

PACU #7

Improving recovery rooms
with design



by Kousaku Haruguchi

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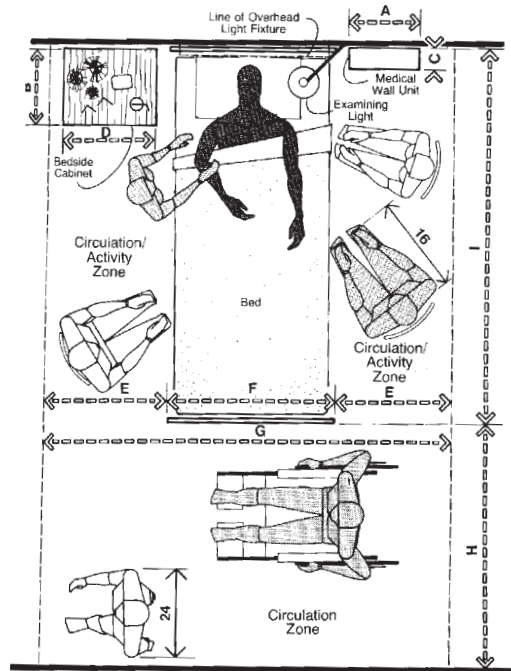
Explanation

For the Fall semester, I was trying to improve a 4-bed patient room for hospitals abroad. I explored how to divide up a 320sq ft and give patients privacy, a sense of their own space as well as making the room feel larger. I made dividers, tried out different layouts, finishes on the wall, ceiling, etc.

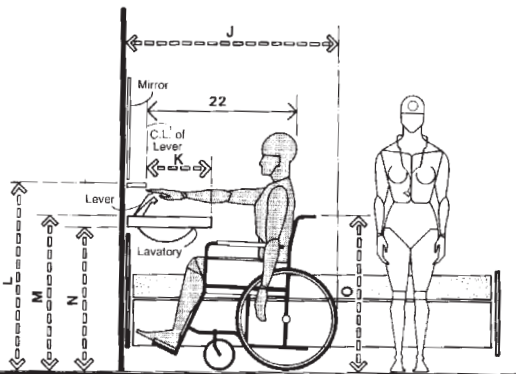
Some turned out to be unconventional in terms of manufacturability and functionality. Many different directions were experimented but not fully developed or pursued. There were way too many problems to be solved for a 1 year, 1 person project.



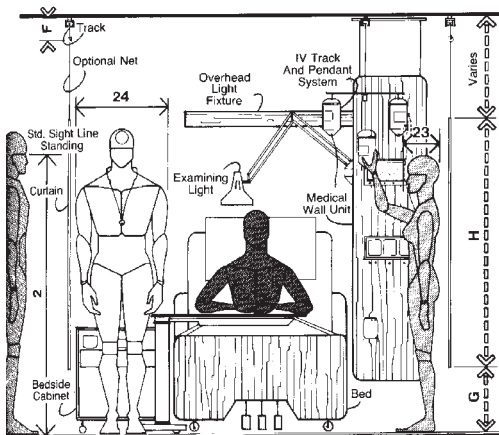
Phase 1 Research



PERSONAL AREA / DOUBLE OR FOUR BEDROOM



	in	
A	17-18	40
B	18	
C	5-6	12
D	20	
E	28.5-30	72
F	39	
G	96-99	240
H	48-66	121
I	87	
J	48	
K	18 max.	45
L	40 max.	100
M	34 max.	86
N	30 min.	76
O	35	

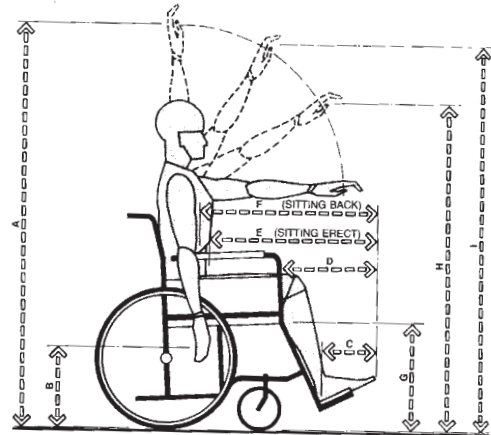


PATIENT BED CURTAIN WITH CURTAINS

	in	
A	87	
B	96	
C	30 min.	
D	39	
E	99 min.	
F	2-3	
G	15	
H	54 min.	

The drawing at the top shows the personal area of a double bed in a double room. A preferred clearance of 251.5 cm, will allow for 76.2-cm, circulation/activity zone on both sides of the bed. A minimum clearance of 243.8 cm, would be required for the personal area of the position.

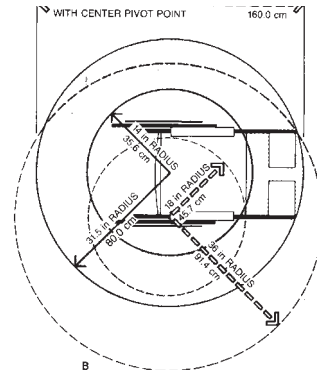
The drawing at the bottom illustrates the relationship of a wheelchair user to a wall lavatory. It is essential that clearance be provided for the wheelchair to slide past the bottom edge of the proper access to the lavatory. Anthropometrically, thumb should be taken into account. 5th percentile data should be used for the controls are within reach of the person of small body size. Also be within reach of the larger body size. For further information concerning the interaction of the wheelchair user and refer to Section 8.3, rooms.



DIRECTIONS AND PIVOTING ABOUT CENTER

TURNING RADIUS BASED ON LOCKING ONE WHEEL AND TURNING THE OTHER WITH THE PIVOT POINT ON THE LOCKED WHEEL

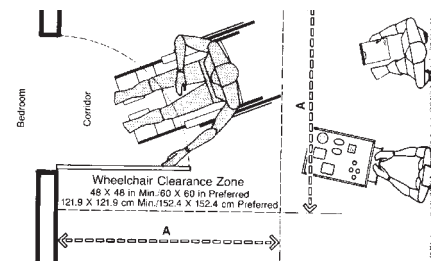
ALTERNATE WHEELCHAIR TURNING RADIUS



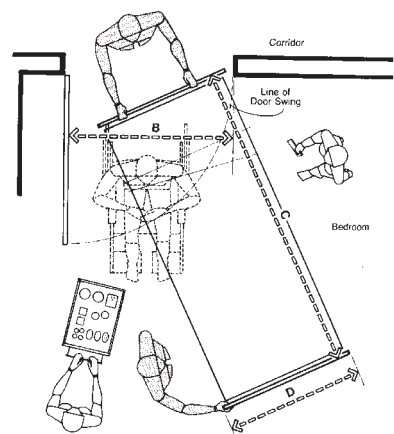
Wheelchair dimensions shown are based on the International Standards Institute (1981). Revised dimensions indicated. A model and manual/air should be used. The length of the turning radius is essential. It is essential to maintain clearances to

room door to accommodate a user. An area of 60 in. by 152.4 cm, is preferred for the disabled user to enter a room. A wheelchair can also fit within a 48-in. by 48-in., 9-cm, area, but such a space is extremely tight and not an absolute minimum. Openings to hospital rooms should be large enough to allow the wheelchair and other relatively large items to pass. The standard door is not adequate to accommodate a wheelchair.

