Documentation

Freeform Modeling Workshop

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Typografie/Bild/Layout
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Kommunikationsgestaltung II
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Hochschule für Gestaltung
Schwäbisch Gmünd

Table of Contents

Ideation

Topic Selection

We selected the *Freeform Modeling Workshop* from a list of various workshops of the Hochschule für Gestaltung Schwäbisch Gmünd:

- Print Workshop
- Wood Workshop
- Metal Workshop
- Rapid-Prototyping/3D Workshop
- Photo-/Video Studio
- * Freeform Modeling-/Clay Workshop
- Prototyping Lab
- Media Lab
- Hackerspace
- Aquarium

The Freeform Modeling Workshop, which is taught and overlooked by Prof. Volkmar Meyer-Schönbohm, consists within it the clay workshop, the gypsum workshop and the ceramics workshop. Out of these three, we decided to focus on the clay and gypsum workshops for documentation and brochure making.

Brainstorming

Our primary research for the freeform modeling workshop revealed the various materials, tools, texture of processes of clay and gypsum. With some basic knowledge of the fundamentals of freeform modelling, we were ready to delve deeper into building upon that knowledge and finding additional themes and concepts for the brochure.

Ideation

Brainstorming

The group agreed upon the idea of having a common theme to the brochure in order to communicate more than just the technical knowledge and information in the brochure. Numerous themes and topics were explored.

A selection of the explored topics:

- Calmness and tranquility:
- Meditative experience:
- Space and time:
- New media vs old media:
- Hands on creating;
- Evolution of form:
- Creation and destruction:
- learning to let go:

Research
Interviews

Several interviews were conducted in order to get the objective and subjective information out of the people working in the freeform modeling workshop

Volkmar's interview

Interview Topic
Introduction to the workshop

Interview Format
audio recording

Interview Duration
21.3 mins

In an introductory interview of Volkmar, he showed us around the workshop and explained to us the various aspects and process of clay and gypsum.

Student Interviews

Number of Students
3

Interview Topic
Meditative experience of clay and gypsum

Interview Format
Audio recording

Interview Duration
46 mins

Student 1
"Clay is a magic medium where it has the ability to grasp feelings that may seem intangible. It is earthy & primal and brings us back to our inner child where we can play and be more spontaneous. When we couple this with learning and practiwcing new found skills mindfulness meditation, we can discover a deeper sense of wellbeing"

Student 2
"Here, you can enjoy time for yourself and unwind whilst releasing feelings, creativity, thoughts and hopes into the responsiveness of clay. You'll also learn and become skilled in mindfulness so you can easily connect to the calm"

Student 3
"It's very meditative. It turns off a higher level of thinking. You have to let go and give in to the unpredictability of it. You can go in with an idea of what you want to make, and the clay doesn't want to do that."

Content

Topic Research

Our content research drew from various sources, including our user interviews, personal experience working in the clay workshop, and a large collection of texts given to us by Volkmar. We synthesized these various sources into a cohesive text for our handbook.ww

平スクレイバー Plane Rake

三角スクレイバー Triangle Rake

両Rスクレイバー Radius Rake

卵スクレイバー Oval Rake

0.3mm

0.3mm程度中央部がふくらんでいる刃先の幅のサイズ（単位mm）によって100，75，50などと呼ばれる．

Plane rakes are classified by the width in millimeters of the blade tip (100, 75, 50, etc.), which swells about 0.3mm in the center.

鋼刃は削り抵抗が小さく，面を平滑にしやすい．

The saw-blade rake's scraping resistance is low, so surfaces can easily be made smooth.

スクレイバー

盛りつけたクレイを削り取りながら形を整えるツールがスクレイバーである．クレイの面を平たく，あるいはゆるやかな曲面に削り出すのが平スクレイバー（アメリカではプレーン・レイクという），粗削りから細部まで大中小のスクレイバーを使い分ける．三角スクレイバーは平スクレイバーでは削りにくい狭く入りくんだ部品に使用．両Rスクレイバーは大きなインカーヴの仕上げに使う．卵スクレイバー（オーヴァル・レイク）は丸い凹面や幅の狭い溝を彫るとき，あるいはインカーヴのR面の仕上げに使用．

Rakes

Rakes (or scrapers) are tools for shaping the clay as you scrape it off. Plane rakes are for scraping off the clay into flat or slightly curved surfaces. Various sizes are used for rough or fine scraping. Triangle rakes used for small, intricate parts difficult to use plane rakes on. Radius rakes are used for large inner curves. Oval rakes are used for creating round concave surfaces, carving narrow grooves, or for finishing off the radius of inner curves.

ワイアーエンド・スクレイバー

鋼線を曲げて柄をつけたもの．刃先はワイアーをつぶして平にし，片方の刃には細目を付けて削りやすくしてある．細部の仕上げ，鋭角部の仕上げ，部品の削切に使用．

Wire end rakes

These are rakes on which steel wire is bent and a handle is attached. At the tip of the blade, the wire is flattened, and one side is jagged to make carving easier. Wire end rakes are used for finishing details and sharp edges and for cutting parts.

