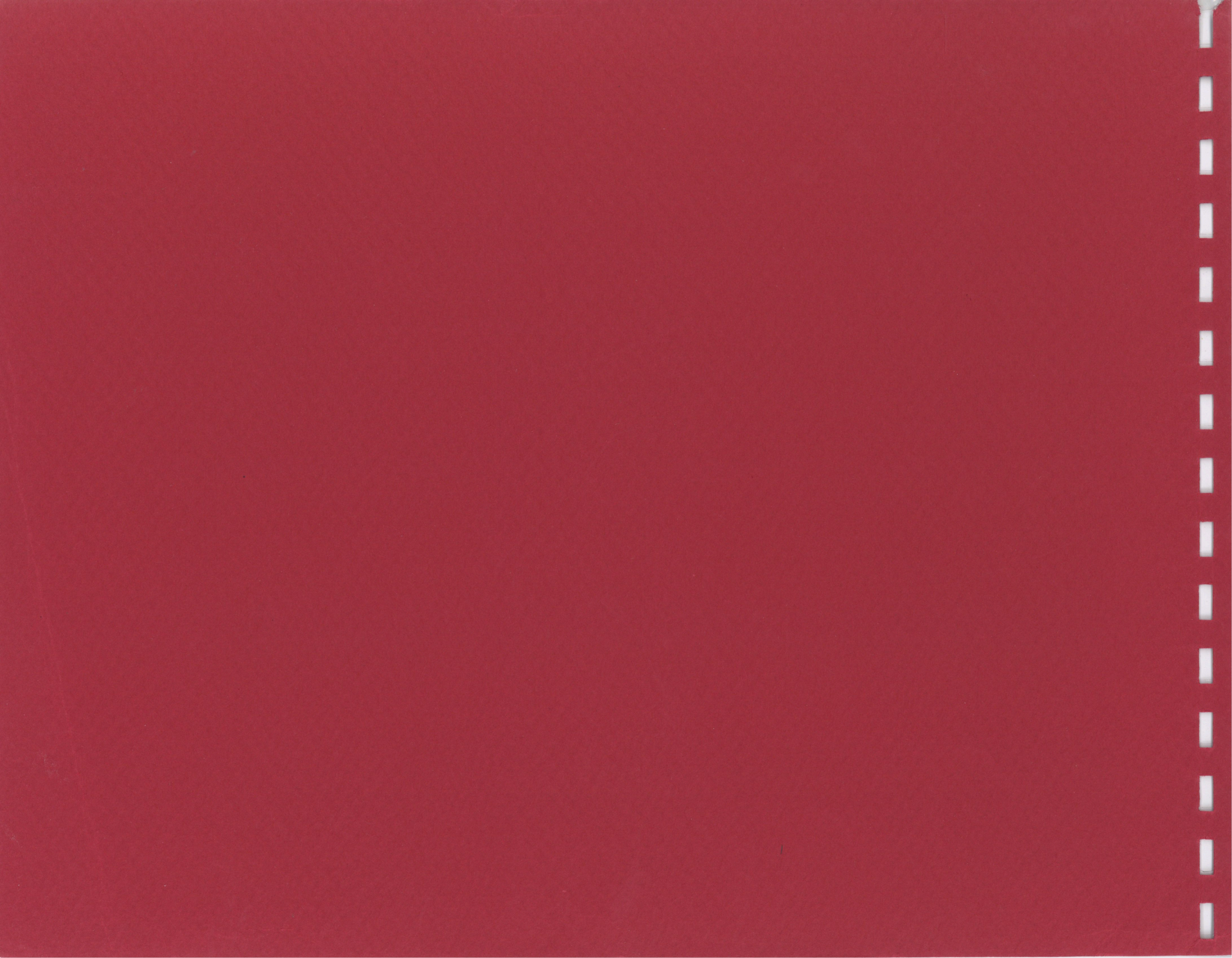


The Depot



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Restaurant. Lounge and Brewery



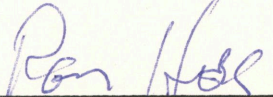
**THE BILLINGS DEPOT
RESTAURANT, LOUNGE AND BREWERY**

Located in the Billings Townsite Historic District
Billings, Montana

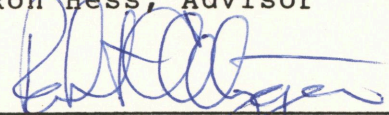
Programing Analysis submitted in partial fulfillment
for the degree of
Bachelor of Arts from the School of Architecture
Montana State University
Bozeman, Montana
June 1988

Prepared by
Colleen Baumgardner

Approved:



Ron Hess, Advisor



Robert Utzinger, Director, School of Architecture

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Date

June 3, 1988

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Introduction



PROBLEM ACQUAINTANCE

The purpose of this project is twofold; to combine two functionally different businesses into a coherent establishment, and to explore the possibilities of adaptive re-use design. In this instance, a restaurant/lounge will be combined with a brewery and will be located in the old Burlington Northern Railroad Depot of downtown Billings, Montana.

The Depot property is in the heart of the Billings Townsite Historic District. This renovation is part of a resolution to upgrade the historic districts atmosphere by renovating these old buildings into attractive, interesting, and profitable businesses. The depot is one of the first of these renovations, therefore the results of this project are vital to the future of the remaining buildings in the district.

The Billings Depot Restaurant and Lounge shall attract the middle to upper classes from Billings and the surrounding area as well as tourists to the city. Also, business people from the downtown area will be drawn to the depot for lunch and business meetings.

The brewing process will provide a highlight and source of intrigue for the restaurant/lounge and will serve as a point of interest and pride for the city of Billings and the surrounding population thereby attracting more visitors to the area.

Inclusive of three buildings, the depot entourage totals 15,915 square feet. The main passenger terminal is the largest with 11,415 square feet, the beanery, or lunch building, contains 2,960 square feet, and the post office building is 1,540 square feet. Located just north of the railroad tracks, they are all one level and are quickly falling into despair.

The design will focus on retaining the older characteristics of the structure and ornamentation while expanding and/or adding a new set of compatible characteristics to enhance the existing ones. The brewing process will be explored and highlighted, however due to the scope of this project, the technical aspects of the brewery and kitchen facilities for the restaurant will be contracted out to professional brewers and kitchen designers.

The objectives of the depot restaurant/brewery are to provide quality meals and service; to draw attention, people, and currency into the downtown area; and to add an aura of quality and life to the historic district.

Personal Goals



To share an extensive idea through graphic communication.

To form an appreciation for older buildings through exploration of adaptive re-use design, by expressing a new character while preserving the old, and by setting an example for future renovation projects.

To integrate and represent several contained spaces as one unit.

To create and maintain a positive and spirited relationship between functionally different entities.

To create a unique atmosphere that will attract a specific target group or groups to a desirable location.

User Profile



A DAY AT THE DEPOT

8:00 a.m.

The kitchen manager will arrive and begin organizing the rest of the day.

Trucks may begin arriving with dry goods and cold storage.

The brewmaster will also arrive at this time to begin preparing the malt for brewing, and draining the appropriate kettles.

9:00 a.m.

Several more restaurant employees arrive to prepare daily specials and sauces; and to cut, slice and stock up on what is to be used for the day. More employees arrive as the noon rush draws near.

The first shift of brewery workers arrive at this time. They will be controlling the brewing process and/or packaging the bright beer.

11:00 a.m.

The restaurant and lounge open at this time. Customers consist of shoppers, downtown merchants, business meetings and tourists. They will either park in the nearby parking lot, arrive on the bus, or walk in from the downtown shopping area. These customers may or may not use the lounge, but will stay for approximately one hour and fifteen minutes to one and one and a half hours. They will spend approximately five to eight dollars per person.

12:00 p.m.

The downtown business people will walk over from their place of work. Those who work elsewhere will drive and park streetside or in the nearby lot. These people will stay for only 45-50 minutes and will spend approximately five dollars each.

1:00-3:00

After the noon rush hour, things will quiet down and the afternoon business will consist of shoppers, lunchdates, and tourists. These people will take a leisurely lunch of one hour to one and a half hours and will spend between five and eight dollars per person.

3:00

Service trucks may or may not come in at this time.

The brewery will be loading its goods on trucks to be taken to a warehouse or retail destination. The worker shifts of the restaurant, lounge and brewery will change at this time. Restaurant employees will begin preparing for the evening patrons, while business is slow.

Garbage service will take place sometime in the afternoon.

5:00

Dinner guests arrive from their homes or guest rooms. The parking caboose will begin taking people from the parking lot through the park to the main entrance of the Depot Restaurant. There will be two of these trolleys running simultaneously so guests are not kept waiting. Upon arrival at the main entrance, the interested patrons will be encouraged to wait in the lounge. This wait will consume 15-45 minutes. A leisure dinner will take approximately one to one and a half hours. Appetizers, deserts, and after dinner cocktails will be encouraged. Some guests may choose to move into the lounge for the remainder of the evening.

6:00-8:00

These are the busiest dinner hours, therefore guests incur a longer wait.

9:00

The second brewing shift will be dismissed and another shift may continue the bottling process to entertain lounge guests. At this time an entertainer may begin singing, playing the piano or guitar, or telling jokes in the lounge.

10:00

The lounge guests will arrive around this time if they haven't already. The restaurant and parking trolley service will discontinue services at 10:00. Lounge guests may come and go; some will stay all evening while others may not.

1:30 a.m.

The lounge will close and guests will proceed to the parking lot or street to their vehicles.

An outdoor dining patio and lounge will serve summer guests who wish to be served out of doors.

THE DEPOT BREWS

The Depot Brewery at the Billings Depot Restaurant and Lounge will produce several unique and exciting beers. These brews have been named for neighboring geographic locations or are named after men whose efforts produced a railway from the eastern United States, to the western territories, thereby causing the birth of Billings, Montana.

The first of these brews is a sparkling malt liquor, Little Bighorn Malt. It is essentially a lager, but with a higher alcohol content.

A darker lager, Whitney Dark, is a more aromatic, creamy-headed brew. The darker color is derived from the addition of roasted barley.

The final two are light lagers, and therefore are a pale golden color, light-bodied and strongly carbonated. Golden Valley Light is a light beer with a soft, mellow, dry taste while Barstow Barlows, the most widely sold, is favored for its crisp sophisticated flavor.

See appendix B for details of the brewing process.

Historical Summary of the Depot



The railroad was greatly responsible for the initial growth of the city of Billings. By 1894 Billings was the center of three major railroad networks. In the 1914 Polk's City Directory, Billings was described as:

...the hub of the railroad extending in ten directions... trains were departing each morning for the terminus of these branches and returning each evening to give Billings a constant transient population probably numbering 1,000 or more...

This transient population had a pronounced influence on the type of growth along Montana Avenue, the principal street in Billings. As a result, restaurants, hotels, curio shops, pool halls and brothels flourished.

The depot on Montana Avenue was built in 1909 and consists of three separate buildings. The Main Depot Building (11,415 sq.ft.) served as the passenger terminal; the Beanery (2,960 sq.ft.) was used as a restaurant or lunch room; and the Post Office Building (1,540 sq.ft.) was for postal storage and possibly used later for baggage storage. These buildings were used by the Northern Pacific Railroad and eventually taken over by the Burlington Northern Railroad until abandonment in 1979.

In June of 1977 the Billings city Council passed an ordinance designating the depot property and vicinity as The Billings Townsite Historic District. Then in February of 1979, The Billings Townsite Historic District was granted inclusion on the National Register of Historic Places.

Existing Facility



SITE ANALYSIS

The depot property is located on Montana Avenue in the southeast portion of the central business district. It is adjacent to the Burlington Northern railroad tracks between the 2300-2500 blocks (see site plan). This is three blocks east and two blocks south of the central core of the downtown neighborhood.

The Billings Townsite Historic District includes the depot property and the 22nd block through the 26th block between First Avenue North and Montana Avenue. (A distance of one block). Most of the buildings in this area are concrete and brick structures which date back to the early 1900's to the 1940's.

Originally, most of the commercial uses on the south side of Montana Avenue were largely wholesale, warehouse type businesses. However, the trend has been for these types to locate away from the city center in less congested areas with better access to motor freight.

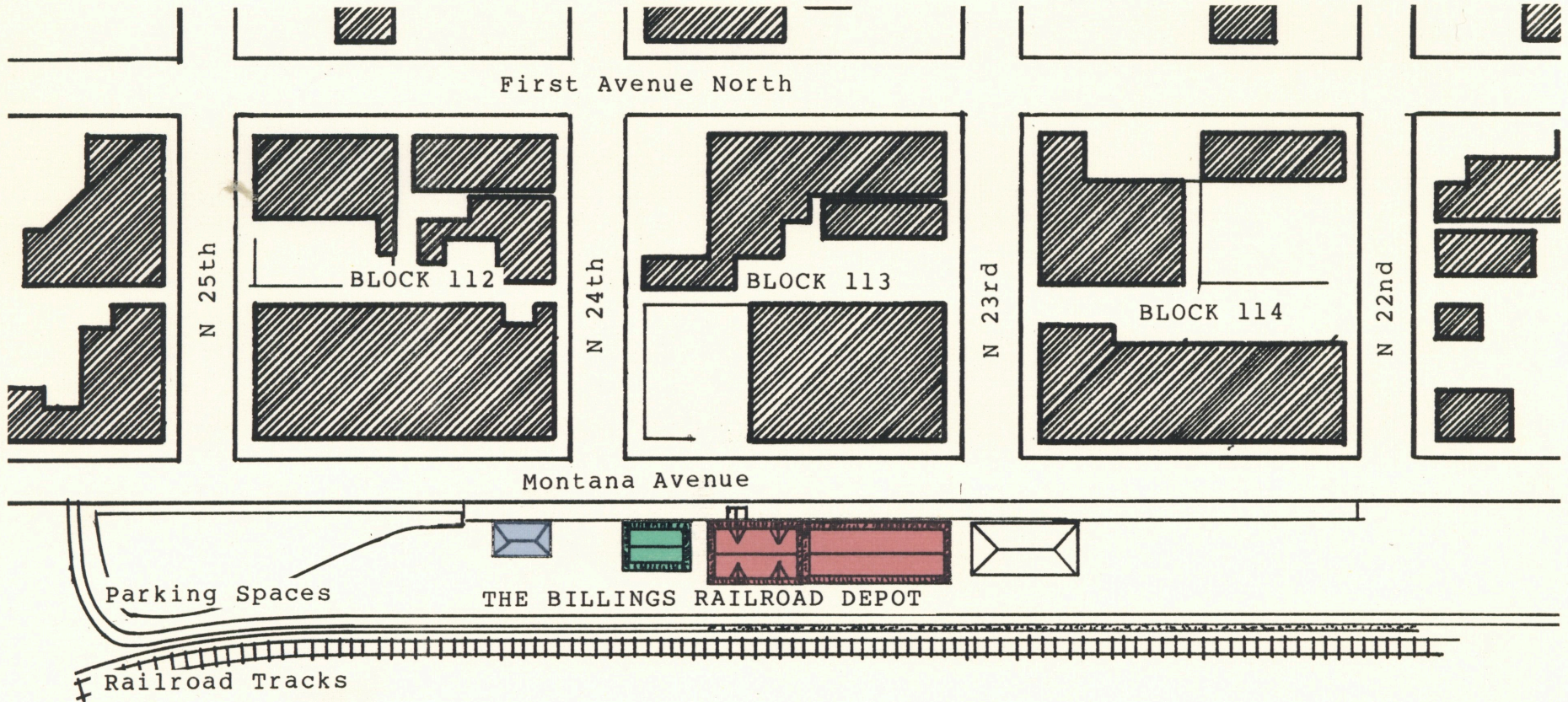
The businesses fronting Montana Avenue on the north side are mostly pawn shops, flea markets, and smaller businesses. Several attempts have been made to eliminate the "skid row" type influences. The Depot Restaurant and Brewery is one major attempt to bring a healthy atmosphere back to this area.

