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I, Melissa E Long, hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture.

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Bourbon Hub: Industry Redefined

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University of Cincinnati

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Bourbon Hub: Industry Redefined

A thesis submitted to the Graduate School of the University of Cincinnati in partial fulfillment of the requirements for the degree of:

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Abstract

Bourbon is Kentucky’s most iconic Industry. Rooted in Kentucky’s history, bourbon has become synonymous with the state’s image. Bourbon is both a product and a life style. As an industry, bourbon generates over $20 million in revenue each year, with skyrocketing worldwide demand. This global, mainly urban appeal contrasts with bourbon’s small-scale, local, and rural ethos.

As America’s population continues to grow and urbanize a strong geographic divide is created between our urban centers and the vacant, desaturated, countryside left behind. Here, industrialized agriculture and sporadic developments exist in close proximity. Segregation of our society into discrete living models has caused separation of producers and consumers, or industry and humans, creating an ignorance of the origins of everyday goods.

This thesis strives to bridge this separation through the creation of a remote bourbon distillery. Serving as both an industry and a resort, Bourbon Hub aims to attract and educate humans about the contemporary countryside and the industrial process. Bourbon hub achieves this through the insertion and interweaving of human experiential and natural elements into the industrial process. The combination of architectural wonder, agricultural innovation, and human choice/perception will create an educational experience that reexamines America’s current urban-rural disconnect.
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Problem:
1. The composition of America’s countryside is changing as people migrate to urban centers for economic opportunity and lifestyle convenience. The remaining landscape is often left disjointed, bereft, and largely unknown to the majority of people now living in cities.

2. This separation has caused the countryside’s production and manufacturing of resources to be isolated from the majority of consumers in city centers creating an ignorance of contemporary industrial processes.

Solution:
3. People will be reintegrated with the contemporary countryside and its agricultural and industrial processes through the creation of a remote Bourbon Hub in Taylorsville, Kentucky.

4. This re-integration will be supported by an architectural design strategy blending vivid human-perceptual experiences of the natural setting (and its agriculture) with the distillery’s influential processes (and their machinery).

Outcomes:
5. The design of Bourbon Hub will be supported by an investigation and analysis of industrial typologies that situate them within the context of human, machine, and nature.

6. As a result, this thesis proposes a unique architectural experience that redefines industrial typologies and bridges the social and geographic divides separating rural and urban America.
Figure 4 | Bourbon Hub
1 Introduction of Methodology

Bourbon encompasses many facets of everyday life. It is Kentucky’s leading industry, a regional product, a luxury good, and a lifestyle. As a result, bourbon has a strong history, imagery, and economic impact. Humans’ close interaction with bourbon makes it the ideal industry to examine when seeking to redefine America’s production systems.

America is currently experiencing a bourbon shortage. Recent increases in demand combined with a societal favoritism of ‘craft’ has caused new distilleries to flood the market; even so more will be needed. This growth presents the opportunity to evolve American industrial architecture to create a new typology.

The creation of bourbon depends on the machine, nature, and human intervention. Dependent on abundant crops, bourbon distilleries exist in proximity to their resources in rural settings. After it is distilled, bourbon is aged in oak barrels through the change in climate. The transformation of crops into bourbon depends upon elaborate and sophisticated machinery. The large scale harvesting, cooking, and distilling of bourbon are only possible due to mechanical intervention. The machines ensure automation, precision, and quantity. In bourbon, humans enjoy the results of nature and the machine through vivid sensory experience. The combined heightening of taste, smell, touch, and sound, as well as sight, create a unique opportunity to develop an environment for human escape.

This thesis is an architectural proposal for the interweaving of the tripartite experiential elements of bourbon: nature, machine, and humans. A new industrial typology emerges from these three elements and the interjection of time intensive humanistic programs. Situated at the intersection of the human, machine, and nature, Bourbon Hub architecturally reframes the tripartite experience of distilling.
Figure 5 | Buffalo Trace Distillery
The socio-economic history of the United States can be divided into three phases – the Preindustrial, Industrial, and Postindustrial eras. Bourbon was first created in 1622 during America’s preindustrial development. Europeans predominately used barley for liquors, but since corn grew better than barley in America, farmers began experimenting with distilling their excess corn crop. Captain George Thorpe of Berkeley Plantation in Jamestown, Virginia, is believed to be the first American to have distilled liquor from corn.\textsuperscript{1} Indicative of America’s early society, bourbon was produced by pot stills in small batches. Though the distilling process was very similar to what is used today, early equipment was much more primitive and created a variety of results.\textsuperscript{2} If production was successful, the bourbon was either sold or traded.

