University of California, Davis

A Case Study in Museum Accessibility

Transformative Seating for the Manetti Shrem Museum of Art

Davis, CA

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GZ GEWWIXG'UWO O CT[: Our project encompasses a case study in the accessibility of museum exhibition design and infrastructure. Our client is Luke Turner, Exhibit Manager of the Jan Shrem and Maria Manetti Shrem Museum of Art on the UC Davis campus in Davis, CA. The Manetti Shrem Museum provides a dynamic and inclusive exhibition experience, but museum patrons can often find themselves limited in access to gallery spaces and artworks because of constraints in physical exhibition design. Our client's objective and goal for the Manetti Shrem Museum was to provide increased access to museum space and galleries through the manipulation of exhibition design to create a more inclusive art experience for visitors with all abilities. We began our project by immersing ourselves in exhibition design, gaining knowledge on gallery set-up and logistics by visiting the Manetti Shrem as well as local museums on the UC Davis campus and within the larger Davis area. We collected data from these museums verbally and in the form of visitor comments and suggestions. As an element of data collection, we conducted a Stakeholder Analysis, identifying key power holders both within the museum space and the larger Davis area. Once we collected information about museum design, we shifted to better understanding the needs of the museum visitors we were designing for. We conducted Policy Analyses of Museum ADA Guidelines and met with the Student Disability Center at UC Davis to collect data on the needs of students with vision and mobility impairments.

Conducting stakeholder analyses and data collection allowed us to narrow our project scope and define our project statement. Our project scope was to design transformative seating for museum patrons with physical disabilities for the Manetti Shrem Museum exhibition gallery spaces. Once we were able to narrow our project scope, a large majority of our design methodology involved researching peer-reviewed articles and case studies that analyzed current museum infrastructure and design. We also focused our attention on museums and institutions that have implemented programs and created physical designs to allow for a more inclusive museum experience for their patrons with disabilities. We viewed these examples of accessible

museum design as precedents that would guide us in our final design. We narrowed our project scope finally to encompass transformative seating designed to minimally invade the set aesthetic of the museum environment; our mantra being *o kpko wo 'ko r cev.''o czko wo 'kpxcukqp*. With sketches, and ultimately 3D designing through SketchUp and Adobe Illustrator, we created three minimal seating designs that we proposed as being set within the structure of the gallery space, including ceilings and walls.

KPVTQFWEVKQP<The Manetti Shrem Museum of Art opened its doors to UC Davis students and the public on November 13th, 2016, inspiring a dynamic art experience. The Manetti Shrem Museum of Art is a transformative museum that presents art exhibitions and organizes events for both the public and the university. It is engaged in inspiring new thinking and opening its doors to allow for the exchange of new design concepts and ideas. However, museum visitors with disabilities can find themselves often limited in access to exhibition space and artworks because of constraints in physical exhibition design. This can include but is not limited to visual, physical, and mental limitations in how exhibition designs can be accessed and interpreted. These constraints can limit museum visitor access to artworks and overtime can diminish the museum experience. The need for this project was to create environments within museum and art institutions that allowed for accessibility and access for all abled and disabled individuals. While creating this environment, increased experience to exhibits and installations should not compromise the museum's programing or day-to-day functions.

The creation of improved accessibility in museum infrastructure and artwork is of increased importance and prominence within museum design and architecture. Modern museums have taken a holistic and creative approach to designing environments and infrastructures that increase accessibility to artwork and art displays for visitors with disabilities or varied accessibility needs that are not being met. The Museum of Modern Art (MoMA) in New York City has developed programming to increase accessibility for patrons with physical and mental disabilities. This is achieved in the MoMA museum exhibition design by increasing the sensorial experience within the museum environment. This can include the addition or increased auditory, visual, or tactile access to works of art to allow patrons with varied needs the ability to experience the art in a variety of ways (Accessibility: MoMA, 2019). Another section of relevant

research that guided our design methodology and final project scope was a modern example via the Smithsonian Guidelines for Accessible Design (Ziebarth, 2010). Within the Smithsonian Guidelines, they detailed the ideal spatial needs of museum exhibition infrastructures to allow for increased and optimal accessibility for patrons with physical disabilities, including those patrons in wheelchairs and with physical mobility issues.