The depot property itself is 890 feet long and has a depth of 115 feet on the east end, and 95 feet on the west end. The total land area is 93,750 square feet. The east portion is approximately three and one-half feet above the street grade; the building has dock height service entrances. The west portion of the site slopes upward to the railroad tracks.

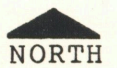
There are three railroad spur sidings on the site. The north two sidings are each about 530 feet long and terminate west of the old lunch room or beanery. The south siding extends the full length of the property parallel to the mainline track.

The buildings on the site include the main passenger terminal, the lunch room or beanery, and the post office building. These three buildings are all located on the eastern portion of the site while the west end is being used as a parking lot for visitors to the downtown area.

SITE PLAN
THE BILLINGS HISTORIC TOWNSITE DISTRICT



- The Post Office Building
- The Beanery
- The Main Passenger Terminal



This photograph was taken from the top of the Sheraton Hotel which is located two blocks west and one block north of the depot. Facing east, the depot is located in the middle right of this photograph.



Still looking east, a street level photograph indicates the depots immediate surroundings.



Looking east again, the depot portico can be seen in the far right of this photograph.



This photograph is taken facing west from the front of the main entrance portico of the depot. The Sheraton Hotel can be seen in the background.



EXTERIOR DESCRIPTION

The Billings depot was constructed in 1909. Consisting of three buildings, it is an eclectic design combining several key characteristics which make the building unique.

The exterior of the building is of a light tan brick. The most simple of the buildings is the post office which is also the smallest building. It has a poured concrete foundation, and a wooden truss roof structure finished with asphalt shingles. The wooden sash windows number three on the east and west elevations and six on the north and south elevations. There are three large service doors one in the center of each facade excluding the west elevation.

The terminal building and beanery add more character with elegant brick detailing around the palladian windows of the dormers, the rose windows and the perimeter of the east and west elevations. Also the use of sandstone columns at corners and partially framing the palladian windows creates a relief from the tan brick texture.

The red slate shingled roofs are an interesting feature. There are two dormers protruding north and south from the western portion of the terminal building roof. These dormers are detailed with the palladian windows introduced above.

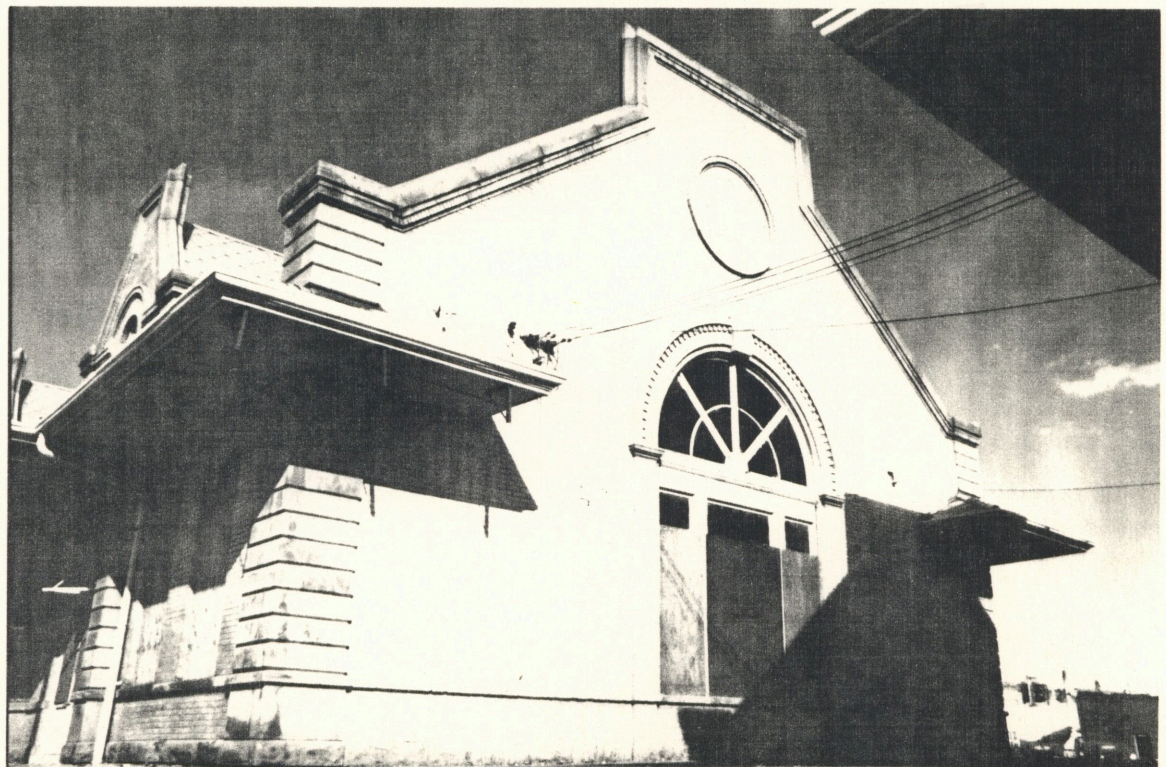
All the lower level windows are wooden sash and are numerous on the east, and north facades. The terminal building used two service entries on the north facade and three on the south elevation while the beanery contains only two wooden pedestrian doors.

The main entrance portico is marked with an elaborate pediment supported by sandstone columns. This entrance occurs on the north side directly below the western dormer.

The north facade of the main terminal building exhibits the main entrance, both dormers and palladian windows.



The west facade of the same building.



Looking west towards the Sheraton Hotel, this is the rear of the terminal building, the beanery, and the post office building. The railway tracks run east and west.



This is the same view looking east at the rear of the buildings.

INTERIOR DESCRIPTION

Currently the interior of the depot is unused and unpreserved. There are two interior details that exude the character of the depot; both are found in the west end of the passenger terminal building. The first of these is a barrel vaulted ceiling running east and west starting at sixteen feet from the floor and vaulting up to a 24 foot height. The second detail is an egg and dart motif that outlines the barrel vault. This area also contains a five foot high enameled brick wainscot, gypsum lath and plaster walls, and a terrazzo floor.

The other areas of the terminal building and the beanery are of unfinished wood with ceiling heights of thirteen feet. Also, the post office building has an unfinished interior with a concrete floor and ceiling height of approximately ten feet. The brick walls are exposed in both these buildings.

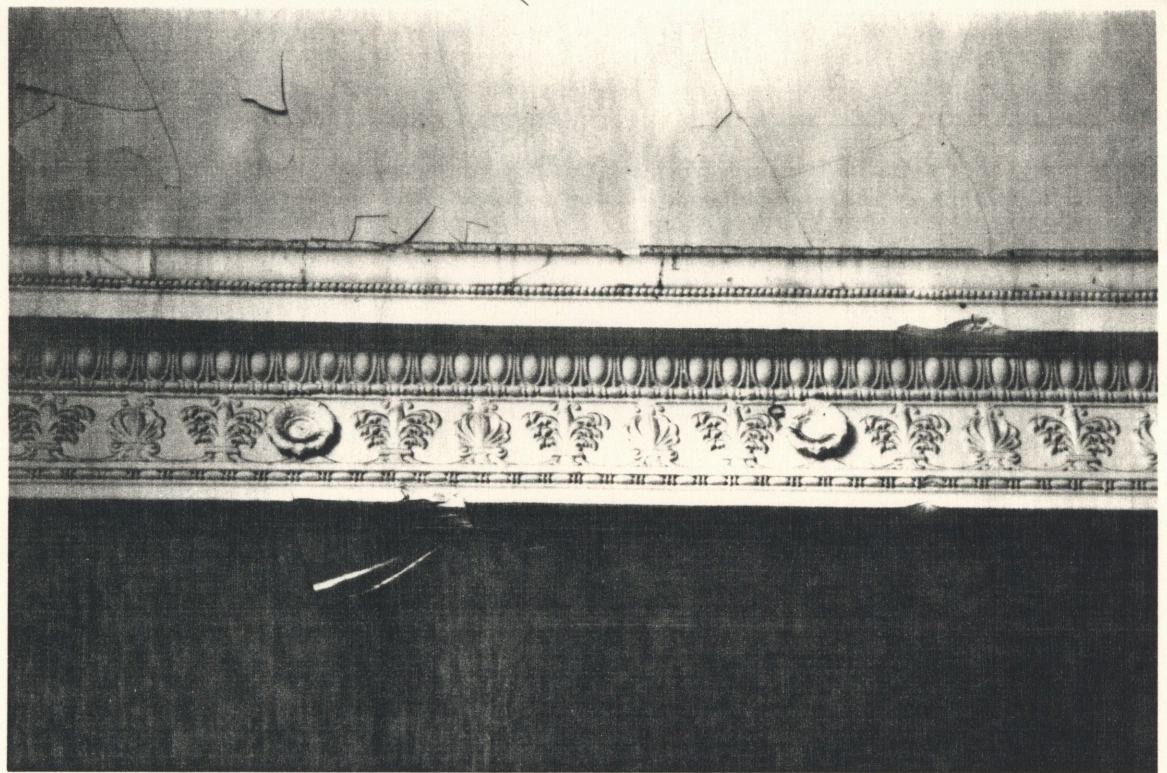
This is the front entrance of the main terminal building. It opens into a very open space with an existing tunnel vaulted ceiling.



Facing east in the same space, the vaulted ceiling and window details are obvious.



An egg and dart motif lines the edge of the tunnel vault.



A very similar motif lines the coffered ceiling surrounding the vault, under the enclosed dormers.



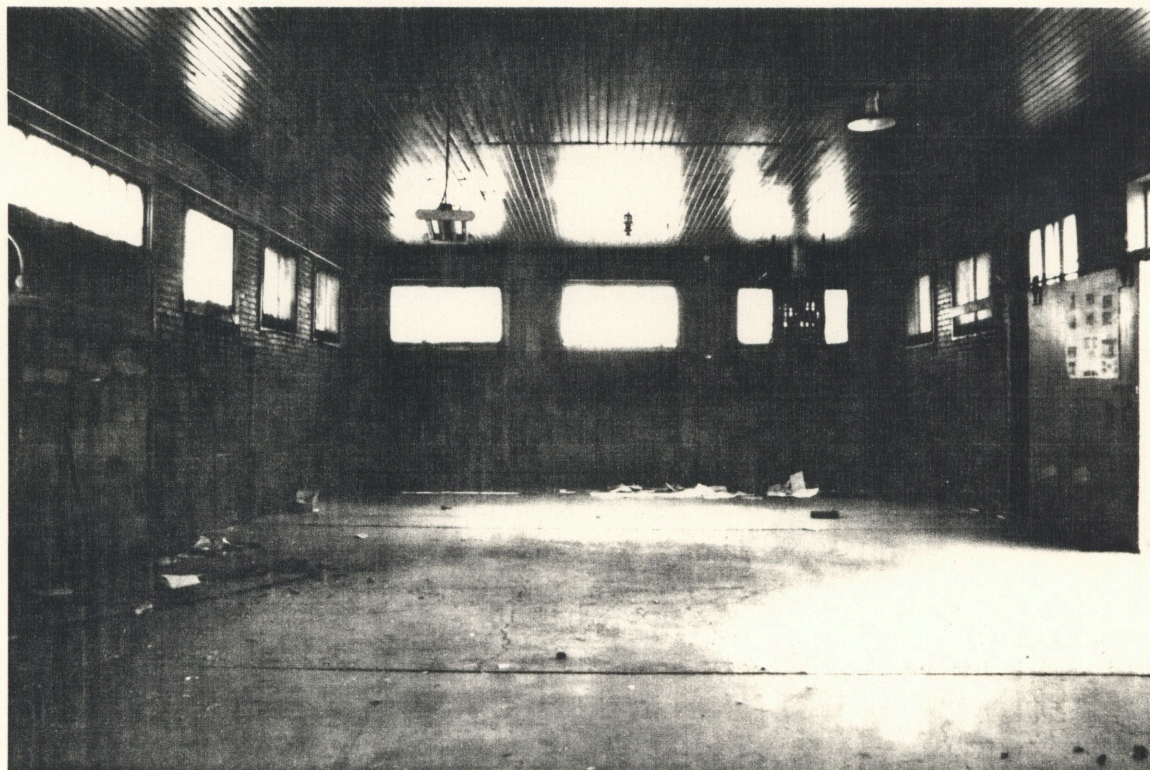
A western view of the same space.



