

A black and white photograph of a newborn baby lying in a neonatal incubator. The baby is positioned horizontally, with their head to the right. A large, circular viewing window on the right side of the incubator provides a close-up view of the baby's face. The text "the littlest patient" is overlaid on this circular view. The baby is wearing a white diaper and dark socks. The incubator's frame and various mechanical components are visible in the background.

the
littlest
patient

Neonatal Incubator Design
Gerry Hefferman

Initial Inspiration

establish an elegant
form language



identify positive
precedent



incorporate existing
solutions



facilitate psychological
security



establish emotional
connections



Initial Opportunities

equipment-driven
discomfort



equipment
clutter



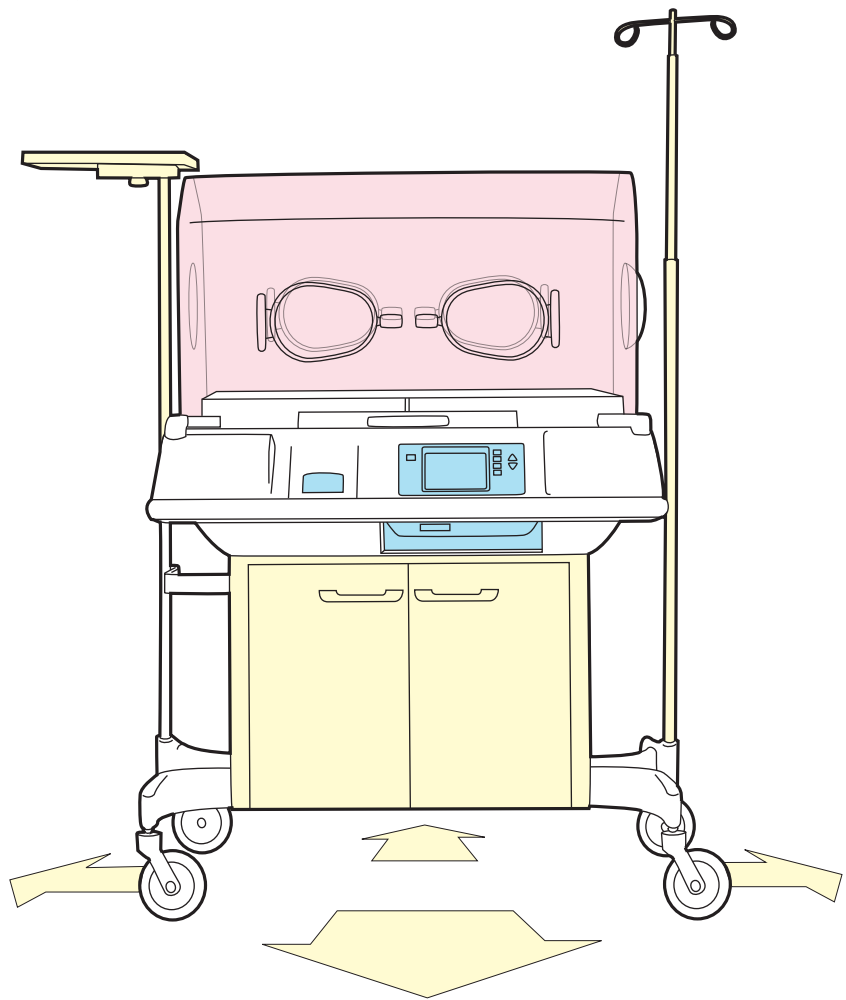
lack of mechanical
tube support



emotional and psychological
isolation



Design Intention



From Stark Confinement to Caring Protection

To move away from the 'fish tank' aesthetic that characterizes contemporary NICU incubators, replacing the cold, clinical object/patient relationship with a warm, inviting, and gentle dynamism.

Occam's Monitor: Streamlined Visuals and Interface

To create a control and display language between a medical professional and the incubator that is clear, intuitive, and malleable. Time is at a premium in the NICU, and seconds saved through clear communication and control can be immediately reinvested.

Harmonic Space at Every Scale

To create an exterior organizational system that helps to augment both the immediate exterior space surrounding the incubator itself and the surrounding supplementary equipment. Ideally, each unit would function as a node within an increasingly streamlined, purposeful spacial array.

