

SURGE: LIGHT FIXTURE CONCEPT, DESIGN, AND PROTOTYPE

by

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Submitted in partial fulfillment of the
requirements for Departmental Honors in
the Department of Interior Design
Texas Christian University
Fort Worth, Texas

May 7, 2018

SURGE: LIGHT FIXTURE CONCEPT, DESIGN, AND PROTOTYPE

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ABSTRACT

SURGE is a ceiling mounted, multi-functional LED fixture used in the illumination, branding, and customer satisfaction of the Sit and Spin LaundroCafe. The innovative modular design of the fixture can be customized to fit any space or shape. In the Sit and Spin, segments of the SURGE are pieced together on the ceiling to create a whirlpool inspired pattern. The uplight portion of the curved elements are programmed with the washing machines and dryers to light up when the customer's load is done. Each machine has a personal keypad for the customer to select a color of light, allowing for the customer to stay in the café area until they see their personal notification light. The downlight portion of the modular pieces are used for general lighting, and have a ripple detail inspired by the ripples of a whirlpool. SURGE is made up of a series of LED lamps to allow for low maintenance due to their long lifespan, practicality of manufacturing, and energy efficiency. The LED lamps also provide the color changing feature of SURGE.

RESEARCH

SITE VISIT



Area	Light Level
Entryway	49 footcandles horizontal
Folding Stations	51 footcandles horizontal
Cash Wrap	125 footcandles horizontal
Dryers (front load)	39 footcandles vertical
Washing machines (top load)	33 footcandles horizontal
Waiting tables	62.5 footcandles horizontal
Open Seating	24.7 footcandles horizontal

*all calculations taken at night to avoid natural light interference

PROBLEM

Laundromats are traditionally low budget spaces with little to no design consideration. They are spaces that customers dread visiting, as a trip to a laundromat typically equates to a long period of time spent in an uncomfortable place. During my site visit to Super Coin Laundry in Fort Worth, I felt very uncomfortable and unsafe. The light fixtures used in the space were too bright for the size of the space and unnatural color temperature led to a low CRI (color rendering index), or limited accuracy of visible color.

DESIGN SOLUTION

As the consideration of health, safety, and welfare is a critical aspect of interior design and architectural lighting design, I chose to create a design for the Sit and Spin LaundroCafe that feels safe, approachable, and pleasant. The SURGE light fixture not only provides an interesting visual element, but it also provides safety. The quality of the illumination produces a neutral color temperature and even light levels throughout the entire space. The neutral color temperature is also good for a laundromat, as the CRI is high.

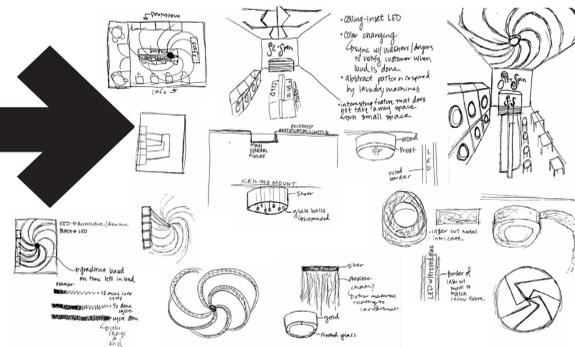


CONCEPT

INSPIRATION



SKETCHES

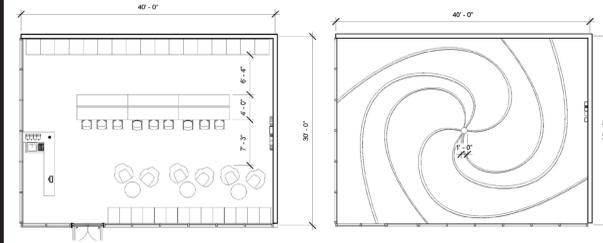


DESIGN NARRATIVE

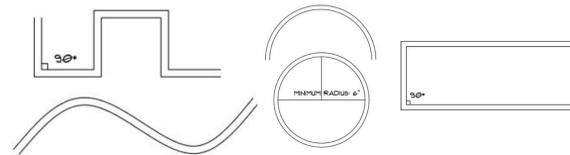
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DESIGN

