

PRE-THESIS PROJECT 2019-20

BUILDING EXPERIENCES IN LIVING ROOM

A modular seating furniture

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PROJECT: A Simple Home

SPONSOR: Self initiated

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AWARD: B.Design, Industrial Arts and Design Practices

GUIDES: Daniel Fu



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PROJECT ABSTRACT

The modern/future home is a combination of a vast number of clever old/new technologies, and systems, activities that range from how food is made and managed, how gatherings are planned (or not), hosted and enjoyed and how we relax and spend time with ourselves and our families. The question, however, that remains to be asked, is how simple and efficient can the home be? You are encouraged to re-think and break down any given device or process in the home down to its most basic elements and purpose, and develop a device/process/service to simplify, speed up, or enhance the experience associated with it.

PROPOSAL

THE DESIGN BRIEF:

“What I think makes something a home, are the psychological functions that it serves. It’s a place where we can feel protected, a place where we can feel provided for, a place where we feel loved, a place where we can feel connected to others. The things that make a house a home are the psychological senses, the emotional senses. That’s what makes it a home.”

-Professor Samuel D.Gosling,

Professor at the Department of Psychology, the University of Texas

Research Statement and Problem:

The living room, traditionally a lounge room now serves both as a family space as well as a personal space. It is a place where the home owners and family members gather to spend time together to build harmonious relationships that give ineluctable joy. The living room can also be a personal space in the sense that it provides a place to relax, unwind after a long day and allow one to enjoy his/her personal time. The question is, are we able to maintain those relationships while getting influenced by the way we interact with things in our home? In this world of technology, where everyone seems to be socially connected to people in far-off worlds, especially the younger generation, they are missing out on personal interactions with their elder family members. Urbanization and technological advancements seem to pose a challenge to our traditional ways of running a household and to the relationships we forge. In today’s world, as we embrace technology, there is a need to cherish the love and relationships among people we share our home with so that we maintain the perfect balance between the two.

BACKGROUND:

In most homes, the living room is a place for recreation and entertainment in addition to being a place for interaction with family, where family members sit and chat, relax, watch television, eat or perform mundane jobs such as paying bills, chopping vegetables or sorting out stuff. In many small homes, in absence of a formal drawing room, the living room serves as a room to interact with friends, visitors and even strangers. According to the IKEA Report 2016, home is a combination of space, relationships, things and place. 48% of people feel a home is where they have their most important relationships. It is a place where the ‘we’ and the ‘me’ are dependent on each other. The ‘we’ relates to interactions and shared activities among family members that nurture and build relationships and the ‘me’ relates to one’s personal space for self-development. It is the responsibility of a home to sustain this interdependency and create a better living environment for us.

AIM:

“People longed for more privacy but also wanted to ensure that home was a place that facilitated their most important relationships”

– IKEA Life at Home Report, 2017

The design of our home and our spaces reflects our personalities and at the same time, these also subconsciously shape our life, emotions and thoughts. This project aims to study how upper-middle class families in India interact with other family members and how the living space around them influences the quality of their interactions thus affecting their relationships and happiness. Recognizing the importance of meaningful interactions in building relationships and the necessity to strike a balance between privacy and family time, the aim of this project is to explore the living room space and design system of furniture and lighting products that enhance efficiency and overall user-experience.

POSITIONALITY STATEMENT:

Looking at it from a personal aspect, being part of a nuclear family with both paternal and maternal grandparents living close by, there is a strong understanding of a joint family set-up as well. Most kids stayed with their grandparents after school hours, and have a special affinity with the living room at their grandparents’ house – which also becomes their second bedroom. Since the living room is the place where we spent our maximum time, each of us personalizes our informally designated personal ‘spots’. Siblings would have their corners near charging points, a grandmother’s favourite sitting spot would be near the side table with her books, diary and a landline telephone, and a grandfather would have his special lounge chair. It becomes the favourite room in the house being the place where everyone sits and unwinds, where they discuss and debate, watch television and snack and sometimes take a nap as well. It is undeniable that over the years, technology has encroached into the family time, and often when we all are sitting together we are often “with” our respective phones/tablets. There is a significant opportunity and need to explore and find a way for the family to connect in a more meaningful way as they did earlier.

RESEARCH AND PROCESS:

Methodology:

The type of research used in this study is both qualitative and quantitative and the focus was on the growing needs of the upper-middle class. Qualitative research, through the interview process, was used to gather traits of human behaviour and attempt to understand the reasons behind these traits. All demographics of people by age: Children, Parents, and Senior Citizens were interviewed. The aim was to understand how different families interact and to also understand the family members' need for privacy. Personal and phone-call interviews were conducted with upper-middle class families living in different cities of the country. Personal interviews were conducted by visiting the homes of some of these people to get a first-hand experience of their living room space and to better understand the quality of their family interactions. The research also tried to find out if there are any issues faced by these families.

Research Questions:

- Describe your home and living room using adjectives, emotions, and experiences
- What role does your age play in the ways you interact with your living room?
- What difficulties do you face, being an elderly person?
- In this world of technology, where everyone is on their phones and tablets, do you think anything is missing from your living room?
- Activities that you and your family indulge on a daily basis in your living room?
- How much time do you spend in your living room
- If you could re-design it, how would you do it?
- Do you have guests over often? Do you transform your living room to suit their needs? Why?
- Lighting requirements - what lighting do you have in your living room

Tentative Issues:

- Sofa not inclusive for all age groups
- Old people with back and knee problems can't sit on low sofa/chair
- Guest Accommodation
- Personal Technology overtaking family time in the living space - especially the younger generation being on their phones and tablets
- Furniture- Size should account for walking space
- Additional seating required for guests- usually fulfilled by pulling dining chairs or renting more chairs
- Centre table should have storage and extra seating

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- Do you have guests over often? Do you transform your living room to suit their needs? Why?
- Lighting requirements - what lighting do you have in your living room

Assumptions:

- The Indian Upper middle class is ever-revolving. They like to change how their living room looks, so it doesn't become monotonous. They have an undeniable need for privacy that may be causing a hindrance in their family time.
- People from earlier generations who carry out their own jobs are slightly more satisfied with their lives as compared to those who don't. They have this fear of changes and adaptability and whether that particular product/service will help them or not. It is also known that however much privacy they all desire, they love to gather around the television in the living room, sit together, rewind their day and reminisce old memories.
- The most important aspects that should make a home are comfort, warmth, privacy, security, family, and friends.
- Ancillary aspects of the home include travel collection or souvenirs, family photos, plants, wall art and furniture in their space.
- The best way to ensure their mental and physical efficiency in their living space is to create a balance between private and family time, give them a sense of belonging, and a purpose to sit in the living room with their parents/grandparents/children and feel like home.

APPROACH:

The approach will explore the psychological effects of the living environment and how they influence emotions and perceptions, and how seemingly materialistic things may contribute to our wellbeing and affect our behaviour and interaction with others. Based on this, a system of furniture and lighting solutions shall be designed keeping in mind the needs to improve the living room environment to enhance the family experience, giving each member the requisite privacy while encouraging interaction and cooperation with other family members.

- It will also aim to harmoniously integrate users into a healthy living system.
- The research will also include data collected from visiting these families to understand their needs and solve issues regarding guest accommodation.
- Furniture and lighting is taken to be a tentative space to work with, given its versatility and usage. Focus would be on the impact of furniture on building relationships and incorporating privacy.
- Designed solutions can be integrated in an existing space as well as new space

MATERIALS/RESOURCES:

- Resources will comprise of scholarly articles, internet sources, anthropometry, statistics and data available on Google and JStor.
- Examining existing works in the field, people who serve as the target audience, those who have worked in similar areas and existing products and services by competitor companies such as IKEA, Herman Miller, and Howard etc.
- Understanding views and latest trends of people from the interior design and architecture background will be resourceful.
- Secondary Research: Use of Books and case studies for research:
- Living room, Psychology, Mental and physical efficiency, Design etc.
- Magazines like Architecture Digest to understand the ways of living.
- Understanding the target audience by conducting more in-depth interviews.

LITERATURE REVIEW:

According to the IKEA Report 2016, home is a combination of space, relationships, things and place. It is a place where the 'we' and the 'me' are dependent on each other. The 'we' relates to interactions and shared activities among family members that nurture and build relationships and the 'me' relates to one's personal space for self-development. How can we say that the things in our house affect our behaviour? – First, how we express our identities; second, things we deliberately put in our homes for memories or creating thoughts that affect our own feelings; third way is how we relate to the activities we engage ourselves in. There is a need for private space and the only true private space is our mind. Naturally, the home needs to provide room for relationships in the best possible way, regardless of the space we live in.

LEARNING OUTCOMES:

- Understanding the socioeconomic implications of lifestyle choices in home life.
- Studying how experiences at home impact those outside of the home-, social gathering with friends and relatives and work.
- Exploring the chosen opportunity space to find a task, process, or device that can be improved and optimized, or enhanced in terms of experience.
- Understanding the implications of combining technological needs and traditional ways of interacting with the living room.

EXPECTED RESULTS:

- Furniture and/or lighting solutions catering to every day needs under the various attributes that complete a living room- seating and resting space, eating space and storage.
- Fulfilling personal and general needs of the various aged family members and providing them a place which enhances their experience of interacting with the living room and with the people in it.
- A creative space that indulges them to interact with one another and have a personal experience while doing it.

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- IKEA. "Life at home- Beating the battles" Report #4, 2017. Accessed August, 2019 https://lifeathome.ikea.com/wp-content/uploads/2018/09/Beating_The_Battles_2017.pdf
- IKEA. "Life at home- What makes a home" Report #3, 2016. Accessed August, 2019 https://ikeamuseum.com/media/filer_public/9a/94/9a94647a-d356-4a6b-9803-3fc6a4ca0034/ikea_life_at_home_report_3.pdf
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PRIMARY RESEARCH

PHASE ONE: Personal Interviews

During phase one, personal interviews and on-call interviews were conducted with upper-middle class families living in different cities of the country. It was conducted to gather traits of human behaviour and attempt to understand the reasons behind these traits.

All demographics of people by age: Children, Parents, and Senior Citizens were interviewed. The aim was to understand how different families interact and to also understand the family members' need for privacy.

Personal interviews were conducted by visiting the homes of some of these people to get a first-hand experience of their living room space and to better understand the quality of their family interactions. The research also tried to find out if there are any issues faced by these families.

INTERVIEW QUESTIONS:

- Q1. How would you describe your home using adjectives, emotions and experiences?
- Q2. How would you describe your living room using adjectives, emotions and experiences?
- Q3. What all aspects/objects/subjects make your living room the way it is?
- Q4. What role do you think your age plays in the way you interact with the living room? (considering asking old people)
- Q5. What difficulties do you usually face in your living room, being an elderly person?
- Q6. In the world of technology, where everyone is either on their phones or tablets, what do you think is missing from your living room? Is that a good thing or a bad thing?
- Q7. What are some of the things in your living room that completes your idea of a home?
- Q8. Are there any objects/devices that you don't use but still feel the need to keep them around in the living room?
- Q9. If yes, what are those and what is that need?
- Q10. List some activities that you and your family indulge in on a daily basis in your living room.
- Q11. Are there any other experiences that you would want to have in your living room?
- Q12. How much time in a day do you spend in your living room?
- Q13. If you could re-design your own living room now, how would you do it?
- Q14. Do you have guests over often?
- Q15. Do you transform your living room a certain way when guests have to visit?
- Q16. How does that affect your social interaction?
- Q17. Why do you think you have the urge to transform, add to or change your living room according to the guests?
- Q18. Do you have any particular kind of lighting for your living room? How does it affect your mood?

USER PROFILES



Participants:
Male and Female
Retired Senior Citizen Couple
Living in a 3 BHK Apartment



Participants:
Male and Female
Working Husband and Housewife
Parents to two children: Age 9 and 14
Living in 3 BHK Apartment



Participant:
Female
Senior Citizen
Living with son and daughter-in-law
Grandchildren: Age 21 and 26
Living in 3 BHK Apartment



Participant:
Female
Housewife
Living with Husband
Mother of two: Age 21 and 18
Living in 2 BHK Apartment



Participant:
Female
Working Professional: Teacher
Living with Husband
Two Children: Age 8 and 13
Living in 3 BHK Apartment