Project Execution



Think Horizontally Work Practically

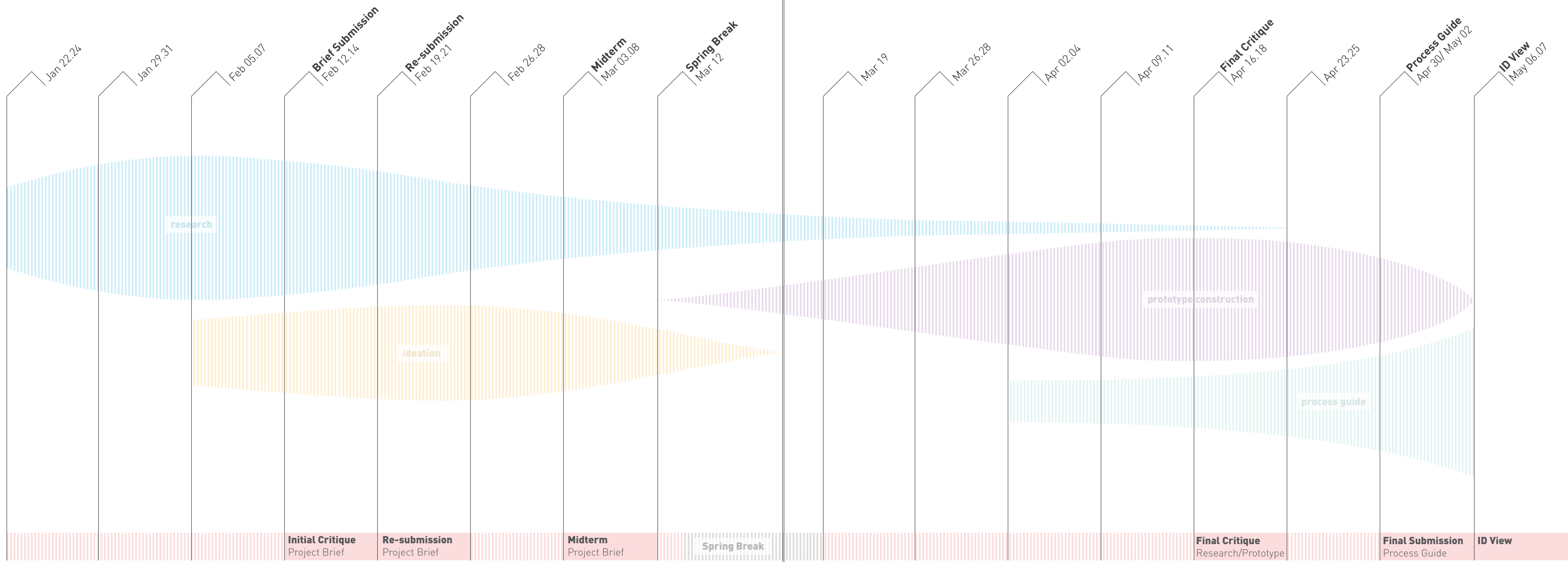
Begin by generating as many lateral concepts and solutions as possible, but be ruthlessly critical, employing the help of actual experts in the field. Solutions should be judged in terms of both practical and proportional beauty.

Sketch, Sketch, Sketch

Shaping the aesthetics and psychological character of the incubator while controlling and streamlining the surrounding environment are both key considerations that can be met head on through formal studies, allowing for the careful refinement of the spacial relationships that will ultimately characterize the object.

Use Research for Ideation and Validation

Read nursing manuals, compare existing products, and conduct interviews to develop a better understanding of the clinical environment. Identify particularly interesting avenues for concept generation and solutions, and validate each decision with corroborative research.



Research and Design

Research Interviews



Jennifer Hoard

Former NICU Nurse
Woman and Infants Hospital

A former NICU nurse, Jen came equipped with a great set of helpful suggestions and observations right off the bat. Here stories and anecdotes have been particularly helpful, vividly illustrating the challenges of such a hectic environment.

Dr. Andrew Arrison, MD

Obstetrician/Gynecologist (Retired)
Norwood Hospital

The doctor who delivered me, Dr. Arrison has added his own experiences and suggestions to the research process. He has been particularly helpful in finding further contacts, referring me to a group of practicing Neonatologists in the Boston area.

