

MAKING CONSERVATION FRIENDLY CASES

Eliminating Wood From Case
Interiors

Alternatives

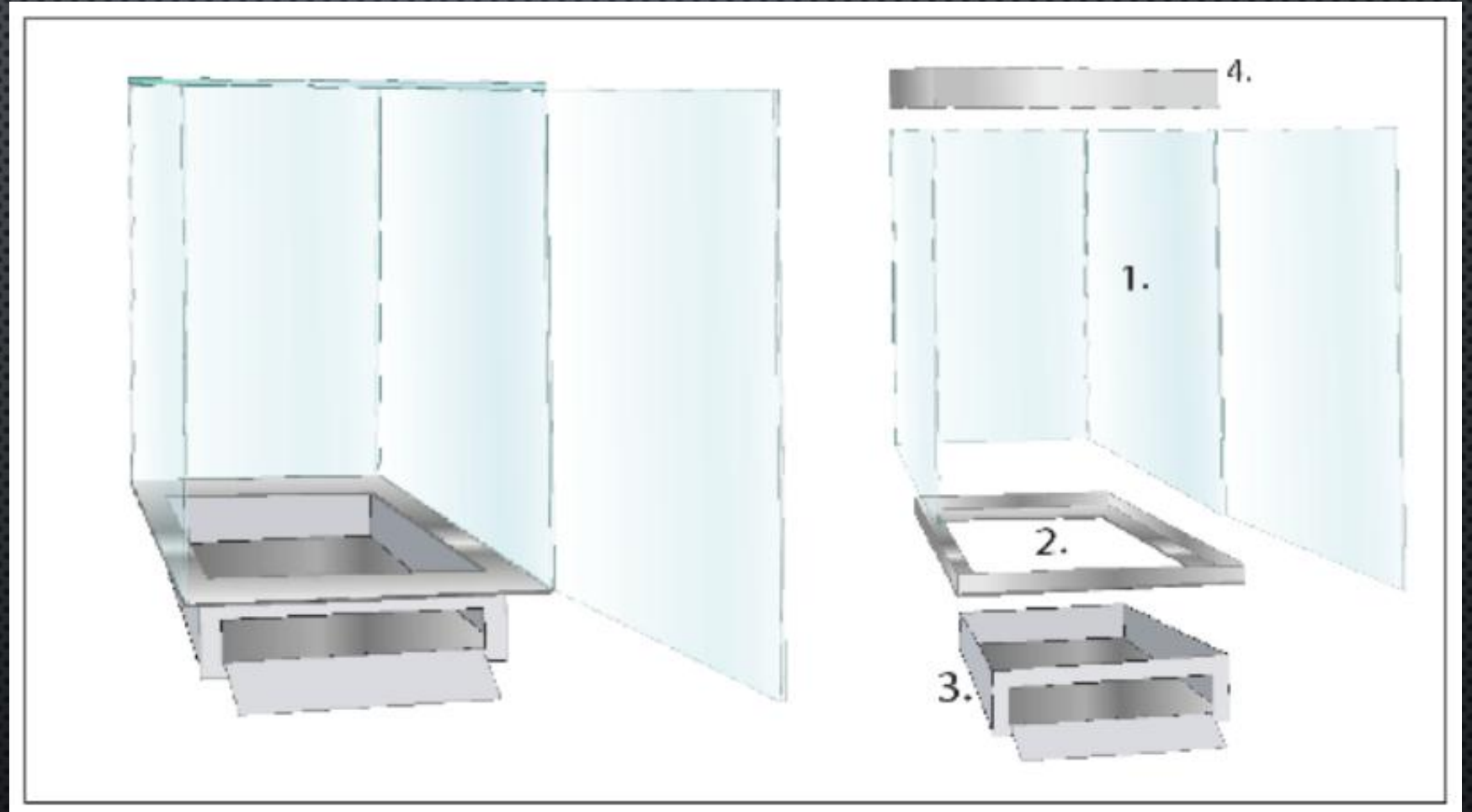
- Buy Cases
- The Leaky Case
- Environmentally Controlled Halls
- MCG
- Build in House



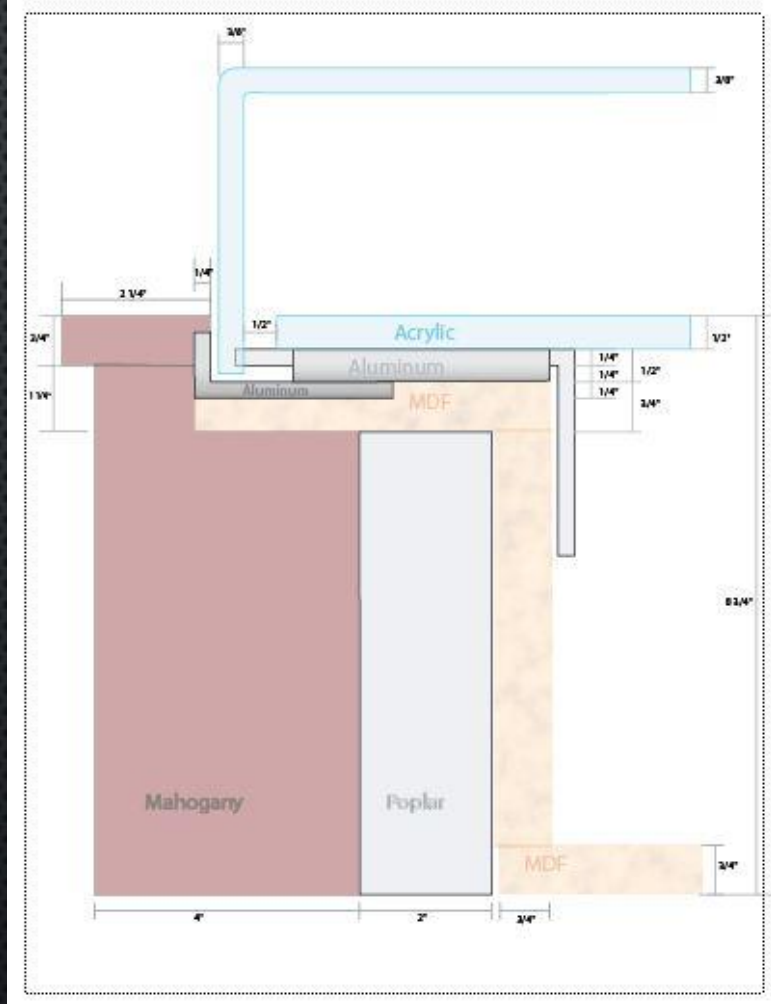
Removing Wood from Case Interiors
can be Achieved by Building Cases
with Laminated MDF

The Components of a Case

- Structure
- Artifact Chamber
- Interior Deck
- Desiccant Chamber
- Light Attic
- Cosmetics



Performance Objectives



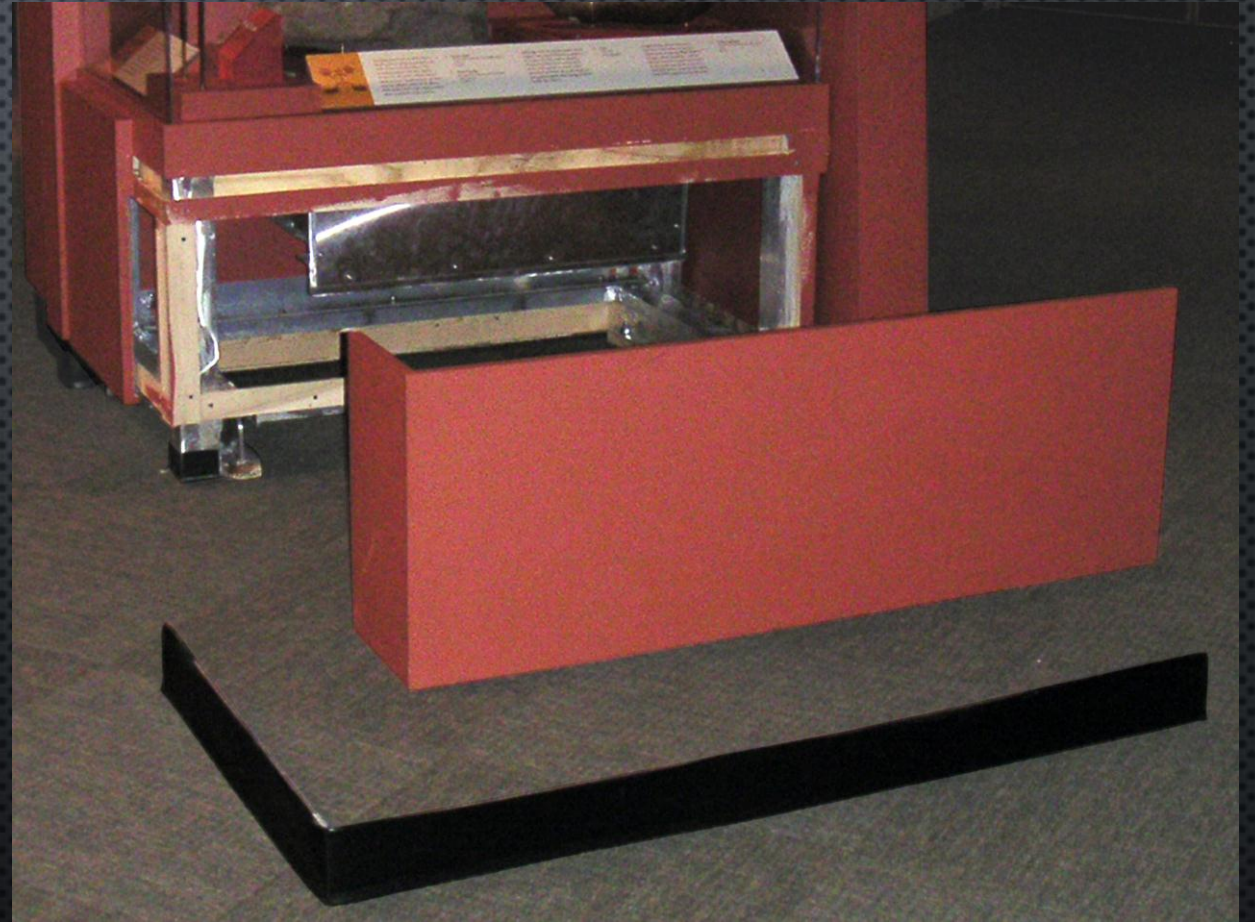
- Separate Artifact and Desiccant Chambers from all Components
- No Wood, or Acidic Materials, inside the Case
- Lower Air Exchange Rate, through Tight Seams
- Create Access through Doors or Glazing
- Pursue Simple Joinery and Cost Effective Materials

THE WELDED BOX

Our First Concept was to Weld a Box, as Desiccant Chamber, and covered it using an acrylic bonnet, or glazed openings