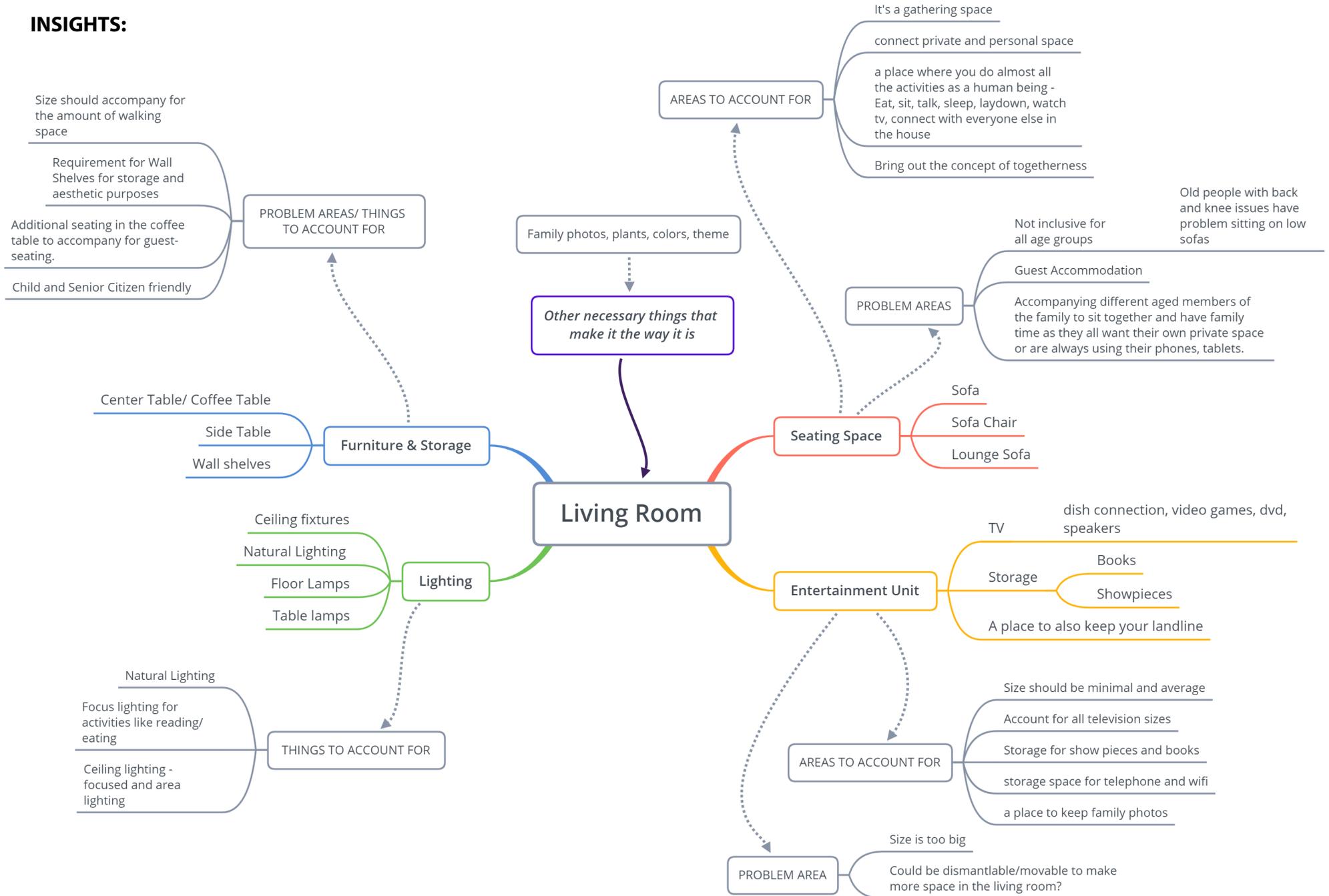


Participant:
Male
Working Professional
Living with wife and mother
Living in 3 BHK Apartment

WHAT THE INTERVIEWEES HAD TO SAY



INSIGHTS:



RESEARCH PROBLEMS:

LACK OF MENTAL
AND PHYSICAL
EFFICIENCY

FURNITURE NOT
INCLUSIVE FOR
ALL AGE GROUPS

UNAVAILABILITY OF A
SYSTEM THAT SUITS
EVERYBODY'S NEEDS
AT ONCE

TECHNOLOGY TAKING
OVER INTER-PERSONAL
RELATIONS WITH
THEIR FAMILY
MEMBERS

PEOPLE LONG FOR
PRIVACY BUT ALSO WANT
TO ENSURE HAVING
THE MOST IMPORTANT
RELATIONSHIPS
AT HOME

GUEST
ACCOMMODATION

PRIMARY RESEARCH

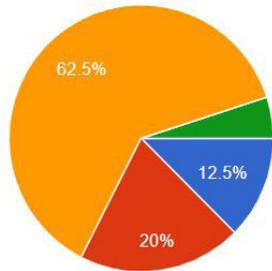
PHASE TWO: Online Survey

During phase two, an online survey was carried out to better understand the initial research problems and gather more amount of data. This survey mainly focused on the area of Living Room and had questions catering to issues related to the living room space. A google form was sent across many people. The aim was to understand various opinions and problems faced by upper-middle class and middle class families. A number of 40 responses were gathered and analysed.

SURVEY QUESTIONS AND RESULTS:

Age

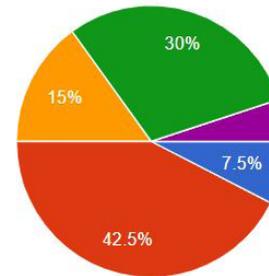
40 responses



- 15-25
- 25-40
- 40-60
- 60 and above

Choose your role

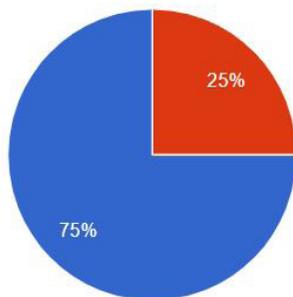
40 responses



- Student
- Working professional (age<60)
- Working from home (age<60)
- Stay at home family person (age<60)
- Senior Citizen (age>60)

Gender

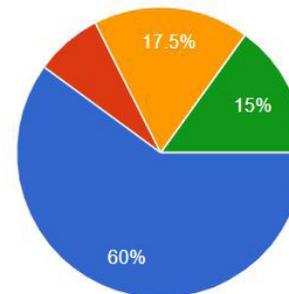
40 responses



- Female
- Male

What is your family structure?

40 responses

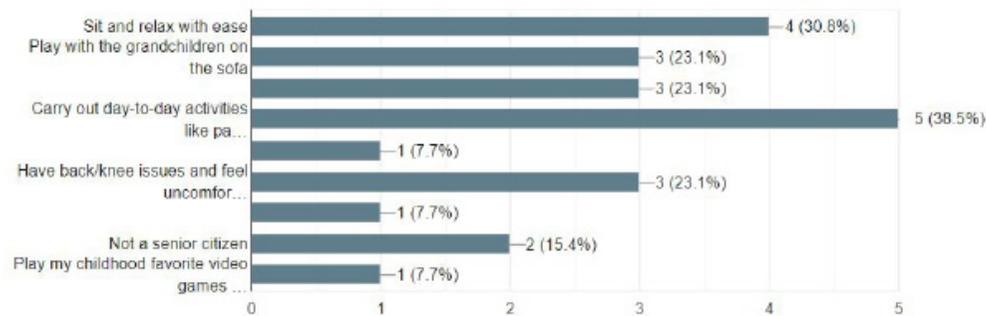


- Nuclear family
- Single-parent family
- Joint Family
- Nuclear Family with Grandparent

If you are a senior citizen, in what ways do you interact with the living room and your family members?

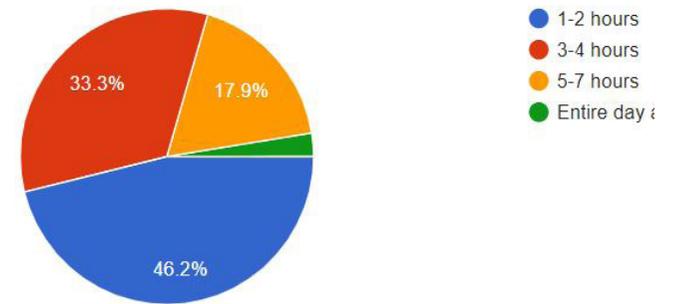
- Sit and relax with ease
- Play with the grandchildren on the sofa
- Watch TV alone or with family members
- Carry out day-to-day activities like paying bills, chopping vegetables, talking and sorting out things
- Feel ignorant due to my grandchildren's habits of being on their phones
- Have back/knee issues and feel uncomfortable using existing furniture
- Feel discomfort due to lack of space to walk around
- Other...

13 responses



How much time in a day do you spend in your living room?

39 responses



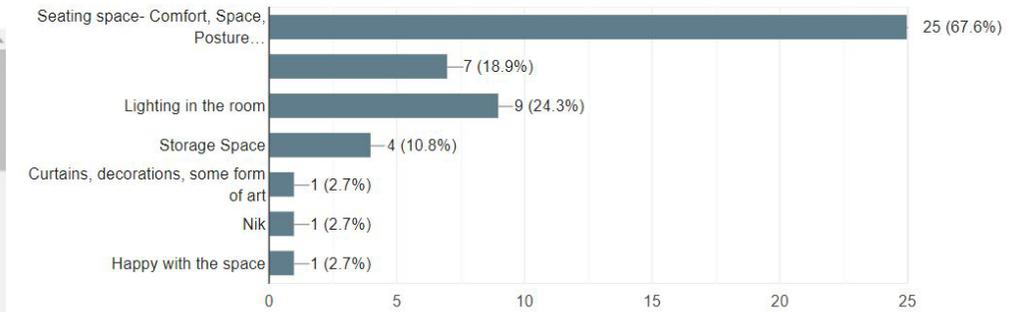
What would you consider as essential (object, ambience etc)for you to feel your living room is complete?

40 responses

- Ambience
- Space
- Confort
- Good lighting, decent curtains, relaxing sofas, place to lie down if one needs to, something comfy to read on...
- Sitting space, a centre Table, a television and a music system with colourful LED lights
- A better centre table
- A couch
- Comfortable couches
- A photograph timeline of memories. Something like a wall full of it, be it school friends, life in general and how much youve achieved, parents etc.
- Comfortable seating space, good lighting and cross ventilation
- Keep it decorated.
- Comfortable sofa
- Air conditioning, clean furniture, soft lighting through lamps, cushions, a source of engagement like either a book, or television or tablet
- Comfortable with appropriate lighting, sunlight
- A few plants , my few curios treasured over the yrs , warm light and good music
- Comfortable furniture

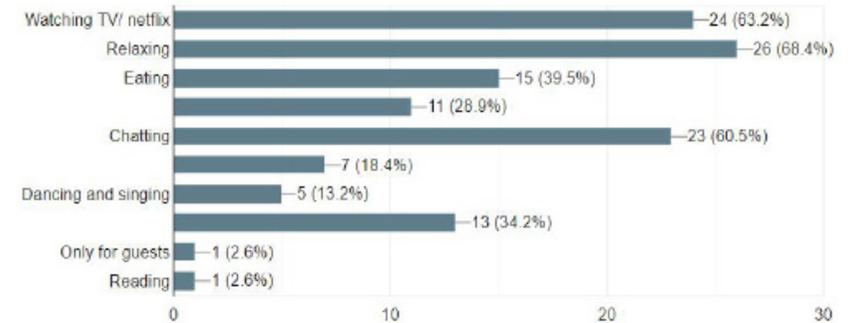
Which aspect of your living room you think should be improved?

37 responses



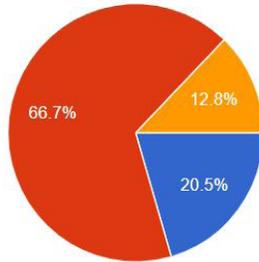
Select activities that you and your family indulge in regularly in your living room?

38 responses



Do you think technology is affecting the quality of your family time?

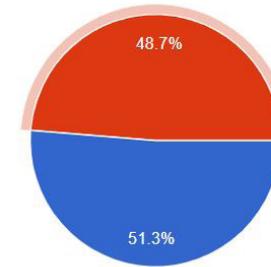
39 responses



- Yes. It brings us together more
- Yes. It affects in a negative way because kids and family members spend more time with their personal devices
- No. It doesn't impact in a material way

Do you transform your living room a certain way when guests have to visit?

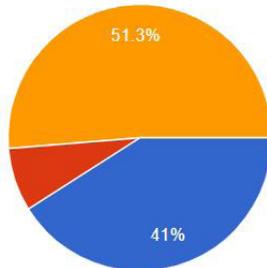
39 responses



- Yes
- No

Do you have guests over often?

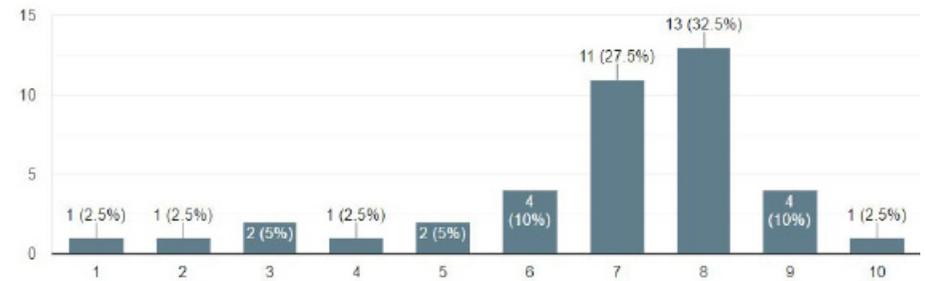
39 responses



- Yes
- No
- Sometimes (once in 2-3 weeks)

On a scale on 1-10 how much does the furniture setting, quality and style affect your relationships and personal experiences in your living room?

40 responses



SURVEY INSIGHTS:

After analysing the data, the following problems arised which helped me gain insights and hence, provided a direction:

Comfortable Seating

Space for Leg Rest

Large numbers of guests makes it difficult to drag chairs

Improve Posture

Lack of Storage Space

Interaction with family is very important

Working space

Include more photos, plants, bookshelf

DIRECTIONS

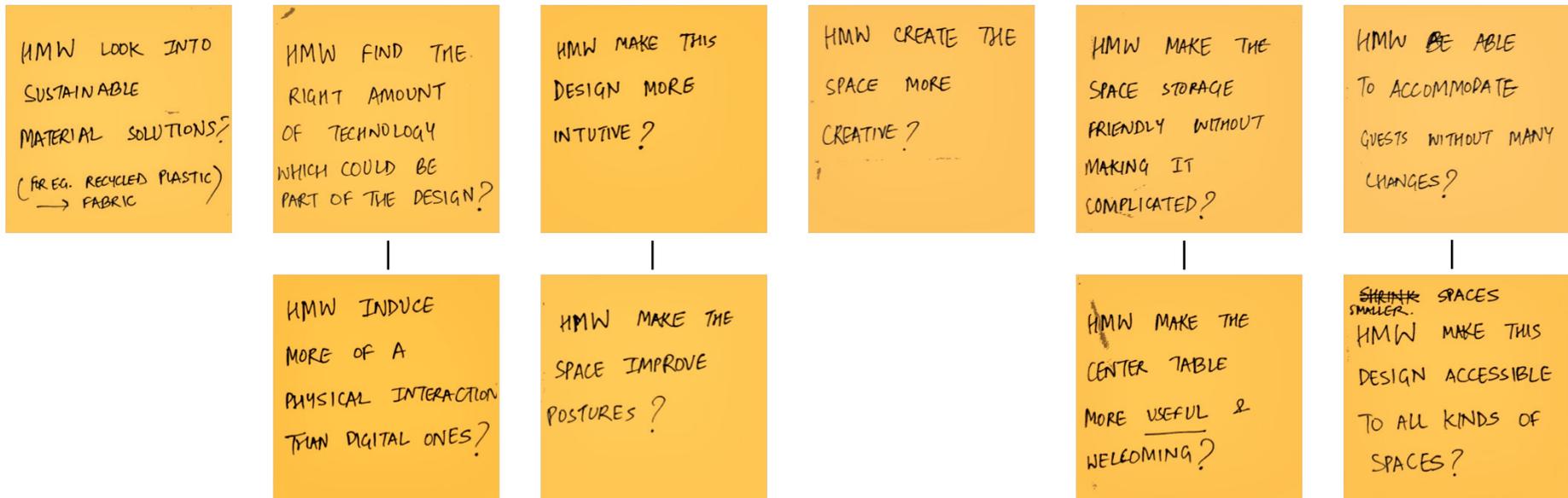
Design a modular sofa set:
Target Audience: Upper-Middle and Middle class families moving into new apartments + Families wanting to redo their furniture.

