



ZBrush Summit 2023

ZBRUSH TO MONUMENTAL BRONZE

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AMERICAN FINE ARTS FOUNDRY, INC.

Located in Southern California, American Fine Arts Foundry is one of America's oldest and most revered fine art foundries, having produced some of the finest historical and contemporary sculptural work of the past 40 years. We have been the foundry of choice for important historical works such as the Leonardo da Vinci Horse and Rider, The Norman Rockwell Sculpture Collection, and the art deco sculptures of Erte, as well as many of the finest contemporary



Angel Meza
Foundry Manager



Chris Delling
Sales Director

ZBRUSH TO MONUMENTAL BRONZE

- Typical ZBrush Workflows
- Typical Bronze Casting Workflows
- Considerations Before You Attempt to Blend The Two Workflows Together
- Process of Actually Blending The Two Workflows Together



BATMAN AND WONDER WOMAN



WHERE TO BEGIN?

ALEJANDRO PEREIRA

@ALEJANDROPEREIRASTUDIO



ALEJANDRO PEREIRA

@ALEJANDROPEREIRASTUDIO



ORIGINAL

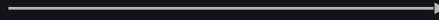


NEW

BASED ON A JIM LEE SKETCH FROM HUSH



DIRECT



JACK MATHEWS

@JGABRIELMATHEWS



ORIGINAL



NEW

BASED ON REBIRTH: WONDER WOMAN #18 BY JENNY FRISON



DIRECT



ZBRUSH WORKFLOW

- 1. CUT UP AND KEY THE MODEL**
- 2. ENSURE THE MODEL IS WATER TIGHT**
- 3. SET THE THICKNESS**
- 4. MAYBE YOU'D USE MAGICS TO HOLLOW THE MODEL OUT**
- 5. SEND IT OFF TO THE PRINTER**
- 6. VOILA!**

MAKE IT **BIGGER**





BRONZE CASTING WORKFLOW

- 1. MOLD**
- 2. WAX PULL**
- 3. WAX CHASE**
- 4. GATING**
- 5. SHELL**
- 6. BURN OUT**
- 7. METAL POUR**
- 8. KO & SAND BLAST**
- 9. ASSEMBLY & CHASING**
- 10. FINAL SAND BLAST**
- 11. PATINA**

MOLD MAKING



WAX GATING



SHELLS



METAL POUR



SAND BLAST



PATINA



**CONSIDERATIONS BEFORE YOU
ATTEMPT TO BLEND THE TWO
WORKFLOWS TOGETHER?**

COMPOSITION



ONE CONTIGUOUS SURFACE



COMPOSITION

- Brought cape in closer to leg
- Removed utility belt and back detail
- Made cape single wall vs double wall
- Rounded off and added thickness to blades on gauntlet



COMPOSITION



RESOLUTION

- For Batman, Alejandro punched up the detail across the board, with special emphasis on the utility belt and cape

7.5ft



7in



RESOLUTION

- For Wonder Woman, Jack did the same but also added additional detail in the new composition

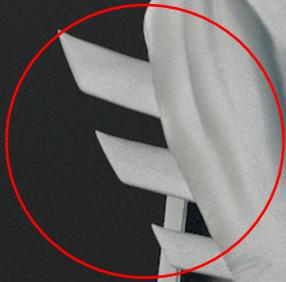
15in



7.5ft



SAFETY



Pinch Points and Sharp Edges

- Needed to round off and thicken the blades on Batman's gauntlets
- Needed to bring the cape closer to the top of Batman's calf to close off a potential pinch point