Our final project statement is a culmination of our initial research and analyses, as mentioned below. Our final project is a case study into museum accessibility and implementation of more inclusive accessibility within museum exhibition design. This is presented in the form of innovative seating aimed at visitors with physical mobility impairments. Within our design, we also hope to broaden the scope of museum visitors that can attend and enjoy the exhibition and gallery space.

O GVJ QF QNQI [<The main challenges in this project were to first identify which disability is the most frequent and therefore tackle it. Secondly, to narrow down the scope of our intervention in order to come up with an innovative design to present to our client. Because of its relevance, we decided to focus on seating, catering to the needs of people with mobility impairments, and wheelchair users. Especially, taking into account the demographics of the museum-goers of the Manetti Shrem; an aging population with increasing mobility issues.

*O wugwo "Kph cust wewvt g'Cpcn{ uku<*In order to understand our project, museum design, and define our project statement, we visited the Manetti-Shrem Museum several times as a group and also individually. During our visits, we studied its architecture, the infrastructure, and the space to gain a better understanding of the challenges the Museum might be facing in terms of accessibility, laying the ground for possible interventions we could implement. We visited other local museums and art galleries to compare how accessibility is being approached in these nearby art places. We visited the Gorman and the Cruess Museums, both on-campus. We also visited local art galleries like the John Natsoulas Art Gallery, the Pence Art Gallery, and the Artery in Davis. We identified how these places tackled disability issues in their own way.

Wpf gt uxcpf kpi 'Rj {ukecn'O qdkhx{ 'Ko rckt o gpw< We also performed onsite immersion into the Manetti Shrem, with the purpose of gaining a better understanding of how a person with mobility disabilities would experience and understand the limitations in design. Each of us assumed the character of a person in a wheelchair, a person during advanced pregnancy, and a person with mobility impairments (using crutches). This allowed us to experience first-hand the needs of such groups and further focus on our intervention proposal. We then met withÁhe Student Disability Center on campus to better understand the student population needs, helping us again to focus on the affected group within the population we would be prioritizing. "

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F cv 'Eqngevkqp 'cpf 'Rt qeguukpi < We processed data provided to us by the Manetti Shrem, in the form of visitor suggestions. These have been gathered by the Manetti Shrem for the last several years and allowed us to prioritize the main accessibility issues focusing on our efforts. "We conducted online research in museum design, including the exhibition designs of the Museum of Modern Art in New York City and the White House Visitor Center in Washington, D.C.

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Ucmgj qrf gt 'Cpcr{ uku< We developed an analysis of the stakeholders that would be involved in both implementing and using the final project design within the museum space. We also identified the levels of power that each stakeholder possessed and how we can work within these power dynamics to develop a design that meets the needs of all. We analyzed stakeholders both within the museum and the larger Davis area.

- Manetti-Shrem Museum
- Curator
- Museum Visitors
- Artists
- UC Davis
- Maria Manetti and Jan Shrem

We concluded that the main stakeholders for our project design included the Manetti Shrem Museum and its Exhibition/Gallery Curators, the visitors to the Manetti Shrem (both those with and without disabilities), the larger UC Davis campus, the artists with work in the museum, and the contributing donors of the museum, Maria Manetti and Jan Shrem. The Manetti Shrem and its exhibition designers, directors, and staff, were our primary stakeholders, along with the museum visitors with physical disabilities who would be using the seating design. Both stakeholders hold immense power in deciding whether the final project design works within the museum space and is functional as transformative seating. The UC Davis campus and artists with exhibition pieces in the Manetti Shrem were also identified as stakeholders that hold less power in the implementation of the final design, but still hold decision making power within the museum space. Donors Maria Manetti and Jan Shrem also hold stakeholder power but are not directly decision-makers within exhibition design.