As America developed and demand for bourbon grew, distilling began to embrace industrial society’s practices. As a whole, American was shifting from an agrarian to an industrial economy. Due to the growth of trade networks in the 1860’s, bourbon became widely available. The expanded transportation network also provided easier access to resources such as grain. Most notably, the Industrial Revolution brought new technologies to distilling and turned a product that was originally considered an art into an industry. The technology with the most notable impact was the continual still, or column still, invented by Irish citizen Aeneas Coffey.\textsuperscript{3} Now, large stills up to five feet wide and a few stories tall allowed for liquid to be pumped in a continuous

\textsuperscript{1} Mitenbuler, \textit{Bourbon Empire}, 13.
\textsuperscript{2} Mitenbuler, \textit{Bourbon Empire}, 20.
\textsuperscript{3} Mitenbuler, \textit{Bourbon Empire}, 87.
Figure 6 | The number of bourbon distilleries over time
flow. The continuous still streamlined the distilling process as the pot still did not need to be emptied after each batch. While this efficiency led to an increase in the amount of bourbon created, it also decreased by half the number of distilleries in operation between 1830-1840. Many of the remaining smaller distilleries grouped together and sold their product to the larger distillers. This consolidation allowed for standardization and mass production of the product and created the need for a dedicated distillery typology.

Early distilleries consisted of a single pot still in a single shed or specific barn, often located near a creek. As bourbon became industrialized, dedicated buildings were erected for their production. Mimicking known typologies of the time, most distilleries resembled sawmills or factories. The need to accommodate new machinery, such as the column still, dictated the form. As production of bourbon increased so did the need for space to make and age the bourbon. It is estimated that 50-80 percent of the spirit’s final flavor comes from the aging process and barrel, creating the need for a specific type of space for storage. Time, heat, oxidation, esterification, and extraction of the bourbon into the barrel all affect the final taste. The ability to control these factors is achieved by control over the physical environment.

America has gradually transitioned from an industry into a service economy since the 1960’s. Outsourcing production has caused the decline of many industrial facilities in America. However, the decline of bourbon distillers can be specifically attributed to Prohibition. In January of 1920 the Volstead Act was passed, ending the production, sale, or transfer of alcoholic beverages nationwide. While six distilleries were allowed to maintain production for medical purposes (while also often bootlegging drinking alcohol under false pretense), smaller distilleries were forced to close. Of the nearly two hundred distilleries operating in Kentucky before prohibition, only around half resumed business after its repeal in 1933. During this time the unique elements in both the product and the architecture of different distilleries were lost as companies pooled together and streamlined the industry.

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7 Mitenbuler, *Bourbon Empire*, 185.
8 Mitenbuler, *Bourbon Empire*, 199.
Figure 7 | Emptying bourbon barrels after Prohibition
Today, it can be argued that America has moved beyond the Postindustrial society. In 1981 scholars termed our contemporary economy a Network Society, where economic and cultural changes spread worldwide due to the digital information and communication technologies. Easily accessible information has created greater choice and data driven decisions. However, how to interpret information is extremely polarized today. Digital information has led to optimized efficiencies, but also the return to past practices. (The most extreme example of this is YouTube, where the common person can quickly learn specialized trades such as mechanical repairs.)

As a result, and in reaction to our globalized economy, the twenty-first century is experiencing a return to craft, especially in the bourbon industry. By 2015, there were more than five hundred new craft distillers. However, “craft” is a vague term, without any quantifiers. The lack of strict interpretation has created many inauthentic brands where idealistic blue collar values are marketed contrary to the distillery’s contemporary practices. Most often, terms such as “handmade,” “artisanal,” and “craft” are used to justify a higher price. The contemporary movement to return to craft offers the opportunity to reinterpret the time honored production of bourbon in today’s changing sociocultural conditions.

Today, the most famous American distilleries are scattered in the hills of central Kentucky. This location is a result of bourbon’s long history, most notably the Whiskey Rebellion in 1794, which caused the distillers of the time to retreat to the western portion of the country, or modern day Kentucky. After Prohibition the distilleries that were permitted to remain open by the government, such as Buffalo Trace, were located in Kentucky. Vacant distilleries near city centers were often destroyed due to the value of their land leaving only Kentucky’s rural distilleries remaining.

While Kentucky’s prominent distilleries are situated in rural landscapes, as an industry they are embracing the network society. At Jim Beam, for example, the column still is monitored by a computer to ensure the bourbon is distilled at the correct temperature. Four Roses manufactures a specific bourbon and label for the Japanese market, which highlights

10 Mitenbuler, Bourbon Empire, 47.

11 Mitenbuler, Bourbon Empire, 197.
the reach of their network. The juxtaposition between the advanced, globally networked distilling operations and their rural surroundings presents the opportunity for an innovative architecture intervention.

When designing in rural conditions it is tempting to try and return to previous, more localized methods and traditions. Rural sites’ remote locations and physical disconnect from cities can seem to suggest a more vernacular approach. However, this would be contradictory to the network society bourbon exists in today. Instead, the architecture of distilleries must situate itself within the rural landscape and cultural context while also facilitating new relationships with their urban and global markets. It is important to understand the attraction to rural and craft lifestyles as a way to bridge this divide.