Weighing the pros and cons, designing a SOFA SET that caters to all the age groups and their needs was taken forward

Design an add-on product for an existing furniture sofa set:
Target Audience: Upper-Middle and Middle class families with existing furniture looking for a change/ improvement.

BRAINSTORMING:

After finding a direction, i.e. designing a sofa set, I started brainstorming using methods like Speculation Mapping and 'What ifs' and also understanding product semantics



WHAT IF THE SPACE
COULD BECOME YOUR
OWN PALETTE &
CANVAS?

WHAT IF THE SPACES
MAKE YOU GO OUT OF
COMFORT ZONE & KEEP
YOU FIT & ENGAGED?
(HEALTHY LIFESTYLE)

WHAT IF THE
FURNITURE ITSELF
BECOMES ENGAGING
INTERACTIVE SO THE
FAMILY COMES TOGETHER?

CAN AFFECTIVE
INTERACTIONS BE
DESIGNED?
HOW DO DESIGNERS &
INDUSTRIES DEAL WITH THIS
NEW DESIGN PARADIGM?

WHAT DO WE REALLY
KNOW ABOUT THESE
EXPERIENCES &
PRODUCT'S ABILITY TO
EVOKE EMOTIONS?

WHAT IF YOU COULD
TRANSFORM THE SAME
FURNITURE INTO A PLAY
AREA FOR THE KIDS
AND ELDERLY?
POSITIONS (FIT) →

**TRANSFORM-
ATIONAL
FUNCTIONS**

→ ADJUSTABLE, COLLAPSIBLE

APPEARANCE
FUNCTIONALITY
PRODUCTION FEASIBILITY
PRODUCT SEMANTICS
ERGONOMICS
SOCIAL FACTORS

**PRODUCT DESIGN
SEMANTICS
&
EMOTIONAL
RESPONSE**

WHAT IF YOU
COULD CHANGE THE
SPACE ACCORDING TO
YOUR MOOD?
(COMFORT ZONE)
STRESS BUSTER

**DYNAMIC &
VERSATILE
(EXPRESSIVE)**

MATERIAL → AESTHETICS
FUNCTIONS
DIFFERENT TEXTURES,
SHAPES, SIZES +
COMFORT / LUXURY / WELCOMING
elements.
Cushion, pinney, sound,

EXPRESS
PRODUCT'S VALUES
AND
QUALITIES

SIGNAL
URGES THE USER TO
REACT A SPECIFIC WAY,
FOR EG. TO BE SPECIFIC,
CAREFUL IN HIS/HER WORK

WHAT IF YOU COULD
PROVIDE A PRIVATE
SPACE WITHIN A
SHARED SPACE?

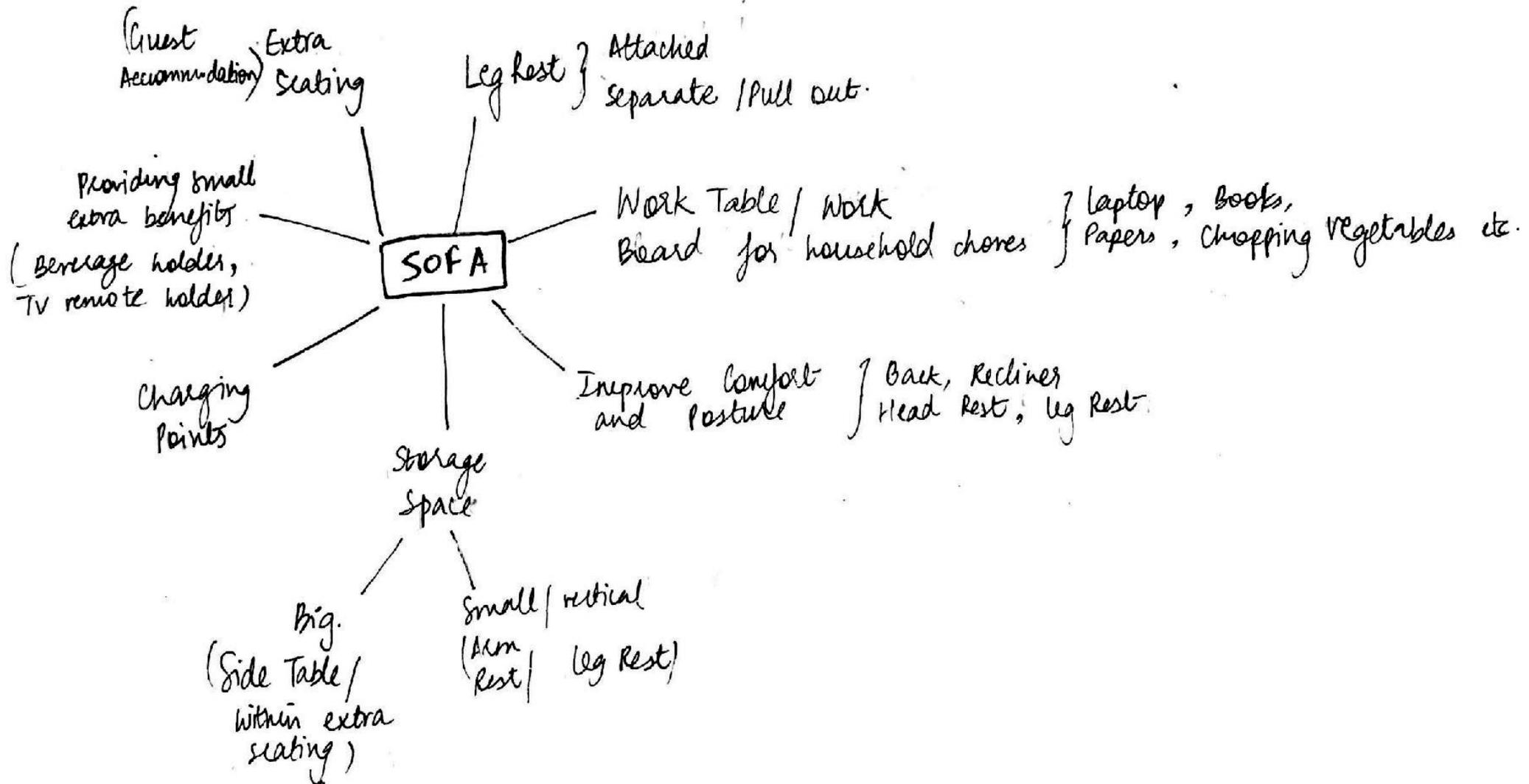
**SENSE OF
SELF -
ACTUALISATION**

WHAT IF YOU COULD
COMBINE BULKY (SPEAKERS)
ETC. WITHIN YOUR FURNITURE
& NOT MOVING FROM THE
SPACE OR MAKING IT
NOT INTRUSIVE?

IDENTIFY
ORIGIN, NATURE,
PRODUCT AREA,
CONNECTION WITH SYSTEM,
PRODUCT RANGE ETC AS
WELL AS PLACEMENT &
FUNCTION

DESCRIBE
FACTS, ITS PURPOSE =
DEFINE THE TASK
WAYS OF USE,
HANDLING

KEY INSIGHTS FOR IDEATION:



SOFA DESIGN STUDY:

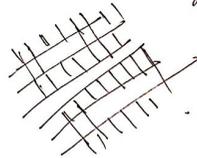
Spring

- ① S. Springs or Sinuous/Serpentine Spring
 - Cheaper than normal coiled spring
 - Heavy heavy gauge steel
 - mostly used
- ② Tight way Tied Springs.
 - coiled springs set evenly at the sofa base
 - Tied together with high quality twine.
 - Crosses in 8 different directions
 - Sturdiest Support

NOTE: Springs & webbing are meant to offset the stress so the cushions don't bottom out as fast, more room to bounce

Webbing

- Cheapest Method
- 2-3" Semi-elastic bands across a frame.
- Doesn't squeak as compared to worn out springs.



Attaching fabric:

Staple Gun vs Tapestry Tacks.

- Traditional Method = small blue tacks or using an electric/air compressor staple gun.
- Modern way - staple everything.

Size:

- Standard 3 person sofa
 - 85" long, 35" deep & 36" high.
 - Varies → (30-35) (30-36) \downarrow 20-26" \downarrow width
- Seat height
 - 16" from the floor to the top of the seat cushion. Varies (13" - 20")
- otherwise 15"
- Seat incline → 90-100° at the front to be comfortable for the legs to hang.
- back incline is 5° more for upright sofa & 15° more for a casual back.

India
 Rosewood
 Sal Wood
 Sabin Wood
 Teak Wood
 Kiln Drying Method to remove all moisture from the wood before construction. (elsewhere oak, cherry, walnut, beech)

- India
- Rosewood
- Sal Wood
- Sabin Wood
- Teak Wood

Kiln Dried hardwood - held together by industrial glue & nails.
 Kiln Drying Method to remove all moisture from the wood before construction.
 (elsewhere oak, cherry, walnut, beech)

Filling - soft & Plushy filling - foam & feather mix.

High Density (resilient polyurethane foam) (35-42kg/cbm) wrapped in down feathers, cotton or polyester batting. High density of the foam, the firmer & more lasting it is. Uptime:

25kg/cbm - 1-2 yrs	35kg/cbm - 3-4 yrs.
42kg/cbm - 7-9 yrs.	

42kg/cbm foam wrapped with down/feathers / cotton.

Cotton & Linen upholstery.

Frame: Mortise & Tenon joint > staples.

Modern - contemporary style

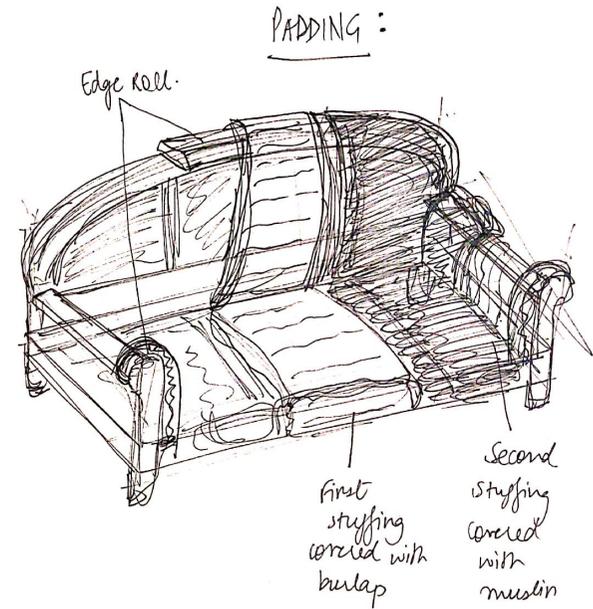
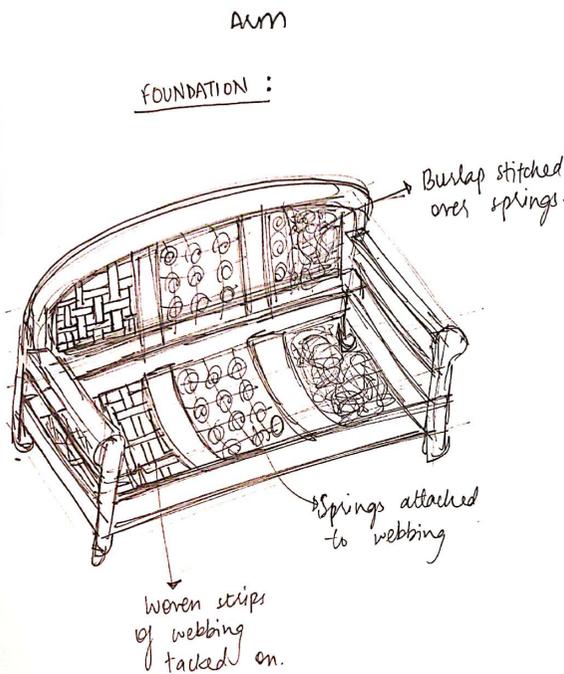
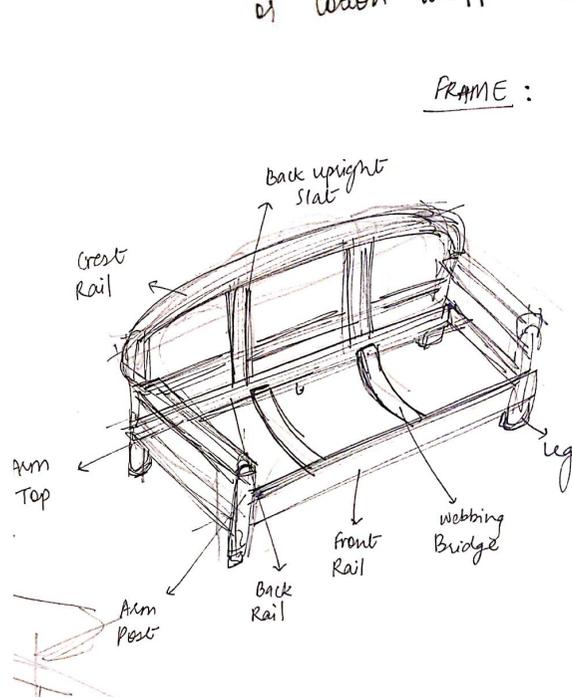
Fabric & Frame

(Soft - microfibre) synthetic fibers, natural / blended.
 wool & nylon → cotton, Acetate, Rayon & Polyester.

