Brooklyn Health Center
620 Fulton Street, Brooklyn NY 11217

Revised Thesis Proposal

Summary of Lighting Schematic Design Presentation and Feedback

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Executive Summary

This report describes ways that to create a high quality design for the Brooklyn Health Center. The redesigns have been broken down into lighting and electrical depths, and two additional breadths. Each of these will be studied during the spring semester and will be described in the final report as well as the final presentation.

The lighting depth will describe the concept used in the building and each of the four spaces. This includes using the feedback from lighting designers at Lutron to improve the designs. The designs will be altered while moving through the design process throughout the spring semester.

As part of the electrical depth a branch circuit redesign will be performed. There will also be a short circuit analysis of the design. This will be to experiment with the inclusion of a UPS system for the building. There will also be an addition of a PV array into the electrical system of the building.

The two breadths that will be performed will be mechanical and structural. The mechanical breadth will analyze the effect of new glazing and sun shades on the HVAC system. The structural breadth will analyze the system and how it would be affected by the addition of the PV array.

At the end of the report is a proposed schedule for the work to be done.

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Building Overview

Building Name: Brooklyn Health Center

Location and Site: 620 Fulton Street, Brooklyn, NY 11217

Building Occupant Name: New York Hotel Trades Council

Occupancy Types: (mixed use) Health care, Retail, Office Space, and Public amenities.

Size: 163,395 SF

Number of Stories: 12 stories, 1 basement story

Primary Project team:

- Owner: New York Hotel Trades Council
  http://www.hotelworkers.org/home/
- MEP Engineers and Lighting designer: JB&B
  http://www.jbb.com/
- Civil Engineer and Landscape Architect: Langan Engineering & Environmental Services
  http://www.langan.com/web/
- Structural Engineer: Thornton Tomasetti
  http://www.thorntontomasetti.com/
- CM: Skanska
  http://www.usa.skanska.com/
- Architects: Francis Cauffman
  http://www.franciscauffman.com/

Dates of Construction: Spring 2015- winter 2016

Cost Information: $120,000,000

Project Delivery Method: Guaranteed maximum Price (GMP)

Lighting Depth

Concept

The Brooklyn Health Center will house many different types of spaces that will be used for many things. The main focus of this report will be the Ambulatory care portion of the building. This section of the building will ultimately be used to help heal people in many different types of ways. That's why the overall concept of the building and the spaces to be redesigned will be healing: physical healing, psychological healing, emotional healing, and spiritual healing.

Pause Waiting Room

This space doubles as a corridor along the west side of the building and a waiting area for patients and their families. This space also has a welcome desk that is a key feature of the space, as well as a glass curtain wall that makes the entire west side wall.

This space is psychological healing. This is the healing of the mind, making it so a person is able to overcome the fear and mental strain that is put on the mind after an accident. This is often the longest stage of the healing process, and this length plays well with the length of the space itself. This effect will be achieved by using linear fixtures as a means of drawing occupants through the space and drawing the attention down the space. This is also a space that may cause a lot of mental stress to the occupants, waiting and not knowing. The lighting of this space will be such to create a pleasant atmosphere to lessen the stress of the occupants. It will also place appropriate emphasis on the welcome desk. The lighting will also create visual interest for the people spending time in or travelling through this space.

Clinical Touchdown

This is a space for doctors to spend their free time. There are desks and tables in the space for a peaceful place to work, and rest during down time. This space is surrounded by exam rooms and also serves as a space for talking to patients and going over charts and information.

This is the emotional healing space. Emotional healing is all about being able to find joy in life again after a traumatic event. This healing is aided by the help of friends and family, or some kind of support group. This space will be lit in order to create intimate spaces at the desk clusters to promote collaboration and togetherness. This space will also incorporate reinforcing factors of pleasantness to make sure that the employees in the space for possibly long hours are able to be content in the space. The illumination in this space will be appropriate for the different tasks that will be taking place.

Physical Therapy

This space will be the site of many different tasks, from exercise to strengthen the body to exams and ultrasounds. This space has two walls primarily composed of mirrors. The east wall also has a row of windows at the top of the wall, and as part of the redesign additional windows will be added to the space.

This space is the physical healing. This is appropriate due to the fact that the space is designed to help people achieve physical healing after being injured. The exercises and exams taking place in the space will be to encourage physical healing. The lighting in this space will be versatile to facilitate customization based on the activities being performed. Also, as stated before adding daylight to the space to increase the natural feeling and calming effect of daylight. Additionally, the lighting will create visual interest in the space to attract the occupant's eyes while being in the space. The illuminance levels in the space specified by the IES handbook were considered a little low for this type of space, and thus the light will exceed IES recommendations to be similar to that of a reading space to allow for chart reading and writing.