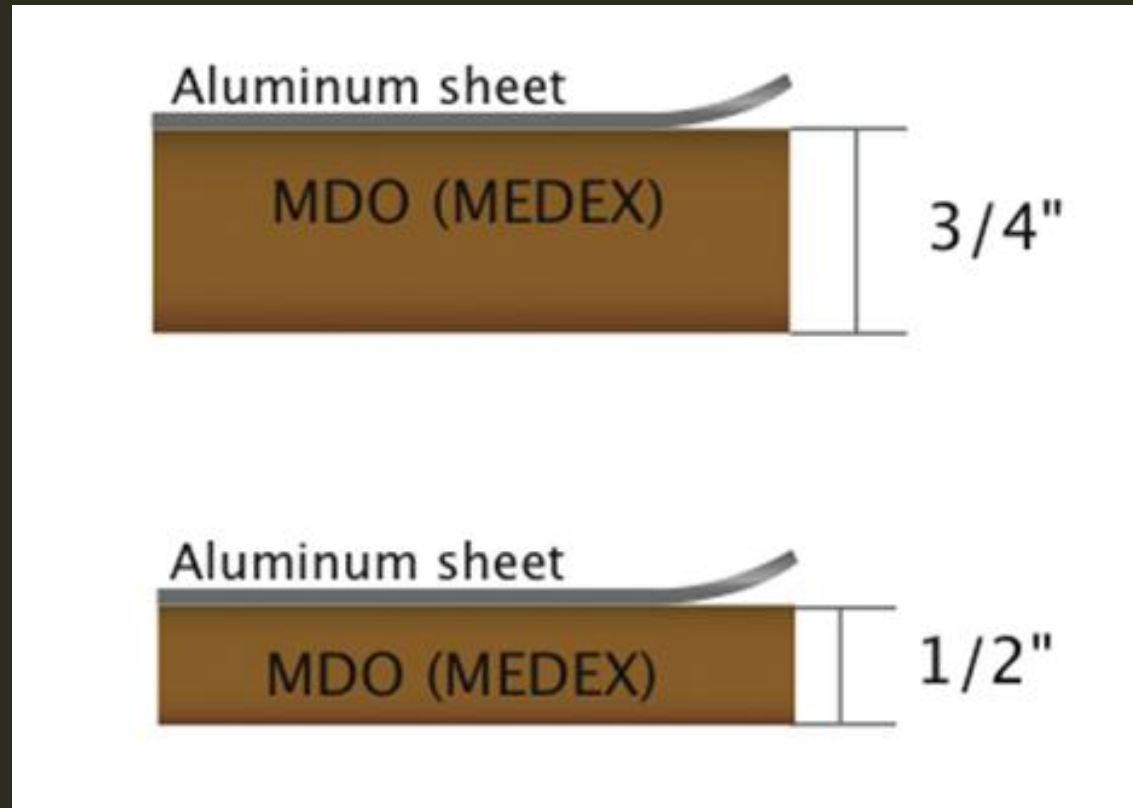


Welding Requires Equipment, and Special Training



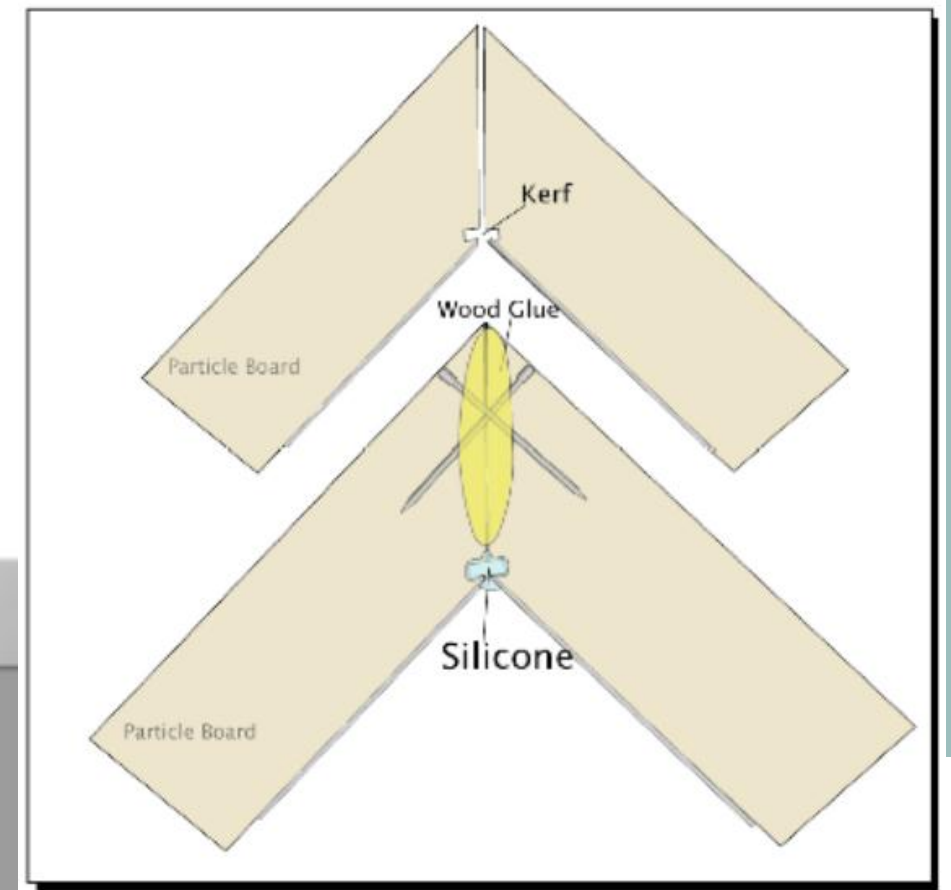
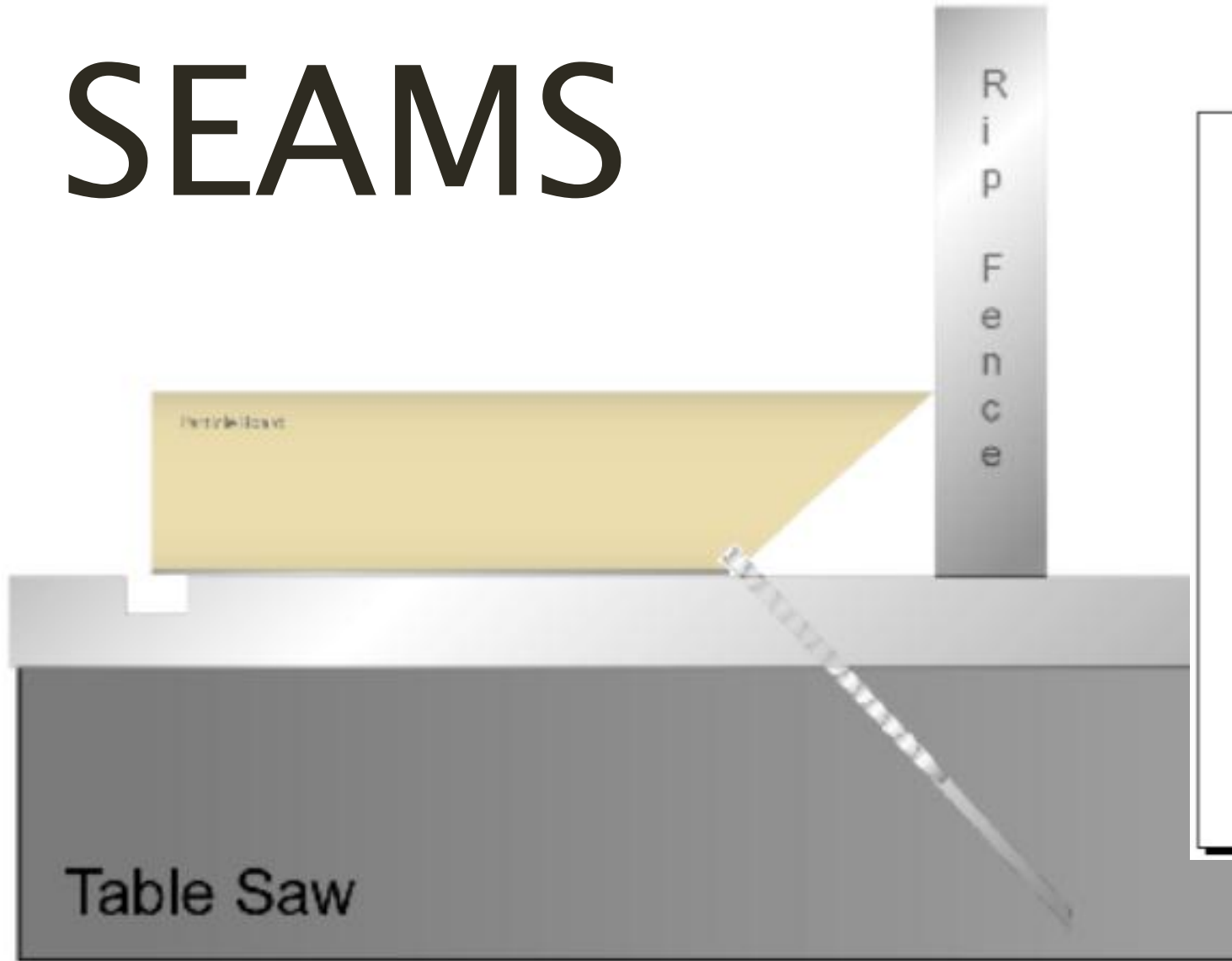
The Laminated Box

We Speculated the Same Effect could be Achieved by Laminating Aluminum to Particle Board, then Facing the Laminate in

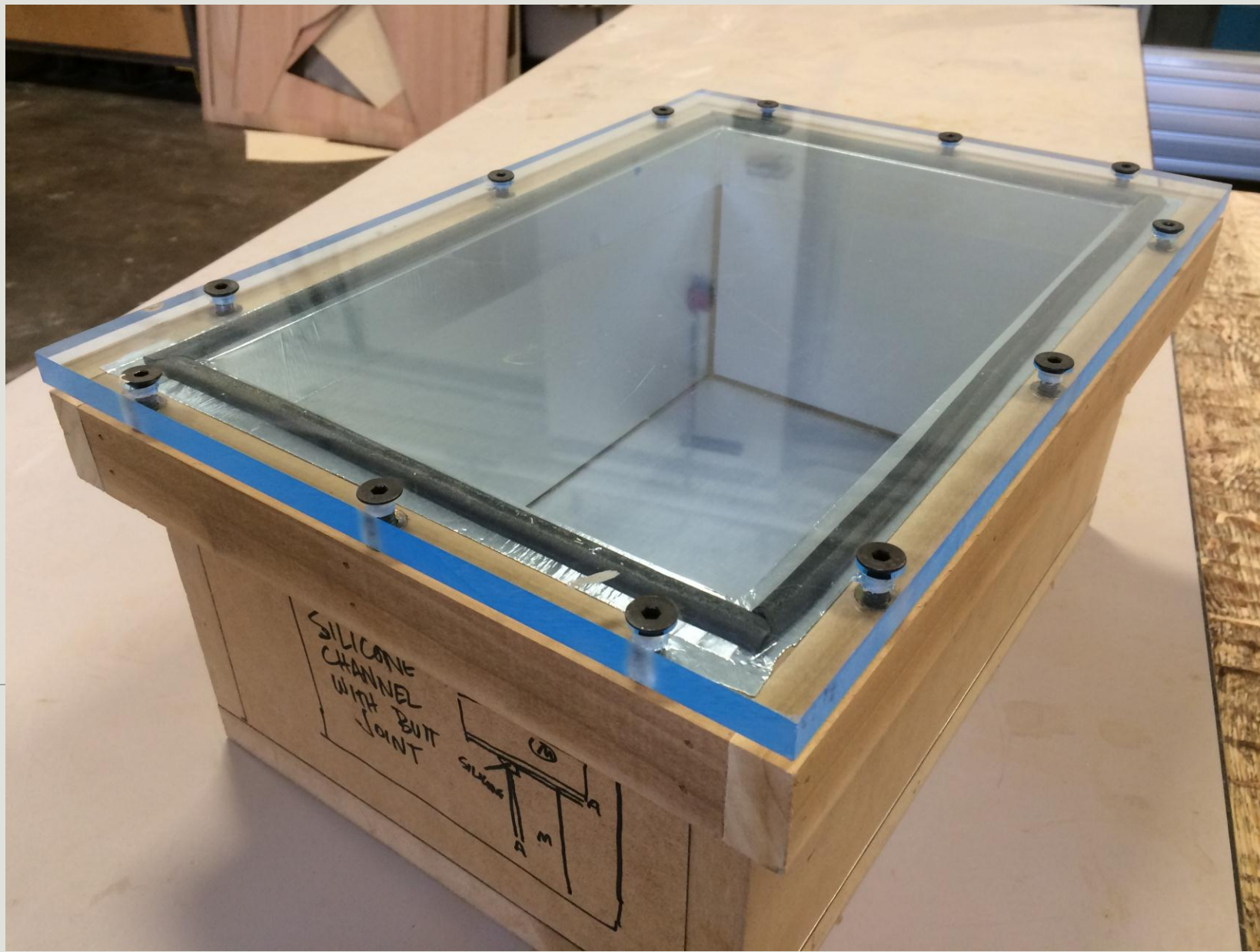


The Laminate Proved Negligible When Cutting, so Conventional Cabinetry could be used. This Meant Cases could be Built with a Table Saw, by any Cabinet Maker