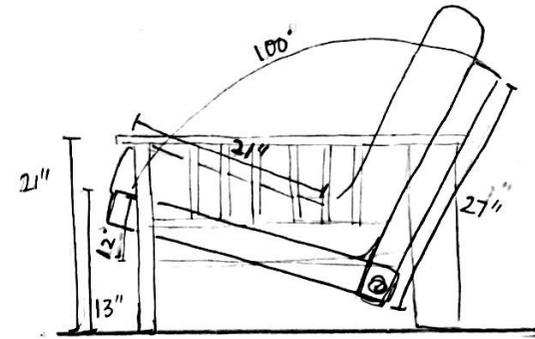
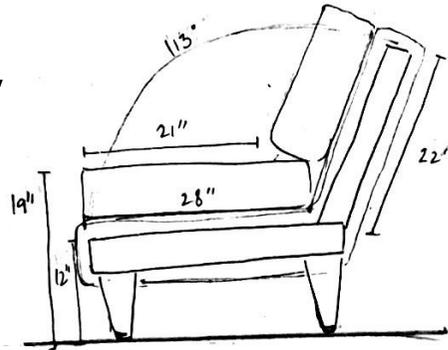
Frame → wood → newer options include steel, plastic, laminated boards or combination of the above.

Padding → animal hair (hog or horse)
 used in mass production - foam & Polyester
 fiberfill wrap

Cushions → fashioned from polyurethane foam, Polyester fibers, down, cotton, latex or cotton wrapped springs.



ERGONOMICS STUDY



Body weight distribution

- 75% on Seat
- 8% on Backrest
- 17% on Floor

Foam Pad Density

- Soft for Backrest
- Soft for Headrest
- Medium for seat
- Firm for Armrest

Transverse Back Curves:

- 12-18 (30.5 - 45.7) Rad at Waist
- 40 (101.6) Min Rad at lower chest
- Nearly flat at shoulder blades.

Arm Rest Inside Spacing:

- 28 (50.8) Opt
- 22 (55.9) with winter clothes

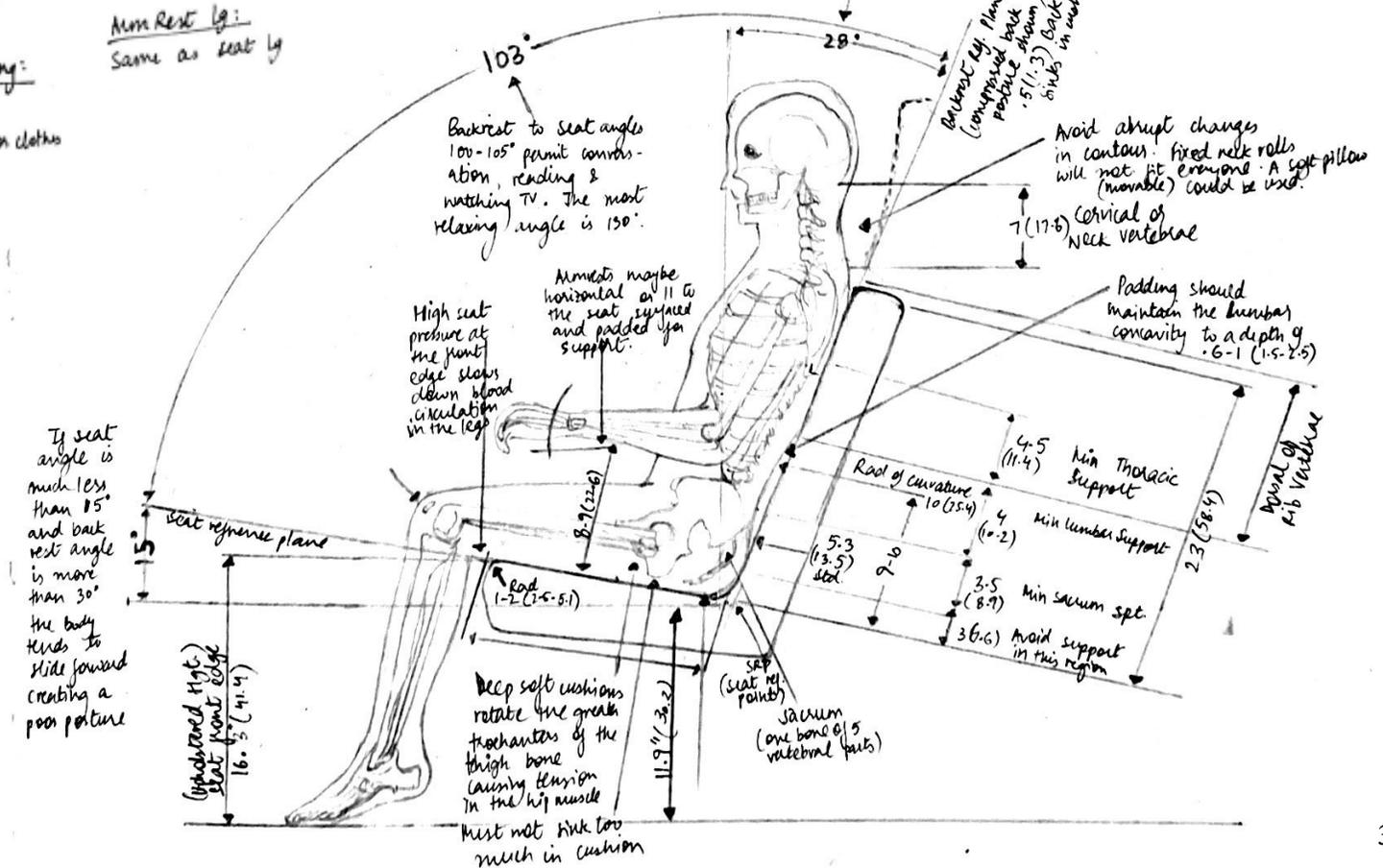
Armrest width:

- 2 (5.1) Min
- 2.5 - 3.0 (24-81.7) Adequate in over 3.5 (8.9) Luxurious

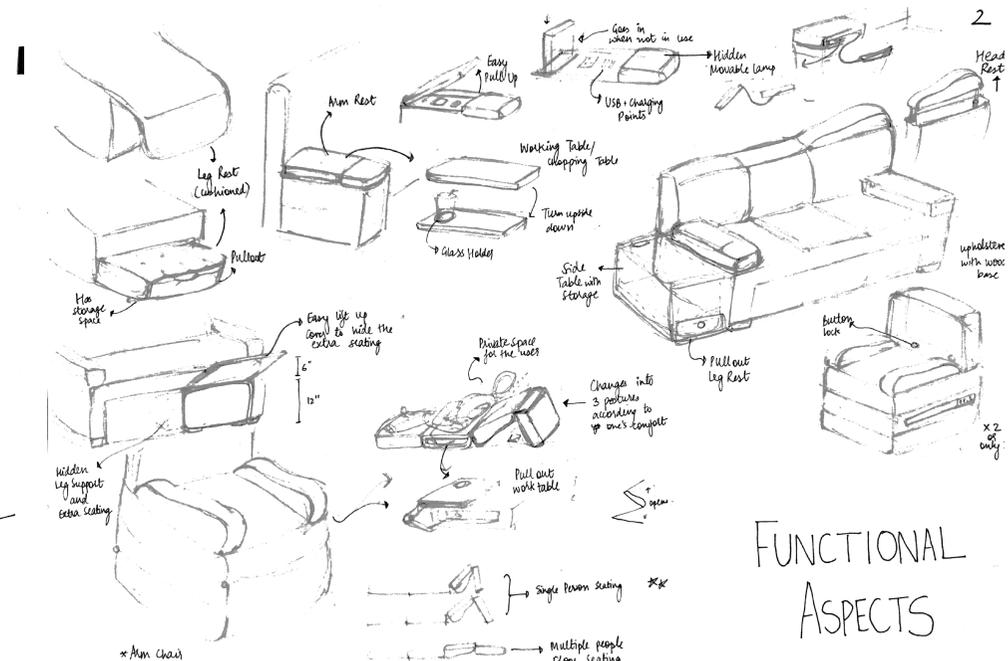
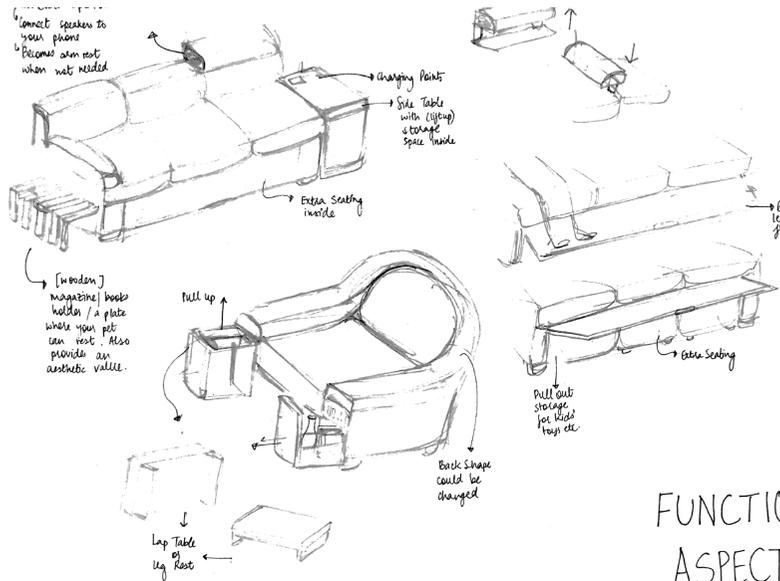
Arm Rest lg:

Same as seat lg

Avg. Male sitting in the chair:

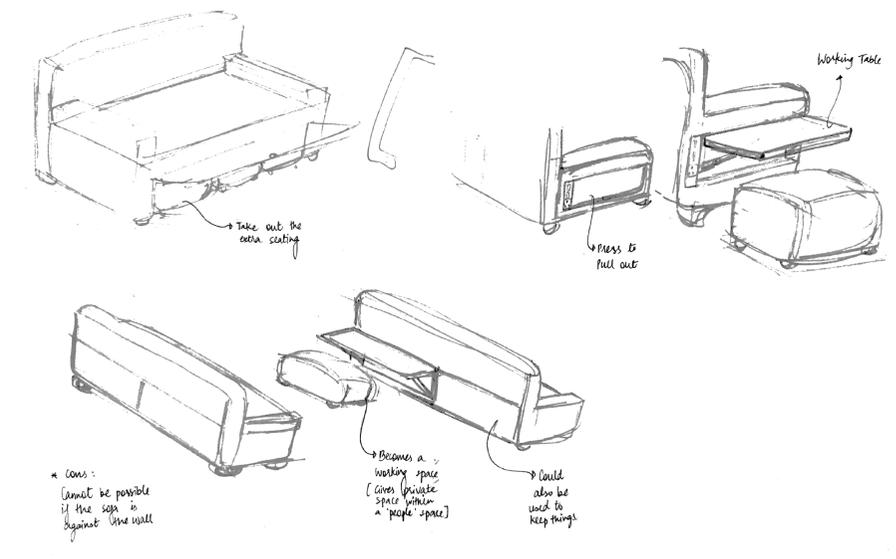
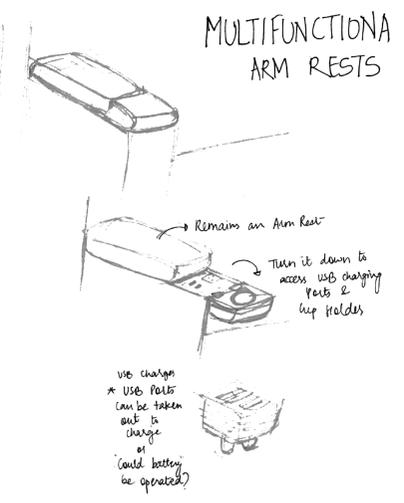
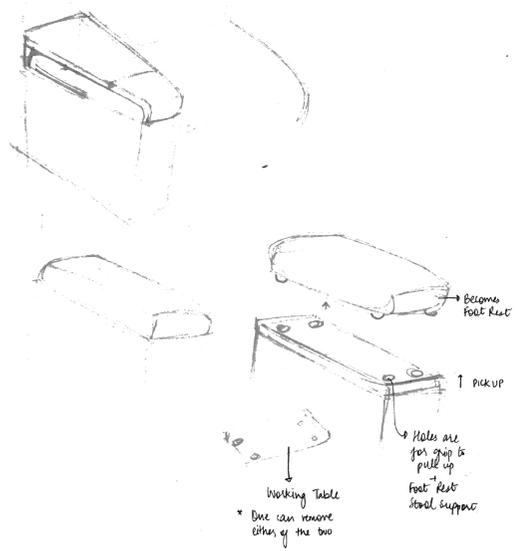


