

BREWING A NEW COMMUNITY:

Redefining local industrial manufacturing within a city

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

The effects of globalization echo in former factory cities, in their depleted industrial landscapes and their abandoned buildings, creating a disconnect between people, their identities, their communities, and their cities. In recent years, there has been a return of small-scale manufacturing to cities with maker movements and the emerging desire for locally made products led by farmers' markets and artisans. The purpose of this thesis is to consider how the craft brewery industry is serving as a catalyst for urban change by creating new opportunities to bring people together in post-industrial neighbourhoods. By examining contemporary social needs of the consumer and questioning how a collective hybrid industrial space can create a dialogue between the community and small-scale manufacturers, craft breweries today are trying to find a balance between production and social programmatic designs. They are redefining the industrial typology as something more than a factory, but a space of social and cultural production. Through the framework of neolocalism, a new sense of belonging and collaboration can be established through the shared collective identity of place, history and space. This idea is explored through the design of a brewery in the former Dominion Textiles Woolens & Worsted Mill in Hespeler, Ontario. The purpose of the design is to explore how experiential consumption within an industrial artifact promotes the craft of local manufacturing, increases awareness of the surrounding agricultural economies, and creates a new form of tourism for the region.

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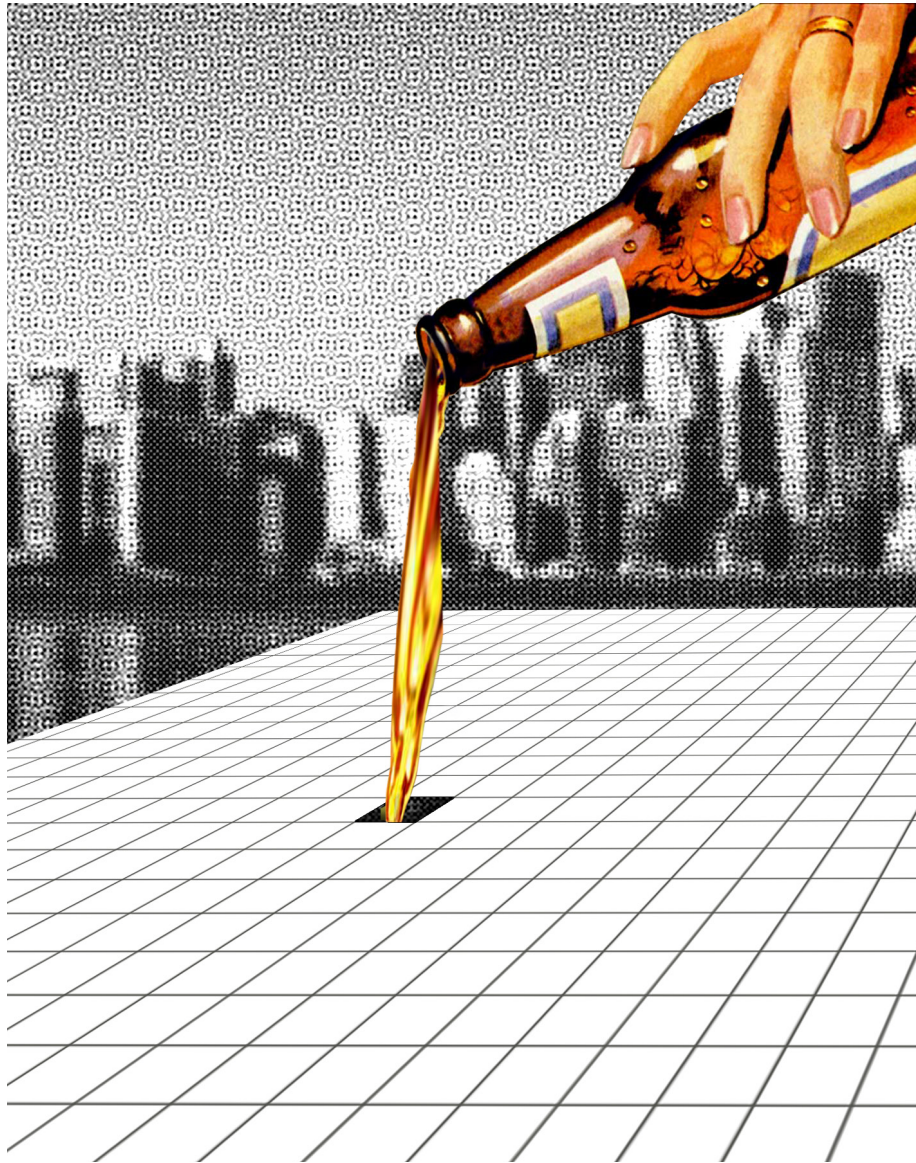


fig.0.0. Brewing a new community

A QUOTE ON BEER:

.....

“To a physical scientist, beer might be about the thin bead of rising bubbles that takes the mind to the physics of nucleation: upon opening a bottle, equilibrium is disrupted and bubbles grow due to the reduction of pressure (i.e., Boyle’s Law) and the flow of CO₂ from solution into free gas bubbles (i.e., Diffusion). A poet or novelist might see in beer the literary furies. An historian might think about the origins of fermentation and when the first hops were cultivated. An archaeologist might, at the end of a long day, stare into her glass of beer and recall that the Fertile Crescent likely had optimal conditions for grain cultivation, and that beer was a dietary staple with some of our earliest civilizations. To an environmental geographer, beer might represent how society and nature interact over space.”¹

what is beer to architects?

¹ Stephen Yool and Andrew Comrie, “A Taste of Place: Environmental Geographies of the Classic Beer Styles” in *The Geography of Beer: Regions, Environment, and Societies*, ed. Mark Patterson and Nancy Hoalst-Pullen (Netherlands: Springer, 2014), 99.



fig.0.1. What is beer to architects?

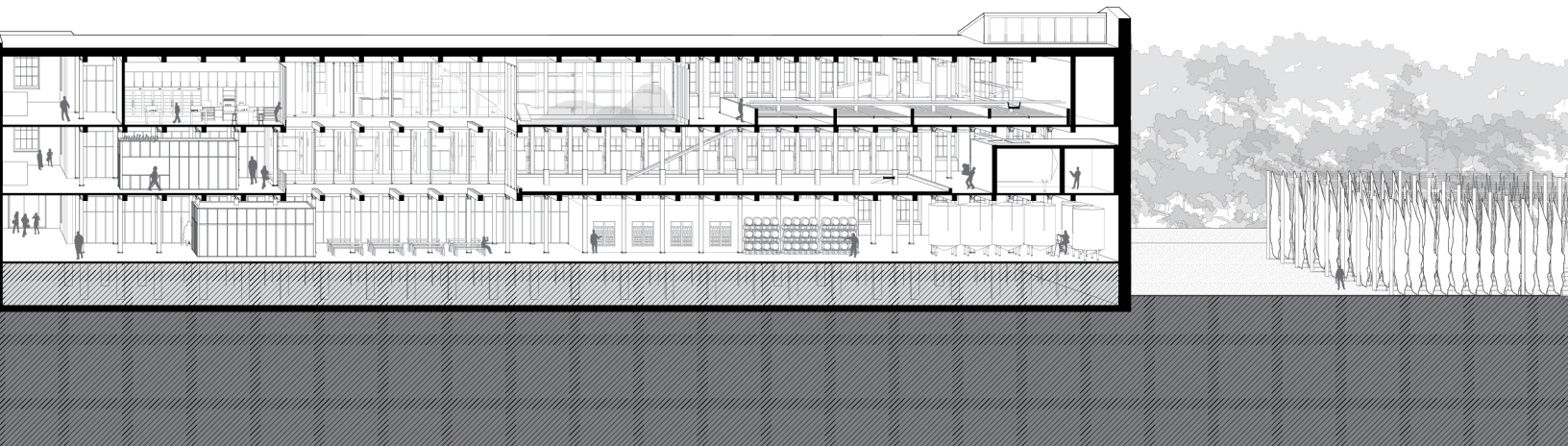
INTRODUCTION:

what is beer to architects?

Brewing traditions, recipes, methods and cultures have been embedded into the production of beer over many centuries, making it an interesting topic to study through a sociological, cultural and economic lens. But what about the production of beer through an architectural lens? What is beer to architects? Is it the envelope that surrounds the space of production? Is it the ways in which the typology transformed from a simple residential process to that of a large-scale brewing facility? Or is it that breweries are so much more than simply an industrial factory? Could it be that breweries have the potential to bring people together, and demonstrate a way to build economic, social and productive alliances within a city by overlapping the public with the manufacturing process?



fig.0.2. Revival of an Abandoned Factory





*fig.0.3. Photographs of an Abandoned Industrial Factory
Former Dominion Woolens & Worsteds factory, in Hespeler, Ontario*

Globalization & the Post-Industrial City

It can be said that globalization has left people with a sense of wanting, a missing connection to their identities, their communities and their cities. The effects of globalization still echo in former factory cities, in their depleted industrial landscapes and their abandoned buildings, creating a sense of placelessness and a severed connection to the urban fabric. Within ailing communities, vacant buildings can be revitalized and repurposed by introducing new forms of local production and consumption. Globalization has created a manufacturing model that is disconnected from the community where the physical distance from the city, its workers and transportation has proven to be unsustainable.¹ In recent years, there has been a return of small-scale manufacturing to cities propelled by maker movements and the emerging desire for locally produced products. Smaller industries are returning to the cities, with cleaner technologies, smaller footprints and sustainable agendas, which are providing cities with new economic opportunities for their downtown cores.

A new industrial urban model, discussed by a panel during the *Industrial Urbanism* symposium held at the Massachusetts Institute of Technology (MIT), describes an industrial ecosystem that relies on the relationships between manufacturers and other small business as well as a relationship with consumers. This ecosystem creates a space for overlapping collaborations and knowledge sharing. The urban model focuses on the “*proximity, localism and planning regulations*” required for manufacturing to succeed in a city.² A strategy mentioned by Liz Reynolds, discusses the potential of former single use factory warehouse spaces that can be transformed into multiple manufacturers at a variety of scales including “*the maker stage, the start-up stage, the scale-up stage, the small and medium-sized enterprise stage*”³. The use of existing multi-storey factories work best in urban centers, allowing many industries to be layered vertically within an already dense neighbourhood, a concept discussed extensively by Nina Rappaport’s *Vertical Urban Factory*.⁴ Therefore, the land use of industrial spaces needs to be protected by city planners, and attitudes towards industry must be changed by reintroducing people back into the process of making.

Nina Rappaport discusses the way in which the development of industrial zones eliminated manufacturing in cities by forcing factories to the edges of cities and out of the minds of the people living there. It was deemed undesirable to live near industrial manufacturing due to the sounds, smells, and the constant transportation of materials and goods. “*By the early twentieth century, zoning restrictions on land use directed economic growth and the realities of urban real estate and high taxes tended to direct factory locations away from the urban*

1 T. Hatuka, E. Ben-Joseph and S. M. Peterson, “Facing Forward: Trends and Challenges in the Development of Industry in Cities,” *Built Environment* 43, no. 1 (2017), 150.

2 Hatuka, Ben-Joseph, and Peterson, “Facing Forward: Trends and Challenges in the Development of Industry in Cities,” 146.

3 Hatuka, Ben-Joseph, and Peterson, “Facing Forward: Trends and Challenges in the Development of Industry in Cities,” 151.

4 Nina Rappaport, *Vertical Urban Factory* (New York: Actar Publishers, 2015), 64.



*fig.0.4. Four Fathers Brewery Under Construction
Adaptive Reuse of former Simplicity washing machine factory, in Hespeler, Ontario*

core.”⁵ Relocating factories to the outskirts of cities changed the design of the buildings, since they no longer needed to rely on daylighting or gravitational flows and having no urban restrictions on lot sizes, they became large banal rectangular single storey industrial shed. Moving the factories out of the city removed the idea of manufacturing from the minds of the citizens, eliminating any evidence of production and devaluating the workmanship and goods produced.⁶ This resulted in erasing the culture of making as a shared part of the urban experience. Therefore, creating a space that highlights the transparency of modern manufacturing, by encouraging public engagement and education is key to the success of new urban models of industrial manufacturing. As noted by the authors of *Cities of Making*: “*there are opportunities to create public interface with manufacturing. Firms can take advantage of mixing production with direct retail, or educational and training activities. Small manufacturers work together in shared premises, which might have exhibition, social, or hospitality spaces open to the public. Indeed, industrial activities can create focal points or atmosphere which draw the public in.*”⁷ The human experience with production is central to the success of urban manufacturing since “*industrial urbanism encourages the convergence of users and activities to create vibrant economic clusters. The new industrial urbanism should reintroduce human centered design to manufacturing facilities.*”⁸ The emergence of microbreweries and craft breweries in communities and cities around the country is a contemporary example of the large strides that this new industrial model is making.

Craft Brewery: A New Form of Factory

Ontario’s craft brewery movement began in the early 1980s when a change in legislation allowed the sale of small batch brewing, reintroducing the notion of local tradition, quality ingredients, authenticity and craft back into an industry that had transformed into mass production by macrobreweries on a global level. Today, craft breweries redefine the urban industrial typology as something not merely as a factory, but also as a space of social and cultural production. These breweries form a sense of place through their use of local names, historical connections, and images in their branding, the promotion of sustainability in their production, and through the creation of community events, activities and their support of charities. Using the framework of neolocalism, a new sense of belonging and collaboration can be established through the shared collective identity of place, history and space.⁹

The designs of craft breweries today attempt to find the balance between production and social programming. The purpose of this thesis is to consider the new social needs of the consumer and investigate ways in which a collective

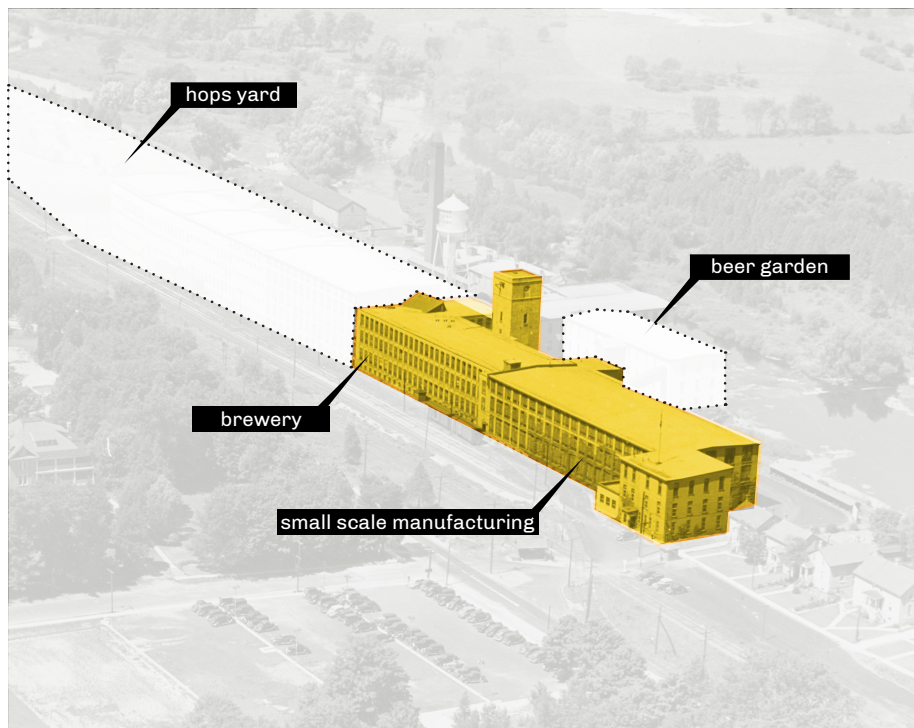
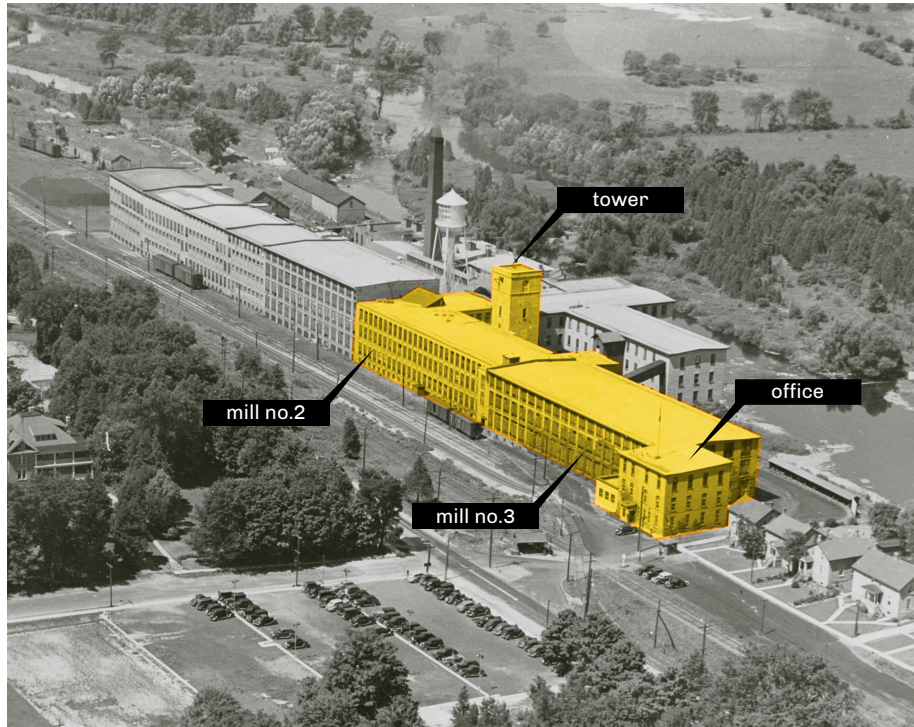
5 Rappaport, *Vertical Urban Factory*, 64.

6 Rappaport, *Vertical Urban Factory*, 71.

7 “Integrating manufacturing in the city: a few common patterns,” *Cities of Making*, accessed November 12, 2019, <https://citiesofmaking.com/integrating-urban-manufacturing-a-few-trends/>.

8 Hatuka, Ben-Joseph, and Peterson, “Facing Forward: Trends and Challenges in the Development of Industry in Cities,” 153.

9 Wes Flack, “American Microbreweries and Neolocalism: “Ale-Ing” for a Sense of Place,” *Journal of Cultural Geography* 16, no. 2 (1997), 37-53.



*fig.0.5. Design Proposal of Former Dominion Woolens & Worsted's Factory
The building that remains today is highlighted in yellow*

hybrid industrial space can create a dialogue between the community/city and small-scale manufacturers. My research will primarily focus on craft breweries and ways in which manufacturing can act as a catalyst for urban change in post-industrial neighbourhoods. This thesis aims to: 1) analyze how Ontario's craft brewery industry is changing the way the public interacts with manufacturing; 2) discuss how the design of a brewery can create new opportunities to bring people together; and 3) demonstrate a new way to build the economy, tourism, culture and production within a city.

Site, Program & Design Proposal

In this thesis, I am proposing an architectural intervention that emphasizes the new hybrid brewery typology as both a place of social collaboration and productive manufacturing. I have selected the former Dominion Woolens and Worsteds textile mill in Hespeler, Ontario, as my site to create a new industrial facility, one that inserts itself back into the city. Transforming the architecture of the existing building by emphasizing the new process and performance of the space, the brewery will act as the anchor industry within a cluster of other small-scale manufacturers, redefining what a factory means to the city, its people and place. The purpose of the design is to explore ways in which experiential viewing and consumption within an industrial artifact promotes the craft of local manufacturing, increases awareness of the surrounding agricultural economies and creates a new form of tourism for the region. This thesis aims to demonstrate how the factory shaped a city and how this new type of factory can once again re-shape a city.



fig.1.1. Places of Enjoyment, Conviviality and Community

CHAPTER ONE :

From Tavern to Mass Production:

Where does the craft brewery situate itself? 14

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Third Place 18

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An Authentic Place 21

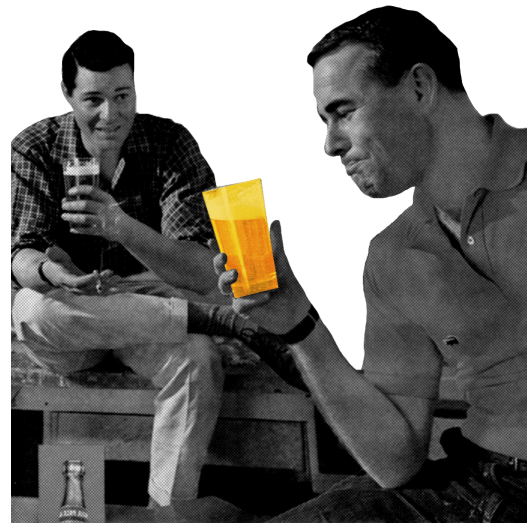
A Taste of Place 24

TAVERN & PUB:

communal gathering

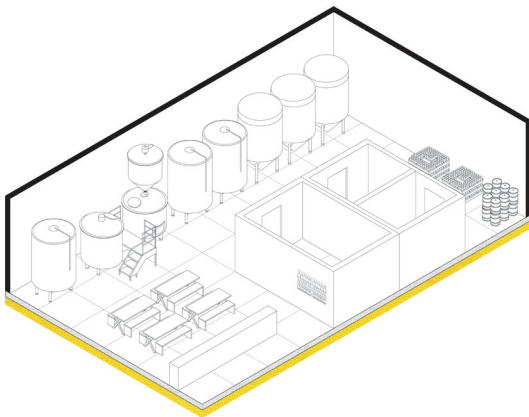


PROHIBITION:



RENAISSANCE :

a return of Craft Beer (1980s)



CONSOLIDATION : NATIONAL IDENTITY

mass production & Big Three (1974)

fig.1.2. Transformation of Brewery Diagram

From Tavern to Mass Production:

Where does the craft brewery situate itself?

For over 10,000 years, beer has played a significant role in many societies. Beer may have been the reason behind the cultivation of cereals, as it played an integral role in rituals, community gatherings and festivals.¹ Current research suggests in moderation, alcohol can be deemed beneficial to our health from the social bonding that occurs while drinking.² Dunbar, discusses the ways in which drinking increases our sociability and chances of talking with strangers, by increasing our confidence and changing our perceptions of others to be more trustworthy and friendly.³ He also discusses the ways in which social activities like singing, dancing and laughing releases endorphins similar to that of alcohol and that these endorphins strengthens the connections made between people.⁴

Taverns, pubs and breweries have had a role in strengthening societal bonds throughout Canadian history. In Canada, taverns, pubs and breweries have played an important role in the development of new settlements, as they were often one of the first buildings constructed, thereby acting as the main space for community, culture, dining and military regiment activities.⁵ In essence they provided a place for people to gather, eat, rest, discuss politics, dance, play games and mingle. However, with the advent of the Temperance Act in the early 1900s, which condemned the consumption of alcohol due to its negative moral associations, events and social activities moved away from the tavern. As a result, taverns, pubs, and breweries slowly transformed from a communal hub to that of a commercial enterprise devoted to the production and consumption of beer for retail sales alone.⁶ The Temperance Act eventually led to a nationwide prohibition.

From 1916-1927, the prohibition banned the consumption and production of any beer or alcohol.⁷ During this time, beer and brewing, were associated with criminal activities and bootlegging. After the ban was lifted, brewing facilities no longer focused on public social engagements and moved towards industrial

1 Melissa De Witte, "Did Crafting Beer Lead to Cereal Cultivation?" *Stanford News*, September 12, 2018, <https://news.stanford.edu/2018/09/12/crafting-beer-lead-cereal-cultivation/>.

2 R. Dunbar et al., "Functional Benefits of (Modest) Alcohol Consumption," *Adaptive Human Behavior and Physiology* 3, no. 2 (2017), 118.

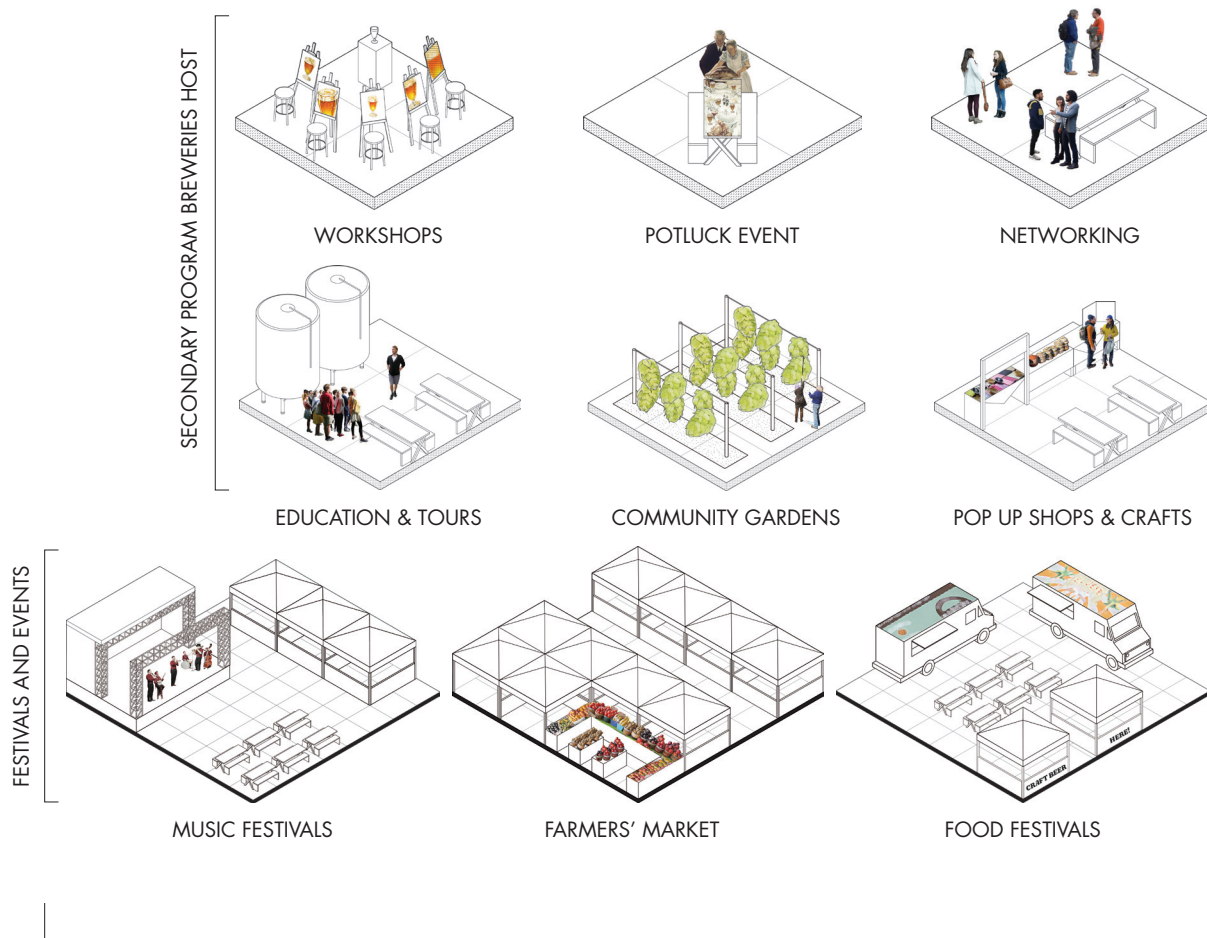
3 Dunbar et al., "Functional Benefits of (Modest) Alcohol Consumption," 127.

4 Dunbar et al., "Functional Benefits of (Modest) Alcohol Consumption," 119.

5 Kai Lamertz et al., "New Identities from Remnants of the Past: An Examination of the History of Beer Brewing in Ontario and the Recent Emergence of Craft Breweries," *Business History*. 58, no. 5 (July 3, 2016), 803.

6 Kai Lamertz et al. "New Identities from the Remnants of the Past" 807.

7 Kai Lamertz et al. "New Identities from the Remnants of the Past" 805.



A PLACE FOR COMMUNITY

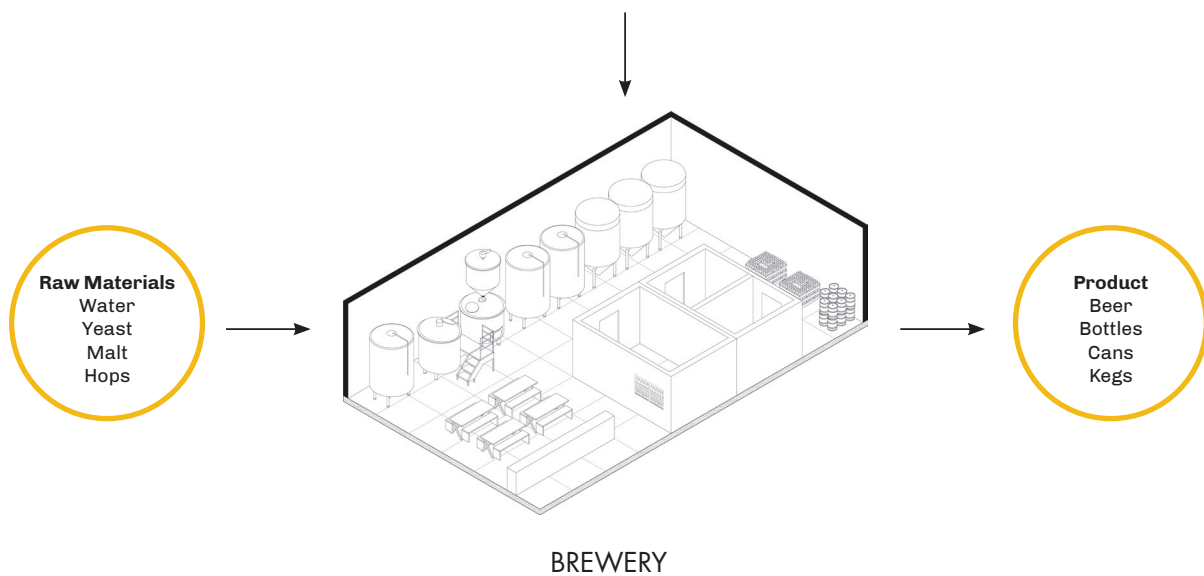


fig.1.3. Brewery as Community Diagram

factory-based production.⁸ Over the next several decades breweries moved from city centers to sites located on the city's outskirts, which allowed them to spread horizontally and increase space for production and transportation. Smaller local breweries were purchased by larger manufactures. As a way of unifying customers desires, breweries began promoting a national beer, that represented Canada as a collective community.⁹ Breweries encouraged consumers to buy beer from liquor stores and drink it from the comfort of their own homes, eliminating the need to stop by the pub or tavern for their beer and their social activities.

Beer transformed from a unique tradition of craft to a simplified mass-produced lager. In Canada, by the mid-1960s, the Big Three brewing companies emerged as majority owners of the market: Molson Brewery, Labatt Brewing Company and Carling O'Keefe. Molson's purchased Carling O'Keefe in 1989, and in 2005 Coors, an American Company purchased Molson. Foreign investors purchased Labatt in 1995, which was then purchased by Anheuser-Busch InBev. In short, the two largest brewing companies were no longer Canadian, and the idea of a national beer had lost its meaning.¹⁰

In the late 1970s, the United Kingdom Campaign for Real Ale (CAMRA), developed as an organization that demanded more from the brewing industry, calling for traditional ingredients, beer with more flavor, and renewing small batch brewing. These ideas spread towards Canada, where consumers desired a product of greater value, brewed with quality ingredients and made locally. As a result, in the early 1980s, the government passed a legislative change that allowed small batch breweries to sell beer commercially. These small batch breweries stood out from the "national" beer companies because they were providing a unique, local, authentic experience, one that had not been provided previously. They began re-introducing a sense of community pride through the local production and consumption of beer.¹¹

Today, not only are craft breweries increasing the number of events they host, they are also adding a variety of secondary programs as a way of bringing more people together. These activities do not solely focus on drinking but the act of socializing with your neighbors and getting to know your community;

8 Post prohibition, the LCBO, The Liquor Control Board of Ontario, was founded to regulate alcohol and places of public consumption. As a way of maintaining control to the types of behaviors and social gatherings that occurred in these privately owned, public spaces, the government managed and reinterpreted what the image of a drinking space should look like. The LCBO provided guidelines to create a morally acceptable drinking space that was clean and modest, with minimal signage to discourage drinking, gambling, prostitution and misbehavior. Over the years, the LCBO lifted many of their design regulations, however the interior of breweries still reflects the spatial design and minimalist interiors that were once required. From: Dan Malleck, *Try to Control Yourself the Regulation of Public Drinking in Post-Prohibition Ontario, 1927-44* (Vancouver, BC: UBC Press, 2012).

9 Derrek Eberts, "Neolocalism and the Branding and Marketing of Place by Canadian Microbreweries" in *The Geography of Beer: Regions, Environment, and Societies*, eds., Mark Patterson and Nancy Hoalst-Pullen (Netherlands: Springer, 2014), 191.

10 Eberts, "Neolocalism and the Branding," 191.

11 Eberts, "Neolocalism and the Branding," 191.



local image

communal

sustainable

Local names & images:

Use of historic names, places & imagery used in brewery branding and marketing strategies as a way of connecting with the local identity.

Community and Social Engagements:

Social programming and charity events hosted, volunteering, and community outreach.

Environmental Sustainability:

Taking steps to improve water use, waste, energy and packaging to reduce environmental footprint.

fig.1.4. Neolocalism Diagram - Flack, Holtkamp & Eberts

trivia nights, spring markets, tool workshops, and music nights are often showcased. The design of craft breweries has become more compact with new brewing equipment and modern practices, where the large flexible brewhouse floor transforms and evolves with the new needs of a brewery. At the same time, the social production and public interaction within the craft brewery is equally important to that of the physical manufacturing of the beer.

How Beer Builds Community: Neolocalism

Wes Flack, a geographer, reintroduced the term Neolocalism¹² while discussing the craft brewery movement in the 1980s. He uses this term as a way of describing the counter movements made by microbreweries to globalization, similar to that of farmers' markets and local festivals.¹³ Holtkamp continues Flack's discussion of Neolocalism by describing the three ways in which craft breweries reintroduce place and local identity into their breweries. The first method is through their promotion of local imagery, history, and names in their branding and marketing.¹⁴ The second method is their engagement within the local community through volunteering, hosting charity events and community activities.¹⁵ The third method is through the promotion of sustainability and reducing their environmental footprint through improvements in water use, waste, energy and packaging.¹⁶ By creating an emphasis on local identity, breweries are creating a collective idea of space, memory and community within the city. This encourages people to return time and time again, because they have created a bond between their neighbors and their local brewery. These ideas will be explored further, by reflecting on different ideas of place, locality and authenticity that have emerged in response to a sense of placelessness.

A Third Place

Ray Oldenburg's *The Great Good Place: cafes, coffee shops, bookstores, bars, hair salons and other hangouts at the heart of a community*, stresses the importance of the third place in a city, and states that it is the best solution to the damage done by suburban sprawl, capitalism, and the automobile.¹⁷ The third place is an informal form of public life, where we develop a sense of place and identity away from the home or work.¹⁸ The third place relieves us from our daily routines and provides us with the opportunity to socialize with people within our community. Oldenburg describes the third place as an accessible, neutral, democratic, inclusive, conversational, non-hierarchical

12 This term was introduced to Wes Flack through a conversation with James R Shortridge.

13 Wes Flack, "American Microbreweries and Neolocalism: "Ale-Ing" for a Sense of Place," *Journal of Cultural Geography* 16, no. 2 (1997), 38.

14 Chris Holtkamp et al., "Assessing Neolocalism in Microbreweries," *Papers in Applied Geography* 2, no. 1 Jan 2, 2016), 66.

15 Holtkamp, "Assessing Neolocalism in Microbreweries," 66.

16 Eberts, "Neolocalism and the Branding," 192.

17 Ray Oldenburg, *The Great Good Place : Cafés, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community* (New York : Publishers Group West, 1999).

18 Ramon Oldenburg and Dennis Brissett, "The Third Place," *Qualitative Sociology* 5, no. 4 (1982), 269.



fig.1.5. Ray Oldenburg's Third Place Diagram

social space that provides a general sense of social joviality.¹⁹ A craft brewery is by this definition a Third Place, bringing comradery to communities that are craving face to face interactions.

Oldenburg further discusses how people go from home to work and often skip the third place in-between. This is especially true in sleeper cities, where people spend a good portion of their day commuting from one city to another, between their home and their work. Our cities are designed so that we can avoid being social, that we do not need to know our neighbors, which can leave us with a sense of loneliness. A brewery is a place for meeting and conversing with others, which Oldenburg believes is integral to our wellbeing, and can provide a sense of emotional support. Breweries offer a form of social capital through networking and social engagement within the space.²⁰ An example of this is Royal City Brewing, in Guelph, Ontario, which hosts “We the Ward: neighborhood networking night”, where they welcome neighbors and local businesses to meet every Monday night to encourage local conversations and collaborations.²¹ Another example is the *Stroller Sessions*, hosted by Four Father Brewing Co, in Cambridge, Ontario, where the brewery hosts an event every Thursday afternoon for parents and caregivers to meet and discuss as a group.²²

¹⁹ Oldenburg and Brissett, “The Third Place,” 265-282.

²⁰ Ignazio Cabras and Matthew Mount, “How Third Places Foster and Shape Community Cohesion, Economic Development and Social Capital: The Case of Pubs in Rural Ireland,” *Journal of Rural Studies* 55 (2017), 71.

²¹ “We the Ward,” Royal City Brewing Co., accessed Apr 3, 2019, <https://royalcitybrew.ca/>.

²² “Stoller Sessions,” Four Fathers Brewing Co., accessed April 23, 2019, <https://fourfathersbrewing.ca/events/>.



fig.1.6. Steven Schnell's Definition of Local

What does it mean to be local?

David Harvey believes that “*people are increasingly reasserting personal or collective identities, identities that are often rooted strongly in place. As a counter to the forces that disrupts and uproots traditional community structure.*”²³ In this era of rapid communication, the desire for locality in a world of globalization is actualized as people seek out their place within a city. In *Deliberate Identities: Becoming local in America in a global age*, Steven Schnell characterizes local as: community building, self-sufficient, non-global, non-corporate, transparent, authentic, unique and environmentally responsible.²⁴ Looking further into the notion of transparent, non-global, non-corporate in terms of economic transactions, value is added to the product through the engagement and education of the consumer by the producer.²⁵ A narrative is created around production, where it highlights the skill, craft and integrity of the workers. In turn, consumers have a better idea of what sort of company they are supporting, and in the case of a brewery, the people and community they are choosing to endorse. By rooting themselves into their community and buying a local product, they are taking a stand against the homogenization of globalization.

²³ Steven M. Schnell and Joseph F. Reese, “Microbreweries, Place, and Identity in the United States” in *The Geography of Beer: Regions, Environment, and Societies*, eds., Mark Patterson and Nancy Hoalst-Pullen (Netherlands: Springer, 2014), 168.

²⁴ Steven M. Schnell, “Deliberate Identities: Becoming Local in America in a Global Age,” *Journal of Cultural Geography* 30, no. 1 (2013), 66-70.

²⁵ Schnell “Deliberate Identities: Becoming Local in America in a Global Age,” 66.

With the increasing popularity of microbreweries, regulations and guidelines surrounding breweries have undergone further development over the last decade. The Alcohol and Gaming Commission of Ontario, *AGCO*, has released guidelines for what non-alcoholic items breweries can sell in their retail stores; items with a strictly local focus, handmade products, including books on local food and beverage, history, art and tourism. They specifically outline “locally produced artisanal products”, highlighting products made in Ontario, through traditional means and in limited quantity. Other permissible retail products include clothing and branded beer accessories, as are selling tickets to events happening within the community.²⁶

An Authentic Place

In, *A Thirst for the Authentic*, Thurnell-Read, discusses the consumer’s desire for something unique and authentic in the modern world while discussing the ways in which brewers are adding value to their products by creating and marketing an authentic product.²⁷ By proclaiming a product authentic, they are announcing their dissatisfaction with the homogenous, mass produced lagers and ales, declaring the value inherent in something made by hand.²⁸ As a response to modernism, craft re-emerged, alongside industrialization. Specifically, “*the point when industrial processes emerged as the dominant means of production was the point at which the concept of craft as a form of art emerged – as a self conscious counterpoint to factory-made goods. Craft became defined in opposition to industrial manufacture.*”²⁹

Thurnell-Read, describes the authentic experiences found in breweries are through customer-to-brewer interactions where these “*informal interactions, are able to witness craft work taking place in situ as an embodied performance*”³⁰, where the story behind the product is just as valuable as the product itself, and that “*the high value products involves communicative and performative acts*”.³¹ Authenticity, however, is difficult to define due to its evolving nature and transformative ability, as well as the subjectivity of the person defining it.