At the bottom of the page, door clearance needs a passage of a standard line, the drawing shows the outline of a wheelchair that a door width approach of a bed is adequate to accommodate a wheelchair.

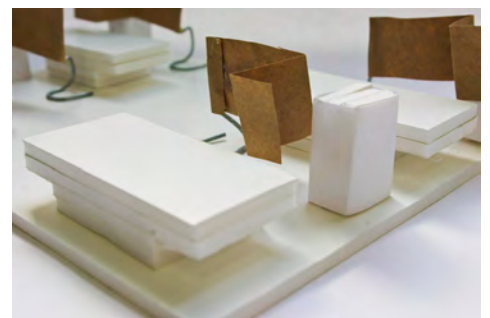
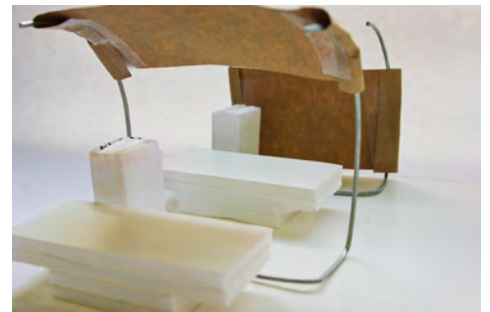


BEDROOM ENTRANCE DOOR



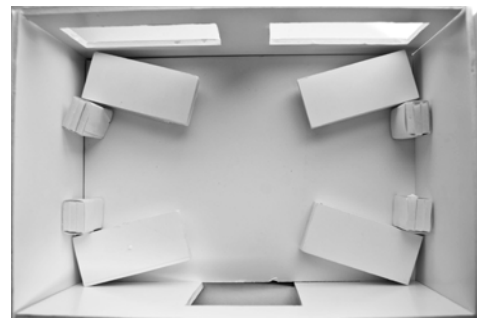
	cm	
A	152.4	
B	116.8-121.9	
C	221.0	

Phase 1 Dividers



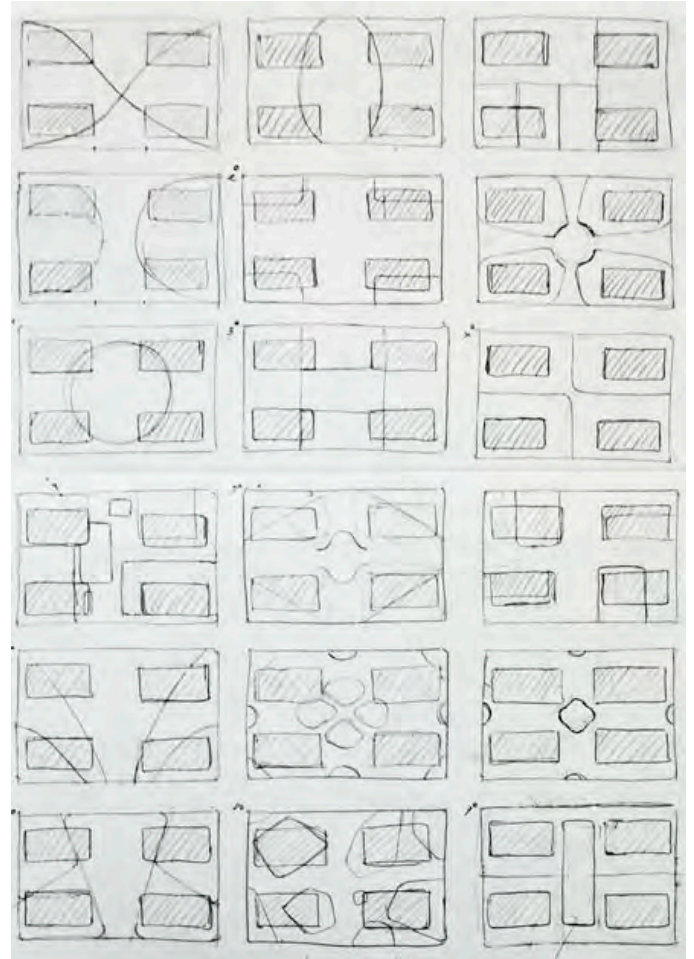
- some shapes gives more privacy than others.
- many were not practical for the set room size because it interfered with the route that the nurses go through.

Phase 1 Layout



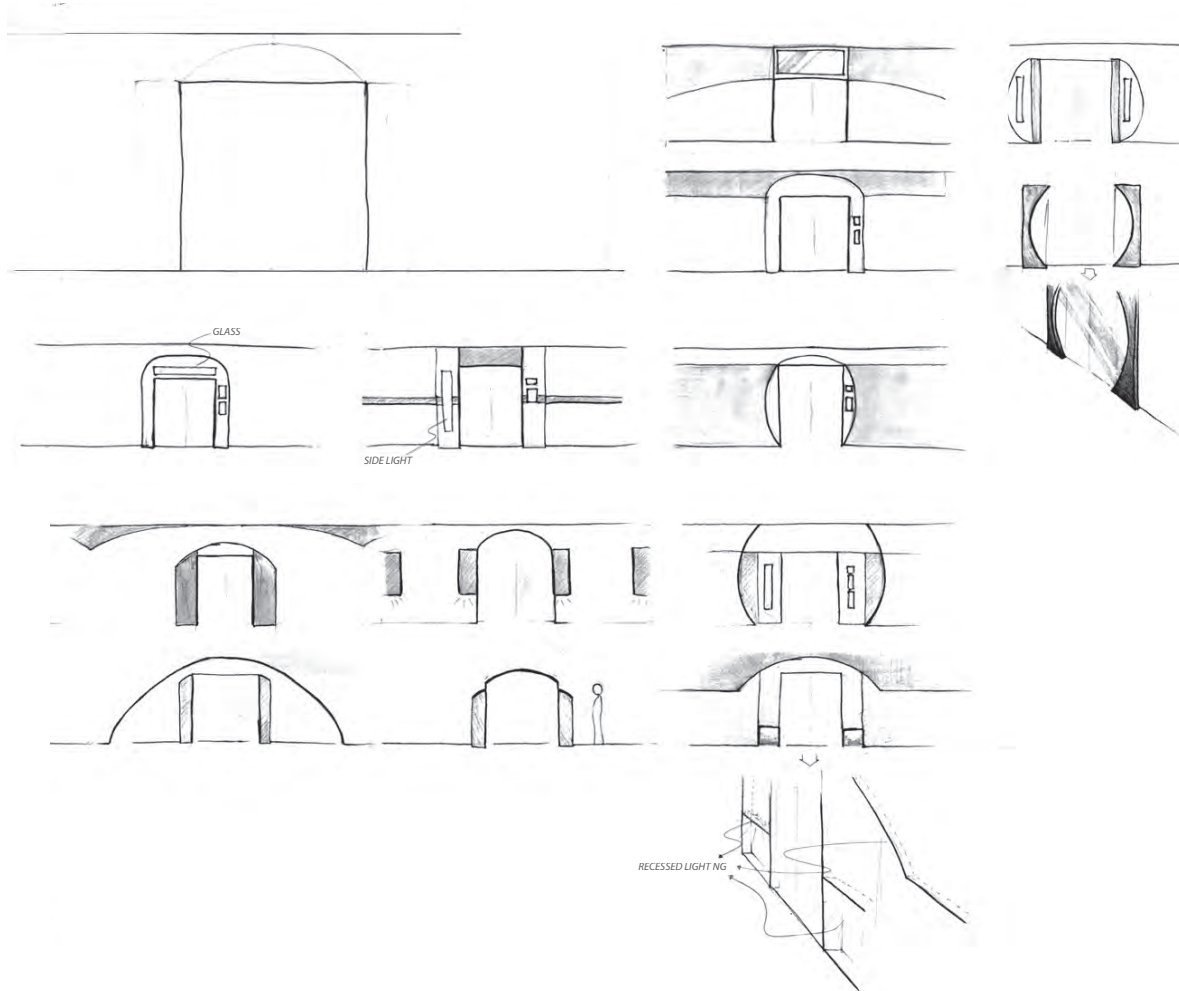
- certain layouts gave each patient stronger sense of their own space.
- some made the room look larger and expensive.
- some pushed the bed away from the window giving them less sunlight, a factor closely related to patient recovery.
- inconvenient passage for hospital workers.