Public Plaza

This space is located outside of the building on the ground floor to the east of the main entrance. This plaza serves as the entrance and exit of the building, as well as being a nice spot for people to come and sit and enjoy the space. There are several planters containing many different types of plants and trees as well as numerous benches and tables for the occupants.

This space will serve as my spiritual healing. Spiritual healing is all about moving on and returning your life to normal after an accident. Two of the main ways to achieve this are to find inspiration to carry on and move past an accident as well as reminiscing and realizing there have been good times before and more are to come. The lighting in this space will be dynamic and visually interesting to stimulate people's sense of wonder, and make it a space that affects each person differently each time they are there. There will be color kinetic features as well as illuminance changes. Also, I want the lights to provide enough illuminance to keep the space safe to enter and exit, and to be bright enough for security purposes.

Professional Feedback

Michael Barber

- Lost how the concept applied to room selection
- Like the metaphor of healing for the building, but it needs honed
- Light levels need to be checked, something seems off
- Think about using application images rather than just product images
- Think about the building more holistically rather than just room-by-room
- Ideas in the clinical touchdown were a miss, and need to present more clearly
- Lighting solution and architecture don't agree in the waiting room
- Less is more in the plaza, thin it out
- Show the building on site, and include the plaza, I didn't know where it was in relation to the building
- Don't distort the shape of the plans
- Accent the architecture through light not the fixtures, think of why you light a wall, to reveal the architecture. Indirect light will help to bring out the form of the building

Sandra Stashik

- No downlights in a physical therapy space
- Perspectives were slightly off in drawings
- Good idea for the theme, but poorly executed
- Try using soothing light in the physical therapy space, there is too much in there
- Nice incorporation of daylight
- In the waiting room with psychological healing is a bit of a mismatch
- Like the column uplight, but too many angles in the ceiling
- Reinforce the entrance in the plaza to help people enter and exit
- Use the lighting to reinforce where the door is located

Lee Brandt

- Think about an alternative to the black background with light on it, it creates too much contrast
- Physical therapy space is too busy
- Uniformity is important and you didn't mention it
- Lensed continuous light above glass is a bad idea
- What is lighting like adjacent to outdoor space, consider context setting
- Consider making the AGI model and photoshopping that
- Look at famous buildings like Seagram's Building, less is more

Revisions

General

- More directly link concept to room selection
- More directly link designs and concept
- Use better visuals to communicate intent
- Think of more just individual spaces, think of the whole building
- Base designs in good lighting practices
- Use light as accent not fixtures
- Consider uniformity in healthcare environment

Site

- Show building on the site
- Show plaza in relation to building

Pause Waiting

- Consider the view from outside, light wall and ceiling, indirectly
- Create a more attractive layout with less angles
- Find a better way to achieve the concept
- Don't graze the curved wall with linear fixtures
- Don't use the long linear fixture next to window

Clinical Touchdown

- Find a more appealing design
- Present the idea better, more clearly
- Think about the materials in the space when choosing lighting techniques

Physical Therapy

- Remove downlights
- Eliminate some of the features to make the space less busy
- Aim for a more soothing space
- Think about using indirect features
- Look into controls
- Find appropriate light levels

Public Plaza

- Thin out the design, less is more
- Consider Controls
- Emphasize entrances

Tasks and Tools

Schematic

- Use hand drawings, AGI models, and Photoshop images to convey the conceptual design of all the spaces
- Make adjustments according to professional feedback

Design Development

- Select fixtures and luminaires
- Obtain IES files for all equipment chosen
- Create 3D models for the spaces using AGI and Revit
- Use AGI for lighting calculations
- Find the most efficient and appropriate layout based on calculations

Construction Documents

- Create lighting fixture layouts
- Create RCP's
- Compile fixture cutsheets and condense them into a schedule
- Generate renderings using AGI and Revit, finalize them in photoshop

Submittal

- Final report
- Powerpoint Presentation

Branch Circuit Redesign

By redesigning the spaces there will be different loads, this will result in redesign of the branch circuiting to ensure that the panelboards, feeders, and wiring are able to handle the new loads appropriately.

Short Circuit Analysis

There will need to be an analysis of the potential for a short circuit to ensure that the all of the equipment is protected properly, this will be done through a series of calculations.

Introduction of UPS

To ensure the security of patient information there will be an installation of a UPS, and this will require an analysis to ensure the panelboards, feeders and wiring are able to handle this addition. Also, there will have to be calculations done to select the right equipment.

Photovoltaic Array

Installing a PV system into the building could potentially save the building a significant amount of money on energy. This will require calculations to determine the correct type of PV panels, the appropriate amount of panels, and the orientation of those panels. There will also be calculations done to figure out how much energy savings there is, and a payback period.

