

ACSA Faculty Design Award

2015-2016 Winner: Submission Materials

Learning from the Countryside: Documentation and Design Exploration of Timber Grain Elevators in Eastern Washington

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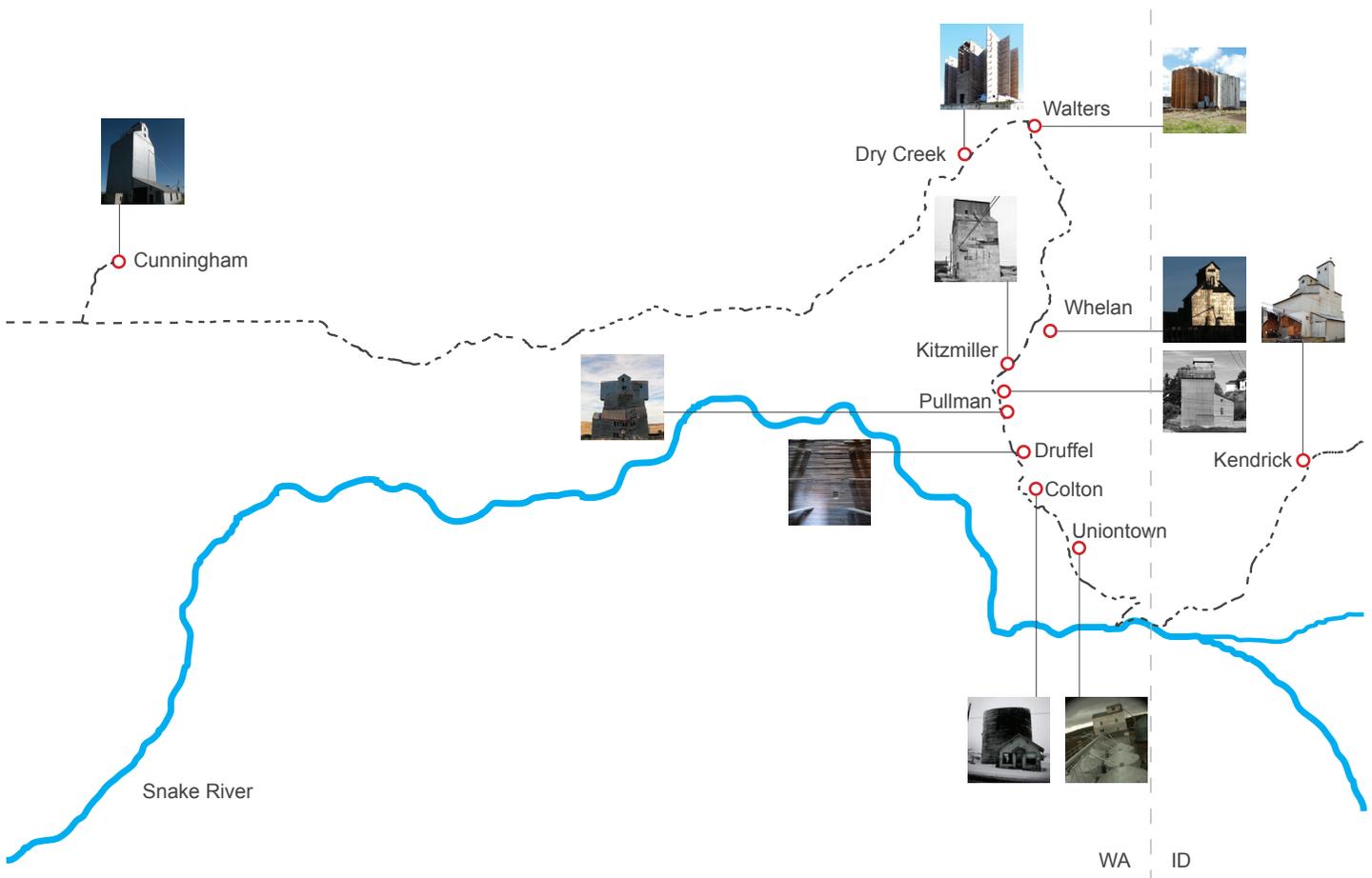


Learning from the Countryside

Documentation and Design Exploration of
Timber Grain Elevators in Eastern Washington