**Bourbon Today**

Today, the bourbon industry is booming. In 2014, 19.35 million cases of bourbon were sold in the United States. In the past decade, demand for bourbon has increased 40 percent and is projected to increase another 20 percent in the next five years. It appears people are now choosing spirits instead of beer. The Distilled Spirits Council of the United States reported beer now accounts for less than half of the total U.S. alcohol market, while liquor sales have risen from 28 to 35 percent.\(^{12}\) As a result of increased demand and the lengthy process of making bourbon, America is widely considered to be experiencing a bourbon shortage. New competitors are quickly entering the industry to capitalize on the shortage. Before Prohibition, America had over 2,000 distilleries. After prohibition, there were seven. This number remained virtually static until the 2000s when smaller distilleries began to open in competition with the major producers. Today there are around 200 distilleries open and that number is quickly expanding.\(^{13}\)

The rapid growth and creation of distilleries, within changed cultural and market conditions, presents the opportunity to reinvent the building type. As an industry, bourbon distilling is a streamlined process. There is little difference in the process of making bourbon between distilleries. Different nuances and quality of bourbon are achieved through ingredients and aging. From one or two initial recipes, 18 to 20 different

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Beer keeps losing ground to liquor
Domestic market share of beer, wine and liquor, 1999 - 2015

- Beer 47.5%
- Liquor 35.4%
- Wine 17.0%

Source: Distilled Spirits Council

Spirits production has spiked considerably
% change in domestic production of beer, wine and spirits since 2003

- Spirits +70%
- Wine +31%
- Beer -4%

Source: US Alcohol and Tobacco Tax and Trade Bureau.
Note: 2015 numbers are estimates based on year-to-date figures through October or November of 2015. Numbers for spirits include production of whiskey, brandy, rum, gin and vodka

Figure 8
Figure 9 | “Blast Furnaces” by Bernad and Hilla Becher
bourbons can be made. As a result distilleries depend upon storytelling and brand identity to differentiate themselves from their competitors.

By readdressing the distilling typology a new architectural experience can be created that integrates human experience and engagement into the mechanics and settings of production. Through architectural attraction, people can reconnect with the creation of everyday goods. Industrial typologies are traditionally driven by function, responding to the needs of the machines, rather than human experience. But through the integration of human leisure programs that correlate to the phases of distilling a new architecture typology is proposed in this thesis that considers experiential and cultural meaning.

**Industrial Characteristics**

Photographers Bernad and Hilla Becher spent their life documenting industrial typologies, from mine shafts and blast furnaces to water towers and gasometers. Taken with a technical camera, early in the morning, on overcast days, their photographs are devoid of shadows or people and highlight architectural elements in a sculptural catalog of industrial typologies. Their work serves as a testimony to the real world, capturing buildings that are integral to our lifestyle but often unexplored by the public. These buildings exist anonymously and unselfconsciously in the world and are often not considered architecture. Industrial buildings are driven by function, economics, and pragmatics with little consideration for the resulting form. This is clearly depicted in the Bechers’ work as Frankenstein buildings are piecemealed together. Differences in composition, rhythm, and formal solutions are revealed based on vernacular aesthetics. The Bechers’ work, in the words of Thierry de Duve, “speaks of functionalist faith, its enthusiasm for machines, and exaltation of technology but with an indifference to the damage caused.” Their interest in the banal everyday architecture exposes the sheer necessity of industrial working processes.

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14 Becher, Bernd, and Hilla Becher, *Grain Elevators*, 14
15 Becher, Bernd, and Hilla Becher, *Grain Elevators*, 14
16 Becher, Bernd, and Hilla Becher. *Grain Elevators*, 15
17 Becher, Bernd, Hilla Becher, and Thierry De Duve. *Bernd and Hilla Becher: Basic Forms*, 14
1. Grain + Grind

Bourbon must be made of at least 51% corn, wheat, and barley by US law. Different distilleries use different percentages of these three ingredients to make their individual bourbons. The grain is sourced regionally based on where it grows best. Corn is often grown locally and barley purchased from northern states. The ingredients arrive on trucks, are ground, and stored in silos.

2. Cooking + Fermentation

The corn, wheat, and barley are combined in a cooking tank with water. After cooking, the solution is run through cooling pipes and placed in fermenting tanks. Here yeast unique to the individual distillery is added and sits for three days. The interaction with the yeast ferments the mash. After fermentation the mash is combined in the beer tub before distilling.
3. **Distilling**

The mash is funneled into the top of the column still while steam is added at the bottom. As the mash drops down the column still, it passes over heated plates, causing the mash to evaporate. This steam is captured and condensed into alcohol. The remaining mash falls to the bottom of the still and is used to feed cows. Larger distilleries dry this solution, giving it higher value.

4. **Second Distilling**

The alcohol is distilled a second time to make it smoother and to give it a higher proof. The second distillation is achieved by a pot still, since the mash has already been transformed into liquid and is a lower quantity.
5. Barreling
After the second distilling ‘white dog’ alcohol, or moonshine, is created. White dog is bourbon that has not been aged. Newly opened distilleries often sell this product until their bourbon has time to age. The white dog is placed in a charred white oak barrel and sent to the rick house to age.