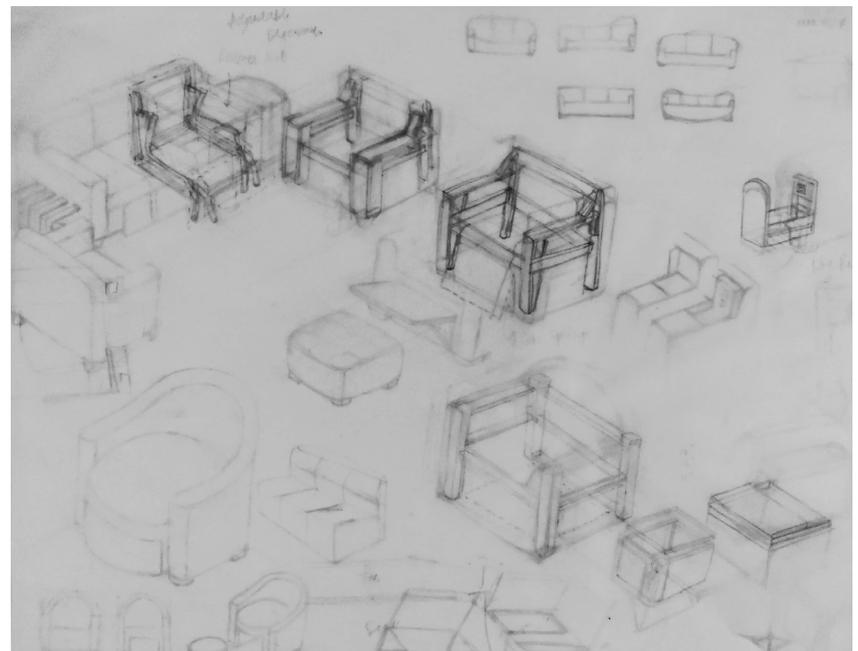
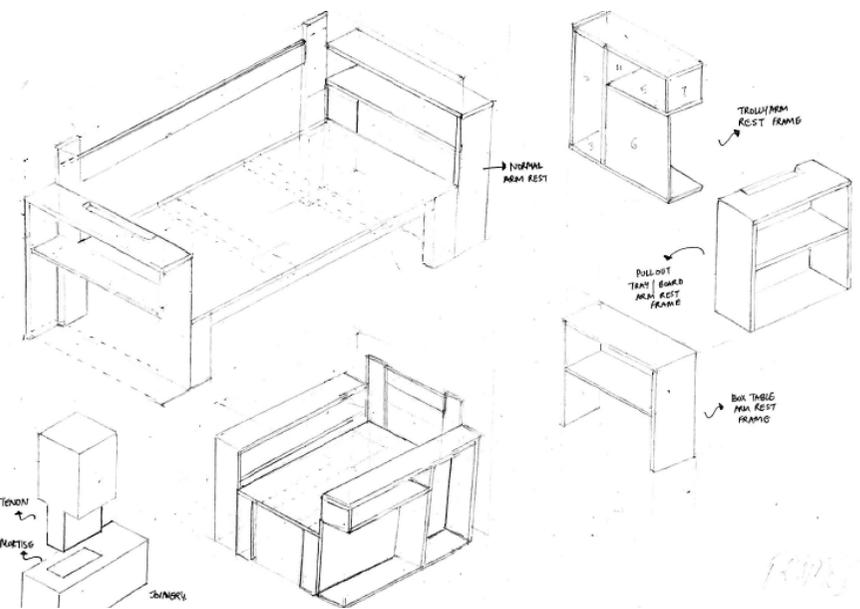
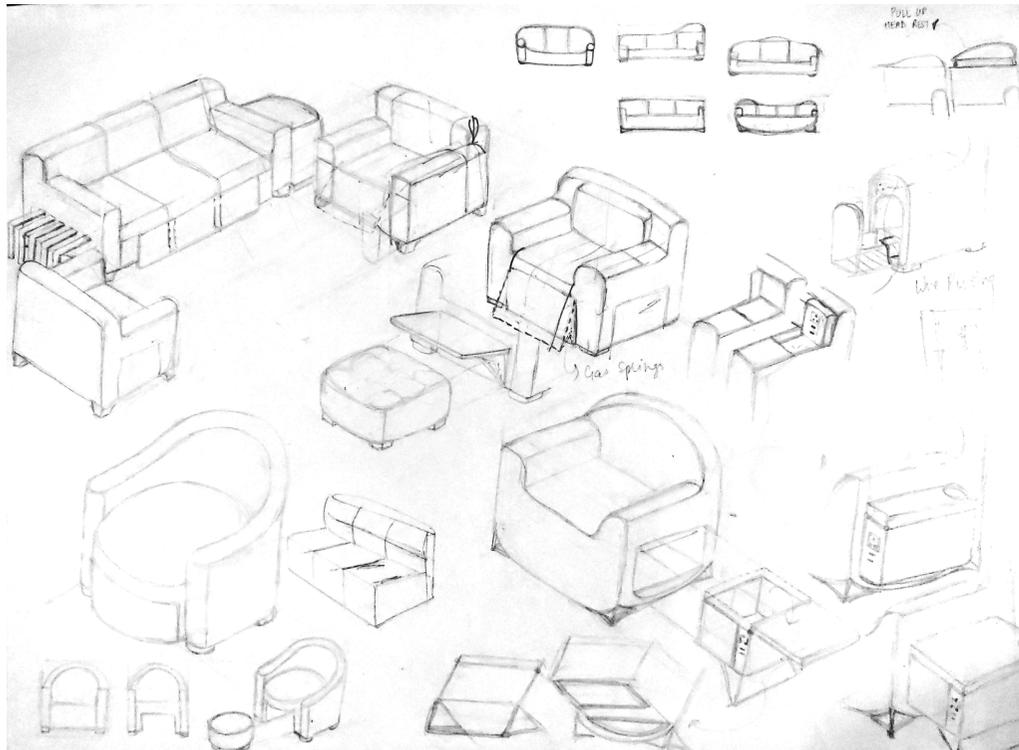
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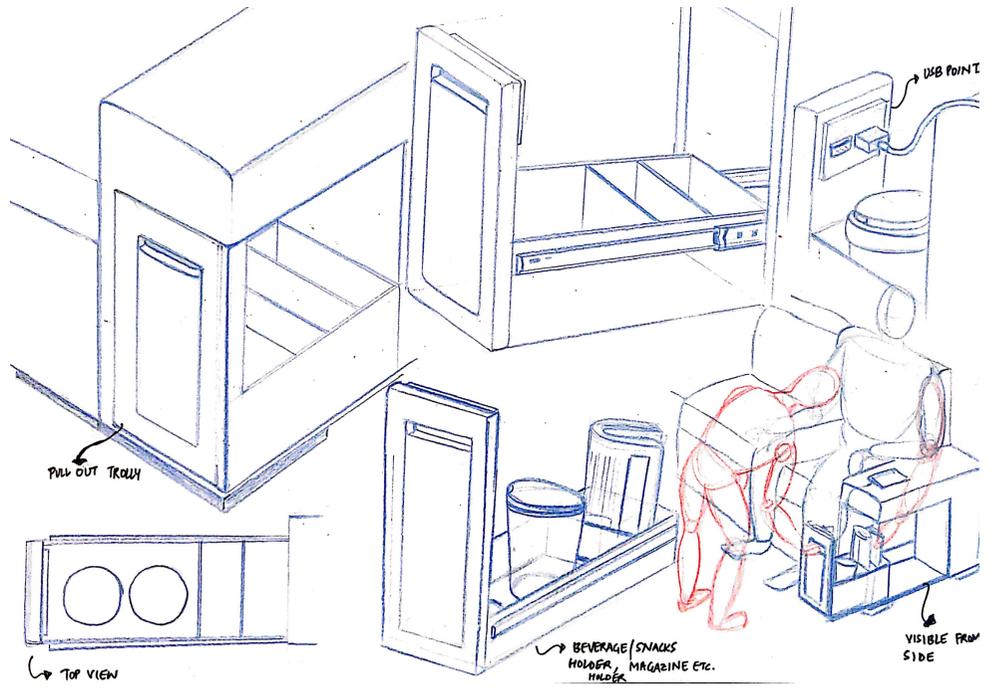
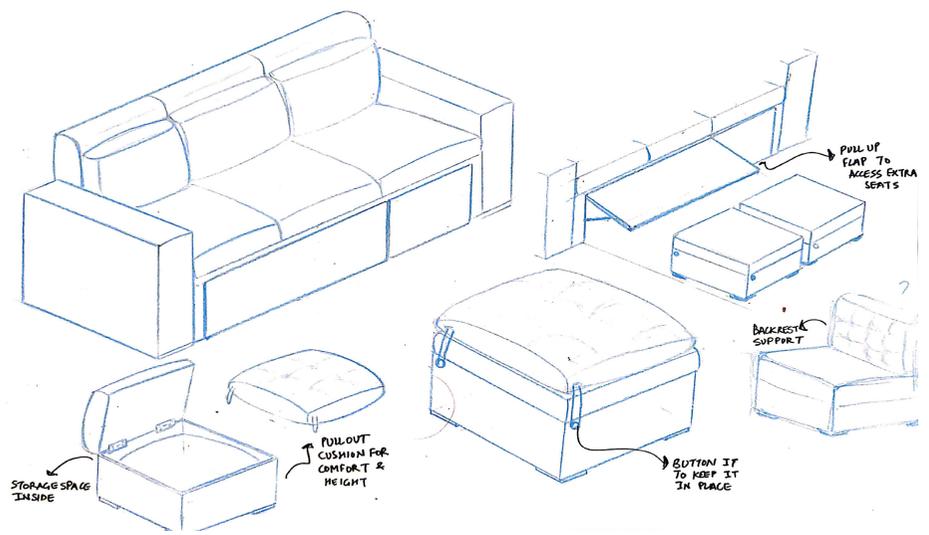
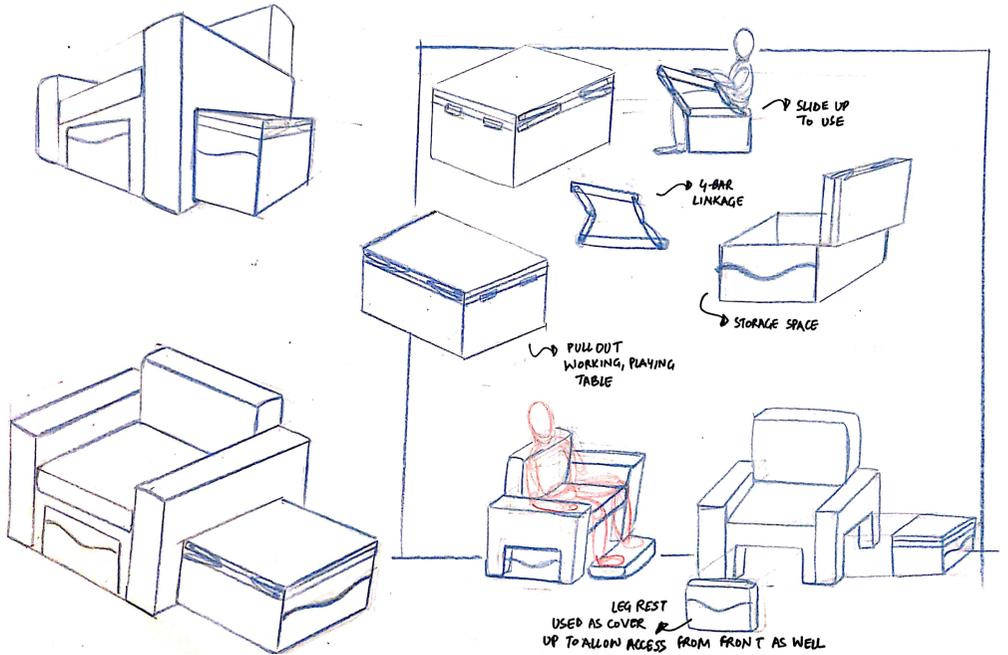
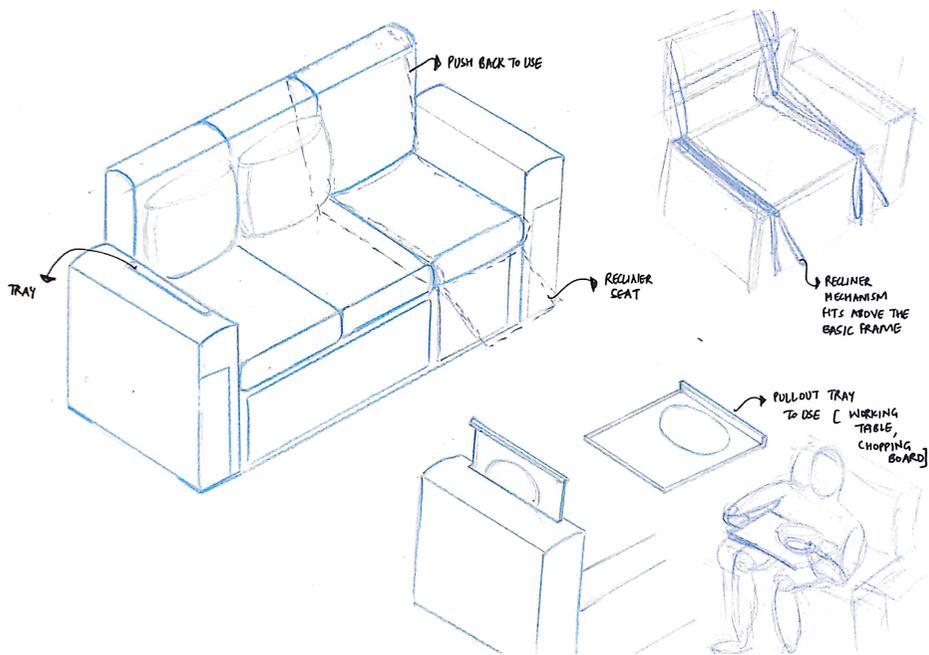