Introduction

Driving in the countryside of Eastern Washington, one finds timber grain elevators standing solidly alone in a vast landscape of rolling hills. They have been disappearing from this rural landscape, replaced with concrete elevators and metal silos. Documentation and Design Exploration of Timber Grain Elevators in Eastern Washington first records the grain elevators through photography, drawing, model making, writing, and interviews in order to gain a deeper understanding of grain elevators by delving into their culture, rural community history, climate, construction methods, material constraints, and spatial qualities. The constraints revealed from various perspectives and experiences in the process of documentation informed the design exploration of grain elevators. Two design exploration projects, Light Hole Shed + Fence and Night Blooming, emerged. Both of the projects are made of 2x4 or 2x6 lumber from dismantled grain elevators. The lumber is stacked using traditional cribbed construction. Light and darkness in the space is a central theme for the projects. This theme was inspired by various experiences inside and outside the elevators in the process of being dismantled or abandoned, such as crawling into a 10'x10'x60' grain storage bin of a partially dismantled timber grain elevator and observing the light shining into the space from the open roof. Light cuts into a dim space and transforms the wooden surface textures.



Vicinity map of timber grain elevators and silo

Documentation: *Photography*

Pullman South Grain Elevator



Walters Grain Elevator
in process of being
dismantled



Documentation: *Photography*



Dry Creek Grain
Elevator in process of
being dismantled

Documentation: *Photography*

View to the roof of
Kitzmiller Grain
Elevator



Interior wall of grain bin
in Kendrick Grain
Elevator



Documentation: *Photography and Model*

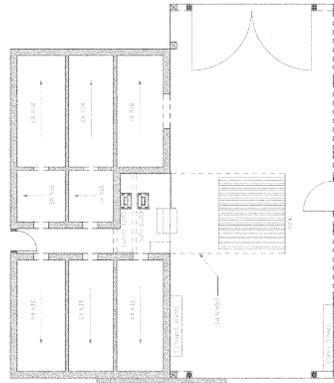


Interior wall of grain bin