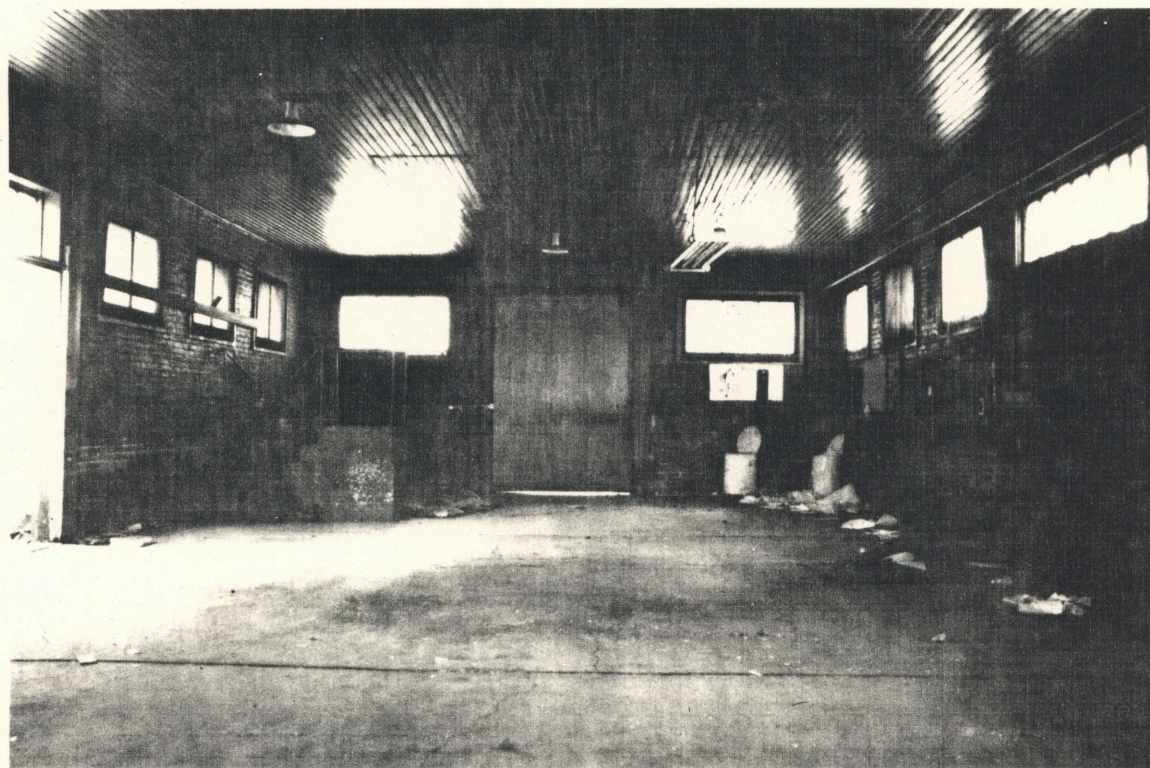
This is one of the spaces in the east end of the main terminal building. It is all unfinished wood.



This is an eastern view of the post
office building.



In the same building, this view
faces west.



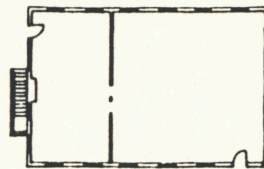
EXISTING FLOOR PLAN THE BILLINGS DEPOT

THE POST OFFICE BUILDING



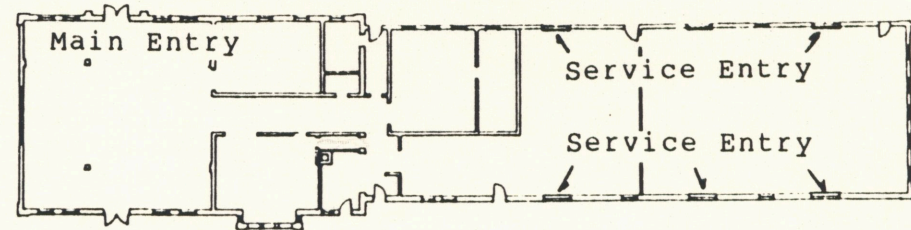
GROUND LEVEL

THE BEANERY

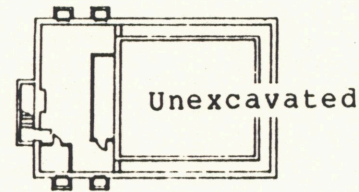
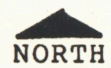


GROUND LEVEL

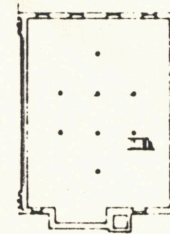
THE MAIN PASSENGER BUILDING



GROUND LEVEL



BASEMENT



BASEMENT

Billings Market Evaluation



One of the goals of this project is to create a point of interest for the city of Billings and the surrounding area. Therefore, a closer look at the Billings market should reveal that the Depot Restaurant, Lounge and Brewery could be beneficial to the city.

The downtown Billings market shows a great potential to thrive. It is a) the center of most of the community's business activities, b) the location of the hospitals and college facilities in the community, and c) a major retail area for Billings. (See appendix B for a map of Billings indicating the Historic District and the depot property.)

Billings, with a population of 78,000 is the heart of the metropolitan area of 120,000. However, the primary trade area, as large as 400,000 people, also uses Billings as their primary market place. Billings serves as a center for distribution, retailing, medicine, culture, and entertainment.

In addition the city also enjoys substantial tourist business as a result of its proximity to both Yellowstone National Park and Custer National Battleground.

All these marketing factors result in an extraordinarily high total retail sales per household. (This is the total retail sales in the Billings market divided by the number of households in Billings). This high expenditure per household reflects the major influence of both the wide trading area, and the tourism on top of retail purchases by local households.

However, the results of a study done by David Sher Associates, Incorporated, indicates that the one retailing area that does not show exceptionally high sales per household is the restaurant industry. This deficiency in restaurant sales per household represents an unrealized demand potential that has been measured at approximately sixteen percent. That is, Billings has the potential to increase restaurant sales by sixteen percent.

Another indication resulting from the David Sher Study is that the railroad depot is located strategically within the downtown market. The restaurant/brewery will most likely strengthen and secure a new stream of vibrancy for the area.

Project Goals



To create organized, well-planned interior spaces.

To provide a sophisticated and comfortable dining atmosphere that can be converted to a haven for business people during the day.

To provide a unique lounge area where clients will be compelled to stay.

To combine a process of manufacture with a customer oriented business.

To fundamentally organize a technical process of manufacture.

To provide efficient traffic flow throughout and between the buildings.

To give the spaces and buildings a sense of unity.

To create an appreciation for the old depot and the people that have been affected by it.

To create a new set of characteristics to be combined with the existing ones.

To create a feeling associated with the exterior of the space.

To create a definite image for the depot.

To create a point of interest for the city and surrounding area.

Interior Space Analyses



These interior space analyses contract information from case studies and bibliographical resources about the brewing process and restaurant design.

The information for each space shall be conveyed in the following format:

Name of Space:

Approximate Sq. Ft.:

Occupancy:

Space Description:

Requirements:

Needs:

Wants:

RESTAURANT SPACES

Space:	Entry
Approximate Sq. Ft.:	120
Occupancy:	Varies
Description:	Inviting, light, powerful, intriguing, sophisticated, transitional, restrictive.
Requirements:	
Needs:	Cashier/reception, security, handicapped accessible, glass.
Wants:	Plants, natural light.

Space:	Waiting
Approximate Sq. Ft.:	200
Occupancy:	Varies
Description:	Restrictive, enjoyable, sophisticated, friendly.
Requirements:	
Needs:	Seating, handicapped accessible.
Wants:	Natural light, plants.

Space:	Dining
Approximately Sq. Ft.	4,400
Occupancy:	150
Description:	Comfortable, fun, intriguing, appetizing, obliging, relaxing.
Requirements:	
Needs:	Seating, efficient traffic flow, service stations, effective lighting, interesting surroundings, handicapped accessible.
Wants:	Plants, space dividers, natural light.

Space:	Lounge
Approximate Sq. Ft.:	2,200
Occupancy:	90
Description:	Entertaining, unique, obliging, intriguing, relaxing, friendly, comfortable.
Requirements:	
Needs:	Seating, bar facilities, stools, access to cold storage, handicapped accessible, effective lighting.
Wants:	Patio lounge access, piano.

Space:	Public Toilet Rooms
Approximate Sq. Ft.:	275 each
Occupancy:	3-4 each
Description:	Sanitary, uncluttered, private, well-lit.
Requirements:	
Needs:	Handicapped facilities, mirror, hand dryer, lavatory, urinal (men's).
Wants:	Low visibility from public, but well marked.

Space:	Kitchen
Approximate Sq. Ft.:	2,250
Occupancy:	5-9
Description:	Sanitary, uncluttered, efficient.
Requirements:	
Needs:	Storage, cold storage, dishwasher, food preparation area, grill or stove, food service area, cleanable floor material, stainless steel equipment.
Wants:	Space, natural light.

Space:	Kitchen Office
Approximate Sq. Ft.:	150
Occupancy:	1-2
Description:	Uncluttered, safe.
Requirements:	
Needs:	Security, desk surfaces, storage space
Wants:	Natural light, near kitchen service entrance.

Space:	Employee Toilet Rooms
Approximate Sq. Ft.:	150 each
Occupancy:	1-2
Description:	Sanitary, uncluttered, private, well-lit.
Requirements:	
Needs:	Lockers, changing space, lavatory, mirror, hand dryer, urinal (men's).
Wants:	Near employee lounge, near kitchen office.

Space:	Employee Lounge
Approximate Sq. Ft.:	200
Occupancy:	2-3
Description:	Friendly, motivating, clean, uncluttered.
Requirements:	
Needs:	Trash disposal, seating, table surfaces,
Wants:	Quality interior finishes.

Space:	Janitorial Space
Approximate Sq. Ft.:	100
Occupancy:	1
Description:	Uncluttered, efficient, organized, well-lit.
Requirements:	
Needs:	Shelving, appropriate equipment, storage and equipment.
Wants:	Out of public eye, near dining.

Space:	Main Office
Approximate Sq. Ft.:	300
Occupancy:	1-3
Description:	Uncluttered, efficient, organized, well-lit.
Requirements:	
Needs:	Desk equipment, file storage, security.
Wants:	Natural light.

BREWERY SPACES

Space:	Brewery Office
Approximate Sq. Ft.:	150
Occupancy:	1-2
Description:	Organized, efficient, clean, uncluttered.
Requirements:	
Needs:	Limited library space, desk surfaces, computer capabilities.
Wants:	Natural light, display area

Space:	Malting Space
Approximate Sq. Ft.:	400
Occupancy:	1
Description:	Dry, intriguing, organized, clean.
Requirements:	
Needs:	Malt storage, scale, mill.
Wants:	Near brewing space.

Space:	Brewing Space
Approximate Sq. Ft.:	300
Occupancy:	2
Description:	Shiny, sparkling, mysterious, clean, uncluttered.
Requirements:	
Needs:	Mash tun (kettle), water and oxygen access, heat exchanger or cooling system, drainage for spent grains.
Wants:	Exposed to public.

Space:	Fermentation Space
Approximate Sq. Ft.:	350
Occupancy:	1
Description:	Chilled, sparkling, ominous, clean, uncluttered, unintimidating.
Requirements:	
Needs:	Fermentation vessels, temperature control, Co2 access,
Wants:	Exposed to public.

Space:	Filtration and Conditioning Space
Approximate Sq. Ft.:	400
Occupancy:	1-2
Description:	Chilled, clean, shiny, organized.
Requirements:	
Needs:	Filtering system, drainage for excess yeast, maturation vessel, water and Co2 access, keg filling capabilities, keg storage, temperature control.
Wants:	Partially exposed to public.

Space:	Packaging Space
Approximate Sq. Ft.:	500
Occupancy:	5-9
Description:	Organized , fun, uncluttered, efficient, clean.
Requirements:	
Needs:	Co2 access, bottler, labeler, filler, forklift, pallets, access to truck service, box and bottle storage.
Wants:	Partially exposed to public.

Space:	Shop
Approximate Sq. Ft.:	200
Occupancy:	1
Description:	Organized, efficient.
Requirements:	
Needs:	Work surfaces, appropriate equipment for repairs, replacement pieces.
Wants:	Natural light, near brewing office.

Space:	Mechanical
Approximate Sq. Ft.:	140
Occupancy:	N/A
Description:	Well-lit, ventilated.
Requirements:	
Needs:	Acoustical control, HVAC>

Square Footage Summary



RESTAURANT SPACES

Entry	120	
Waiting	200	
Dining	4,400	
Lounge	2,200	
Public Toilet Rooms	550	
Kitchen	2,250	
Kitchen Office	150	
Employee Toilet Rooms	300	
Employee Lounge	200	
Janitorial Space	100	
Main Office	300	
Total Square Footage		10,770

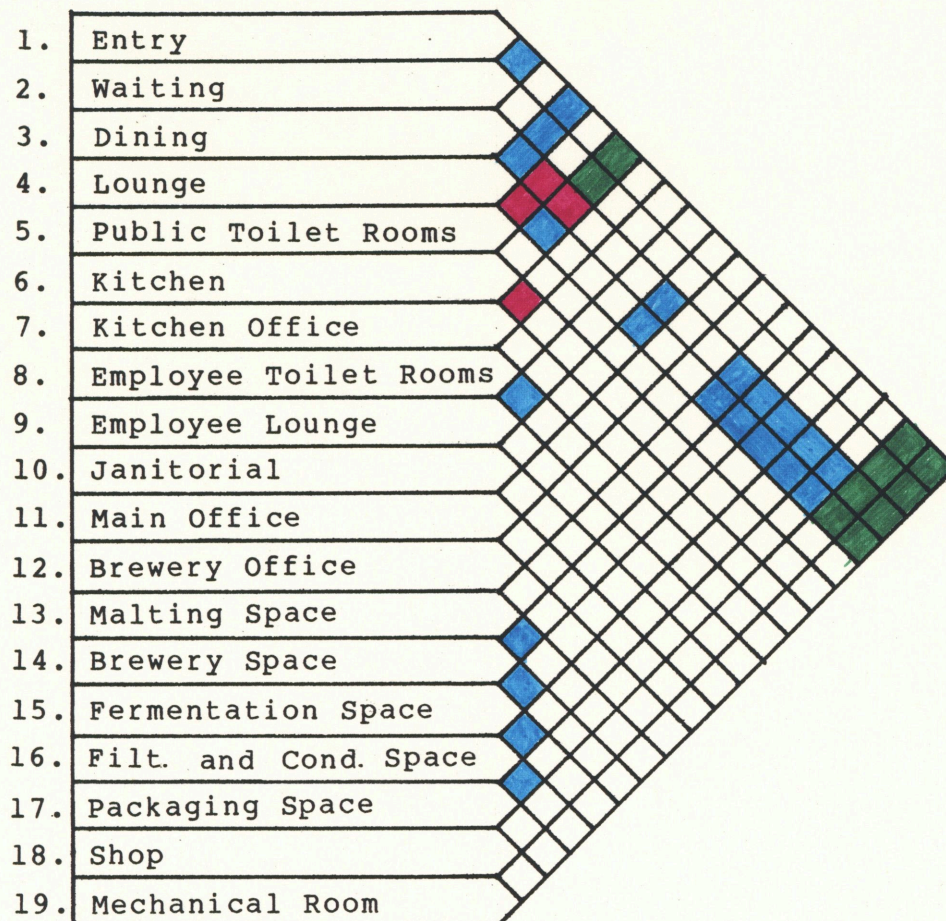
BREWERY SPACES

Brewing Office	150	
Malting Area	400	
Brewing Area	300	
Fermentation Area	350	
Filtration and Conditioning Area	400	
Packaging Area	500	
Shop	200	
Mechanical	140	
Total Square Footage		2,440
Circulation (17 percent)		2,705