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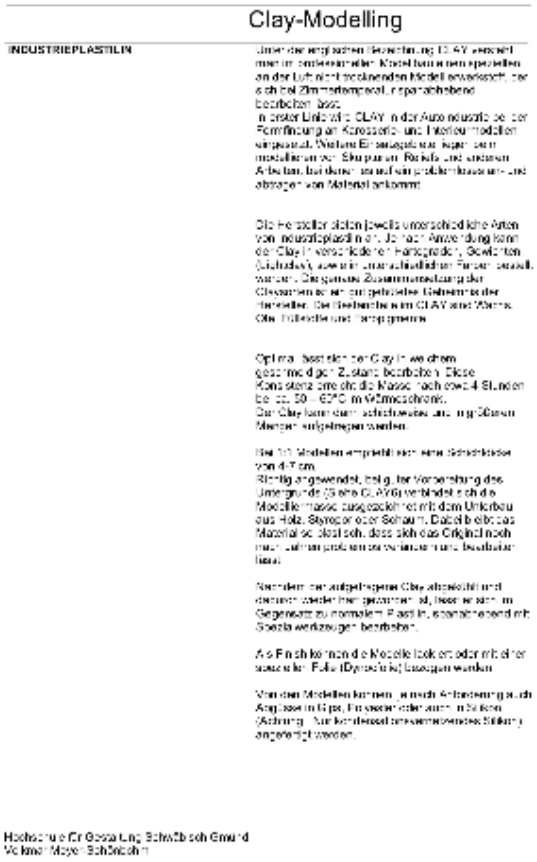


