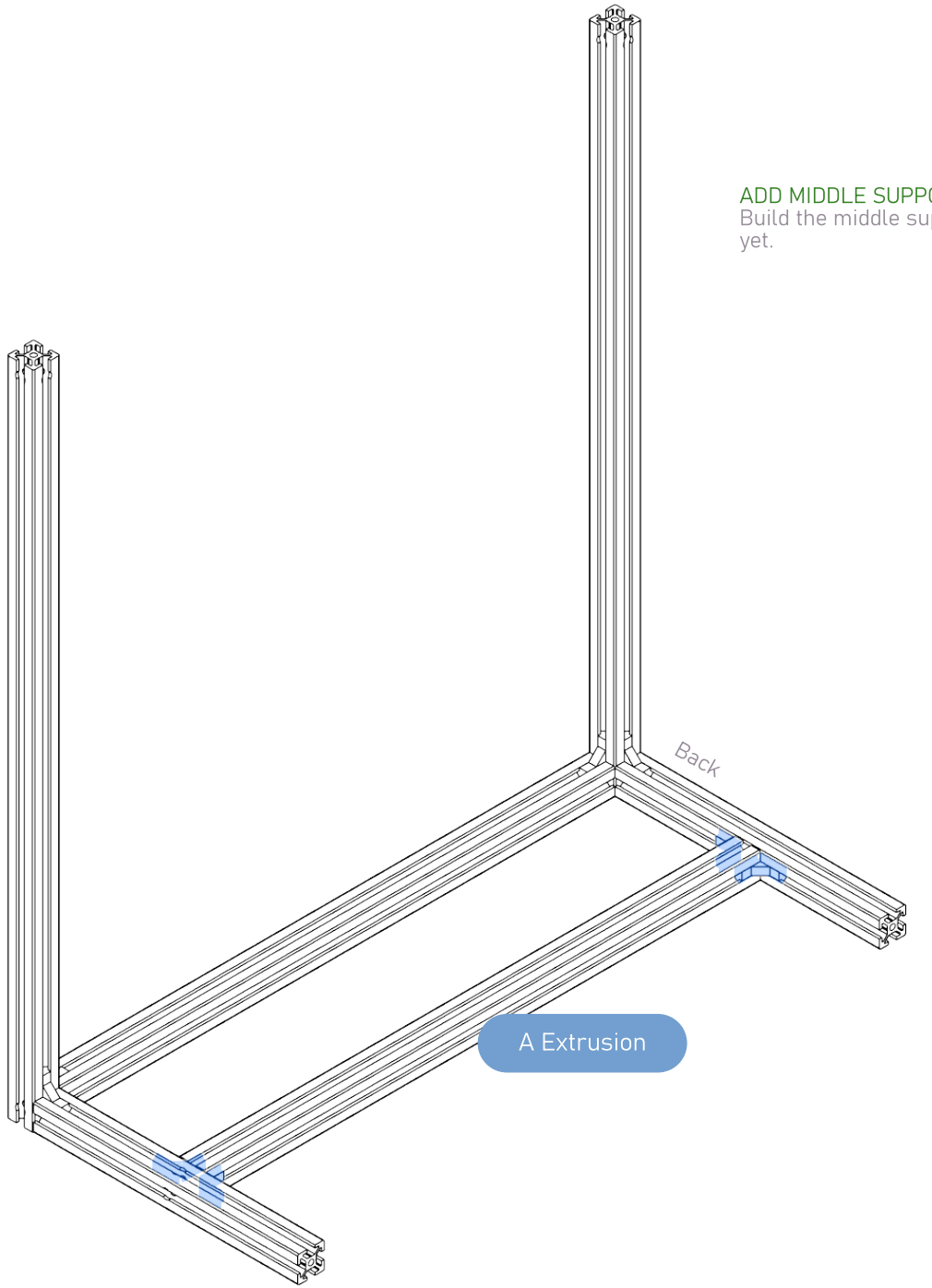
SECOND CORNER

Build the second corner.
Don't forget the Blind Joint Plugs.

FRAME

ADD MIDDLE SUPPORT

Build the middle support. Do not tighten just yet.