in Druffel Grain
Elevator

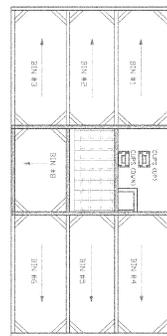


Sectional model of
Uniontown Grain
Elevator

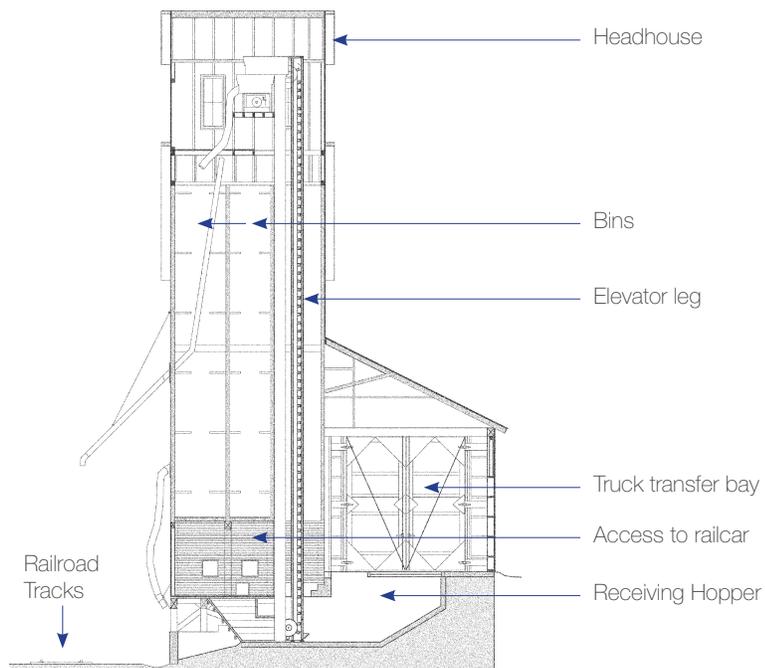
Documentation: *Drawing*



Ground floor plan



Upper floor plan



Whelan Grain Elevator
Drawing

Section

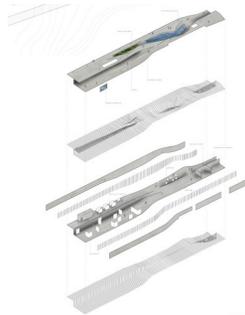
Exhibition

The exhibition shared the results of the documentation of grain elevators with the public from diverse perspectives in the form of photographs, drawings, models, and a series of interviews on screen. Twenty-seven photographs of grain elevators, drawings and models of four grain elevators, three graduate student projects proposing design interventions in existing grain elevators were exhibited. Interviews with farmers who own grain elevators, a grain elevator maintenance person, and a dismantler of grain elevators provided another perspective from which to view the visual work in the exhibition.

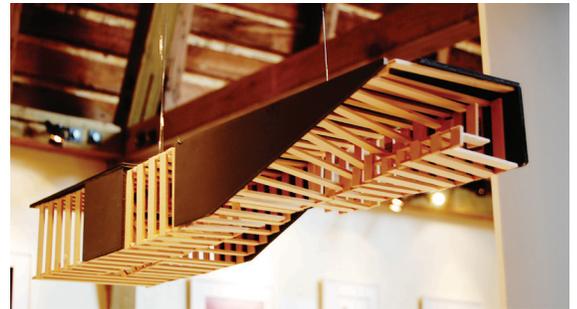
Exhibition space



left: Drawings of graduate studio project



right: Model of graduate studio project



left: Photographs at the exhibition



right: Interview video



Design Exploration I: *Light Hole Shed and Fence*

When timber grain elevators are dismantled, timber is sold as reclaimed wood for flooring and other applications. However, if the length of the timber is less than 4', the timber is either scrapped or used as firewood. I decided to use this scrapped timber to design and build a shed + fence.

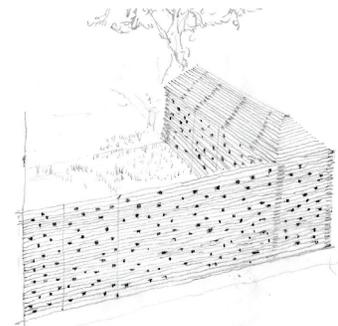
The 6' x 16' shed and fence is built with recycled timber from two grain elevators, in Cunningham, WA and Moscow, ID. A traditional cribbed construction method is used, and as an allusion to the light quality inside the elevators, spaces are created between the timbers of the shed to invite natural light into the space. Random holes provide sufficient light to see in the shed during the day and experience the change of sunlight.