Phase 1 Floor



- certain layouts gave each patient a stronger sense of their own space.
- some layouts made the room look larger and expansive.

Phase 1 Entrance



- certain shapes made the entrance more inviting / welcoming.

Phase 1 Color + everything else



- proportions of color made significant differences in how the room looked.
- certain finishes made the room look contracted.
- by adding an asymmetrical aspect to the room, it allowed for the eye to not focus on one section of the room.
- lead to the realization of how many more things needed to be figured out.

Phase 2 Explanation

For the Spring semester, instead of being confined in a small box, I decided to open up the space and focus on the individual unit to be placed in a **recovery room** (aka **PACU**). By focusing on giving the patient privacy and simplifying the problem, the project has become more feasible.

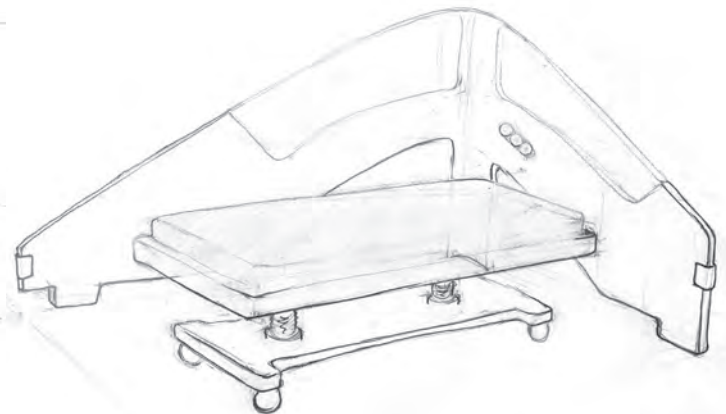
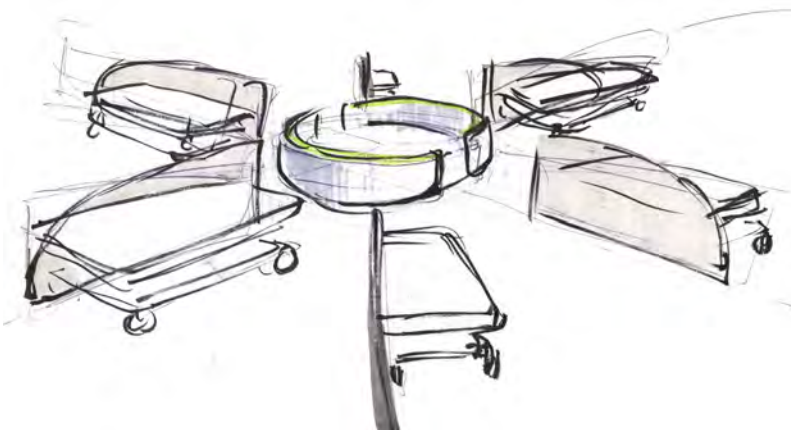
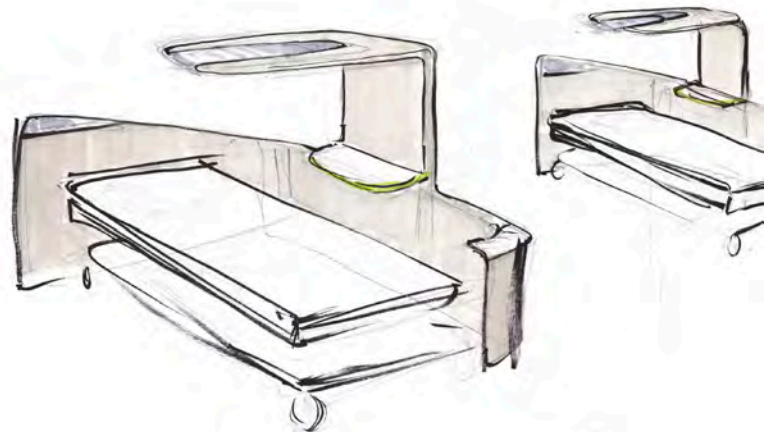
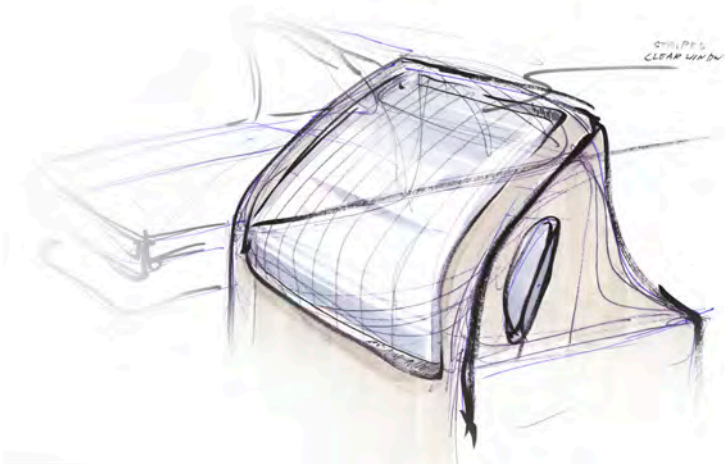
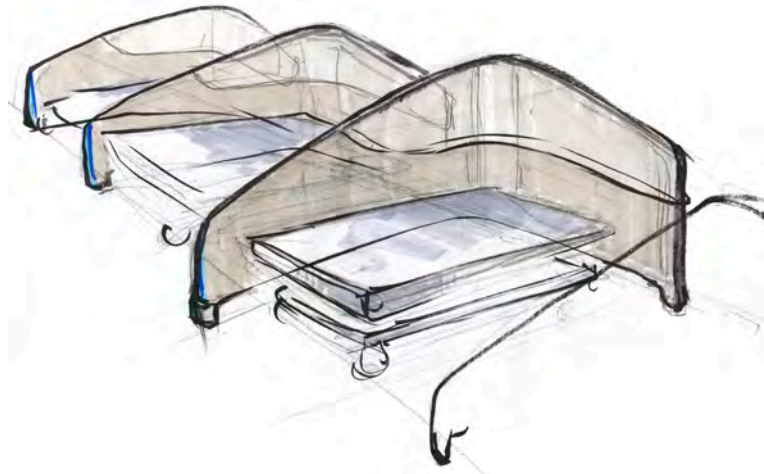
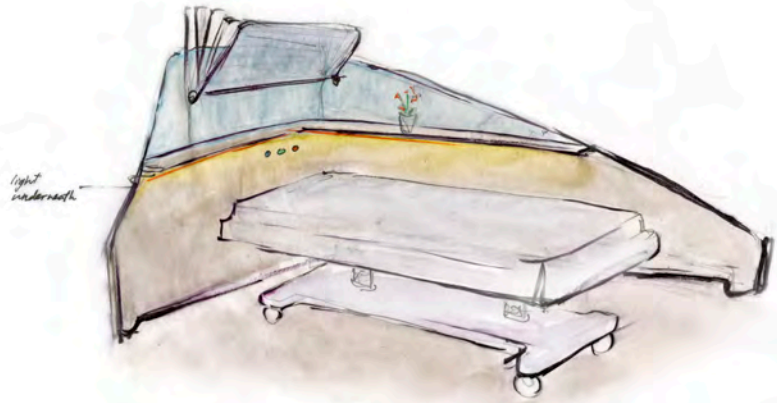
PACU is a specialized care unit near the operating room where patients who have had surgery are cared for as they wake up from anaesthesia. They stay for an average of 90mins. where specialized nurses will check for things such as: oxygen levels, blood pressure heart rhythm, and physical assessment to make sure everything is ok.