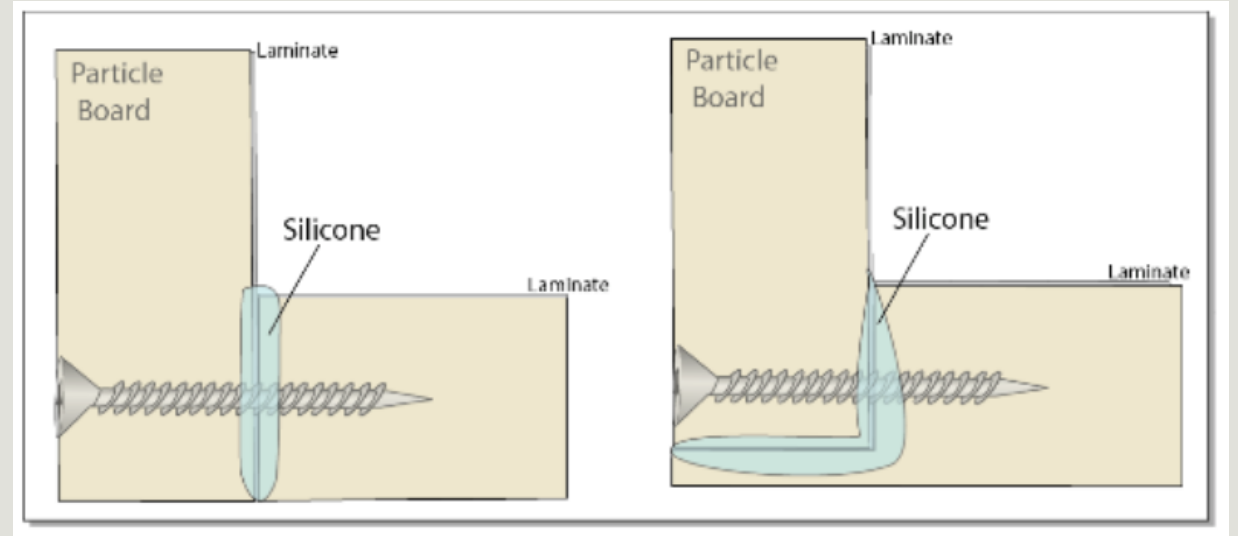
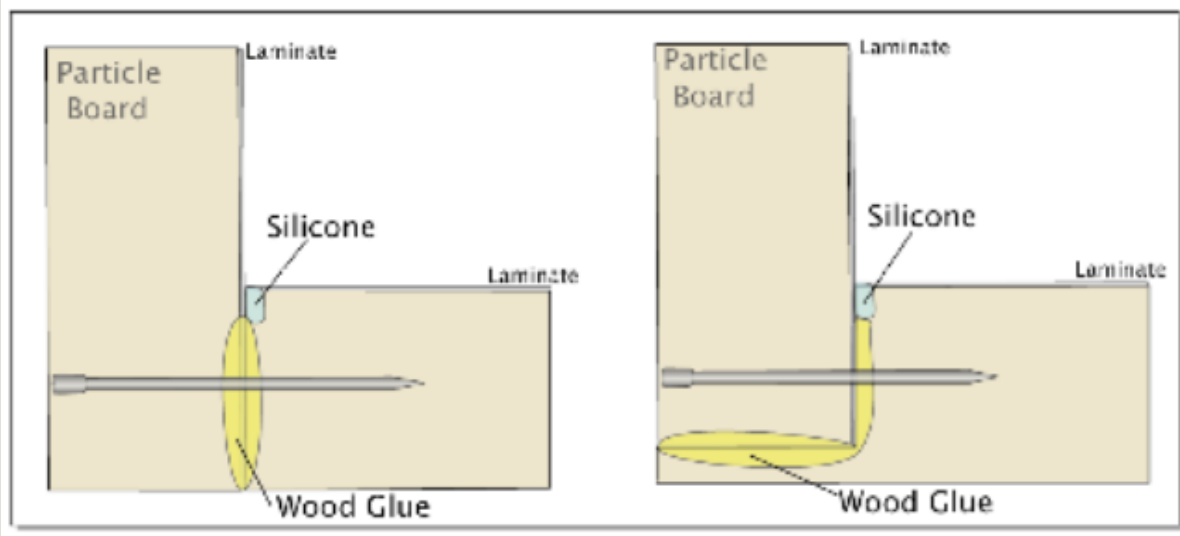
SEAMS



Make sure you figure out how to seal joints and insure no glue is close to the inside.



Adhesive



It is important to ensure the strength of the joint, but balance the location of your adhesive, to prevent acid from off gassing inwards. Wood Glue holds well, and silicone doesn't. If you use silicone, you need better screws, and then your joints are more vulnerable over long periods than wood glue. Remember aluminum surfaces don't hold silicone, or paint well. Paint will scrape off easily, silicone may release.

“Sancure”

Camger Product I-175

CAMGER, HAS PROVEN EFFECTIVE AT ARRESTING THE ESCAPE RATE OF ACID INTO THE AIR.

IT OCCURRED TO ME THAT THE 1-175 MIGHT WORK LIKE GLUE. HERE IS WHAT I DISCOVERED.



Use Camger's I-175 instead of silicone, caulk or wood glue.

Camger's 1-175 works like Wood Glue

After Curing it is Water Resilient, yet Retains an Excellent Balance of Strength and Elasticity

It can be thinned with water, or left exposed to air, to thicken

It Adheres Well to Most Materials

On Tests it Performed as Well, or Better Than Wood Glue

It Could be Cleaned off the Laminate without wrecking the finish.

1-175 Was Less Likely to Throw off the Fit of Parts for Assembly



"First to the Finish Line!"

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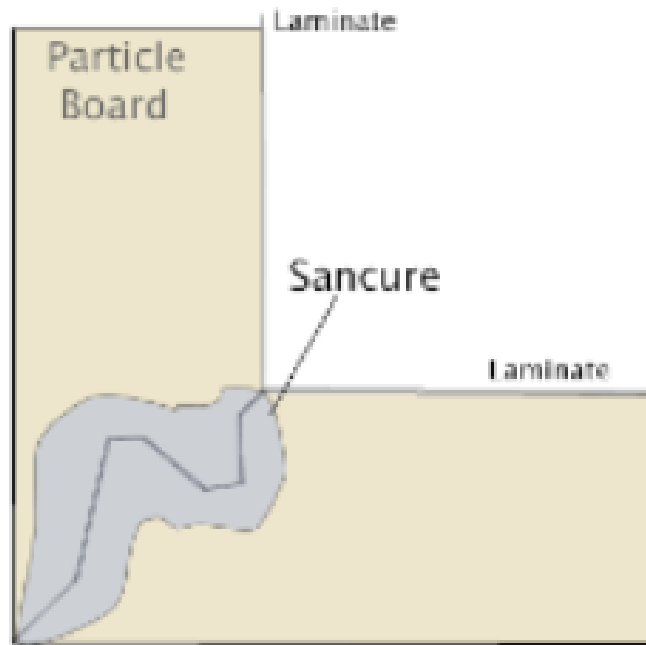
[Contact Us](#)



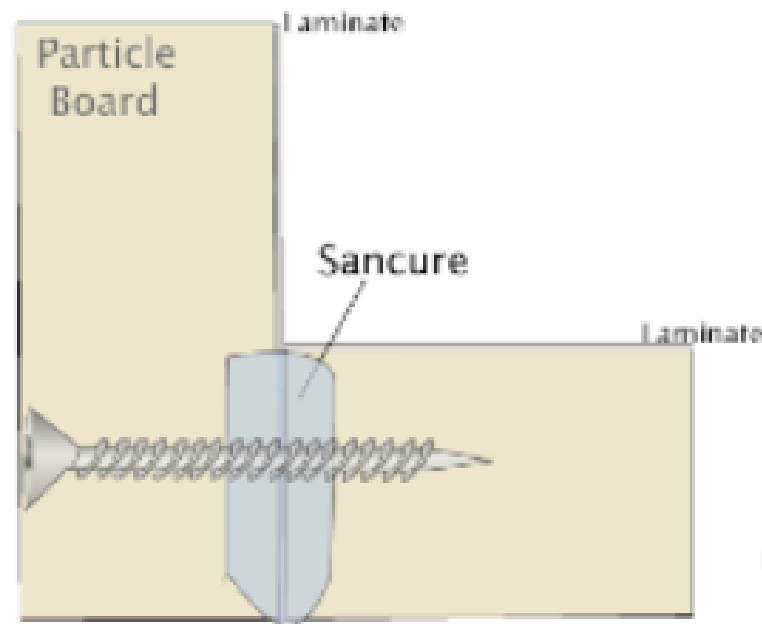
JOINERY

Seams With More Surface Area, did Better

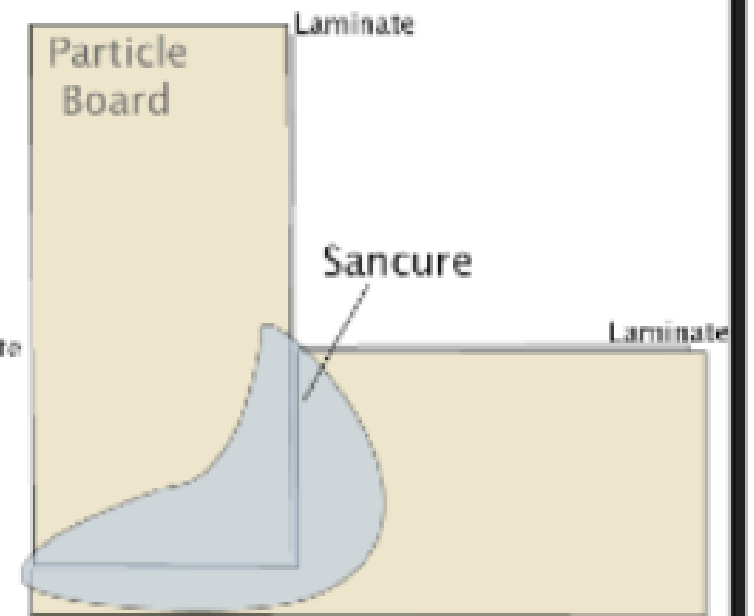
They also Provided a Mechanical Advantage for Assembly