For Thurnell-Read, the process and performance of authenticity can be found within six modes: procedural, material, geographical, temporal, oppositional, and biographical. Procedural authenticity is shown through demonstrations, tours, equipment and the materials used to make the product. Material authenticity is achieved through locally sourcing ingredients, favouring the quality of the flavour over an off-the-shelf, mass-produced,

26 Alcohol and Gaming Commission of Ontario, *Brewery Retail Store Information Guide* (Toronto: Queen’s Printer for Ontario, 2017) 11-12. https://www.agco.ca/sites/default/files/3167_breweryretailstoreinfoguide_eng_0.pdf

27 Thomas Thurnell-Read, “A Thirst for the Authentic: Craft Drinks Producers and the Narration of Authenticity,” *British Journal of Sociology* 70, no. 4 (2019), 1448-1468.

28 Thurnell-Read, “A Thirst for the Authentic,” 1448.

29 Alex Langlands, *Craft : An Inquiry into the Origins and True Meaning of Traditional Crafts* (New York: W.W. Norton & Company, 2018), 11-12.

30 Thurnell-Read, “A Thirst for the Authentic” 1452.

31 Thurnell-Read, “A Thirst for the Authentic” 1452.



fig.1.7. Thomas Thurnell-Read Modes of Authenticity

homogenized grain. In Canada, the majority of grains are produced in Alberta and Saskatchewan, therefore not reflecting a local taste nor the rootedness of place. Geographical authenticity links the brewery to the locality of place, its myths and traditions, often creating place symbolism through branding. This is also a way for a brewery to distinguish itself from regional and national brands. Temporal authenticity is more difficult to situate; however, it refers to traditions over time, the history of place, and can even comment on the novelty of contemporary ideology. Oppositional authenticity opposes things that are deemed inauthentic, like mass produced products versus those that are handmade. This can be easily illustrated by comparing a faceless corporation to a face-to-face conversation with the person who made your beer. My experience at Four Fathers Brewing serves as an exemplar, where the bartender serving me the Spookyboi lactose ale told me that he personally roasted the pumpkins himself, which gave a face to the production. And finally, biographical authenticity, where the product, the maker and how it is made are all linked, as the product becomes an expression of the maker's character. I once had a discussion with a brewer's apprentice while sampling a beer that he created the recipe for. He had proposed a beer with so many ingredients his "boss thought he was nuts". The beer however turned into a complex palette full of flavours. It is through one's description of the experimentations with products that creates a new level of appreciation to the elaborate fabrication of the making of the beer.³²

³² Thurnell-Read, "A Thirst for the Authentic," 1454-1462.

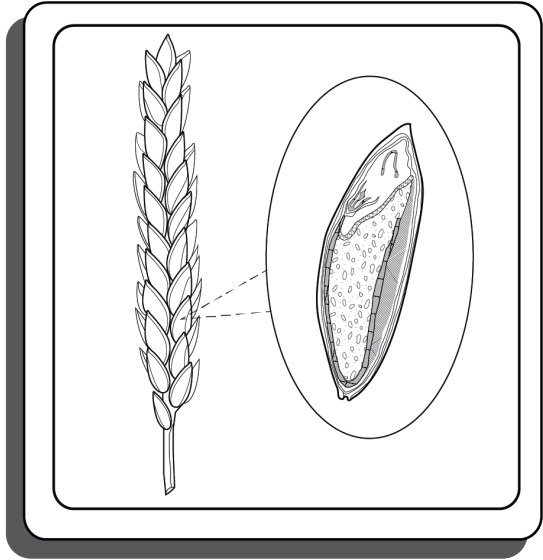
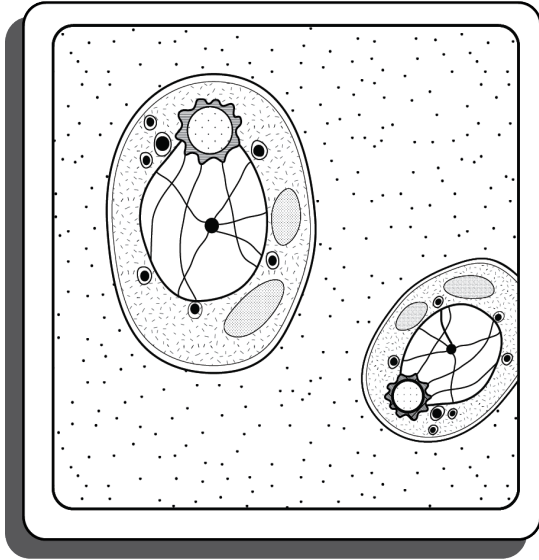
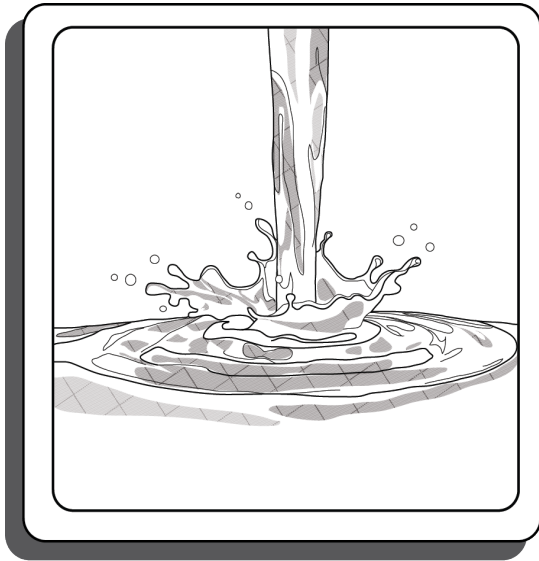


fig.1.8. Water, Hops, Yeast & Barley

A Taste of Place

Malt, water, hops and yeast are the key ingredients of beer. Each ingredient has a distinct characteristic that alters the flavour, aroma and personality of the beer. The climate, soil acidity, growing season, and terrain embeds itself into the ingredients on a molecular level, affecting its taste. Identity of place and landscape is rooted into these ingredients; therefore, the beer's flavour is unique to its location, which forms a taste of place similar to Terroir³³. Water, the main ingredient in beer, has its own distinct qualities depending on the source as the mineral content provides a flavour, which can produce a saltiness, bitterness or sweetness. The next ingredient is malt, a sprouted and dried barley grain. During the malting process, the length of time steeping, germinating and kiln firing the barley will also produce a variety of specialty flavors. Malt gives the beer a sweet nutty flavor and can have tasting notes of caramel, coffee or raisins. Like malt, hops have their own imprint of place built into their molecular structure, producing a distinct bitterness to the beer. The final ingredient added to make beer is yeast, which acts as the fermenting agent that transforms the starches and sugars into alcohol. Airborne fermentation is a practice used in certain regions and with specific beer styles that allows for a spontaneous fermentation to occur through an open-air system which uses nature's wild yeasts. Each recipe and brewing process reflects the local traditions and techniques that have been passed down over centuries, therefore the composition of beer has traces of history, culture, traditions and social values encoded into it. ³⁴

33 Terroir is a French term used to describe the taste or sense of place. Typically used while describing wine, terroir refers to the environmental conditions, soil, sunlight and climate, which creates a distinct flavour to the grape directly linked to place. In recent years, the definition of terroir has expanded to include notions of authenticity, craft, and traditions rooted in community to distinguish a product against mass produced goods. From Clarinda Rodrigues et al., *Towards a Theoretical Framework on Sensorial Place Brand Identity*, Vol. ahead-of-print, 2019.

34 Stephen Yool and Andrew Comrie, "A Taste of Place: Environmental Geographies of the Classic Beer Styles" in *The Geography of Beer: Regions, Environment, and Societies*, eds., Mark Patterson and Nancy Hoalst-Pullen (Netherlands: Springer, 2014), 99.

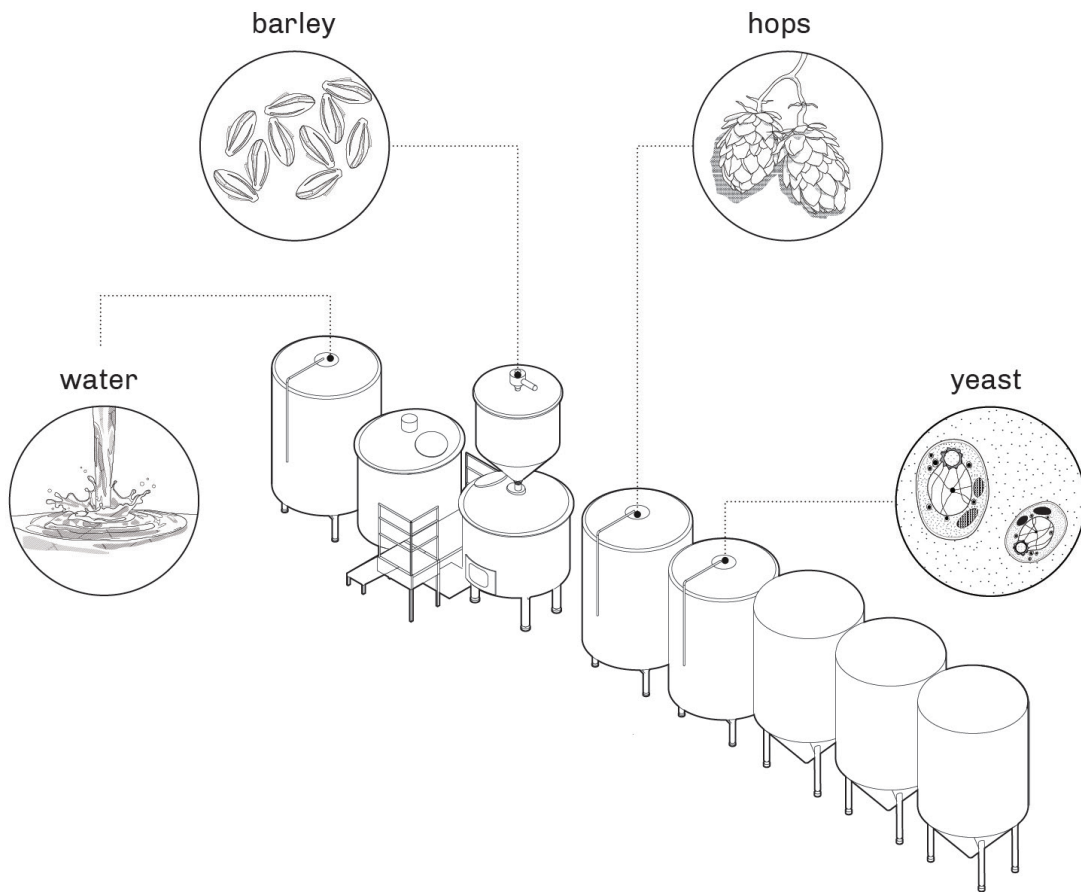


fig.2.1. Brewing Diagram

CHAPTER TWO:

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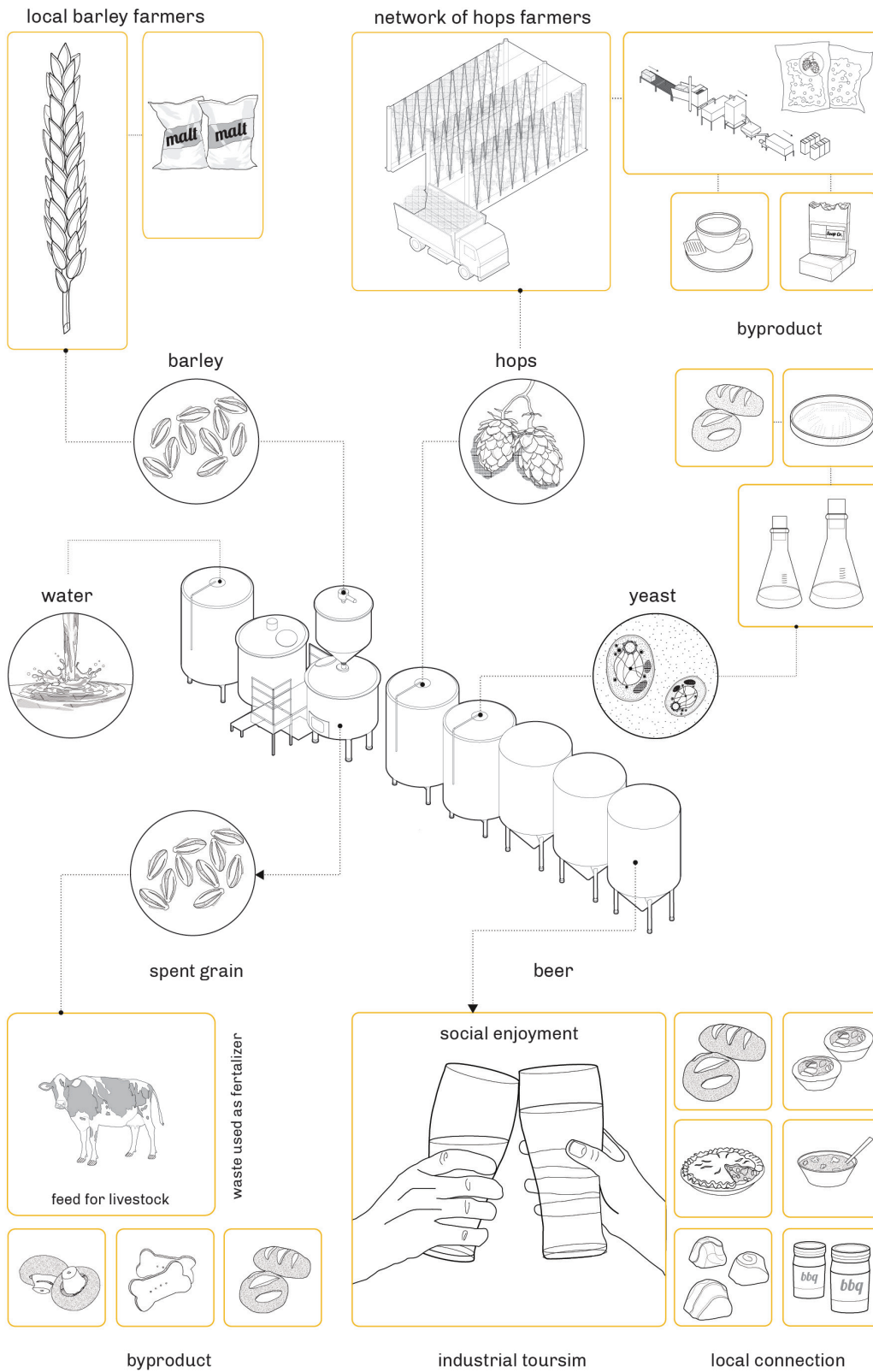


fig.2.2. Cycles of Making Diagram

*“Ontario’s innovative and thriving small breweries support local agriculture, spur economic growth and deliver new and exciting products to consumers. That’s why we are delighted to provide continued supports to help small breweries make long-term investments to grow and expand their businesses — creating good jobs in communities across the province.”*¹

– Charles Sousa, Ontario Minister of Finance

Networks & Local Food Production Cycles

Craft breweries are redefining what it means to be industrial within cities by taking part in an intricate network of other small businesses and manufacturers. Breweries are also reestablishing local relationships with farmers, reconnecting the agricultural community back to the city, by finding sustainable ways of contributing to the local food production cycle. Brewers often give local farmers the spent grains from their brewing process, which is then used as feed for their livestock, thereby creating a more sustainable food cycle (fig.2.2). The Old Flame Brewery in Port Perry for example, donates their grains to Yellowlees family farm and is used as feed for their sheep and pigs. Their meat is then sold to the local butcher, who turns it into sausages and meat pies with the brewery’s lager. Other businesses that benefit from this symbiotic relationship include a local bakery who uses their beer in their butter tarts, a restaurateur who uses their beer in their cheddar soup, a bread maker who also uses their spent grain in their recipes, and a chocolatier who uses their beer in their beer nuts & peanut brittle.² Through their promotion of local product and support of other small businesses, breweries strengthen both the local economy and surrounding agricultural community. Through sourcing local grain, hops, and additive materials such as fruits and spices from farmers, or coffee beans from their local coffee roastery, brewers have encouraged the development of local grain cultivation and hops farming and taken on a new role in the local food movement. Hops farming has significantly increased over the years with the new local demands from craft brewers, which has benefited the agricultural economy of the region.³ Their success has also been noticed and encouraged by the provincial government, where the ministry of finance is providing Small Beer Manufacturers tax credits, reduced rates, and has expanded the sales of craft beer in the market.⁴

1 “Helping Small Breweries Grow in Ontario,” Ontario Ministry of Finance, last modified April 9, 2018, <https://news.ontario.ca/mof/en/2018/04/helping-small-breweries-grow-in-ontario.html>.

2 Katherine Ryalen, “Beer Meets Community Spirit at Old Flame Brewing Company,” Scugog Tourism, last modified Jan 10 2019, <https://scugogtourism.ca/community-spirit/>.

3 “Local Hops are a Brewing Industry” Ontario Ministry of Agriculture, Food and Rural Affairs, accessed January 23, 2019, <http://www.omafra.gov.on.ca/english/busdev/branch/successhops.htm>.

4 “Helping Small Breweries Grow in Ontario.”



*fig.2.3. Boxcars and Beers Railway Ramble
Train from Uxbridge to Durham, Ontario, with musical guest Rory Taillon,
York-Durham Heritage Railway*

Tourism

Breweries are situated within food and beverage tourism, as a form of cultural tourism. Increasingly, consumers are seeking an authentic local experience, one that is unique to the region, the area, and the town itself. In *The Creative Turn in Regeneration*, Richard and Wilson, discuss how the clustering of industries stimulates and reintroduces the public into these spaces.⁵ The public is represented not merely as consumers, but as the audience for the performance of manufacturing.⁶ As such breweries represent not only a form of cultural tourism, but also a form of industrial tourism. Through guided tours and conversations with the brewers, visitors experience the beer making process; who makes it, where it comes from, and ultimately who they choose to support, all complete with the aromas, the tanks and the taste of beer. In short, through this transparent process, value is added through the work shown.

Breweries act as a player in a network or web of small businesses within a community, teaming up with bakeries, local chefs, and farmers market vendors. Brewers are finding creative ways to highlight the city they are in, showcasing local talent and finding ways of encouraging more people to visit their brewery and the region. An example of this is the York-Durham Heritage Railway, which hosts a series of events every Sunday throughout the year. I was able to attend one of the events hosted by the Second Wedge Brewery that featured musical guest Rory Taillon. During this 20km, 2.5 hour roundtrip between Stouffville and Uxbridge, I sampled the beer, enjoyed the local talent and appreciated the surrounding landscape of the region (fig.2.3). Other regional tours include the *Taps, Tastes & Trails*, a map that highlights breweries in the Kitchener, Waterloo, Cambridge and Guelph Region. The tour promotes Guelph's escarpment and cliffs, Cambridge's farmers' market and Wellington Brewery as the oldest independent microbrewery. Other features highlighted on the map connects visitors to distilleries, cideries and restaurants featuring local ingredients along the route.⁷

City & Zoning Improvements

As breweries gain popularity, cities are adjusting their building codes, regulations and zoning bylaws to encourage the establishment of breweries throughout the city. Currently small-scale brewing manufacturers need to comply with the federal, provincial and municipal requirements; however, zoning amendments represent one of their greatest obstacles. Breweries are zoned and designated as light industrial within the building code which makes it difficult for brewers to expand the retail and commercial portion of their

5 Greg Richards and Julie Wilson, "The creative turn in urban regeneration: Creative spaces, spectacles and tourism." In *Tourism, Culture and Regeneration*, ed. Melanie Smith (Wallingford, UK: CABI Pub, 2007), 12.

6 Richards and Wilson, "The creative turn in urban regeneration: Creative spaces, spectacles and tourism," 12.

7 "Brewery Discovery Routes | Culinary Tourism Alliance," Ontario Culinary, accessed Jan 19, 2020, <https://ontarioculinary.com/experiences/brewery-routes/>.



fig.2.4. Map of Guelph Breweries

brewhouse. Brewers have also had difficulty navigating an industrial program in commercial spaces within cities. The city of Toronto, having more than 40 craft breweries, has now embraced breweries entering the city. They have acknowledged breweries to provide economic and cultural identity, therefore they are amending zoning by-laws to make it easier for breweries to open and “encourage growth in the sector”.⁸ Therefore, an amendment to the bylaw would allow breweries in industrial zones more commercial freedoms (allowing patio spaces, larger retail and tasting areas) and breweries in commercial zones more production freedom.⁹ Due to the diversity of craft brewery types, sizes, and locations within cities, by-laws must reflect their varying needs, recognizing that location and function of breweries differ in terms of production and principal function (i.e. brew-pub, manufacturing, tasting room/restaurant). With the increased popularity in breweries and approval from municipal governments and city officials, breweries are moving into downtown cores, commercial spaces, and becoming more common in residential areas.

Guelph: An Urban Example

The city of Guelph has a long history of brewing. The five breweries within the city embody the full spectrum of brewing typologies including an international brewery, a regional brewery, a craft brewery, a microbrewery, and a brewpub. The year the breweries opened and their locations within the city is indicative of policy shifts, increased consumer interest, and the city’s interest in the economic benefits of brewery tourism. The two oldest breweries, which opened in the 1980s are located on the city’s outskirts, within strictly industrial zones, whereas newer breweries have begun inserting themselves in mixed use neighborhoods and the downtown core (fig.2.4). In 1851, John H. Sleeman founded the Silver Creek Brewery and Hodgert’s Brewery, in Guelph.¹⁰ Later known as Sleeman’s brewery, they had success up until the prohibition. The brewery continued illegally producing and selling beer until they were caught and forced to suspend all brewing operations for 50 years.¹¹ In 1988, the heir of the Sleeman’s Brewery reopened the brewery, which developed international success and was later purchased by Sapporo in 2006.¹² This is a large-scale international brewing company located outside of the city limits, which allowed for expansion of their factory’s size with increased production (fig.2.5). The Wellington Brewery, a regional brewery, was one of the first craft breweries to open in Ontario in 1985 (fig.2.6). Wellington brewery occupies a 12,000 sq. ft. facility with a 40 hL brewhouse, located on the outskirts of Guelph in a building that was designed to look like a traditional Oast house

8 Lauren O’Neil, “It could Soon be a Lot Easier to Open a Craft Brewery in Toronto,” last modified August, 2019, https://www.blogto.com/eat_drink/2019/07/new-craft-beer-laws-toronto/.

9 O’Neil, “It could Soon be a Lot Easier to Open a Craft Brewery in Toronto.”

10 “Our Story: Sleeman Canada,” Sleeman Canada, accessed April 3, 2019, <http://sleeman.ca/en>.

11 “Sleeman Canada.”

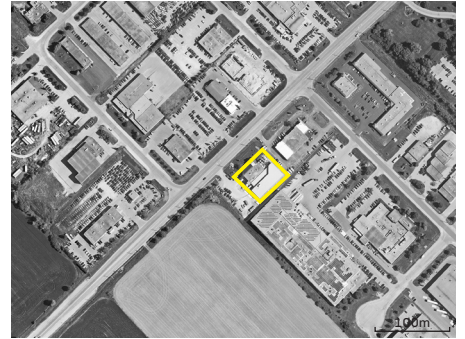
12 “Sleeman Canada.”



INTERNATIONAL
(1834) 1988

REGIONAL
1985

SITE



BUILDING



NEW BUILD

ADAPTIVE REUSE- INDUSTRIAL

INTERIOR



COMMUNITY EVENTS



fig.2.5. Sleeman Brewery

fig.2.6. Wellington Brewery



SMALL BATCH
2014



ADAPTIVE REUSE- INDUSTRIAL



BREW PUB
2014



ADAPTIVE REUSE- HISTORIC



BREW PUB
2018



ADAPTIVE REUSE- INDUSTRIAL

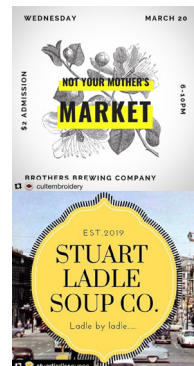
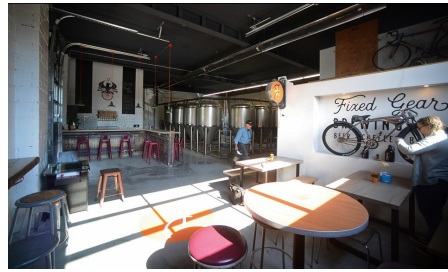


fig.2.7. Royal City Brewing Co.

fig.2.8. Brothers Brewing Co.

fig.2.9. Fixed Gears Brewing Co.

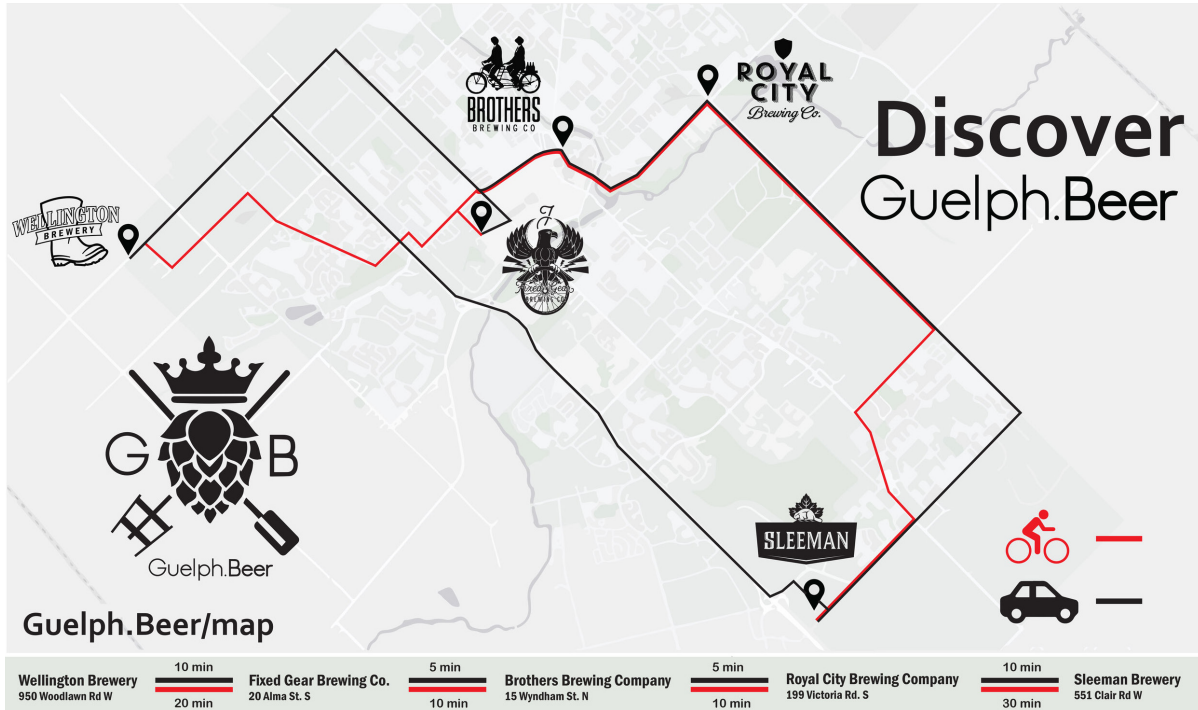


fig.2.10. Discover Guelph Beer Map, 2019



fig.2.11. Junction Brewery - 2018 - Designed by Plant Architects.
In a former incinerator and waste transfer facility, Toronto, Ontario

(hops drying house).¹³ In 2014, Royal City Ale a small batch brewery with a 10 hL brewhouse, opened up inside of a commercial strip in a renovated factory, within a mixed use neighbourhood (fig.2.7).¹⁴ Brother’s Brewing Company, also opened in 2014, as a Brewpub, in the downtown core, inside the ground floor of the historic Petrie building (fig.2.8). The most recent brewery is Fixed Gear Brewing, which opened in 2018, with a 10 hL brewhouse, inside of a 4,000 sq ft garage (fig.2.9).¹⁵

In 2019, all five breweries came together to create Guelph Beer, an association established to promote local beer and community events in Guelph. Each brewery hosts a series of events promoting other local businesses, music events and local charities. These secondary programs include: a museum, pop-up shops supporting local restaurants and vendors, music festivals, neighbourhood potlucks and networking nights, and community brewing where they provide hop seedlings in the spring to neighbours, and in the fall the hops are harvested, returned to the brewery, and made into the community brew. In addition, the Guelph Beer bus is now running on certain dates throughout the year, connecting the breweries across the city (fig.2.10).

Building Scale : Adaptive Reuse

A majority of craft breweries find themselves occupying former industrial buildings. This is often due to the robust nature of these spaces, which facilitates their conversion into brewhouses. This coupled with their location, zoning, less expensive rent, large open floorplans, and higher ceiling heights makes them ideal locations. Moreover, through their use of vacant/unwanted buildings, breweries are preserving the history of making within a city, protecting industrially zoned buildings to remain industrial, and reintroducing people to manufacturing within the city. Breweries are also taking a more sustainable approach to making through their preservation of remaining structures and their existing embodied energy. By locating a brewery in an existing building, the character, history, locality and sense of place is maintained. *“breweries promote the past and redefine consumption spaces from a place of a simple commodity exchange to a symbolic cultural experience by the reuse of building and their connections to the community’s historic past”*¹⁶

Alison Feeney discusses how breweries in Pennsylvania are participating in industrial heritage as they highlight their interest in sustainable

13 “About: Wellington Brewery,” Wellington Brewery, accessed April 3, 2019, <http://www.wellingtonbrewery.ca/about>

14 “Royal City Brewing,” Royal City Brewing, accessed April 3, 2019, <https://royalcitybrew.ca/>.

15 “About: Fixed Gears Brewing,” Fixed Gears Brewing, accessed April 3, 2019, <http://fixedgearsbrewing.com>.

16 Alison E. Feeney, “Cultural Heritage, Sustainable Development, and the Impacts of Craft Breweries in Pennsylvania,” *City, Culture and Society* 9 (2017), 22.



*fig.2.12. Silversmith Brewing Company - 2012 - Hotson Architecture Inc.
In a former church with a new addition for the brewhouse, in Niagara-On-The-Lake, Ontario*

developments and cultural preservation within their cities.¹⁷ An example of this in Ontario would be Junction Brewing Co. (fig.2.11), which was designed by Plant Architects, in a former incinerator and waste transfer facility. Here they showcase the industrial processes of brewing, while also creating a venue space for concerts and events, blending manufacturing with leisure and entertainment. As noted by PLANT Architect Inc., *“This renovation preserves the base building’s art deco design and industrial character, as well as the palimpsest of graffiti that the Destructor subsequently acquired after being decommissioned and abandoned, when it lapsed into intermittent use as a raves venue.”*¹⁸

An example of a non-industrial adaptive reuse is the Silversmith Brewing Company (fig.2.12), situated in a former church, in Niagara-on-the Lake, ON. Preserving the character of the building, preserves the history of place which gives people a better understanding of the city, the community, and the brewery. This is discussed by the president and CEO of Silversmith Brewing Chris Pontsioen, *“Locating in a historic building brings authentic character, uniqueness, and distinction to everything we do . . . provides our customers and staff with the intangible sense that they’re participating in another captivating chapter of an ongoing story. It demonstrates our commitment to heritage and affords people the opportunity to participate in heritage repurposed for the future.”*¹⁹

Material Scale : Craft through Material Authenticity

The notion of craft in architecture and in brewing has many parallels. Using traditional recipes, ingredients and techniques, a master brewer can create a unique experience for the consumer’s palette. An architect creates a spatial experience through their choice in material, light, and composition, carefully considering the movements through space while reflecting the history of the space. In 2017, Assemble Studios completed the Kamikatz Brewery (fig.2.13), in the region of Shikoku island, Japan. This adaptive reuse project situated the brewery in an old sawmill, built up of several industrial sheds that cascade down the mountainside ending with a newly constructed tasting room. The tasting room’s design references the traditional tea house, where the user can sample the beer while reflecting on their experience within the landscape.²⁰ For this project, Assemble Studio used local craft and materials to reflect the regions traditional techniques and history. The material palette for this project was developed through a series of research trips to local artisans and craftsmen. The cedar cladding for the tea house came from the surrounding forest and

17 Feeney, “Cultural Heritage, Sustainable Development, and the Impacts of Craft Breweries in Pennsylvania,” 21-30.

18 “Junction Craft Brewery,” PLANT Architect Inc. accessed November 16, 2019 <https://branchplant.com/projects/junction>

19 Jordan Duff, “Brewed in Heritage,” *National Trust for Canada*, April 16, 2018, <https://nationaltrustcanada.ca/online-stories/brewed-in-heritage>

20 “Kamikatz Brewery,” Assemble, accessed April 3, 2019, <https://assemblestudio.co.uk>.



*fig.2.13. Kamikatz Stonewall Hill Brewery - 2017 - Designed by Assemble Studio
In former a former sawmill factory, in the Shikoku Island, Japan*

stained using traditional indigo dyeing methods.²¹ A local ceramicist designed and produced the fixtures, bottles and glassware using Obvara, a glazing technique that uses the yeast in beer to create a unique finish.²² Additionally, the stools in the tasting room were carved using a technique taught by local woodworkers, where a block of wood was chiseled by hand and finished by charring the surface.²³ This brewery creates a destination for people to travel to and the experience is elevated through the notion of tradition, materiality, and craftsmanship to situate the brewery within its surrounding landscape.

Kamikatz brewery, is nested within a forested mountainside, where the experiential views are focused on the surrounding landscape. Similar techniques are used at wineries, where the surrounding landscape filled with rows of curated grape vines, situates the visitor within the land allowing them to easily reflect on the experience of place.²⁴ Unlike wineries and the occasional brewery located in the countryside, most breweries are located within an urban landscape, reflected through the history of the building, the stories they share, and the community they build. The brewers emphasize the sources of their raw materials and products and provide tours as a way of situating the consumer in the brewing experience. Large brewing tanks are often the focal point of the experience, which showcases the raw goods that go into the beer making process. Some breweries even grow their own hops in planting boxes outside the brewery, to reflect the missing agricultural component, and some brewers highlight the raw materials used in brewing. For example, master brewers at the Admiral Malting/The Rake Pub, in Alameda, CA, opened a malthouse, where the consumer can drink a beer while looking into the malthouse floor.

21 “Kamikatz Brewery.”

22 “Kamikatz Brewery.”

23 “Kamikatz Brewery.”

24 Johan Bruwer and Karin Alant, “The Hedonic Nature of Wine Tourism Consumption: An Experiential View,” *International Journal of Wine Business Research* 21, no. 3 (2009), 235.

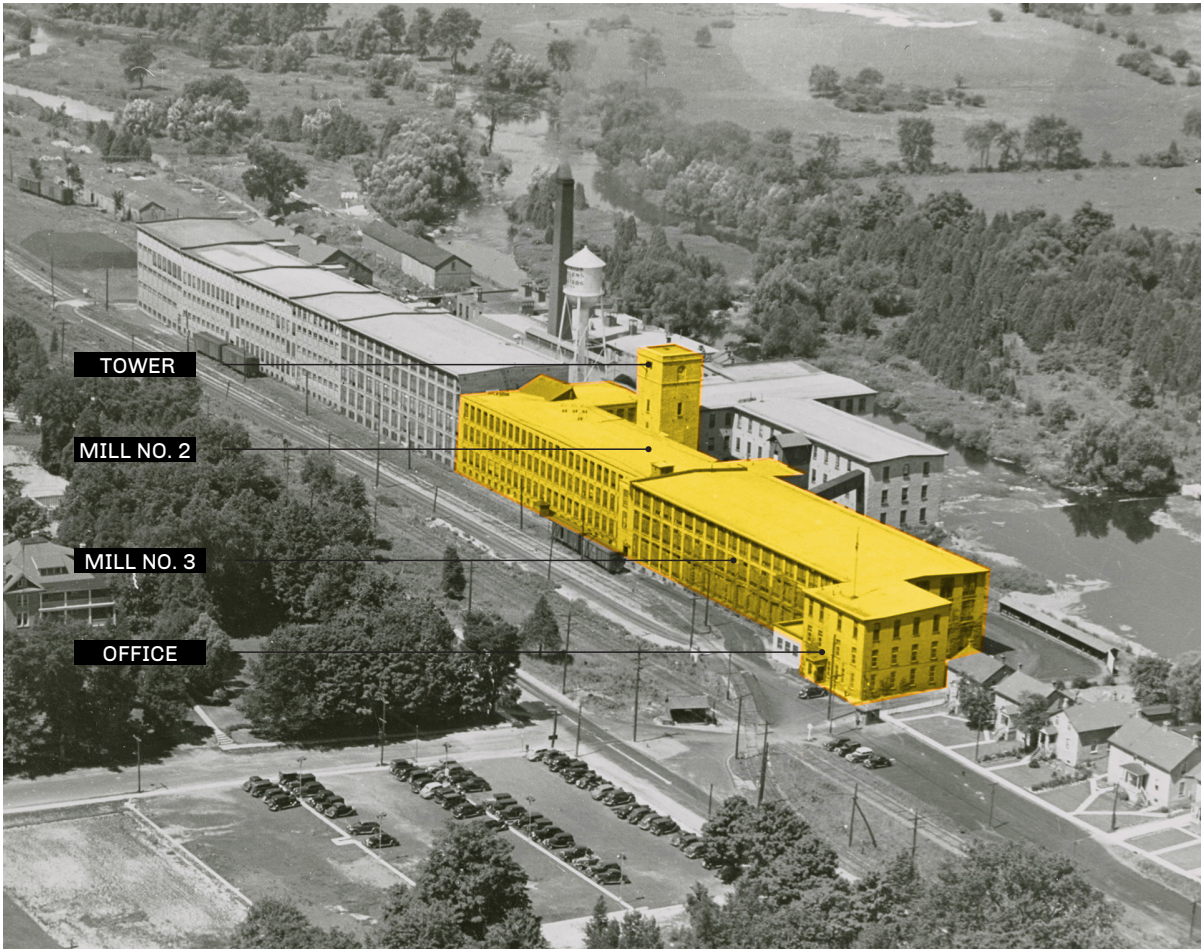


fig.3.1. What Remains Today of the Former Dominion Woolens & Worsteds

CHAPTER THREE:

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2.8 Breweries per capita
22,426,000 hL produced in 2017

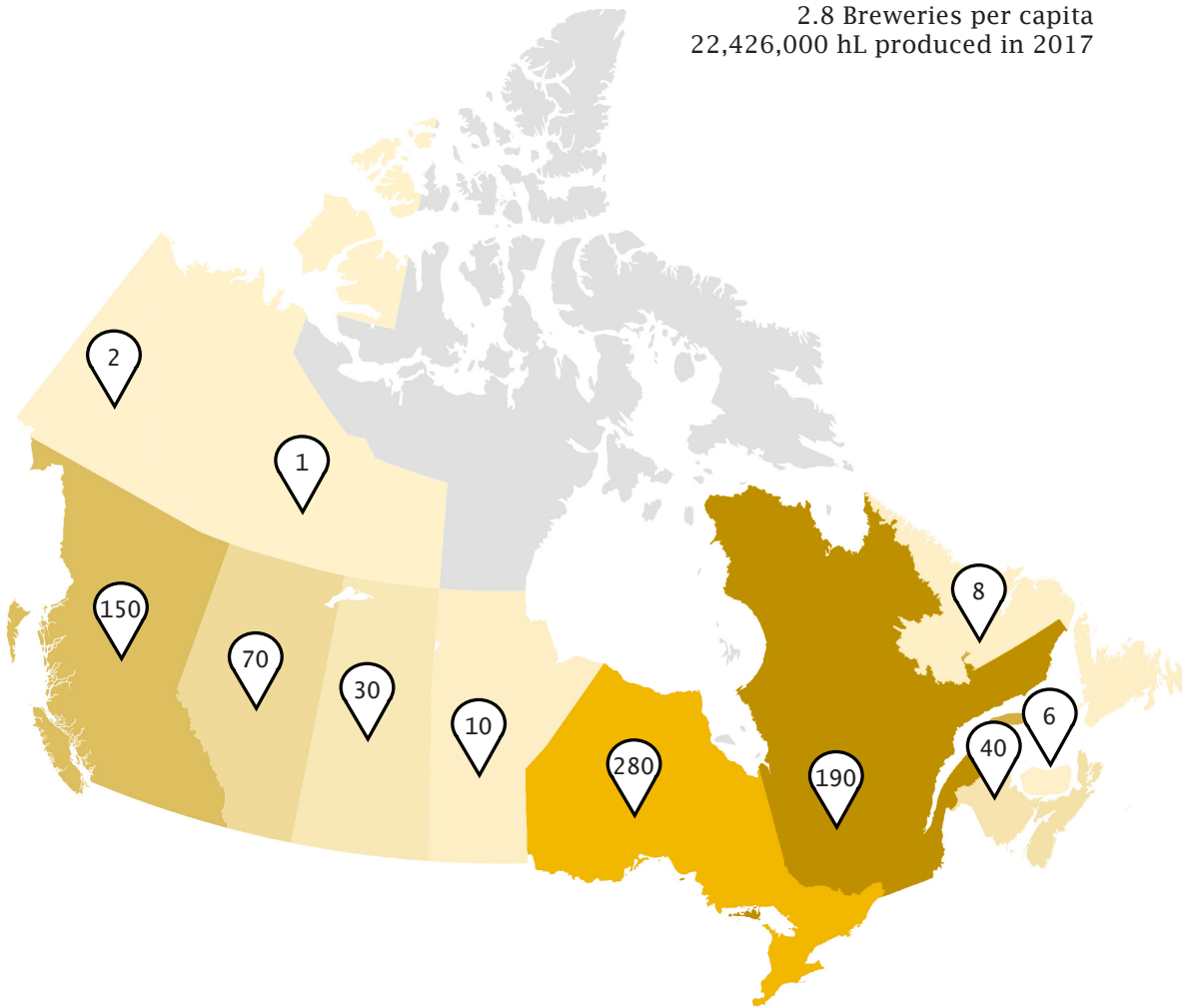


fig.3.2. Number of Craft Breweries in Canada

Local Impacts of the Beer Economy, 2016		Total beer economy jobs (#)	Jobs from local beer activity(#)	Share of jobs supported by local beer activity (%)
		Newfoundland and Labrador	2,639	1,761
Prince Edward Island	656	296	45	
Nova Scotia	4,120	2,323	56	
New Brunswick	3,349	1,747	52	
Quebec	43,365	36,577	84	
Ontario	52,435	38,926	74	
Manitoba	4,097	2,269	55	
Saskatchewan	4,564	2,933	64	
Alberta	13,482	8,618	64	
British Columbia	19,370	14,472	75	
Yukon	401	290	72	
Northwest Territories	210	110	52	
Nunavut	100	31	31	
Canada*	148,788	110,353	74	

* Includes the sum of provinces/territories plus Canadian territorial enclaves abroad. Source: The Conference Board of Canada

fig.3.3. Local Impacts of the Beer Economy

A Brewery in Cambridge, Ontario:

As part of my site selection strategy, I first began by looking at an overview of Canada's craft breweries (fig.3.2). Compared to other provinces, Ontario not only has the highest number of breweries and largest number of jobs in the beer economy, they also have the highest percentage of jobs supported by the local beer activity (fig.3.3). Using data collected from the Ontario Beverage Network, as of 2018, Ontario had 278 craft breweries with 69 additional breweries posed to open in 2019.¹ I compared the city's population to the number of craft breweries and discovered that Cambridge, Kitchener and Guelph have a surprisingly high percentage of breweries given their population, which creates the perfect region to promote craft beer tourism in Ontario (fig.3.4-3.5). With a population of 129,920, the city of Cambridge, has 7 breweries with another set to open in 2020.