SAFETY



Sharp Edges and Pedestrian Hazard

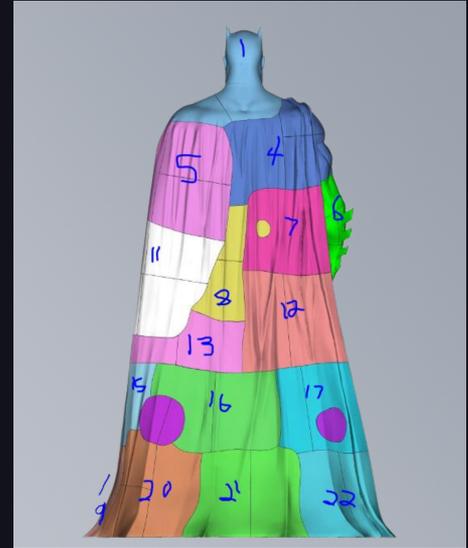
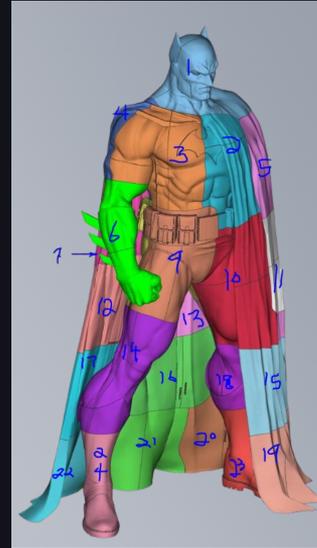
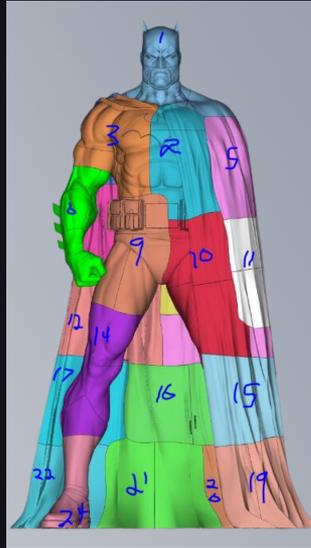
- Needed to completely remove the spear
- Also needed to completely remove the cape

**HOW DO WE ACTUALLY BLEND THE
TWO WORKFLOWS TOGETHER?**

SECTIONING THE PARTS

Working with Form3D

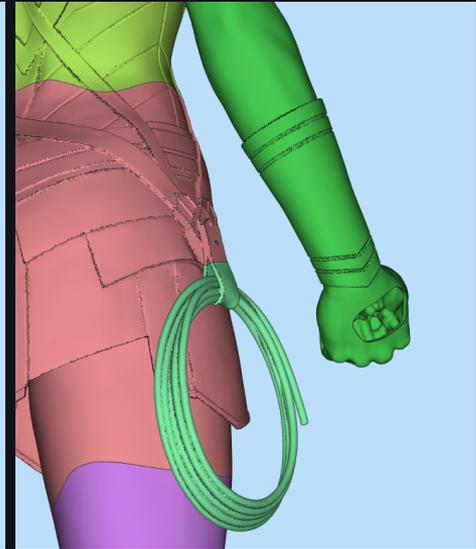
Since we have one contiguous surface to work with, we collaborate with our printing partner Form3D to determine where to make the cuts in a way that makes the most sense for future casting and welding.



SECTIONING THE PARTS

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PRINTING



PRINTING

Vx1000 Build Platform



01.

BUILD VOLUME OF 1000MM X 600MM X 500MM

- Build platform is larger, allowing us to print larger panels

02.

RECOATER APPLIES PMMA (POWDERED ACRYLIC)

- Applies uniform layer of PMMA at 100-150 micrometers

03.

PRINT HEAD DOSES THE BINDER (CYANOACRYLATE)

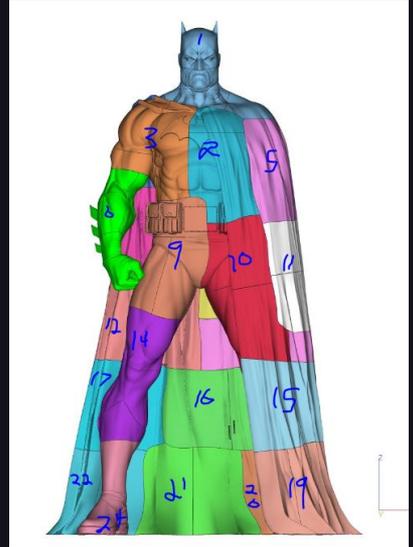
- Vertical build speed of 18mm per hour

PMMA PANELS

Wax Infiltration

Wax Infiltration

1. Makes the PMMA combustible so it can be burned out of the shell
2. Stiffens the material so it doesn't collapse during shelling
3. Gives us a surface that's easier to clean up like a traditional wax



BRONZE CASTING WORKFLOW

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THE FINISHED WORK

Installed outside of Burbank AMC 16

Batman Installation

Here we see multiple images of Batman installed outside of Burbank AMC 16 on behalf of the City of Burbank and the "Visit Burbank" campaign.



THE FINISHED WORK

Installed outside of Burbank AMC 16

Batman Installation

Here we see multiple images of Batman installed outside of Burbank AMC 16 on behalf of the City of Burbank and the "Visit Burbank" campaign.



THE FINISHED WORK

Installed outside of Warner Brothers Visitors Center

Wonder Woman Installation

Here we see a couple of images of Wonder Woman installed outside of the Warner Brothers Visitors Center on behalf of the City of Burbank and the “Visit Burbank” campaign.



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