Locking Miter Joint

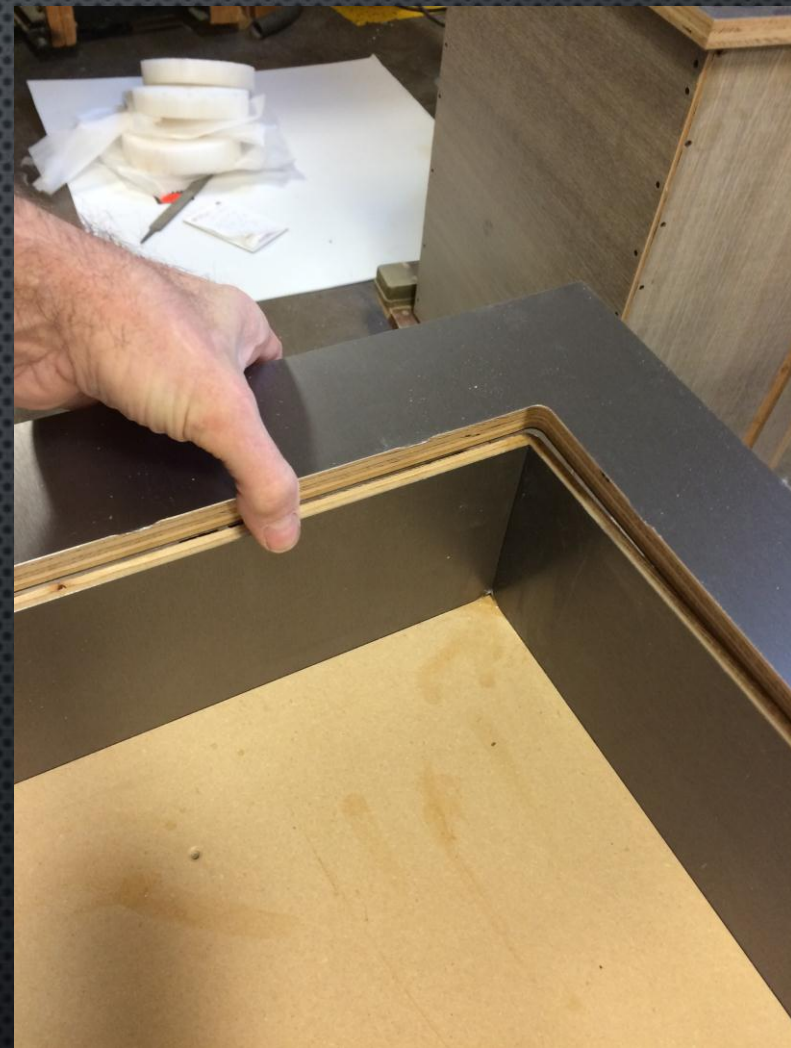


Butt Joint

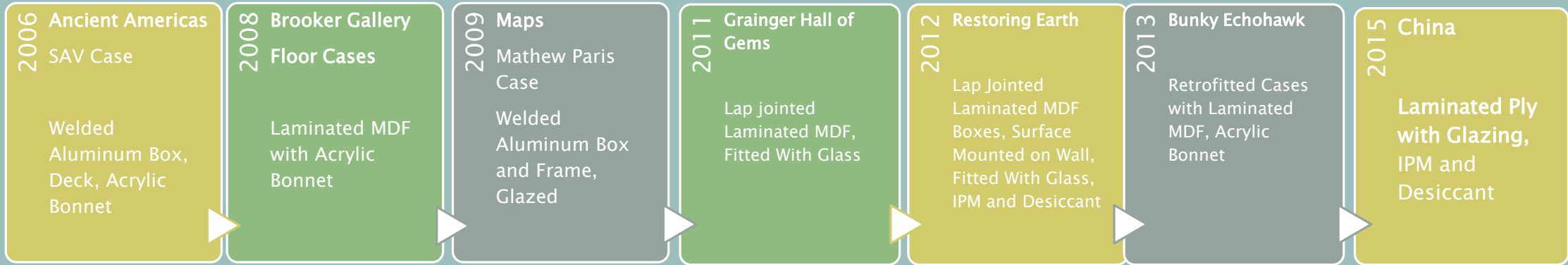


Lap Joint

Here are some shots of joints we use.



This is a timeline of the cases we built and what we learned.



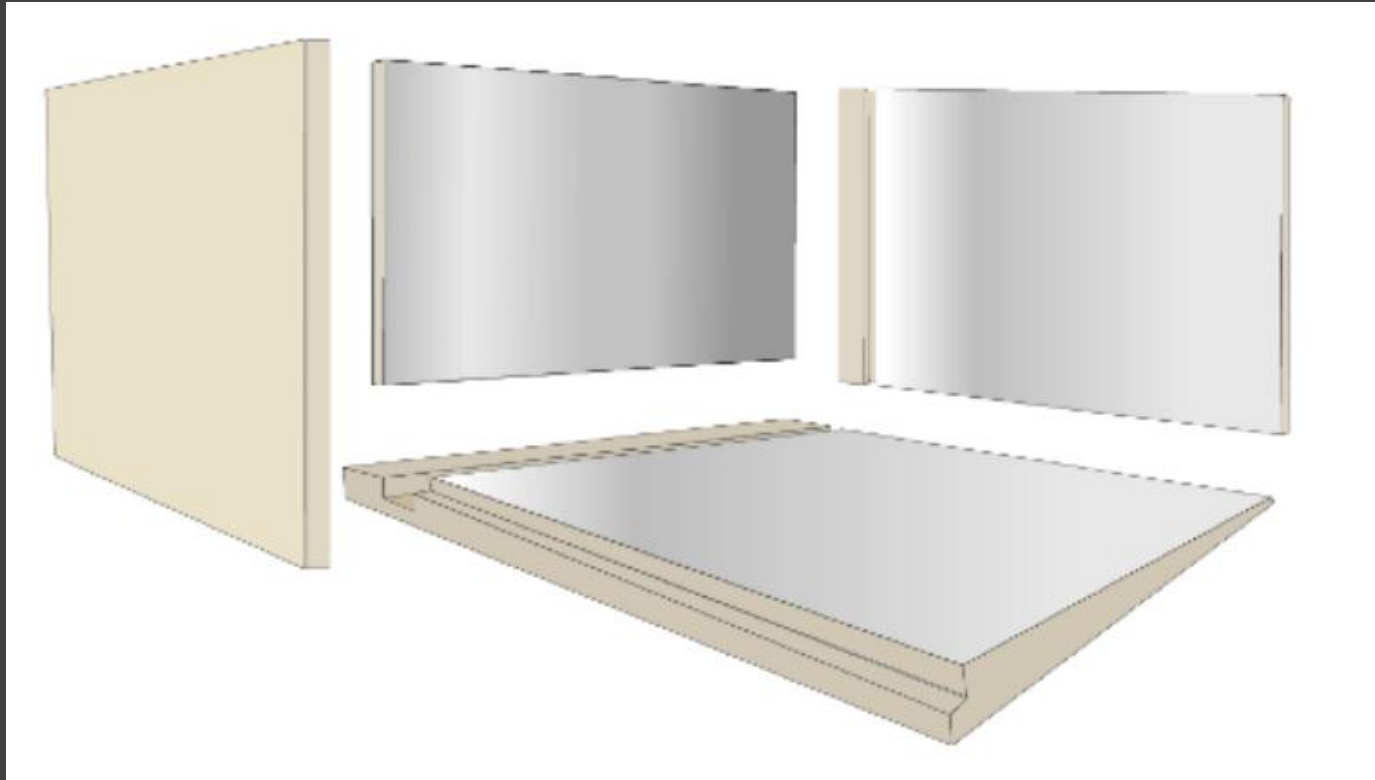
Actual Construction Studies

COST / PERFORMANCE

Purchasing High Performance Cases can run from \$2000 to \$8000 a Linear Foot, Our Average Case costs about \$350 a Linear Foot

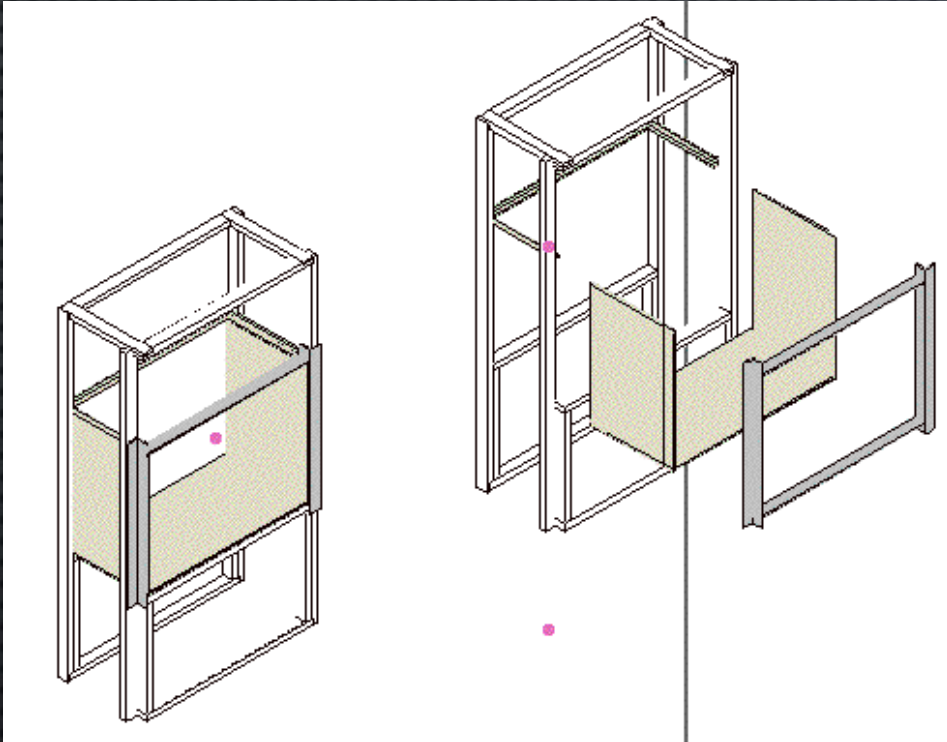
Our Cases Typically Test Between .1 and .2 Air Exchanges a Day

Currently We have not seen Significant Performance Changes or Signs of Compromise for over 5 years