Clay-Modelling

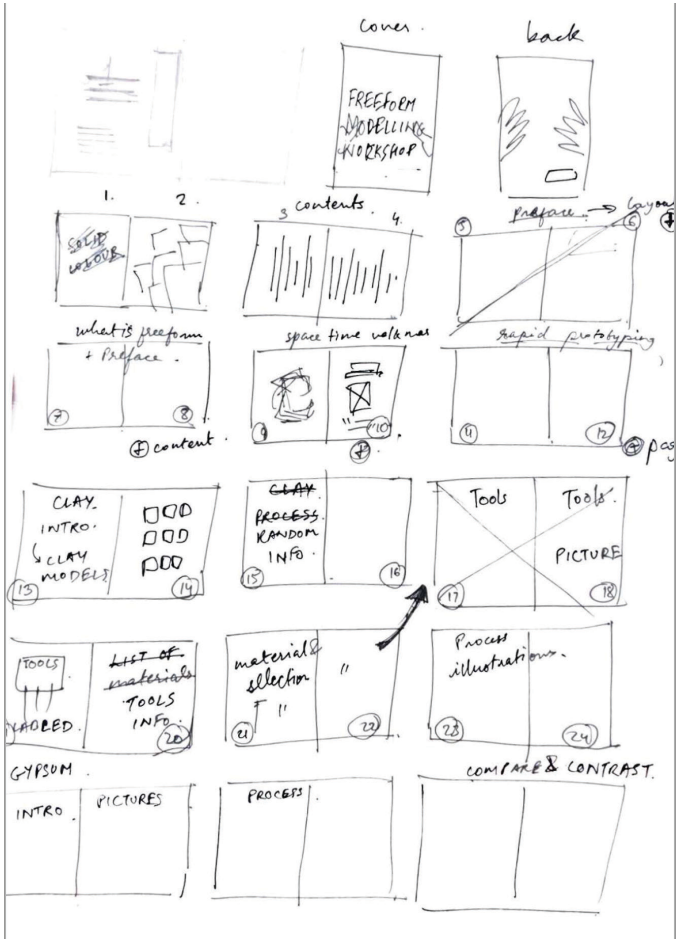
INDUSTRIEPLASTILIN

Hochschule für Gestaltung Schwäbisch Gmünd
Volkmar Meyer-Bohlscheid

Content

Page Hierarchy

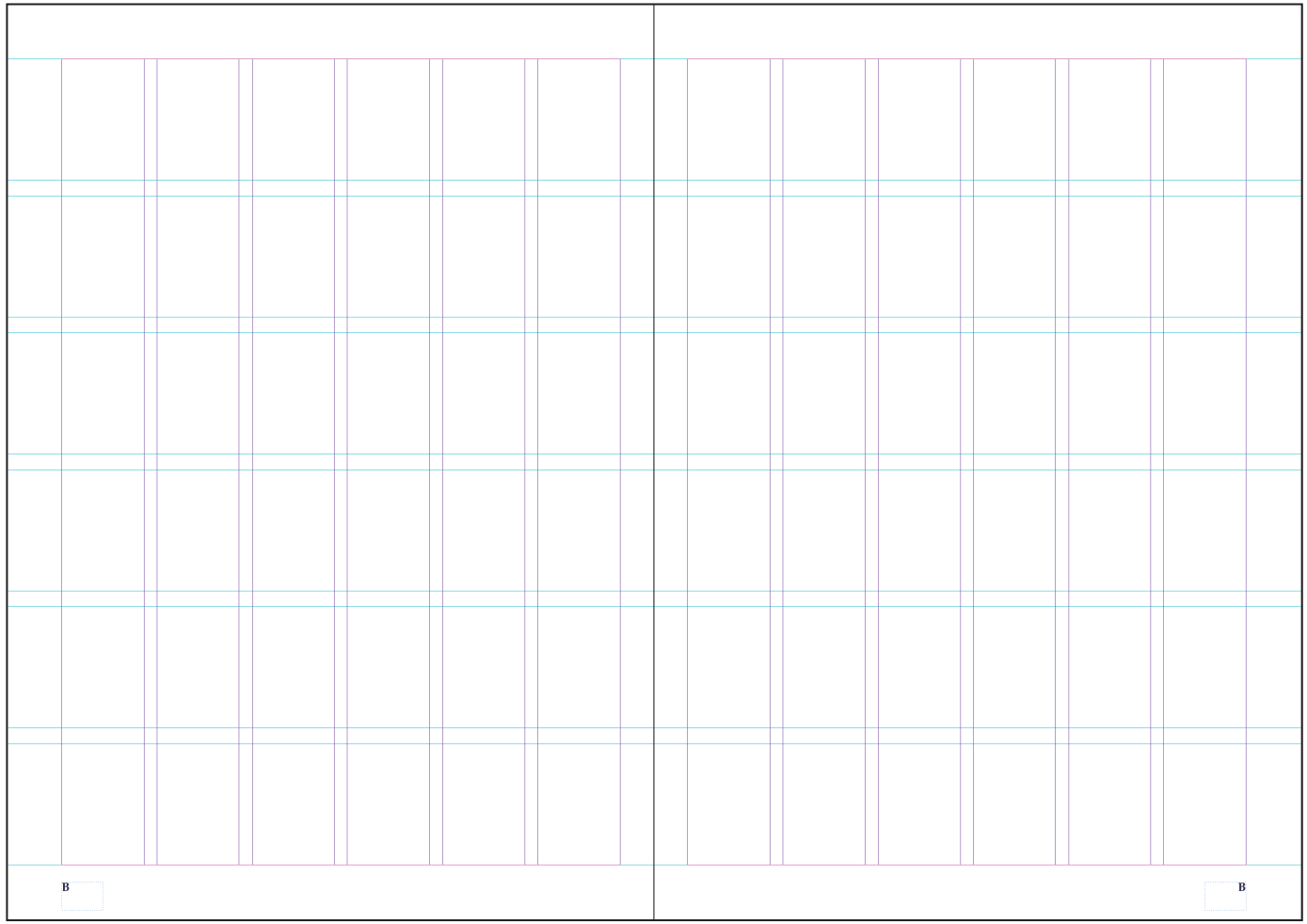
- Cover page
- Inner Jacket
- Preface
- Space, Time, Volkmar
- Freeform modeling in general.
- Rapid Prototyping
- Clay
  a. List of Materials
  b. Advantages & Disadvantages
  c. Tools
  d. How To Make A Clay Model?
- Gypsum
  a. Advantages & Disadvantages
  b. How To Make A Gypsum Model?
  c. Scraps and Models
- Meditative Experience
- Acknowledgements



Typography
Grid and Layout

The size of the page is A4 with measures of 210 × 297 millimeters.The margins are set at 12.7 mm on all sides. The size of the margins gives the content a general shape, which is a rectangle, in this case.

We used a 6x6 modular grid to organize the text comfortably and in a manner that is easy to read. Since modular grids have equal size modules, this made it easier for us to “break the rules” and use the various spatial zones in different ways. The gutters are equally spaced at 4.7 mm in order to maintain a visual balance.



Typography
Typefaces

GT Sectra

GT Sectra is a serif typeface combining the calligraphic influence of the broad nib pen with the sharpness of the scalpel. This sharpness defines its contemporary look. Since clay and gypsum are both subtractive media, that are usually shaped with the help of a chisel, we decided to go with a font that exudes a sharp and chiseled vibe for out headings.

Lorem Ipsum

GT Sectra Display Regular (60 pt and above. Not to be used with pastel or dull color)

Dolor Sit Amet

GT Sectra Fine Bold (30 pt to 59 pt. Can be used over 59 pt if in a pastel or dull color)

Typography
Typefaces

Palatino

Palatino is elegant and smooth, with delicate, straight lines, as well as fun swooshes (such as in the lowercase “g,” “a,” and uppercase “Q”) that carry traces of the personal feel of handwriting. Perfect for longer passages of text, Palatino is a typeface that is most commonly used in books and journals.

Despite the rise of digital tools and rapid prototyping, it has never been more important for designers to make things with their hands. Comfort with three dimensions as a sketch and development tool enhances a designer’s sensitivity to form tremendously, and helps them understand how products are made in the real world. If you can build it, you’re halfway to knowing how it could be manufactured. Building models by hand is fundamental to Industrial Design—it’s what makes our profession a craft. Spending time with CAD makes you a better modeler, but spending time with a physical model makes you a better designer. It allows you to see your design in the real world, in a way that simply superimposing a rendering into an environment cannot replicate. The practice of validating ideas through physical prototyping, whether it be quick and dirty paper mock-ups or high fidelity Clay models, is slowly dying. There needs to be a resurgence of prototyping within the modern work-flow of industrial designers A slight shift in proportions can make a world of difference in how someone perceives the appearance, function, and value of a product. The automotive industry is a great example of how shifting proportions can lead to very different emotive values within form.