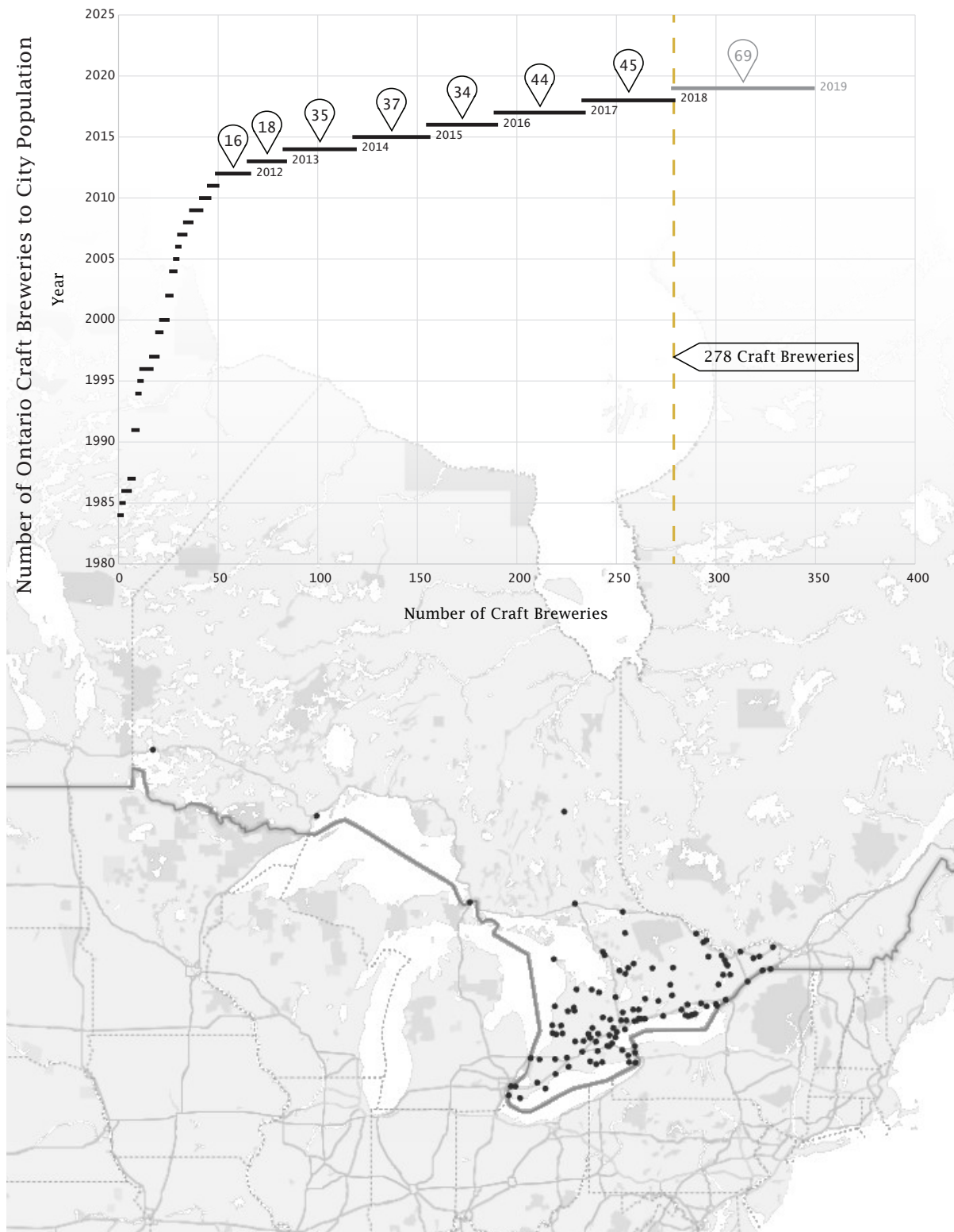
My proposal will build off the existing regional networks to create a central destination that enhances the brewing experience. This will be done by layering the raw material processes (i.e. malting, hops harvesting, and yeast cultivation), all a part of the brewing process within one building. I selected the Dominion Woolens and Worsteds building, which currently sits vacant along the Speed River in Hespeler, Ontario. This building serves as a large industrial artifact representative of the history of textile manufacturing in Cambridge. A renewed focus on local production needs to be represented in the city. By selecting an existing industrial building as a site for redevelopment, not only emphasizes the history of making in the city, but stresses the importance of exposing consumers to production adding value back into the hand-made and the workers within the city. Using the brewery as an anchor industry, this proposal will expose the public to other forms of collective hybrid industrial manufacturing spaces, and encourage local tourism through industrial leisure, exploration and engagement, thereby creating new connections to the city.

Cambridge: A City of Mills

Cambridge, formerly known as the towns of Galt, Preston, and Hespeler, found success in textile manufacturing due to its "abundance of waterpower, labour, locally produced wool, and easy access to market".² The town of Hespeler had 2 large mills, Preston had one, and Galt had five. Many of these mills have been transformed, demolished, or repurposed, into housing, restaurants, and a university campus. The University of Waterloo's School of Architecture campus resides in the former Riverside Silk Mill, a building which has greatly influenced my architectural education and fixed my interest in adaptive reuse architecture. While the school still maintains a spirit of making and production, many former mills and buildings no longer reference or adhere to their industrial past, having lost this connection when they become residential high-end lofts and office spaces.

1 "National Overview" Beer Canada, accessed November 2018, _

2 A. B. McCullough, *The Primary Textile Industry in Canada : History and Heritage* (Ottawa: National Historic Sites, Park Service, Environment Canada, 1992). 205



*fig.3.4. Number of Craft Breweries in Ontario Over Time
Number of Breweries in Ontario, using 2018 data*

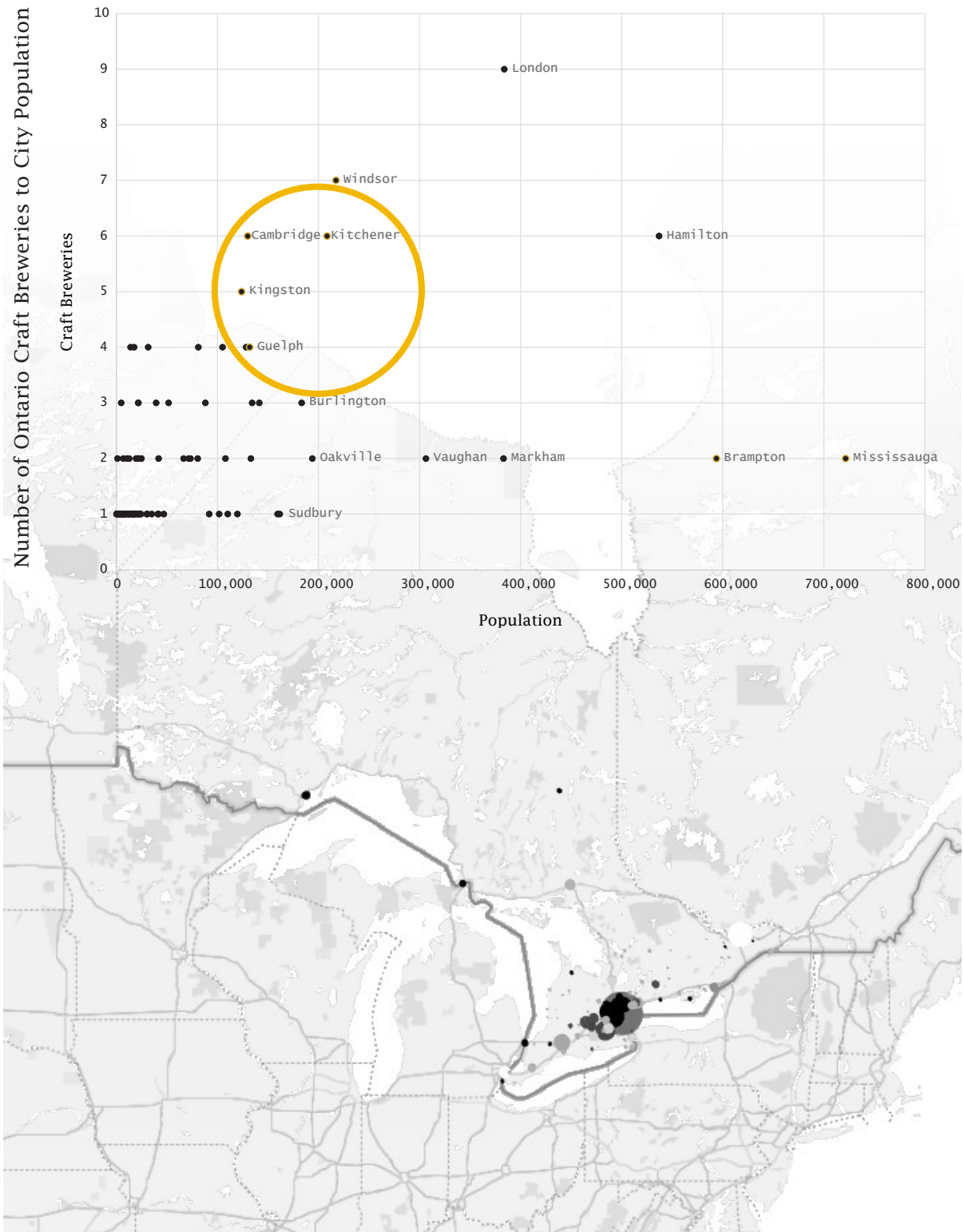


fig.3.5. Number of Craft Breweries in Ontario to City Population
 Cambridge, Kitchener and Guelph highlighted, using 2018 data.
 See fig.5.7. in appendix for populations over 750,000



*fig.3.6. Map of Cambridge
Site highlighted in Yellow*



*fig.3.7. Aerial Photograph of Hespeler, Ontario
Site highlighted in yellow.*



fig.3.8. Photograph of Existing Building on Site

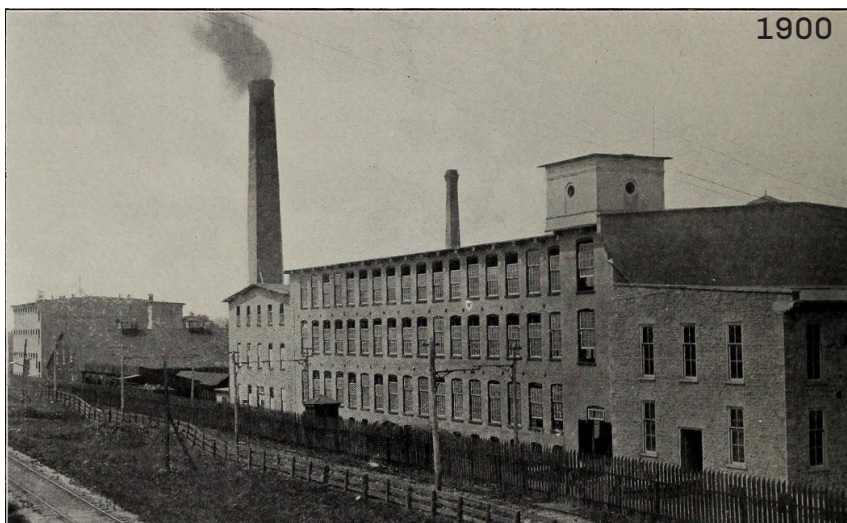
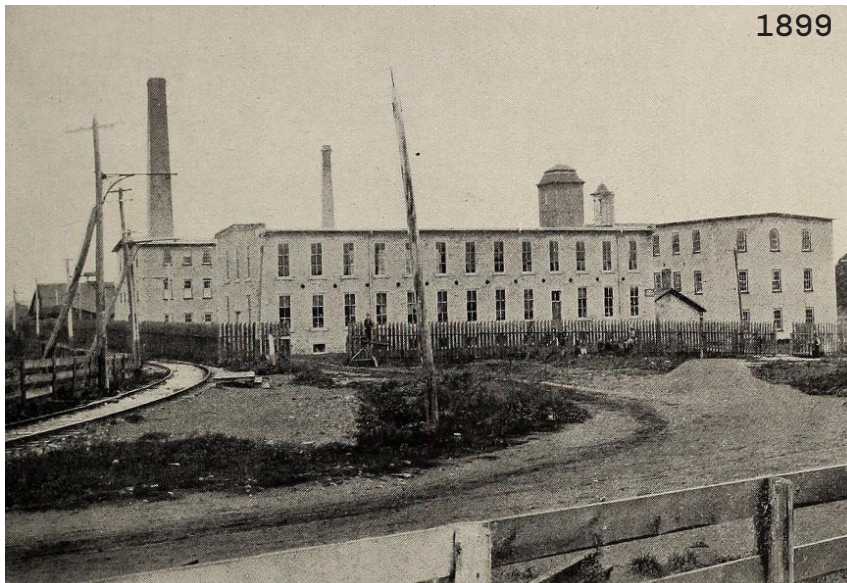
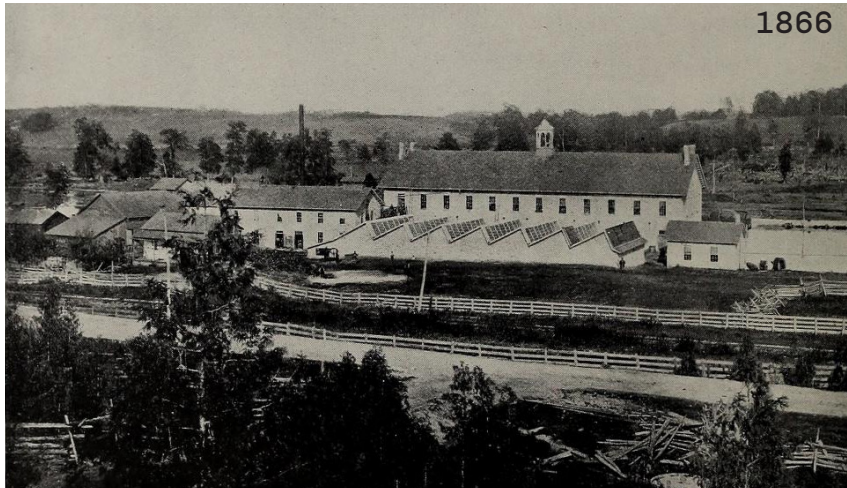


fig.3.9. Photographs of the Site Overtime

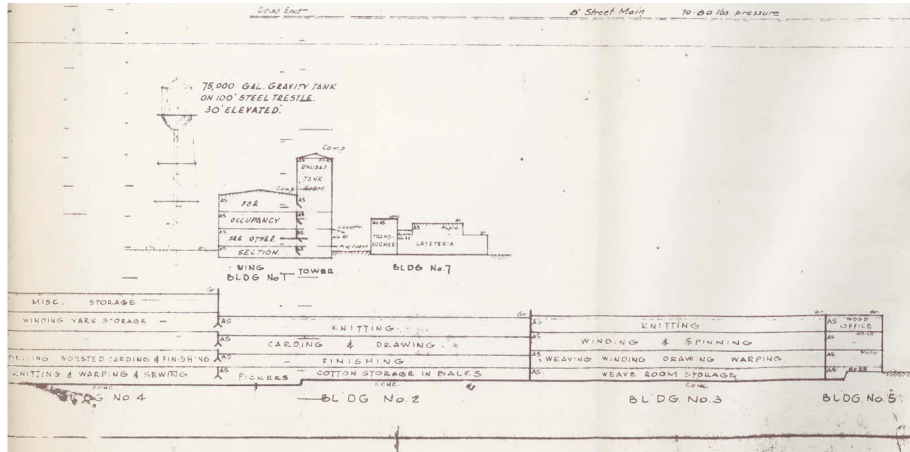


fig.3.10. Portion of Plan & Elevation Reference Drawing, 1952

A Brief History of the Site and Building:

The Dominion Woolens and Worsteds building site lays parallel to the Speed River in Hespeler, and was originally a sawmill before it was purchased by George Randall, Shubell Randall, and Herbert Farr in 1863. It was then transformed into a woolen textile mill with the construction of a 3 storey stone mill. (fig.3.9) The mill was sold to George Forbes in 1874, where he quickly expanded the factory to over 500,000 square feet, including the addition of 25 new buildings (fig.3.13). Forbes not only expanded the size of the textile mill, but invested in the surrounding town, significantly transforming the residential neighbourhoods by developing various forms of public infrastructure, parks and employee housing.³

In 1928, Forbes sold the mill to Dominion Woolens and Worsteds, a successful woolen mills firm, growing it to become one of the largest woolen producers in Canada by the 1940s.⁴ During WWII, there was a dramatic increase in production, with the factory expanding and recruiting young women from across the country to keep up with wartime demand. However, the boom peaked in 1951, when the factory could no longer compete with the cheaper imports of foreign competitors.⁵ The Mill was purchased by Silknit, a Toronto based firm that transitioned the factory from natural to synthetic fibres. In 1984, Silknit sold the factory to Waterloo Textiles, who then sold the majority of the factory to the City of Cambridge.⁶ Sadly, the city decided to demolish more than 80 percent of the factory in 1988, leaving only the tower, mill no. 2, 3 & 4, the cafeteria, the front office, and the original stone mill from 1864.⁷ Then tragedy struck in September of 1995, when the original stone mill caught fire, spreading the fire to Mill no.4 and damaging a portion of the north wall extension of mill no. 2. (fig 3.17-3.21).

3 McCullough, *The Primary Textile Industry in Canada : History and Heritage*, 206.

4 McCullough, *The Primary Textile Industry in Canada : History and Heritage*, 206.

5 McCullough, *The Primary Textile Industry in Canada : History and Heritage*, 206

6 Jim Quantrell, "Opinion | 1989: Silknit Project Dies," *Cambridge Times*, April 2, 2009, <https://www.cambridgetimes.ca/opinion-story/3370866-1989-silknit-project-dies/>.

7 Quantrell, "Opinion | 1989: Silknit Project Dies."

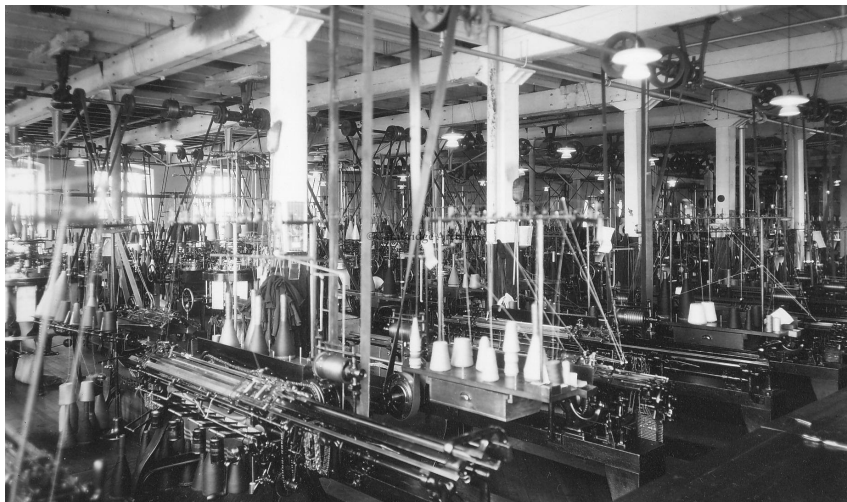
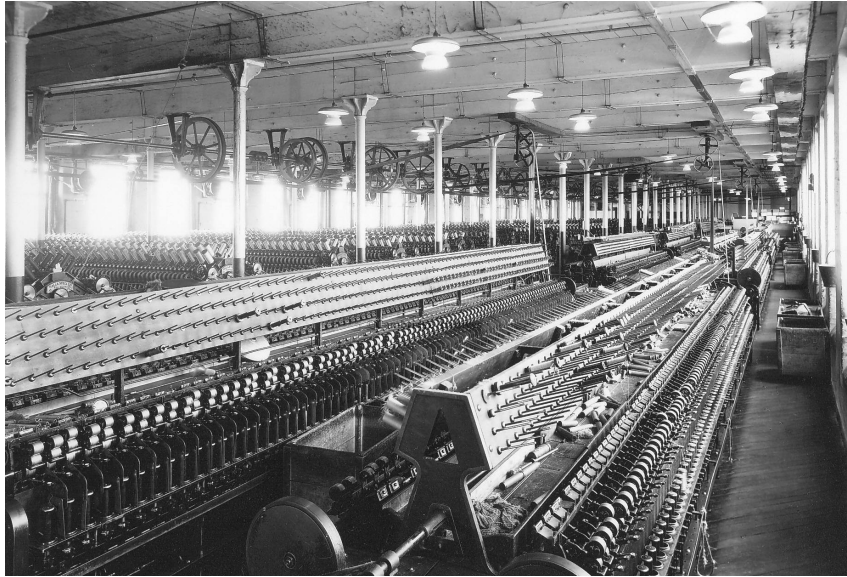


fig.3.11. Interior of Dominion Woolens & Worsteds (Forbes Co.) 1925, by Law Photography

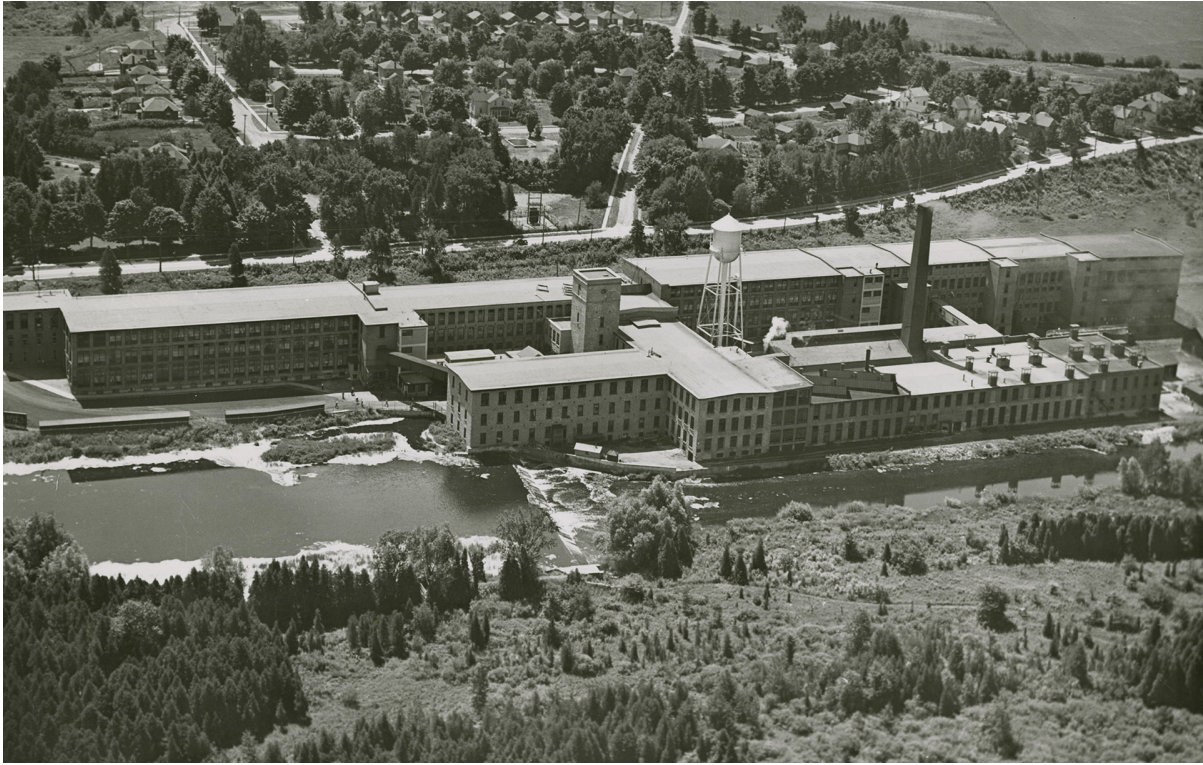
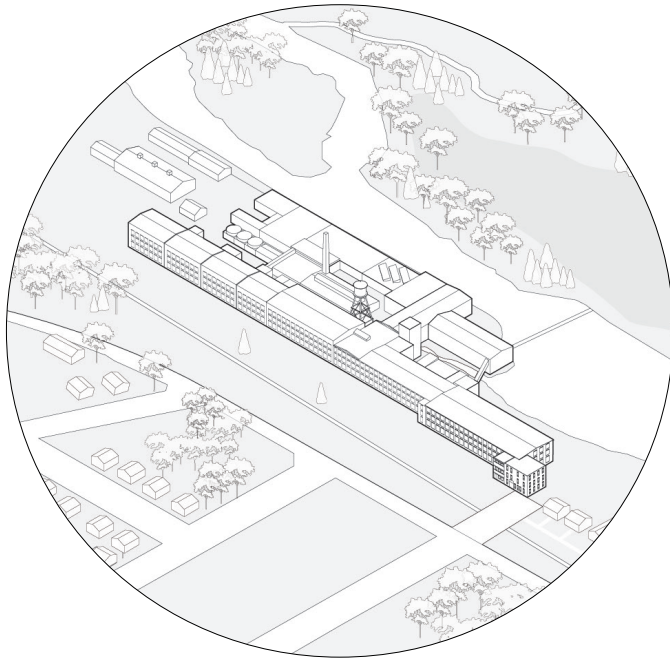


fig.3.12. Photograph of Dominion Woolens & Worsted, 1946

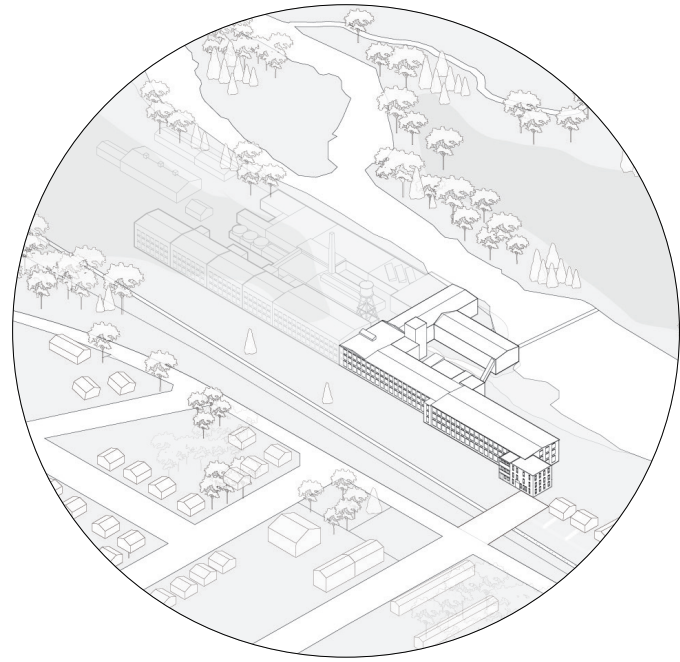


fig.3.13. Photograph of Dominion Woolens & Worsted, 1955



1955

*fig.3.14. Axonometric of the Site, 1955
Dominion Woolens & Worsted in full production*



1989

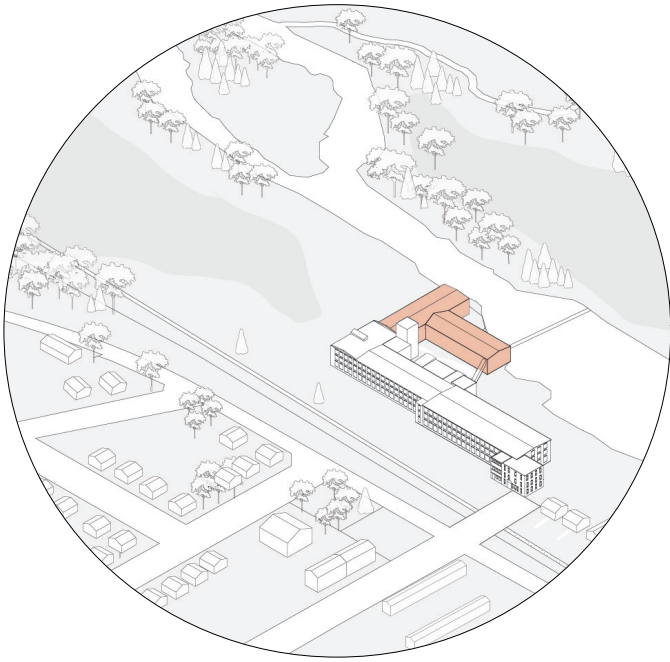
*fig.3.15. Axonometric of the Site, 1989
More than 80% of the buildings were demolished
by the city of Cambridge*



*fig.3.16. Aerial Photograph Looking Towards Dominion Woolens
& Worsteds, Hespeler c. 1965*

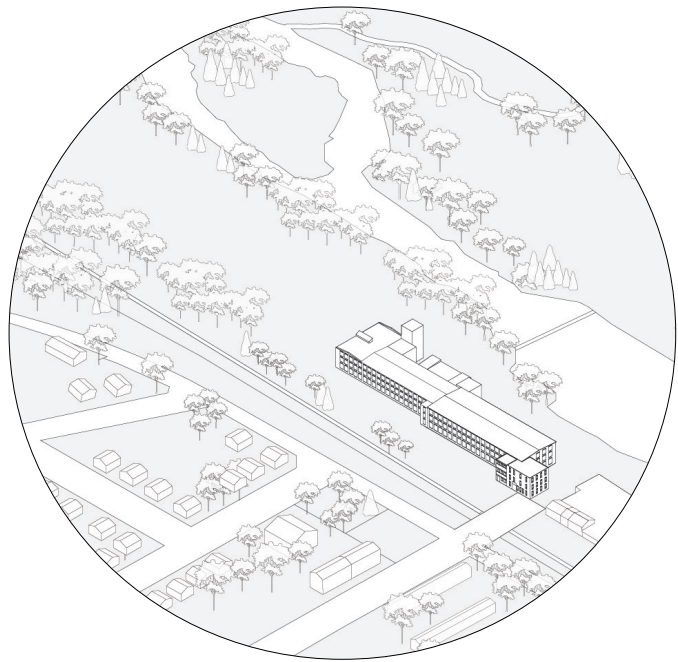


fig.3.17. Photograph of Partial Demolition



1990

*fig.3.18. Axonometric of the Site, 1990
Fire destroying the original Stone Mill no.01,
as well as Mill no. 04*



2019

*fig.3.19. Axonometric of the Site, 2019
The remaining Dominion Woolens & Worsteds Building today*



fig.3.20. Photograph of Mill no.1 on Fire



fig.3.21. Photograph of Building Today



fig.3.22. Exterior Panorama of Site & Building from Across the River Dam





fig.3.23. Interior Panorama of Mill no. 2 & 3





fig.3.24. Interior of Mill no. 2 Extension





*fig.3.25. Interior of Mill no. 2
A small portion of the mill was still in operation during my first site visit*





fig.3.26. Exterior Panorama Towards Mill no.2 From Field





fig.3.27. Exterior Field View from Mill no.2





fig.3.28. Exterior Panorama of Building from Queen Street





fig.3.29. Site



fig.3.30. Retail Store Adjacent to the Building
Façade of store connects two former employee houses built by Forbes

What Remains Today: Building & Site

The building that remains today is a relic of early 20th century brick and timber factory construction. Today, the buildings that remain (the front office, Mill no.3, Mill no.2, the Tower and the cafeteria) have boarded windows, locked doors and metal sheeting covering the fire damaged face of Mill 2. The scarred face of the west wall of Mill no. 2, which has been plastered over, is still evident long after the demolition, (fig.3.26), and the ground these imposing buildings once occupied has become overgrown with weeds and long grasses (fig.3.27).

Adjacent to the factory is a refurbished furniture retail store and studio space with a unique façade that connected two of the former stone houses that were built by Forbes (fig.3.30). The factory is located parallel to the Speed river beside the dam, which once served as the mill race to power the factory, and a railway line that transported materials to and from the factory. On the other side of the river is the Chillago Conservation area including the 6.5 km Mill Run Trail which runs along the former railbed of the “Galt, Preston, and Hespeler Street Electric Railway”(fig.5.7).⁸ The building is a 10 minute walk from Hespeler’s downtown and can be accessed by the Grand River Transit bus and is located just north of the 401 exit which makes it easy to access by foot, car or bus (fig.3.29).

The residential fabric surrounding the factory represents a mix of low to high density neighborhoods. Just north of the site, in Hespeler’s downtown, is the former Hespeler Mill/ American Standard Property, which is under construction to be converted into 45 condominiums alongside a new 10 storey, 152-unit tower (fig.3.33).⁹ Across the river from this site, there is another residential proposal for a 12-storey apartment complex with 210 units, to be built on the former Forbes Estate. The Forbes Estate proposal also includes additional single detached houses, townhouses and park space (fig.3.36).¹⁰ As a part of my proposal, I decided to keep a strictly industrial building with a commercial ground floor, as there is no immediate need for additional housing in the downtown area of Hespeler. However, there is a need to re-establish a connection to manufacturing, and the city could benefit from new economic development, that brings new people in the area. Figure 3.31, illustrates the existing urban fabric of Hespeler, highlighting industrial businesses and small-scale manufacturers that would benefit from this proposal.

8 “Mill Run Trail,” Cambridge Trails Advisory Committee, accessed January 29, 2020, https://www.cambridge.ca/en/parks-recreation-culture/resources/Mill-RunTrail_Final---AODA.pdf

9 Anam Latif, “City, Developers Announce Long-Awaited Hespeler Mill Revitalization,” *The Record*, February 17, 2016. <https://www.therecord.com/news-story/6311087-city-developers-announce-long-awaited-hespeler-mill-revitalization/>.