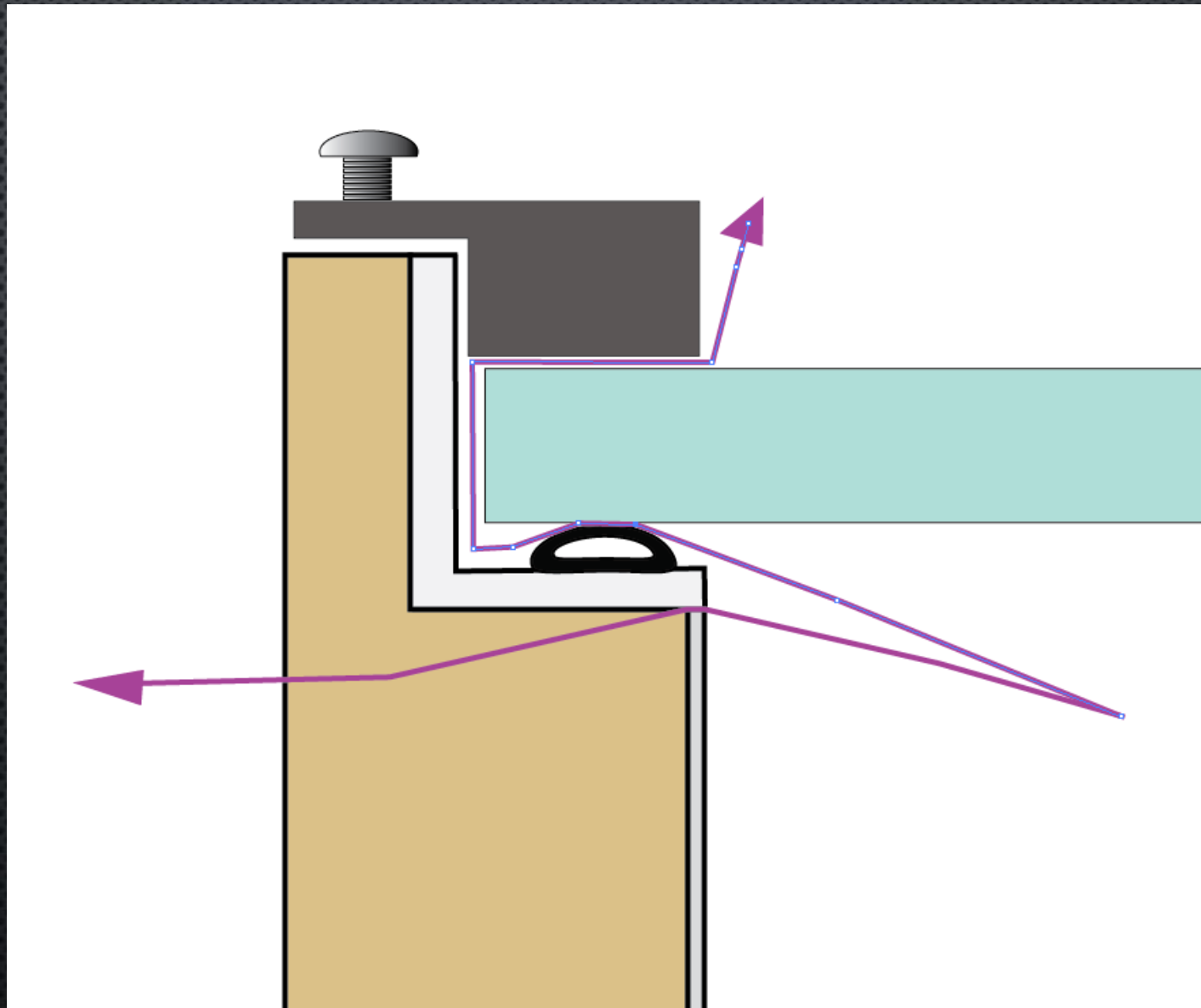


The Better Box

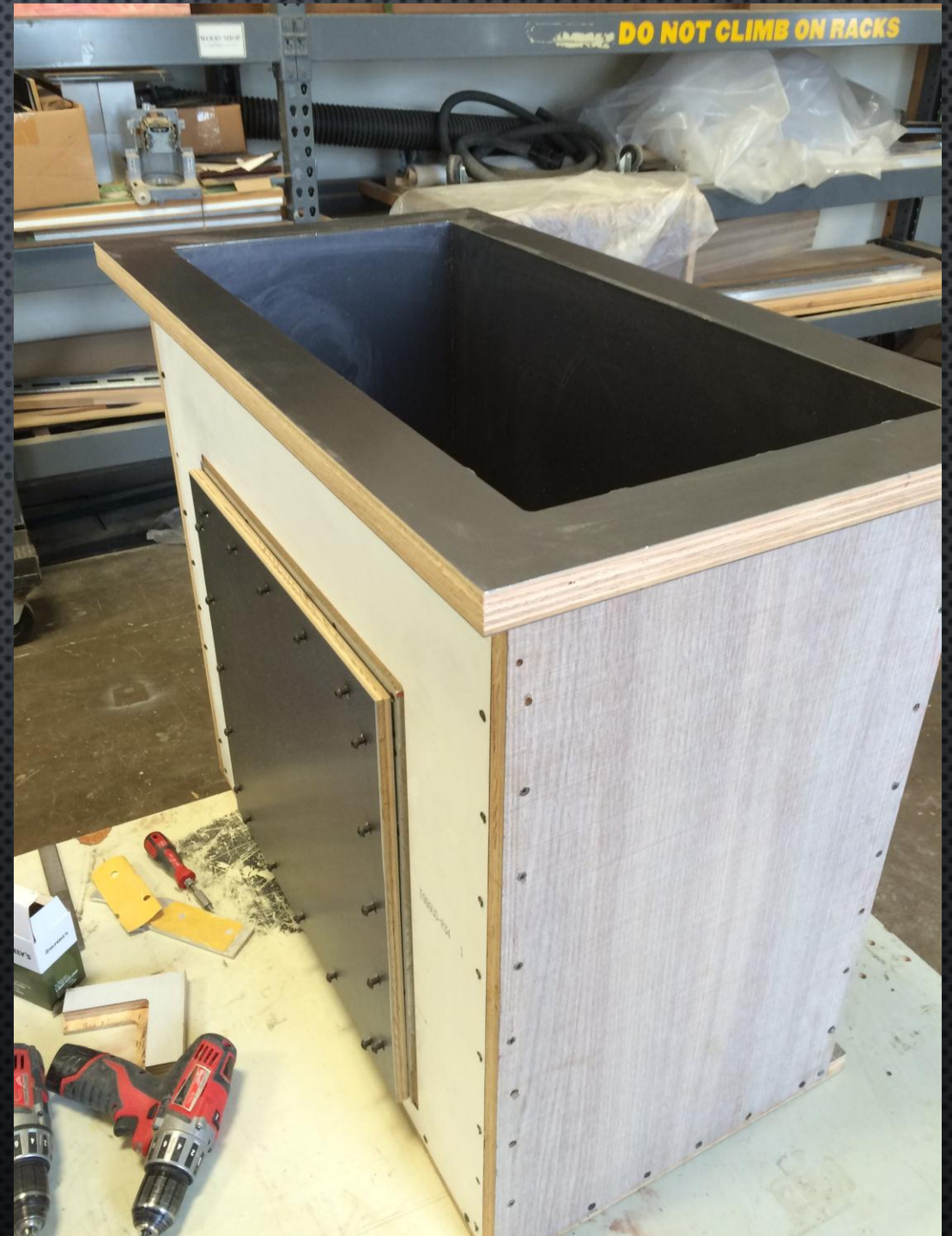
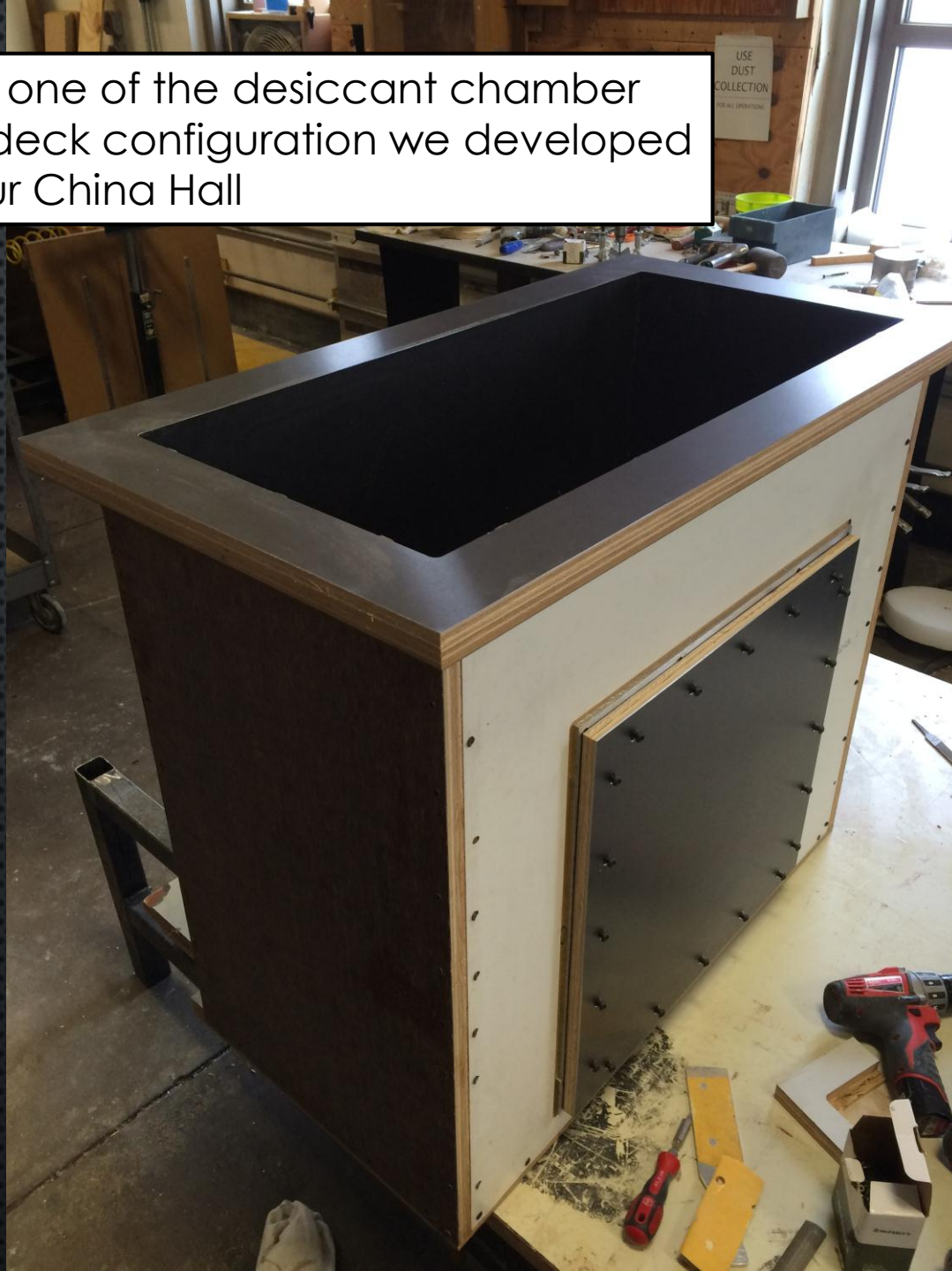
PROTOTYPE AND TEST YOUR SEAMS



Follow the Air Path



This is one of the desiccant chamber and deck configuration we developed for our China Hall



GLUING SEAMS WITH CAMGER I-175

Wet Your Seams With Water

Brush on Camger I-175

Use Thickened Camger fitting the part

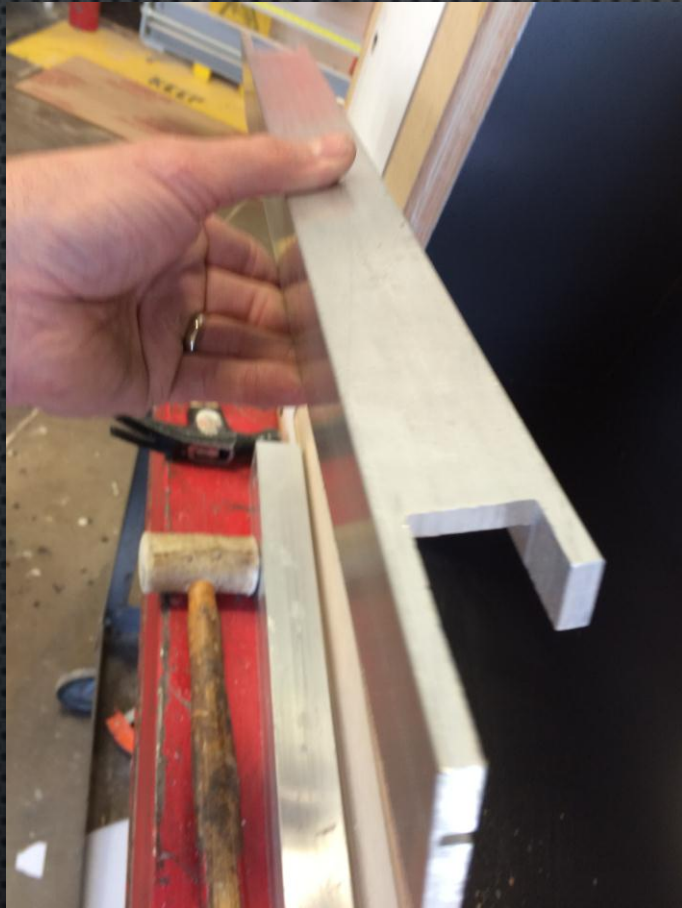
Use thinned Camger to Fill Potential Gaps



Using care during application is important. Make sure you mask off any areas that will be visible, so cleaning can be done later. Cleaning off the Camger I-175 can be difficult. We had good luck with water left to soak in several minutes.