Policy Analysis: Our policy analysis included an examination of the Americans with Disabilities Act (ADA) to better access the spatial needs of the exhibition gallery space and to inform ourselves of the needs of persons with physical disabilities. The Smithsonian ADA Policy Guidelines served as an informational tool when developing our final project, making sure that each design element aligned with ADA policies (Smithsonian Standards and Guidelines on Accessibility, 2013).

Life Cycle Analysis: In consideration of environmental impact, this project takes into account both the possible seating material and reusability of the finished product. For instance, one consideration included the use of vegan padded leather for cushioning purposes or stuffed plant fiber fabrics. Additionally, the intention of this project is to use sustainably sourced materials for the seating base as well, such as repurposed wood or metal.

RESULTS AND DISCUSSION: Our methodology and research findings resulted in the narrowing of our project scope to encompass transformative and retractable seating built into the existing museum infrastructure. We developed our final scope by combining our analyses and

research from our methodology while understanding the stylistic needs of the Manetti Shrem. Therefore, we decided to develop innovative forms of seating for museums that are retractable, meeting the aesthetic needs of the museum – through the quality of its imperceptibility while not in use – while acting as a functional design for museum patrons with physical mobility impairments. We considered the infrastructure of the museum and where our retractable seating would be best designed into the gallery space, deciding to implement designs along the walls and into the ceiling.

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    /"Korgtegrvkdng"Yjkng"pqv"kp"Wug<For this prototype, we considered the space in the ceiling of the museum as possible storage for our retractable seating. In this particular case, we considered a comfortable couch that is logged into the ceiling. This couch, while not in use, would be secured by four robust steel cables with shackles at their ends. The couch would have a design base that would blend into the ceiling's design, not to be noticed while not in use.
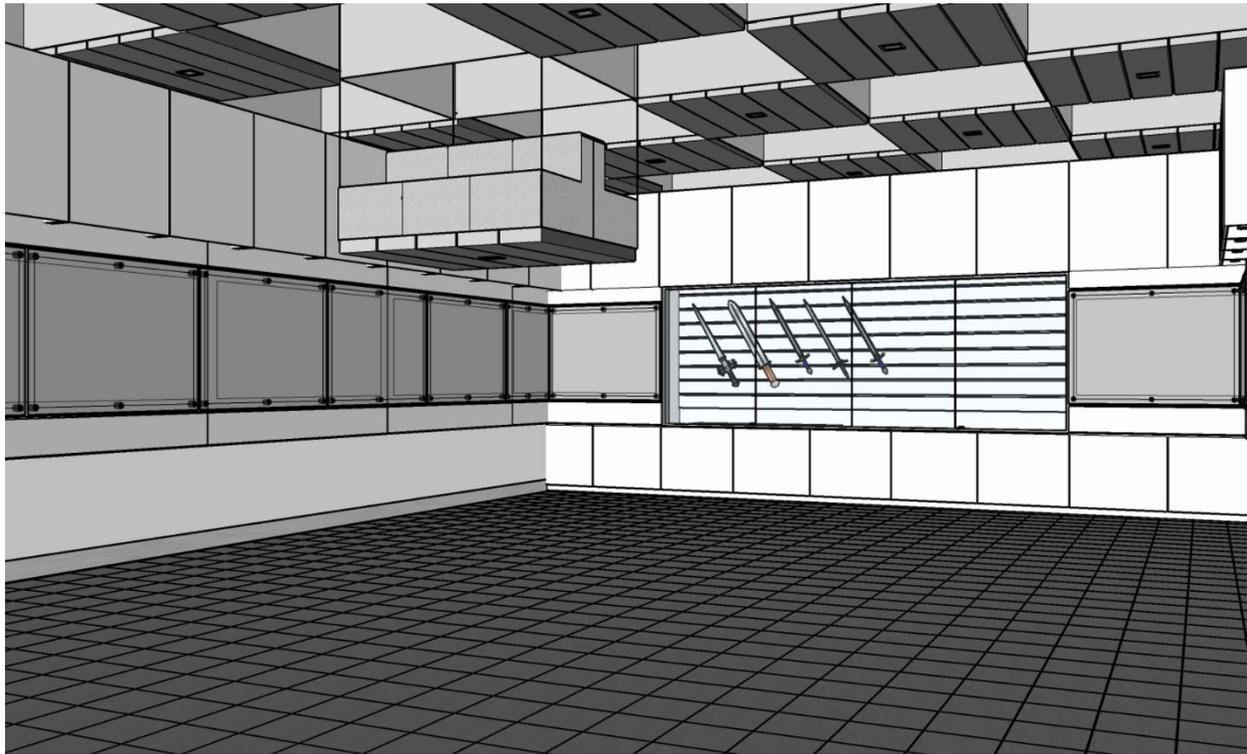
    /"Rgtegrvkdng"Yjkng"kp"Wug: Upon request, in the case of a need for seating, this "imperceptible and retractable" couch would be lowered using a fixed pulley powered by an