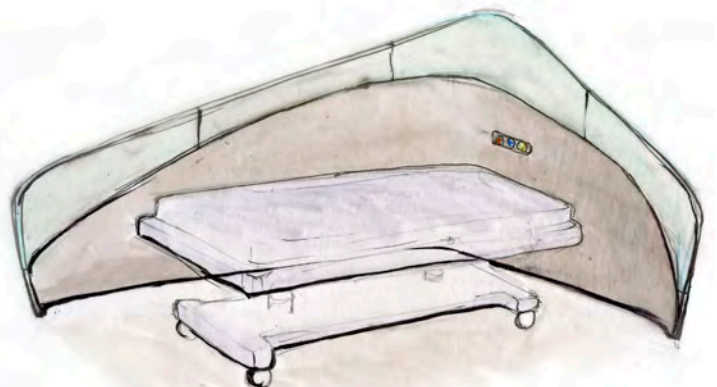
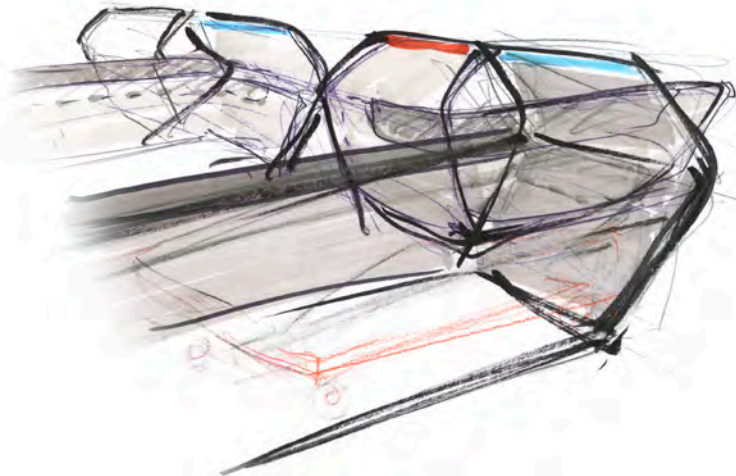
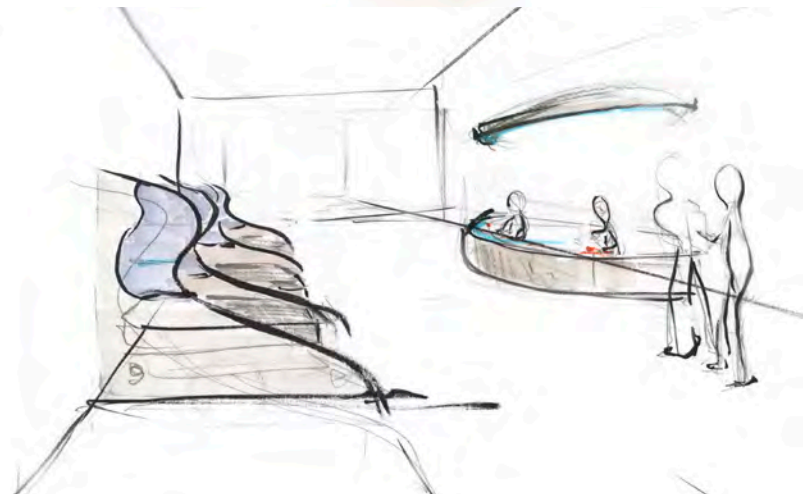
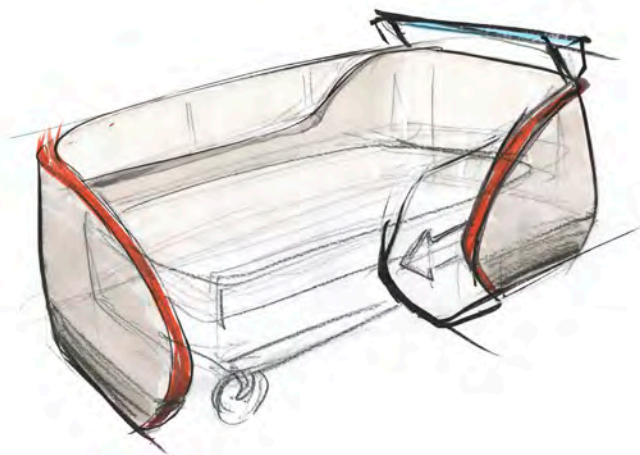
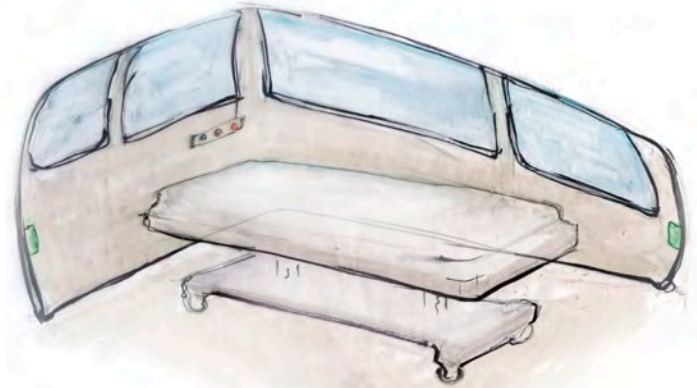
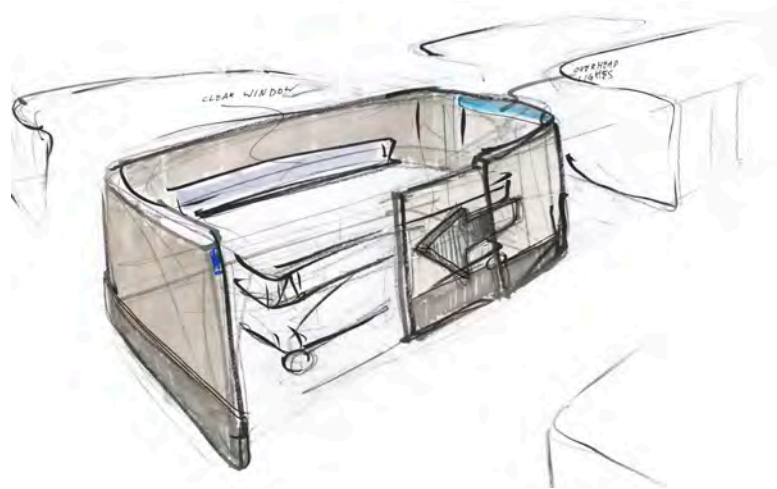
When some patients experience nausea, puking, the nurse (1:1 ratio) will assist them and give them medications to make them feel better.