Combined Square Feet 15,915

Spatial Relationships

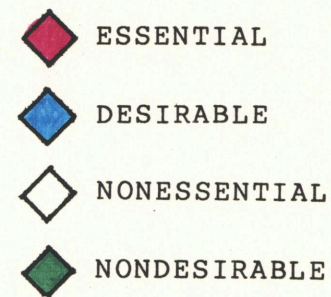




INTERSPATIAL MATRIX

PHASE ONE

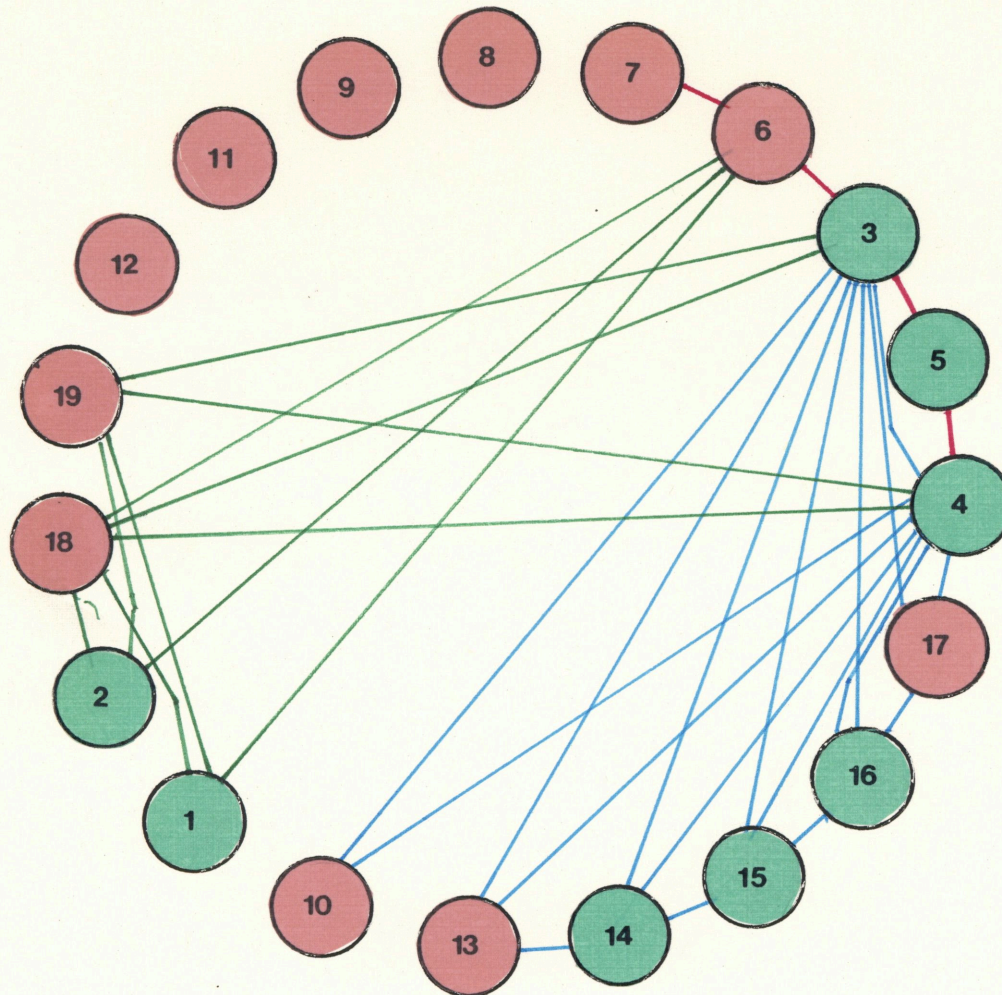
Adjacency requirements are represented by varied colors.



BUBBLE DIAGRAMS

PHASE TWO

The spatial relationships have been prioritized and given a more efficient layout. Public and private spaces have been indicated.



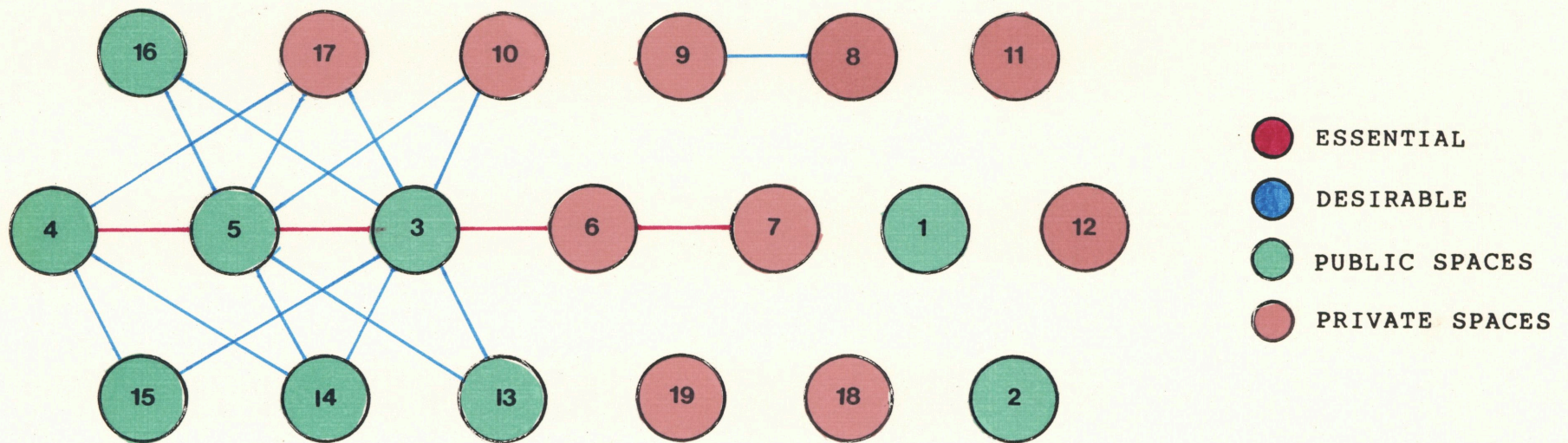
- ESSENTIAL
- DESIRABLE
- NONDESIRABLE
- PUBLIC SPACES
- PRIVATE SPACES

LEGEND OF SPACES

- | | | |
|------------------------|--------------------------|---------------------------------------|
| 1. Entry | 7. Kitchen Office | 14. Brewery Space |
| 2. Waiting | 8. Employee Toilet Rooms | 15. Fermentation Space |
| 3. Dining | 9. Employee Lounge | 16. Filtration and Conditioning Space |
| 4. Lounge | 10. Janitorial | 17. Packaging Space |
| 5. Public Toilet Rooms | 11. Main Office | 18. Shop |
| 6. Kitchen | 12. Brewery Office | 19. Mechanical Room |
| | 13. Malting Space | |

PHASE THREE

The spatial relationships are now given a free form similar to the existing building envelope.

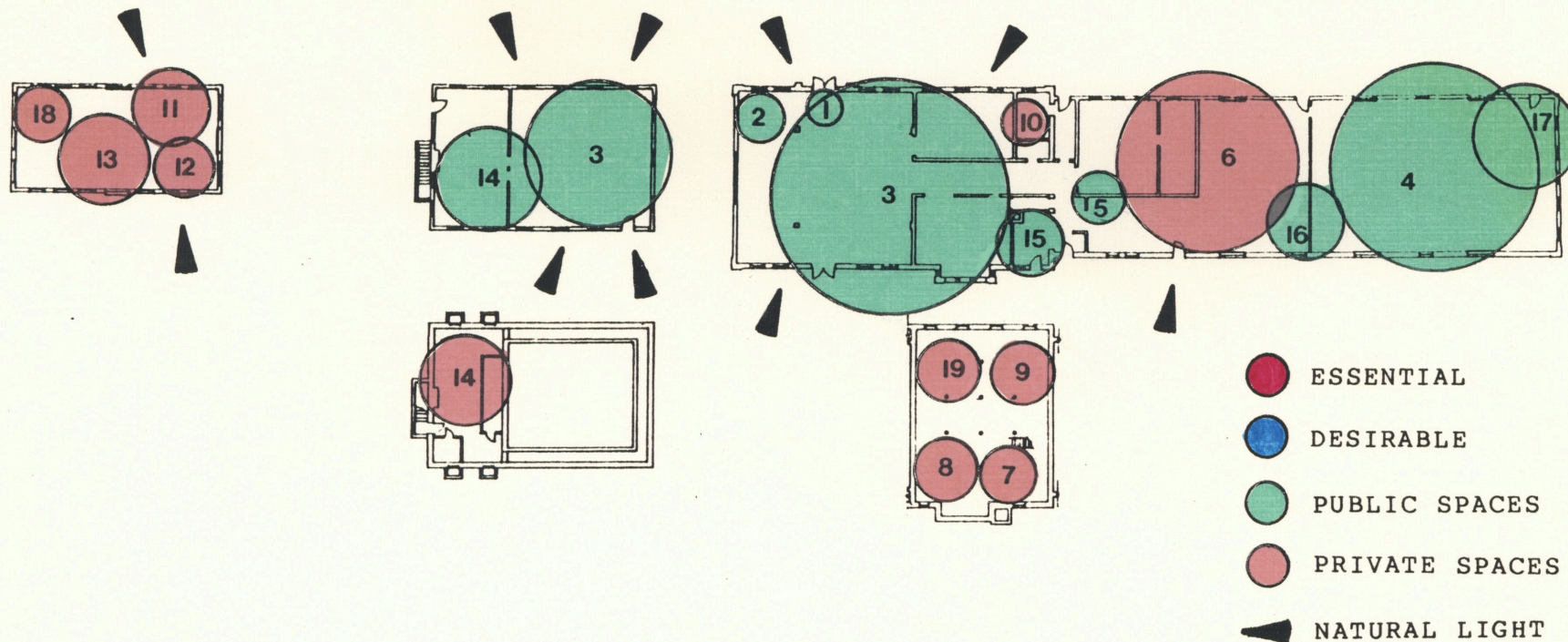


LEGEND OF SPACES

1. Entry
2. Waiting
3. Dining
4. Lounge
5. Public Toilet Rooms
6. Kitchen

7. Kitchen Office
8. Employee Toilet Rooms
9. Employee Lounge
10. Janitorial
11. Main Office
12. Brewery Office
13. Malting Space

14. Brewery Space
15. Fermentation Space
16. Filtration and Conditioning Space
17. Packaging Space
18. Shop
19. Mechanical Room



PHASE FOUR

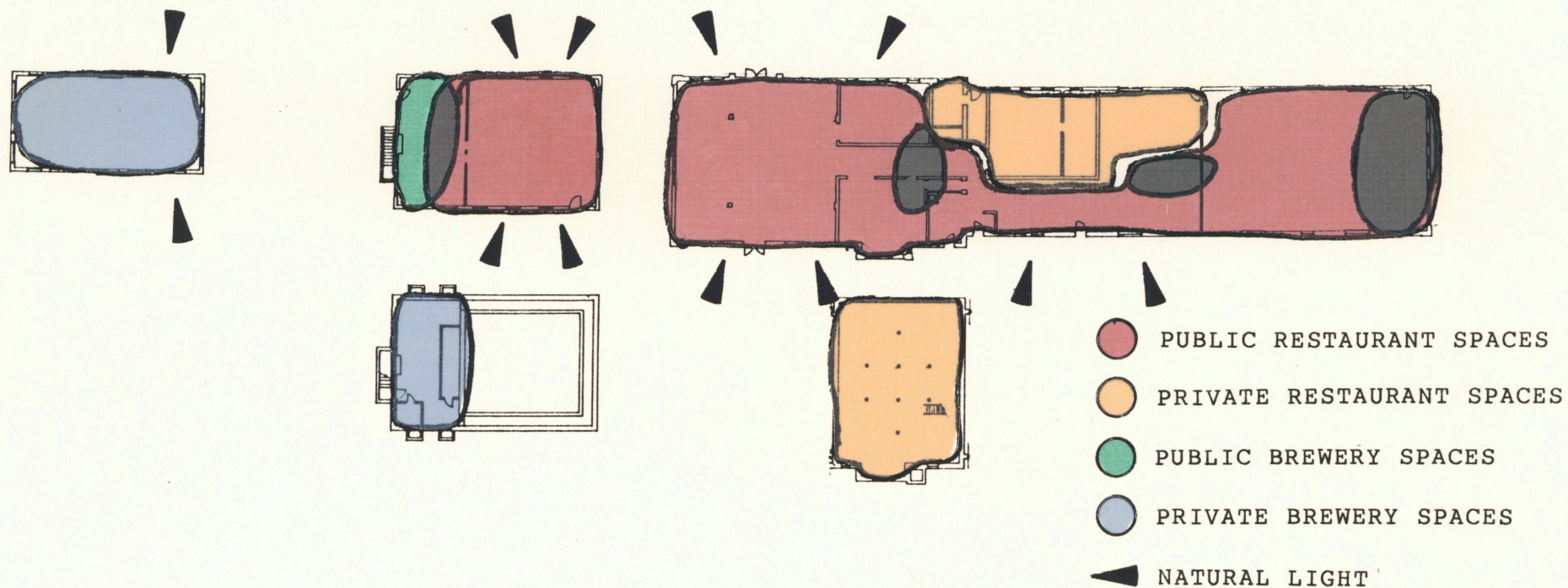
The spaces have been incorporated into the existing building envelope. Natural light needs have been indicated.

LEGEND OF SPACES

- 1. Entry
- 2. Waiting
- 3. Dining
- 4. Lounge
- 5. Public Toilet Rooms
- 6. Kitchen

- 7. Kitchen Office
- 8. Employee Toilet Rooms
- 9. Employee Lounge
- 10. Janitorial
- 11. Main Office
- 12. Brewery Office
- 13. Malting Space

- 14. Brewery Space
- 15. Fermentation Space
- 16. Filtration and Conditioning Space
- 17. Packaging Space
- 18. Shop
- 19. Mechanical Room



PHASE FIVE

The spaces have been redrawn as public and private zones representing the integration of the brewery with the restaurant.