FUNCTIONAL ASPECTS

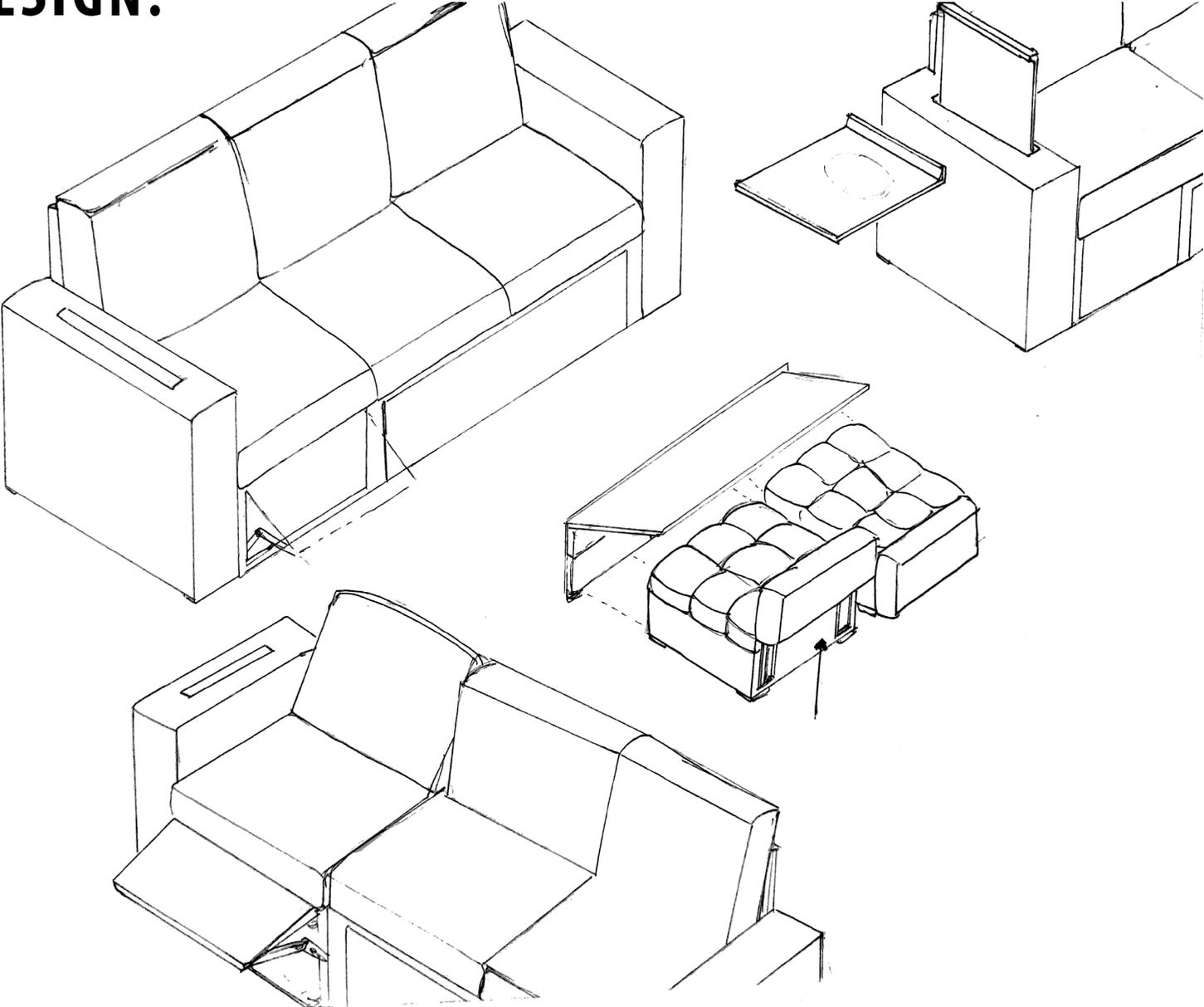
FUNCTIONAL ASPECTS

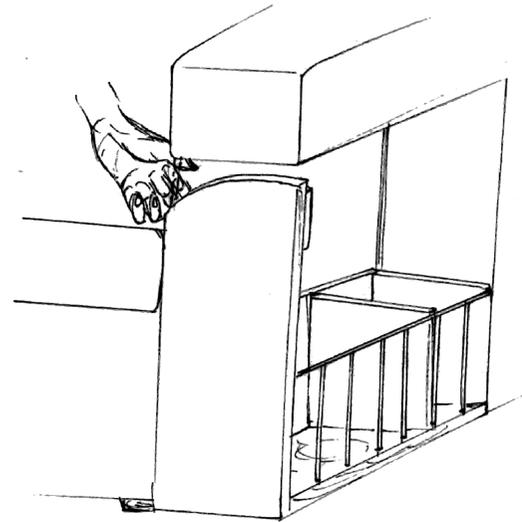
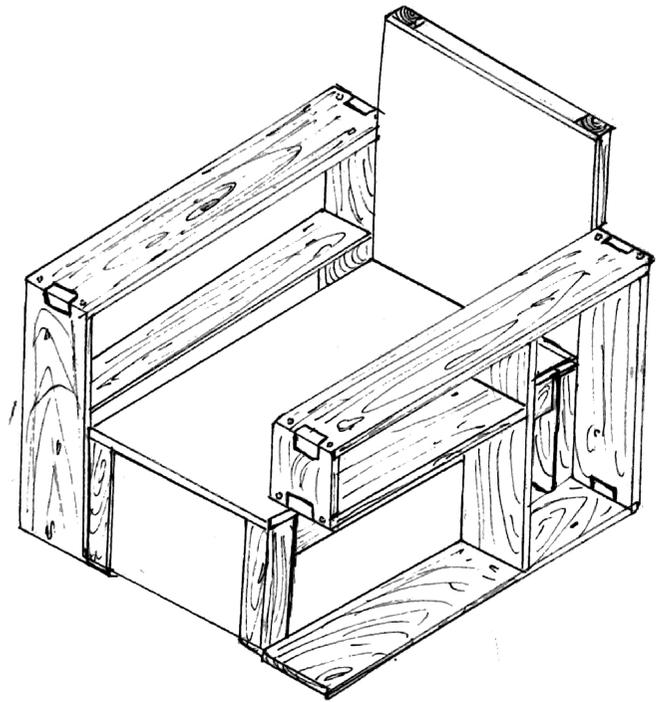
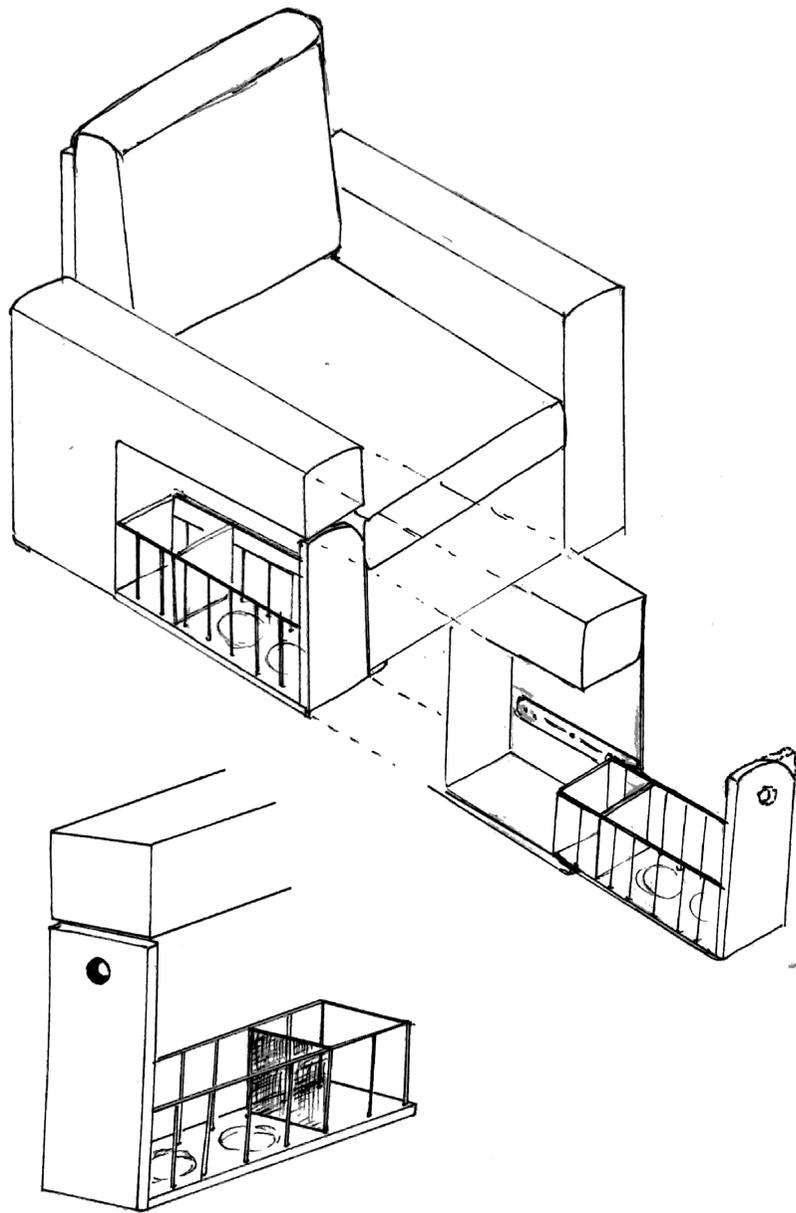