When all of the vital signs are clear, they are taken to a patient room, stage 2 recovery room, or reunited with family members to be discharged.



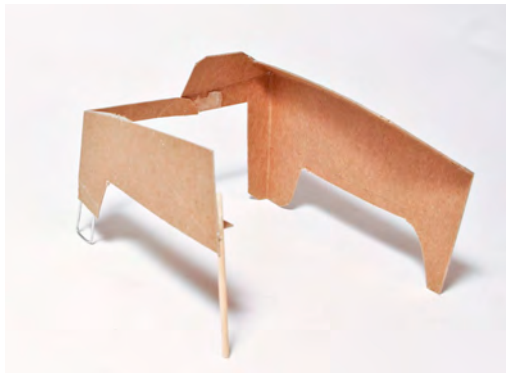
Phase 2 Ideation



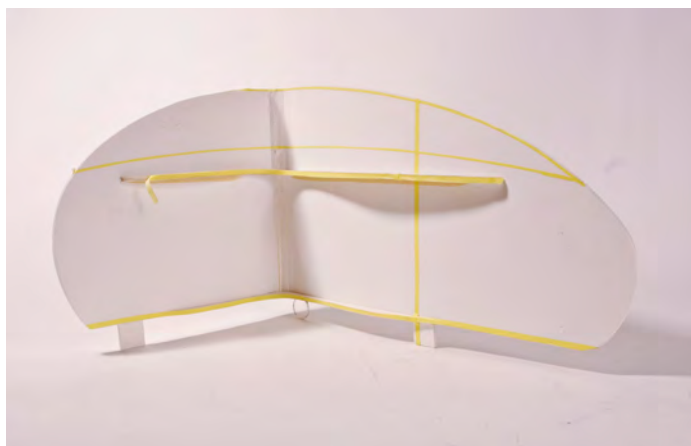
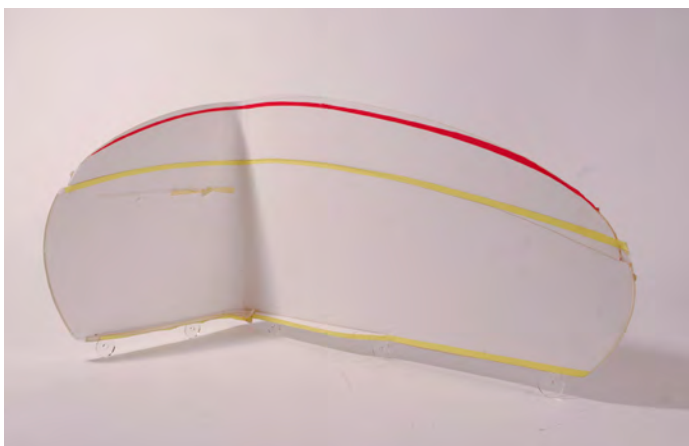
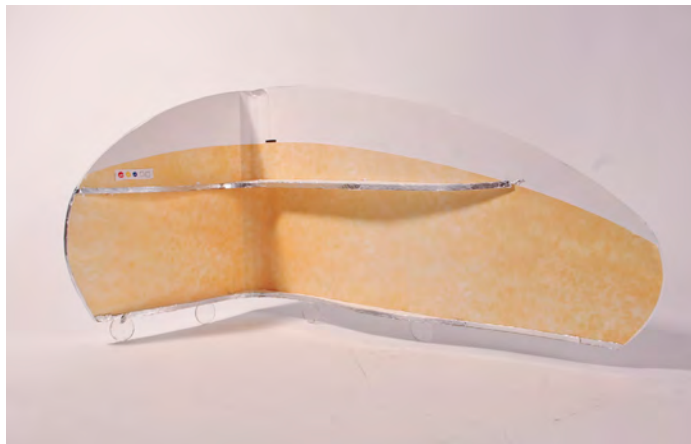
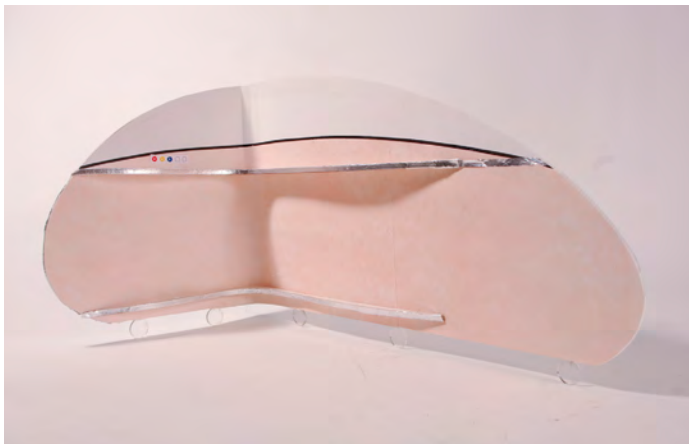