Case Studies



CASE STUDY #1

Project: Michigan Central Railroad Depot
Reuse Architect: Donald E. Van Curler
Interior Designer: Jack Green Associates
Location: Ann Arbor, Michigan

Introduction:

The Michigan Central Railroad Depot now houses the Gandy Dancer Restaurant and continues passenger service with the Amtrak facilities still in operation. The restaurant is 8,000 square feet, seats 200 patrons in the dining area, and seats another 50 in the lounge. The original building, a Romanesque Revival stone building was built in 1886.

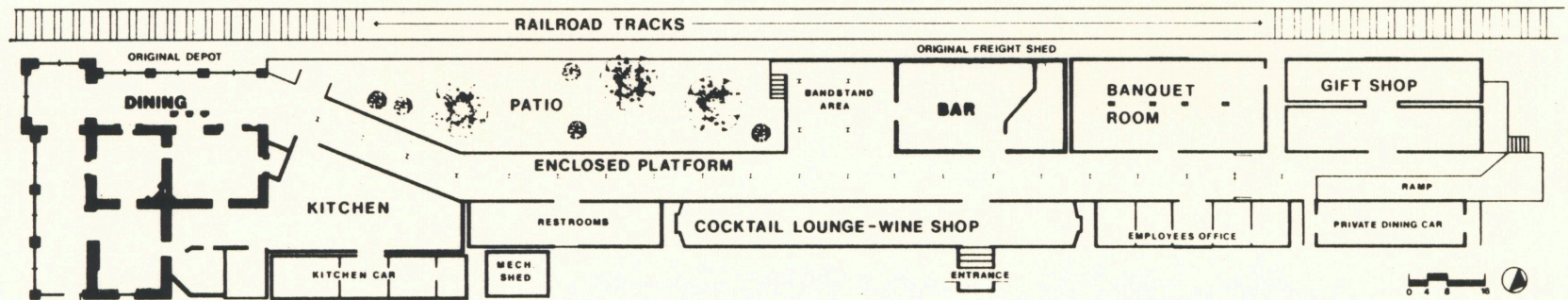
Analysis:

The dining area is the central activity zone of the depot. The lounge is on the opposite side of the dining than the kitchen, therefore the kitchen would have difficulty expanding its services to the lounge. There are also two periphery dining areas directly off the kitchen. The offices have a separated entrance from the outside and an entrance into the service area.

The interior spaces allow as much natural light as possible without opening up the ceiling. Some of the dining areas allow exposed brick to set the mood. Dining in this restaurant does not appear to be sophisticated, yet it is a very comfortable atmosphere.

Implications:

One major similarity of the Ann Arbor depot to the Billings depot project is that of the built connection between the station and former baggage building. There may possibly be a similar connection at the Billings depot connecting the passenger building and the lunch room. In this way, the buildings may be used more effectively and efficiently as one establishment.





CASE STUDY #2

Project: San Juan Capistrano Depot
Reuse Architect: Rolly Pulaski and Associates
Location: San Juan Capistrano, California

Introduction:

The San Juan Capistrano Depot is an unusually small station with 1,600 square feet. There was a need for more space in the restaurant, so old passenger cars were acquired and arranged on the new tracks beside the station.

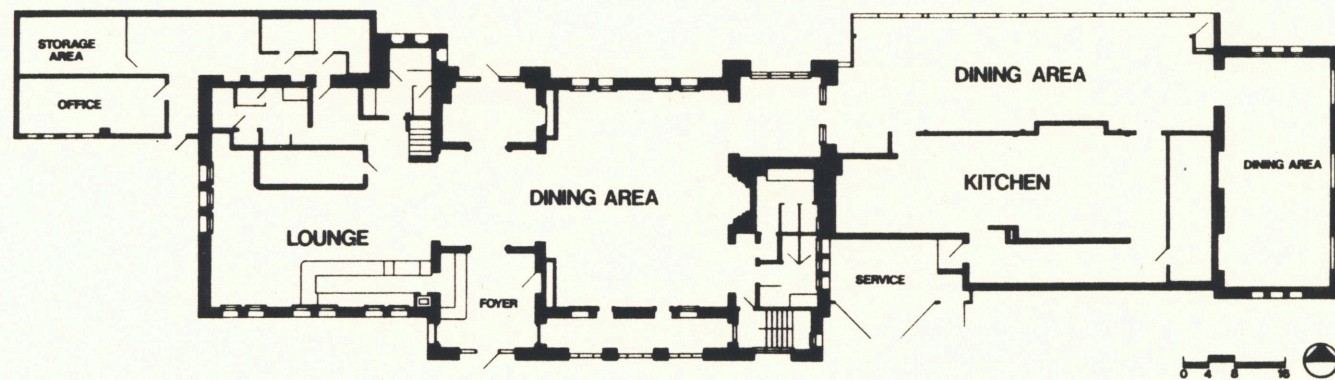
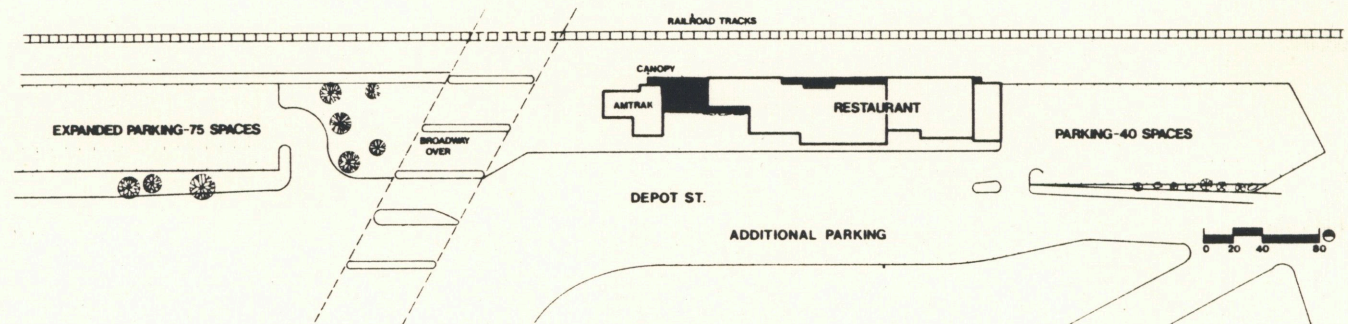
Analysis:

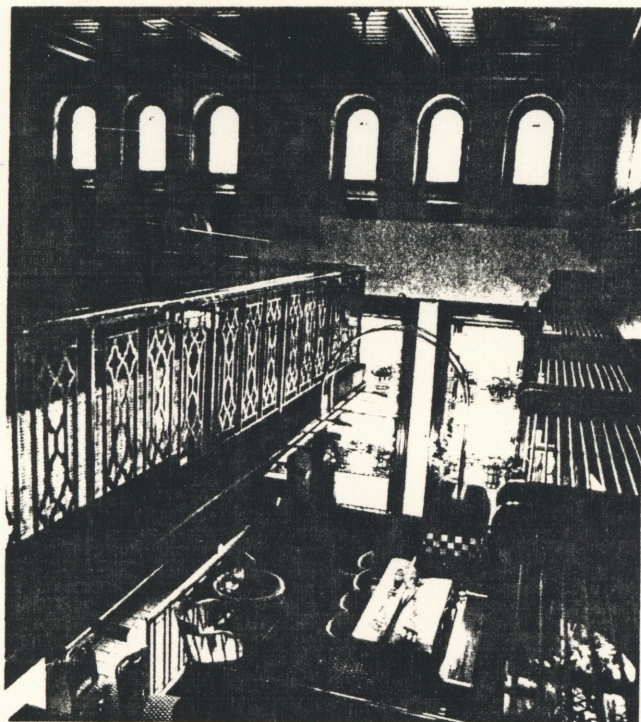
The cars span the entire east side of the depot. They house a private dining room, the kitchen, bathrooms, offices, a wine shop and a gift shop. These cars have been treated with authentic, colorful graphics using original stencils of the old advertisements such as Carnation Milk, Tootsie Roll, Cracker Jacks, Morton Salt and Seven-Up. The interior of these cars use upholstered booths and some rattan furnishings.

Implications:

A modern design was desired by the designers, however the historical review boards pushed for a very traditional renovation. The final design integrates the old and the new.

The interior of the depot itself uses exposed brick and ceiling fans. These elements, combined with table clothes and wooden chairs creates a quaint sophistication. This would be a nice space for the depot in Billings.





Restaurant interior showing new mezzanine.



Restaurant interior.



Dining room in former baggage building.

CASE STUDY #3

Project: Le Train Bleu Restaurant
Designer: Fred Polatinus
Location: New York, New York

Introduction:

Le Train Bleu takes its motif from the famous Le Train Bleu which ran between Paris and the Riviera in the 20's. This restaurant was opened on the sixth floor of Bloomingdales in the 1979 and has a seating capacity of 67.

Analysis:

The dining space is almost an exact replica of the finer dining cars of the 20's. It uses the same window pattern and window height, and the traditional ceiling height of the dining cars. The ceiling, floor, sidewalls, and seats are finished in a plush green while white tablecloths set off the green to exude a very sophisticated character. This character is added to by a brass luggage rack, an elegant choice of lighting, the table top lamps, and other brass accessories. Only one diversion from the realistic theme is obvious; the width of the space has been expanded from ten feet to fourteen feet to accommodate greater aisle and seating area.

Implications:

The railroad theme is an obvious solution and implication to the Depot Restaurant in Billings. The elegant atmosphere would need to be downplayed to achieve a lighter character. The lighting applications are quite appropriate for the brewery, however. They are elegant, yet flexible enough to adapt to a less scholarly theme.



CASE STUDY #4

Project: The Big Four
Designer: Anthony Hall
Location: San Francisco, California

Introduction:

This restaurant implies a reference to San Fransico's founding tycoons: Collis Huntington, Mark Hopkins, Zeland Stanford, and Charles Crocker. It exudes a "men's club" atmosphere and is very masculine, yet not heavy or presumptuous. The "big four" are subtly emphasized, not literally represented.

Analysis:

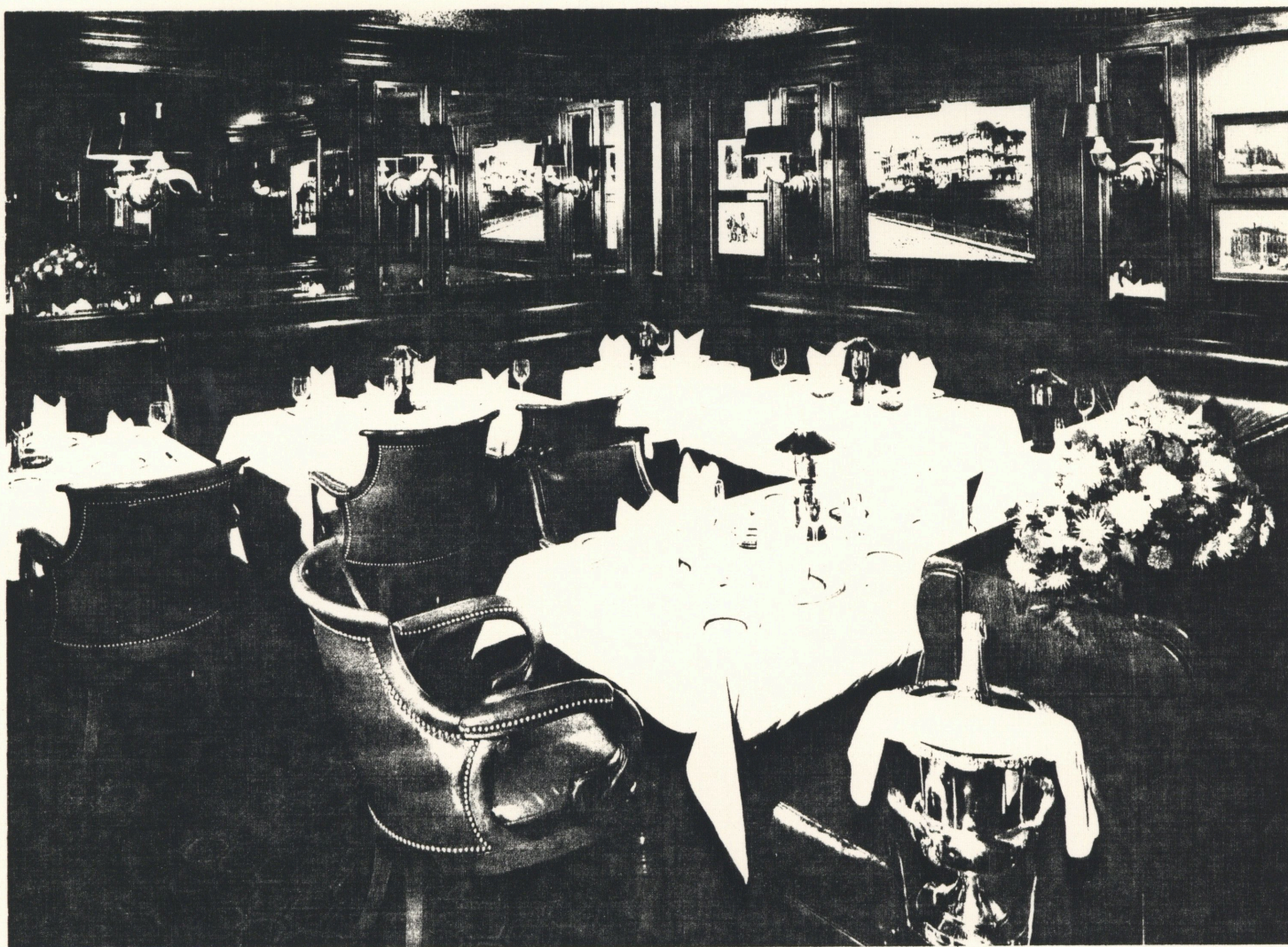
The masculine look is achieved with a background that incorporates walnut paneling, carved cornices and Ionic columns. The inherent heaviness of this type of interior is avoided with lighting and an abundant use of clear stained, mirrored, carved, etched and beveled glass.