Courtyard View



left: Model of Light Hole Shed



right: Sketch of Light Hole Shed and study of light pattern



Design Exploration I: *Light Hole Shed and Fence*

Exterior view of shed from courtyard

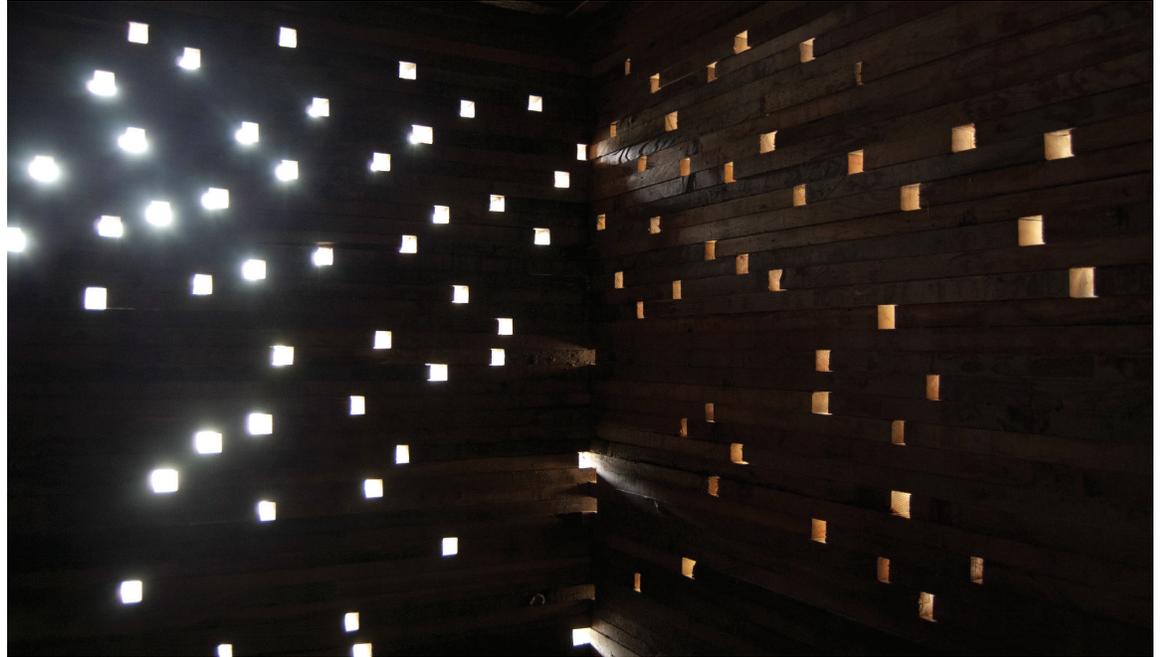


Exterior view from street side

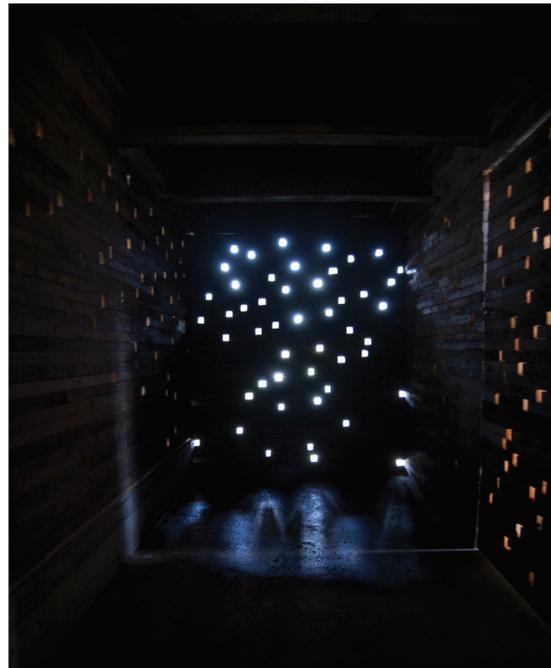


Design Exploration I: *Light Hole Shed and Fence*

Interior view



left & right: interior views



Design Exploration I: *Light Hole Shed and Fence*

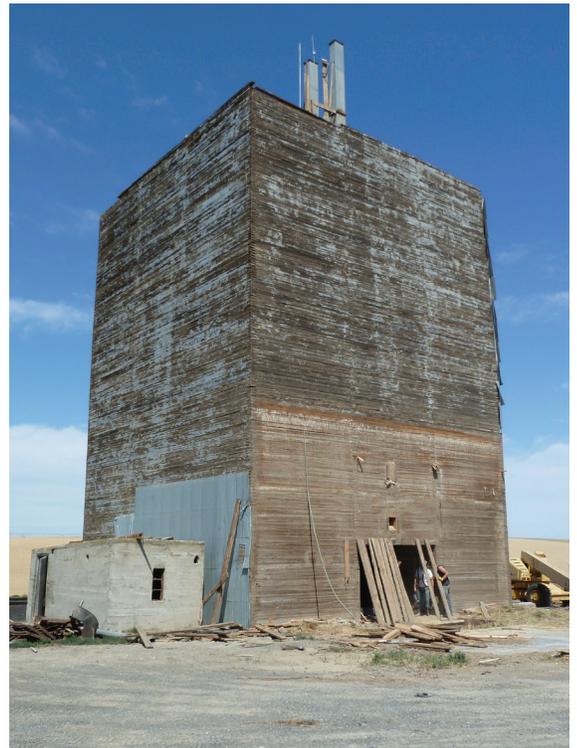


Close-up of a light hole

left: The wood for the shed + fence was recycled from this Cunningham Grain Elevator



right: The same grain elevator in Cunningham being dismantled



Design Exploration II: *Night Blooming*

Night Blooming started as an extension project of Light Hole Shed + Fence. More attention was given to the light quality inside of the space. To create a gradual transition of light, a circular plan was selected. When curved walls are built from square cut timber, wedge-shaped voids determined by the light study appear where the boards meet. An altered crib construction method was applied to construct a catenary dome, 10' in diameter by 13' 6" high. Daggers of light split the dark space within, rising to the apex in a tightening spiral. The patterns of voids provide sufficient light to experience the subtle changes of light and shadow.