Phase 2 Form Explorations



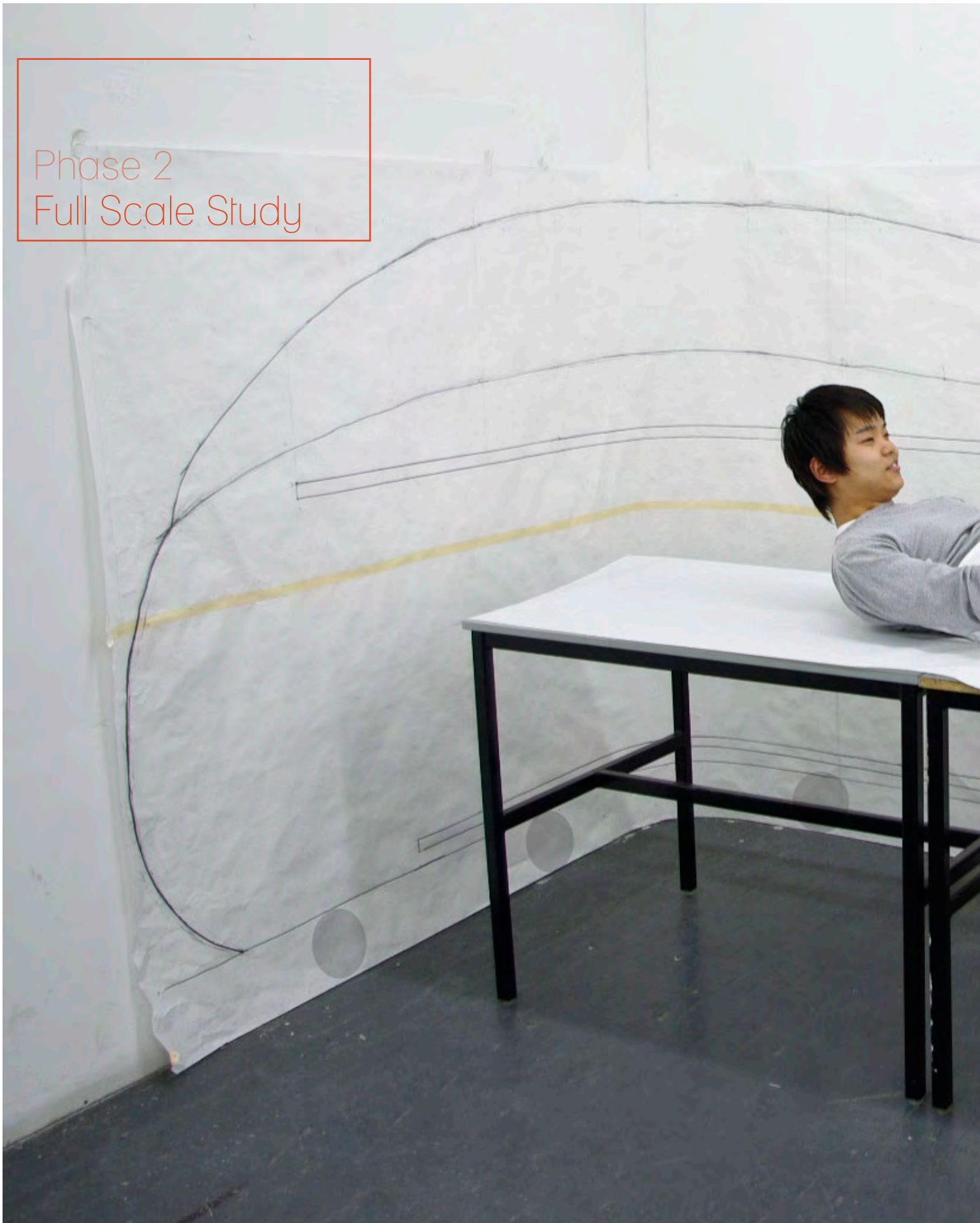


Phase 2 2in. Scale Models



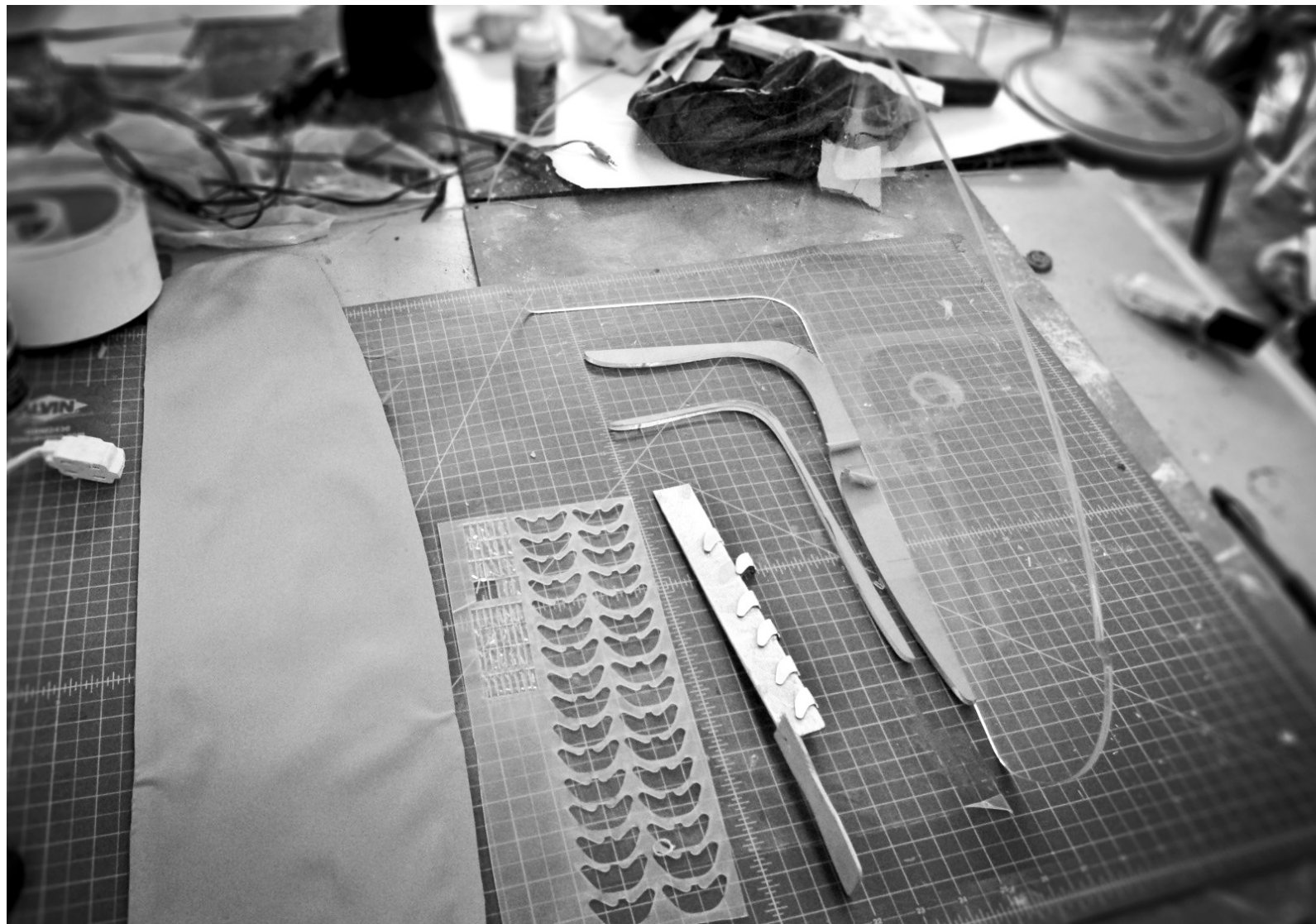


Phase 2
Full Scale Study









Phase 2 Final Model



Overall Dimensions: 9.5' long
5' wide
5.75' high (with wheels)



Monitor
(heart rhythm, blood pressure, etc)