electric motor in the ceiling. The steel cables attached to the couch would only be noticeable while lowering the couch. Once the couch is placed in the ground, the cables provided with carabiners, holding the couch, would be "detached" from shackles built on the couch and subsequently pulled up back into the ceiling, disappearing from sight. To be mobile, the couch would have to be provided with four cart metal wheels on the bottom to allow it to be moved around the museum floor and eventually place it in a convenient place.

Once the couch is no longer being used, it will be brought back up into the ceiling. To do so, it will have to be placed in the same place it was initially after being brought down from the ceiling. Once there, the steel cables will be lowered once again, and then its carabiners will be attached to the shackles on the couch. The electric pulley will then be used to elevate the couch into the ceiling once again, thus by virtue of its camouflage design; it should disappear from sight once again.
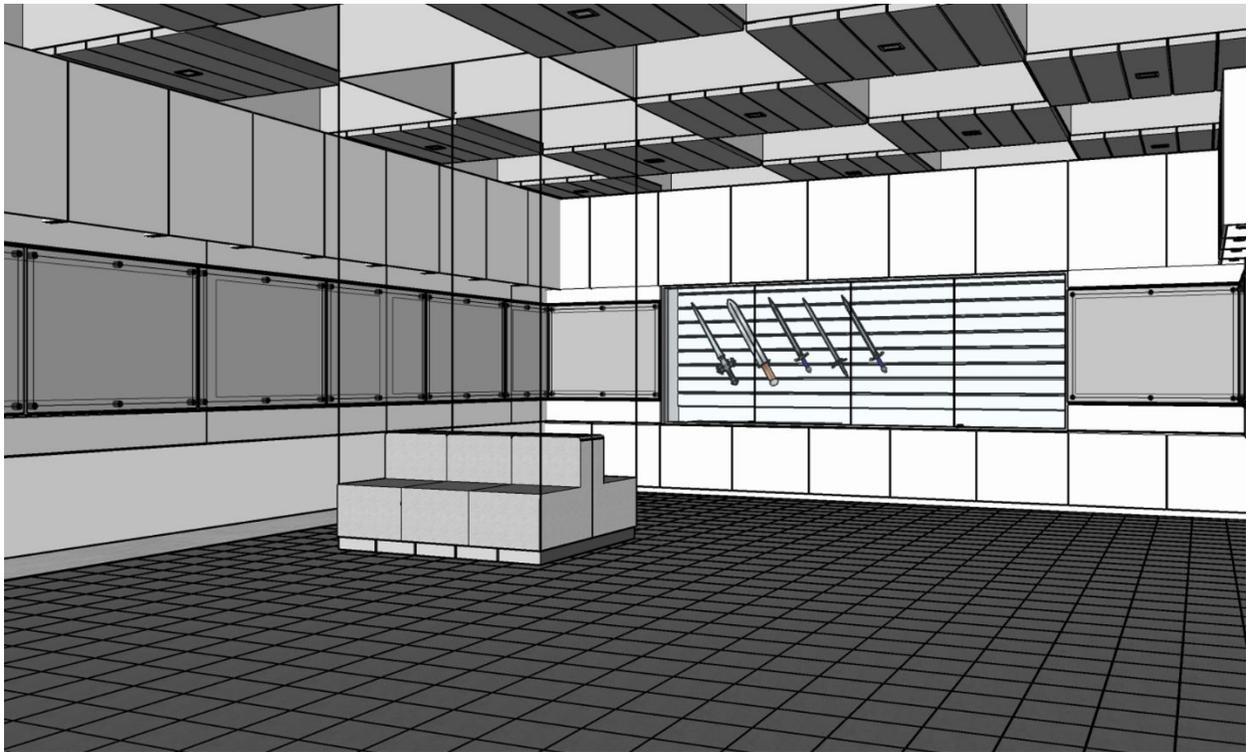
*Y cn'Ugcvkpi 'F guki p'Qpg<*We also developed seating that could be designed into the gallery walls within the exhibition space. We found this design to be minimally invasive and easily