Dr. Geoff Binney, MD

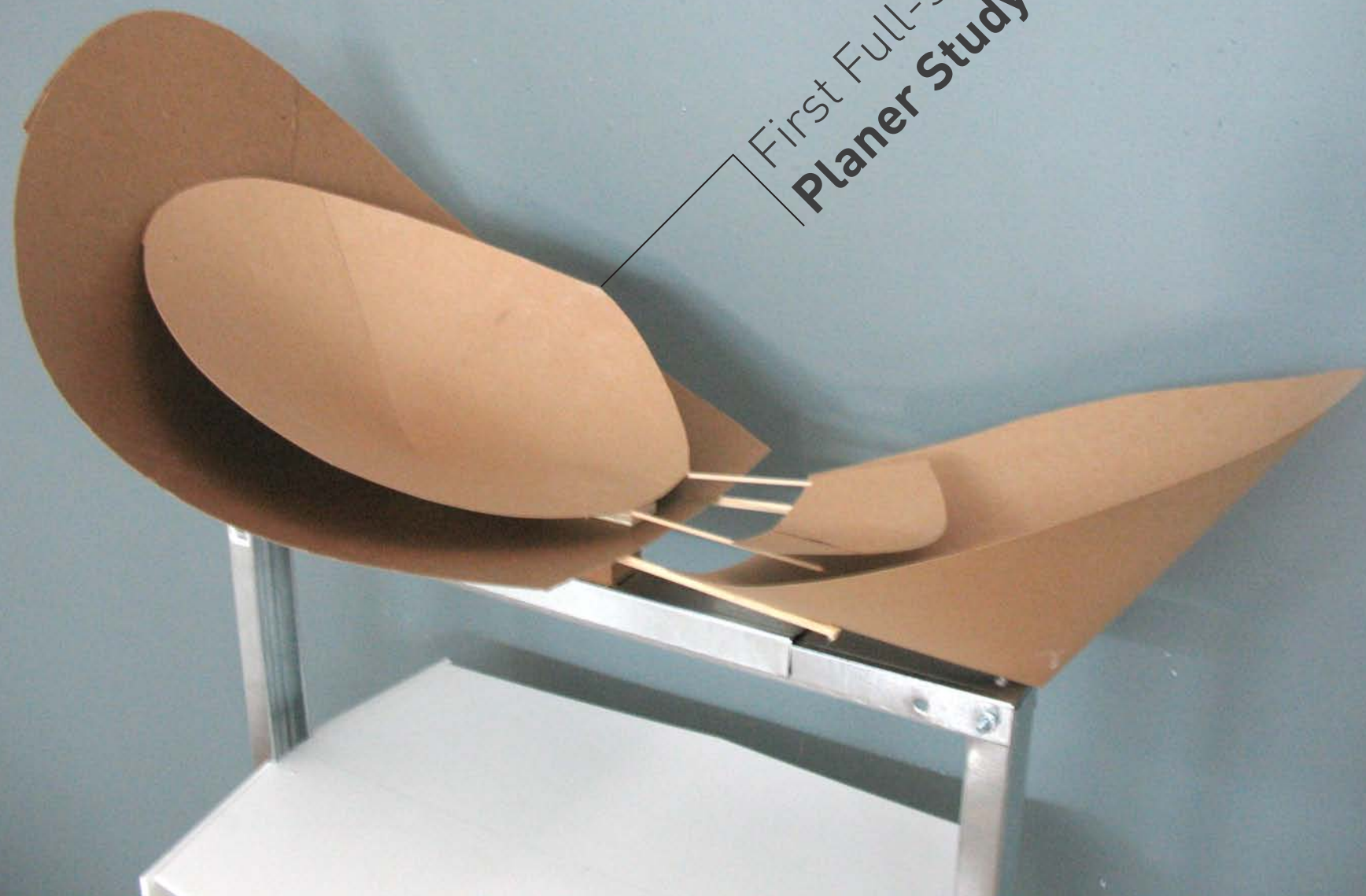
Obstetrician/Neonatologist
Tufts Medical Center

A practicing Neonatologist, Dr. Binney has walked me through the most common procedures preformed in the NICU. His explanations of how the equipment helps or hinders his procedures have been especially helpful.