1/4" thick Stainless steel railing



Gas outlet
(oxygen, nitrous oxide)

2 sheets of 3/8" varia eco
resin Translucent polyester

polyester fabric panel system
(clean with water or solvent
based cleaning agent)

polycarbonate wheels with
rubber rim
(R= 3.375" Thickness = 1.25")

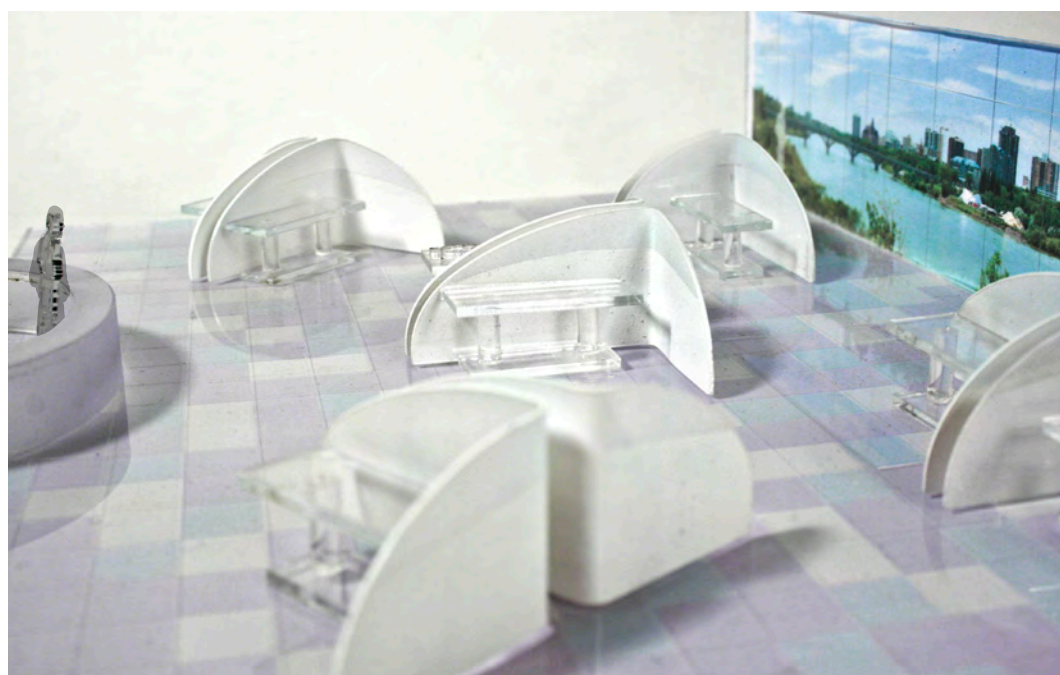
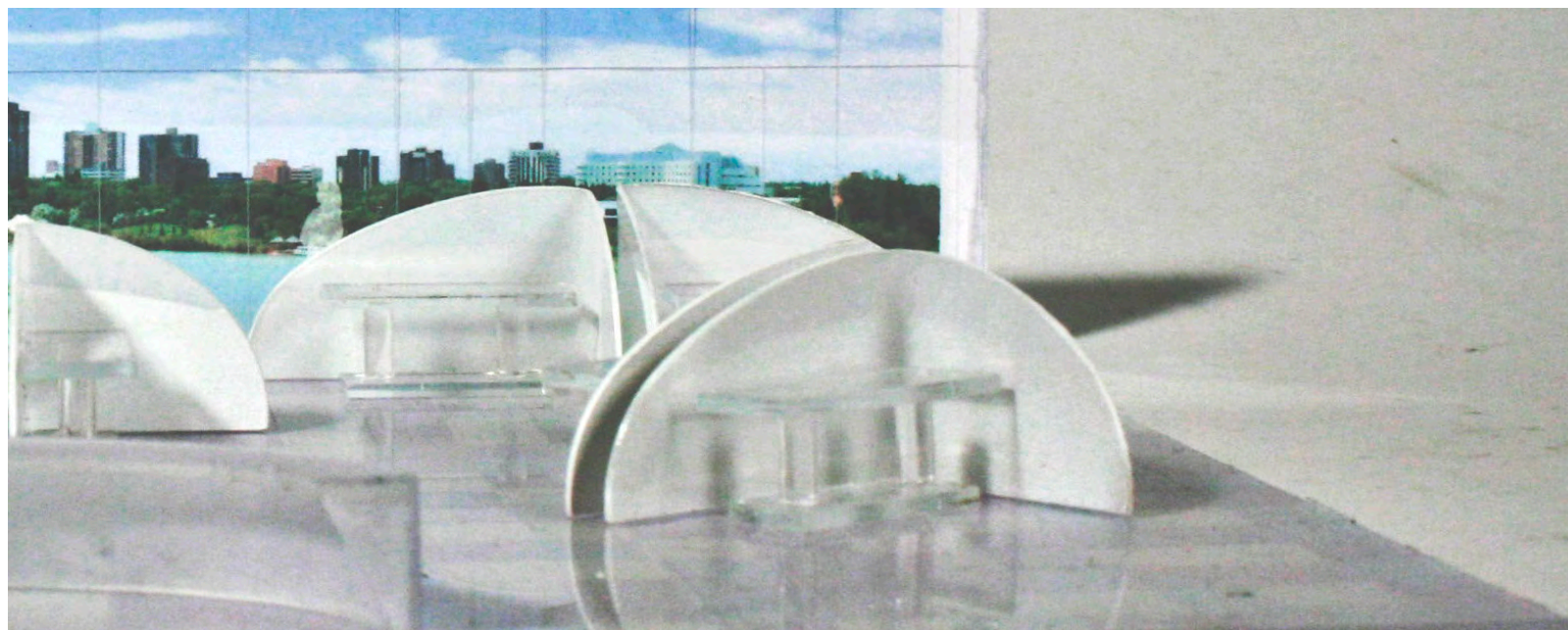
lifting the divider off the ground
allows for easy movement +
cleaning

(underneath panels) 2 sheet of 1/4"
poly-propylene with chipboard
honeycomb structure in between