accessible for patrons and museum staff. Both seating designs are simple in aesthetic, to coincide with the minimal museum design and the needs of patrons. Materials would include lightweight and sustainably sourced timbers for the framing of each chair, along with felts and padding to provide comfort and ergonomic support.

The first chair design features hinges on both sides of the chair, where the chair backing and the seat meet. This allows for the seat and leg elements to slide up and into the chair when not in use, creating a flat design that can be easily stored along the walls with minimal visual invasion. To assemble the chair for use, the seating and leg slide along the hinges and lock into place in the seating position.


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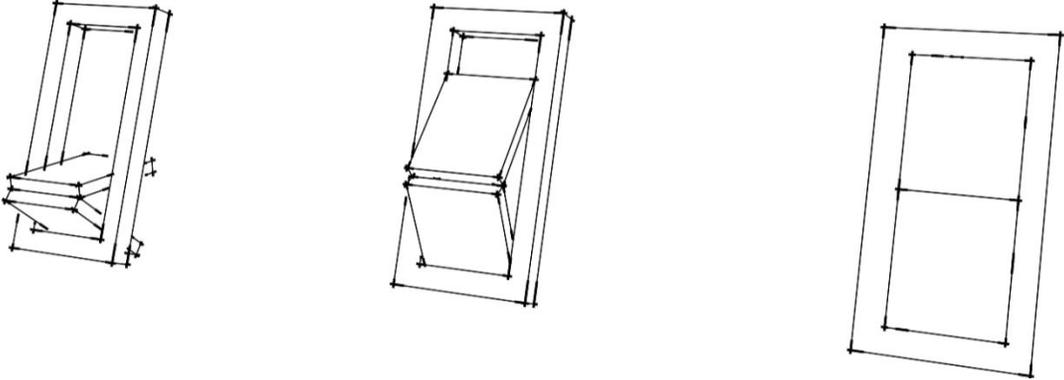
Hki wt g'6<Y cn'Ugcvkpi 'Ej ckt 'y 'I'J kpi gu''

The second chair has similar locking mechanisms, each square element locking into another to create an upright seating, and then unlocking to flatten into a single linear element.

