



## Three Stage Feasibility Study in Healthy Design

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## Phase Three: Feasibility Study in Healthy Design

### *Abstract*

*It is not uncommon for students in our interior design and & architectural technology program to be exposed to service learning projects, as our campus is one of the nations leaders in such project types. It is however uncommon for the design students to be placed on projects that ask them to step outside their comfort zone in terms of social economic interaction with community residents/partners. Asking them to set aside their personal biases to apply their design skills to a project that would create a usable space for those that are afflicted with Sickle Cell, as well as a working environment for those that provide much needed social services to them. This three-part study saw our students study three options:*

- *Renovation that would connect the two adjacent facilities currently being used by the agency.*
- *Designing proposals for a new structure one block south of the current facility*
- *Renovation of the larger of the two current facilities being used by the agency, and creating a new outdoor space for the users.*

*This project challenged the students in so many ways, but the most drastic of those challenges was understanding a disease that is not recognizable to the mainstream population. According to the most current data from the Center for Disease Control and Prevention, Sickle Cell affects about 1 out of every 500 Black/African Americans births and 1 out of every 36,000 Hispanic American births.*

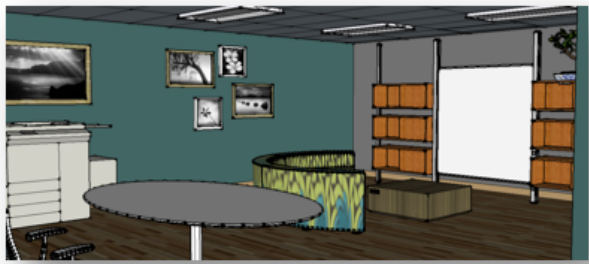
*The first two feasibility studies while dramatically increasing the useable square footage potentially pushed the agency beyond their capital campaign capabilities. This third and final included the client vacating one structure on their site and converting it into a rental property, and dramatically renovating the remaining building to increase efficiency of the work staff, and incorporate such design strategies as indoor air quality, more efficient use of artificial and natural light, and high quality heating and cooling. These design strategies are proven to have positive impacts on those suffering from sickle cell disease.*

Evidence Based Design is described by Linda Nussbaumer as “when the designer is lead to the best possible solution through quality research...” in her book Evidence Based Design for Interior Designers. This is the approach we took in Phase III of the three-part study for the building renovation concept development for The Martin Center serving those with Sickle Cell. Case studies, observations, and focus groups were some of the ways we collected data about the specific client and end user, and we accompanied that with three very specific design research topics:

- Artwork and It’s Positive Effects in Healthcare Facilities
- Color and It’s Influence on Diverse Users
- Nature and Biophilic Design

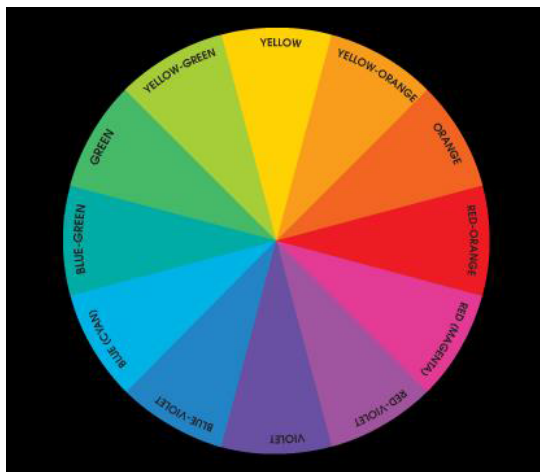
The concept of artwork and its impact on the space can “positively affect behavior and stress levels in faculty members of the healthcare environment”, discusses Staricoff (2004). With this notion in mind the goal was not to only impact the clientele, but to also create a positive environment for the staff of The Martin Center. Figure 1 below is but one example of the

creation of an open collaboration space where the art pieces themselves are grouped together to balance out the larger electronic/interactive spaces on the adjacent wall.



**Figure 1. Proposed new open office collaboration space**

Color theory within itself is a long-standing core philosophy in design and how it should be applied to any built environment, but on this project we really took a deep dive into the theory behind some very specific trends and constants in the field of color. The goal was to increase efficiency and at the same time impact the psychology of the space to make it an environment where The Martin Center’s clients want to come too. While no one color appeals to everyone, we anticipated that there were some concepts from the basic color wheel that we could certainly extract and apply. Factors that affect color preferences are noted in the study by Fridell Anter and Bellger (2010), they found that our attachment to color is not based purely on color perception, but that it largely depends on broader influences such as cultural codes and connotations tied to the colors (149).



**Figure 2. Standard Color Wheel**

There are many important factors to consider when selecting color, and in this case one of them would be color and its impact on diverse users. Considering Sickle Cell impacts one culture (African Americans) at a disproportionate rate compared to others, it would lead one to believe that this particular design project would utilize strategies that allow for selection relative to the that culture. In figure 2.1 there is a demonstration of the strategies utilized when selecting the color experience for this particular environment. In design a large part of color theory and color section is based on visual comfort, basic color contrast, relaxation, and the “wow” factor, and

these played a role in our projects as well. Conversely, however during our focus group discussion we were able to learn through discussion and observation specifically about the topics on row three (from the top) of The Colour Experience Pyramid.



**Figure 2.1 Color experience Pyramid. Important factors to consider when selecting colors.**

There were a total of seven participants in our focus group meeting which took place in part I of this three part study, and the make up of three of the participants demonstrates the diverse background of the users for The Martin Center.