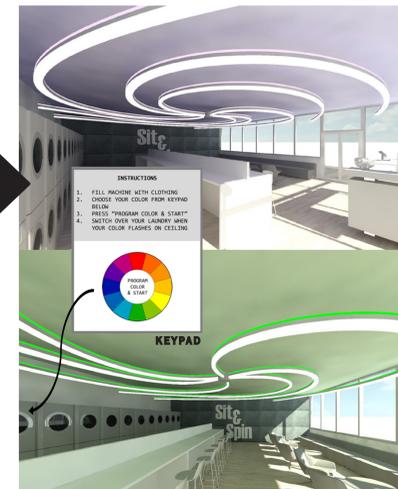
FLOOR PLAN & RCP



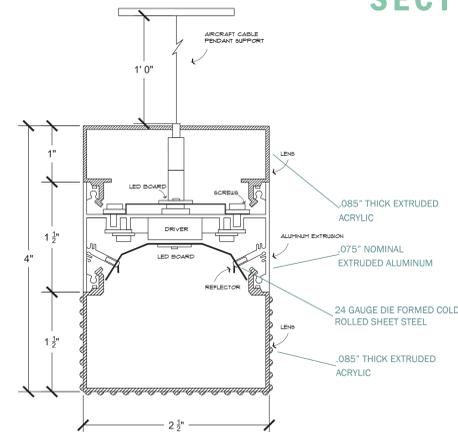
POSSIBLE CONFIGURATIONS



COLOR CHANGING FEATURE

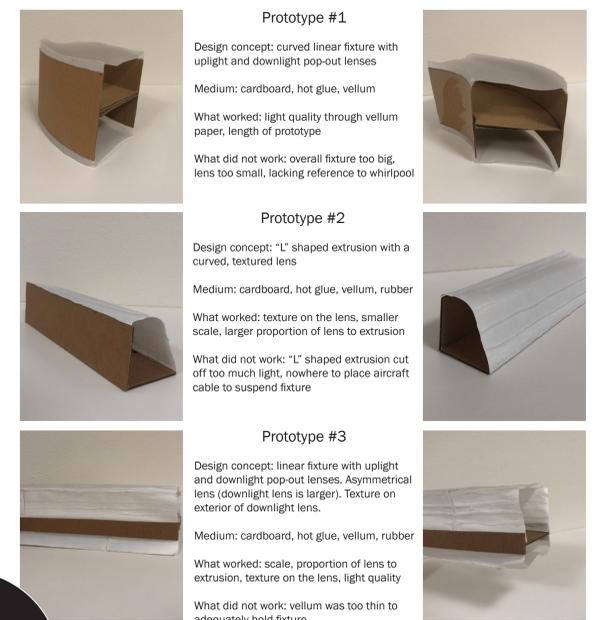


SECTION

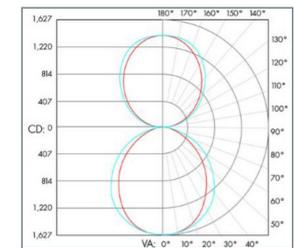


PROTOTYPE

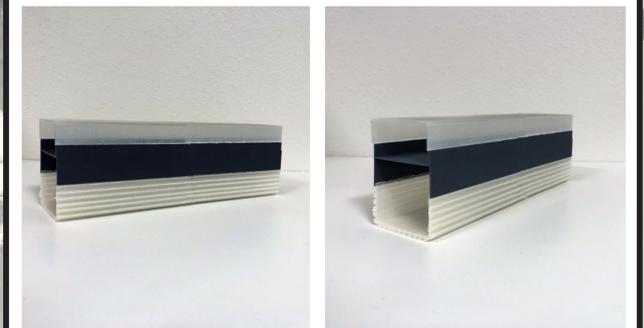
PRELIMINARY PROTOTYPES



CANDLE POWER DISTRIBUTION CURVE



FINAL 3D PRINTED PROTOTYPE



SURGE

MODULAR LINEAR LIGHT FIXTURE