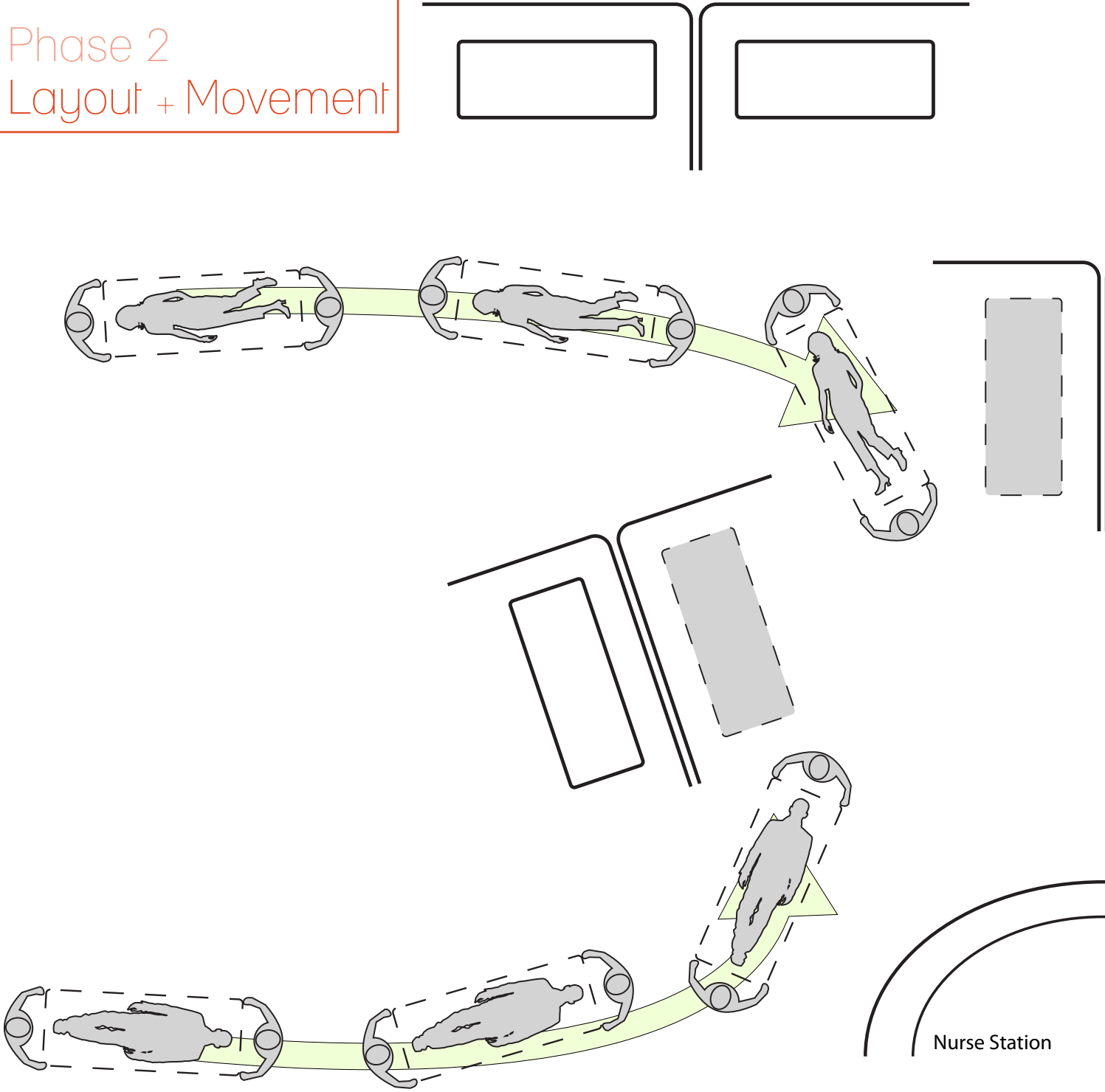
Phase 2 1/4in. Scale Model

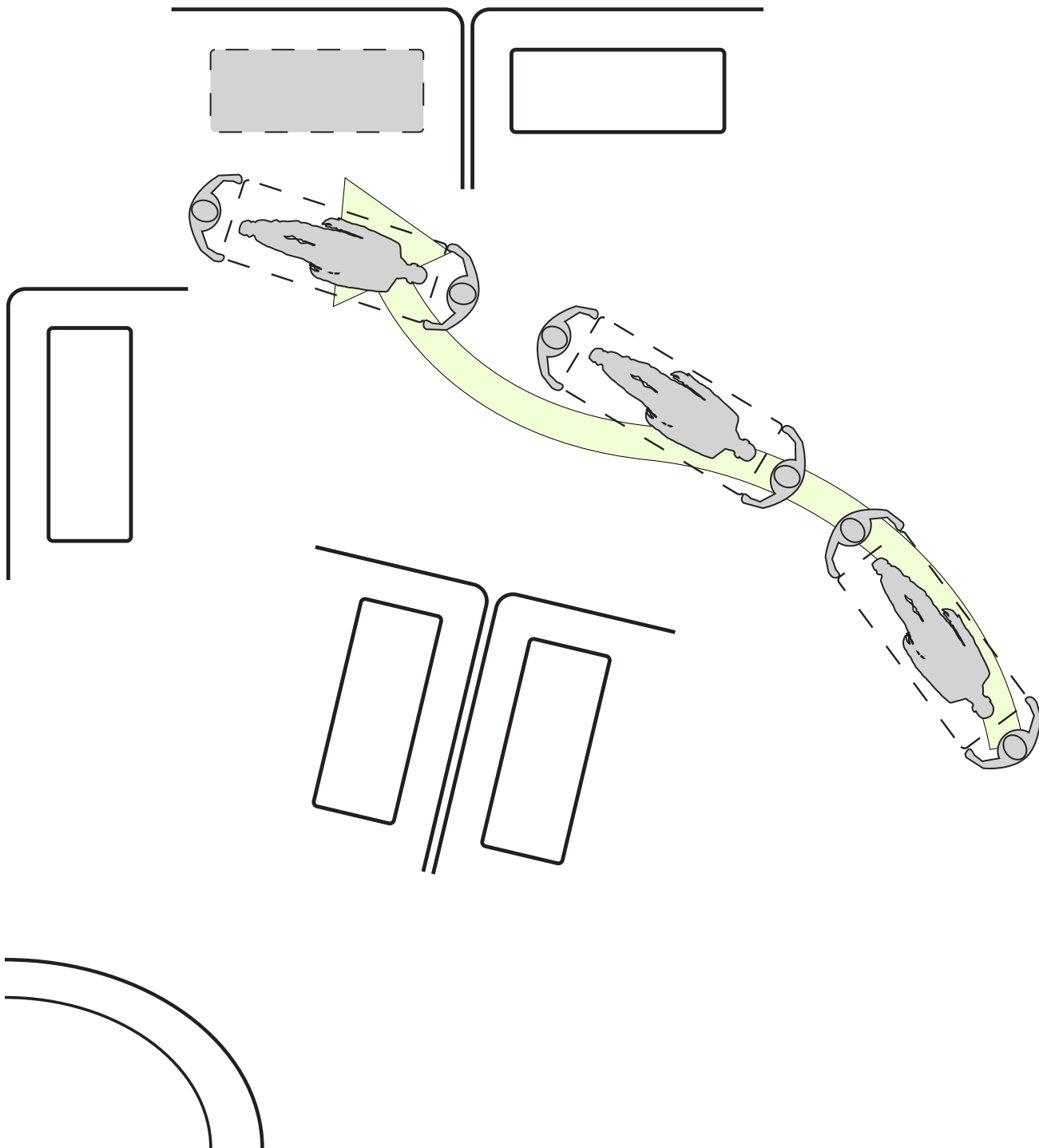


Layout allows for clear sightline from the nurse station and also give patients enough comfort. Since the dividers are on wheels, they can be moved around and be arranged in multiple layouts.



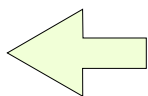
Phase 2
Layout + Movement





gurney

direction



Phase 3 Combo



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Interior Designer Robin Hooks

+ all of M.M. crew