Image collage of Night Blooming



Image rendering of Night Blooming

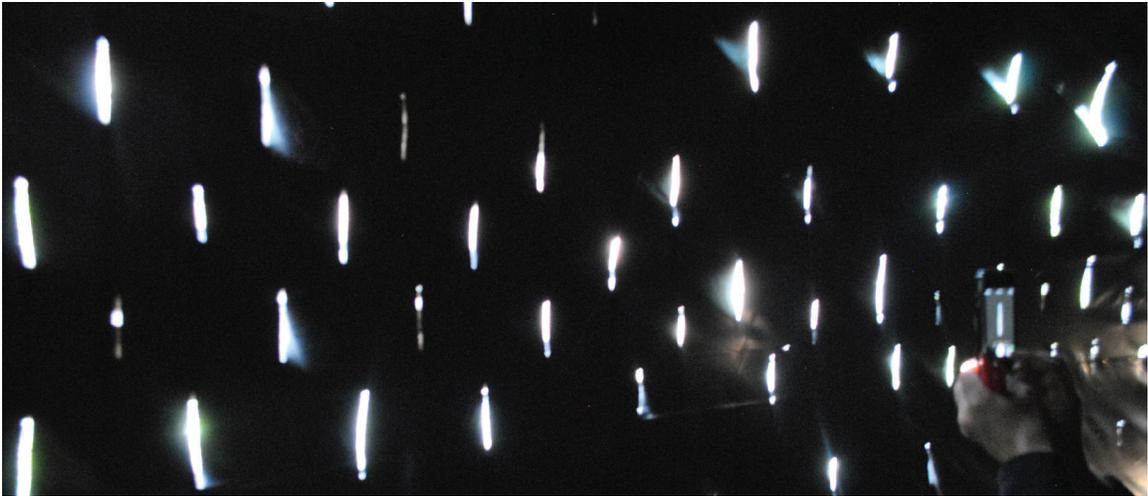


Design Exploration II: *Night Blooming*

Light study for Night Blooming



Light through wall to inside

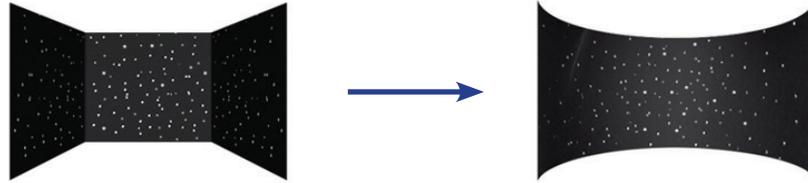


Light reflected on floor



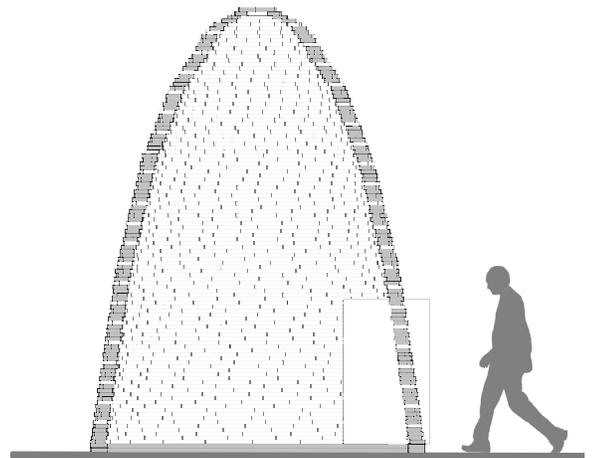
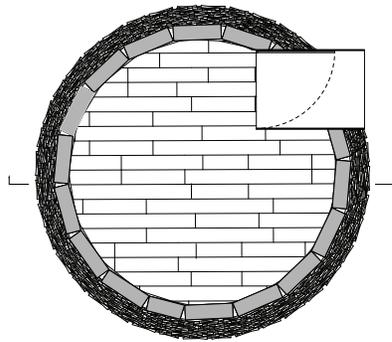
Design Exploration II: *Night Blooming*

A circular plan creates a smooth surface elevation without corners, which allows gradual transformation of light and darkness to be perceived.



left: plan

right: section



Based on the results of the light study, a 16 penny nail from the original construction of the grain elevator is used to define the width of the voids in *Night Blooming*.