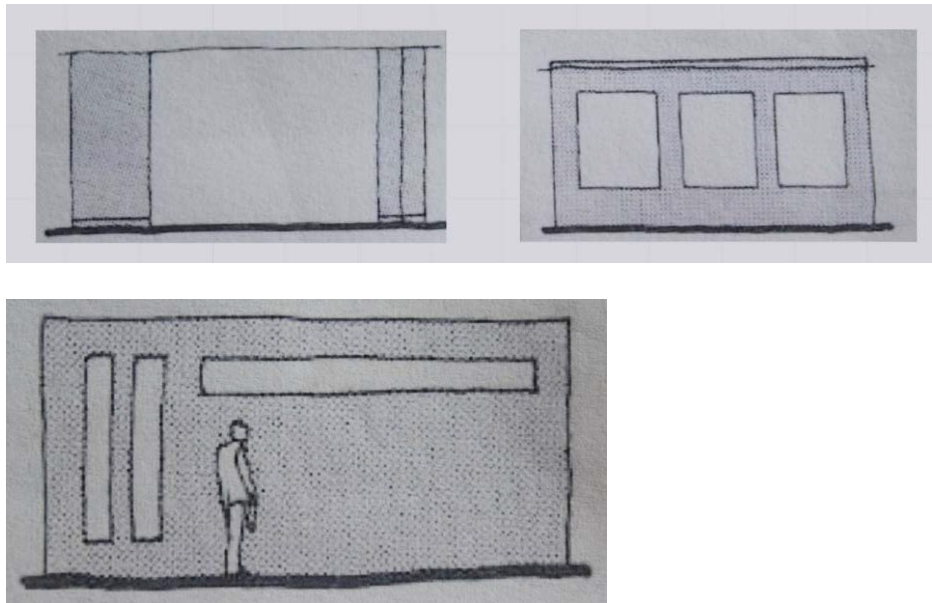
- Participant #1 (military vet, 60+ years of age)
- Participant #2 (young school age male, teenage)
- Participant #3 (young mother, early 20s)

There was a concerted effort to select colors that not only created visual stimulation and interest, but also colors that appealed to the users.

The third of the three major concepts was Biophilic Design, and its impact on the climate and indoor air quality. What will be clearly identified is that not only did the biophilic approach bring in more plants and vegetation, but the strategic location and integration into the design had some really big impacts on the architecture and interior design of the space. “Designing with nature can restore balance and harmony within the environment says Huelat(2008).

Barriers, Boundaries, and Order, as explained by Rengel (2003) are ways to define space, while at the same time are ways to make space multi functional, collaborative, and inviting. For example designing to the sense of hearing like the example in figure 3, allows for visual privacy, but lets the sound travel such that overheard conversation or activity could create impromptu collaboration.

To integrate the pattern of Prospect into this redesign, two design features were implemented. First, both *mostly open* and *mostly solid barriers* were introduced in the space. See Figure 3 for examples of Rengel's barrier types. The *mostly open* barriers are represented within the space in the form of a bulkhead and partial walls that define a shared workspace just beyond a reception area. Rengel's spatial theories are much more grounded in, and used in this project to promote some very specific user qualities of privacy, while at the same time promoting an atmosphere of sharing and collaboration. The privacy comes into play because since there are at times some very sensitive topics of discussion that take place in the center, there needs to be the ability to have some visual privacy and audible barriers like we see in image three in Figure 3. This type of approach lends itself well to the environment we are trying to create. However, the operators of the center made it a point to explain that they really wanted spaces where people would be able to easily create conversation. Images one and two in Figure 3 are examples of the approach we took in designing a space that helps promote conversation, and at the same time these types of design approaches also allow for sharing/borrowing of light and sound which are critical principals of design.



**Figure 3. Rengel's examples of *mostly open barriers* (top) and *mostly closed barriers* (bottom). Similar wall construction is used to define space in the redesign of The Martin Center Sickle Cell Initiative.**

The second feature used to enable prospecting and surveying is horizontal cutouts along the west wall of the pantry above and below the horizon plane. This feature allows visibility into the space beyond the wall giving a hint of something more. While these wall cutouts do not show the actual contents of the pantry, as requested by the client, they do provide sight of the space beyond the wall barrier (see Figure 3 for example and Figure 4 for proposed application).



**Figure 4.** Visibility through the space is permitted with the addition of cutouts in the west wall of the pantry as recommended by Rengel leading to patterns of *prospect* and *mystery*. The space is still private and non-visible to patrons of the facility until they proceed into the pantry area.

The final design method enlisted to create an expansive view of the space is floor-to-ceiling, clear glass enclosures. Representative of the vertical growth of trees, these enclosures act as barrier walls encompassing the multi-purpose/conference area. This design approach not only creates a visually interesting area, but also creates a design approach of sharing natural light throughout the space. This is a direct impact on all the end users both workers and patrons, because research over time has proven that natural light creates the most efficient and esthetically pleasing work environment. While not an ongoing issue, this open visual approach also allows for the staff to monitor the environment with fewer workers, which has a huge affect on the health and safety of the patrons because at times medical emergencies do happen at the center.



**Figure 5.** Biophilic pattern number 11, *prospect*, is shown with floor-to-ceiling glass enclosures, which permit visibility throughout the facility while also keeping the multi-purpose and conference area private.





**Figure 6. Another Biophilic design approach that integrates multiple systems together to create an environment visual and acoustical**

As you can see there were several unique approaches to this community based feasibility study, and the quality of the space were geared toward making it the healthiest environment it could be. Utilizing defined healthy design techniques like Biophilic Design in conjunction with some time tested color theory and strategically placed sensory design features can help make the health care of environments of tomorrow.

## References

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