10 Jeff Hicks, “Tower planned for Forbes Estate in Hespeler is too tall, neighbour says,” *The Record*, May 13, 2019, <https://www.therecord.com/news-story/9351640-tower-planned-for-forbes-estate-in-hespeler-is-too-tall-neighbour-says/>

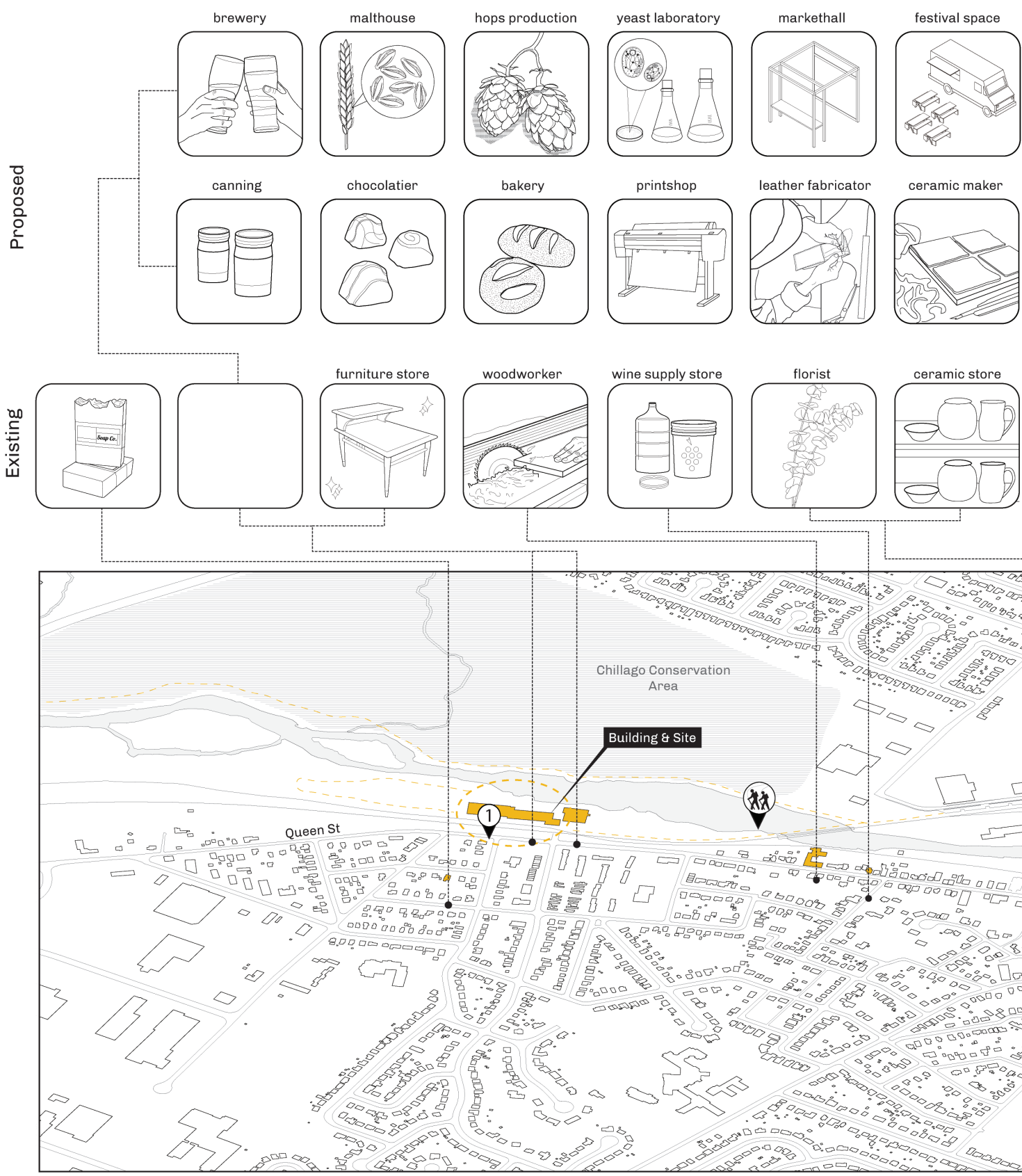
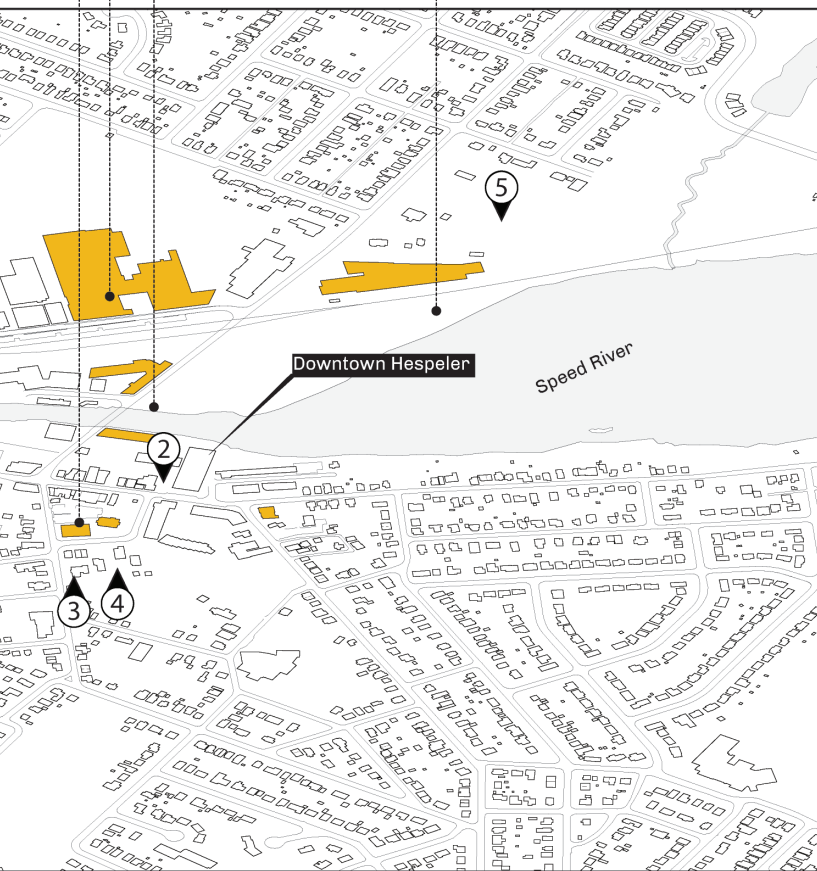
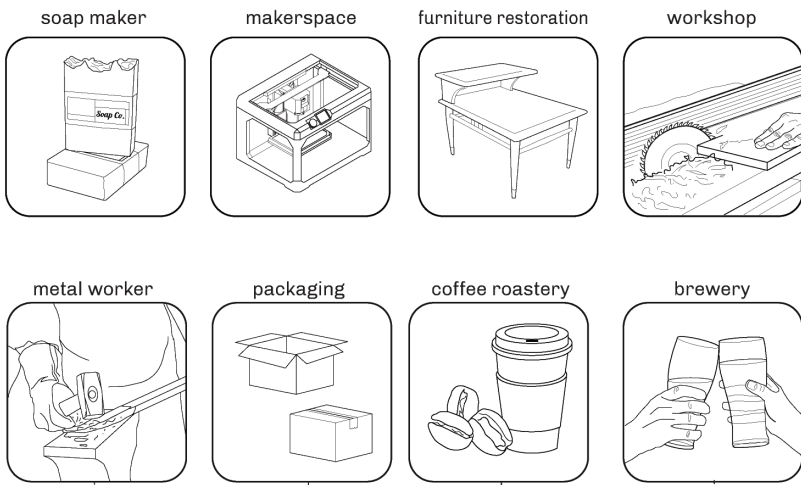


fig.3.31. Site Diagram



1



fig.3.32. Site

2



fig.3.33. Former Hespeler Mill

3



fig.3.34. Idea Exchange

4



fig.3.35. Hespeler Museum

5

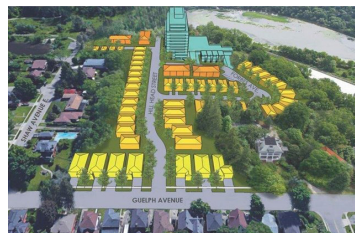
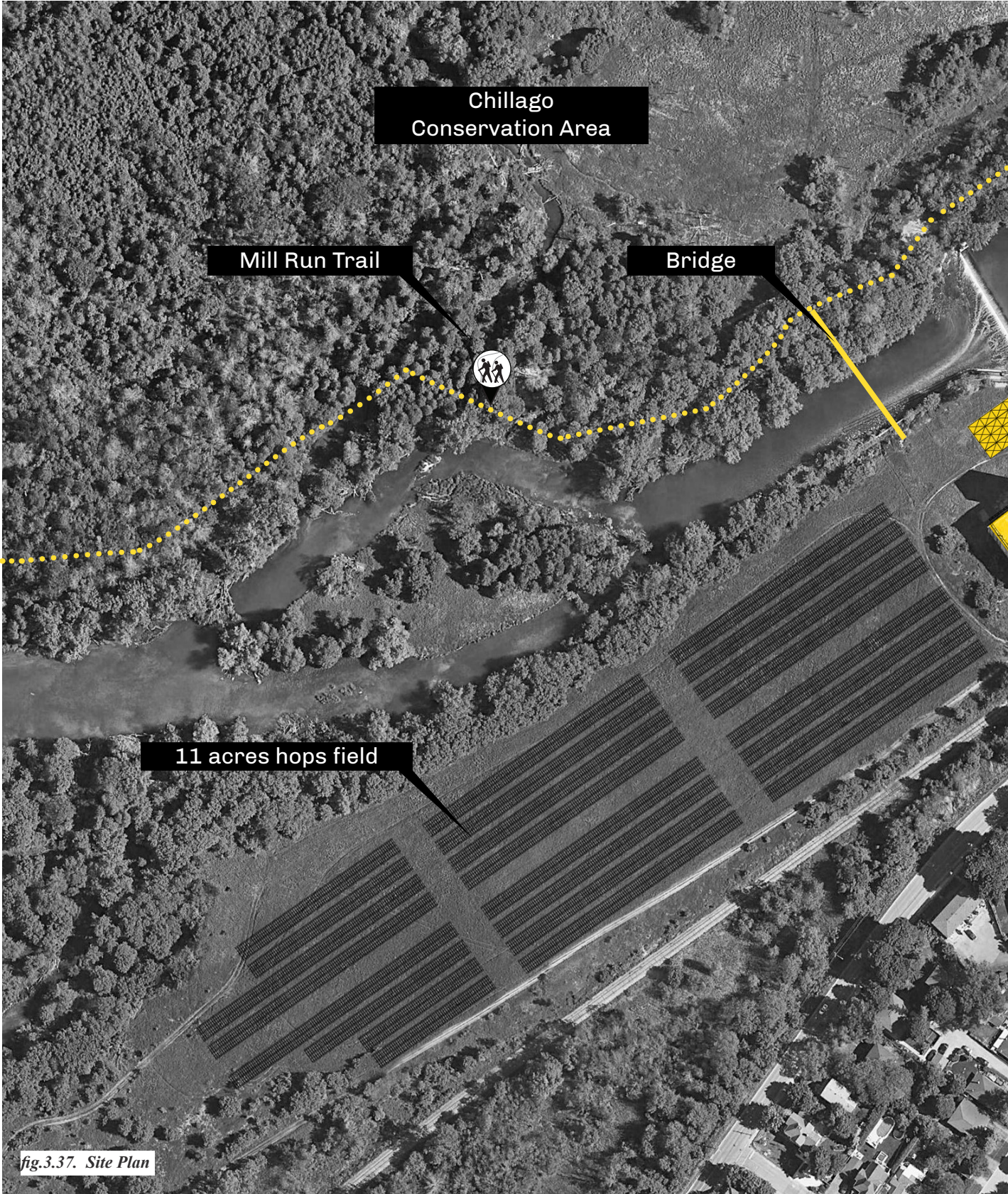
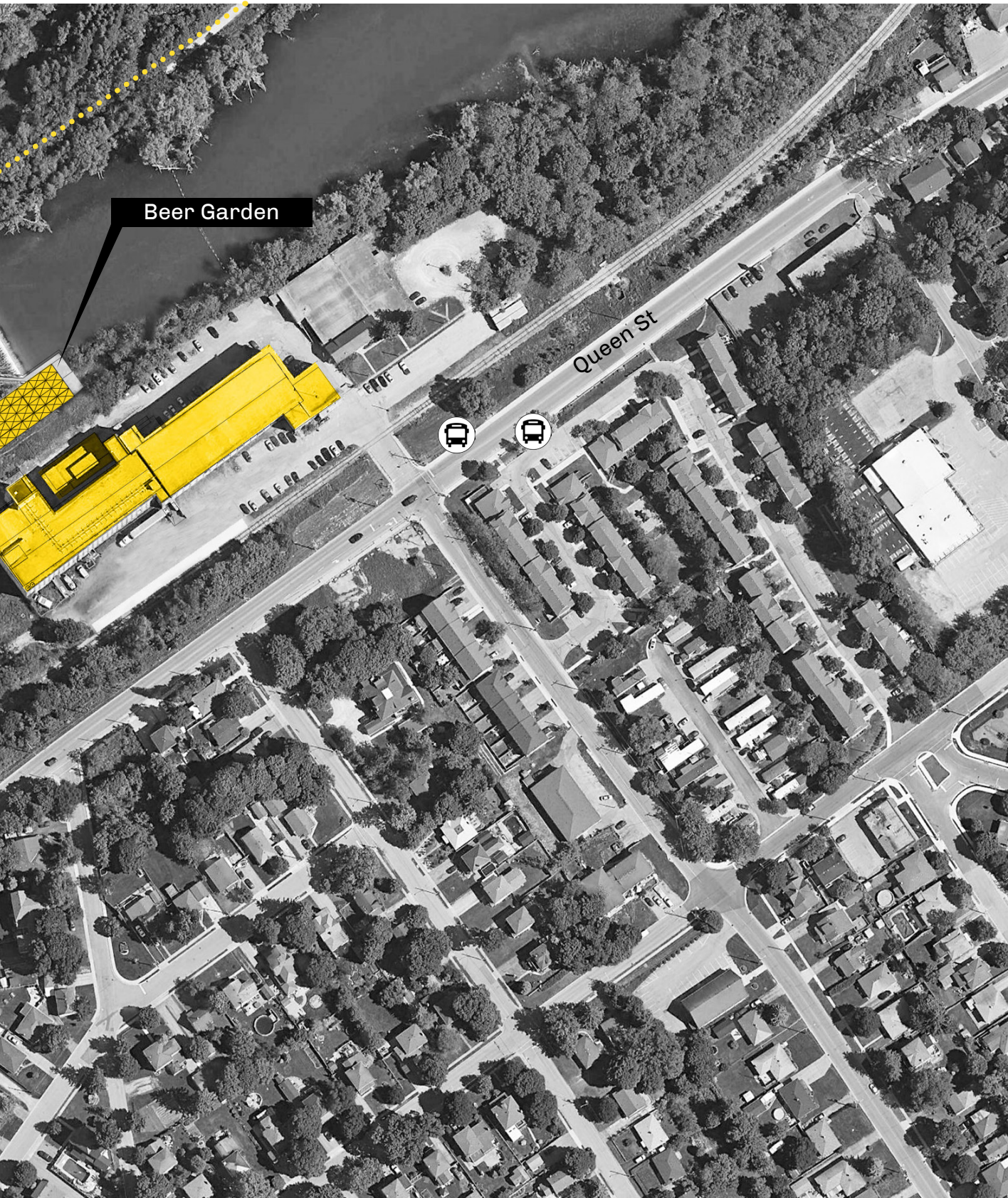


fig.3.36. Forbes Estate Proposal





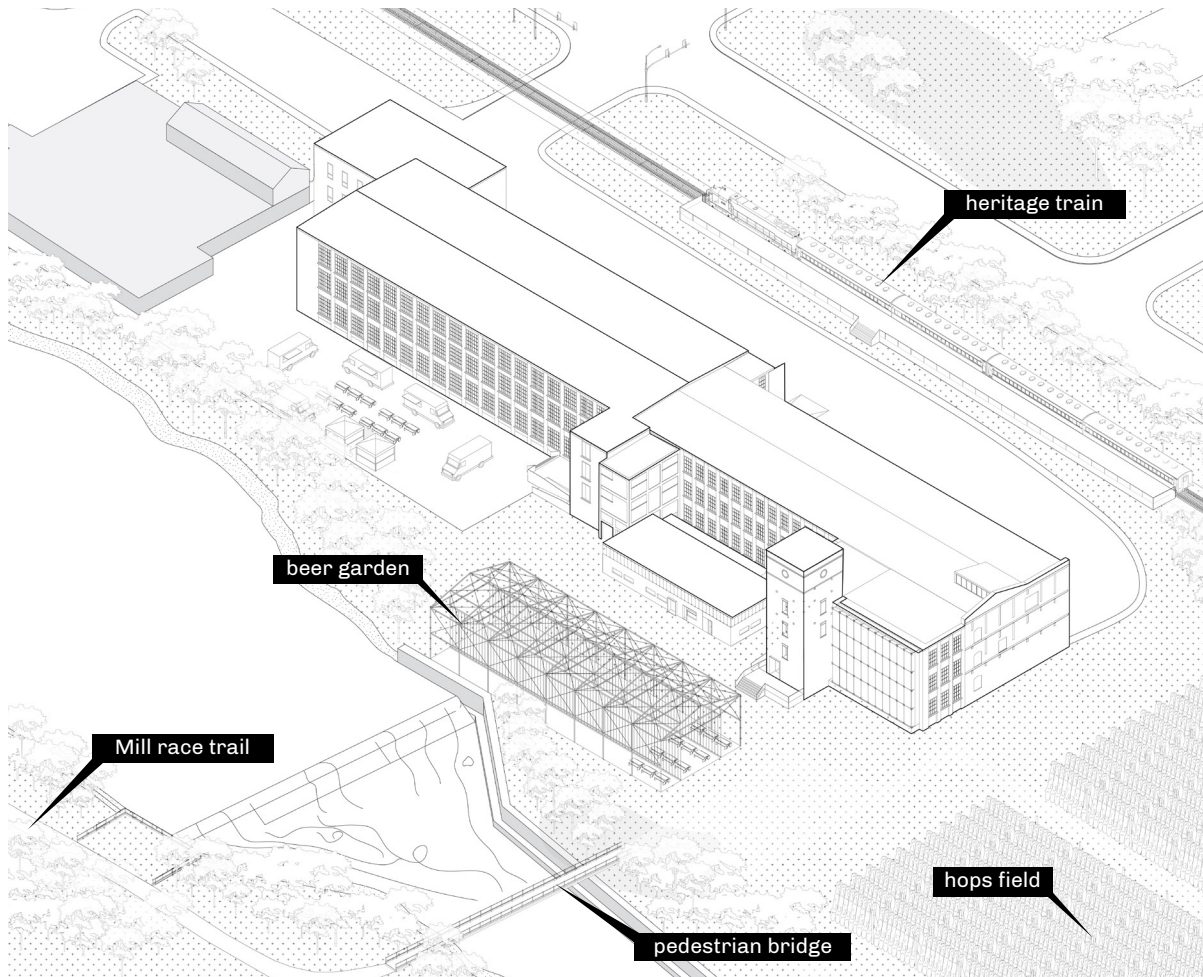


fig.3.38. Proposed Site Axonometric

Site Strategy:

One of the main design questions I had posed, was how to encourage the public to explore an industrial building without feeling like they are entering a space where they don't belong. The brewery will be the catalyst that will draw people in, but the surrounding site also has to be activated to encourage public exploration. This required shifting the relationship of the factory, the people and the river. The site had to be reinterpreted as a place for public leisure and entertainment, but also a place of manufacturing and making. This is envisioned in four ways: a hops field, a beer garden, a bridge, and a train platform (fig.3.38).

Hops Field

Reintroducing hops into the city, coincides with new urban agricultural movements, and provides a platform to promote local agriculture and farming, in addition to supporting the Ontario Hop Grower's Association. I grew up in Saskatoon, where the University of Saskatchewan still owns agricultural fields in the center of the city. The land is used by the College of Agriculture



*fig.3.39. Bernhardt's Rock Brewery, 1890
Preston, Ontario*



*fig.3.40. Photograph of Hops Yard, 1900
Preston, Ontario*

for research to promote sustainable practices and new methods of crop development. Therefore, farming and agriculture have always been present in the local identity, and is engrained into the landscape of the city. So, as a way of activating the site and promoting local agriculture within the city, I have proposed an eleven-acre hops yard on the southwest end of the building. The hops yard locates the consumer in the tactile material landscape, reflecting the taste of place in the urban industrial landscape. Not only do the hops act as an educational tool, they also connect to the city's history of hops production. In the early 1900s, there was a hops yard in Preston which provided the hops for Bernhardt's Rock Brewery, before the land was sold for housing (fig.3.39-40). In 2016, wild hops from this hop yard, were found growing along the Speed River and their rhizomes were collected to create a small crop of hops. These hops were then harvested and used to create TWB Cooperative Brewery's Heritage Ale.¹¹

A Beer Garden and Hops Trellis

To activate the rivers edge, I have proposed a beer garden which sits on the footprint of the original stone mill overlooking the river dam. The ghosted trellis structure mimics the silhouette of the original mill and creates an airy flexible interior space that transforms throughout the year as the hops climb the trellis. The architecture of the original stone mill was documented and sketched by A.B. McCullough in his inspection notes in 1986, describing the building as having a large queen post strut to fully support a column-less second storey (fig.3.41). This feature is included in the design of the trellis, where the large strut now supports the hops trellis (fig.3.44).

This proposal was influenced by Burckhardt and Partners and Redressal's MFO Park in Zürich, where they transformed an industrial site into a green public park (fig.3.45-46). The structure is a lightweight double walled steel frame with stairs leading to a second storey platform that surrounds an open interior park space. The unique aspect of this project is the use of climbing

¹¹ Terry Pender, "Old Line of Hops Recovered for New Cream Ale," *The Record* November 16, 2016. <https://www.therecord.com/news-story/6970786-old-line-of-hops-recovered-for-new-cream-ale/>.

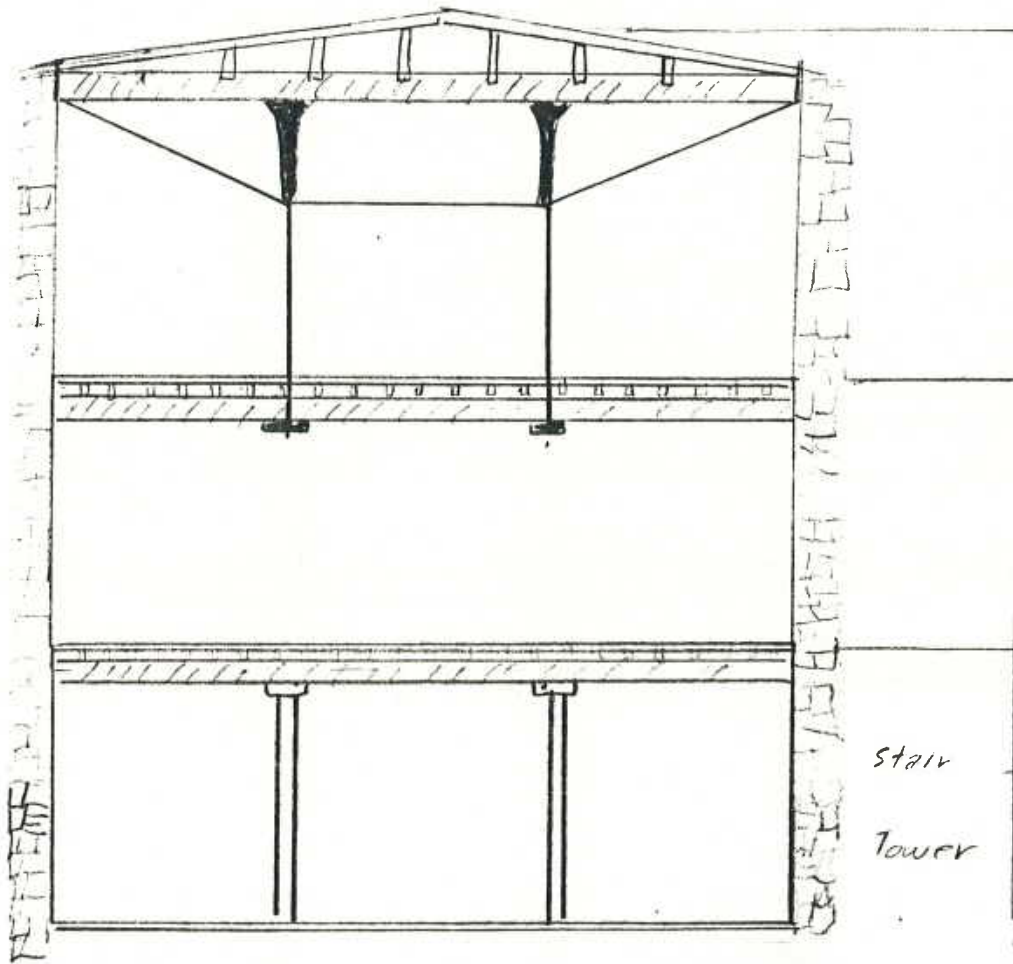


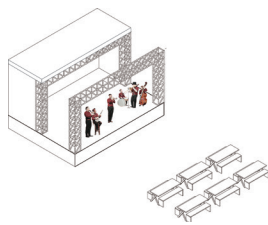
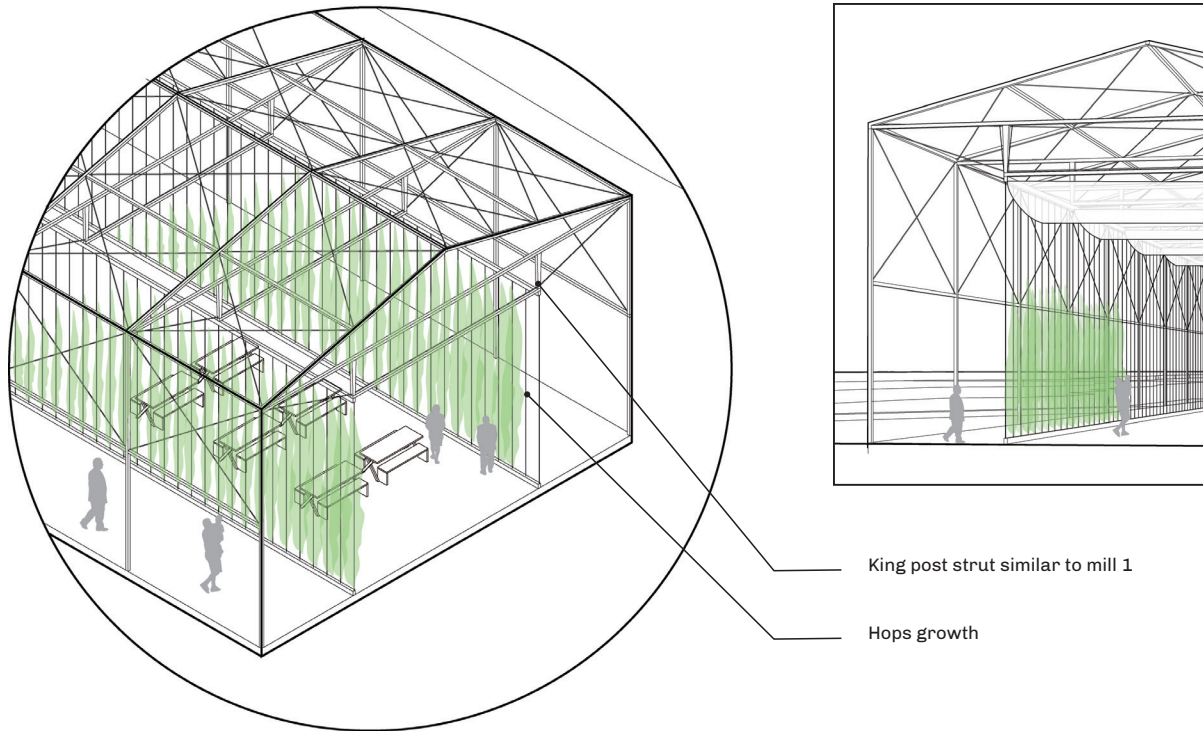
fig.3.41. Detailed Sketch of Mill no. 1 Section
The queen post strut supports both roof and second floor creating a floorplan free of columns.



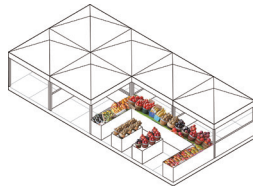
fig.3.42. Photograph of Mill No.1



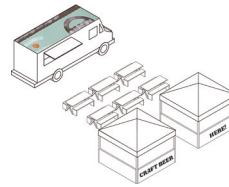
fig.3.43. Interior of Mill no. 1
Showing Queen Post Strut



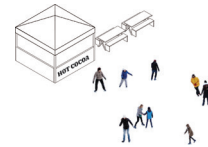
MUSIC FESTIVALS



FARMERS' MARKET



BEER & FOOD FESTIVALS



ICE SKATING

fig.3.44. Beer Garden Hops Trellis Diagram



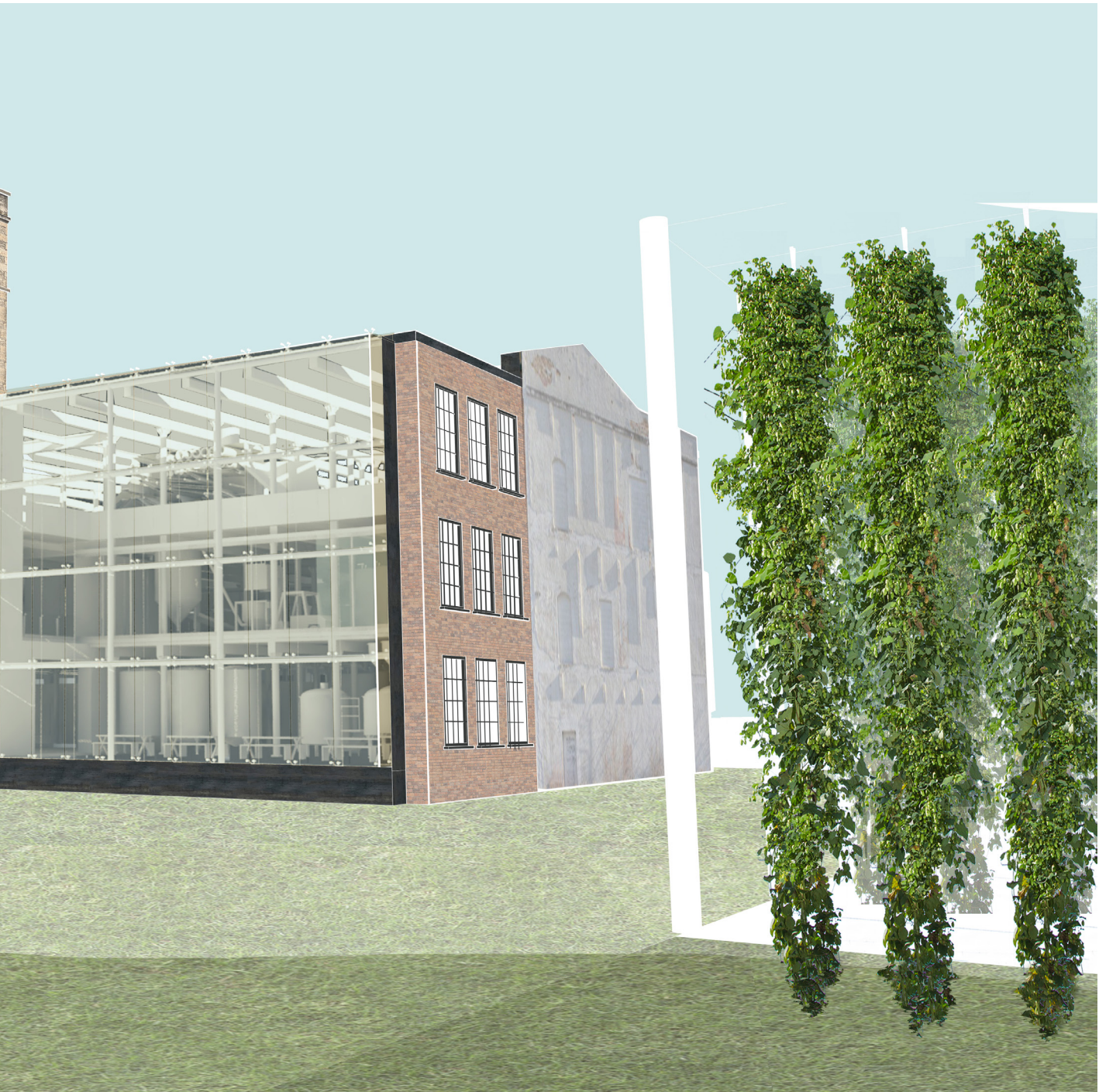
fig.3.45. Photograph MFO Park by Burckhardt and Partners and Redressal, Zürich



fig.3.46. Photograph MFO Park by Burckhardt and Partners and Redressal, Zürich



fig.3.47. Walk from Bridge Towards Hops Field, Beer Garden and Brewery



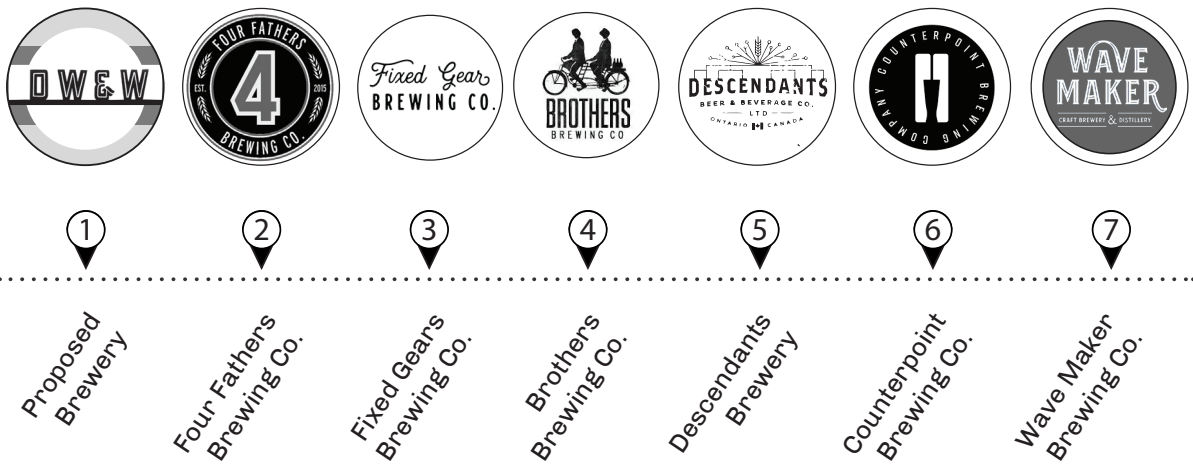
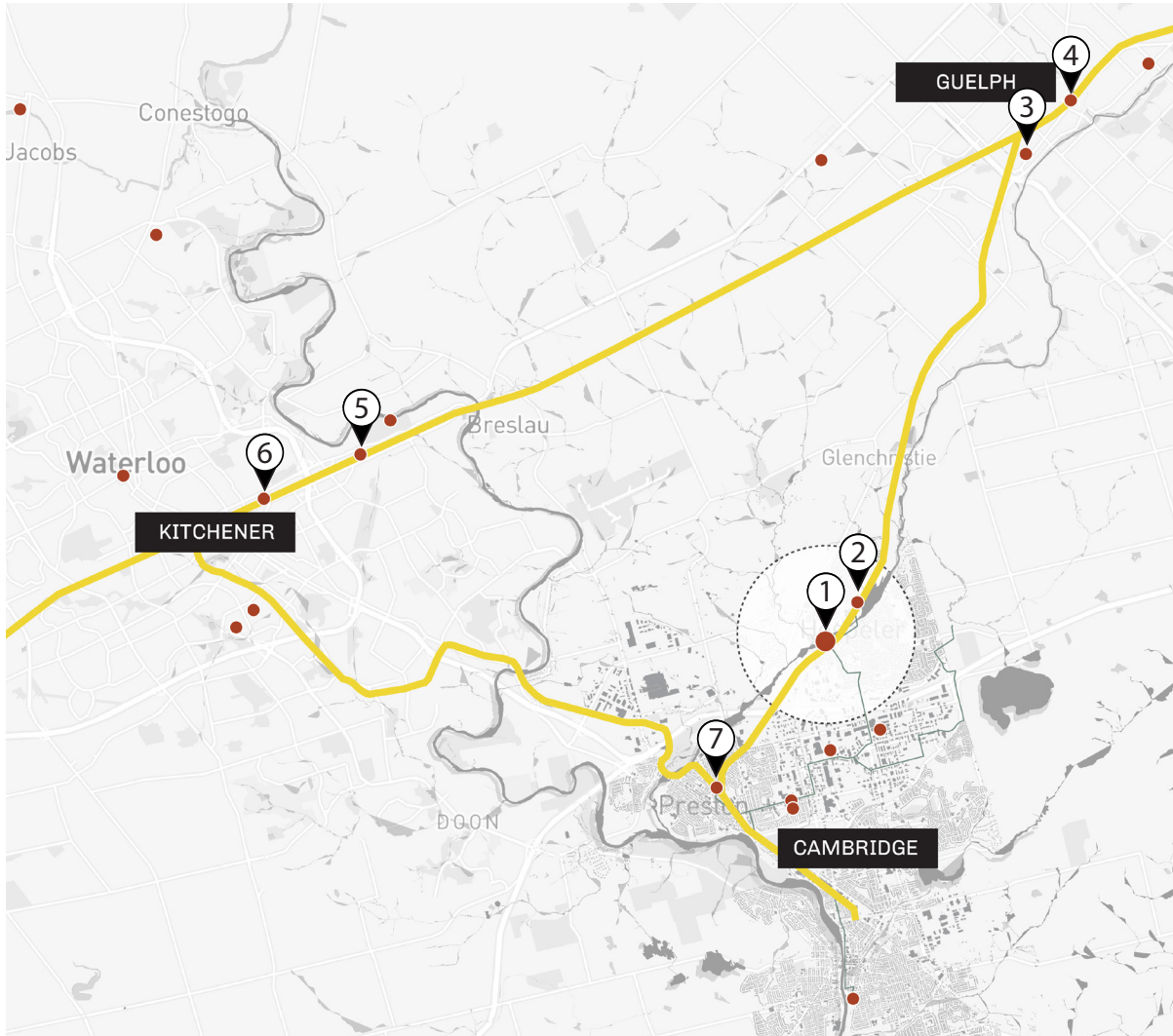


fig.3.48. Map of Train Stops at Breweries in the Waterloo Region



fig.3.49. Photographs of Train Stop and Rail Line at the Dominion Woolens & Worsted Factory

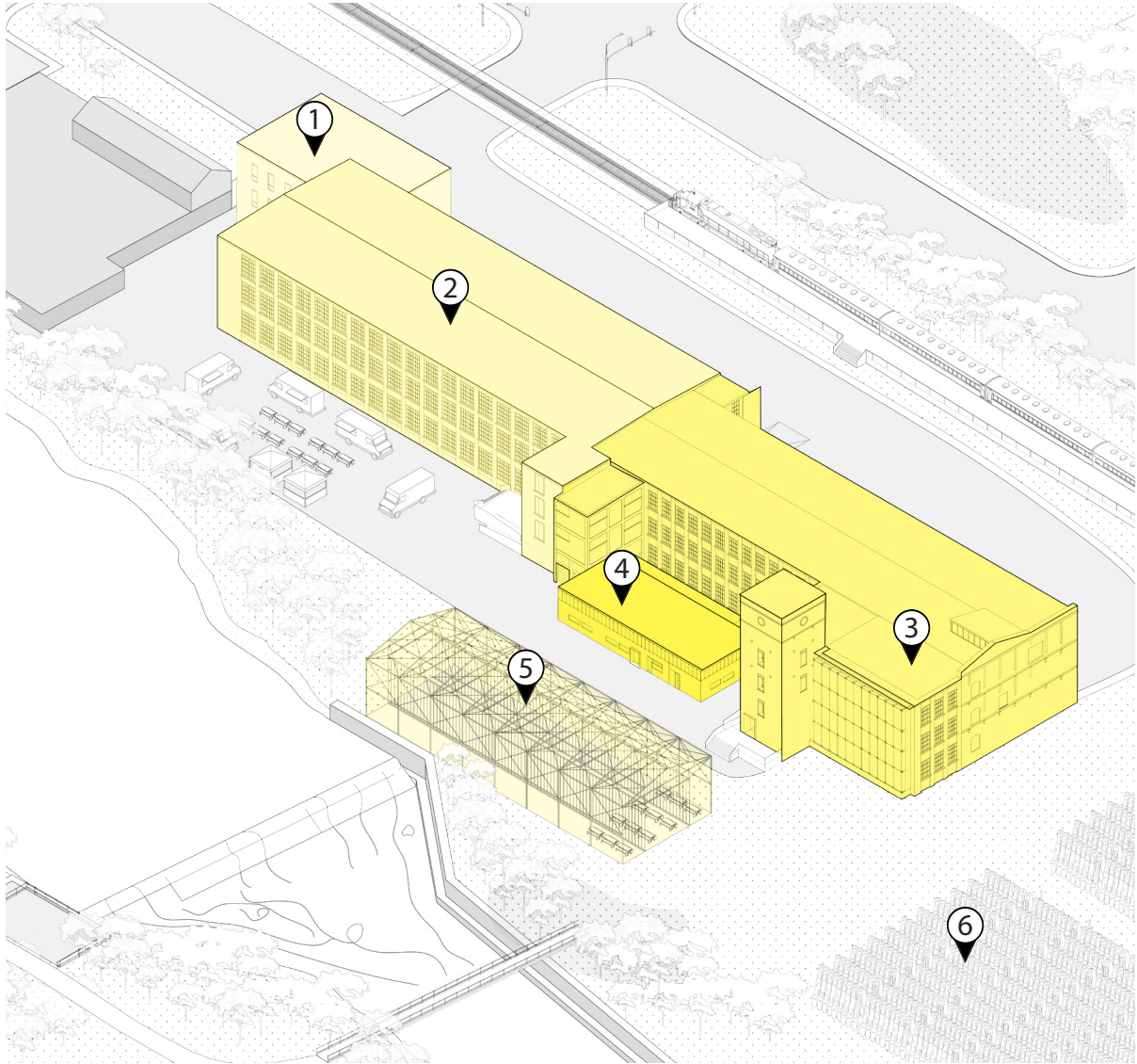
plants and vines on the mesh latticework which encases the structure with varying foliage throughout the year, providing shade and speckled lighting. The interior park space is meant to be flexible and can be used for “*sport and games, for meetings of all kinds, or events such as film screenings, concerts and theatrical performances – all with a baroque backdrop of hedges.*”¹² Similar to the MFO Park, this beer garden will transform over the summer months, from a light airy structure to multiple rooms encased by climbing hops (25ft tall). Creating an atmosphere filled with the aroma of hops, the rustling sound of its green foliage and stippled light coming through the vines. The function of this structure will also change during the seasons from an ice rink in the winter, to an outdoor venue that can host music festivals, food and drink festivals, Oktoberfest celebrations, markets and more (fig.3.44).