DOORS

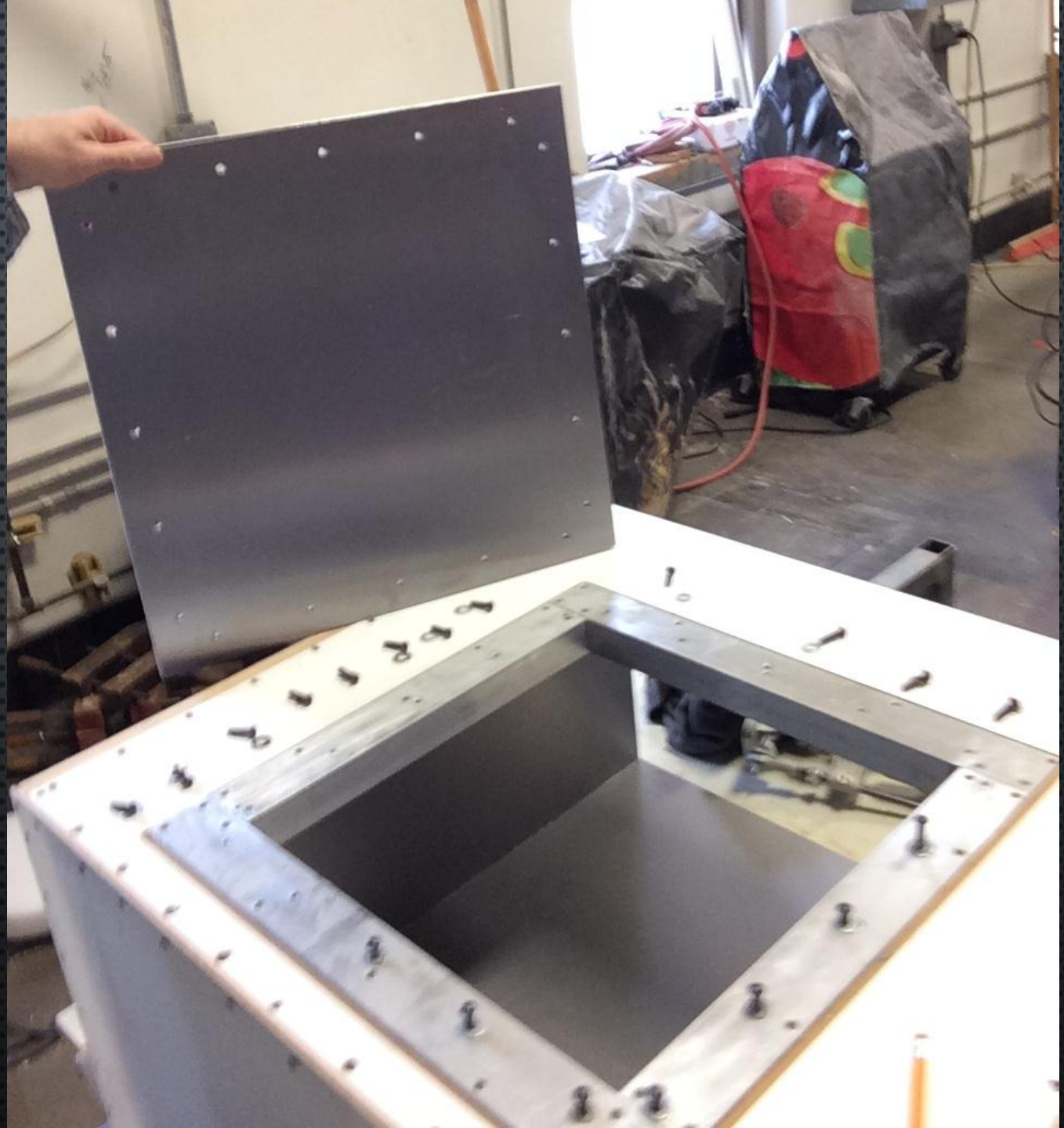


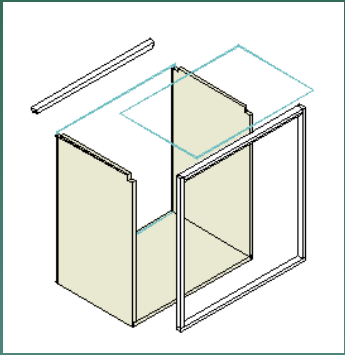
OVERLAP SEAMS WHENEVER POSSIBLE



Use enough screws to keep the pressure even.

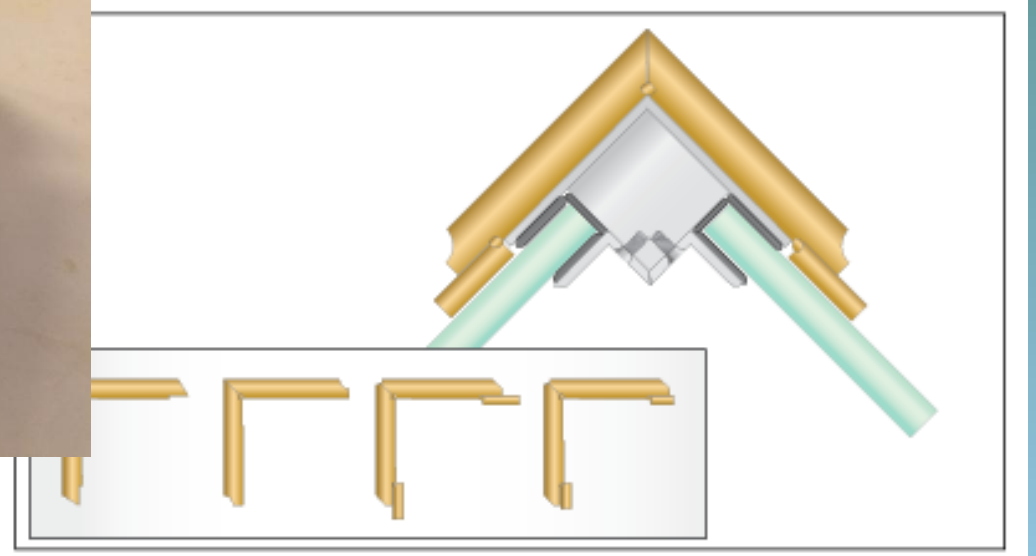
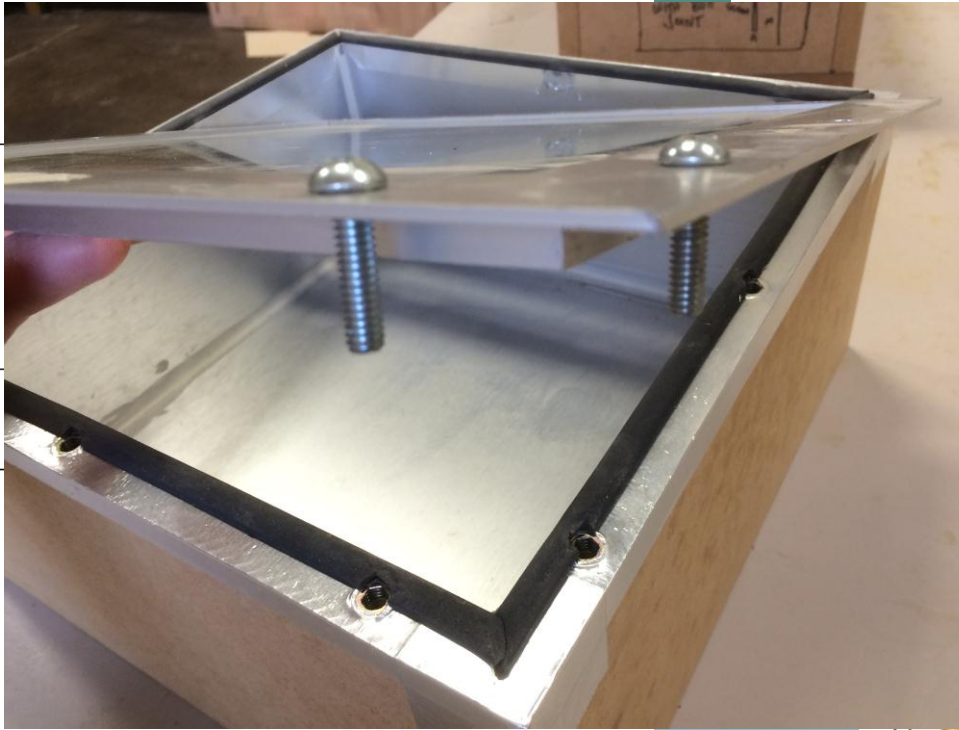
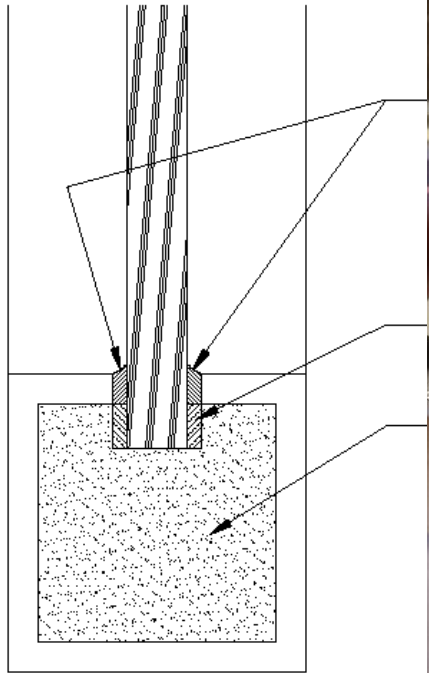
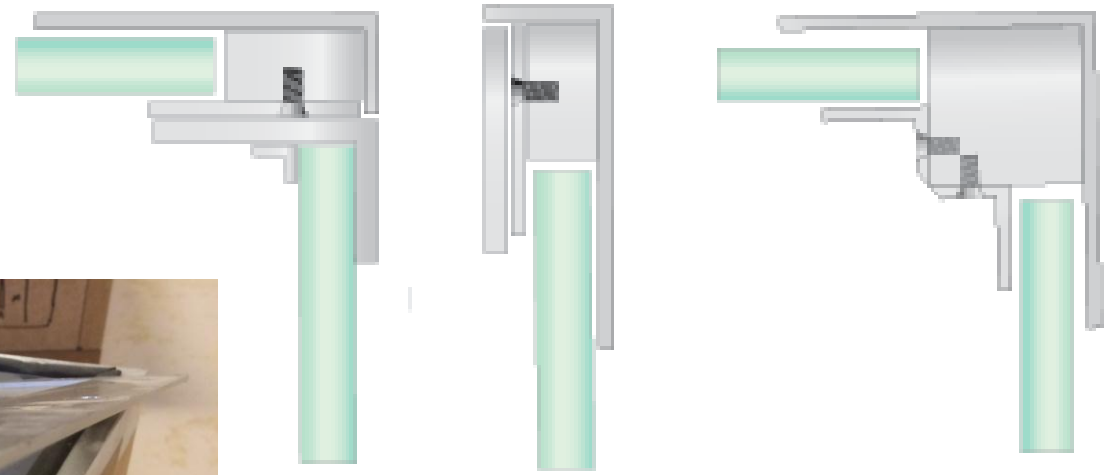
Doors, and
Glazing Will
Require Screws
and Gasket