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Hki wt g'7<'Y cni'Ugc vkpi ''y l'Hqrf cdrg'Grgo gpv''
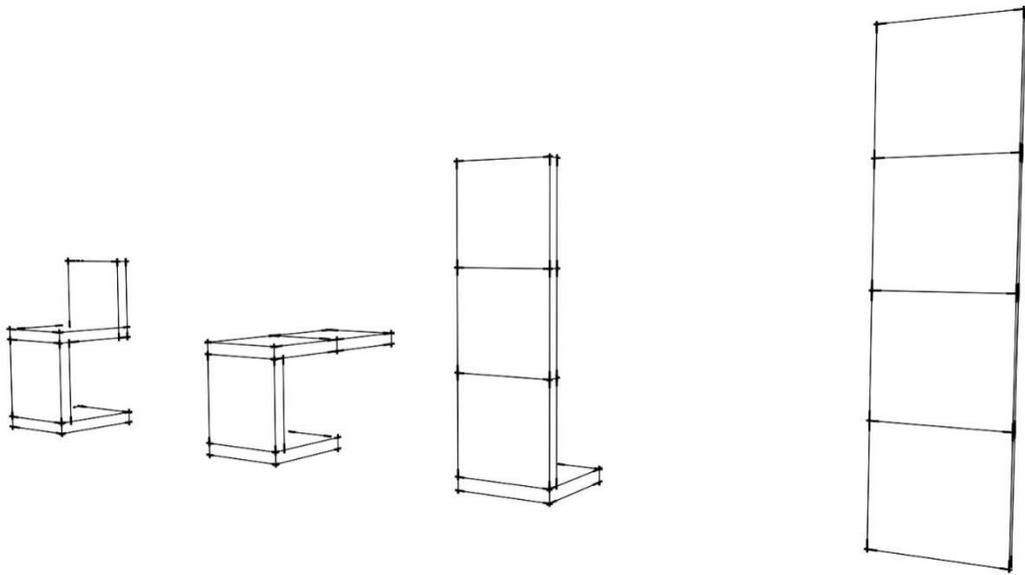
Y cni'Ugc vkpi 'F guki p'Vy q< This will be a block that would be pulled out from the lower section of a non-load bearing wall. Once pulled out, this block will be used as a bench. This block would be provided with multiple wheels to be easily pulled in and out of the width of the wall. This will again have an imperceptible quality to it while not being used, not to intrude with the space in the museum.
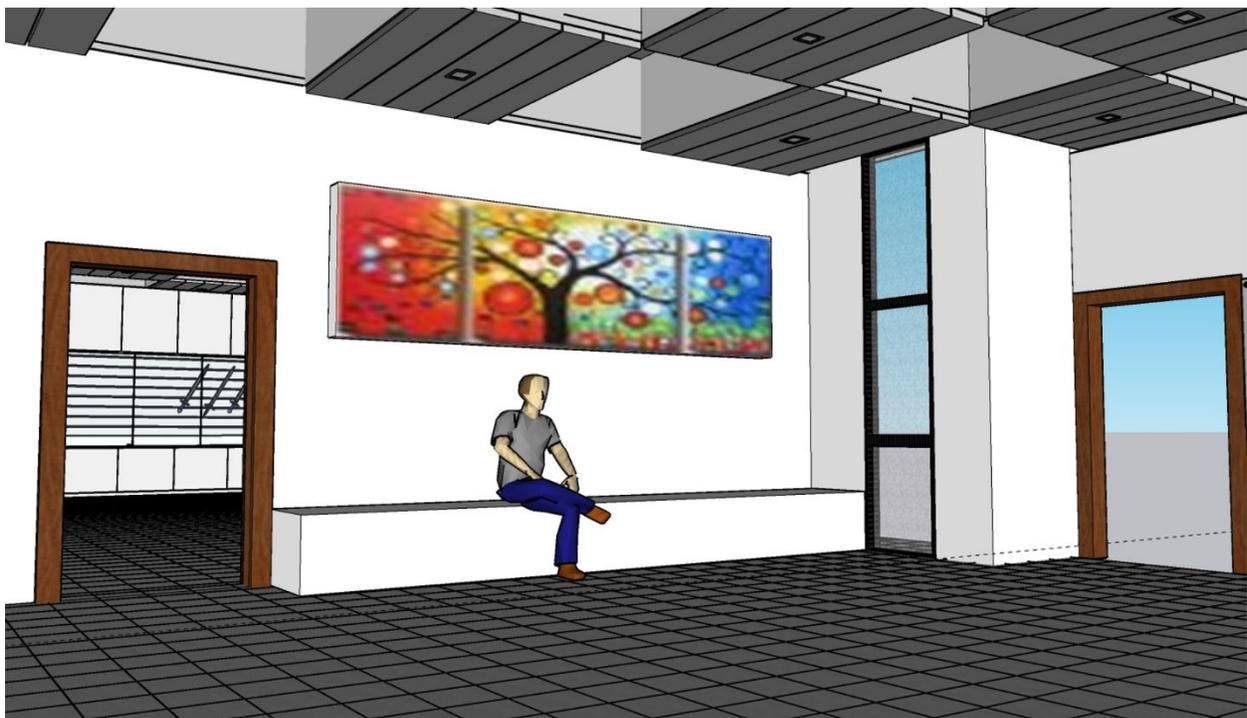
Rqtvcdrg'Ugcvkpi : These designs are built on the basis of movable seating, which can be found as sketches in the appendices. One consideration includes a beam of sorts with pull-down (built-in) flaps as seating. Another involves the utilization of hinges and locking mechanisms to expand shapes into seating—for instance, a box-like structure that opens in half to reveal benches within. Similarly, we developed a cone-like version that folds backward at its hinges to provide seating. These iterations utilize wheels as well, allowing the museum to transport the seating from area to area and back into storage when not in use.