New Connections: Bridge & Train

A small footbridge will be added just south of the dam to connect the brewery to the Chillago Conservation area’s Mill Run Trail. Creating a destination point for any visitor using the trail, where they can enjoy the view of the dam as they walk across the bridge entering the site through the hops field south of the Beer garden. Walking toward the large stone tower and the new glass extension, which showcases the building’s interior section displaying the brewery, malthouse, and hops production facility, the viewer gets their first experience of the inner workings of the building (fig.3.47).

Another connection introduced to the site, is the addition of a train platform. In the past, the former Dominion Woolens & Worsteds company hosted an annual employee and family picnic, where they would gather at the train station to be taken to Hamilton to spend the day along the lakeshore and

¹² “New MFO-Park Zurich,” Burckhardt+Partner AG, accessed November 19, 2019, <https://www.burckhardtpartner.com/en/projects/detail/projekte/show/Projekte/new-mfo-park-zurich/>



PROGRAMS:

-
- | | |
|--|--|
| <p>① Office & administration</p> | <p>④ Restaurant</p> |
| <p>② Commercial ground floor & market hall
Light Manufacturing (2nd & 3rd floor)</p> | <p>⑤ Beer Garden with Hops Trellis</p> |
| <p>③ Brewery (ground floor)
Malthouse (2nd floor)
Hops processing (3rd floor)
Yeast Laboratory (3rd floor)</p> | <p>⑥ Hops Field</p> |

fig.3.50. Program Diagram

beaches.¹³ Of note, this annual event closed the city of Hespeler for the day, as more than 60% of the town's population were employed by the company. This platform will connect the city of Cambridge, Guelph and Kitchener, stopping at 7 breweries along the track, allowing visitors to hop on and off, in order to experience local food and beer in each city (fig.3.48).

Program

It is proposed that this building will house a collection of hybrid industrial manufacturing spaces, where each building will serve different functions. The former office building will remain as an office and administrative space with the addition of a design office. Mill No. 3 will have commercial ground floor, including a café, a bakery, with retail shops along the street entrance and a large market hall filled with local craft vendors. The second and third floor of Mill No.3 will be dedicated space for light manufacturing, such as: workshop space, maker space, furniture designer, leather & fabric worker, ceramicist, canning facility, bakery, gourmet foods producer, print shop and a soap maker. The former Cafeteria will be converted into a restaurant. Finally, Mill No.2 will have a brewery on the ground floor, a malthouse on the second floor and a hops processing facility and yeast laboratory on the third floor. The historic stone tower will act as the main public circulation between these three floors, allowing the visitor to explore the transformation of raw materials from one floor to the next (fig.3.50).

Design Moves:

Michael Louw, in a discussion of industrial heritage protection and redevelopment, states: "*Adaptively reused industrial buildings are layered texts that were authored by many hands over time, resulting in numerous overlapping narratives. At times, they may resemble something akin to the practices of collage or palimpsest, while at others there can be a clear juxtaposition of old and new.*"¹⁴ One of the things I enjoy most about this building is the layering and collaging of materials that were added over time and how each space transformed as the factory evolved. The façade of the building tells the story, the windows that have been filled with new bricks and concrete blocks, the piecemealed construction and modern extensions illustrate the traces of time. This building is a relic to the history of industrial brick and timber factory architecture, with the deep floorplates and large windows lighting up the factory floors. By following John Habraken's open building principles, the structure of a building lasts the longest, and the skin, services, and plans are the things that evolve over time to accommodate the newest needs and functions of the space.¹⁵ Therefore, the windows, electrical, services, stairs and elevators will all be updated to suit the newest layout needs of incoming manufacturers. Maintaining the character of the building is part of my design strategy, so I decided to make smaller architectural interventions to accentuate the existing

13 Kevin Swayze, "End of an Era," *The Record*, April 5, 1989.

14 Michael Louw, "Preface" in *Industrial Heritage Protection and Redevelopment* (Mulgrave, Victoria, Australia: Images Publishing, 2018).

15 "Manifesto," *Open Building*, accessed March 25, 2020, <https://www.openbuilding.co/manifesto>



fig.3.51. Photograph of the Tower



fig.3.52. Photograph of Collaged Facade



fig.3.53. Photograph of Mill no.2 Covered in Metal Siding after the Fire

architectural features, and larger moves to showcase the expressions of new industries found within the building. Throughout the building's design I was conscious of the flow of the consumer, their interactions and engagement with the various industries presented in the building, as well as the potential for the space to transform again in the next 50 years.

Larger Interventions:

I selected only a few areas to modify the exterior appearance of the building. Along the street face I have added steel frames that extend out of the entrances of the store fronts activating the Queen Street elevation. I have proposed the creation of a glass box that extends off the face of Mill 2.0's extension that was destroyed during the fire and covered in corrugated metal siding. The contrasting effect of the new glass surface to the plastered over west façade will emphasize the building's new and old history. Using a glazed spider joint system to create a large transparent surface that celebrates the building's interior, will showcase all the levels of production. The Cafeteria has a new glass extension to the roof, introducing more light into the space while minimal changes occur to the already collaged exterior face.

As a way of opening up the second and third floors to viewers, I propose to carve through the second and third floorplate, to create three large atrium spaces in the market hall, the brewery's tasting room, and the brewhouse (fig.3.54). By maintaining and exposing the beams, emphasizes the structure and shear scale of the building. These carved openings begin to introduce the multilevel production occurring on each level to the viewers of the market hall and the brewery. While sitting in the tasting room, consumers are able to enjoy a pint while watching the production on the second and third floor (fig.3.63).

Smaller Interventions:

As a way of dividing the large open floorplates, I am proposing a series of flexible partition systems that showcase the production occurring within each space. The materials I selected are steel, glass, and plywood to create a contrast between what is new and what is old. These raw materials reflect the industrial nature of the space, while also creating a balance between what is old and what is new. The partitions in Mill 3.0, maintain the feeling of an open floorplan, by showcasing the queen post struts and the interior spaces. The glazed panels highlight the processes happening within the space. The mix of plywood and glass partitions provide viewers with a window to what is happening inside (fig.3.56-59). Mill no.2 has a glass and steel partition, as a way of featuring the raw materials involved in the brewing process: the pallets of aluminum cans, kegs and barrels (fig.3.60-63). Another way of creating a division of the factory floor is through shelving units (fig.3.64-65). These steel and wooden shelves feature the raw materials in the warehouse, the bags of barley and the bags of malt. In both Mill no. 2 and 3, I have included wooden boxes, that reference the existing temporary rooms and structures that were in the warehouse (fig.3.66-67). These wooden boxes break up the open floorplans and create smaller and more intimate spaces.



fig 3.55 >

^
fig 3.63

fig.3.54. Section of Mill No.2 Cut through the Brewery, Malthouse, Hops Production Facility, & Yeast Laboratory



< *fig 3.83*



fig.3.55. Walking through Tasting Room, Towards the Brewery



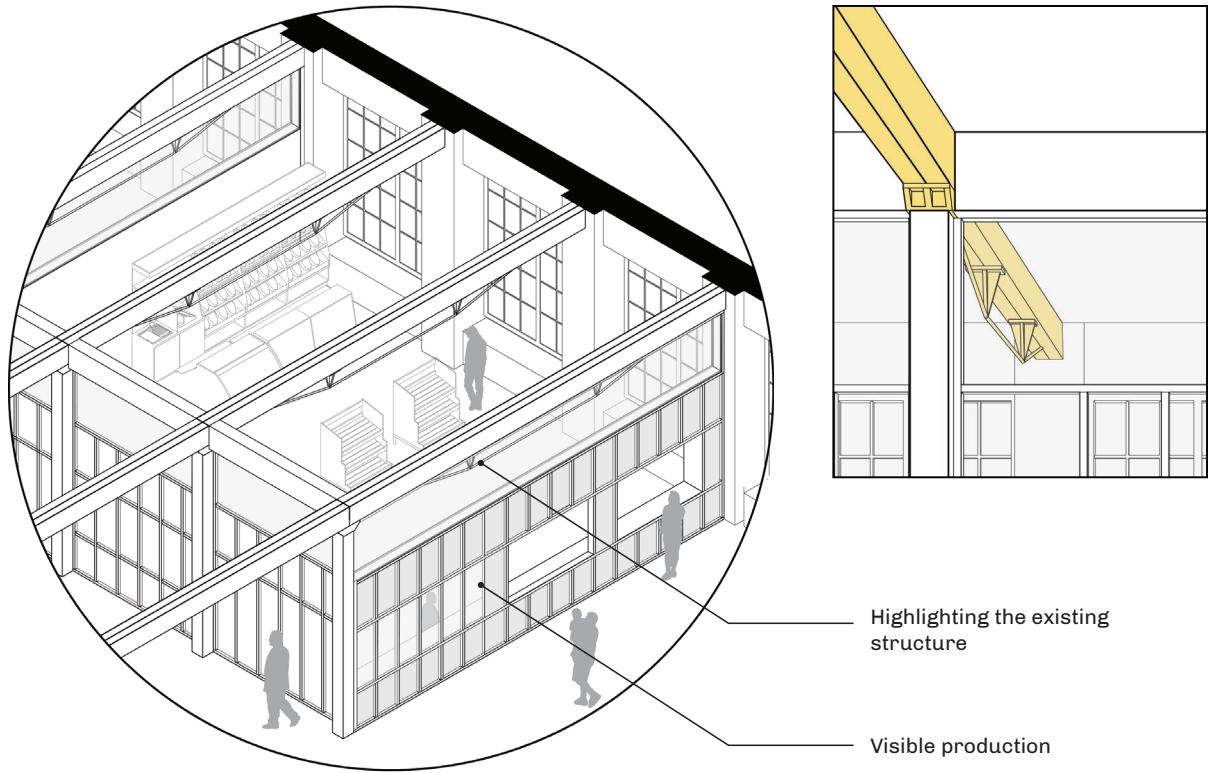


fig.3.56. Diagram of Partition Highlighting the Mill no.2 Queen Post strut

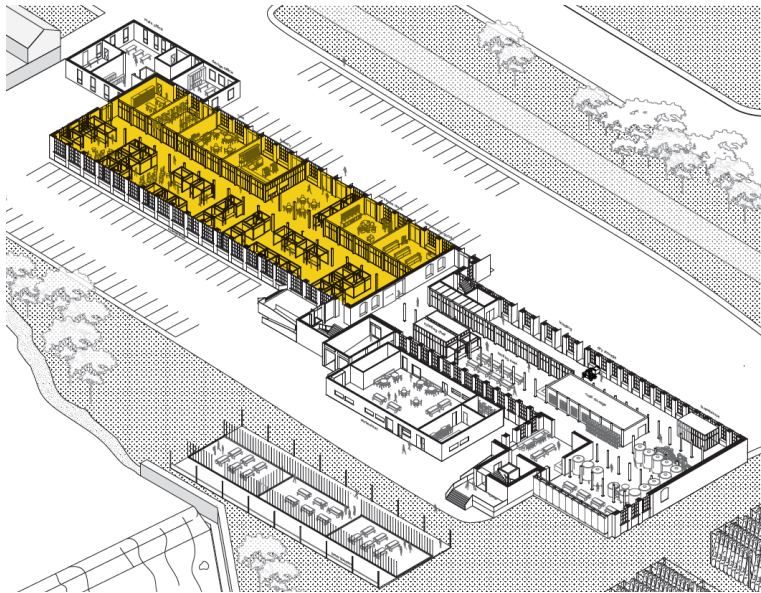


fig.3.57. Key Diagram of Mill no.3



fig.3.58. Photograph of Existing Mill no.3 Queen Post strut





fig.3.59. Walkthrough the Markethall, View of the Bakery and Section Cut to Floors Above

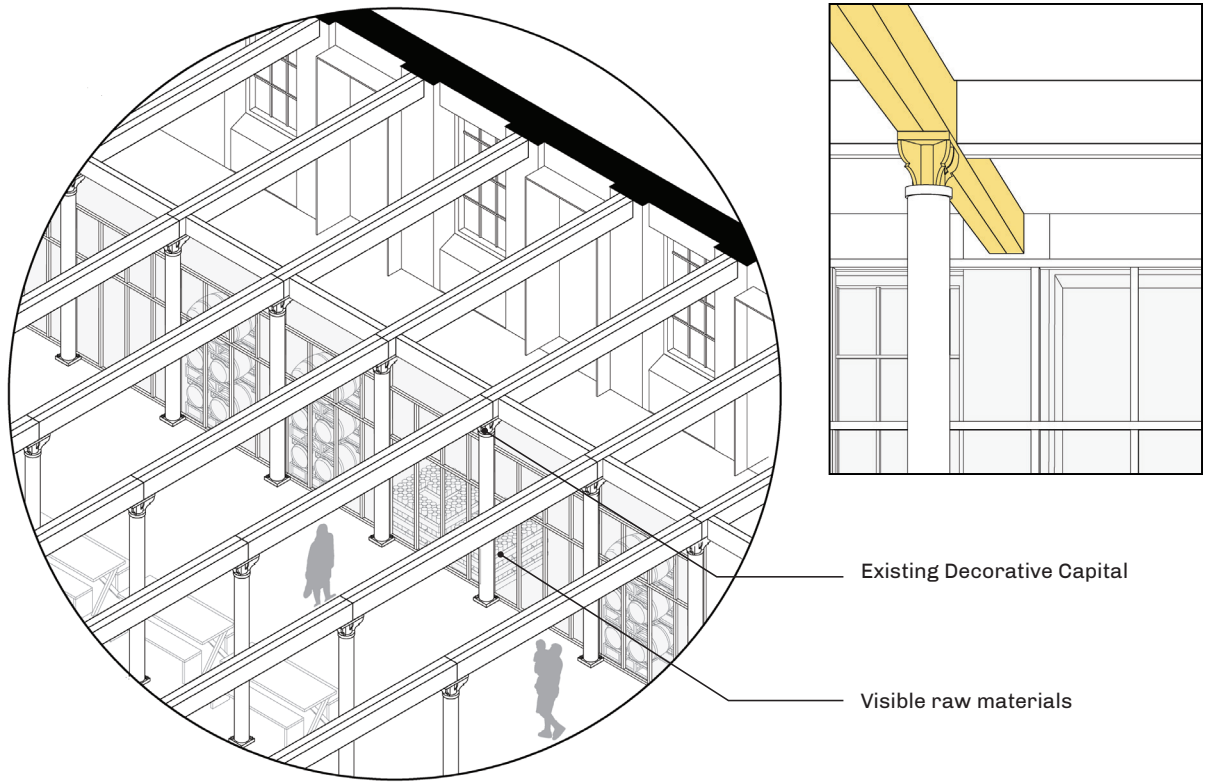


fig.3.60. Diagram of Partition Showcasing the Materials and Equipment Necessary for Brewing

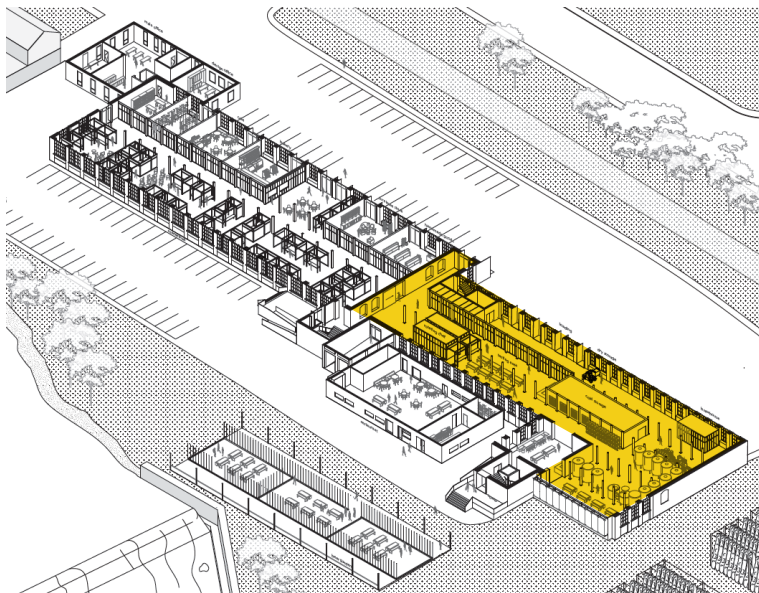


fig.3.61. Key Diagram of Mill no.2



fig.3.62. Photograph of Existing Mill no.2 Decorative Capitals





fig.3.63. Looking Towards the Tasting Room Atrium, Cut Through Showcasing Malthouse Above

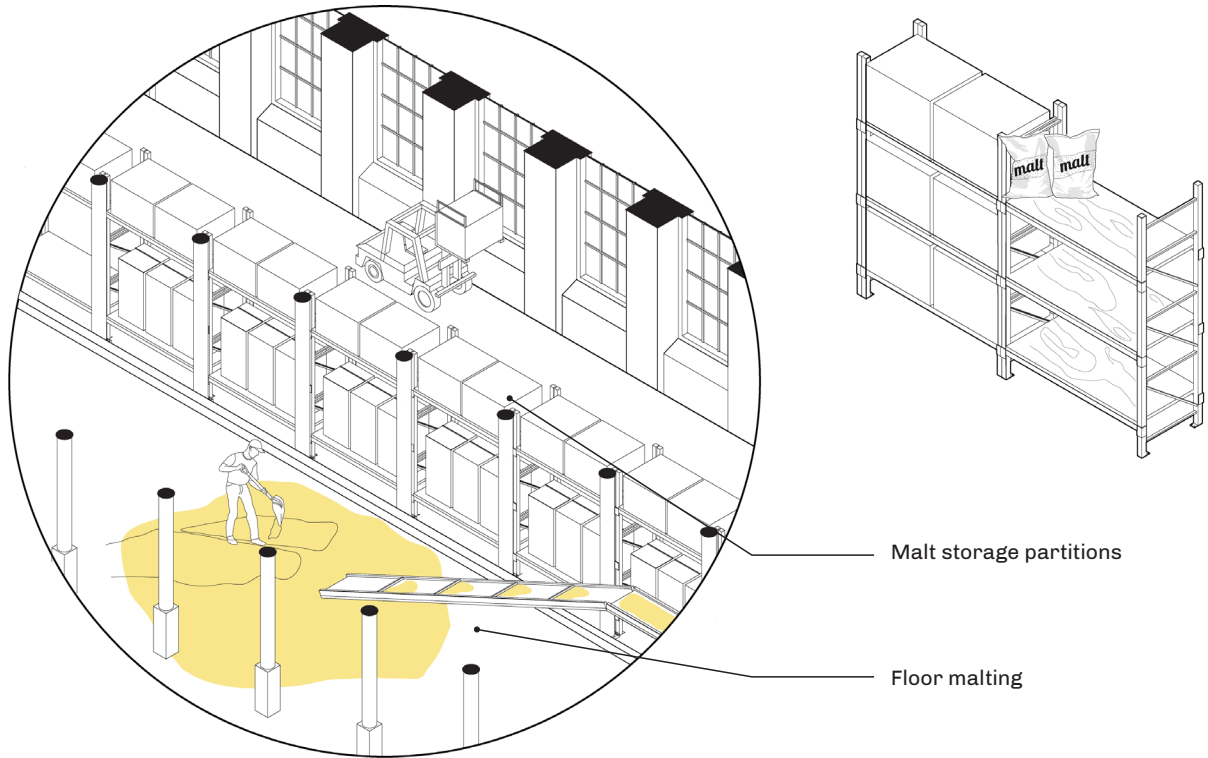


fig.3.64. Storage Shelving Partition Diagram



fig.3.65. View towards Malthouse Floor and Grain Storage Partitions

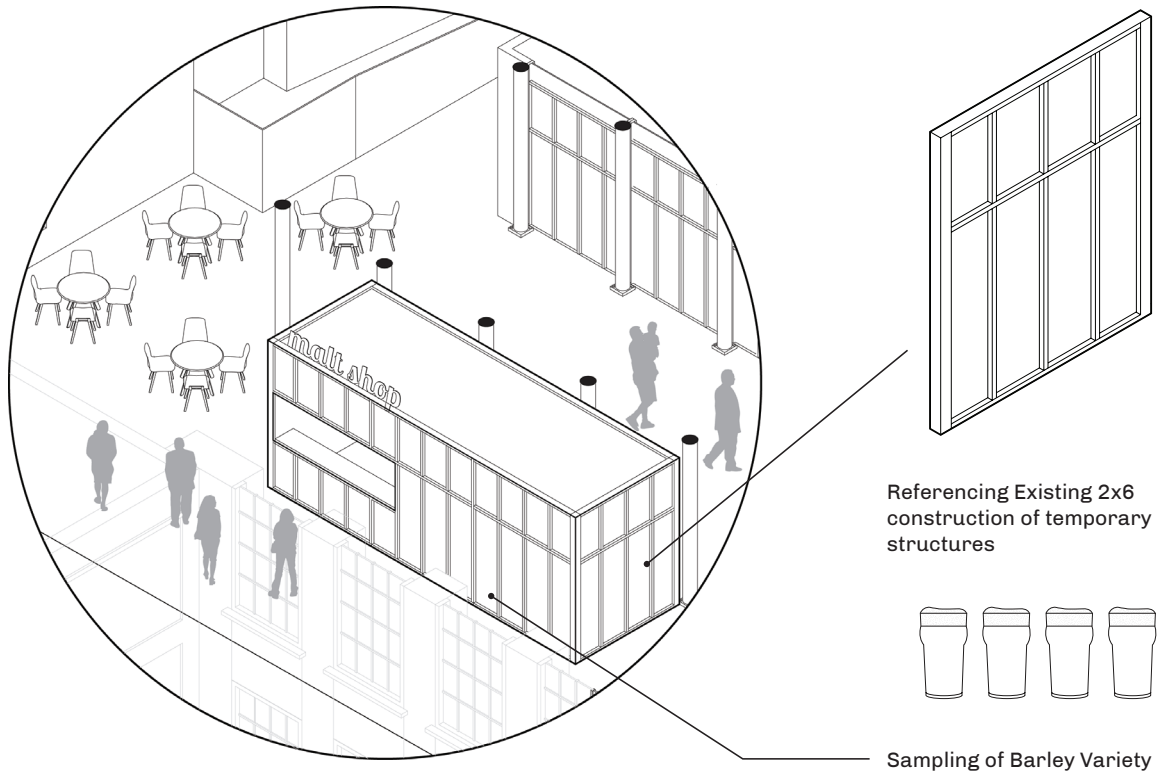


fig.3.66. Mixed-Use Boxes Diagram

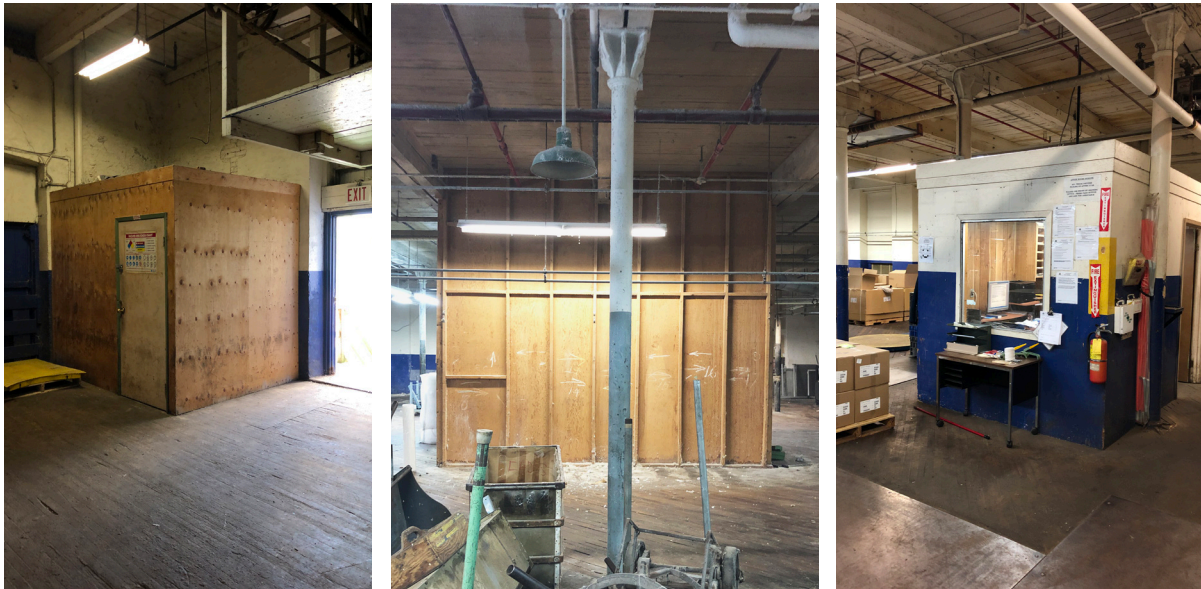


fig.3.67. Photographs of Temporary Rooms and Divisions of Space

GROUND FLOOR : BREWERY & MARKET HALL

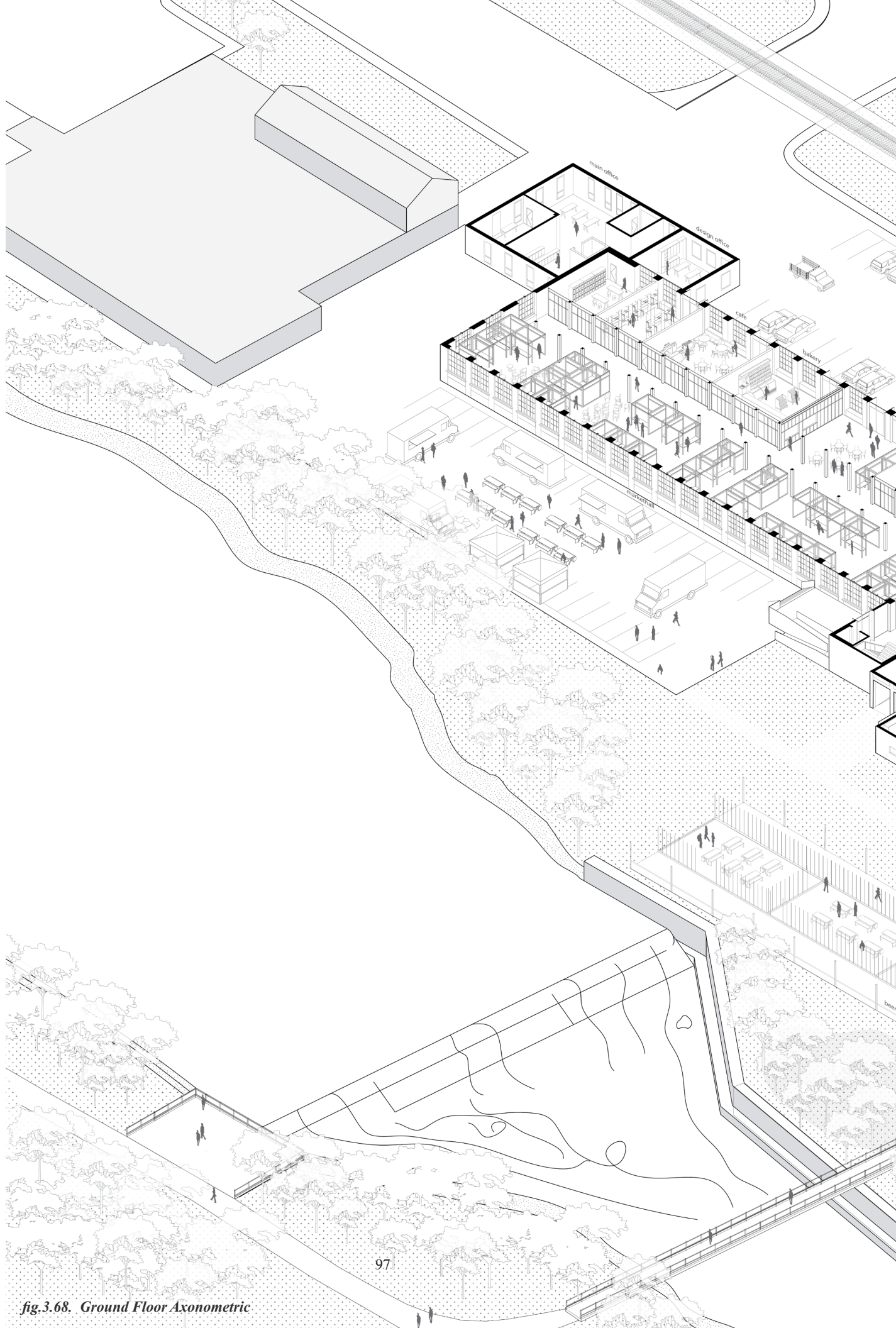
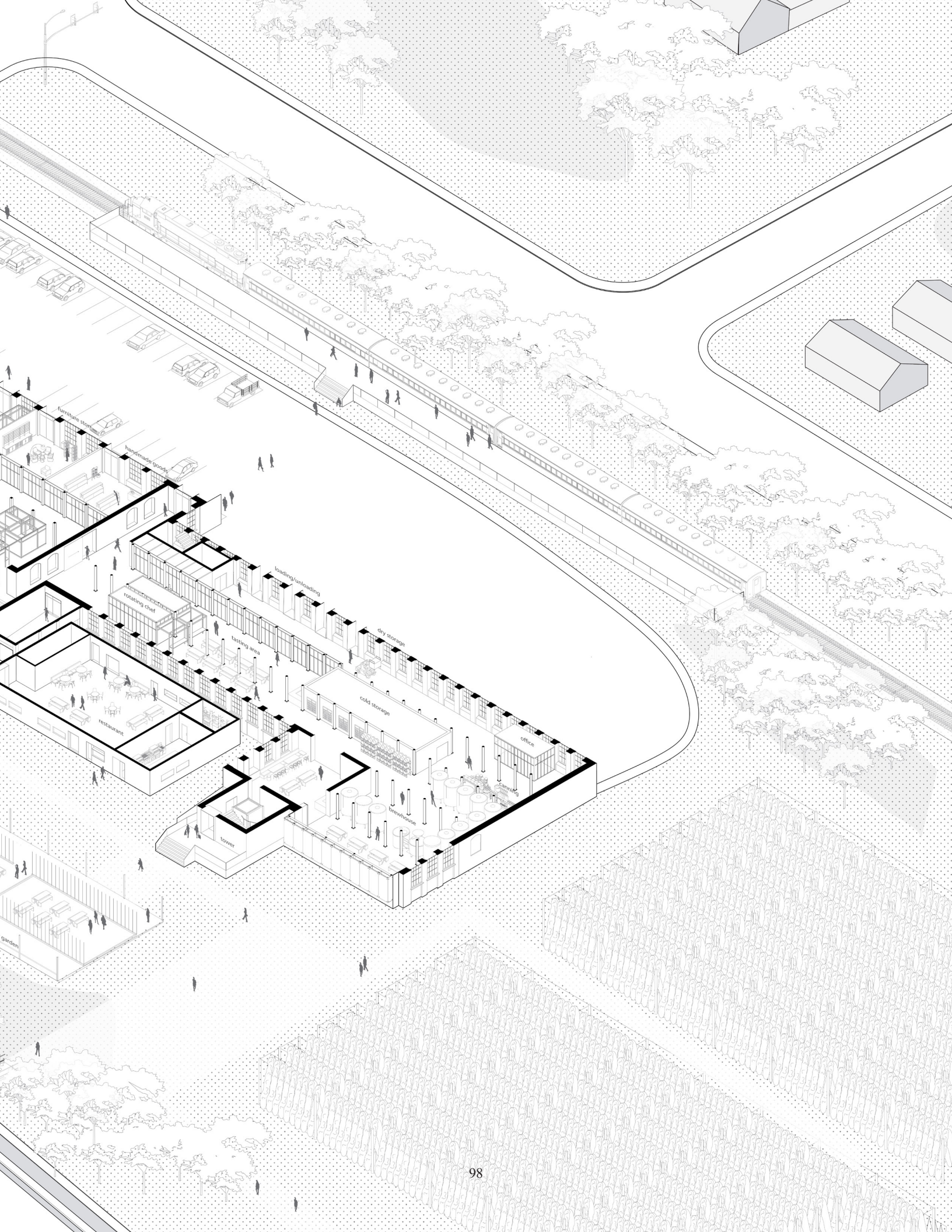


fig.3.68. Ground Floor Axonometric



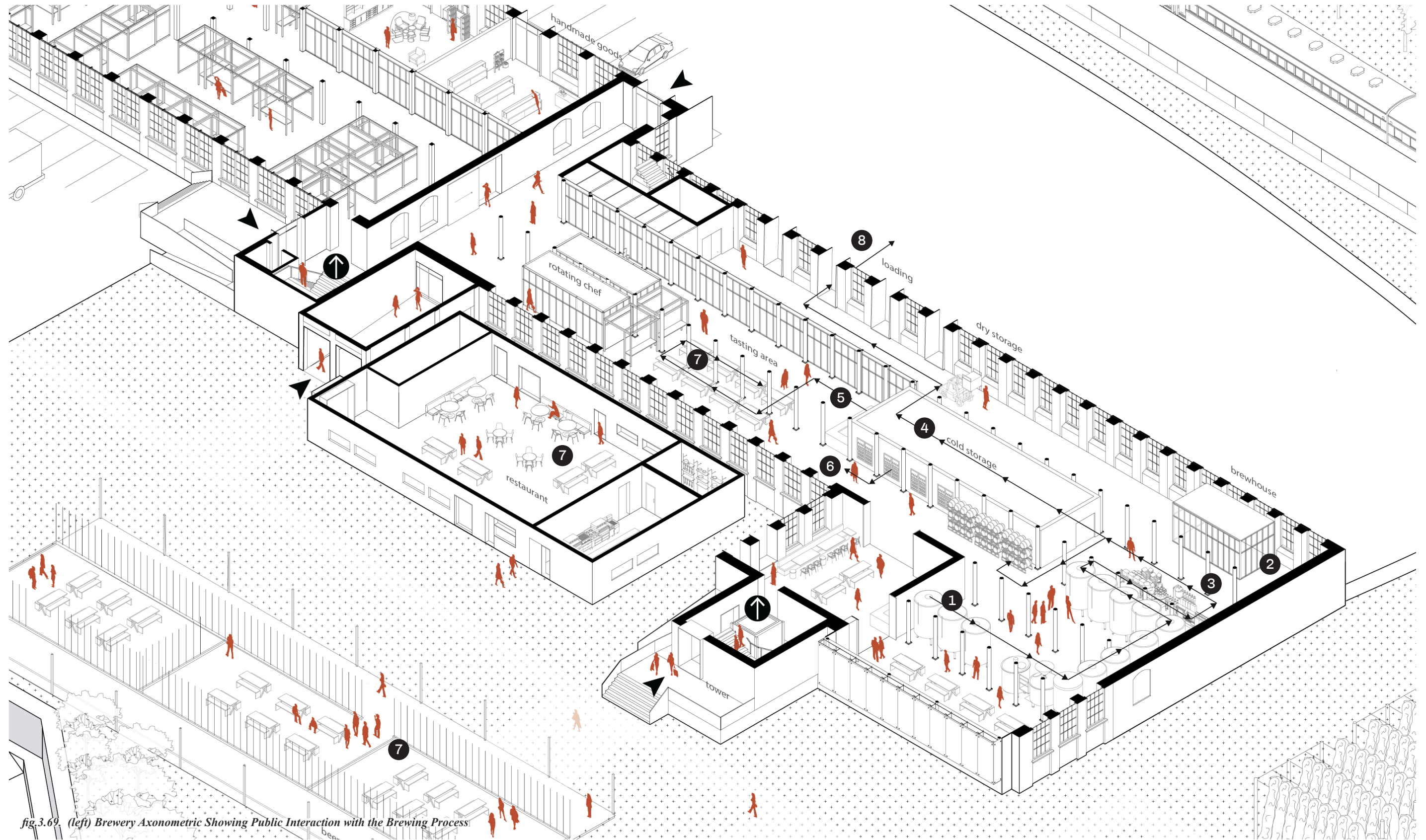


fig.3.69. (left) Brewery Axonometric Showing Public Interaction with the Brewing Process

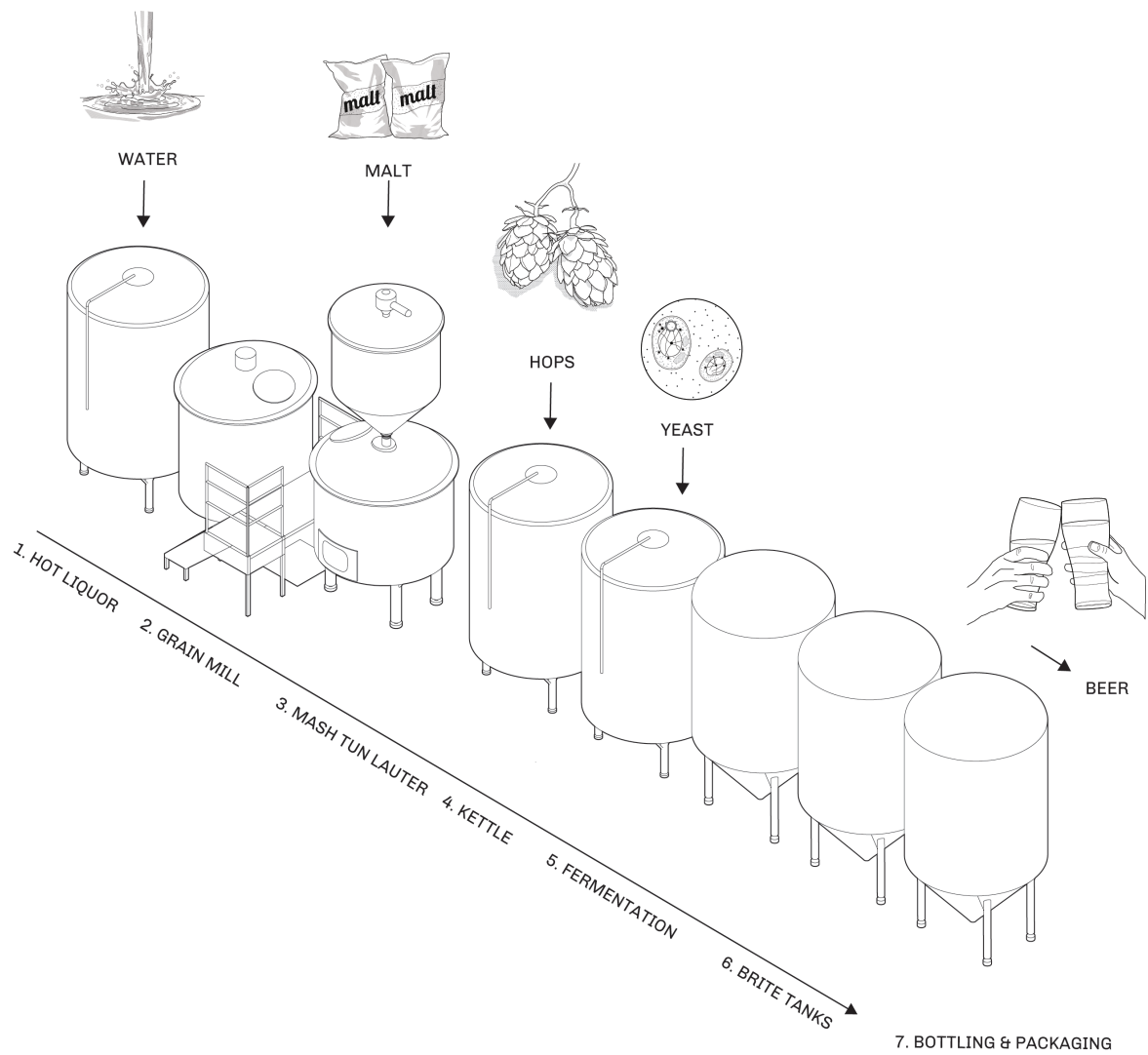


fig.3.70. Brewery Diagram

- | | |
|--|----------------------------------|
| 1 Beer Brewing Steps | 5 Tasting & Sampling |
| 2 Testing & Analysis | 6 Grab and Go Beer & Merchandise |
| 3 Bottling, Canning, Kegging & Packaging | 7 Enjoyment |
| 4 Cold Storage | 8 Transportation & Shipping |



fig.3.71. View of Brewhouse from New Glass Extension

The Tour: Brewery and Brewing Process

The first step in brewing is mashing, a process that begins by grinding the malt into grist. The malt kernels are added to the grain mill, where they are broken down and added to the mash tun. The hot liquor tank, a water tank that is kept at the perfect mashing temperature for brewing, adds the hot water to the mash tun with the grist. This process allows the malt enzymes to break down the starches into sugar creating wort. The wort is transferred to the Lauter Tun, where the grain husks from the malt and the liquid are separated. The liquid wort is transferred to the boiling kettle and the spent grain from the Lauter tun is removed and given to a local farmer. In the kettle, the wort enzymes are stabilized, hops and any other additional flavors, such as spices or fruits, are added to the boiling tank to enhance the beer's flavor. The kettle becomes a whirlpool separating the large solids and liquids in a vortex which cools the mixture down before transferring the liquid to the fermenting tanks. In the fermenting tanks, yeast is added to convert the sugars in the wort to alcohol, setting the flavor of the beer and naturally carbonating the beer. The beer will rest in the fermentation tanks for a few days to a few weeks until the proper level of fermentation is achieved. Fermentation is stopped, and the 'green' beer is transferred to the brite tanks to mature. The brite tanks allow the flavors to stabilize and settles any leftover particles. The beer is then filtered, carbonated and cellared, before bottling, canning and kegging. Once this is complete the beer can be distributed and enjoyed.¹⁶

The minutia in brewing occurs within the large stainless-steel tanks in the brewhouse. These large, highly reflective objects stand proud in most warehouses; however, they do not show the intricate processes happening inside of them. To allow for viewing, the main tasting spaces includes a section cut through the floorboards, highlighting the malt floor, on the second storey, and the hops and yeast production on the third. This is the first experience visitors get when first entering the brewery. As they continue into the space, walking towards the large steel tanks in the distance, they walk past the stored dry goods of the brewery, palettes of packaging, metal beer cans, large bags of malted barley, kegs and wooden barrels. Visitors then move through the brewhouse and enter the secondary tasting room in the new glass extension. This space showcases the beer garden outside and the hops field, as well as the next two levels (fig.3.71), before entering the tower to explore the malthouse on the next floor.