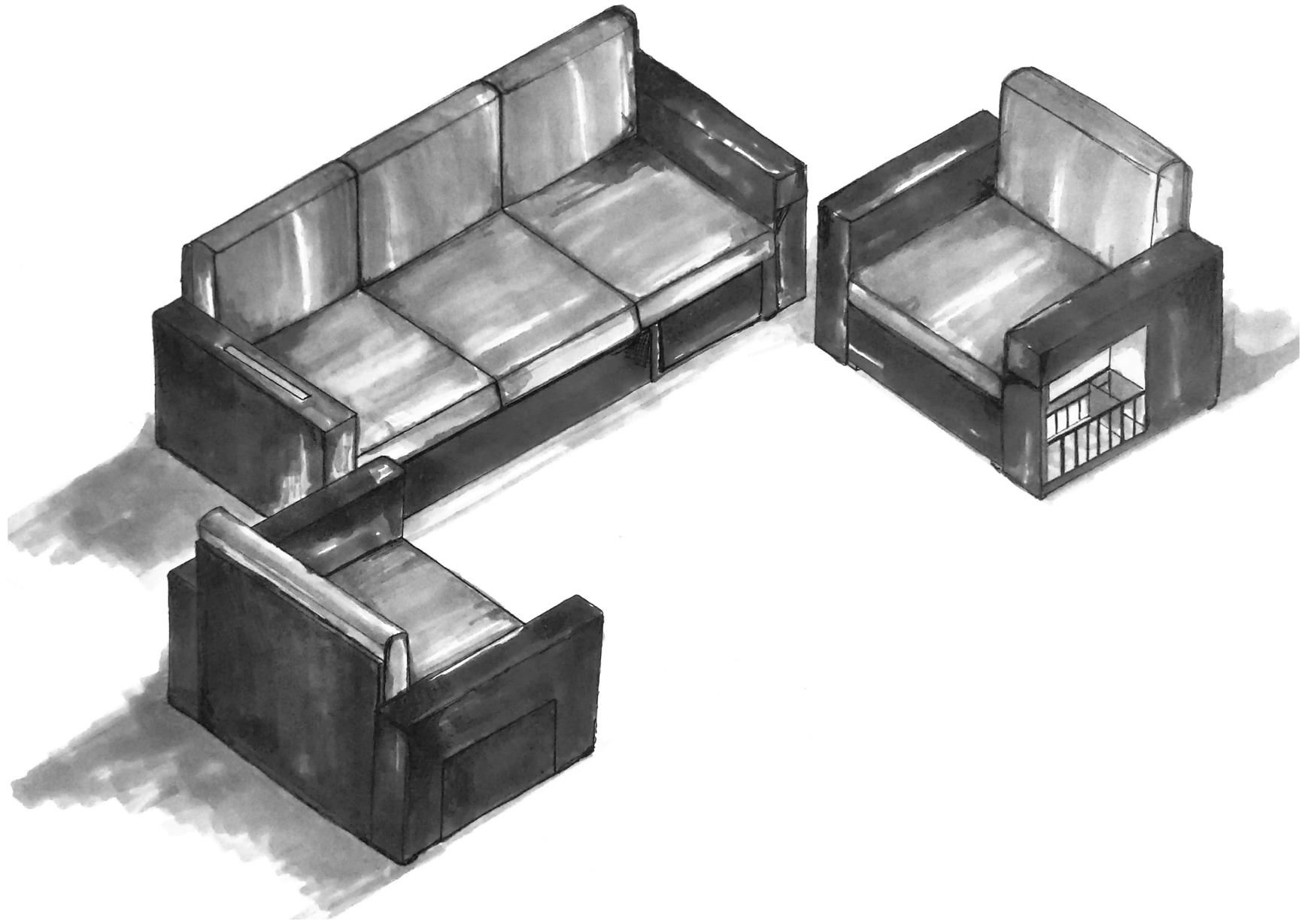


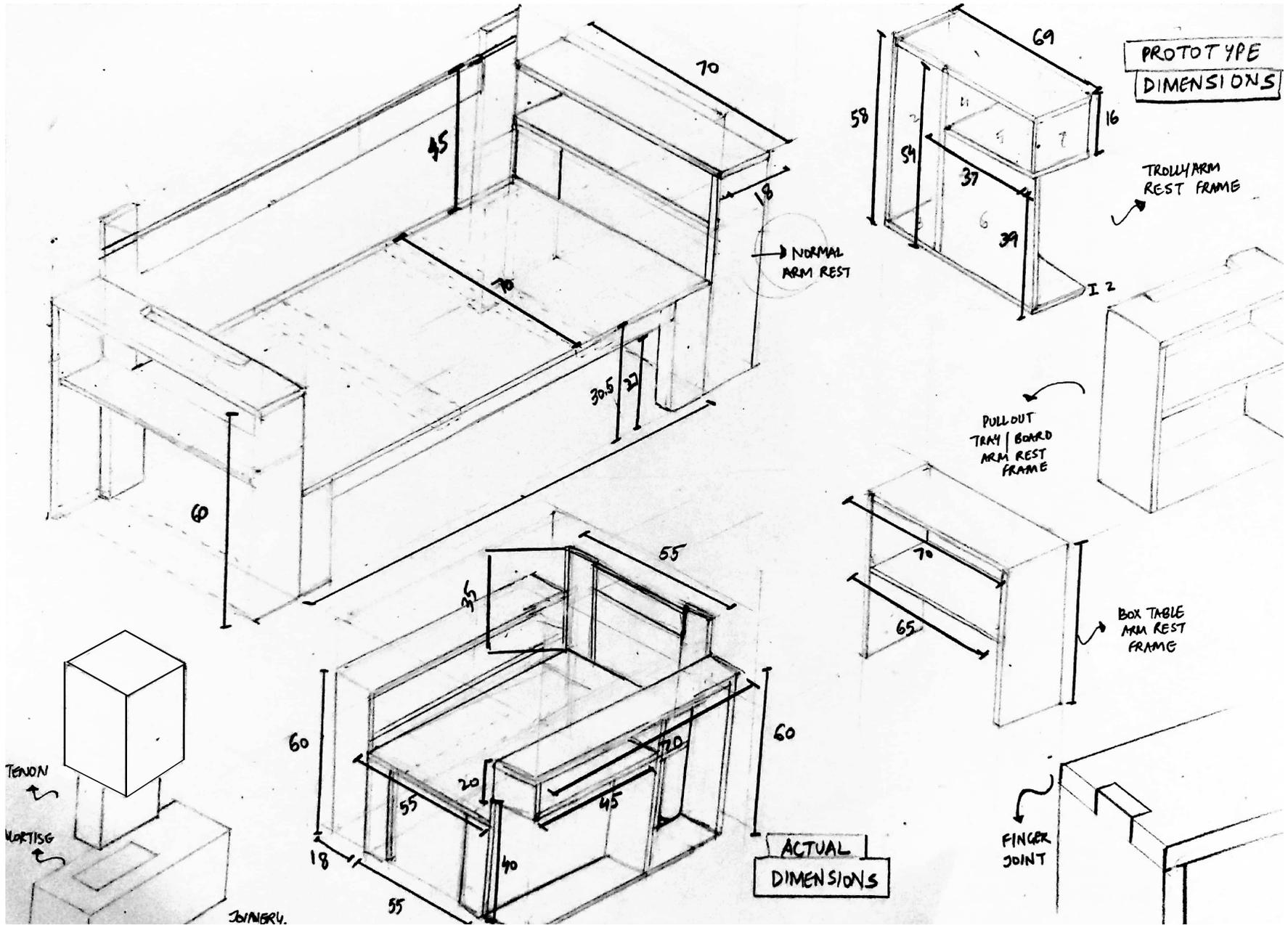


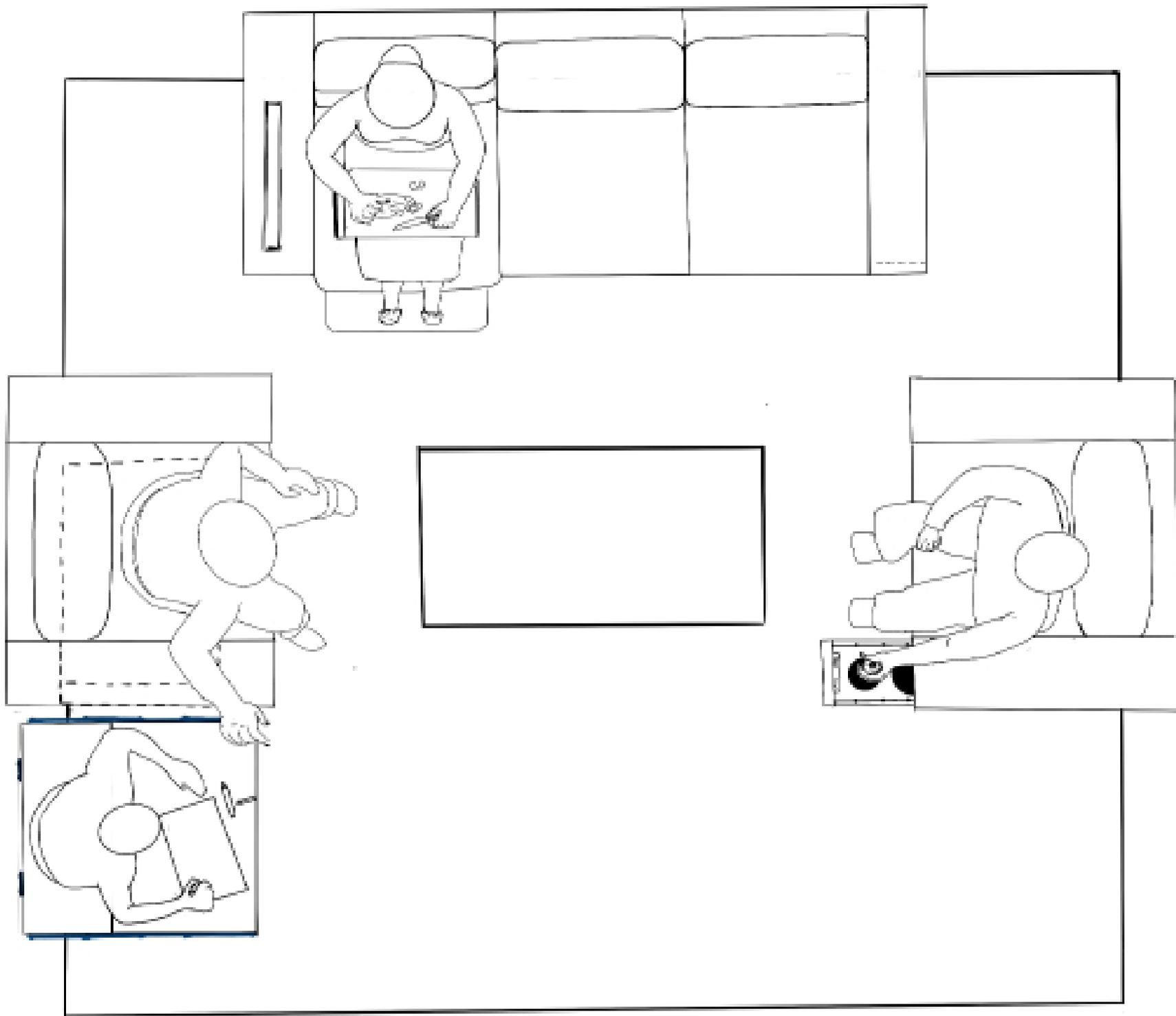
FINAL DESIGN:





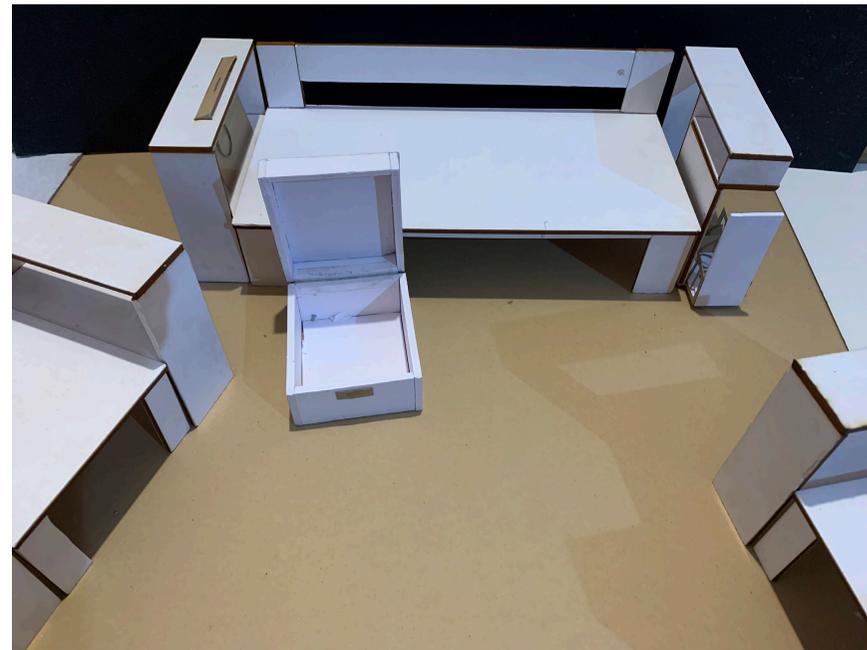
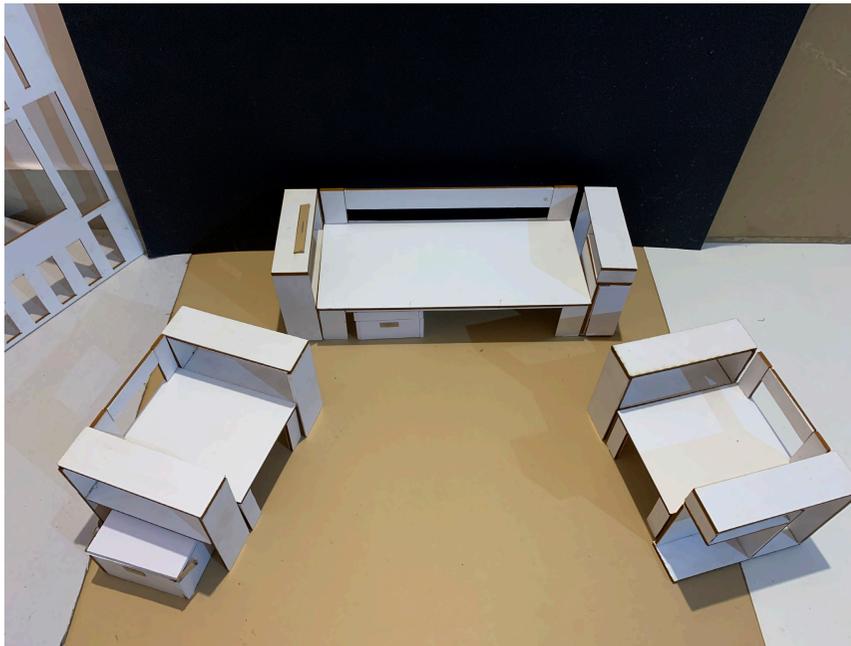
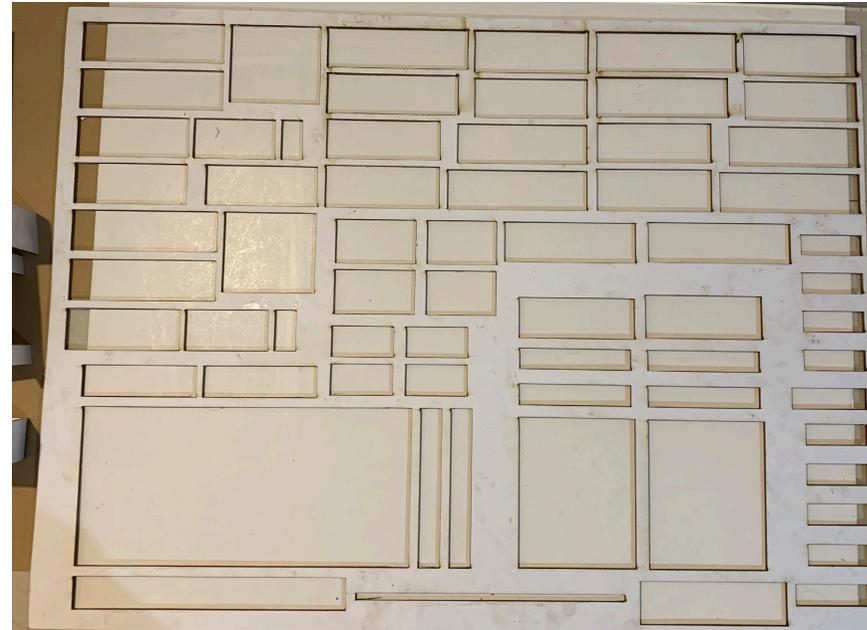


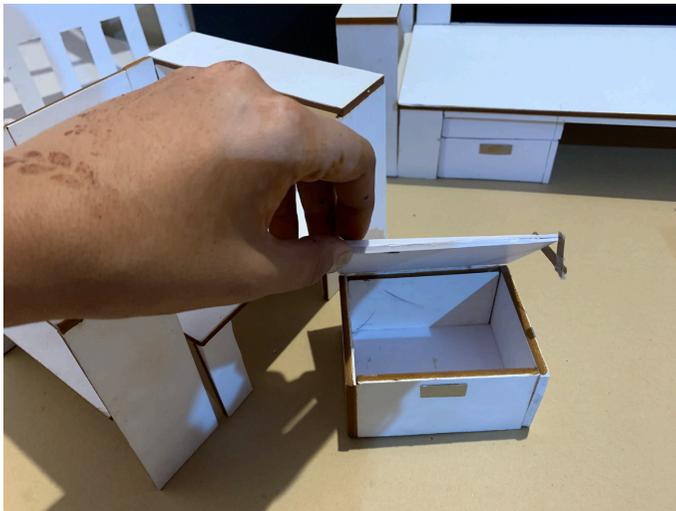




MOCK-UP: SCALE (1:5)