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*Eqoogpvu'htqo "qwt 'Enkgpv'cpf "Ucngqrfgtu⸱*Taking into account the Manetti Shrem's specific needs and layout, we believe that our Wall Seating Design One would best fit into the current exhibition infrastructure while still serving as a functional seating for museum patrons. Comfortability is another element that we considered per comments from our client. This includes the uses of comfortable and ergonomic seating materials. Our future design will also focus on the use of sustainably sourced and local materials, including wood, vegan leathers, and other felt-based materials. "

*Rtqvqv{rgu 'Hwtvjgt 'Cpcn{ugu 'cpf "Uwtxg{u⸱*We believe that there are opportunities for our seating designs to be developed further in D-Lab 2. This includes the development of physical, full-scale prototypes that incorporate design feedback we've received from our clients and stakeholders. We also hope to further develop multiple life cycle analysis to make sure all materials being used are sustainable and functional. With prototypes developed, we hope to gather data on the user experience within the museum from patrons and visitors through surveys and community participatory design workshops. This feedback and data will help us to redesign the necessary elements. We hope in the future to implement our design into other museum spaces on campus, including the Gorman Museum. Most importantly, we hope that our design will help

to redevelop the accessibility of new and established museums; to allow for increased and equal access for all patrons, regardless of ability.