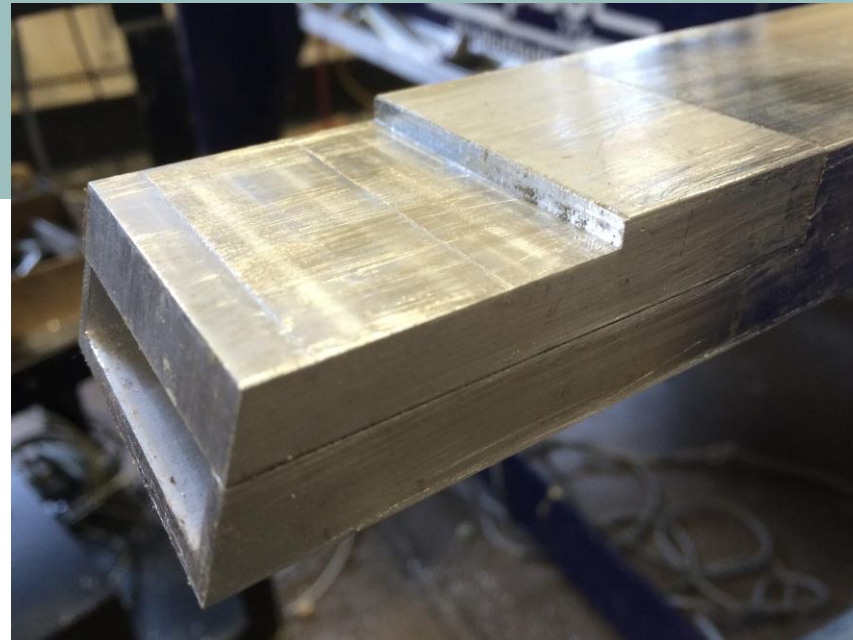
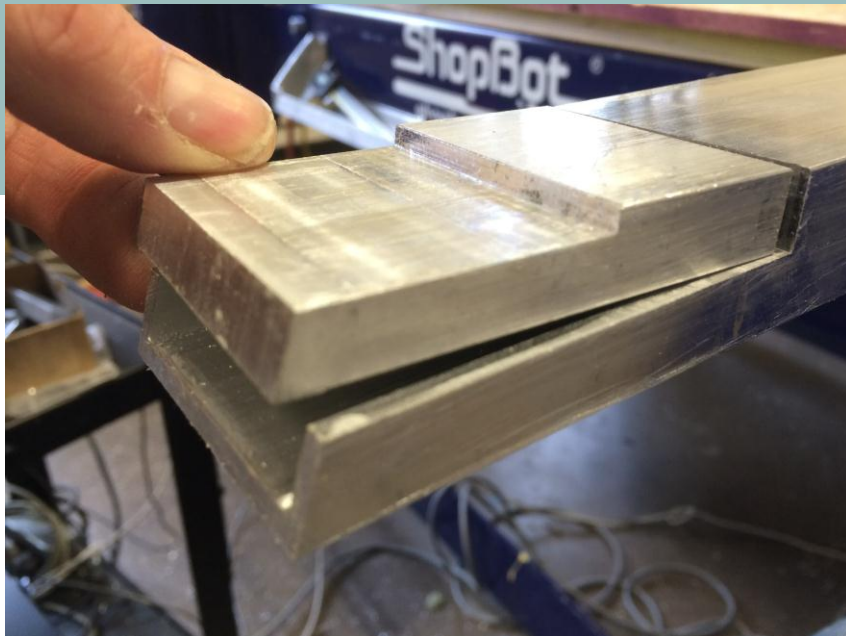
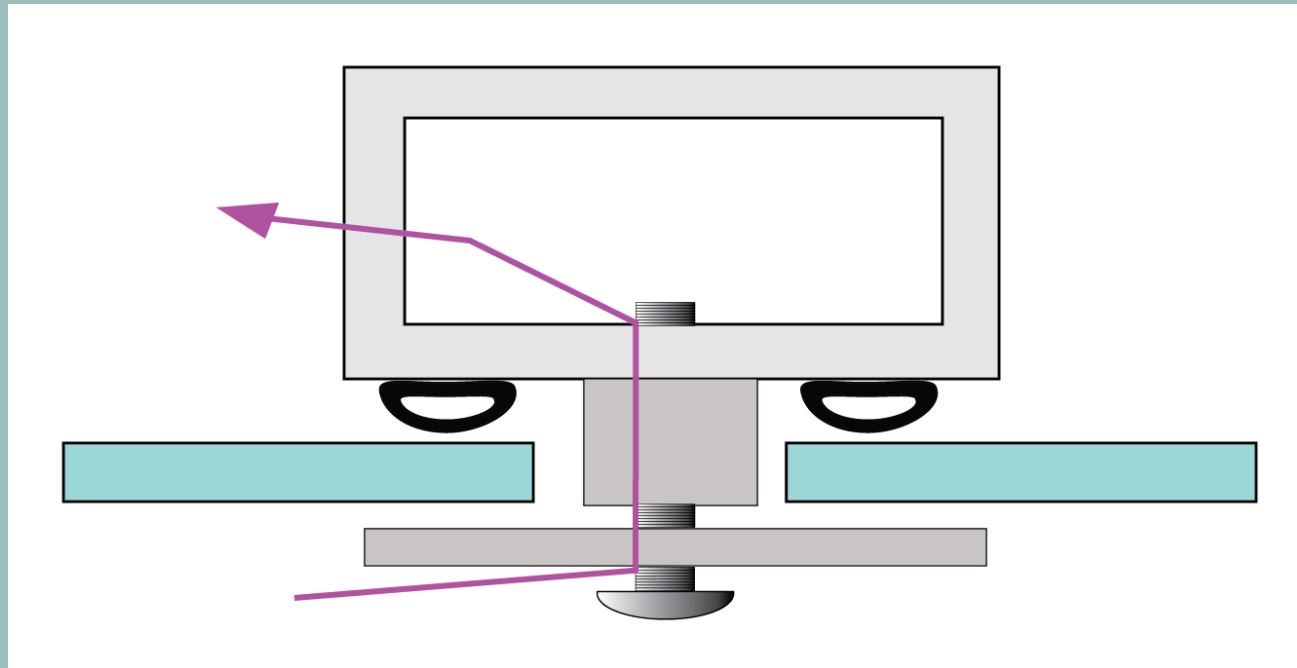




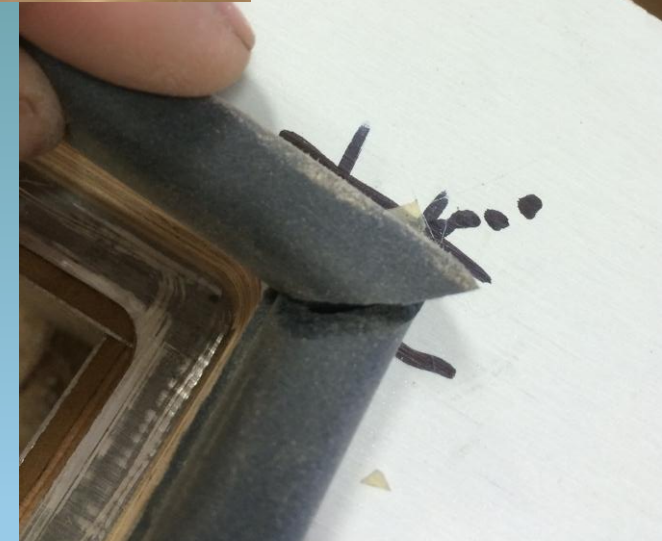
GLAZING

Pay close attention to how you
Will seal your glazing





These are
mullions
Developed
for our
China cases.



APPLYING GASKET

THE ULTIMATE CASE

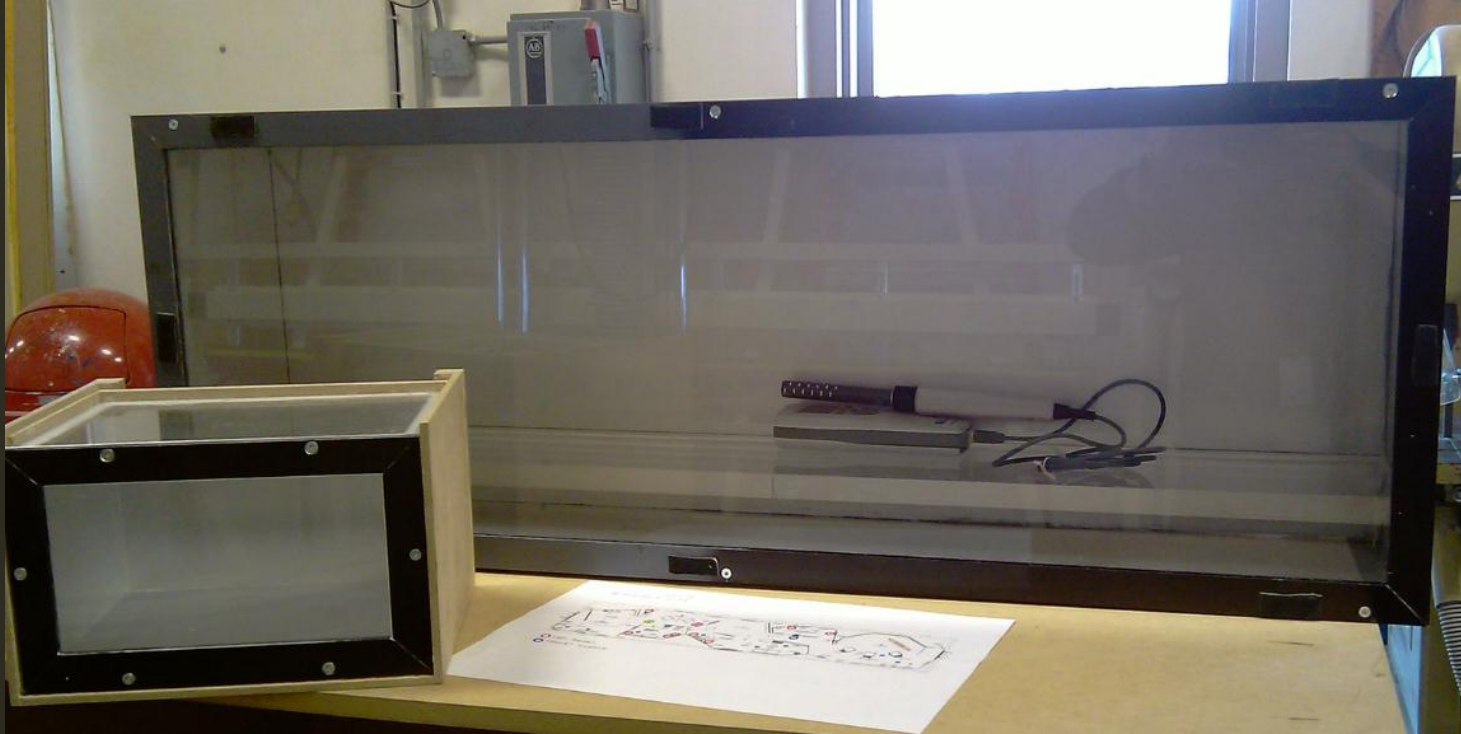
- HAS NO HARMFUL OR ACIDIC ELEMENTS INSIDE
- HAS LEAK RESISTANT SEAMS TO CONTROL HUMIDITY
- HAS CONTROL OVER LIGHT LEVELS
- IS BUILT TO MINIMIZE VIBRATION
- HAS PEST MEASURES – (IPM)
- HAS NO WIRE WAYS
- IS SECURE
- HAS CONTINGENCY BUILT IN (EARTHQUAKE/WATER DAMAGE)
- IS EASY TO USE
- LOOKS BEAUTIFUL