6. Aging
There is no national standard for how long bourbon must be aged, though most is aged for two and four years. During aging, change in weather causes the white dog to move in and out of the barrel, soaking up sugars and flavors. Four to ten percent of bourbon evaporates each year. Buffalo Trace’s Pappy Van Winkle’s bourbon is aged the longest for 23 years. From a 52 gallon barrel, only 14 gallons is left after aging.
7. Emptying
After aging the bourbon is emptied from the barrels. The aged bourbon is combined with bourbon from other barrels and diluted with water to the national proof standard of 80. Small batch bourbon is emptied separately, causing the taste between batches to have a wider variety, and creating a ‘craft’ product.

8. Bottling
Bottles are funneled through an industrial line and filled with bourbon by a machine. Before filling, the bottles are washed with bourbon to insure the purity of the product. The shape of the bottle and the labels reflect the bourbon’s brand or identity. Shipped in cases of 12, bourbon is distributed all over the world. In 2014, 19.35 million cases of bourbon were sold in the United States.
Makers Mark
Makers Mark markets its product as a ‘small batch’ distillery, though it sells more than 1.4 million cases a year. Located in Loretto, Kentucky, it is further removed from the bourbon trail, and maintains its original vernacular architecture. Instead of using rye in its mash bill, Maker Mark uses winter wheat, corn, and barley. Makers Mark is owned by Suntory Holdings, which also owns Jim Beam.

Jim Beam
Jim Beam is the largest selling bourbon in the world. The distillery is divided into two halves, production and visitation, each with their own entrance. The visitor’s entrance is surrounded by rickhouses with Jim Beam branding and sculpted gardens. The industrial entrance is gated and easily accessible for trucks. While the visitor sees part of the distillery on the tour, it is questionable how much.

Wild Turkey
Wild Turkey’s mash bill uses 61% rye, which they claim gives it a ‘firey kick.’ The first distillery to embrace the bourbon boom, Wild Turkey is rapidly growing and investing in its infrastructure. New, free-standing bottling facilities and a visitor center have been built. While the visitor center was designed by architects DeLeon + Primmer, the other facilities follow contemporary industrial building techniques.
Buffalo Trace Distillery
Buffalo Trace is often considered the gold standard of distilling. It is the oldest distillery and home to the longest aged bourbon. Secure in its message and identity, Buffalo Trace is made up of independent brick facilities; visitors wander among them at their leisure. Buffalo Trace offers a variety of tours to encourage people to come back often.

Willett Distillery
Willett Distillery is on the forefront of the craft distillery movement. Located in Bardstown, Kentucky, and in proximity to Heaven Hill Distillery, it is an emerging family run business, currently making rye whiskey until its bourbon matures. Its small size and use of materials makes the facility welcoming.

New Riff Distillery
New Riff is located in the urban area of Newport Kentucky. Drawing upon the demand for bourbon in urban areas, New Riff embraces contemporary building techniques popular in cities. Easily accessible by people who want to learn about bourbon, New Riff draws upon distillery vernacular history through the use of sheet metal and highlighting the machine.
Figure 20 | The city and the country mouse
The countryside and the city are symbiotic. In network societies, neither entity can exist without the other. As this relationship has become increasingly strained recently, it is important to understand the attributes of each. This relationship was first explored by Jane Jacobs in her book *The Economy of Cities* in 1969. Contrary to most economic models of the 20th century that proposed cities grew out of agricultural abundance, Jacobs believes the countryside is the result of city inventions. She states, “Modern productive agriculture has been reinvented by the innovations that were explored in the cities that are then transplanted or imitated in the countryside.”¹ Inventions such as fertilizers, machines, electric power, and refrigeration were all developed in cities but utilized in the countryside.

The origins of bourbon distilleries seem to defy Jacobs’ logic, but are dependent upon many of the relationships illustrated. Bourbon distilleries grew out of plantation practices and have remained in the countryside. While their rural location can be primarily attributed to history, scale, or bourbon’s relationship with the land, their success depends upon city economies. While there has been little invention in the distilling process since the creation of the column still, higher quality and quantity of distilling equipment has developed in cities by companies such as Vendome Copper. The demand for bourbon is highest in city centers, where the majority of the populations live with the highest degree of disposable income. As a result, city density drives the success of rural distilleries.

Moreover, economic trends over the past several decades indicate

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¹ Jacobs, Jane. *The Economy of Cities*. 65
Figure 21 | Beech Creek
a strong migration of people moving to cities. The United Nations projects this trend to continue, with two-thirds of the world’s population living in urban conditions by the mid-twenty first century. The rural population has grown slowly since the 1950’s which is expected to peak, then decline, within the next 10 years. In North America, it is predicted the urban population will grow accompanied by rural population decline. This predicted migration drastically impacts the city-country relationship leaving more people with less understanding of the rural experience. As a result, it is crucial designers investigate the countryside people are migrating away from, as our rural environment makes up the majority of our resources and physical world.