Breadths

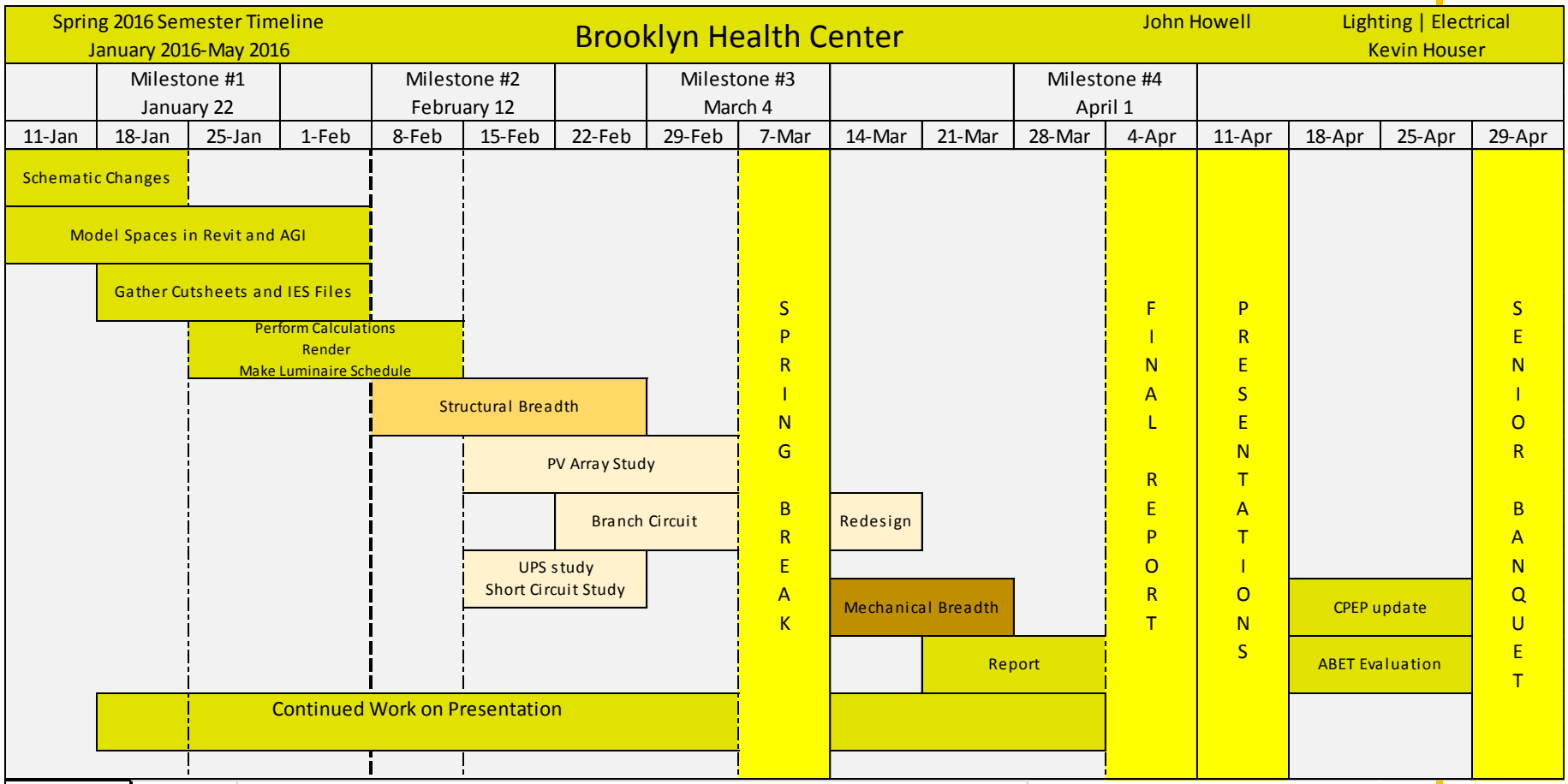
Mechanical Breadth

There will be an analysis into different types of glazing and shading devices to control low sun angle glare in the pause waiting room. The different types of shading and glazing will have an effect on the HVAC system. Calculations will be done to find a solution that controls the glare and lessens the load on the buildings HVAC system. Once the new loads on the building have been determined the air handling units and the ductwork will then be redesigned to accommodate for those new loads.

Structural Breadth

Adding a PV array to the roof of the building will affect the structural system below. An analysis of the current structure will be done to check the strength and serviceability of the steel beam and girder with metal decking structural system.

Appendix A | Spring Semester Master Schedule



Legend	Milestone Summary
Lighting	#1: 75% of spaces modeled in Revit and AGI. Schematic changes completed
Electrical	#2: *One space to be completed by Feb 1.* Calculations 50% complete
Mechanical	#3: Structural Depth complete. Electrical breadth 75% done.
Structural	#4: Renderings complete. Final Report and presentations complete.