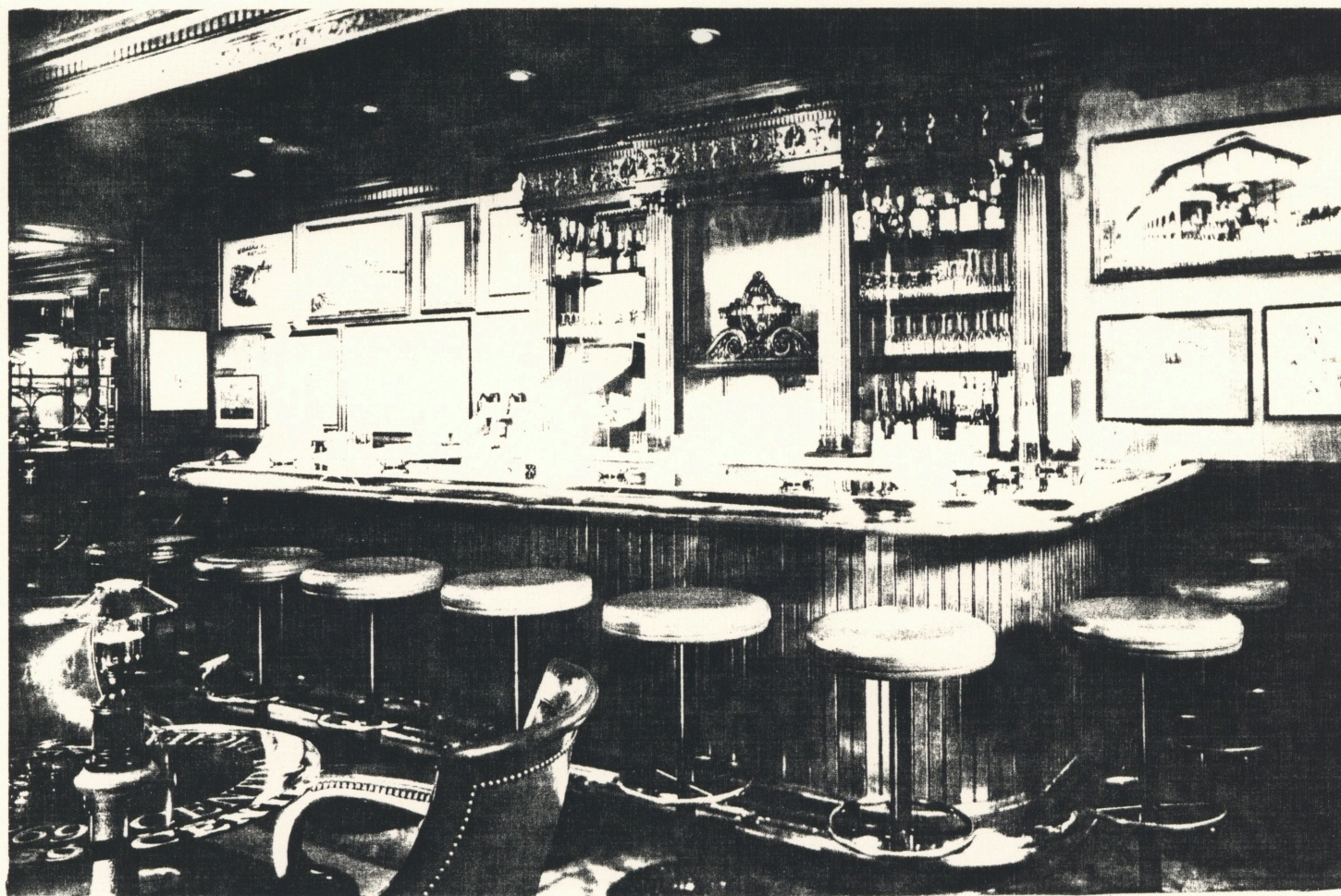
Unity throughout is achieved by repetition of the furnishings which are green-covered open armchairs and banquettes, and brass lamps.

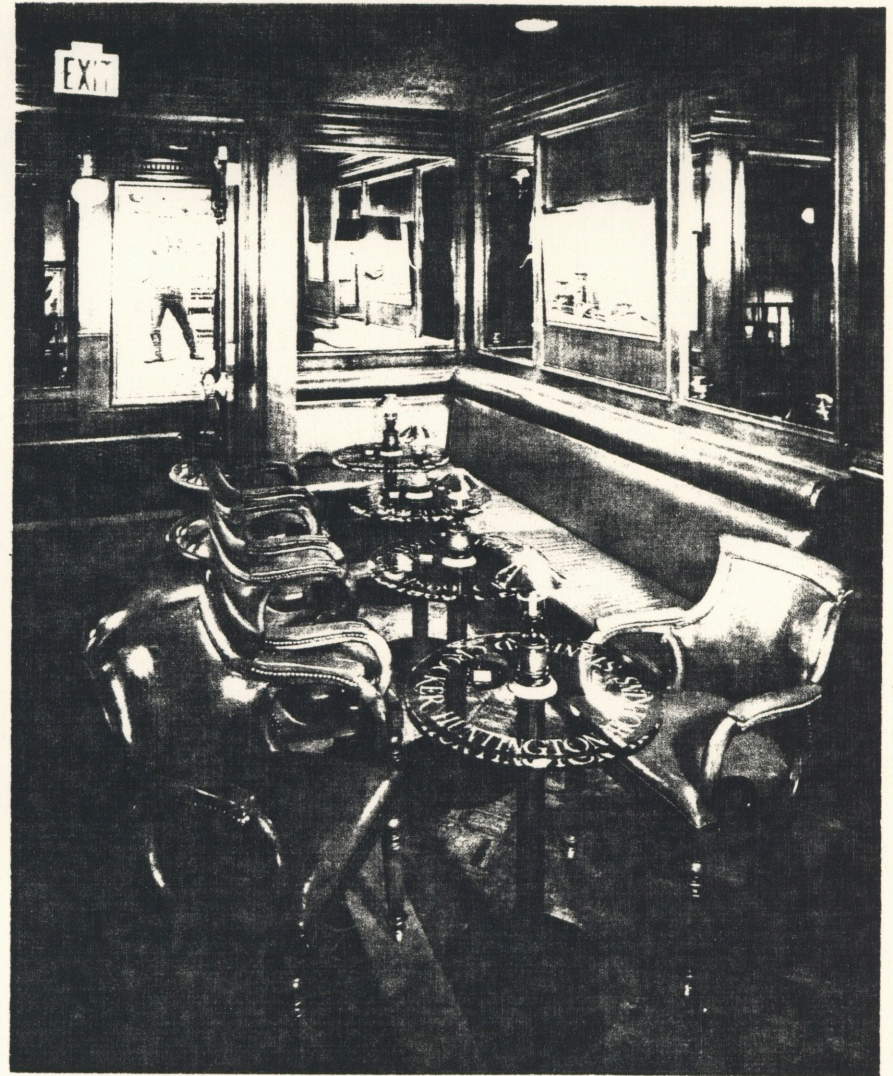
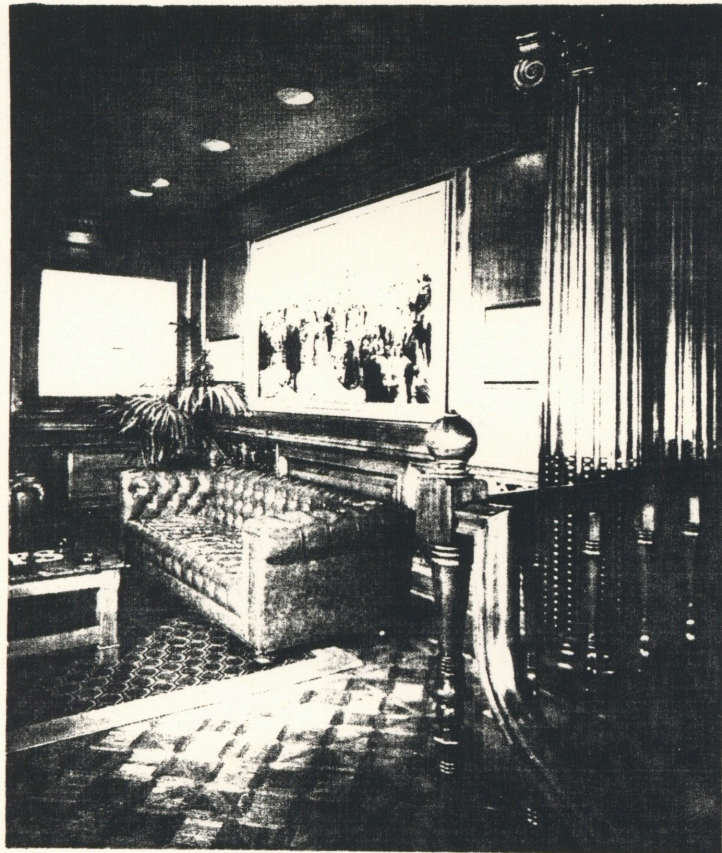
Implications:

The lightness and sophistication of this interior is desirable in the depot interior. The woodwork is very appropriate, however the choice of furnishings may be too masculine for the depot.

The bar appears to be a fun, light space with a memorabilia decor. The brass on the bar helps to create a traditional atmosphere, while the green upholstery and red floor covering add enthusiasm to the space.







CASE STUDY #5

Project: Lehigh Valley Brewery
Architects: The Eggers Partnership
Location: Allentown, Pennsylvania

Introduction:

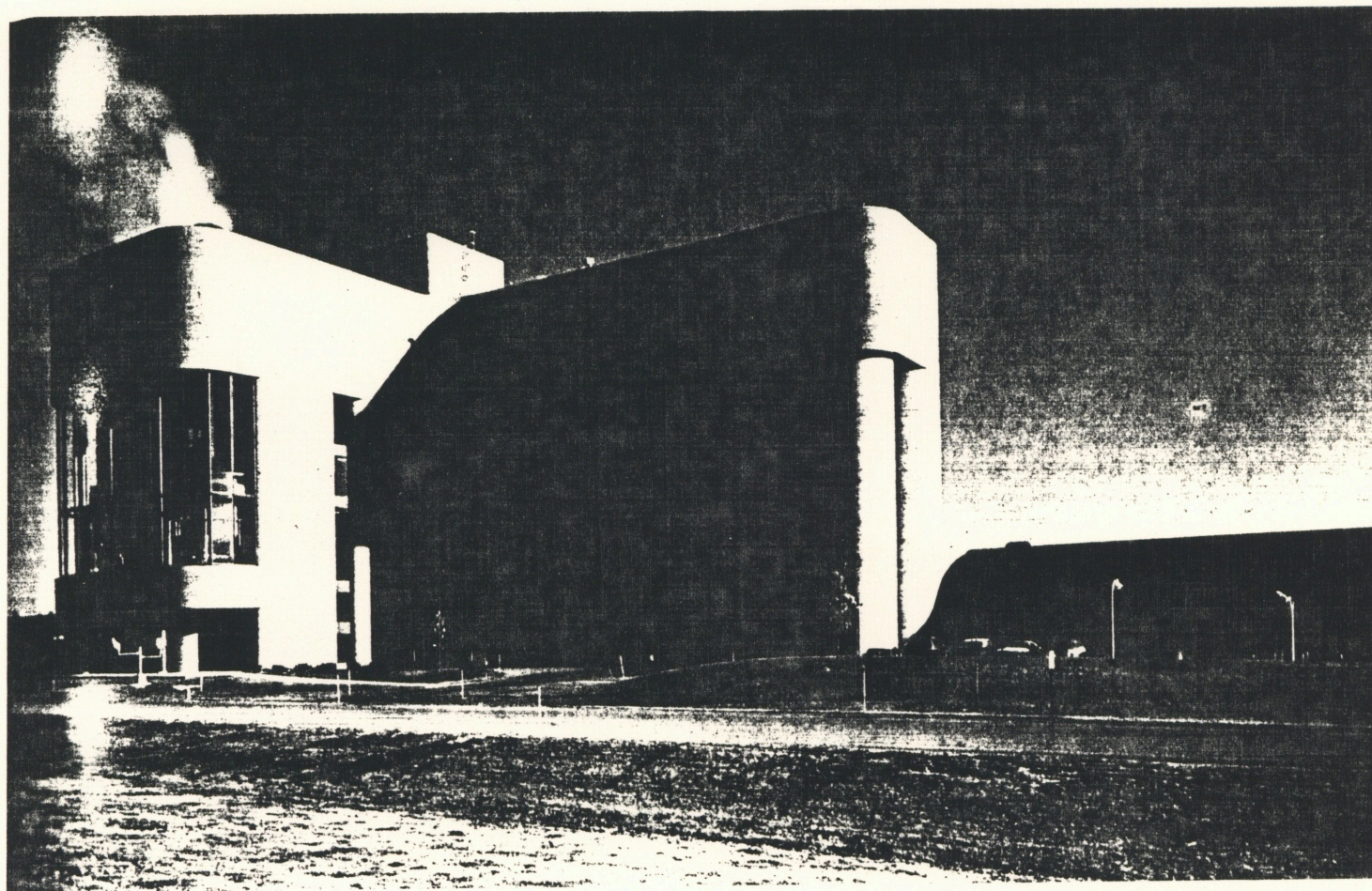
The Lehigh Brewery is a very large facility (600,000 sq.ft.) designed to stand out in a rural area. Certain elements were chosen for visual emphasis as the focus was to make the public aware of the brewery, and interested enough to tour the full plant.

Analysis:

The most prominent elements of the brewery are the large grain storage silos and two stainless steel kettles which are enclosed behind a 40 ft. high window. The functions of the brewery are clearly revealed; while the forms used were taken from the surrounding agricultural structures and related to the production process. The walls of the lower parts of the building are recessed red brick details which derived their form from the storage tanks used in the brewing process. The corners of the exterior walls are rounded, emphasizing the silo shapes.

Implications:

The brewery has actually highlighted its production process through the use of glass and the kettle placement near the windows. Also, the shape of the exterior is reminiscent of grain silos yet it is an interesting mix of industrial necessities and organic shapes. It definately would interest the public, which is also a goal for the depot brewery.



CASE STUDY #6

Project: Carlsberg Brewery
Architect: Egil Ladsten
Location: South Bridge, Northampton

Introduction:

The Carlsberg Brewery, Ltd. was originally the formation of a joint company with Watney Mann Brewery. It is located close to the center of town, enclosed by streets and the River Nene.

Two of the major goals of this project were to express the process of brewing rationally, and to allow for the future incorporation of expansions of the process.

Analysis:

The brewery is divided into three major zones. There are two zones for administration, traffic and storage tanks, and one main zone occupied by the plant building which contains all the major brewing functions. The principal part of this structure houses the most important spaces; the brewhouse and the energy center. These spaces have high visual contact with the river and are highly illuminated at night. The machines are placed freely in the room on steel platforms and may be replaced or added to without any costly disturbance to production.