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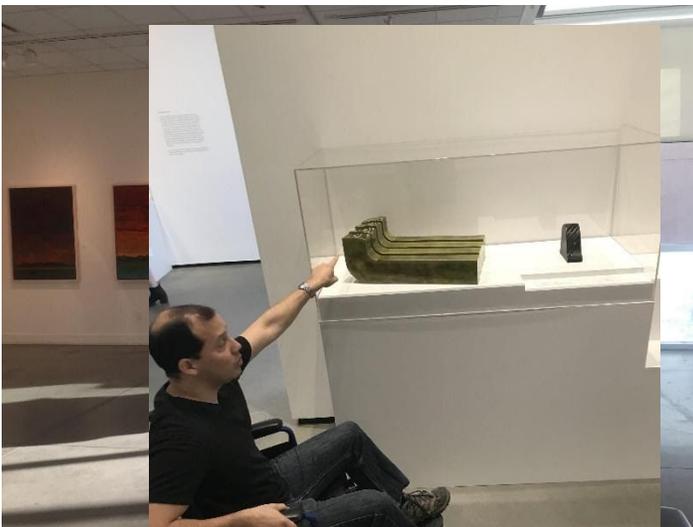
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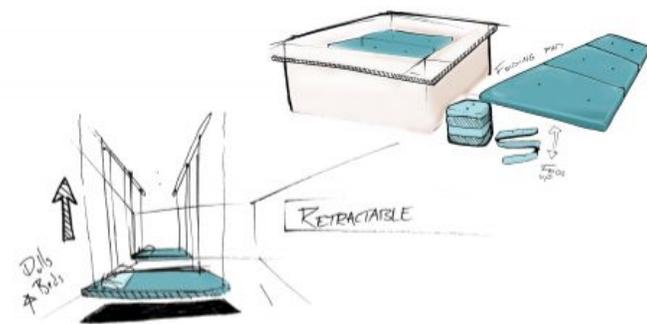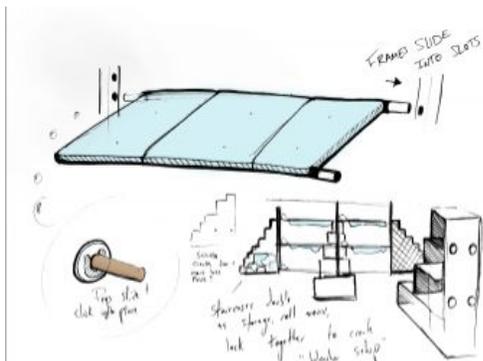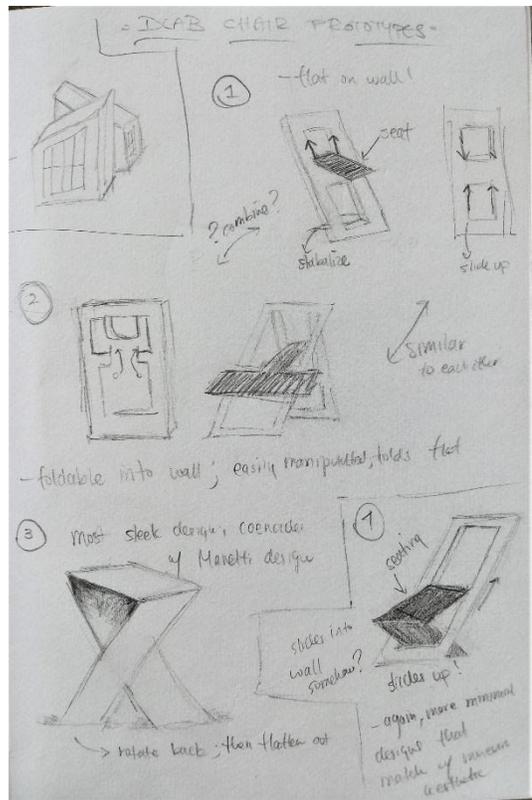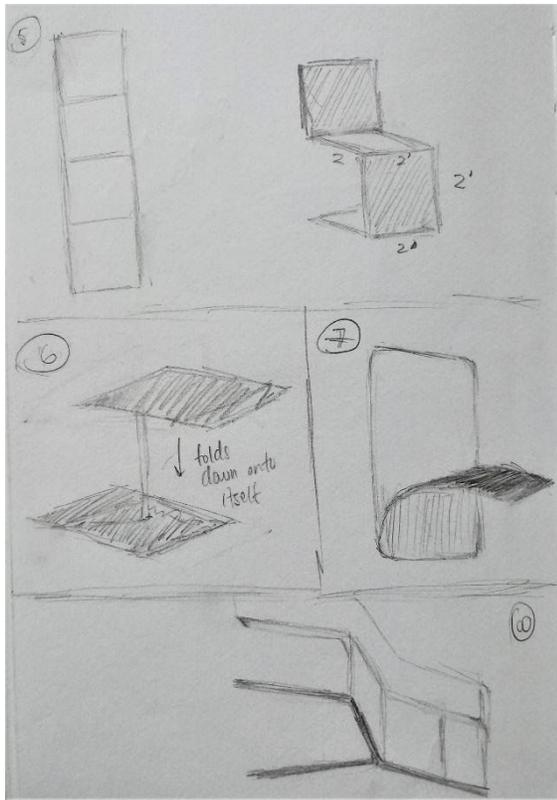
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