

Project Three: 3 Weeks  
**Programmaterial**

The last stage of your design process was one of **form-finding**, in which form investigated **relations between bodies over time**. This is now to be used as an **analogue for the human body's relation to an architectural construction that changes over time in its form and programming**.

Therefore you will be investigating **materials that can accommodate the formal criteria** you now have. You will also **program the structure** as you would any architecture, with some idea of how these material and programmatic aspects will respond to a particular site later on (in the next unit of the semester).

**Steps:**

1. Begin with polyethylene as a base material, a known cheap and pliable surface that can be easily heat-welded to create inflatable structure rapidly. We will make a visit to the Materials Resource Library on Monday, February 27 to see a host of other materials used in pneumatic structures and to think about ways of creating your own from textiles not usually intended for this application.
2. Make small mockups to study the properties of the materials you uncover. Search fabric outlets, hardware stores, boating supply wholesalers, and any other sources for large area flat material that might meet your performance criteria. Keep in mind that some of you will have spaces that need to accommodate the body with a particular textile, temperature, hardness and so on. Don't just stop with the first material(s) you find! Rather, make a vast family of studies – at least 10 or 20. Try each out for different formal possibilities and at different scales.
3. One simple, primitive method for heat-welding materials such as polyethylene: a common household iron. Cover materials and iron and ironing surface with paper or it will stick. Try out different heat settings. A soldering iron works too, but it's hard to control. There are other options for you to explore at the special materials shop, including tools for heat welding.

**Chip Lord, co-founder of Ant Farm**, writes:

"In Ant Farm we worked with both polyethylene and vinyl. Polyethelene is of course garbage bag material and available in different weights. It can be taped together, but it is also possible to "weld" it with a regular iron.

This is all in the *Inflatocookbook* which we published in 1970!...

Also the Ant Farm Video dvd contains "*Inflatables Illustrated*" - a kitchen table how-to lesson in making them..."

4. One simple, primitive method for briefly inflating your mockups is with either a 2x2 box fan (about \$20 at a hardware store) or with an old vacuum cleaner on reverse or even a hairdryer (heat switched off!). There is a noise factor...
5. Start associating spaces with program(s). Both the spaces and the programs may shift during the structure's process of inflation, or simply at the will of an occupying body. This

is an extension of your idea of the relation between bodies, so it is up to you how it works. The actual program may remain highly speculative – this is not the place to be bogged down by saying “it’s an emergency shelter”, “it’s a house” – work beyond known types, invent.

6. We will also look next week at methods of dumping your 4D Maya model to DXF file and unfolding parts of it to 2D surface. This may produce starter patterns for cutting your materials, which in turn might lead you back to modifying your model afterwards. This is the nature of our process, which is explicitly *iterative*. This means that it is not intended to be wholly linear, but seeking, learning, evolving throughout the period of work. Welcome this messy hybrid of computer modeling and material study.
7. Very important! Document your entire process in **photos and in video**. You may check out digital and Mini-DV cameras from the Media Center. This is important as a means to document your process – which will be content for your podcast – but also to study how a material affects viewing. Does it frame it / block it / sharpen it? This will fundamentally set up parts of your final work in the next segment.

## **Schedule:**

### **Wednesday, February 22:**

Assignment distributed

### **Monday, February 27:**

Read Greg Lynn’s “Blobs” and all “Lightness” excerpts; gather materials meet in S19;  
Visit to Materials resource library; desk crits

### **Wednesday, March 1:**

Desk Crits

### **Monday, March 6:**

#### **Double Demo Day**

Special guest visit from Chip Lord, co-founder of seminal group Ant Farm, will visit the class and give a demonstration / talk on inflatables. After years with Ant Farm, experimenting with architecture at the edge of media art, Lord now teaches video at UC Santa Cruz.

Additional visit from Dr. Maurice Garcia of UCSF Medical Center. Dr. Garcia is a specialist in urology and in experimental medical devices, many of which he has patented. His work has one hand in surgery and the other in something like product design. He will present some examples of inflatable, implantable medical prosthesis – another take on design technologies in/on the body.

### **Wednesday, March 8:**

Pin-Up / Mid-Review – Have all final requirements at current state of development

### **Monday, March 13:**

Desk Crits

### **Wednesday, March 15:**

Final Review with guest critics

## Final Requirements:

Your final review for this requires a fully explored and working set of materials and a known program for your airpod.

- demonstrate the **materials** each in their **uninflated and inflated** states
- model each place where materials **interface**: how they connect, separate, cover each other, etc.
- specify the **programs** for the pod
- compile any computer models and 2D patterns along the process – use these also as a way to present that first program, viewing (in) architecture

## Note:

As we remember from the first brief case studies exercise, a “pod” is in some ways a word awaiting a definition: it describes a structure’s intimate relation to a body, but other than that it can serve many different functions and have many different scales, structural logics, materialities and so on. This is your chance to speculate on how yours will function, how you will define it.

Keep in mind that you’re in the middle of the process here. Your work is now in transit from a computer modeling process to a construction process. You are also making an architecture with a program of (tele-)viewing. After this you will be programming a video podcast that considers architecture, so there is a reciprocity between the two. You may eventually make the podcast a simple short documentary about the process of design and construction. You may also composite video from a TV show to make your pod the actual setting for the show (we’ll get into how to do this in a few weeks). Think ahead how you want to keep developing this “architecture of viewing.” It will later inspire your work in making a “viewing of architecture” in the video segment.