Design Exploration II: *Night Blooming*

Construction of Night Blooming



Interior wall view during construction

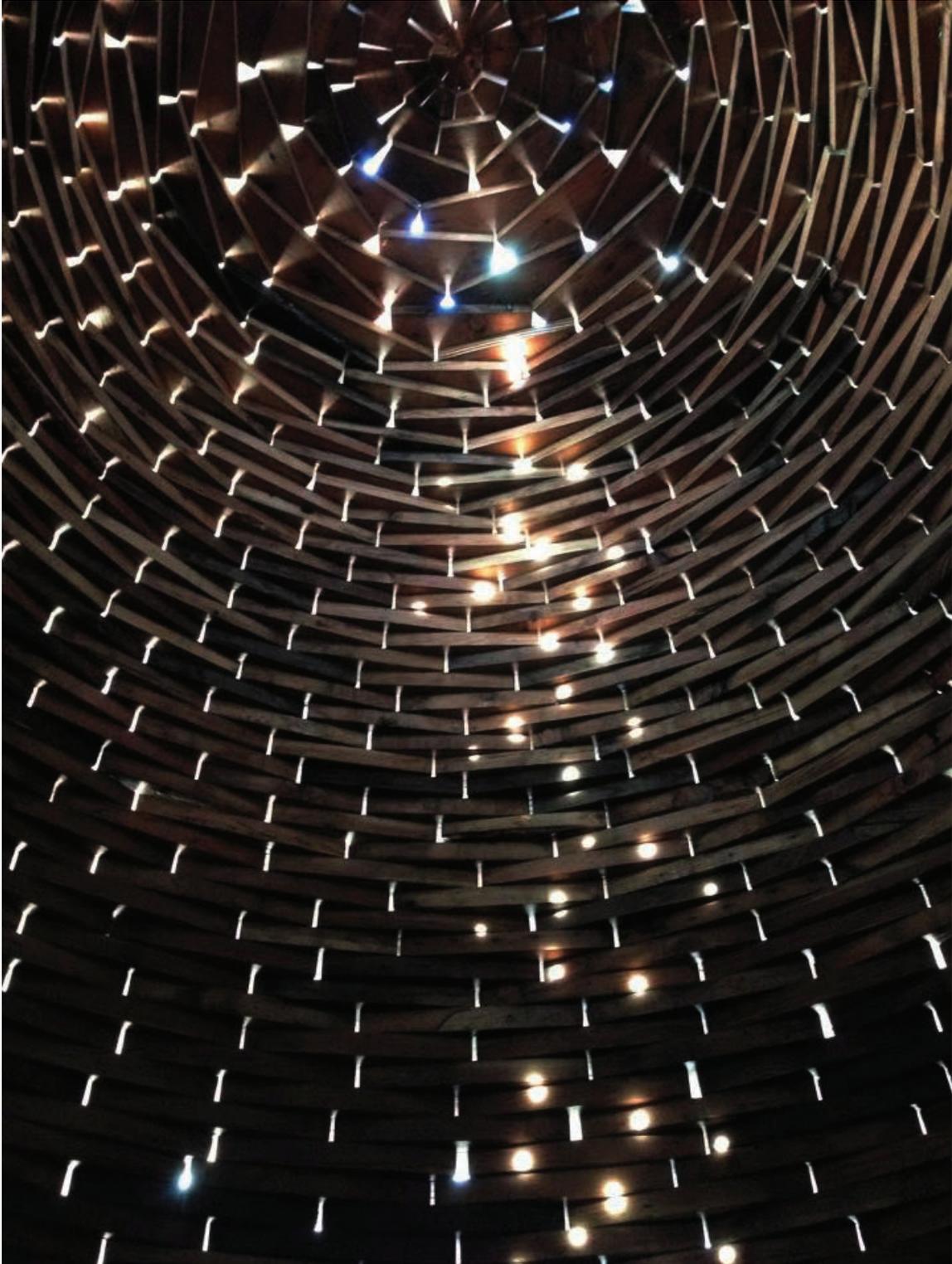


Design Exploration II: *Night Blooming*