Palatino Linotype Regular (10 pt , for body text)
Leading: 12 pt

“ It enables us to intuitively create a form that appeals to people’s hearts and mind.”

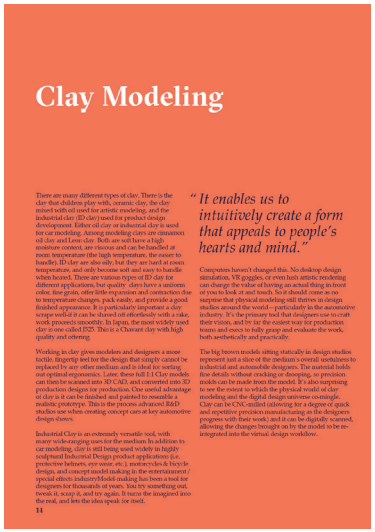
Palatino Linotype Italic (24 pt , for Pull out quotes)
Leading: 25 pt

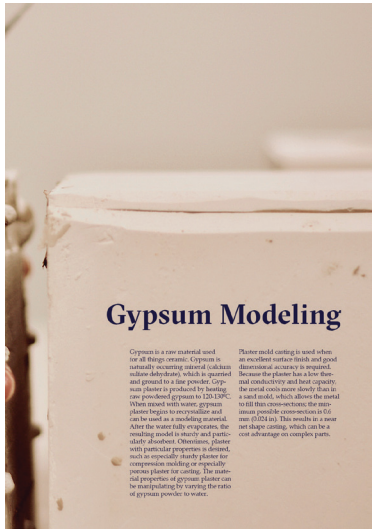
Shape the model (roughly) with your hands

Palatino Linotype Bold (24 pt , for Pull out quotes)
Leading: 28 pt

Typography
Spacing

The spacing changes depending on the content of the spread. Nevertheless there are a few fixed ways in which we have arranged the text and created a suitable hierarchy

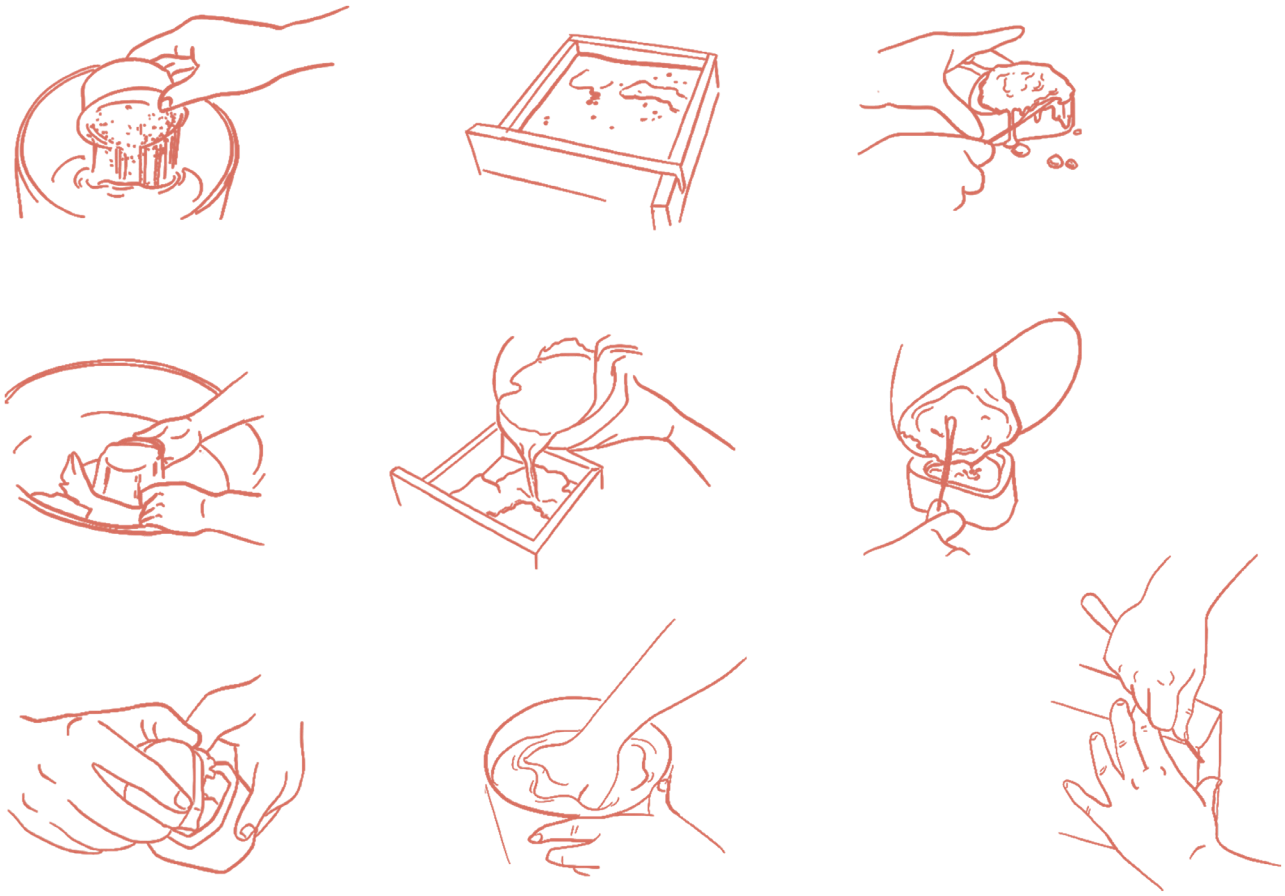




Illustrations

Process diagrams

The illustrations are an integral part of the brochure that have been used to showcase the processes of making a clay and gypsum model. The style of illustrations that have been used are outline illustrations that focus into a singular task of the clay and gypsum making process. These raster illustrations are stylized in a way so as to seem rough and handmade, much like the process of freeform modelling itself.