16 Stephen Yool and Andrew Comrie, "A Taste of Place: Environmental Geographies of the Classic Beer Styles" in *The Geography of Beer: Regions, Environment, and Societies*, ed. Mark Patterson and Nancy Hoalst-Pullen (Netherlands: Springer, 2014).100-101

SECOND FLOOR : MALTHOUSE & LIGHT MANUFACTURING

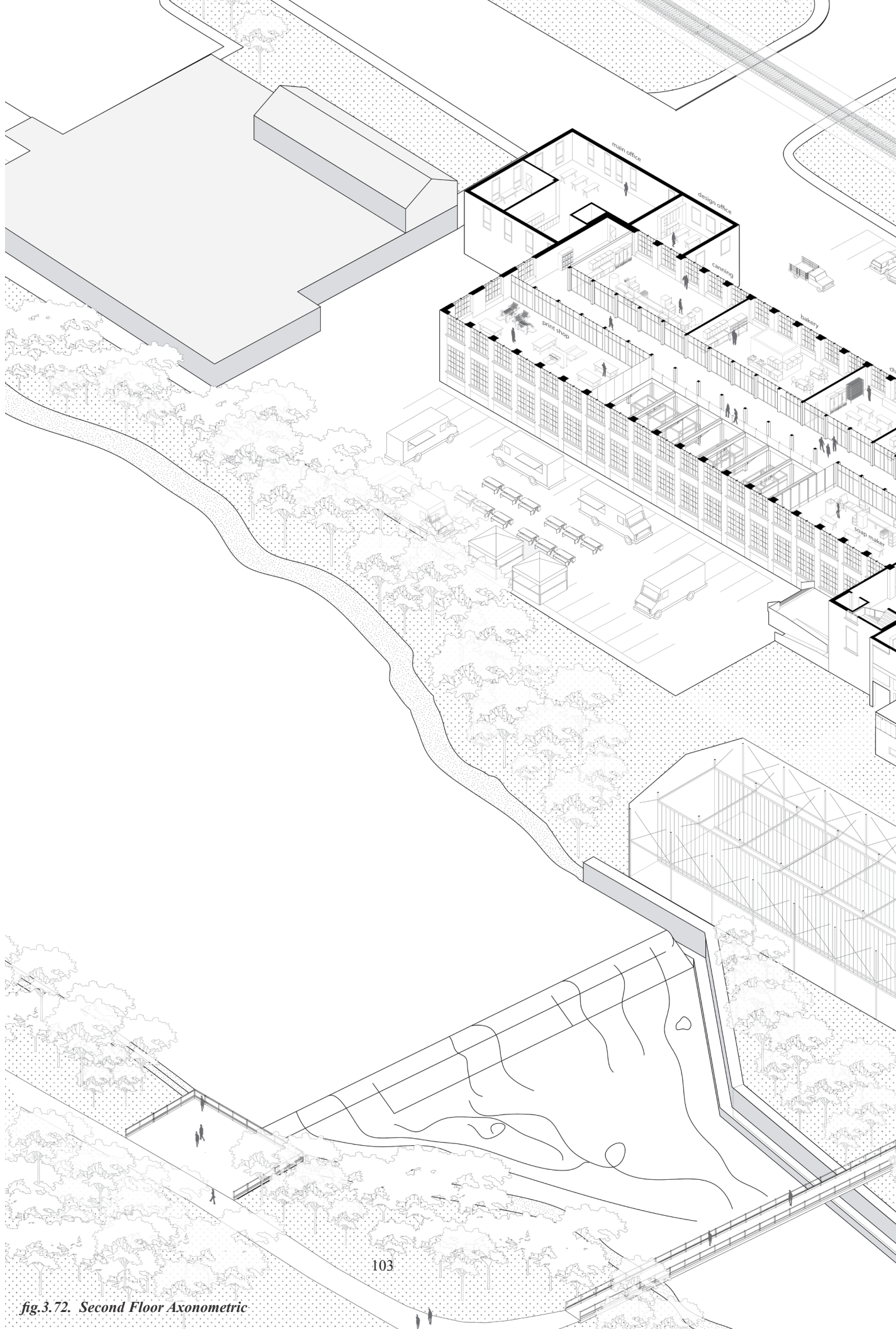
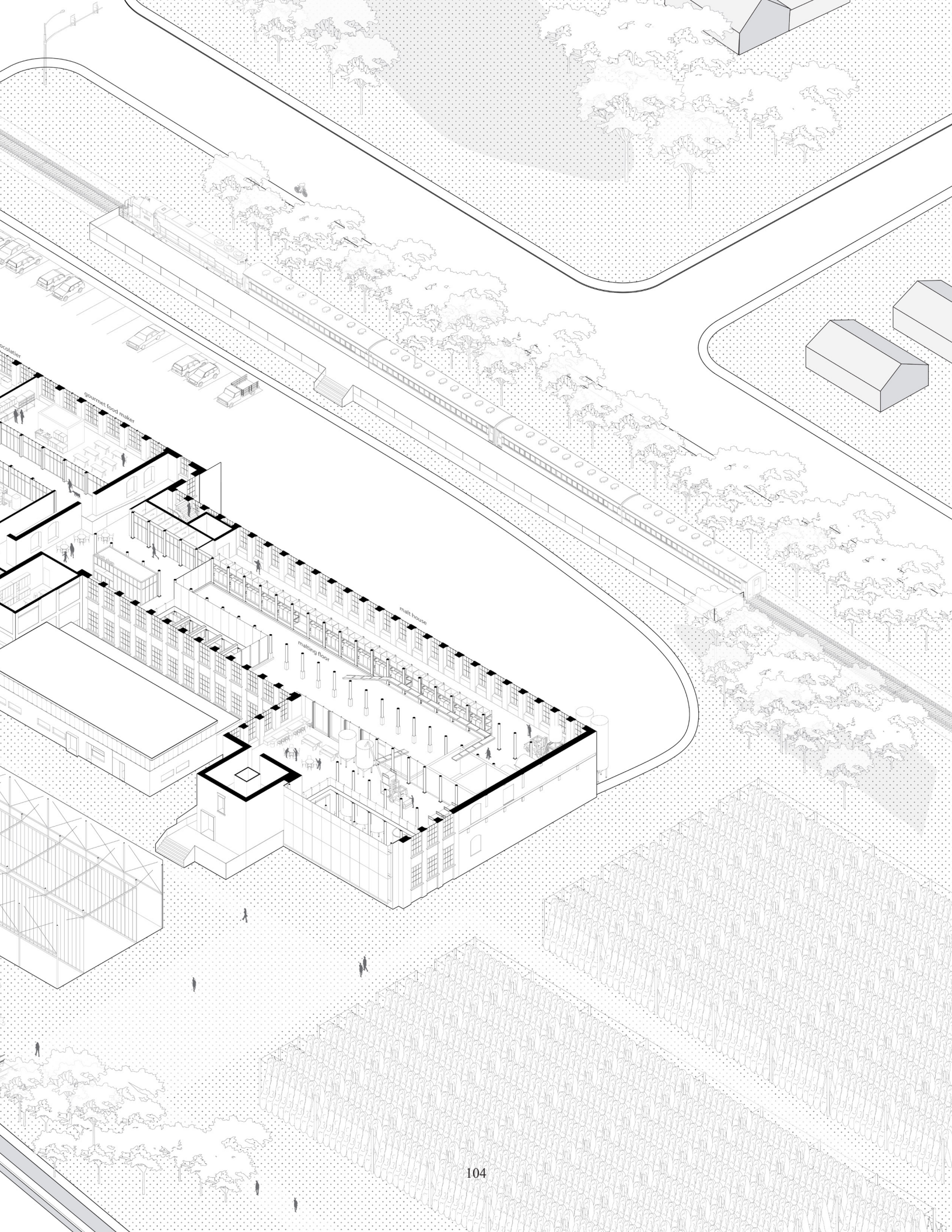


fig.3.72. Second Floor Axonometric



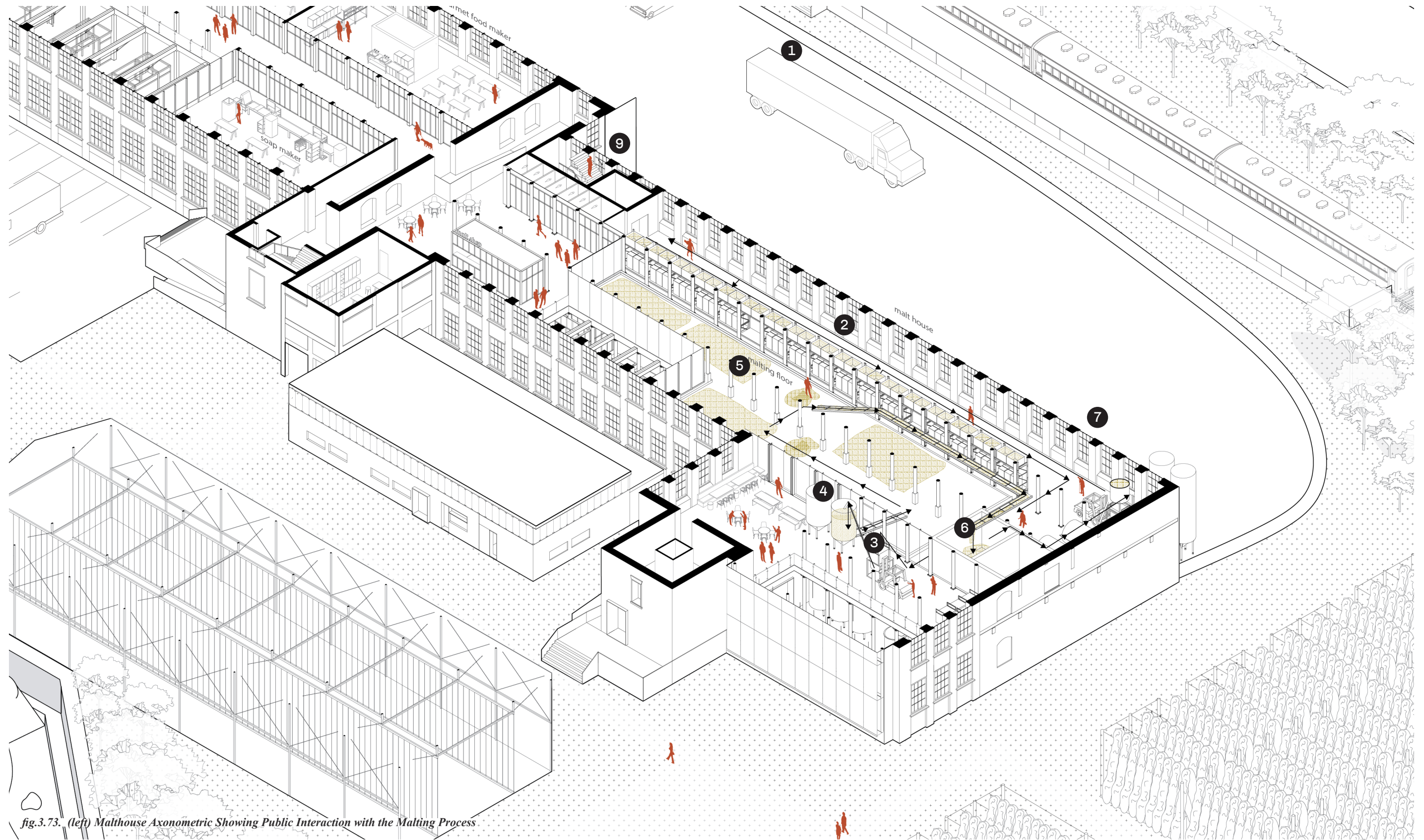


fig.3.73. (left) Malthouse Axonometric Showing Public Interaction with the Malting Process

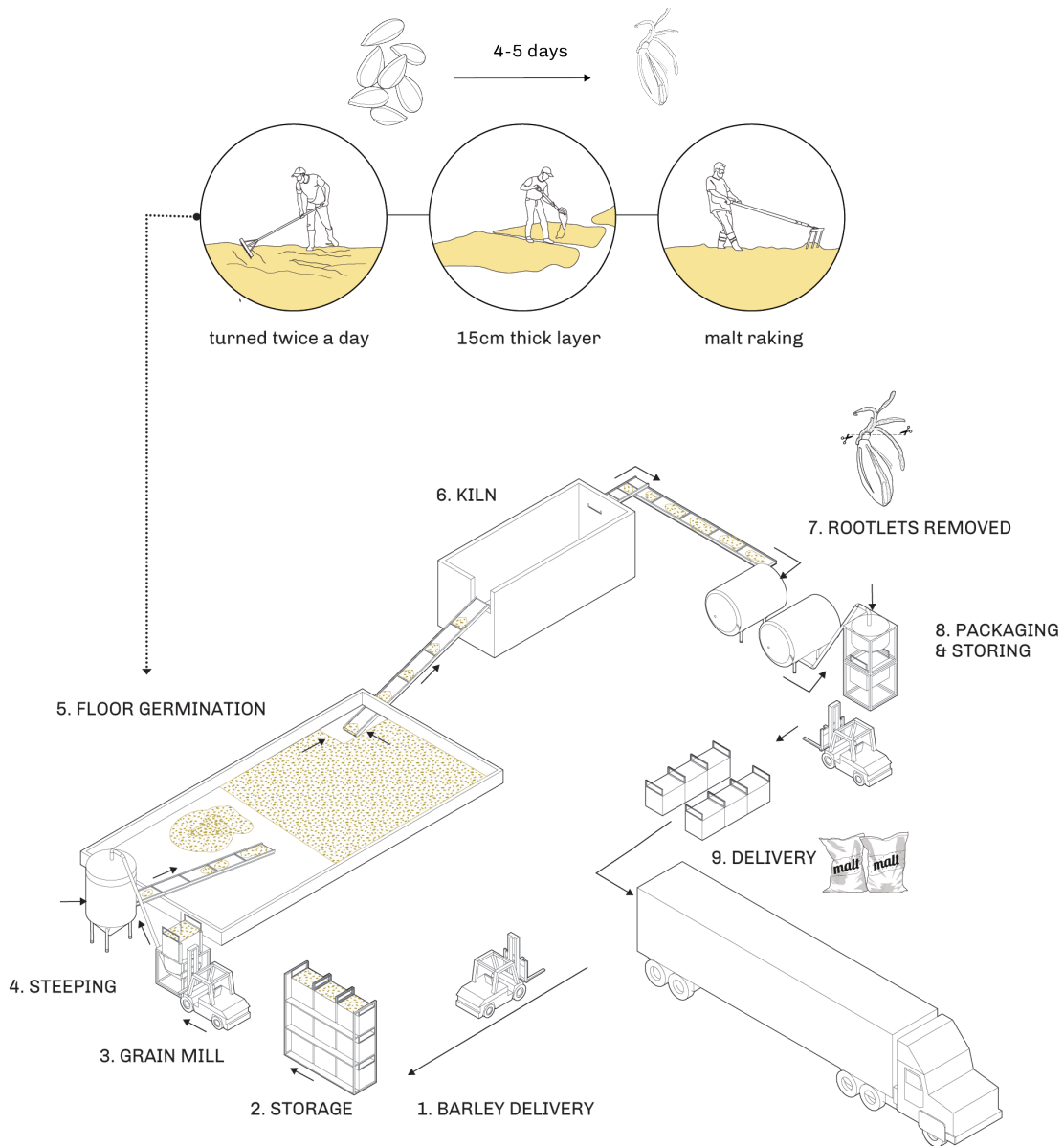
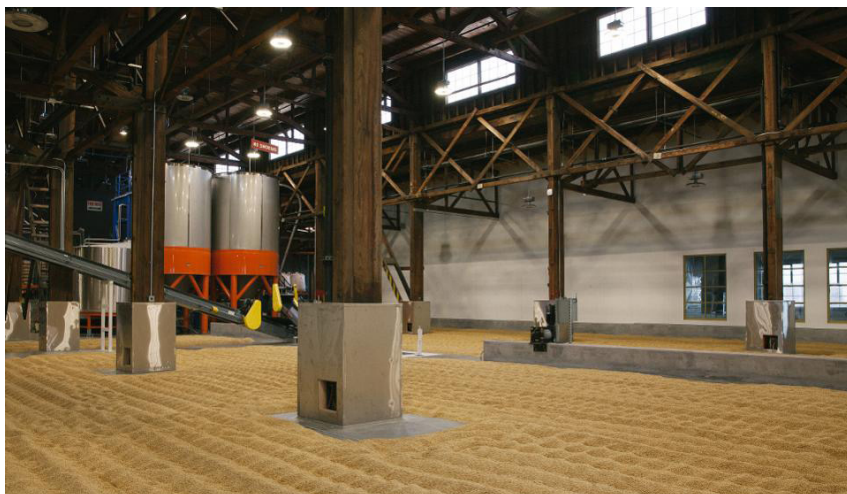


fig.3.74. Malthouse Diagram

- | | |
|----------------------------|---------------------------------------|
| 1 Barley Delivery | 6 Kiln Firing & Grain Roasting |
| 2 Storage | 7 Rootlets Removed |
| 3 Grain Mill | 8 Packaging & Storing |
| 4 Steeping | 9 Delivery |
| 5 Floor Germination | |



*fig.3.75. Photographs of Admiral Malting, in Former Naval Dry Goods Warehouse
Visitors can enjoy views into the malthouse while enjoying a beer in the booth*

Malthouse & Floor Malting

The practice of floor malting has resurfaced, alongside the craft beer movement due to the increased interest in a craft malt, which involves soaking, raking and turning the grains by hand. Embracing the spirit of a more hands-on approach to craft malting, Barn Owl Malt, a small family farm in Belleville, Ontario opened their malthouse in 2015 using locally sourced grains and traditional floor malting practices.¹⁷ Unlike modern conventional production, this malthouse uses a third of the water necessary by using local low impact grains like rye, wheat, and barley and by managing their own biological wastewater treatment plant.¹⁸ Like breweries, they also upcycle their byproducts by giving it to their animals, creating a zero-waste process.¹⁹

The second precedent I looked at was Admiral Malting, in Alameda, California, founded by craft brewers who were looking for a more flavourful locally produced malt. The malthouse was built in a repurposed 20,000 sq.ft. naval dry goods warehouse originally built in the 1940s. Admiral malting uses a mixture of modern technologies with traditional methods of floor malting. As noted by the founder Rob Silberstein when comparing floor malting to larger malting companies, “*Malt freshly out of the kiln has aroma and flavor that can’t be duplicated by malt that’s generally at least a year old by the time you get it.*”²⁰ This malthouse uses matte pastel colors to compliment the building’s steel and wood structure. The highly reflective metal tanks create a stark contrast to the raw post and beams in the warehouse; however, it is the polished concrete floor with layers of drying grain that creates a captivating space. The movements of the actors (maltsters) enthrall the audience (consumers) as they turn and move the grain across the floor (fig.3.75).

Through the Malthouse:

Entering the malthouse from the tower, visitors are first met with two large tanks and their first glimpse of the malting floor. Floor malting begins with the malt kernels, which sit in bags that are displayed the length of the warehouse in the steel and wood shelving units. These bags have been sent from local grain farmers to be made into malt. The first step in the malting process involves steeping the barley until the grains reach proper hydration levels for germination to occur. Once the malt has been steeped, it is then moved onto the chilled malthouse floor, spread by hand using a rake into a 15 cm layer. This is where the grain germination will occur, with the floor grains are turned and raked twice a day to control their temperature. Once they have germinated, they are sent to be kiln fired and tumbled to remove the rootlets. Once the rootlets are removed the grains are then bagged and shipped to brewers. The flavor produced is more intense than conventional modern methods, due to the natural ventilation.²¹ Sampling of the different malt varieties can be done on the other side of the malthouse floor, where viewers can enjoy a flight of beer while watching the turning of the malt grain before moving onto the next floor.

17 “Barn Owl Malt: About,” Barn Owl Malt, accessed December 3, 2019, <https://www.barnowlmalt.ca/about.html>

18 “Barn Owl Malt: About.”

19 “Barn Owl Malt: About.”

20 Kenny Gould, “Craft Malt is about to Change Craft Beer. are You Ready?” *Forbes*, November 5, 2019, <https://www.forbes.com/sites/kennygould/2019/11/05/craft-malt-is-about-to-change-craft-beer-are-you-ready/>.

21 “Floor Malting,” Beer & Brewing, accessed November 18, 2019, <https://beerandbrewing.com>

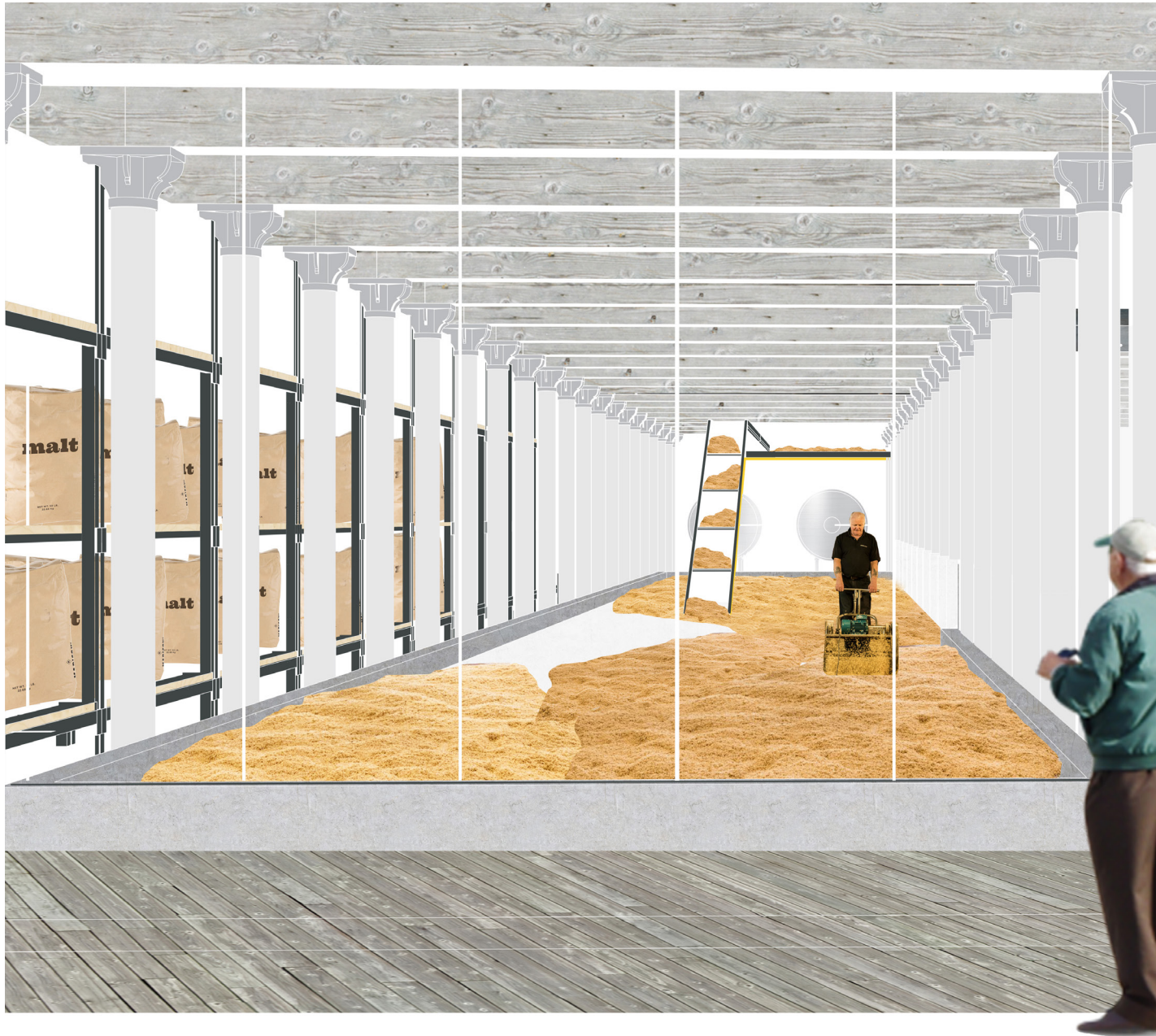


fig.3.76. View Towards Malting Floor



THIRD FLOOR : HOPS, YEAST & LIGHT MANUFACTURING

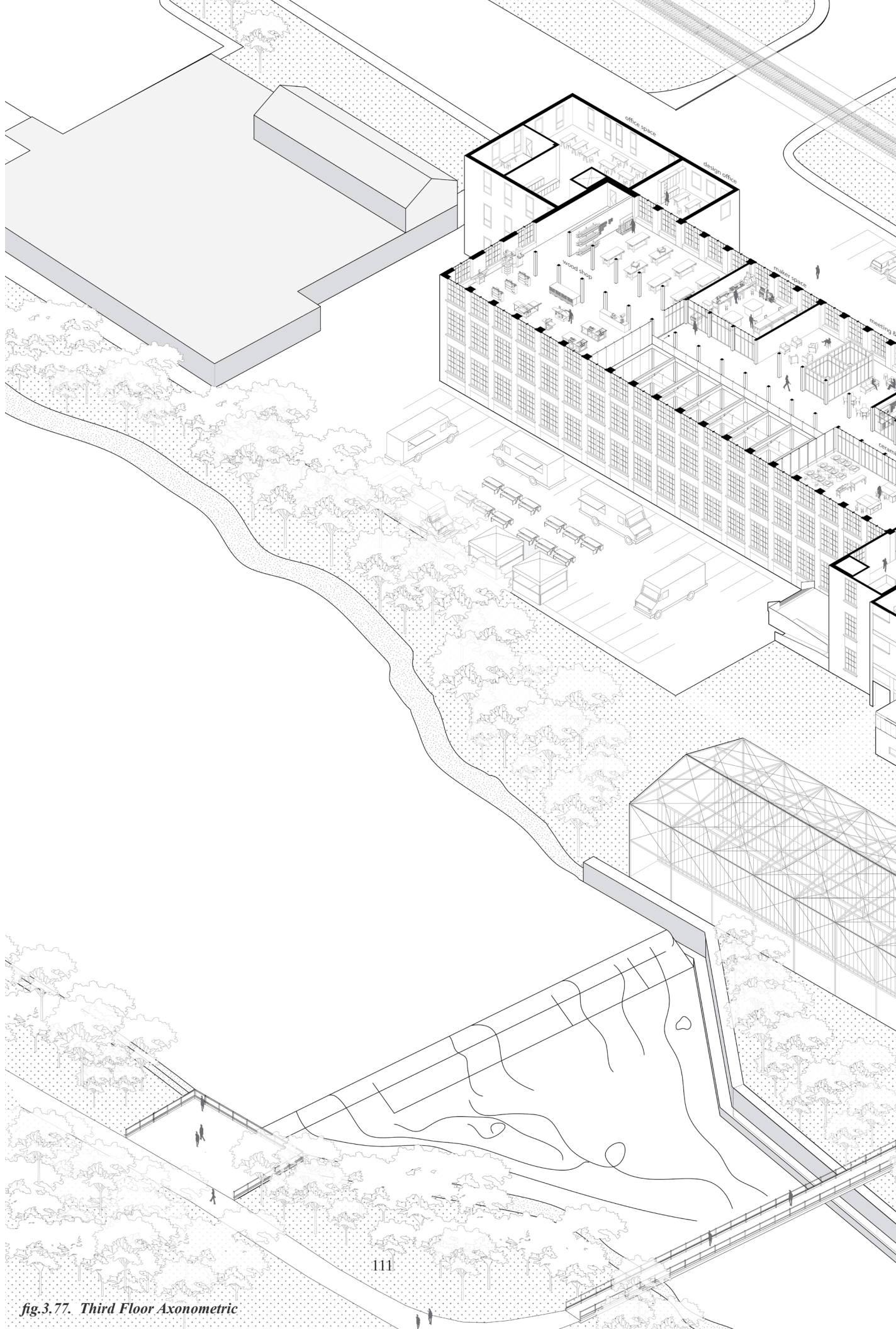
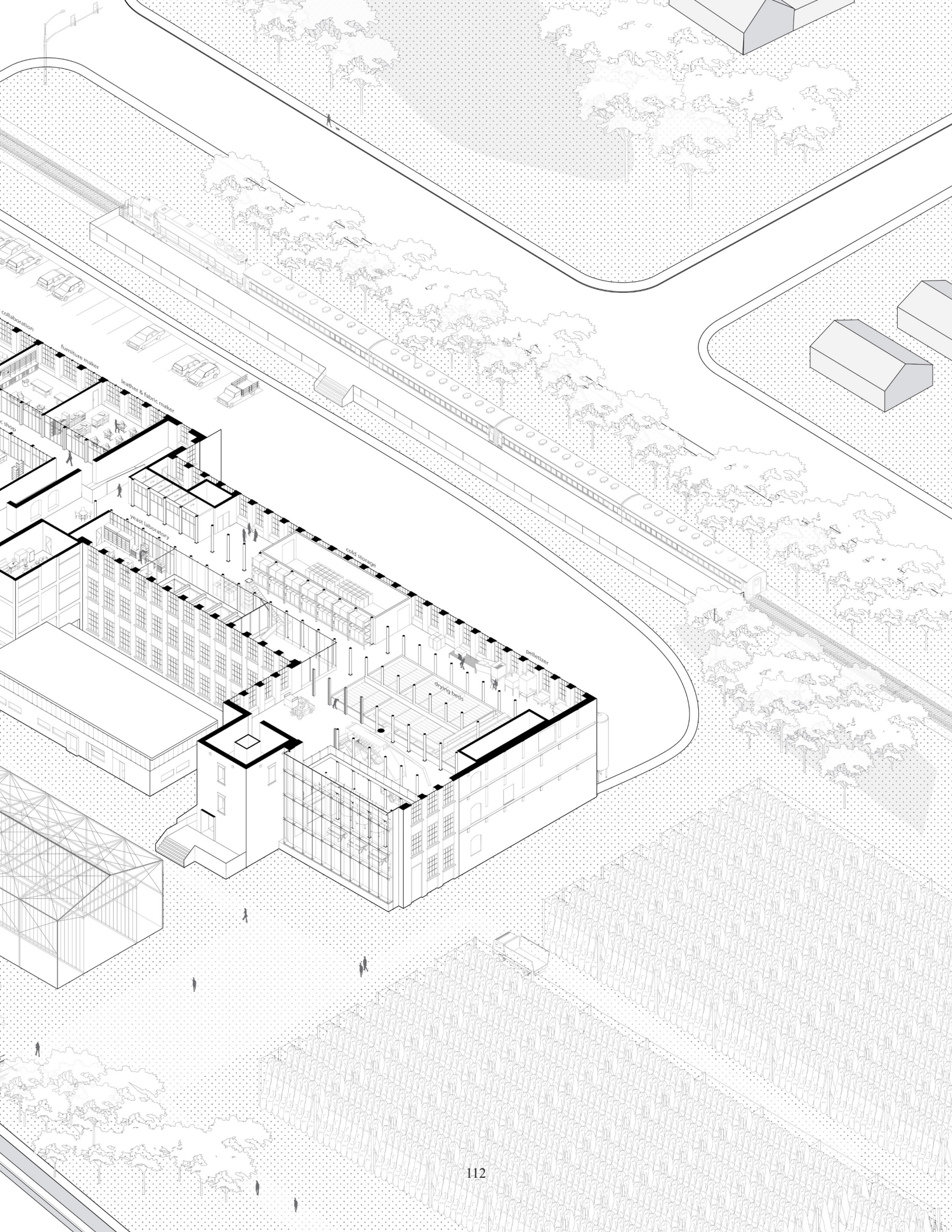


fig.3.77. Third Floor Axonometric



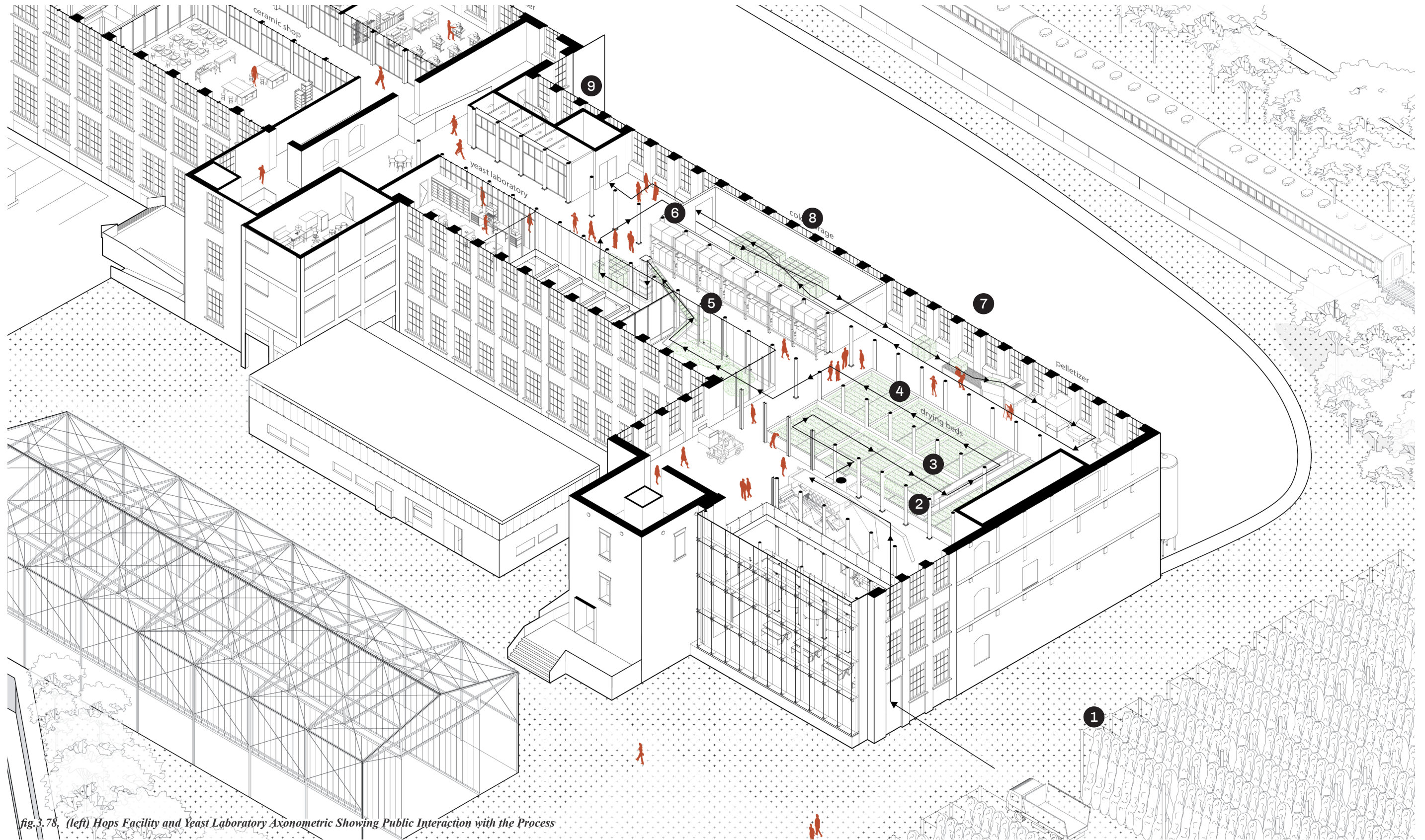


fig.3.78. (left) Hops Facility and Yeast Laboratory Axonometric Showing Public Interaction with the Process

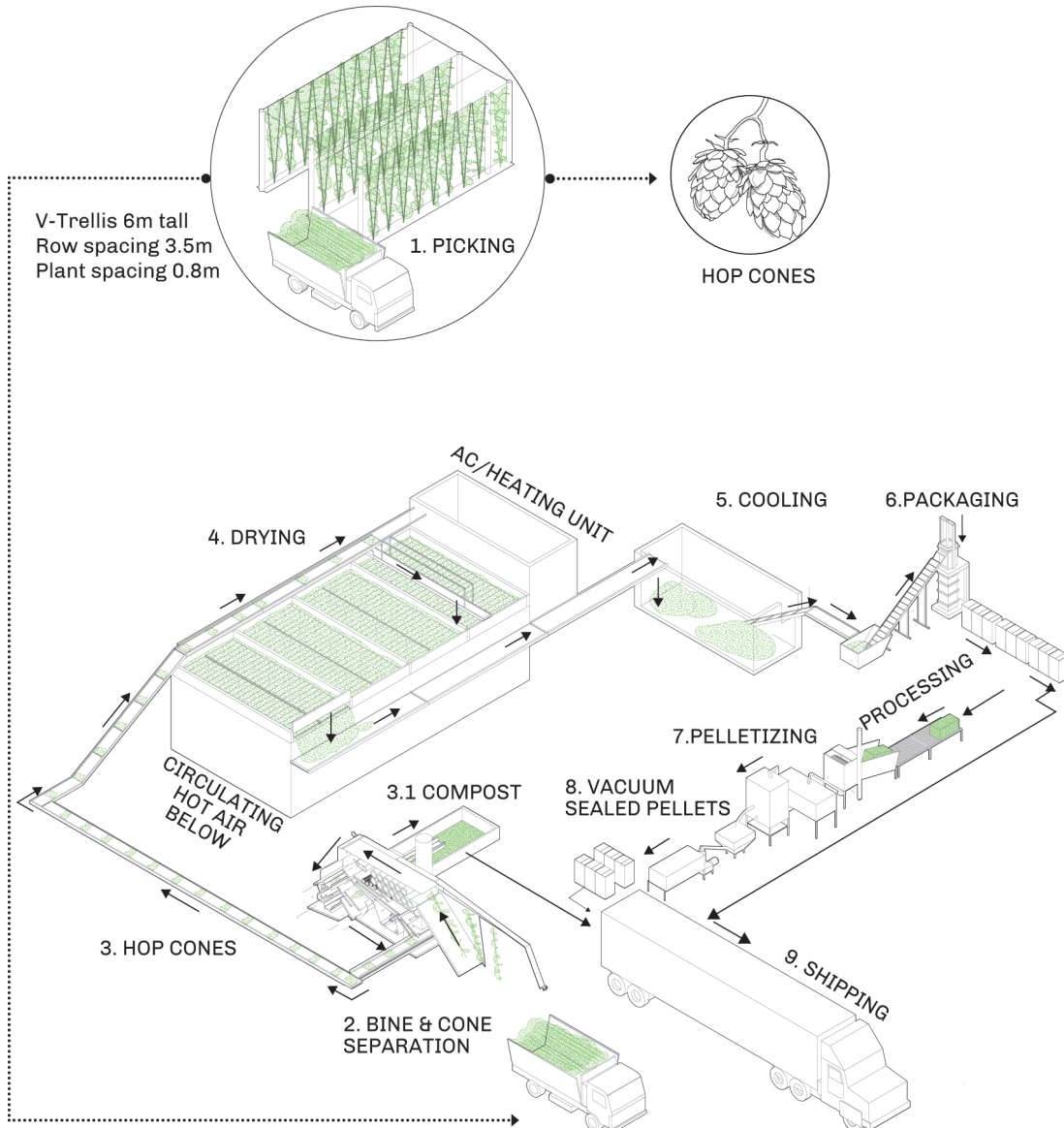


fig.3.79. Hops Processing Diagram

- | | | | |
|---|------------------------|---|--------------------------|
| ① | Planting & Harvesting | ⑥ | Packaging |
| ② | Bine & Cone Separation | ⑦ | Processing & Pelletizing |
| ③ | Hop Cone Conveyor Belt | ⑧ | Vacuum Sealed Pellets |
| ④ | Drying Hop Cones | ⑨ | Shipping |
| ⑤ | Cooling Refrigeration | | |



fig.3.80. Hops Bine and Cone Separator



fig.3.81. Photograph of Hops Drying

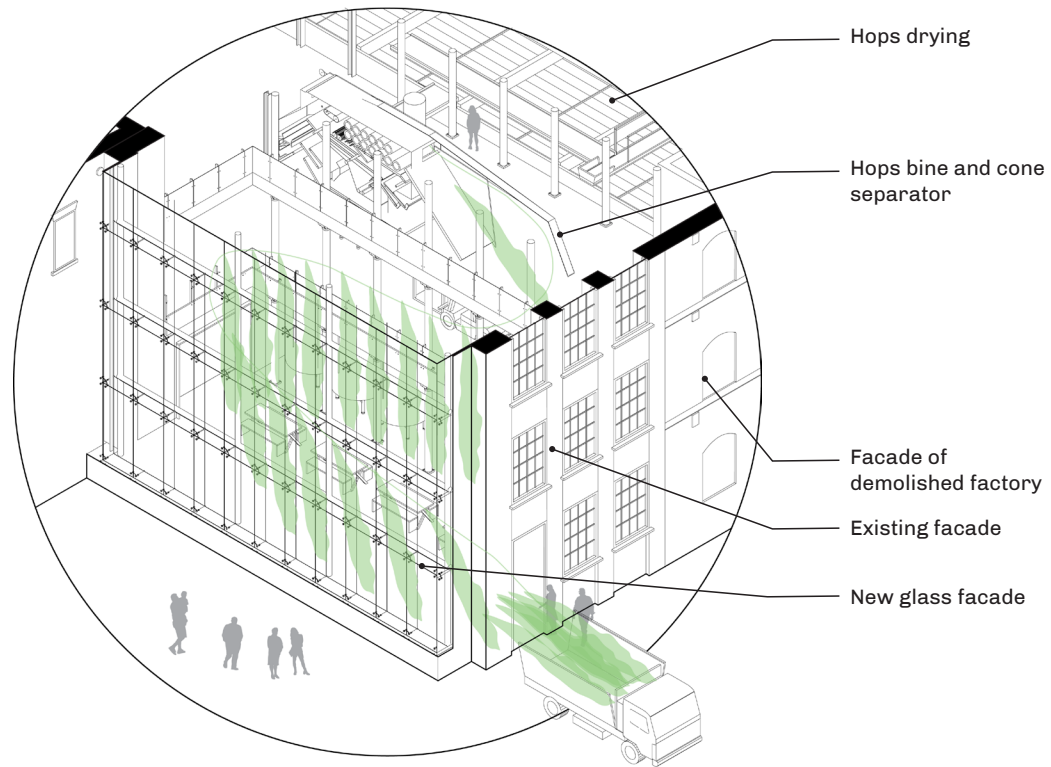


fig.3.82. Displaying the Hops Bine and Cone Separator

Hops: Field and Production

Hops are the cone structures that grow off a vine, growing quickly and reaching heights of 5-8 m tall by the end of the growing season. Hops provide the bitter taste in beer and are used to balance the sweet wort taste. The beginning of hops process starts with setting up the hop's trellis, planting the hops and encouraging the plant to climb at the beginning of the summer. By the end of the summer the hops are harvested by a truck, cutting the hop bines²² off the trellis and bringing them to the factory (fig.3.80). They are then brought up to the third floor through a mechanized system that carries them through the air and into the hops and cone separator (fig.3.82). The organic waste is then taken away to be used as compost, and the cones are spread out on the drying floor. The cones are dried by a series of fans circulating air into the 12-36" deep layers, until they reach the correct temperature and humidity. They are then gathered into a refrigerated room, to cool before being bagged and processed. At this stage they are known as wet hops and can be placed directly into the brewing tanks, providing the fullest of flavours. However due to the short expiry of fresh hops (they need to be processed within 24 hours), most of the hops are transformed into pellets. These pellets are then shipped to local breweries and home brewers.²³

²² The stem of the hops plant that climbs vertically by wrapping its stem around a support.