MATERIAL: Sunboard
PROCESS: Lazer Cutting





DETAILED FEATURES LIST AND SCENARIO MAPPING

MULTI-FUNCTIONS PERFORMED BY THE SOFA UNIT FAMILY MEMBER ITS CATERING TO	Recliner sofa seat : Improving Posture & Comfort (Adjustable)	Arm chair w/ Pull out storage/ working table & seating (undersneath covered with removable padded sides)	Arm chair with padded sides acting as foot rests	Side Table attached to the 3-seater sofa [not necessary]	Arm chair : Armrest with Pull out trolley acting as storage, beverage holder & USB Ports	Extra seats x 2+ under the 3 seater sofa covered by a lift-up panel	Arm chair with 3-seater sofa side table + USB ports on the arm rest Tray/Beard	Extra seats/stool under the 3-seater sofa with storage under the seat also.							
Working Parents	●	⊙	●	●	⊙	●	●	⊙	FEATURES LIST, UNDERSTANDING USERS, & PROBLEMS SOLVED.						
Stay at Home Parent	●	⊙	●	●	⊙	●	⊙	⊙							
Teen child/ Adult child	●	●	●	●	⊙	●	⊙	●							
Young children (3-12 Yrs)		⊙				●		●							
Senior Citizens	⊙		⊙		●		⊙	●							
Pets			●	⊙											
Guests			●		●	⊙		⊙							
<p>Problems being solved</p> <table border="1"> <tr> <td>Anyone (Users)</td> <td>●</td> </tr> <tr> <td>Primary Users</td> <td>⊙</td> </tr> <tr> <td>Secondary Users</td> <td>●</td> </tr> </table>	Anyone (Users)	●	Primary Users	⊙	Secondary Users	●	PROVIDING A COMFORTABLE AND RELAXING EXPERIENCE IN THE SAME SPACE	PROVIDING A SPACE FOR THE CHILD & PARENT TO SIT NEXT TO EACH OTHER, PARENT HELPING THE CHILD STUDY OR PLAY, STORE TOYS & BOOKS	HIDING THE STORAGE + STOOL UNDER THE CHAIR DISCRETELY AND PROVIDING FOOT RESTS FOR THE ELDERLY SPECIFICALLY IF NEED BE	PET CAN SIT UNDER/ ABOVE, EASY TO CLEAN ALSO - ACTS AS A MAGAZINE HOLDER GIVES AN AESTHETIC APPEAL	CHILDREN (TEEN & ADULTS) HAVE AN INCENTIVE TO STAY IN THE ROOM, USE THEIR PHONES ON CHARGE OR NOT ∴ MAY ENGAGE WITH THE ELDERS	GUEST ACCOMMODATION	PROVIDING ADDITIONAL USB PORTS WITHOUT HAVING TO PULL OUT THE TROLLEY IF NOT NEEDED	PROVIDES STORAGE FOR THE HOME, GUESTS OR EVEN KIDS' TOYS & BOOKS.	
Anyone (Users)	●														
Primary Users	⊙														
Secondary Users	●														

<p>MULTI-FUNCTIONS PERFORMED BY THE SOFA UNIT</p> <p>FAMILY MEMBER IT'S CATERING TO</p>	<p>Recliner sofa Seat : Improving Posture & Comfort (Adjustable)</p>	<p>Arm chair w/ pull out storage working table & seating (underneath covered with removable padded sides)</p>	<p>Arm chair with padded sides acting as foot rests</p>	<p>Side Table attached to the 3-seater sofa [not necessary]</p>	<p>Arm chair : Armrest with pull out trolley acting as storage, beverage holder & USB Points.</p>	<p>Extra Seats 2x under the 3 seater sofa covered by a lift-up panel</p>	<p>Arm chair with 3-seater sofa side table + USB points on arm tray/Bears</p>	<p>SCENARIO MAPPING</p> <p>↳ OVERLAPPING NEEDS AND USES</p> <p>↳ PEOPLE USING THE PRODUCT TOGETHER</p> <p>↳ MULTIPLE USERS OF THE HIGHLIGHTED FEATURES</p>
<p>Working Parent</p> <p>Stay at Home Parent</p> <p>Teen child / Adult child</p> <p>Young children (3-7 yrs)</p> <p>Senior Citizens</p> <p>Pets</p> <p>Guests</p>								
<p>Problems being solved</p> <p>Minor Use (Green dot)</p> <p>Primary Use (Red circle)</p> <p>Secondary Use (Red dot)</p>	<p>PROVIDING A COMFORTABLE AND RELAXING EXPERIENCE IN THE SAME SPACE</p>	<p>PROVIDING A SPACE FOR THE CHILD & PARENT TO SIT NEXT TO EACH OTHER, PARENT HELPING THE CHILD STUDY OR PLAY, STORE TOYS & BOOKS</p>	<p>HIDING THE STORAGE + STOOL UNDER THE CHAIR DISCREETLY AND PROVIDING FOOT RESTS FOR THE ELDERLY SPECIALLY IF NEED BE</p>	<p>PET CAN SIT UNDER / ABOVE, EASY TO CLEAN ALSO. ACTS AS A MAGAZINE HOLDER GIVES AN AESTHETIC APPEAL</p>	<p>CHILDREN (TEEN & ADULTS) HAVE AN INCENTIVE TO STAY IN THE ROOM, USE THEIR PHONES ON CHARGE OR NOT. MAY ENGAGE WITH THE ELDERLY</p>	<p>GUEST ACCOMMODATION</p>	<p>PROVIDING ADDITIONAL USB POINTS WITHOUT HAVING TO PULL OUT THE TROLLEY IF NOT NEEDED</p>	<p>PROVIDES STORAGE FOR THE HOME, GUESTS OR EVEN KIDS TOYS & BOOKS</p>

PROTOTYPING: Sofa Arm Chair

SCALE (1:1)

WOOD: Pine

Before planing and cutting



After planing and cutting





Making the base frame using mortise and tenon joinery
Using finger joineries for the arm rest frame



SOURCING MATERIALS:

Cotton Fabric: Grey (2mtrs) and Black (4mtrs)

Foam Cushion: Back , 21 x 22 x 4 inches(Duroflex)

Seat, 21 x 22 x 4inches (Kurl-on)

Extra 21 x22 x 2 inches (Kurl-on)

Foam Rolls: 11 mm thickness, 23 density (X 2)

20 mm thickness, 32 density

Plywood: Seat , 8 mm thickness

MDF Sheet: 6 mm thickness, 8x4 feet



Adding vertical and horizontal membranes for support and strength
Screwing the seat and back to the frame



MAKING OF THE TROLLEY:

10 gz GI Wire, 10 Feet
Pine Wood
Drawer Channel, 36 cm length

Techniques:
Welding the wires for the 2 frames.
Drilling holes in the wood to attach the frame.
Screwing the drawer channels on the arm rest frame and trolley.



COMPLETING THE FRAME:

MDF and Pine Wood

Techniques:

Using fevicol adhesives and screw gun to attach the mdf pieces to the wooden frame.

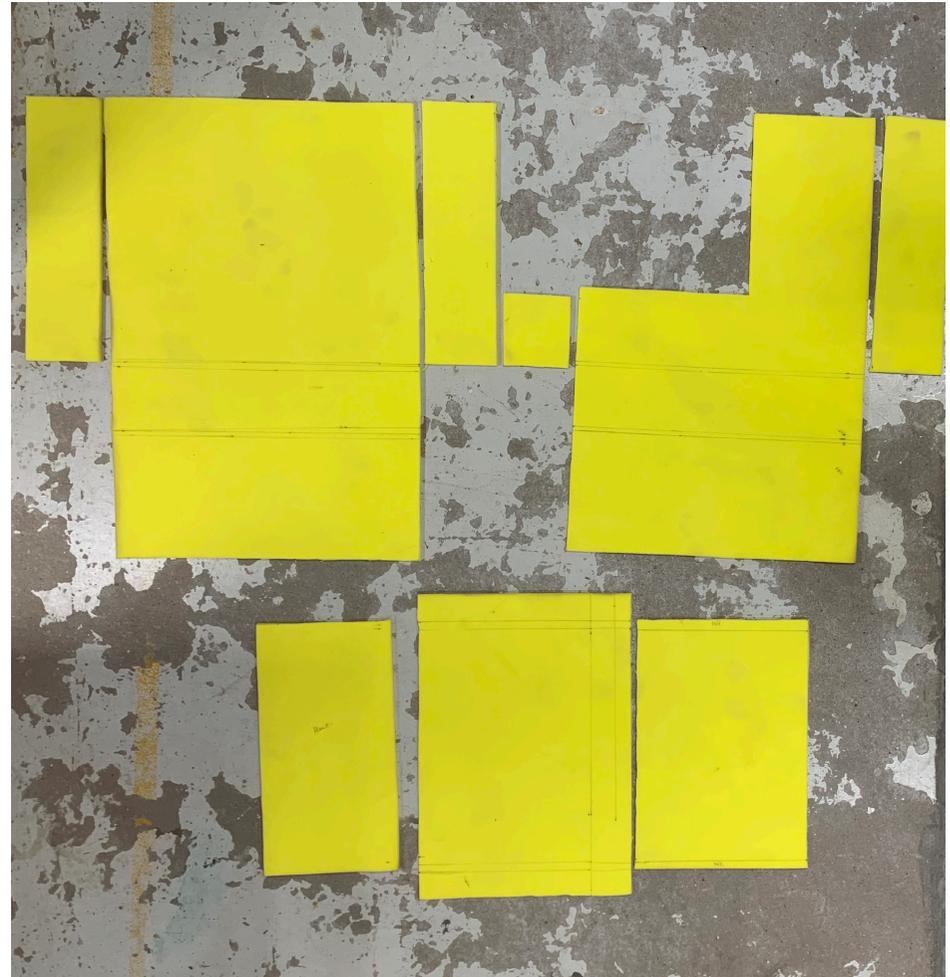
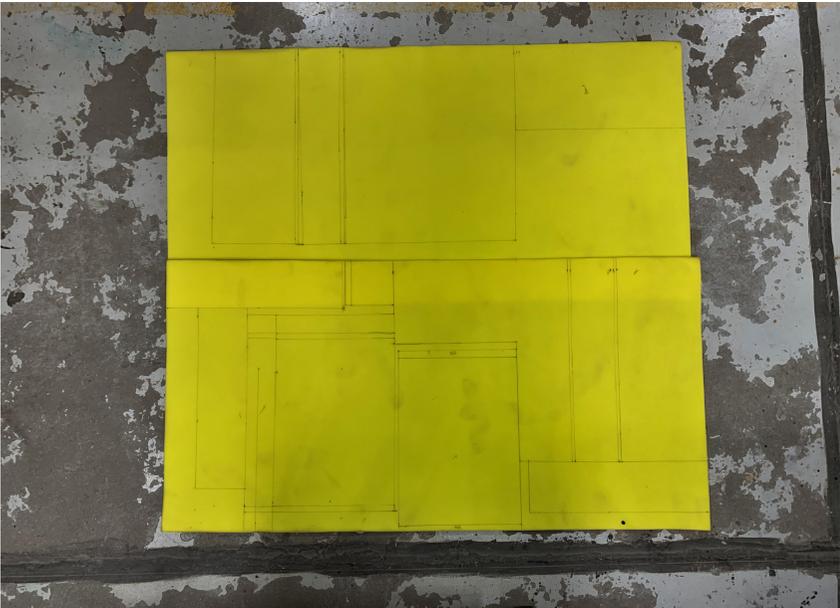
Using a planer, all the edges are planed and sanded to provide a soft surface for upholstery.





UPHOLSTERY:
FOAM CUTTING:

Marking the foam rolls keeping 1.5 inches extra on all edges.
Making the back cushion by adding more foam at an angle





FABRIC CUTTING:
Keeping all the cut pieces as references
on the cloth for all sides.
For arm rest, keeping 3 inches extra





ATTACHING THE FOAM AND
FABRIC TO THE FRAME:

Techniques:
Sticking the foam with
Fevicol SR and stapling the
cloth over the frame



PROCESS
DOCUMENTATION:



FINISHING UP:
ARM RESTS AND SEAT



USER TESTING:







COST SHEET: (Prototype)

Material	Unit	Size	Qty.	Cost
SOLID WOOD : PINE (Second-hand)	cm	20x2x215	4	
	cm	10x2x37	2	
	cm	5x5x125	2	700
PLYWOOD; 8mm	cm	69x54x0.9	1	150
MDF Sheet, 6mm	ft.	8x4	1	690
Fevicol SR, 1 Litre	lt.		1	310
Fevicol SH, 500 gm	gm		1	120
POP Screws (1.5 cm, 1 inch, 1.5 inch, 2 inch)	dozen		5	80
GI Wire, 10mm gz.	feet	10	1	50
Drawer Channel, Pair	inch	36x1.7	1	120
L Angles	inch	1.5	4	20
Sand paper, 120 gsm			3	30
Foam Sheet, 11 mm; 23 Density	ft.	6x4	2	300
Foam Sheet, 20 mm; 32 Density	ft.	5.5x4	1	450
Kurl-on Cushion Foam	inch	21x22x4	1	750
Duroflex Cushion Foam	inch	21x22x4	1	350
Duroflex Cushion Foam	inch	21x22x2	1	225
Staples for Staple Gun			1	30
Cloth @Rs.273/meter (Grey + Black)	meter	1.3x 6		1638
EXISTING MATERIALS				
Staple Gun				
Wood Polish				
TOTAL				6013
Overheads/Misc. (6%)				361
GRAND TOTAL				6374
Cost Reduction by approx. 10% if mass produced due to availability of machines				-640
Reduced cost (approx.)				5734

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REFLECTIVE STATEMENT:

This project has been challenging in more than one way, as it required me to not only understand but also intervene with feasible solutions. Understanding the needs of the prospective user through the interviews and survey made me more observant, conscious, and empathetic to the problems that exist and how I can provide my desired solution. This project helped me gain physical skills such as upholstery, which I had not done before. It also gave me a realistic view of the furniture market. The amount of knowledge I have gained through this entire project has been overwhelming, all by the support of my faculty, mentors and vendors. I have gained useful insights throughout the course of the project and made me realise the effort that goes in to design a project from scratch to the end product. I enjoyed the whole learning process through trial and error to understand my product, create it myself and be able to place it in the market. I believe choosing this product was a good idea as even in the small, infamous products, you find problems and it just proves how even the smallest of improvements and paying attention to the details would bring ease of usage to the consumer. It was a different experience to actually make a sofa chair all by yourself. I look forward to more such projects, enjoying and doing better, as I feel there is still scope of improvement.

PRE THESIS PROJECT 2019-20

BUILDING EXPERIENCES IN LIVING ROOM

A modular seating furniture

STUDENT: **DIVIJA JAIN**

PROJECT: A Simple Home

SPONSOR: Self initiated

PROGRAM: Undergraduate Professional Programme

AWARD: B.Design, Industrial Arts and Design Practices

Final Examination Panel COMMENTS:

Examiner 1 (name and signature):

Examiner 2 (name and signature):

Examiner 3 (name and signature):

Date:

Academic Dean:



DIVIJA JAIN

Pre Thesis Project 2019-20
(Undergraduate Professional Programme)

Srishti Institute of Art, Design and Technology
Bangalore - 560064 Karnataka