Photography

Session 1

Elements that form the foundation building blocks for these photographs are Texture, Shape, Form and Space. The moods of the photographs are created by both the lighting and the subject itself, which happens to be warm and intimate. Photographing clay was rather organic a process, spending more and more time in the clay lab allowed us to see the relationship between the material and the designer. This intimate bond translated into a theme in very many pictures for us, where the skin of the designer and the brown of the clay forms and melts into some really coherent images.

Photography
Session 2

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Photography
Session 3

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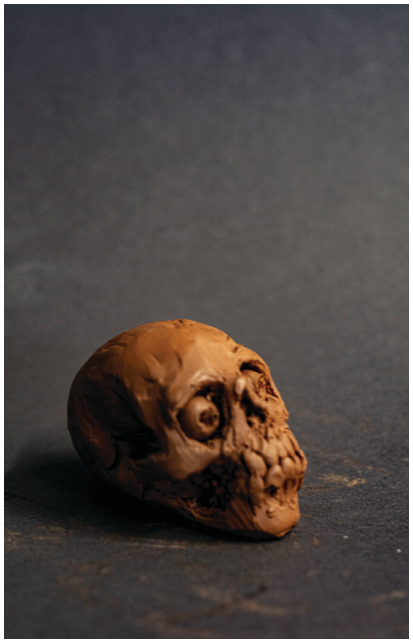


Colors

The colours that have been used are inspired directly from the tones and hues of the materials. The clay presents a warm brown tone that has been accentuated to make the colour a pastel shade of orange #d97162. The gypsum gives us the off white colour that has been accentuated in order to make a slightly warmer shade of beige of the hexcode #f5e6d3. All the colours incline towards warmer tones in order to reflect the space of the freeform modelling workshop itself, which is warm and comforting