²³ "Growing Hops in Ontario: A Look Back on Brewer Considerations in 2009," OMAFRA, accessed Jul 29, 2019. <http://www.omafra.gov.on.ca/english/crops/hort/news/hortmatt/2013/03hrt13a4.html>.



fig.3.83. Walking Through Hops Drying and Cooling Production



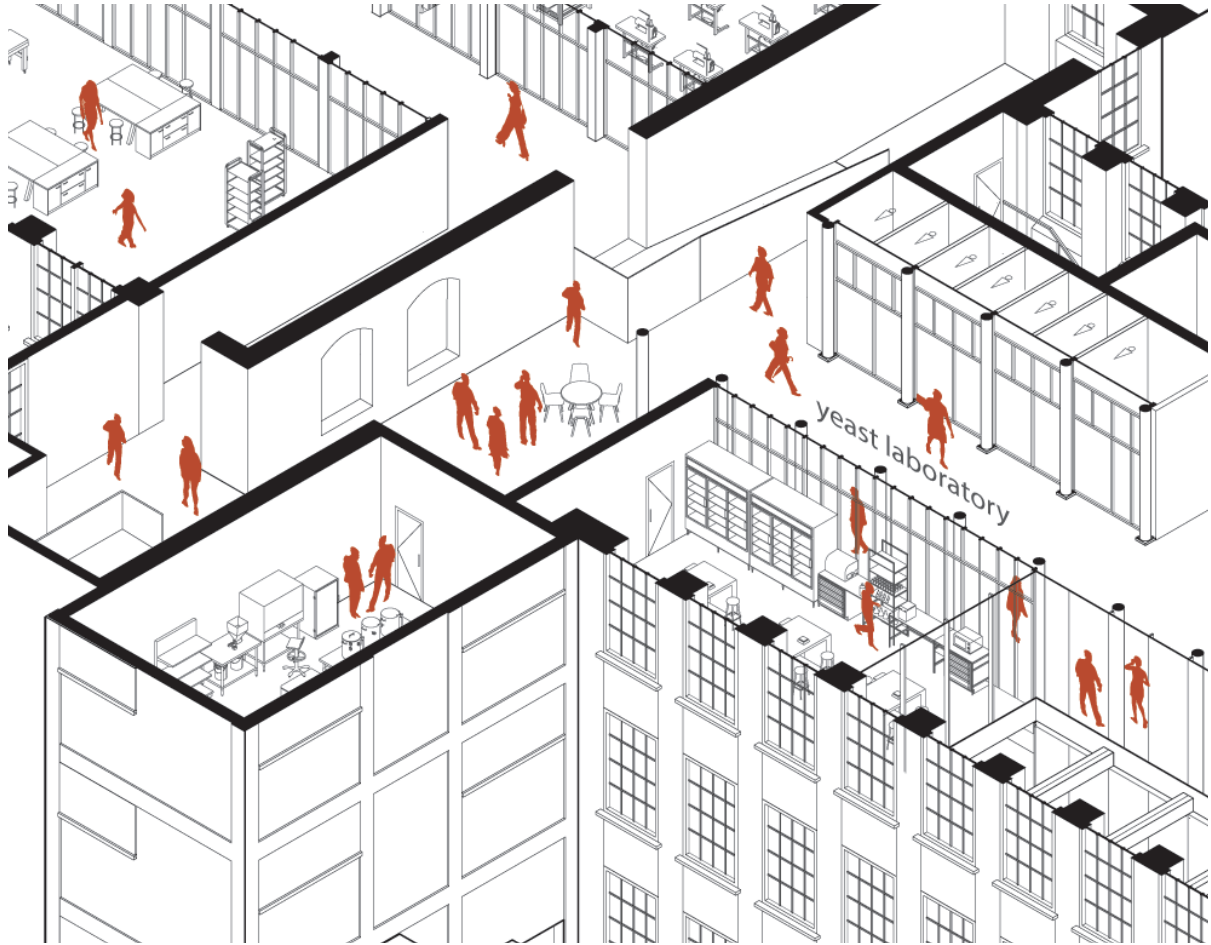


fig.3.84. Axonometric of Yeast Laboratory

The Yeast Laboratory

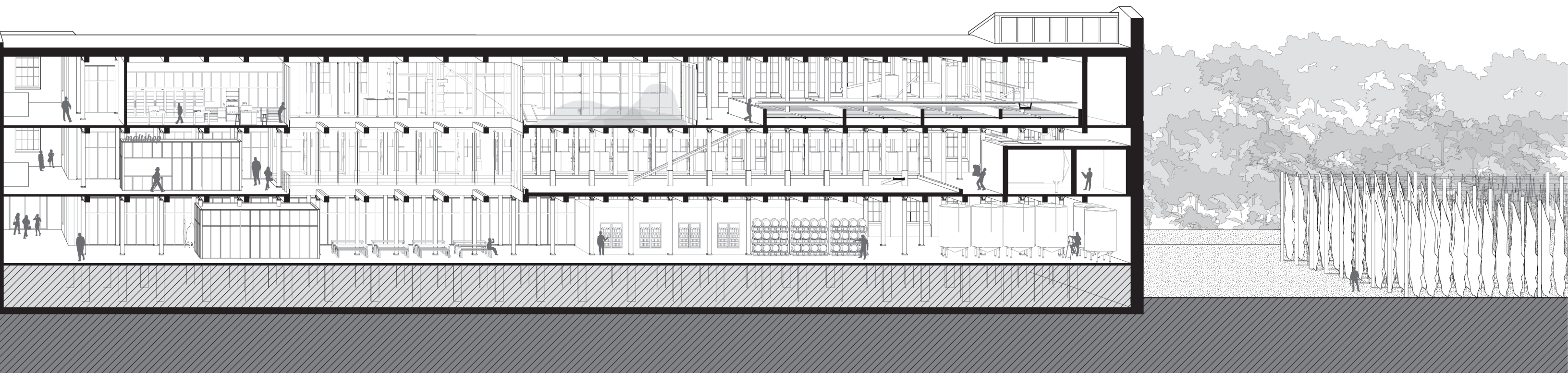
Yeast is the smallest ingredient added to beer and its production requires a smaller footprint than the other processes. This, however, does not change how important it is in the production of beer. The process happens in a controlled laboratory setting, therefore limiting any interaction with the public. The sample refrigerators however will be visible from the outside for viewers to observe while walking past the laboratory. The Escarpment Laboratories, founded by classmates who worked together in the yeast research labs at the University of Guelph produces local, specialty yeast for brewers in the area. They first began their business out of a room in the Wellington brewery, before expanding into their own business. *“While Escarpment isn’t the only yeast bank in Canada, it is the only one that provides live, liquid yeast, favoured by most brewers. There are two older labs that offer a handful of dry yeast varieties. Being small and local has a similar appeal to the whole craft brewing ethos, as well as the 100-mile diet, slow food, and any other number virtuous food and drink concepts.”*²⁴

The yeast laboratory also produces small batches of beer, as a way of testing how the yeast transforms the flavor of the beer. Therefore, at the end of the journey through the three manufacturing floors, consumers are able to sample a pint and reflect on the many transformations, people and processes that affected each ingredient before achieving the pint they are enjoying.

²⁴ Josh Rubin, “Ontario yeast bank brews up competition for U.S. giants,” *The Star*, October 17, 2017, https://www.thestar.com/life/food_wine/2017/10/17/ontario-yeast-bank-brews-up-competition-for-us-giants.html



fig.3.85. Section Through Factory



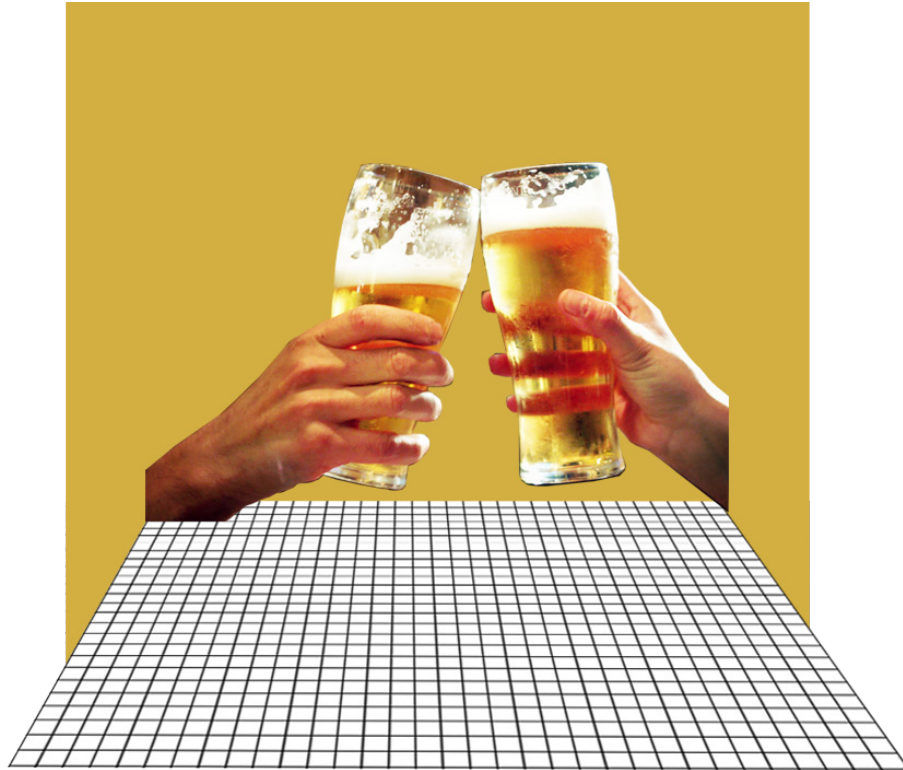


fig.4.1. Cheers!

CONCLUSION

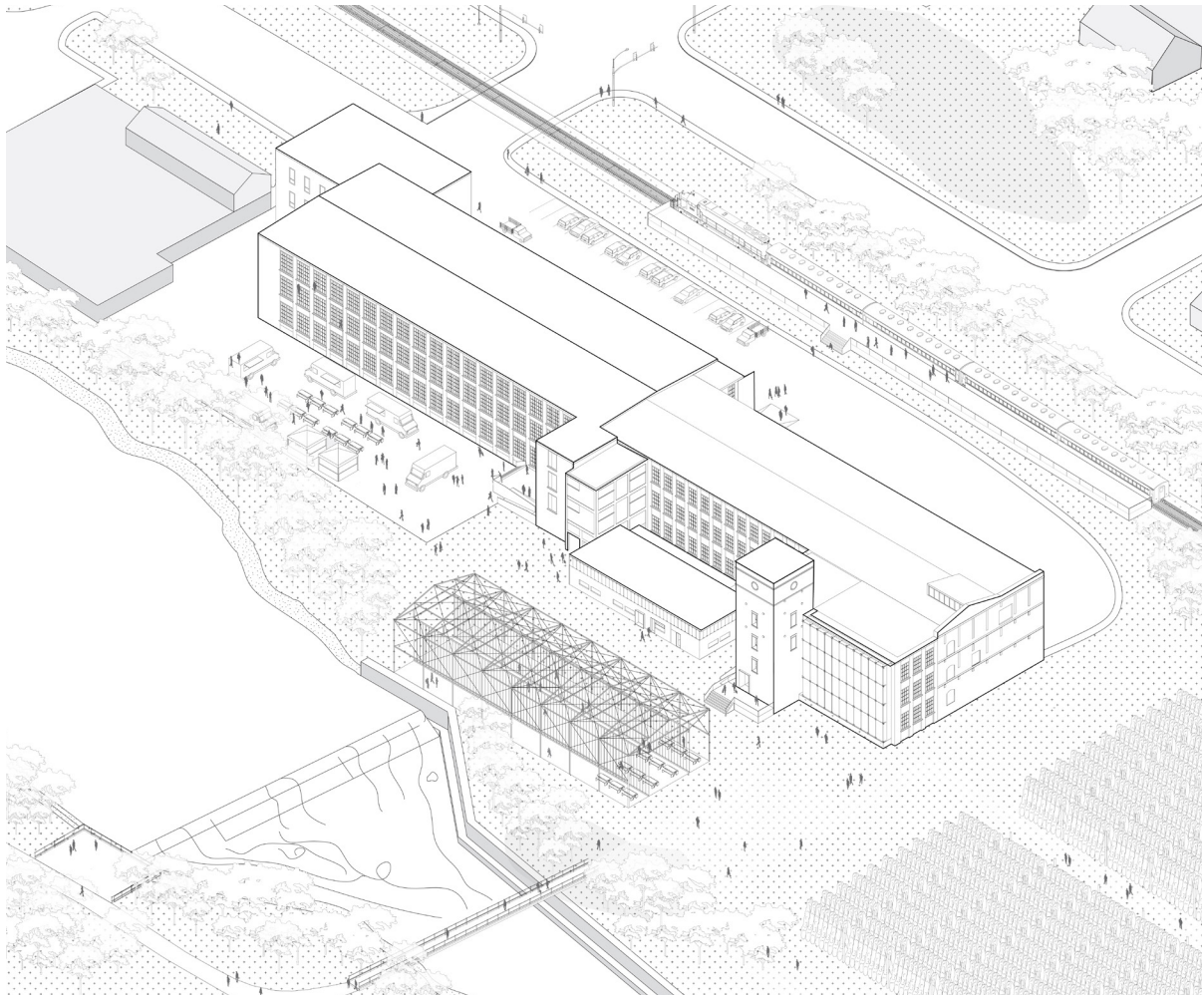


fig.4.2. Axonometric of Proposed Intervention of Former Dominion Woolens & Worsteds Factory

The focus of this architectural intervention addresses the ways in which manufacturing can act as a catalyst for urban change in post-industrial neighborhoods. Using Ontario's craft brewery industry as a model, demonstrates how the public interacts with manufacturing through the hidden components of brewing. By emphasizing the transformation of raw materials (water, malt, hops and yeast) including the craftsmanship involved in the process, and highlighting local agricultural and small business networks, creates a new community surrounding manufacturing within a city. This proposal aids in the understanding of the ways in which small-scale industries, like breweries, can be reintroduced into cities by encouraging an overlap of public interactions with production.

Breweries have become a new urban industrial intervention that focuses on the social exchange of the consumer and the producer. Through the introduction of novel secondary programming within the brewery, brewers have aligned themselves with the maker movement, thereby establishing a network of collaboration and knowledge sharing across the city. New urban agricultural movements are supported by craft brewers who use their platform to promote local agriculture and farming within the city. The design proposal uses the brewery as an anchor industry, within a hybrid industrial building, to invite visitors to not only explore the architectural spaces but also engage with the process and performance of making. This research further contributes to the work done by urban planners and geographers by analyzing how the design and spaces created within breweries can have a greater impact on the city and its people. Through the ongoing evolution of the industrial classification of breweries in Ontario, as both light manufacturing as well as commercial, has created potential opportunities for the city to embrace other light industrial manufacturers. Thereby, establishing a culture of making as part of the urban experience.

This proposal explores how designed experiences based on the performance of making, within an existing industrial relic, creates a new collective identity based on memory, history and place. By selecting a site with an embedded history of making, this proposal repositions the relationship the city has with the factory, the river and its people in order to create a new form of industrial production, leisure and consumption. Contributing to the existing body of industrial heritage architecture, this proposal is an example of industrial architecture that preserves the spirit of making within an abandoned factory by maintaining its industrial classification. Through the preservation of the majority of the building's character, this architectural design explores sustainable ways of dividing the building space to serve multiple functions. Selecting an existing building reinforces the cycles of making, consuming and recycling that exists within the building and creates the potential for the building to transform again 50 years in the future.

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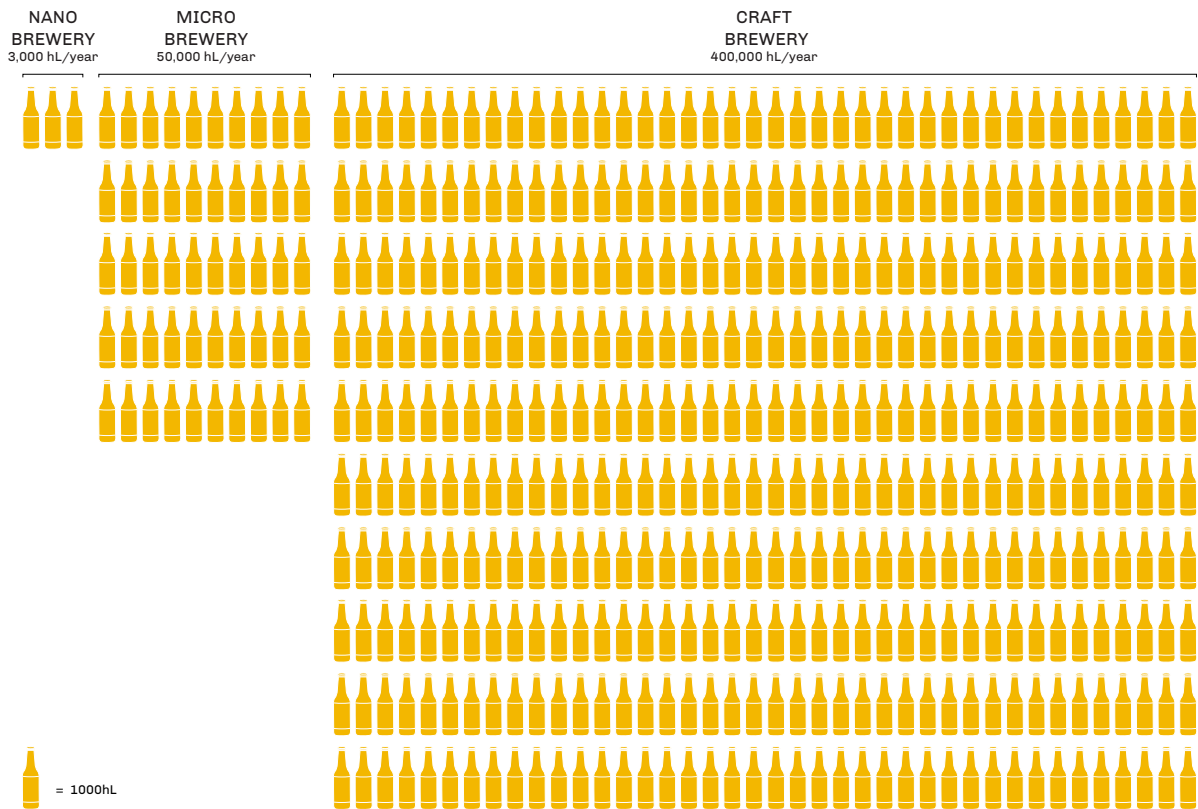


fig.5.1. Diagram Demonstrating the Brewery Classification by hL

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Brewery Name	City	Year
Waterloo Brewing Co.	Kitchener	1984
Wellington Brewing Co.	Guelph	1985
Amsterdam Brewery	Toronto	1986
Kingston Brewing Co.	Kingston	1986
Tracks Brewpub	Brampton	1986
Great Lakes Brewery	Toronto	1987
Lion Brewery Restaurant	Waterloo	1987
Ceeps Brewpub	London	1991
Granite Brewery & Tied House	Toronto	1991
Old Credit Brewing Co.	Mississauga	1994
Gold Crown Brewery	Waterloo	1995
Clock Tower Brewpub	Ottawa	1996
Country Durham Brewing Co.	Pickering	1996
Magnotta Brewery	Vaughan	1996
Muskoka Brewery	Bracebridge	1996
Olde Stone Brewing Co.	Peterborough	1996
Cameron's Brewing Co.	Oakville	1997
Cool Beer Brewing Co.	Toronto	1997
Neustadt Springs Brewery	Neustadt	1997
Black Oak Brewing Co.	Toronto	1999
Merchant Ale House	St Catherines	1999
Church-Key Brewing Co.	Campbelford	2000
Pepperwood Bistro & Brew House	Burlington	2000
Steam Whistle Brewery	Toronto	2000
Hockley Valley Brewing Co.	Orangeville	2002
Thornbury Village Brewery & CiderHouse	Thornbury	2002
Flying Monkeys Craft Brewery	Barrie	2004
Taps Brewing Co.	Niagara Falls	2004
Nickel Brook Brewing Co.	Burlington	2005
Beau's Brewing Co.	Vankleek Hill	2006
Barley Days Brewery	Picton	2007
Grand River Brewing Co.	Cambridge	2007
Lake on the Mountain Brewing Co.	Prince Edward	2007
Jobsite Brewing Co.	Stratford	2008
Publican House Brewery	Peterborough	2008
Railway City Brewing Co.	St Thomas	2008
Black Creek Pioneer Village Brewery	Toronto	2009
Duggan's Brewery	Toronto	2009
Highlander Brew Co.	South River	2009
Hop City Brewing Co.	Brampton	2009
MacLean's Ales	Hanover	2009
Kichesippi Beer Co.	Ottawa	2010
Lake of Bays Brewing Co.	Baysville	2010
Niagara College Teaching Brewery	Niagara-on-the-Lake	2010
Syndicate Restaurant & Brewery	Niagara Falls	2010
Broadhead Brewing Co.	Ottawa	2011
Gananoque Brewing Co.	Gananoque	2011
Junction Craft Brewing	Toronto	2011

fig.5.2. Craft Breweries by Year of Opening, Using 2018 Data

Brewery Name	City	Year
Sawdust City Brewing CO.	Gravenhurst	2011
Amber Brewery	Markham	2012
Ashton Brewing Co.	Beckwith	2012
Bayside Breing Co,	Erieau	2012
Bellwoods Brewery Ossington	Toronto	2012
Beyond the Pale Brewing Co.	Ottawa	2012
Big Rig Brewery West	Ottawa	2012
Blue Elephant Artisan Brewery	Simcoe	2012
Cassel Brewery	Casselman	2012
Indie Alehouse Brewing Co.	Toronto	2012
Motor Craft Ales	Windsor	2012
Niagara Oast House Brewers	Niagara-on-the-Lake	2012
Ramblin Road Brewery Farm	La Salette	2012
Silversmith Brewing CO.	Niagara-on-the-Lake	2012
Sleeping Giant Brewing Co.	Thunder Bay	2012
Valentino's Restaurant	Hamilton	2012
Walkerville Brewery	Windsor	2012
5 Paddles Brewing Co.	Whitby	2013
Amsterdam Brewhouse	Toronto	2013
Barnstomer Brewing & Distilling Co	Barrie	2013
Bell City Brewing Co.	Brantford	2013
Block Three Brewing Co.	St.Jacobs	2013
Brimstone Brewing Co.	Ridgeway	2013
Collective Arts Brewing Co.	Hamilton	2013
Covered Bridge Brewing Co	Ottawa	2013
Forked River Brewing Co.	London	2013
Kilannan Brewing Co.	Owen Sound	2013
Lake of the Woods Brewing Co.	Kenora	2013
Left Field Brewery	Toronto	2013
Northwinds Brewhouse & Kitchen	Collingwood	2013
Perth Brewery	Perth	2013
Radical Road Brewing Co	Toronto	2013
Shacklands Brewing CO.	Toronto	2013
Stack Brewing Co.	Sudbury	2013
Whitewater Brewing Co.- Riverside	Foresters Falls	2013
Abe Erb Brewery & Restaurant	Waterloo	2014
All or Nothing Brewhouse	Oakville	2014
Arch Brewing Co.	Newmarket	2014
Banded Goose Brewing Co.	Kingsville	2014
Bandit Brewery	Toronto	2014
Bar Hop BrewCo	Kingsville	2014
Bicycle Craft Brewery	Ottawa	2014
Big Rig Brewery East	Ottawa	2014
Black Swan Brewing Co.	Stratford	2014
Boshkung Brewing Co.	Midden Hills	2014
Brew Microbrewery	Windsor	2014
Brothers Brewing Co	Guelph	2014
Collingwood Brewery	Collingwood	2014

Brewery Name	City	Year
Descendants Beer & Beverage Co.	Kitchener	2014
Dominion City Brewing Co.	Ottawa	2014
Haliburton Highlands Brewing	Haliburton	2014
Innocente Brewing Co.	Waterloo	2014
London Brewing Co. Operative	London	2014
Louis Cifer Brew Works	Toronto	2014
Lowertown Brewery	Ottawa	2014
Mackinnon Brothers Brewing CO	Bath	2014
Niagara Brewing Co.	Niagara Falls	2014
Northumberland Hills Brewery	Cobourg	2014
Old Flame Brewing Co.	Port Perry	2014
Outlaw Brew Co.	Southampton	2014
Outspoken Brewing Co.	Sault Ste Marie	2014
Refined Fool Brewing Co. Downtown	Sarnia	2014
Royal City Brewing Co.	Guelph	2014
Side Launch Brewing Co.	Collingwood	2014
Smithavens Brewing Co.	Peterborough	2014
Square Timber Brewing Co.	Pembroke	2014
Stone City Ales	Kingston	2014
Strathroy Brewing Co.	Strathroy	2014
Whiprsnapr Brewing Co.	Ottawa	2014
William Street Beer CO.	Cobourg	2014
Bancroft Brewing Co.	Bancroft	2015
Blood Brothers Brewing Co.	Toronto	2015
Brock Street Brewing Co.	Whitby	2015
Burdock Brewery	Toronto	2015
Calabogie Brewing Co.	Calabogie	2015
Caledon Hills Brewing Co.	Caledon	2015
Cartwright Springs Brewery	Pakenham	2015
Cecils Brewhouse & Kitchen	North Bay	2015
Craft Heads Brewing Co.	Windsor	2015
Elora Brewing Co.	Elora	2015
Exchange Brewery	Niagara-on-the-Lake	2015
Folly Brewing	Toronto	2015
Frank Brewing Co.	Tecumseh	2015
Henderson Brewing Co.	Toronto	2015
Kame and Kettle Beer Works	Fonthill	2015
Lake Wilcox Brewing Co.	Vaughan	2015
Manantler Craft Brewing Co.	Bowmanville	2015
Manitoulin Brewing Co.	Manitoulin Island	2015
Mash Paddle Brewing Co.	Brantford	2015
Muddy York Brewing Co.	Toronto	2015
New Limburg Brewing Co.	Simcoe	2015
New Ontario Brewing Co.	North Bay	2015
Nita Beer Co.	Ottawa	2015
Orange Snail Brewers	Milton	2015
Rainhard Brewing Co.	Toronto	2015
Redline Brewhouse	Barrie	2015

fig.5.3. Craft Breweries by Year of Opening, Using 2018 Data

Brewery Name	City	Year
Rurban Brewing	Cornwall	2015
Second Wedge Brewing Co.	Uxbridge	2015
Shire Restaurant & Brewpub	Simcoe	2015
Split Rail Brewing Co.	Manitoulin Island	2015
Stalwart Brewing Co.	Carleton Place	2015
Tobermory Brewing Co. & Grill	Tobermory	2015
Toboggan Brewing Co. &	London	2015
Tooth and Nail Brewing Co	Ottawa	2015
Tuque de Broue Brewery	Embrun	2015
Waller Street Brewing Co.	Ottawa	2015
Wild Car Brewing Co.	Trenton	2015
Anderson Craft Ales	London	2016
Bad Apple Brewing Co.	Bayfield	2016
Barncat Artisan Ales	Cambridge	2016
Bellwoods Brewery Hafis	Toronto	2016
Belmont Lake Brewery	Havelock	2016
Big Rock Brewery	Toronto	2016
Big Water Brewing Co.	North Bay	2016
Bitte Schon Brauhaus	New Hamburg	2016
Brunswick Bierworks	Toronto	2016
Common Good Beer Co.	Toronto	2016
Crooked Mile Brewing Co	Almonte	2016
Dawson Trail Craft Brewery	Thunder Bay	2016
Etienne Brule Brewery	Embrun	2016
Evergreen Craft Ales	Ottawa	2016
Half Hours on Earth Brewery	Seaforth	2016
Halo Brewery	Toronto	2016
King's Town Beer Co.	Kingston	2016
Laylow Brewery	Toronto	2016
Liberty Commns at Big Rock Brewery	Toronto	2016
Lock Street Brewing Co.	St Catherines	2016
Midian Brewing Co.	Windsor	2016
Napanee Beer Co.	Napanee	2016
Norse Brewery	Nobel	2016
Northern Superior Brewing Co.	Sault Ste Marie	2016
Parsons Brewing Co.	Picton	2016
Rouge River Brewing Co.	Markham	2016
Shawn & Ed Brewing Co.	Dundas	2016
Stone House Brewing Co.	Varna	2016
Strange Brewing Co.	Hillier	2016
Stray Dog Brewing Co.	Ottawa	2016
TWB Co-operative Brewing	Kitchener	2016
Upper Thames Brewing Co.	Woodstock	2016
Whitewater Brewing Co.- Lakeside	Cobden	2016
Windmill Brewery	Johnstown	2016
4 Degrees Brewing Co.	Smith Falls	2017
555 Brewing Co.	Picton	2017
5 West Brewpub & Kitchen	Burlington	2017

Brewery Name	City	Year
Abe Erb Brewery & Restaurant - Tannery	Kitchener	2017
Amsterdam Barrel House	Toronto	2017
Badlands Brewing Co.	Caledon	2017
Clear Lake Brewing Co.	Torrance	2017
Conspiracy Theory Brewing Co.	Ottawa	2017
Copperworks Brew Pub & Restaurant	Bowmanville	2017
Cowbell Brewing Co.	Blyth	2017
Eastbound Brewing Co.	Toronto	2017
Fairweather Brewing Co.	Hamilton	2017
Falcon Brewing Co.	Ajax	2017
Flora Hall Brewing	Ottawa	2017
Full Beard Brewing Co.	Timmins	2017
GL Heritage Brewing Co.	Amherstburg	2017
Godspeed Brewery	Toronto	2017
Grain & Grit Beer Co	Hamilton	2017
Grove Brew House	Kingsville	2017
Kensington Brewing Co.	Toronto	2017
Little Beasts Brewing Co.	Whitby	2017
Lonsbery Farms Brewing	Amherstburg	2017
Market Brewing Co.	Newmarket	2017
MERIT Brewing Co.	Hamilton	2017
Midtown Brewing Co.	Wellington	2017
North Works Brewing	Cambridge	2017
Northern Maverick Brewing Co.	Toronto	2017
Prince Eddy's Brewing Co.	Prince Edward	2017
Refined Fool Brewing Co. Midtown	Sarnia	2017
Riverhead Brewing Co.	Kingston	2017
Rorschach Brewing Co.	Toronto	2017
Rusty Wrench Brewing Co.	Strathroy	2017
Sandwich Brewing Co.	Windsor	2017
Saulter Street Brewery	Toronto	2017
Shakespeare Brewing CO.	Pearth East	2017
Signal Brewing CO.	Corbyville	2017
Sir Monty's Brewing Co.	Courtice	2017
Small Pony Barrel Works	Ottawa	2017
Sons of Kent Brewing Co.	Chatham	2017
Square Brew Co.	Goderich	2017
Storm Stayed Brewing Co.	London	2017
Town Brewery	Whitby	2017
Vimy Brewing Co	Ottawa	2017
Wolfe Island Spring Craft Brewery	Wolfe Island	2017
Aviary Brewpub	Toronto	2018
Beard Free Brewing	Peterborough	2018
Bench Brewing Co.	Beamsville	2018
Black Lab Brewing	Toronto	2018
Braumeister Brewing Co.	Carleton Place	2018
Breakwall Brewing Co.	Port Colborne	2018
Chapter Two Brewing Co.	Windsor	2018

fig.5.4. Craft Breweries by Year of Opening, Using 2018 Data

Brewery Name	City	Year
Charlotteville Brewing Co.	Simcoe	2018
Chronicle Brewing Co.	Bomanville	2018
Clifford Brewing Co.	Hamilton	2018
Compass Brewing Co.	Timmins	2018
Concession Road Brewing Co.	Jarvis	2018
Curley Brewing Co.	London	2018
Equals Brewing Co.	London	2018
Fixed Gear Brewing Co.	Guelph	2018
Formosa Springs Brewery	Formosa	2018
Four Fathers Brewing Co.	Cambridge	2018
Gin Mill	Toronto	2018
Grey Matter Beer Co.	Kincardine	2018
Herald Haus Brewing Co.	Stratford	2018
Humble Beginnings Brewing Co.	Ingleside	2018
Jackass Brewing	Cambridge	2018
Keystone Alley	Stratford	2018
Lot 30 Brewers	Toronto	2018
Mudtown Station Brewery & Restaurant	Owen Sound	2018
Natterjack Brewing Co.	West Lorne	2018
Northwinds Brewhouse & Kitchen	Blue Mountain	2018
Oshawa Brewing Co.	Oshawa	2018
Overflow Brewing CO.	Ottawa	2018
People's Pint Brewing Co.	Toronto	2018
Pie Eyed Monk Brewery	Lindsay	2018
Powerhouse Brewing Co.	London	2018
Red Circle Brewing Co.	Kitchener	2018
Rhythm & Brews Brewing Co.	Cambridge	2018
Ridge Rock Brewing Co.	Ottawa	2018
River Road Brewing & Hops	Bayfield	2018
Short Finger Brewing CO.	Kitchener	2018
Six Brewing Co.	Toronto	2018
Spearhead Brewing Co.	Kingston	2018
Steel Wheel Brewery	Brantford	2018
Stonehooker Brewing Co.	Missisauga	2018
Stonepicker Brewing Co.	Plympton-Wyoming	2018
Trestle Brewing Co.	Parry Sound	2018
Von Bugle Brewing	Toronto	2018
Westport Brewing Co.	Westport	2018