Rem Koolhaas, principal of the firm Office for Metropolitan Architecture, has documented his experience with the effect of urban migration. At a village in Switzerland’s Engadin valley, he observed thinning, homogeneity, and deindustrialization of the town. As a result of his observations and urbanization, Koolhaas believes the county’s composition is much more complex than our cities.

Koolhaas’s observations support Jacob’s analysis as the countryside is no longer a self-sustaining entity, capable of living independently on its natural resources. Due to transcontinental infrastructure, an ongoing exchange of people and goods has influenced the composition of rural towns. Consequently, the countryside is inauthentic in many of its cultural representations – particularly in its architecture. The countryside’s dedication to vernacular styles derived from past agricultural practices (i.e. pitched roofs for tobacco drying) is an artifact of its heritage and not reflective of contemporary societal practices. Koolhaas identifies houses retrofitted from historic barns with modern interior appliances as an example of superficial living. Here the architectural form is rooted in history, while the lifestyle within has embraced new modern conveniences.

The dependence upon historical precedent can also be seen in distilling processes and architecture. Considered a

2 International Migration - United Nations Population Division | Department of Economic and Social Affairs.” UN News Center, 15

3 Koolhaas, Rem. “Rem Koolhaas in the Country.”
sacred process established in the seventeenth century, there is hesitancy to accept emerging advancements in the industry. Terressentia, a food science distillery in South Carolina recently patented a process of making four-year bourbon in eight hours. Terressentia found a way to mimic bourbon’s aging process by using ultrasonic energy and oxygenation, which “finishes chemical reactions that failed to complete in the distillation stage.”

Resistance to embracing new technology could be attributed to the role nature plays in the bourbon process, specifically in aging. While bourbon distilling is a mechanically controlled industry, distilleries are hesitant to replace the naturally controlled portion of the processes with artificial means. The hesitancy to accept scientific advancements regardless of the high bourbon demand shows the industry’s commitment to nature and heritage.

Agricultural Movements

A variety of movements have emerged as a result of the recent Network Society’s return to craft that strive to bring urban people in closer proximity with their rural resources. In urban settings people engage in Community Shared Agriculture (CSA), where civilians group together to pay for the harvest production costs, and receive a share of the season’s produce in return. This agricultural model connects producers to consumers and removes the middle distributor. As a result, the consumer knows the origin of their produce but are not engaged in the system. Produce is often delivered to civilians at their urban dwellings, again highlighting the urban rural divide. Some CSA farms offer produce in exchange for labor, which more thoroughly integrate people with their origin of their resources. This model also struggles with produce diversity, as people receive a high amount of the region’s seasonal crop.

The hospitality industry is capitalizing on the popularity of craft through the promotion of Farm-to-Table dining. Here regional seasonal food is favored in urban dining due to its quality and proximity. This model again strives to bring the producer and consumer, or the countryside and the city, closer together, while both maintain their distinct lifestyles. The Farm-to-Table

4 Herrington, Cass. “South Carolina Distiller Promises To Make Kentucky Liquor Quicker.”
model has recently become subject to marketing, causing the term to be overused to promote a business’ regional values. Again, the term ‘crafts’ lacks quantifiable characteristics, lending itself to exploitation.

Tourism Trends

Ecotourism or Agritourism emerged from people’s desire to reconnect with rural landscapes removed from everyday living. Aiming to draw people to dramatic, natural environments, in support of conservation and education, ecotourism connects the city and countryside through the creation of unique experiences. Agritourism specifically utilizes the combined wonder of agricultural production and natural serenity as a means of attracting people. A growing business in North America, Australia, and the Asia Islands, people visit farms or remote sites to be fully encompassed/integrated with the origins of their resources. These locations act as an extreme farm-to-table model (now the table is ‘at the farm’), providing a unique experience involving to the resources available on site.

The Kentucky Bourbon Trail was established in 1999 by The Kentucky Distillers’ Association and serves as state organized ecotourism. “The tour gives visitors a firsthand look at the art and science of crafting Bourbon” while encouraging people to visit Kentucky’s rural towns. The combination of the major distilleries into a formalized network creates a larger attraction for people to enjoy. Each distillery must highlight its unique characteristics to situate and differentiate itself amongst its competitors. As a tourist attraction the Kentucky Bourbon Trail draws people to the countryside. As an industry, consumers are united with producers.

In 2002, the Norwegian government launched a similar initiative to reactivate “National Tourist Routes.” Here formalized scenic highways connect large cities and the county side, making it easy for visitors to travel across the country, and experience Norway’s scenic landscape. Comprised of overlooks, walkways, and picnic rest areas designed by emerging architects, Norway Lookouts follow the classic Scandinavian formula of “nature first, architecture second.” The built structures

5 “History - Kentucky Bourbon Trail.” Kentucky Bourbon Trail.
Figure 22 | Aurland Lockout | Todd Saunders and Tommie Wilhelmsen
serve as an enhancement and attractor to the already captivating natural views.