Orange #d97162

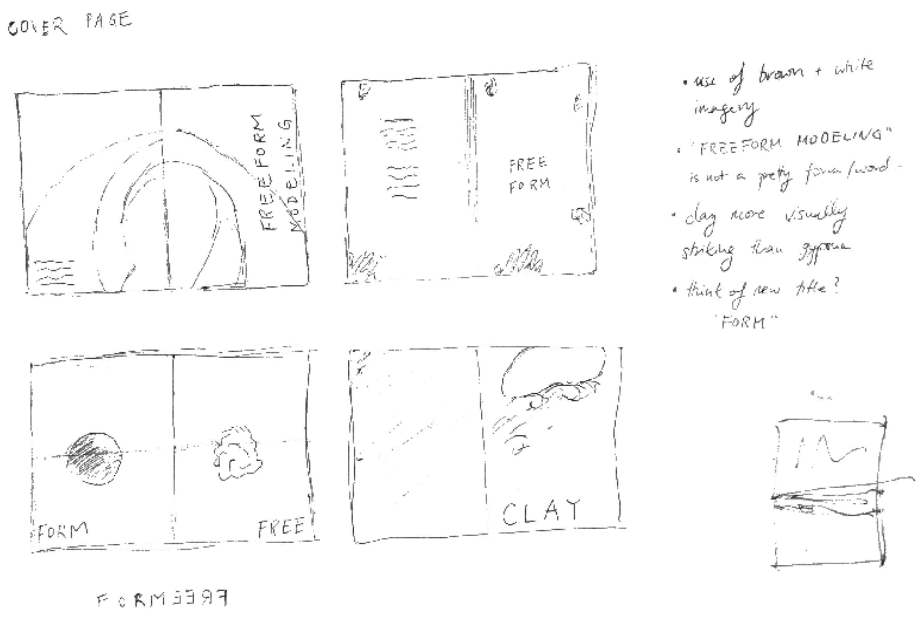
Beige #f5e6d3

Violet #1f1a41

Black #ffffff

Initial Layouts

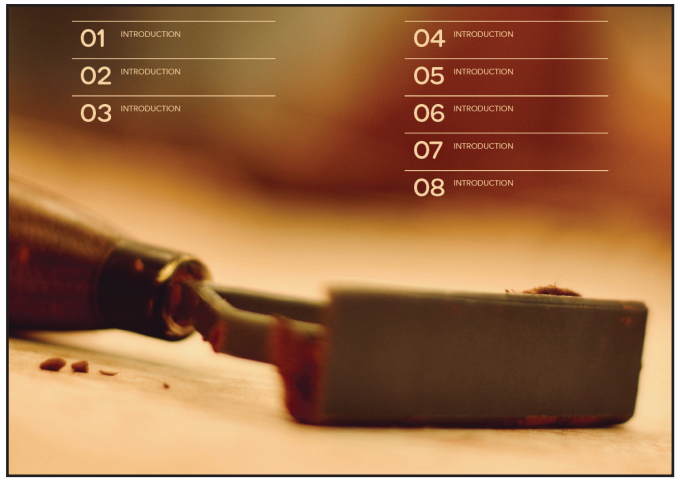
Sketches



Initial Layouts

1st Iterations

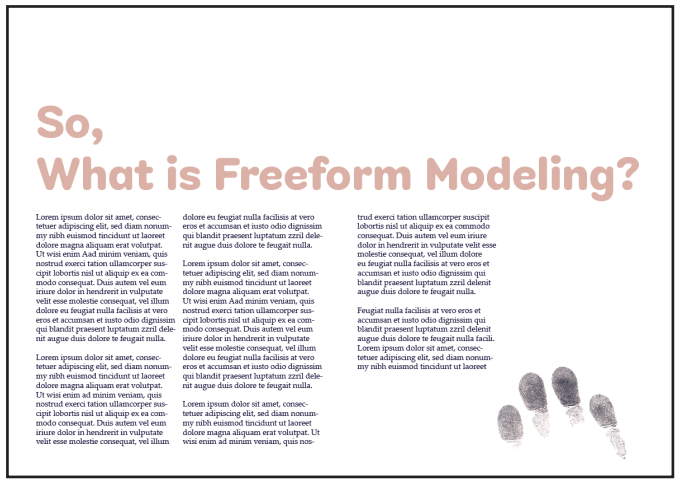
The initial layouts were tried at separately for each of the group members, with each person going with a different approach. Then we compared and contrasted each of the layouts, compositions and font combinations in order to figure out which one suited the theme the best and looked most elegant.

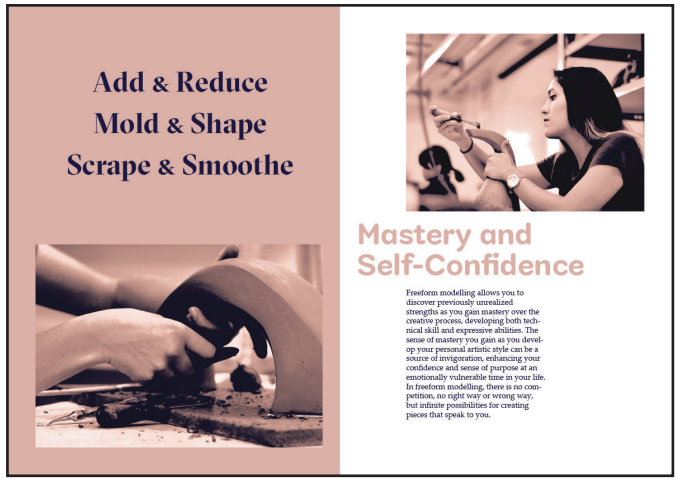


Initial Layouts

2nd Iterations

After the initial iterations, we moved onto to the next round of iterations wherein we used pictures from the documentation itself and tried various layouts in order to once again draw out comparisons and contrast among them.





Final Layouts

Title Page

Final Layouts

Accent Pages

Clay Modeling

There are many different types of clay. There is the clay that children play with, ceramic clay, the clay mixed with oil used for artistic modeling, and the industrial clay (ID clay) used for product design development. Either oil clay or industrial clay is used for car modeling. Among modeling clays are cinnamon oil clay and Leon clay. Both are soft have a high moisture content, are viscous and can be handled at room temperature (the high temperature, the easier to handle). ID clay are also oily, but they are hard at room temperature, and only become soft and easy to handle when heated. There are various types of ID clay for different applications, but quality clays have a uniform color, fine grain, offer little expansion and contraction due to temperature changes, pack easily, and provide a good finished appearance. It is particularly important a clay scrape well-if it can be shaved off effortlessly with a rake, work proceeds smoothly. In Japan, the most widely used clay is one called J525. This is a Chavant clay with high quality and offering

Working in clay gives modelers and designers a more tactile, fingertip feel for the design that simply cannot be replaced by any other medium and is ideal for sorting out optimal ergonomics. Later, these full 1:1 Clay models can then be scanned into 3D CAD, and converted into 3D production designs for production. One useful advantage of clay is it can be finished and painted to resemble a realistic prototype. This is the process advanced R&D studios use when creating concept cars at key automotive design shows.

Industrial Clay is an extremely versatile tool, with many wide-ranging uses for the medium In addition to car modeling, clay is still being used widely in highly sculptural Industrial Design product applications (i.e. protective helmets, eye wear, etc.), motorcycles & bicycle design, and concept model making in the entertainment / special effects industryModel-making has been a tool for designers for thousands of years. You try something out, tweak it, scrap it, and try again. It turns the imagined into the real, and lets the idea speak for itself.

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" It enables us to intuitively create a form that appeals to people's hearts and mind."

Computers haven't changed this. No desktop design simulation, VR goggles, or even lush artistic rendering can change the value of having an actual thing in front of you to look at and touch. So it should come as no surprise that physical modeling still thrives in design studios around the world—particularly in the automotive industry. It's the primary tool that designers use to craft their vision, and by far the easiest way for production teams and execs to fully grasp and evaluate the work, both aesthetically and practically.