City	Population	# of Breweries	City
Hillier	100	1	Beamsville
Corbyville	200	1	Pearth East
Erieau	389	1	Gravenhurst
Neustadt	545	1	Pembroke
Westport	645	1	Kenora
Varna	650	1	Napanee
La Salette	727	1	Bracebridge
Cobden	992	1	Bath
Blyth	1,005	1	Fonthill
South River	1,114	1	Haliburton
West Lorne	1,337	1	Port Colborne
Ingleside	1,384	1	Lindsay
Wolfe Island	1,400	1	Uxbridge
Vankleek Hill	1,742	1	Trenton
Wellington	1,860	1	Tecumseh
St.Jacobs	1,988	1	Dundas
Pakenham	2,124	1	Ridgeway
Seaforth	2,300	1	Orangeville
Jarvis	2,303	1	Courtice
Thornbury	2,363	1	Woodstock
Calabogie	2,518	1	St Thomas
Campbelford	3,473	1	Cornwall
Baysville	3,506	1	Pickering
Casselman	3,548	1	Chatham
Southampton	3,678	1	Milton
Bancroft	3,881	1	Ajax
Johnstown	3,965	1	Oshawa
Tobermory	3,999	1	Sudbury
Formosa	4,517	1	Bayfield
Havelock	4,523	1	Embrun
Almonte	4,752	1	Carleton Place
Gananoque	5,159	1	Manitoulin Island
Midden Hills	5,655	1	Cobourg
Perth	5,930	1	Strathroy
Nobel	6,191	1	Owen Sound
Parry Sound	6,408	1	Amherstburg
Torrance	6707	1	Prince Edward
Blue Mountain	7,025	1	Timmins
Plympton-Wyoming	7,576	1	Caledon
Goderich	7,628	1	Sarnia
Beckwith	7,644	1	Sault Ste Marie
Hanover	7,688	1	Newmarket
Elora	7,756	1	Thunder Bay
New Hamburg	7,930	1	St Catherines
Foresters Falls	8,152	1	Oakville
Smith Falls	8,780	1	Vaughan
Port Perry	9,453	1	Markham
Kincardine	11,389	1	Brampton

fig.5.5. Craft Breweries to City Population, Using 2018 Data

Population	# of Breweries	City	Population	# of Breweries
11,834	1	Mississauga	721,600	2
12,261	1	Picton	4,702	3
12,311	1	Kingsville	21,552	3
13,882	1	Collingwood	21,793	3
15,096	1	Bomanville	39,371	3
15,892	1	North Bay	51,553	3
16,010	1	Niagara Falls	88,071	3
16,971	1	Brantford	134,200	3
17,110	1	Barrie	141,430	3
18,062	1	Burlington	183,315	3
18,306	1	Simcoe	13,922	4
20,354	1	Niagara-on-the-Lake	17,511	4
21,176	1	Stratford	31,465	4
21,972	1	Peterborough	81,035	4
23,229	1	Waterloo	104,985	4
24,285	1	Whitby	128,380	4
29,960	1	Guelph	131,795	4
30,734	1	Kingston	123,795	5
35,000	1	Cambridge	129,920	6
40,902	1	Kitchener	204,668	6
41,813	1	Hamilton	536,915	6
46,876	1	Windsor	217,185	7
91,771	1	London	383,825	9
101,645	1	Ottawa	934,240	22
110,128	1	Toronto	2,732,000	44
119,675	1			
159,455	1			
161,530	1			
1,112	2	** Cities of Interest		
6,918	2			
10,644	2			
12,600	2			
19,440	2			
20,978	2			
21,341	2			
21,936	2			
24,735	2			
41,788	2			
66,502	2			
71,594	2			
73,368	2			
80,400	2			
107,910	2			
133,115	2			
193,830	2			
306,230	2			
382,965	2			
593,635	2			

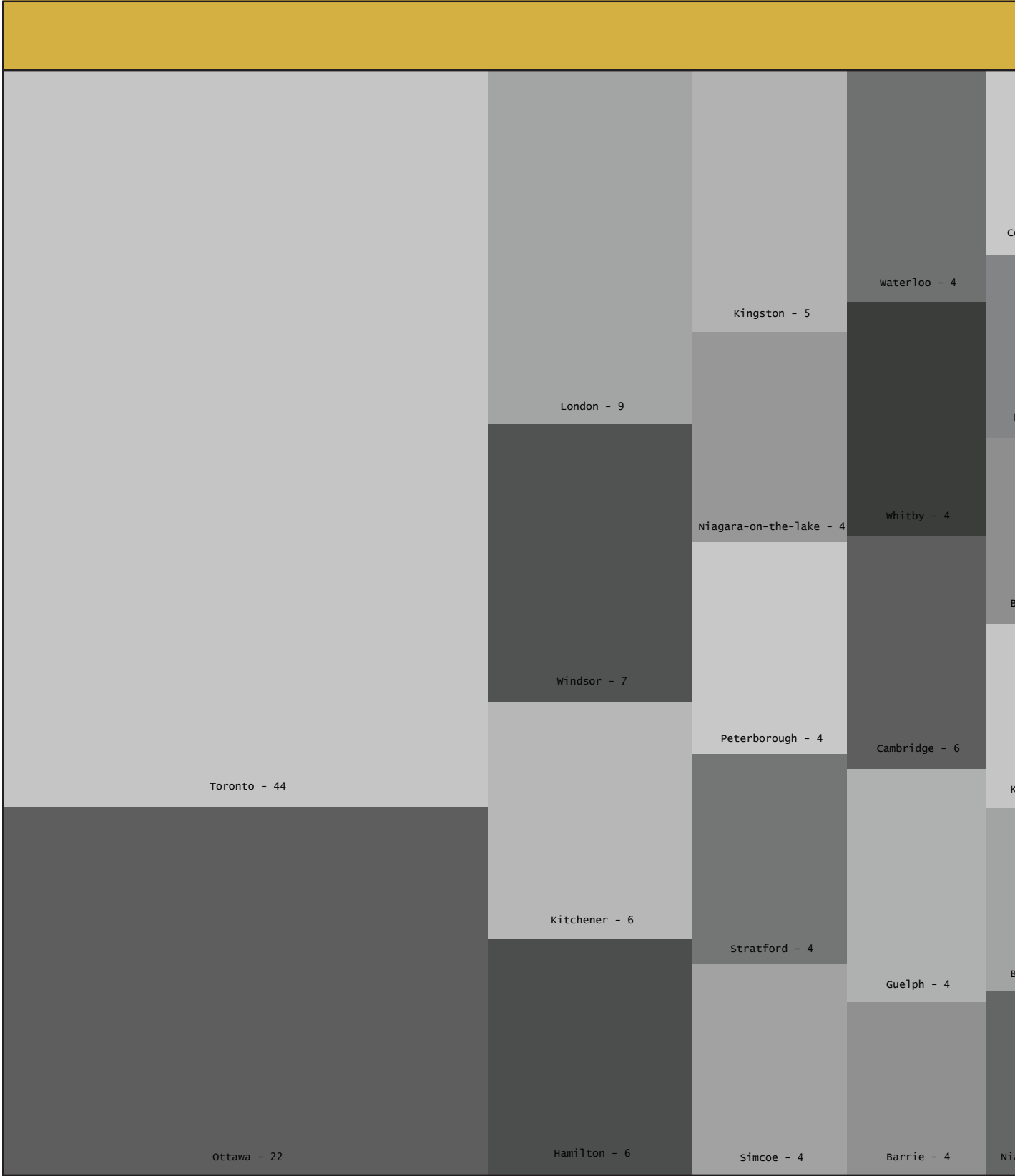


fig.5.6. Number of Craft Breweries per City in Ontario

Breweries by Number in Ontario

		Cobourg - 2	Brampton - 2	Caledon - 2	Prince Edward - 2	Sarnia - 2	Sault St Marie - 2	Mississauga - 2		
Collingwood - 3	Picton - 3									
			Owen Sound - 2		Timmins - 2	Gananoque	Goderich	Gravenhurst	Haliburton	
		St Catharines - 2								
Brantford - 3			Hanover	Havelock	Hillier	Ingleside	Jarvis	Johnstown	Kenora	Kincardine
	North Bay - 3	Strathroy - 2								
			La Salette	Bancroft	Bath	Baysville	Nobel	Beamsville	Beckwith	Orangeville
Comanville - 3	Carleton Place - 2	Thunder Bay - 2	Lindsay	Oshawa	Perth	Bracebridge	Pickering	Ajax	Plympton Wyoming	Port Colborne
			Midden Hills	Blue Mountain	Port Perry	Chatham	Smith Falls	South River	South Hampton	Cobden
	Ambherstburg - 2	Oakville - 2								
			Milton	Blyth	Calabogie	St Thomas	Tecumseh	Thornbury	Courtice	Dundas
Orleansville - 3										
	Manitoulin Island - 2	Embrun - 2	Almonte	Pakenham	Ridgeway	St Jacob	Tobermory	Uxbridge	Vanleek Hill	Varna
Burlington - 3			Napanee	Parry Sound	Campbelford	Corbyville	Elora	Erieau	West Lorne	Westport
	Bayfield - 2	Vaughan - 2								
			Neustadt	Pearth East	Casselman	Cornwall	Torrance	Fonthill	Forrester Falls	wolfe Island
Niagara Falls - 3	Markham - 2	Newmarket - 2	New Hamburg	Pembroke	Seaforth	Sudbury	Trenton	Wellington	Formosa	Woodstock

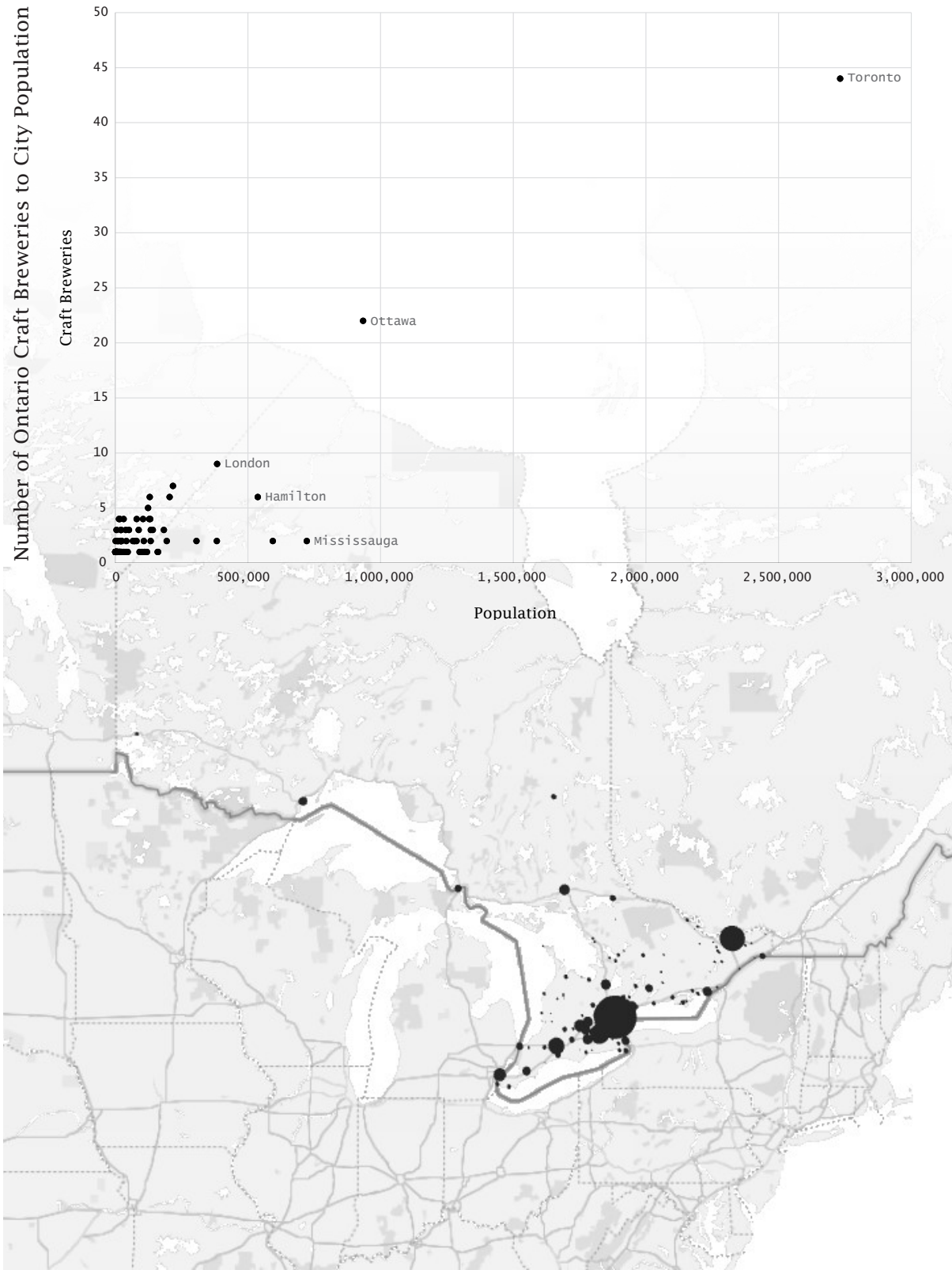
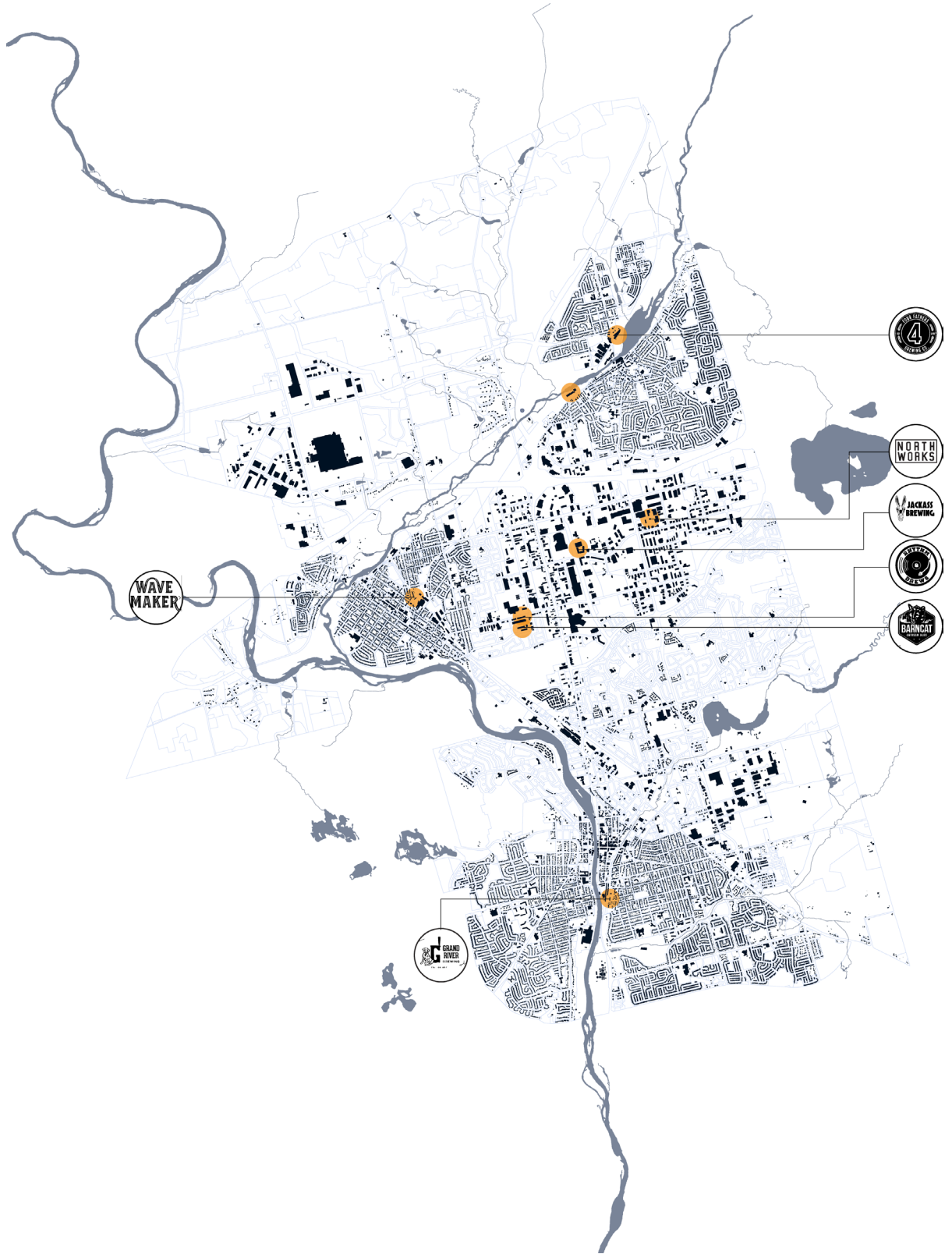


fig.5.7. Number of Craft Breweries in Ontario to Population, including Ottawa and Toronto



*fig.5.8. Number of Breweries Currently in Cambridge
There are currently 7 breweries, with an proposal for 2 more*

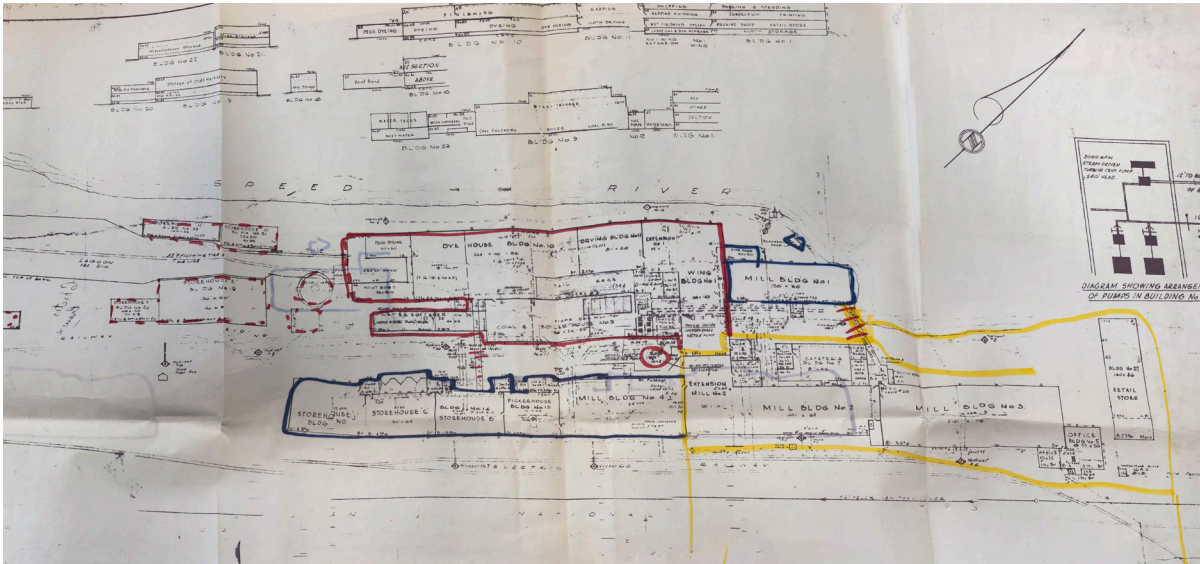


fig.5.9. Plan & Elevation Reference Drawing, 1952

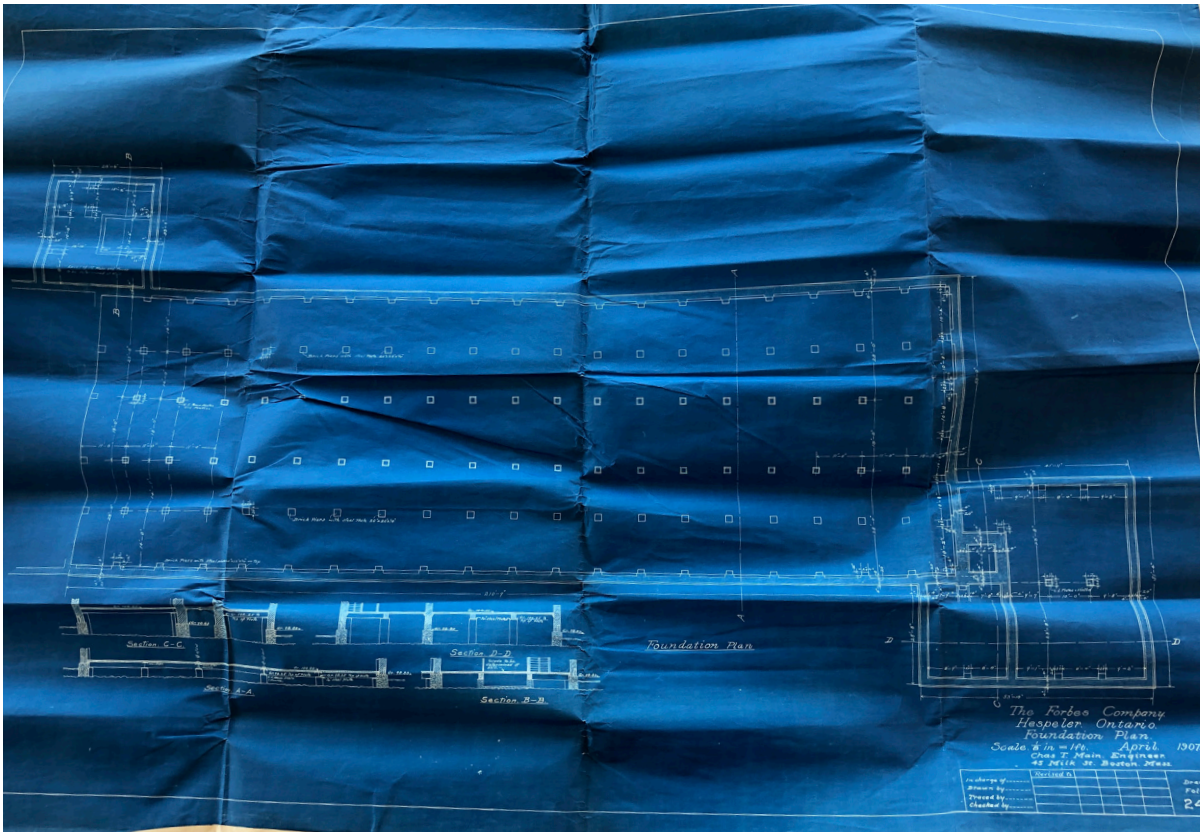


fig.5.10. Mill No. 3 Foundation Plan, 1907

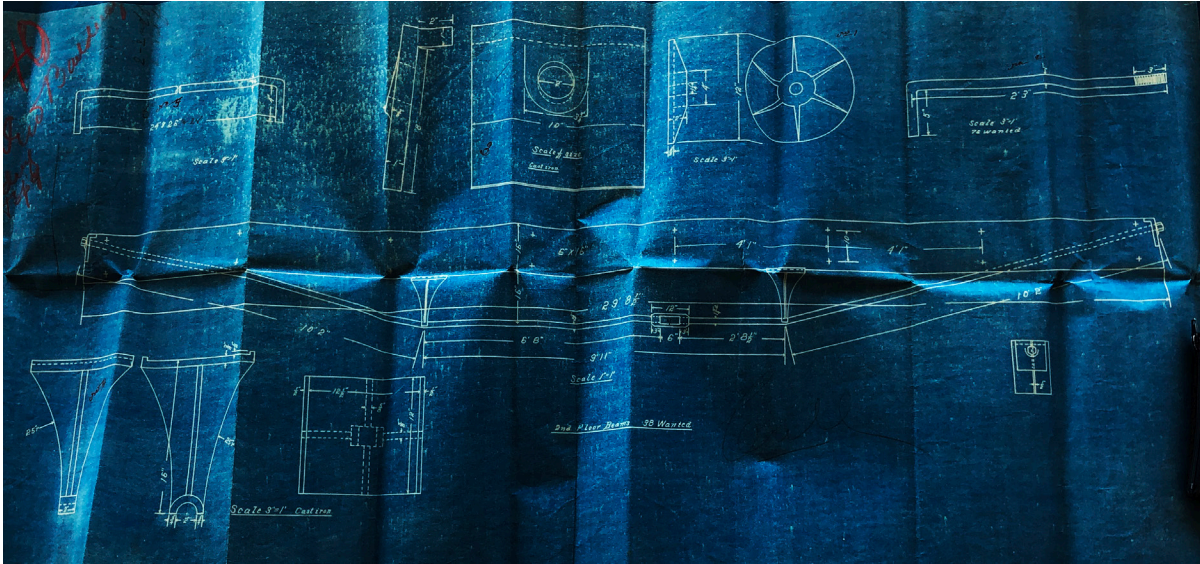


fig.5.11. Detail Drawing of Queen Post Strut

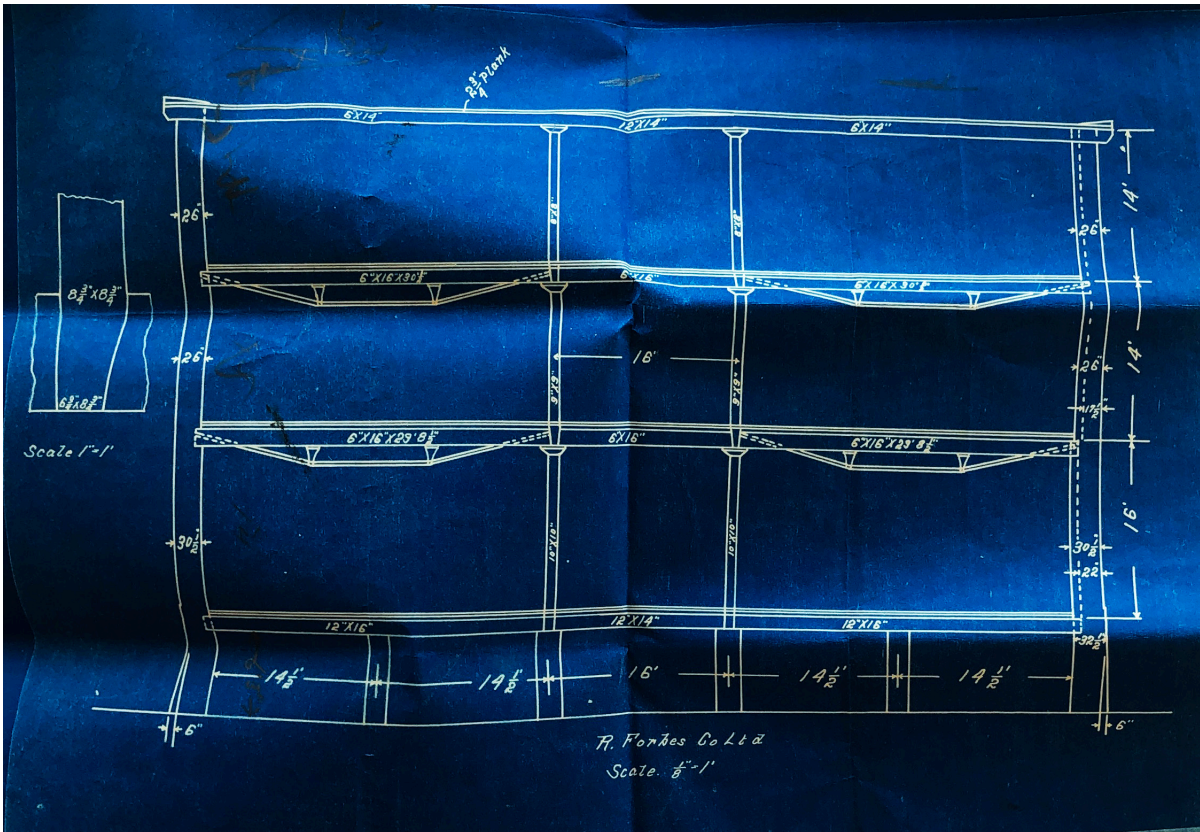


fig.5.12. Cross Section of Mill No. 3



fig.5.13. Section of Floor Assembly

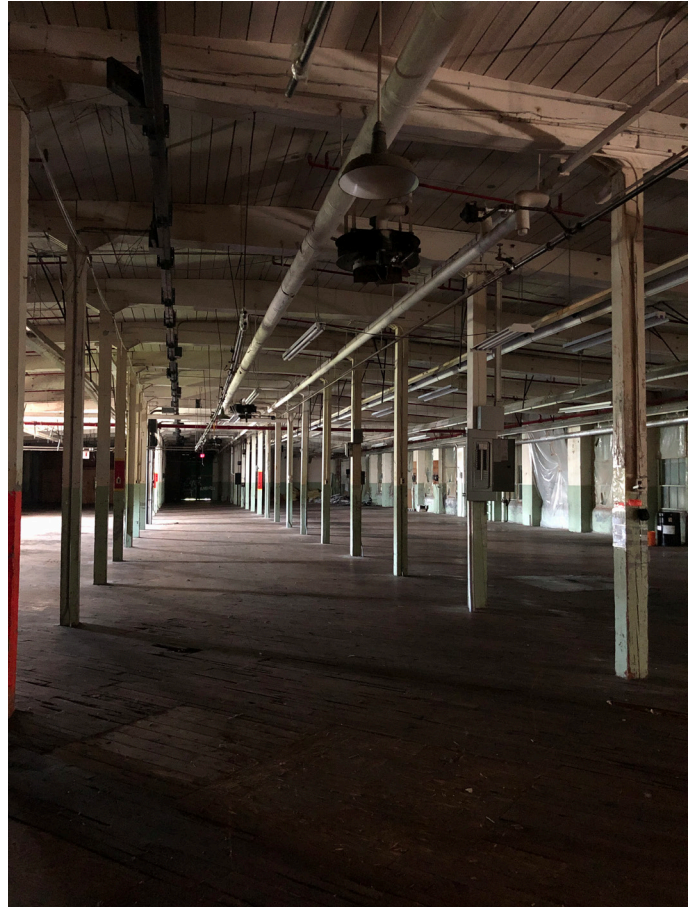


fig.5.14. Mill no. 3 Third Floor



fig.5.15. Mill no. 3 Third Floor



fig.5.16. Photograph of Cafeteria



Mill Run Trail

Trail Heads
 Russ St.
 Sheffield St.

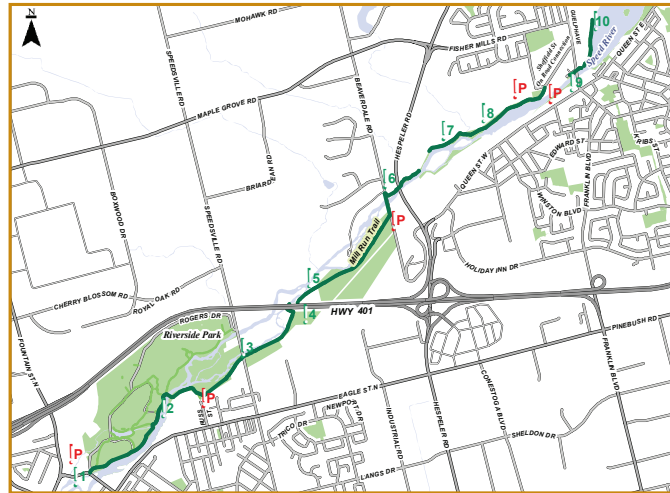
Length
 6.5 km
Parking
 Russ St., Sheffield St., Riverside Park,
 Beaverdale Rd.

Surface
 Stonedust and Boardwalk

Washroom
 Seasonal at Riverside Park

GPS
 Russ St:
 N43.40655, W80.35424

Sheffield St:
 N43.43068, W80.31560



Silknit Dam Mill Race



Hikers along the Mill Run Trail



Bridge over Ellis Creek



fig.5.17. Mill Run Trail Map

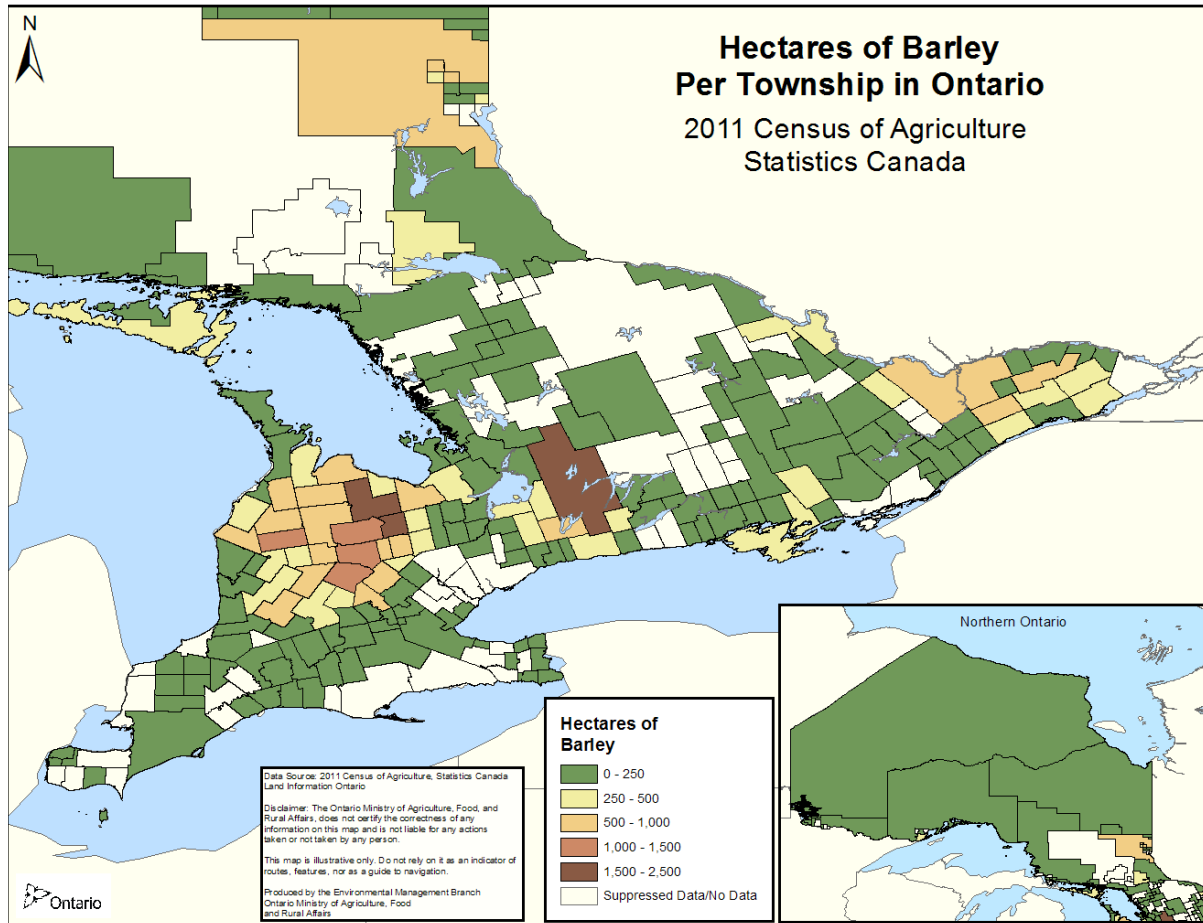
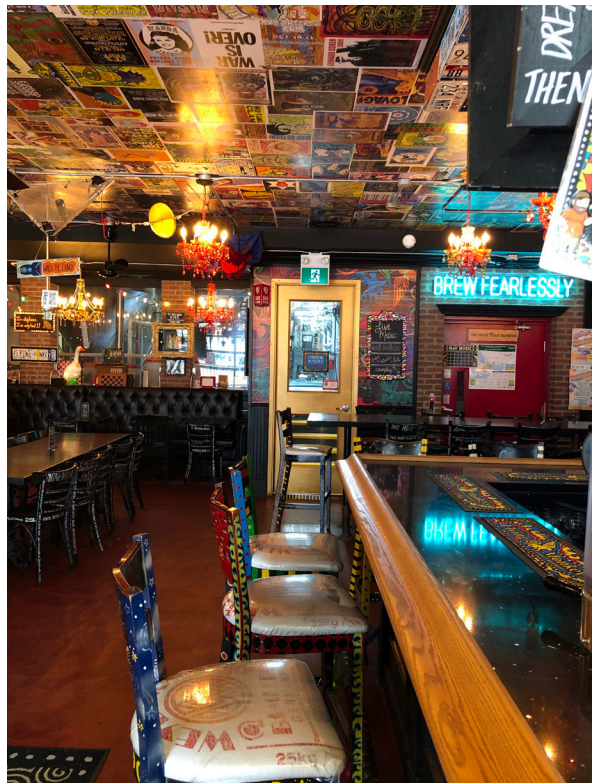
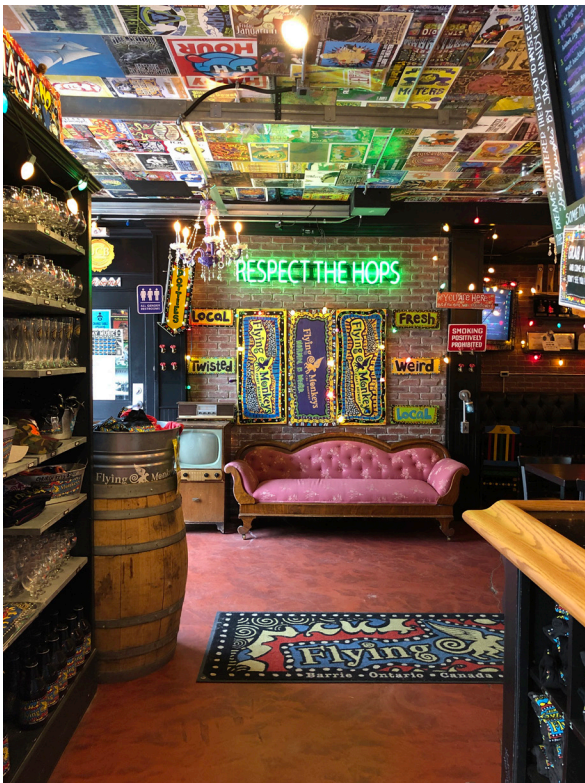


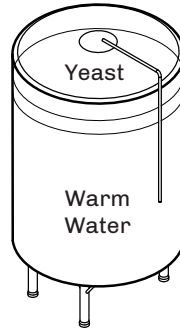
fig.5.18. Number of Craft Breweries in Ontario to Population, including Ottawa and Toronto



fig.5.19. Steelwheel Brewery, Brantford, Ontario



*fig.5.20. Flying Monkey Brewery,
There are currently 7 breweries, with an proposal for 2 more*



Ales

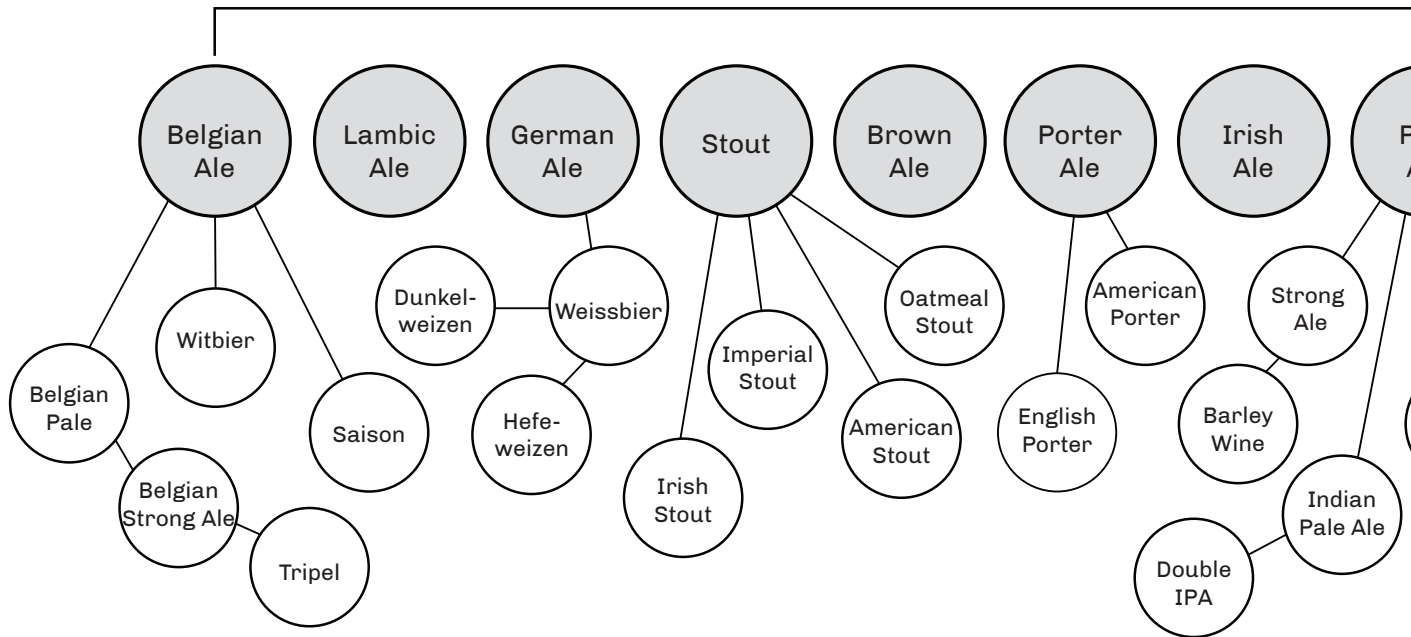
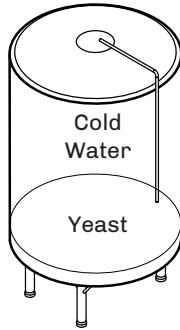


fig.5.21. Beer Styles : Ales vs. Lagers



Beer

Lagers