The architecture of the Norway lookouts are as varied as their sites. Todd Saunders and Tommie Wilhelmsen of Bergen, Norway, designed the Aurland Lookout, a dynamic cantilever made from heavy timber. The one way extension serves as a non-obstructive framing device, which allows people to stand and see at an elevation otherwise not possible. Minimal in gesture, the overlook is striking and contemporary yet appropriate for its site. This architectural intervention both complements and attracts people to its surrounding site.

“Wineries have been luring travelers to their vineyards with romantic inns and fine restaurants for ages. Now, a growing number of spirit producers are following suit.” Situated in the remote, scenic locations, such as the Scottish isles, “These distilleries-cum-hotels could draw a crowd even if they didn’t come with a buzz.” They offer memorable meals, comfortable rooms, and plenty to do besides sampling spirits. Distilleries use these alternate programs to supplemental the distillery’s business while the bourbon is aging.

This thesis draws upon the attraction of rural or eco-themed tourism and specifically spirit resorts in the creation of the new typology. Through the introduction of peripheral programs to the distilling process people can enjoy the industrial atmosphere and the surrounding countryside beyond sampling bourbon. The architecture encourages people to stay immersed in the landscape and builds a relationship with its context.

6 Newman, Kara. “Drink in the Views at These Distillery Hotels.”
7 Newman, Kara. “Drink in the Views at These Distillery Hotels.”
Domus Winery
A private winery, Domus Winery is open to visitors to the California Napa Valley by invitation only. Designed by Herzog and de Meuron the buildings skin is made of gabion rock structure, dissolving the building into the surrounding mountains and moderating California’s extreme climate.

Hacienda la Caravedo
Located in Lima along Peru’s Pacific Coast in the foothills of the Andes Mountains, Hacienda la Caravedo is a sprawling estate that distills brandy. A retreat for the capital’s rich and famous, Hacienda la Caravedo has two exclusive bungalows for overnight guests. Complete with a chapel on site, Hacienda la Caravedo is a destination for many impromptu weddings or honeymooners.

Ellinge Castle
Located on the campus of Purity Vodka, in the south the Sweden, Ellinge Castle is a 12 room historic retreat that offers cooking classes, skeet shooting, and golf on the estate. The castle is both the branding image for the distillery and a hotel. Guest have full access to the grounds, library, garden, and lounge.
Sokol Blosser Winery
Sokol Blosser Winery is located in the Willamette Valley of Portland Oregon. Designed by Allied Works, the building is sculpted into the landscape, elevating the landscape onto a green roof from the north and framing views of the vineyard to the south. Predominately acting as a banquet hall, the facility hosts private events, tasting, and is open to the public daily.

Bowmore Distillery
Located on the remote island of Islay in Scotland, Bowmore Distillery has been making single-malt Scotch since 1779. The distillery owns six cottages and the inn in town allowing for around twenty people to stay at the distillery. The restaurant on site is known for its locally sourced salmon, langoustine, and other seafood.

Glenmorangie Distillery
Glenmorangie Distillery owns a separate resort, Glenmorangie House, which is down the road from the distillery. Isolated in the Scottish Highlands, Glenmorangie is known for its honey single malts. Guest can hike to a rocky private beach or play golf on the nearby courses.
Figure 25 | Bourbon stills
Industrial buildings are unique from other typologies due to their consideration for both the product and the person. As foremost an economically driven field, the efficiency of making the product is favored over the convenience of the laborer. As labor becomes increasingly more automated, human consideration becomes further removed from the typology. Like many industrial buildings, bourbon distilleries require very few workers. A small facility can function with as few as two workers while larger facilities employ over five hundred. Unlike other industrial buildings, they also serve as a tourist attraction. In 2015, over 700,000 people visited the distilleries along Kentucky’s Bourbon Trail. As a result, distilleries must consider both the different users (workers and visitors) and the machines in the creation of an industrial process, which is also a experience.

Distilleries differ from other industries due to the use of equipment to execute a process that aspires to retain its aura as human craft. Every phase of the distilling could be achieved on an intimate scale by humans if not for bourbon’s demand. Much like cooking, each phase of distilling is very sensuous, and retains a human touch. The machines used in distilling have separated humans from these processes somewhat, but also created alternate intrigue. Humans are fascinated by the ability of machines to create precise, accurate, and efficient products. The combination of these two very distinct and unusual relationships in bourbon distilleries creates a duality of perception in the experience.

Figure 26 | Bourbon fermentation at Makers Mark
Sensation vs Perception

Every human has sensations, the physical feelings from something that comes in contact with the body. “In other words, sensation refers to how a person processes their environment through touch, taste, sight, sound and smell.” Perception refers to one’s interpretation of what they take in through their senses.” Merleau-Ponty uses the term “perception” to refer to direct contact with the world around us. He believes “our body is both an object among objects and which sees and touches them” thus situating our body in relationship with world. Our bodies and movements are in constant interaction with their environment. He states, “I perceive in a total way with my being: I grasp the unique structure of the thing, its unique way of being, which speaks to all my senses at once.”