The big brown models sitting statically in design studios represent just a slice of the medium's overall usefulness to industrial and automobile designers. The material holds fine details without cracking or drooping, so precision molds can be made from the model. It's also surprising to see the extent to which the physical world of clay modeling and the digital design universe co-mingle. Clay can be CNC-milled (allowing for a degree of quick and repetitive precision manufacturing as the designers progress with their work) and it can be digitally scanned, allowing the changes brought on by the model to be re-integrated into the virtual design workflow.

Final Layouts

Process Pages

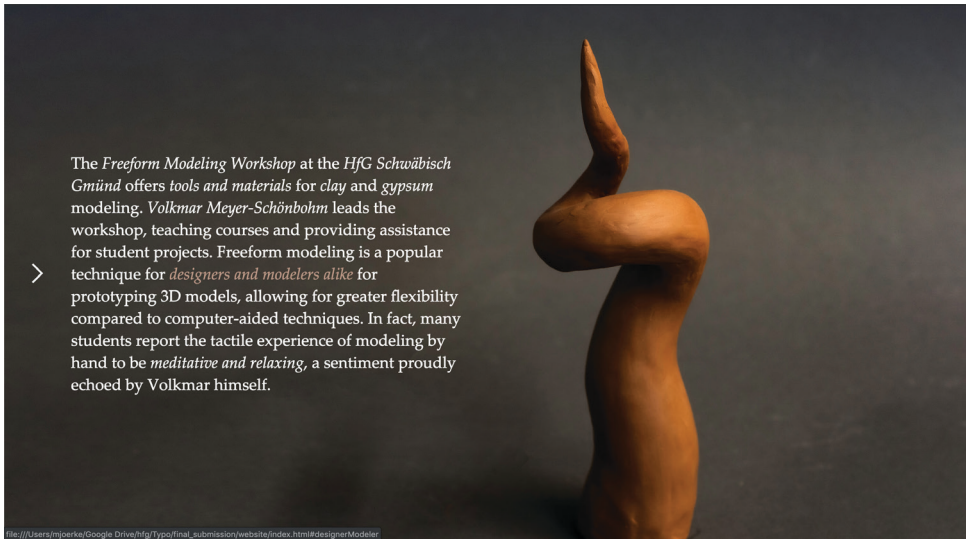
Final Layouts

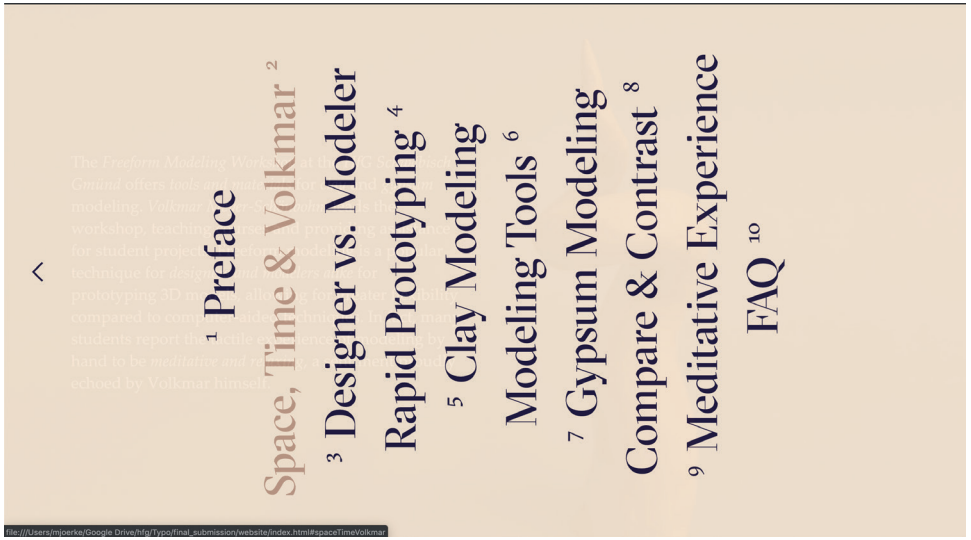
Content Page

Website

The website design adapts the brochure's design language to a digital, interactive context. The homepage features an introduction text with italicized, inline links to the individual pages. An arrow on the left invites the user to explore the slide-out navigation menu.

The navigation menu is a digital adaptation of the brochure's table of contents. The table of contents page, perhaps the most striking page in the brochure, is permanently accessible in the website adaptation. It is initially hidden, but slides out to reveal the individual pages. The website version makes each heading interactive, with functional links to the individual pages.