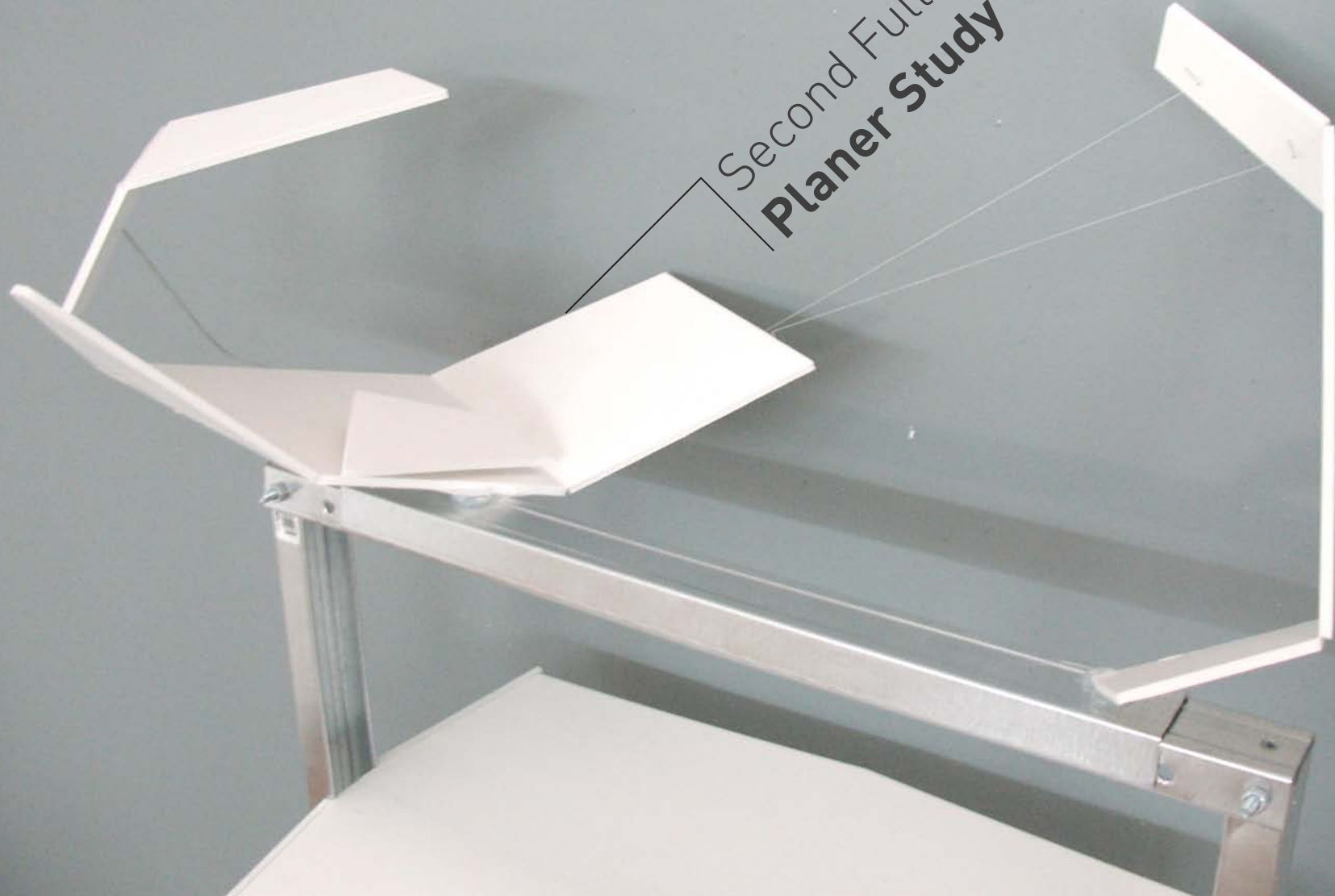
Form
Studdies



First Full-scale
Planer Study

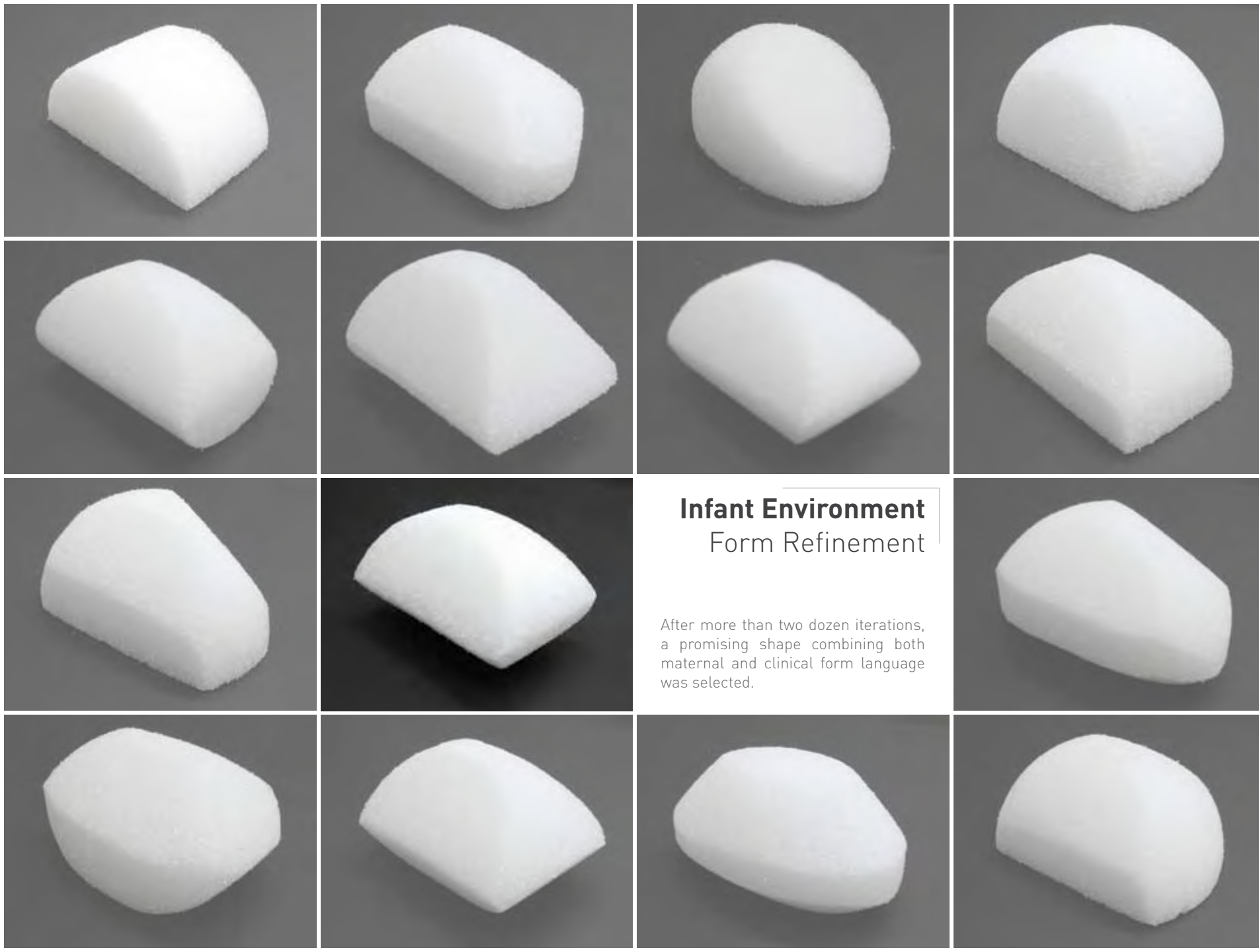


Second Full-scale
Planer Study



Full-Scale
Model





Infant Environment Form Refinement

After more than two dozen iterations, a promising shape combining both maternal and clinical form language was selected.

Form Refinement



Final Design and Features

Features **Enclosure**

Caring Protection

The distinctive shape of the enclosure surrounding and protecting the infant is the design's most defining characteristic.

Its tilted access areas create a clear point of entry while maximizing the view of a nurse, doctor, or parent, while oval port holes on either side dramatically increase freedom of movement while in contact with the fragile patient.



Features **Workspace**



Prime Real Estate

Space is at a premium in the NICU. Creating a little bit more where it is needed most makes a big difference.

By separating the enclosure from the machinery housing, the design creates a sturdy surface to support any necessary supplementary machinery.

Features **Storage**



Simple, Seamless Storage

The NICU is a noisy place, especially visually.

By minimizing clutter while allowing easy access to diapers, linens, and other essentials, the design creates a quieter, more gentle space.