One side of the brewery is a corridor zone which connects all the production areas. The functions for which expansion predictions are difficult (water tanks, storage tanks, and malt silos) have been kept separate. This allows them to develop independently of any other expansion.

The materials used in construction are concrete, steel and glass. The concrete aesthetically forms a neutral framework for the machinery which has been left as shiny metal or has been painted in bold colors.

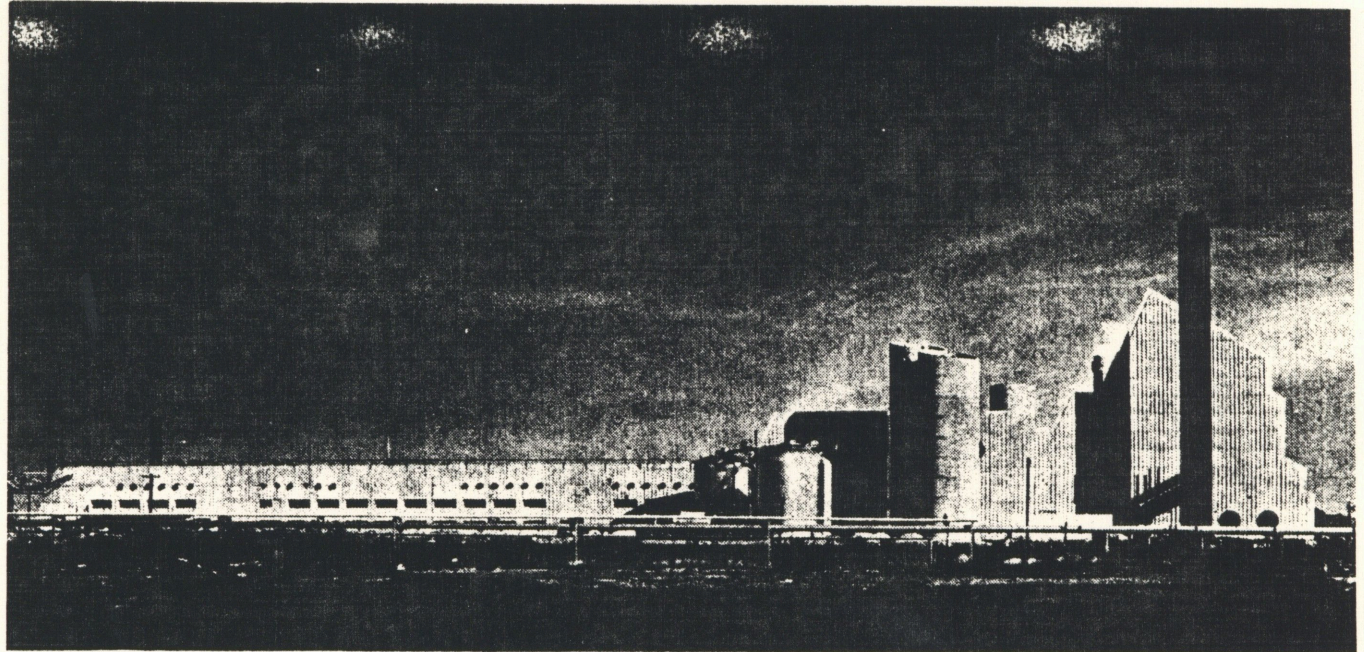
Implications:

The rationale behind the layout of the brewing process is very logical at the Carlsberg Brewery. This logic must be carried over to the depot. However, expansion of this nature is not appropriate for the depot. Instead, the Depot Brewery will be used as a source of intrigue to attract customers to the restaurant.

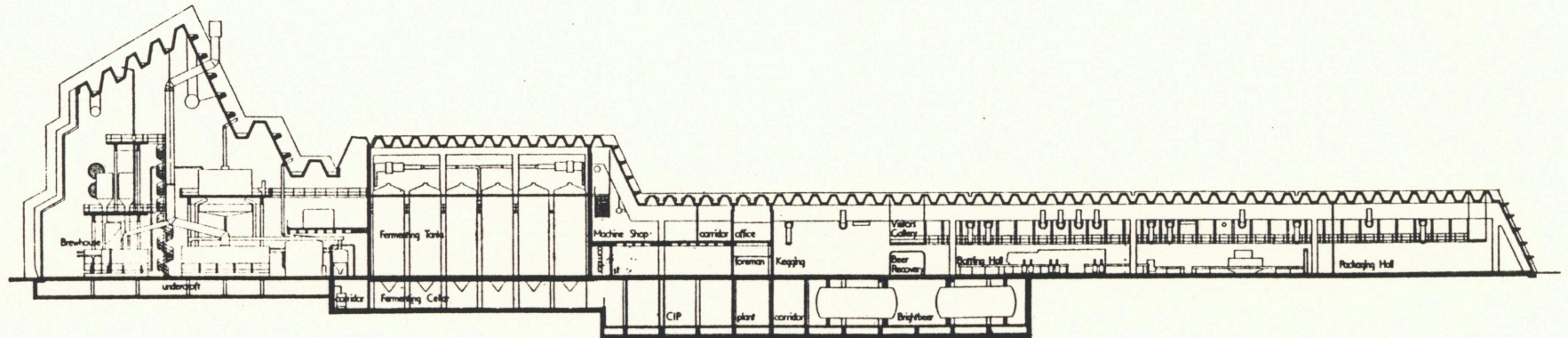
The machines at the depot should also be freely placed on steel or concrete slabs. This will help with maintenance and

acoustical control.

The machines seem to hold more interest when left in their shiny skin as opposed to being painted. The Depot Brewery can use these shiny skins to insure continued interest in the restaurant.



2 The brewery from the west. Energy centre right, offices and plant spaces left.



CASE STUDY # 7

Project: Kessler Brewery
Location: Helena, Montana

Introduction:

The Kessler Brewery is housed in a small stone building in the older part of Helena. The original use of the building was not intended as a brewery.

The brewery puts out approximately 3000 to 5000 barrels of beer per year which is equivalent to 40,000 to 64,000 cases. Anheiser Busch puts out about 72 million barrels a year.

Analysis:

The brewery components are forced to be separated, due to the original plan of the building. However, this does not hinder the brewing process since the malt is manually carried to the brewing vessel and from there, the liquid is pumped through pipes from vessel to vessel.

The packaging is near the service doors which also serve delivery trucks. The deliveries are unloaded in the packaging area and brought via forklift to their intended destinations.

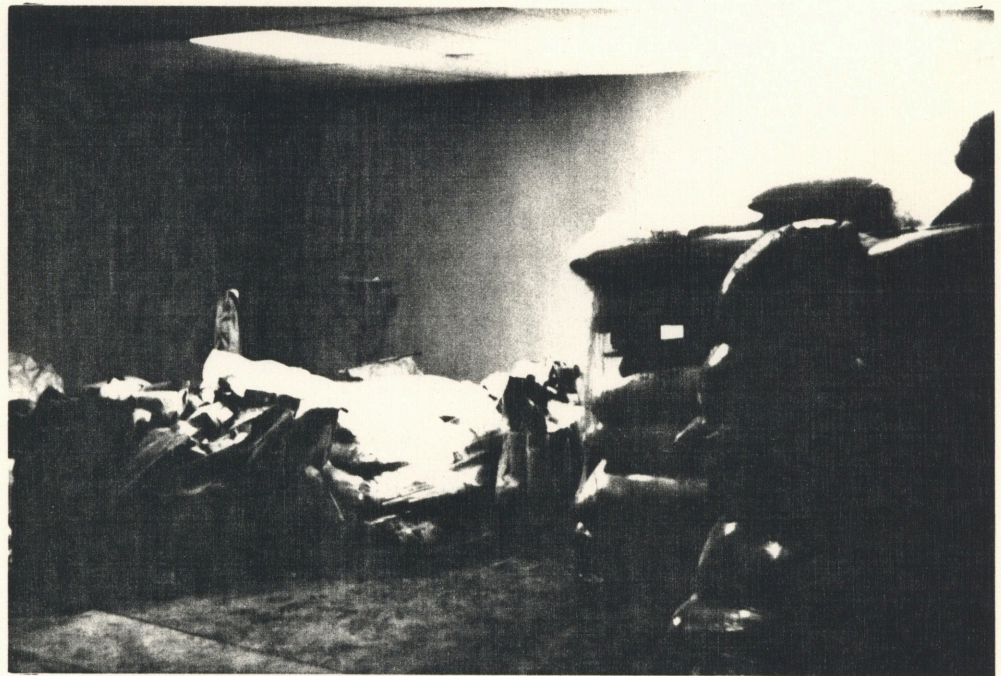
Implications:

The Depot Brewery will be similar in size and output to the Kessler Brewery. The layout of the brewing functions in the Depot will be linear, however, as in the Kessler Brewery, the components may be separated. This introduces the need for a pump system to control the flow from function to function.

The machinery in the depot will function the same as that in the Kessler Brewery, but will be purchased new in order to achieve a stronger appeal for the patrons of the Depot.

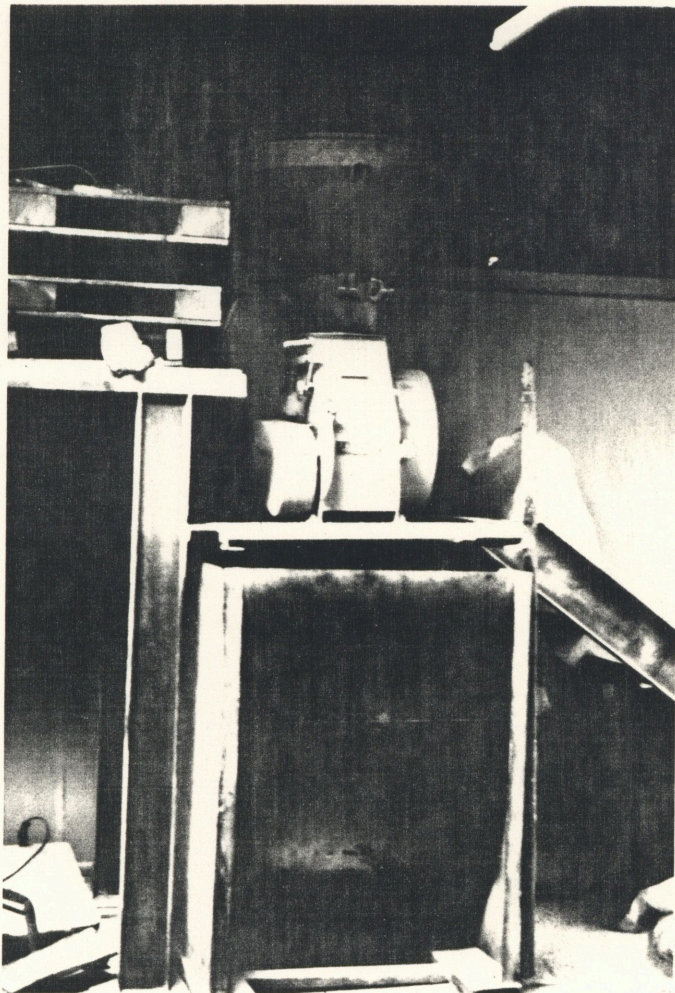
The following photographs describe the Kessler Brewery and the nature of the equipment needed for the Depot Brewery.