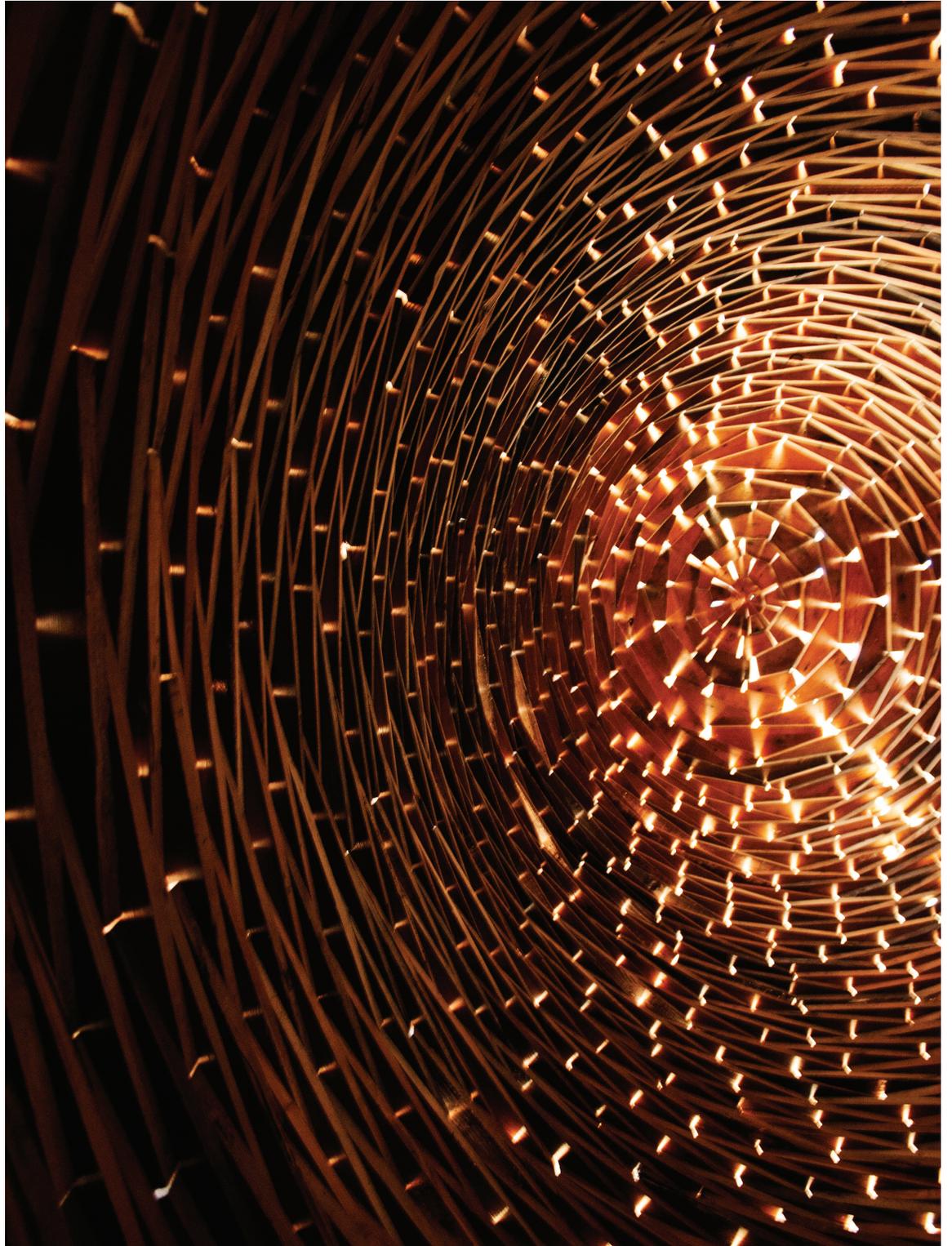
Exterior view of the final design of Night Blooming

Design Exploration II: *Night Blooming*



Interior view

Design Exploration II: *Night Blooming*



Looking up inside