Space is the physical disposition of the world, but our lived perception is measured by our bodies. Humans measure distance by their stride and by sound, and themselves through shadows and reflections. Place is created when human perceptions are projected onto the space so it no longer is only a physical entity, but is understood as reflective of our memory, experiences, tastes, and smells. Thus, humans’ ability to perceive places relies on all their senses and inherently embodied perceptions in light of their prior lived, place-based experience and understanding.

The duality of the humanistic perceptions and scientific industrial elements present within distilleries create a tension which causes the user to heighten their emotional and sensual engagement. The combination of sensuous ingredients with both natural settings and industrial machines creates a deeper understanding of place. The interplay of these three elements in this thesis design will create a variety of experiences that heighten the user’s sense of place through sequences of complementarity, framing, contrast, and exaggeration.

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2 Herrmann, James B. “Tension of Connection: The Stitching of the Deindustrialized Inner City.”
3 Herrmann, James B. “Tension of Connection: The Stitching of the Deindustrialized Inner City.”
4 Pallasmaa, Juhani. The Eyes of the Skin: Architecture and the Senses. 23
5 Pallasmaa, Juhani. The Eyes of the Skin: Architecture and the Senses. 23
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Figure 27 | The thinking hand
Ocularcentrism + The Narcissistic Eye of our Culture

In Western cultures, sight is considered the privileged sense. The development of the ocularcentric view, the assumed primacy of vision over the other senses, and the privileging of the types of information it can register, can be traced through the vision-centered inventions of the printing press, artificial lights, and photography. Theorists such as Martin Heidegger, Michel Foucault, and Jacque Derrida all argue that modern culture has continued and enhanced the privilege of sight. The privilege of vision is exemplified today by the dominance of visual technologies in society. Yet, vision has created alienation, detachment and solitude within spaces due to the suppression of the other senses. This is because humans depend upon their haptic senses to perceive space, and place.

Palasmaa argues architecture should be a multi-sensory experience. Much like a walk through the forest can be invigorating and healing due to the constant interaction of the senses, architecture should strive for the same awareness. Palasmaa believes architecture is essentially an extension of nature into the man-made realm, and provides the ground for perception and understanding the world. Much like nature, every touching experience in architecture is multi-sensory; the qualities of space, matter and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscle. As a result, the full experience of architecture strengthens one’s sense of being in the world.

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Figure 28 | Connecting the Kentucky Bourbon Trail
5 Design Implementation

Site

Taylorsville Kentucky is a small town of 2,000 people in central Kentucky. Located half way between Kentucky’s two largest cities, Lexington and Louisville, Taylorsville provides the ideal opportunity to connect existing distilleries on the periphery of the large metropolitan areas. Taylorville’s central location will allow the distillery to serve as a remote destination, a resting point along the Kentucky Bourbon Trail where visitors are integrated into the distilling process and rural landscape, yet remaining connected to the other distilleries.

Located at the eastern end of Taylorsville downtown corridor, the site sits at the intersection of the town’s state park, industrial farming, and civic development. The interaction of these three elements represent the three strains of bourbon making machines, nature, people, and provides an already-present influences on the site that the hub must situate itself within.

The site’s rural setting provides an escape from urban living. Surrounded by agriculture, trees, limestone, and water the site gives homage to the origins of the product it produces. These elements contribute to the existence of the distillery as much as the architecture. The isolation of the site provides focus and a sense of serenity.

This thesis proposes the creation of a Bourbon Hub in Taylorsville Kentucky, as a means of integrating humans back into the rural landscape and enhancing their experience with industry. Architectural interventions will provide a way to physically connect the already present conditions within the site and add human centered programs to help enrich visitors’ understandings of bourbon making, the rural countryside, and the human experience of both.
Figure 29 | Re-organization of distilling process
Program

The process of making bourbon is highly standardized regardless of the distillery. Variance between bourbons arises from differences in the original recipe and aging techniques. A distillery will often have only one or two recipes which they use to create fifteen or more different bourbons through different aging processes. As a result, visiting multiple distilleries along the bourbon trail can become a repetitive experience. Different brands depend upon story telling and visitor experience to make their product unique, more than the actual flavor.

Most people interact with distilleries through a tour. Here visitors spend one to two hours on site, visiting the steps of making bourbon in a sequential manner, following the flow of the product. Distilleries are not often designed to follow the flow of the product, because rapid growth and access to materials has caused their buildings to emerge in a disjointed, sporadic manner. For the visitors, this complexity is often reduced down to a scripted tour.

Bourbon Hub strives to redefine people’s interaction with the industrial distilling process - grain, cooking, fermentation, distilling, barreling, aging, and tasting. In an argument for increased transparency in the distilling process, Bourbon Hub removes the time limitation of scripted tours and provides visitors with more deeply engaged interactions with bourbon. Through the injection of a variety of additional programs and activities including overnight accommodations, people will be able to ‘dwell’ with the product and its culture and form a diverse understanding of the distilling process.
Figure 30 | Programmatic diagram
on their own time.