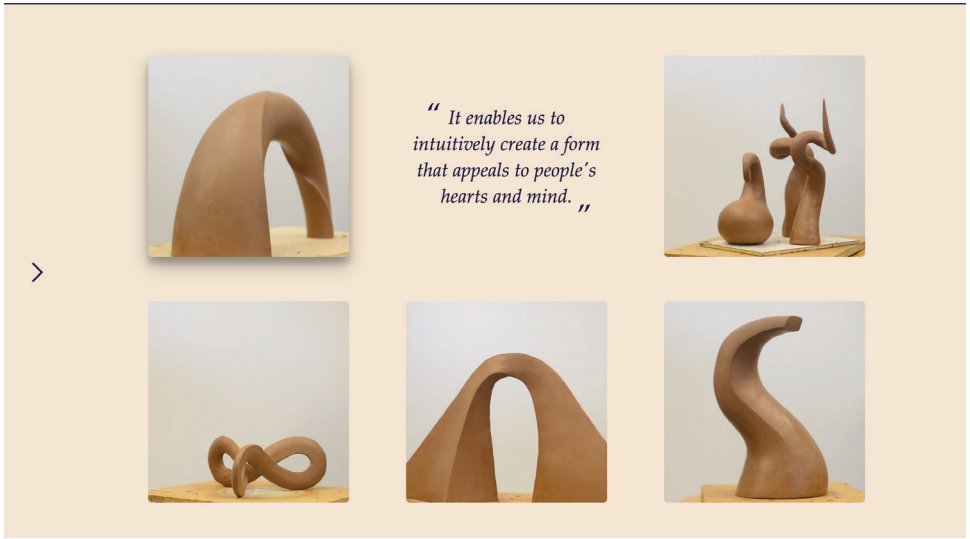




Website

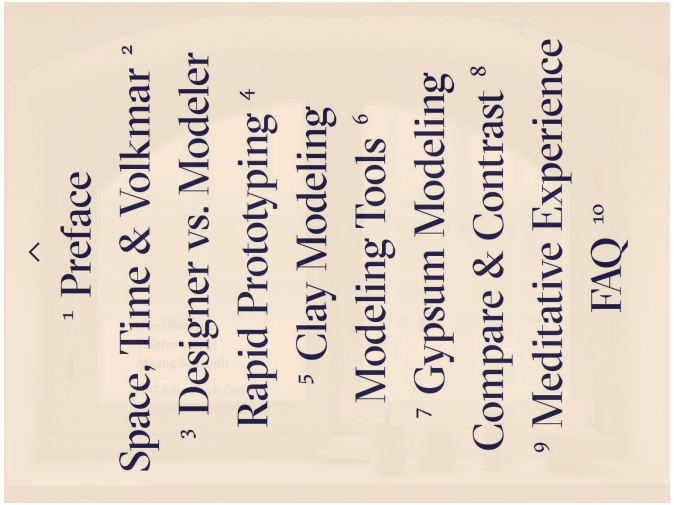
The main content navigation utilizes the javascript library fullpage.js to create full-height scrollable page sections, as opposed to the default continuous-scroll static page. This interaction forces the user to stop and consider the content of the page instead of impulsively scrolling to the bottom, echoing the meditative themes of the workshop. Content is formatted on a 3-column grid using a flexbox layout.

The clay modeling section features a grid of clay models from the workshop that begin to rotate on hover. A drop-show appears on hover to communicate that the elements are interactive.

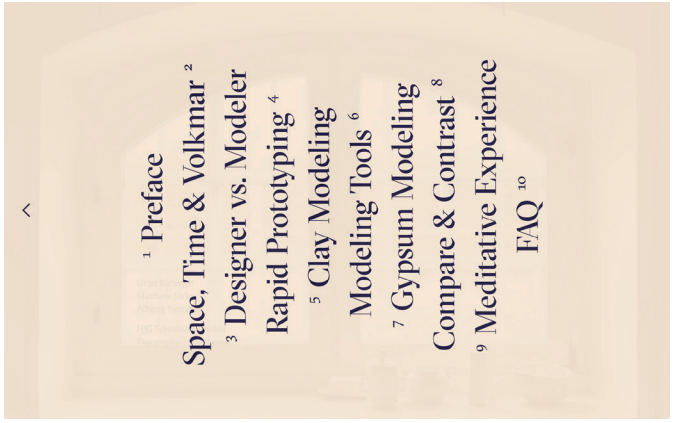


Website

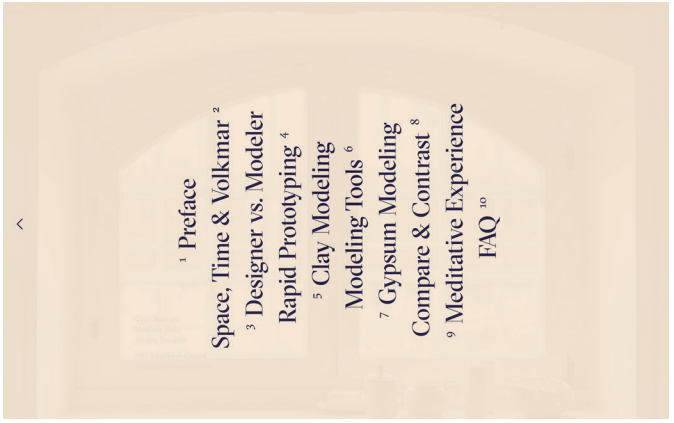
The website is intended for a laptop/tablet viewing context and is moderately responsive within these screen sizes. Exploring mobile device or desktop layouts would have been interesting to design, but given time constraints, we focused on the most general use case.



iPad (10")



Macbook (13")



Macbook (15")