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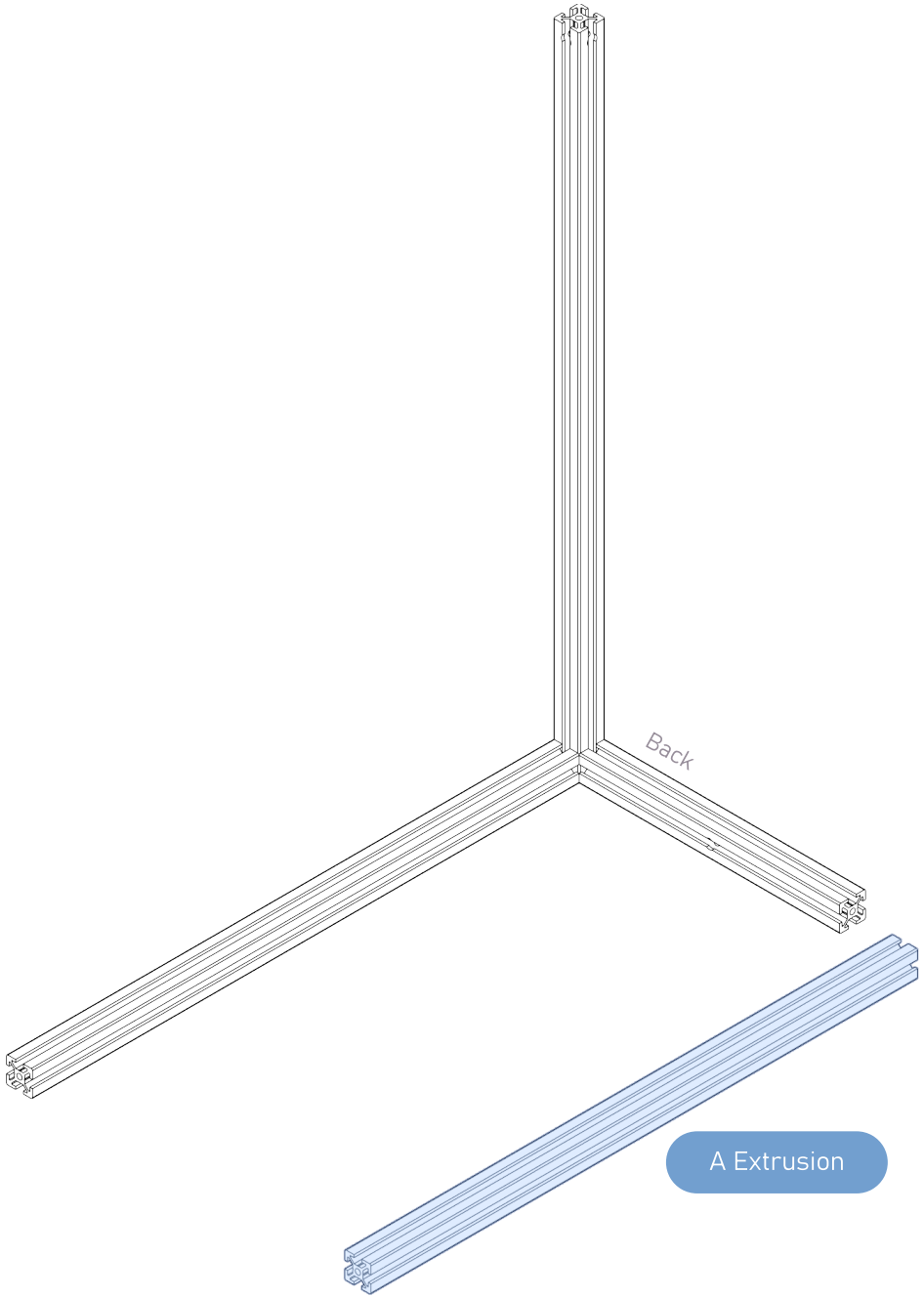

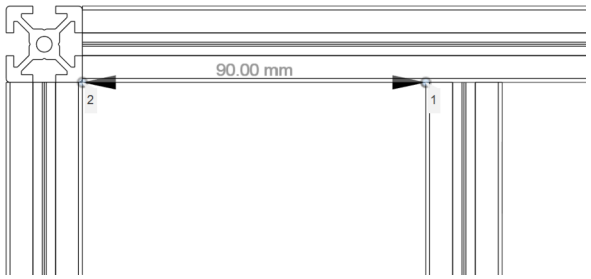

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