

THE NAHAS CONSOLE TABLE

ANNA DUGARD USES 3D PRINT TECHNOLOGY TO CREATE 'NATURAL' FORMS



MAIN PHOTOGRAPH BY SIMON ELDON. STEP PHOTOGRAPHS BY ANNA DUGARD

- 1 The initial concept ideas were all hand drawn
- 2 The 3D forms being shaped to fit together, note the dowel holes
- 3 The complete 'dry' assembly carefully aligned
- 4 Metal dowels in place and an unfinished interior
- 5 The legs mounted for spray coating
- 6 The leg components secured to a flat board while they are glued together with epoxy

The Nahas console table was made using the rapidly developing process of 3D printing, which offers the ability to create complex forms with a very efficient use of materials. The design of Nahas was inspired by the growth of natural forms – the fluted legs echo flower stems and the textured trumpets resemble long-necked flowers. The brass finish will age over time, adding character and also providing the name Nahas, meaning brass in Arabic.

3D AND CNC DESIGN

I recently graduated from a 50-week design and make course at Robinson House Studio Furniture School (RHS) in East Sussex. I enjoyed the traditional woodworking skills but came into my element once I had the creative freedom to work with mixed materials and experiment with new processes. With access to 3D printing for prototyping and a CNC machine, I was keen to use these facilities for my first project.

Before my time at RHS I worked for a retail design agency in Dubai, and maybe that's what inspired the brass finish and Arabic name of the table. With an undergraduate degree in

product design and a keen interest in design and engineering, I now want to pursue a more hands-on career in furniture.

A EUREKA MOMENT

After a weekend spent doing all the available Fusion 360 3D CAD tutorials, I set-to and started translating my vision for this piece into CAD, printing prototypes at the studio until the design was refined. My initial intention was to CNC the console table out of high-density model board. However, after early testing on the CNC machine it became apparent that this was not a viable way to make the table. Then I had a eureka moment! Why not have the table 3D printed in full size?

The technology is available to 3D print the table as a single component, but as a student making my first piece of furniture the cost was prohibitive. Using smaller printers and splitting the design into multiple components made the project viable. The design was split into 10 components and printed by a UK manufacturer in biodegradable plastic. Interlocking fittings allowed easy assembly of the parts and stainless steel rods were used to reinforce the legs. The rough surface of the 3D print



7 The turned brass fit, which will be attached later 8 Progress so far, all bonded together ready for the next stage
 9 The deep cone shape in each leg component 10 The tops of the cones coated with metallised paint which is being rubbed back
 11 The brass effect starts to appear as if by magic 12 Now for the legs – a respirator is essential because of the metal dust generated

13 Metallic shine versus base yellow paint 14 Now very shiny, the more you rub the higher the shine
 15 The turned brass feet with hex head for adjusting them 16 An amazing texture created on the top surfaces
 17 A very unique finish can be created by careful paint application

and the fabrication joints had to be smoothed using abrasives, body filler and self-levelling resin and then primed before the finish could be applied.

BRASSED ON

The brass finish is essentially a paint packed with metal particles of copper and zinc. It is applied to the surface, allowed to cure and then cut back and polished. I applied the brass paint to the

legs using a spray gun. Working with such an innovative product on the complex form presented challenges. With little working knowledge of this expensive product, after a few test sprays I had to bite the brass bullet and spray the table. In order to achieve a consistent finish, the table needed to be sprayed in one session. Too little paint, and there is not enough material to cut back and polish, too much and it will run because of the weight of the brass. The first spray of the table did not go to plan, so I decided

to sand the paint back to the primer and try again – a costly decision in terms of time and material, but a necessary one. The subsequent spray was much better, allowing for the brass paint to be polished to a consistent high shine finish.

‘THAT MOLTEN MAGMA LOOK’

I envisaged the trumpets having a more naturalistic, textured finish. After experimenting with different methods of applying

the brass paint I was confident that a molten magma look could be achieved, a finish I had not seen before.

The table sits on adjustable solid brass feet. I turned these and fabricated them with stainless steel threaded bar to allow for adjustment. An organic formed profile of CNC’d glass creates the table top and echoes the form of the table. This was drawn in CAD and subcontracted to a specialist glass manufacturer to achieve the unique form with a polished edge.



THE FINAL OUTCOME

The design and build of the Nahas console table took 15 weeks and used 5.8kg of biodegradable plastic and 5kg of metal paint. I couldn't be happier with the piece and it has fulfilled my design vision entirely. As a first project it was ambitious, but it's my nature to push boundaries and my own abilities.

FUTURE SPACE

I'm writing this a month after finishing my studies, so what's next? I am setting up a workshop in a garage space that has been lent to me, developing my metal working skills with a local fabricator and helping out at Robinson House Studio, which is moving to new state-of-the-art premises. I've had a great response to the console table, and hope my recently completed Dawn Wall drinks cabinet, made in pear with Lycra upholstered doors, will be similarly well received. I am excited to see what the future has in store for me and am ready for the challenges ahead.

I am approaching my new career with an open mind, and would love to hear about any opportunities, collaborations or commissions. My latest work can be found on Instagram. Don't be a stranger, say hi!

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