Operating as an industrial resort, Bourbon Hub will maintain the necessary facilities and equipment to make bourbon. The linear process of making bourbon can be experienced by visitors more effectively if they are led throughout the building in a specific manner. The building will also host programs that allow the building to be occupied for other period of time or uses. The introduction of a kitchen, restaurant, theater, and hotel will allow for the facility to be activated during different periods. These additional functions will be juxtaposed with the distilling process in ways that will add depth to the visitors’ understanding of the industry and its role in culture.

**Restaurant / Fermentation**
Drawing upon the cooking that happens during fermentation the restaurant is situated in proximity to the fermentation tanks. These large vessels help to create a unique atmospheric dining experience among the machines, the bourbon, and the food. People visiting for a tour, staying at the hotel, or coming from the surrounding community can dine here.

**Barreling / Theater**
The theater serves as a central node within the facility, transitioning between the exterior and the interior. Surrounded by all the phases of the distillery process, the ‘performance’ of the distillery takes place around it. This space is utilized as the waiting area for tours, or setting for events at the hub such as community fundraisers.

**Hotel / Tasting**
The hotel rooms are strategically placed in destination areas of the building, creating unique living quarters with choreographed views over both the distilling process and the natural landscape. The path to get to these distilling areas takes the visitor through the processes of the hub. Close proximity to the distillery allows for easy access to bourbon to enjoy in the confines of their individual room.
Form
The forms of industrial buildings are strongly driven by function. These structures are scattered throughout our living environment, in both the country and the city. Their standardized architectural gestures often cause them to blend in with their surroundings, but when noticed their ambiguity causes a questioning of their internal function. Industrial buildings with strong gestures are equally as curious. Foreign to everyday environment, they stand as monuments to agricultural or manufacturing activity.

An analysis of industrial buildings reveals key characteristics. Derived from farms and sheds, agricultural industrial forms are large, bold, and simple in their individual structural and additive over time. Observation and the studying of the Bechners’ photographs were highly influential on the following conclusions:

**Half machine, half building**
Industrial buildings are built for machines. This leads to the favoring of functionality over comfort. The line between these qualities is blurred however, as the machine morphs into the building and vice versa.

**Pitched and flat**
Evolving from the form, especially in rural environments, industrial buildings are generally simple geometries, flat and open, with a variety of pitched roofs. This form is not unique to the typology, nor to the industrial function, but historically driven from the fundamental form of shelter.
Figure 32 | Vignette development
Additive and improvisational
Industrial buildings are often an additive assemblage of pieces with a piece meal exterior resulting from resourcefulness or growth. As the facility changes based on economic demand, the architecture is modified. This results in a collective, loose, ever evolving, exterior form.

Bourbon Hub is neither an industrial building nor a resort, but a hybrid of both. As a result, there is no clear archetypical precedent. Drawing upon the tripartite elements of bourbon analyzed in this thesis (the machine, nature, and human), the form is generated from the weaving together of discrete bars (linear block forms). As the bars overlap, circulation occurs allowing the user to experience all three conditions at once. Drawing upon existing industrial buildings the phases of distilling are articulated as individual buildings on the exterior. A diagonal gable roof draws upon rural vernacular precedents, while creating movement and dynamic spatial tensions throughout the facility.
Figure 33 | Skin iteration
Skin

The three interwoven elements of bourbon, machine, nature, and man, that are interwoven to make the building’s form, are clearly articulated by the building’s exterior skin. The industrial bar follows traditional industrial building techniques and is clad in vertical metal. The interjected program bar is clad in vertical wooden slats. The contrast between these two treatments clearly communicates the interior function on the exterior. As the two bars overlap, this skin continues on the interior, reflecting the building’s parti on the interior.

The use of material commonly found in the surrounding context situates the building in its rural environment. An extension of the landscape, the building rises out of the slope of the hillside to capitalize on views of the mountains and access to the waterfront. A centralized courtyard brings the outside in. As the landscape changes due to time, man’s interventions, or seasonal swings, reflect this changes.

The use of metal and wood gives homage to the materials bourbon interacts with during its creation. Wood is key to the aging process and gives bourbon its flavor and smell. By using it in the building it is hoped these characteristics of bourbon are transitioned into the physical environment. The juxtaposition of the natural material, wood, and the man made material, metal, will highlight the necessity and uniqueness of both.
Figure 34
6 Conclusion

This thesis serves as one architectural proposal for the reinvention of industrial typologies and their stronger interaction with human experience and the cultural meaning of the products being made. Invention in architecture occurs when buildings respond and reposition a typology’s function in relation to changing societal and economical influences. This thesis is not the only solution but one proposal for how architecture can influence humans’ sensory experience, uniting people with products and nature. Other formal strategies or programmatic interventions may be appropriate given different products, contexts, virtues, or economic influences. It is my hope this theses serves as a starting point for discussions on how to address industrial typologies (regardless of whether they are for the production of milk, chocolate, or automotive parts) to become more civic and accessible by the public, and to help form stronger connections between ourselves and our goods.
# Bibliography


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