OBTAINING MATERIALS

Buy Sheet Products and Laminate Yourself

Talk to Local Suppliers, and Ask to be Put in Contact with a Company that can Laminate for You

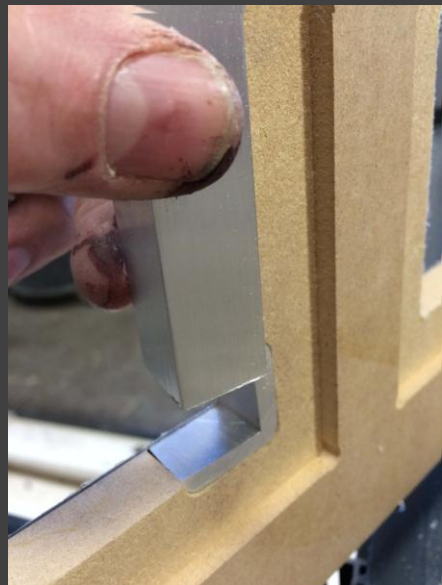
TEST EVERYTHING



We Test Air Exchange in Cases Using a CO2 Monitoring Device

All Potential Interior Case Materials are Oddy Tested

There are Several available Oddy Data Bases Online



The Next Generation

MAKING GOOD EVEN BETTER

Ease of Use

Inert Gas

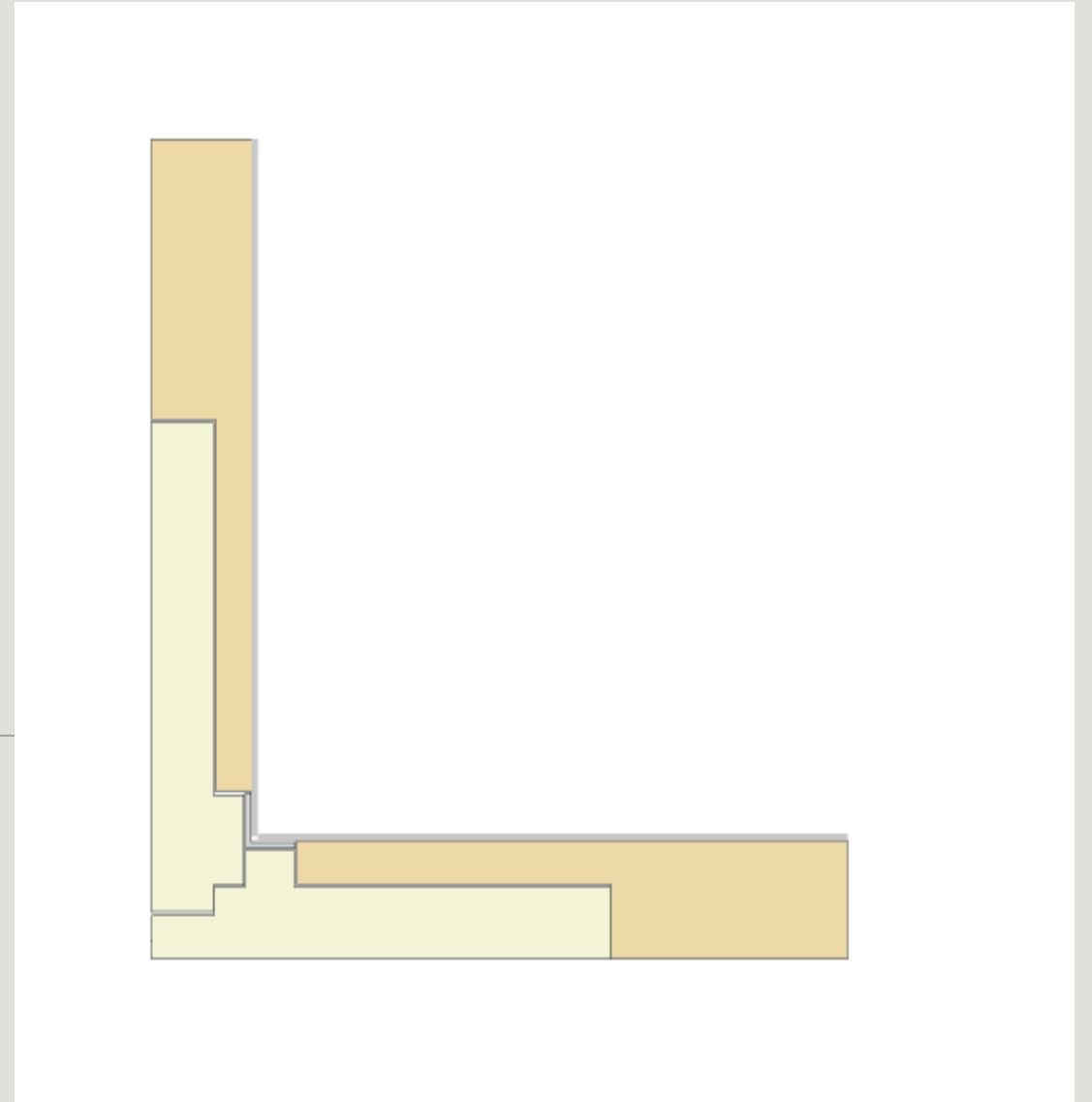
Redundant Joinery

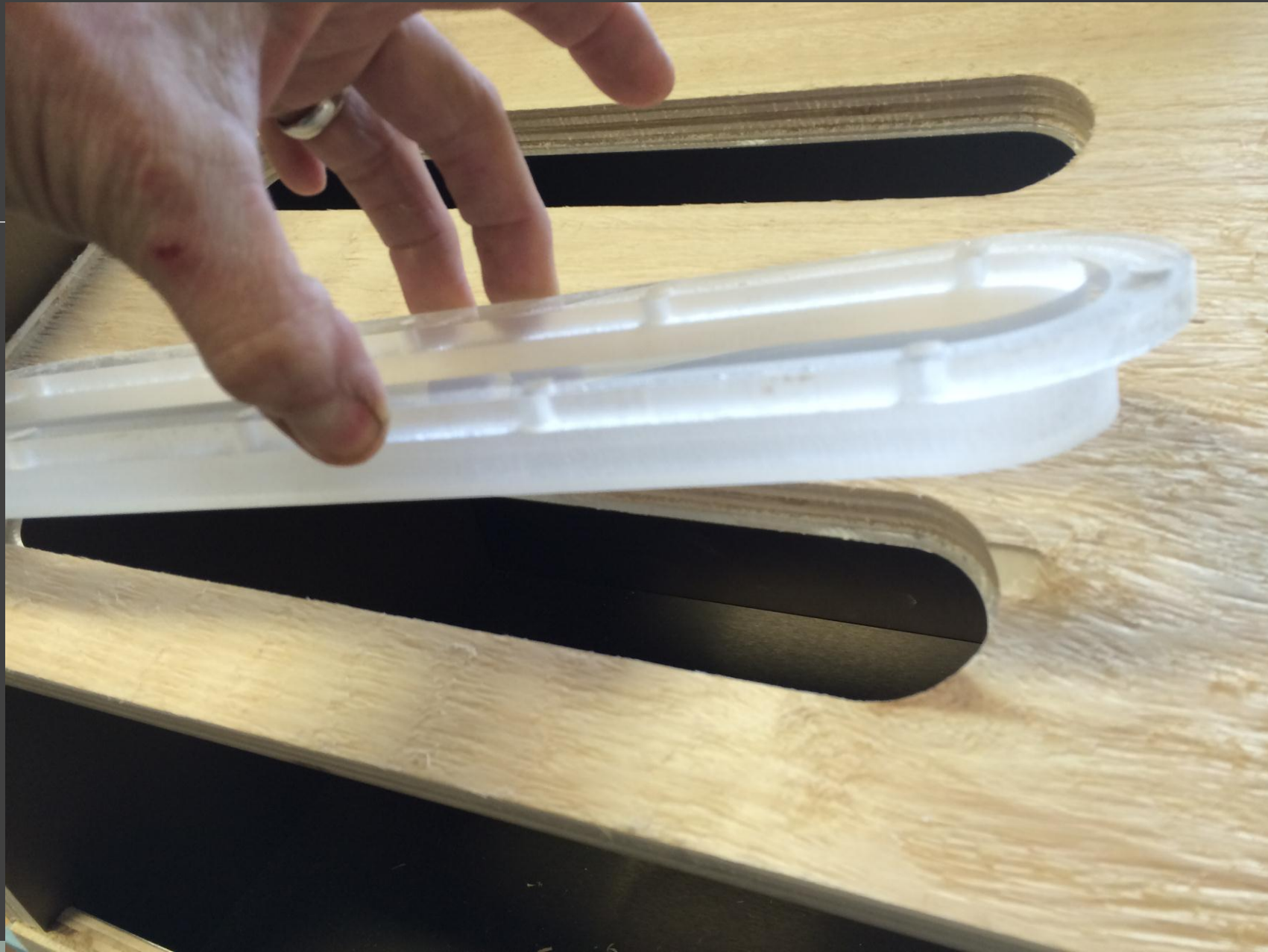
New Products

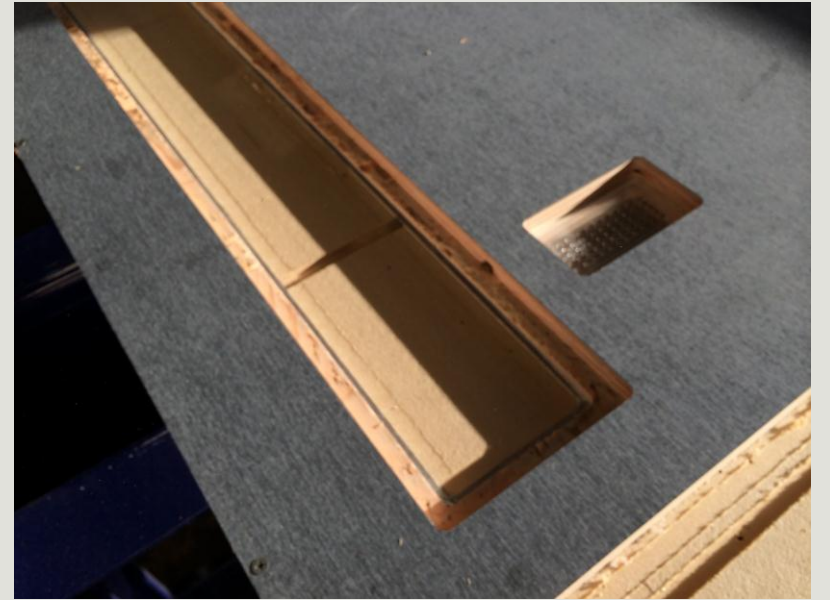
POWDER COATED WOOD

ACRYLIC

CERAMIC PAINT







Maker Joinery

THE OPEN SOURCE DIY REVOLUTION



THE DIGITAL REVOLUTION



Removing Wood from Case Interiors
can be Achieved by Building Cases
with Laminated MDF

THANK YOU



JP Brown

William Rollins

Justen Kanthack

Ray Leo

Ruth Norton

Shelley Paine

Shelley Smith

The Starbucks Guy

Eliminating Wood From
Case Interiors