1. Malted barley is weighed on the scale in the far corner.

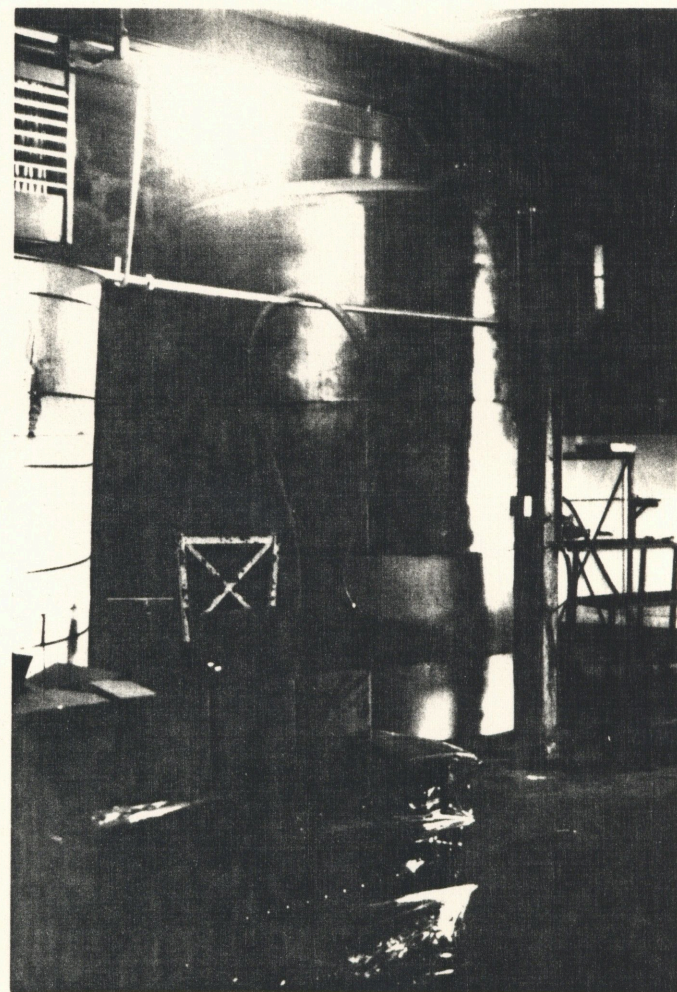


2. An open bag of germinated, dried barley.



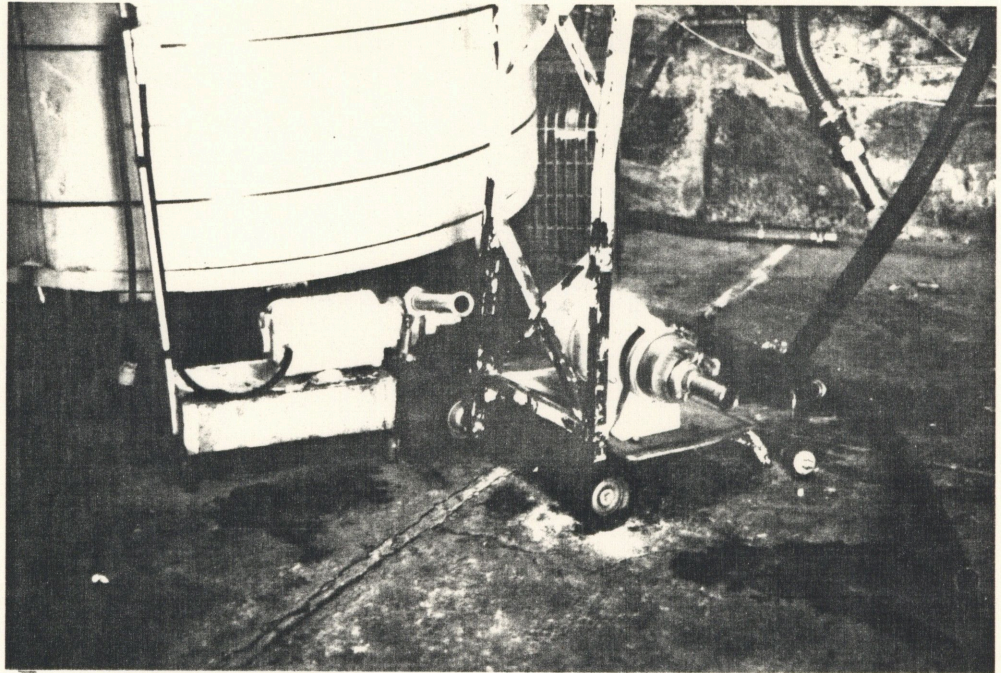


3. Malted barley is ground to a powder in this mill.

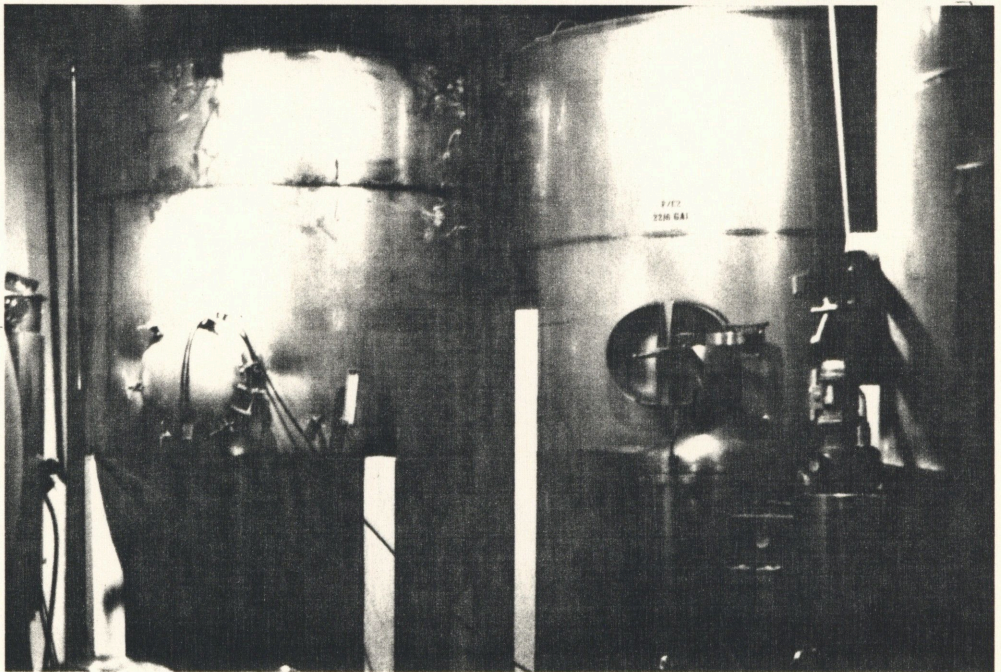


4. A brewing kettle.

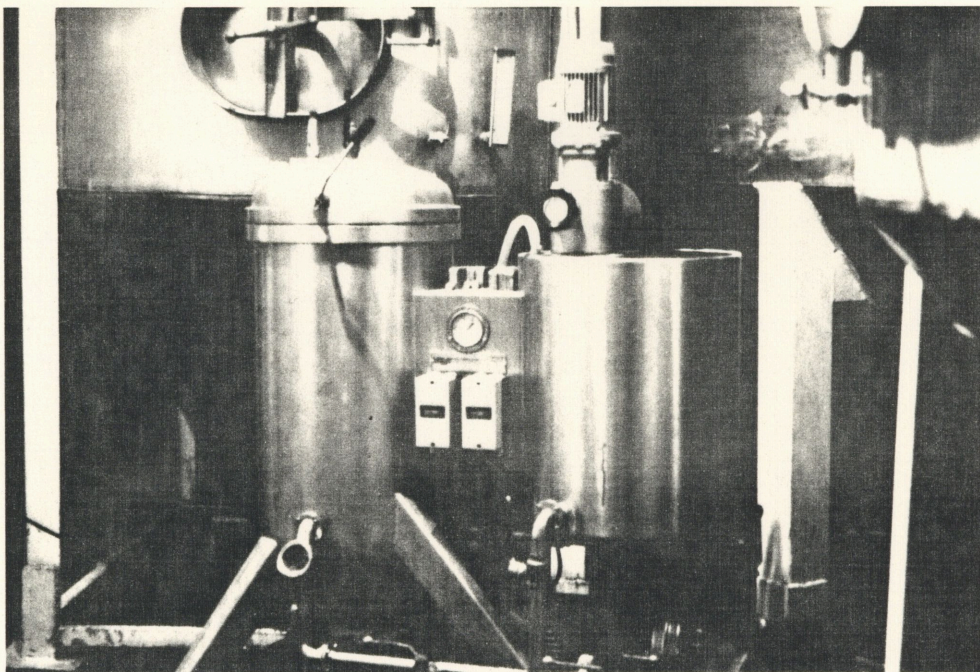
5. Pumps similar to this will force the wort from function to function.



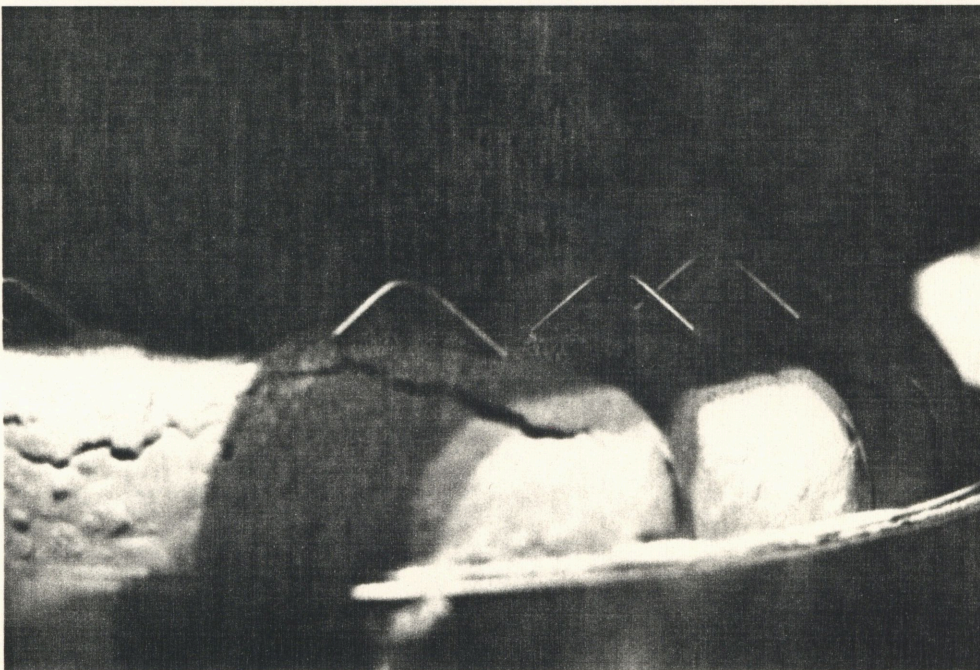
6. Fermentation vessels.



7. A filter system...

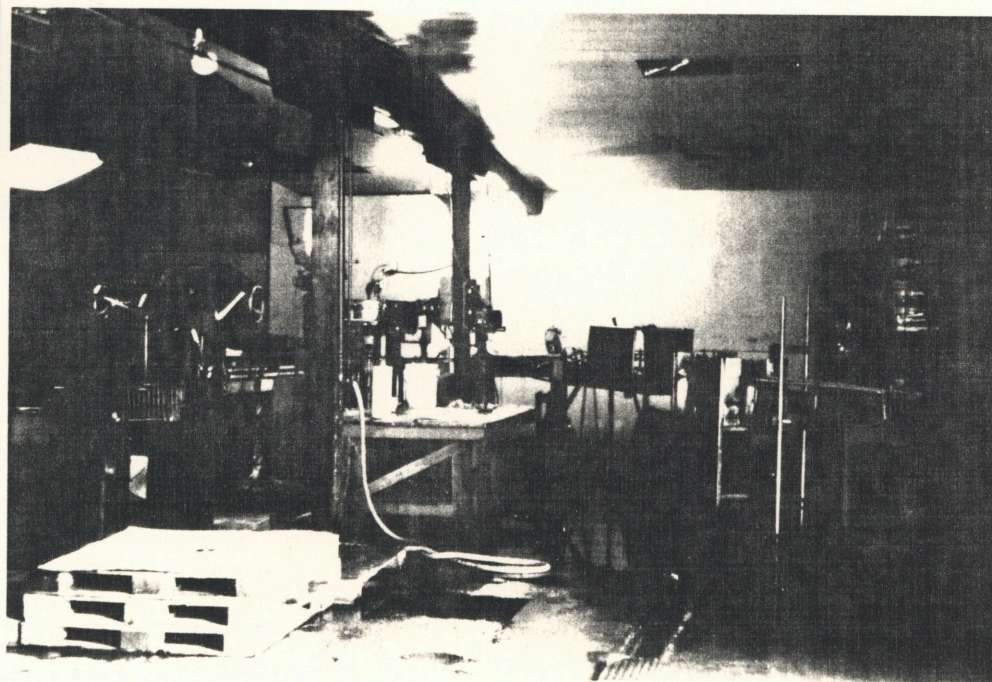


8. Wort is filtered through diatomaceous earth in this case.



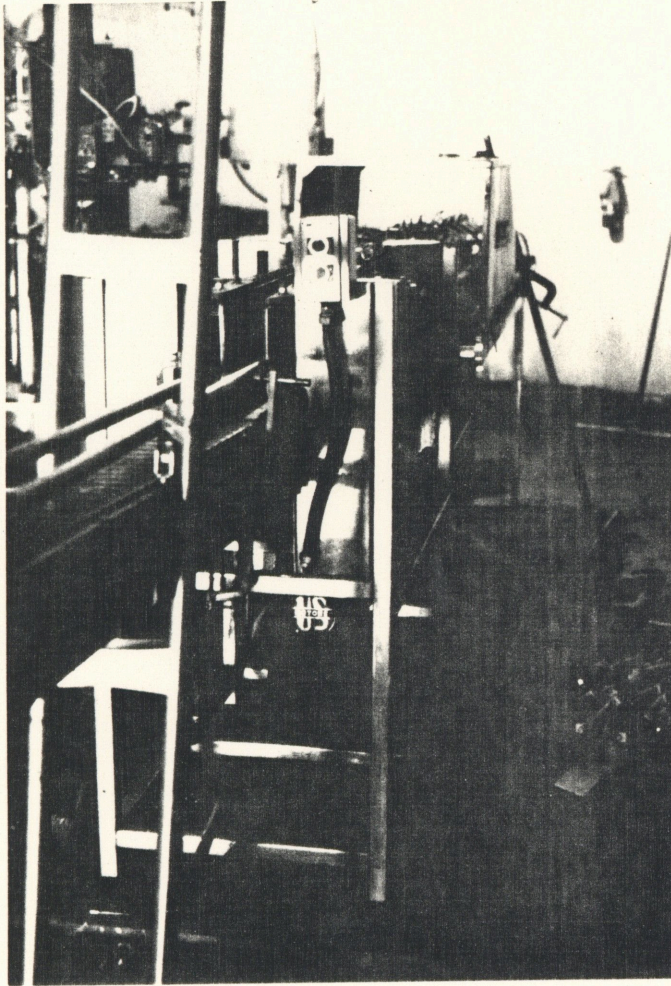


9. Kegs are filled from this conditioning vessel.

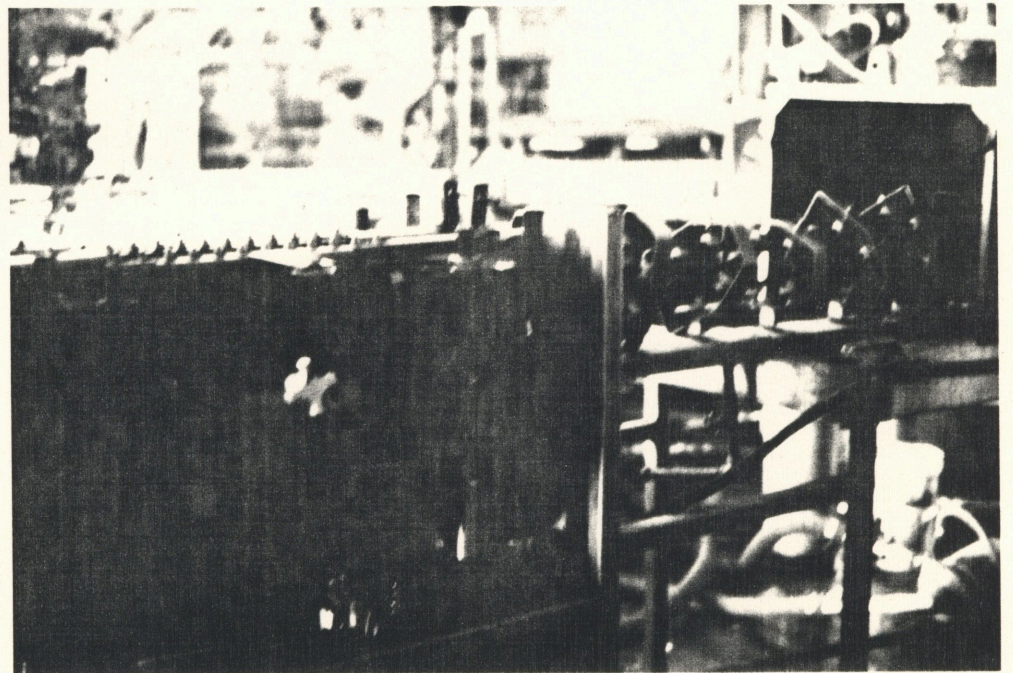


10. The entire packaging process takes place here.

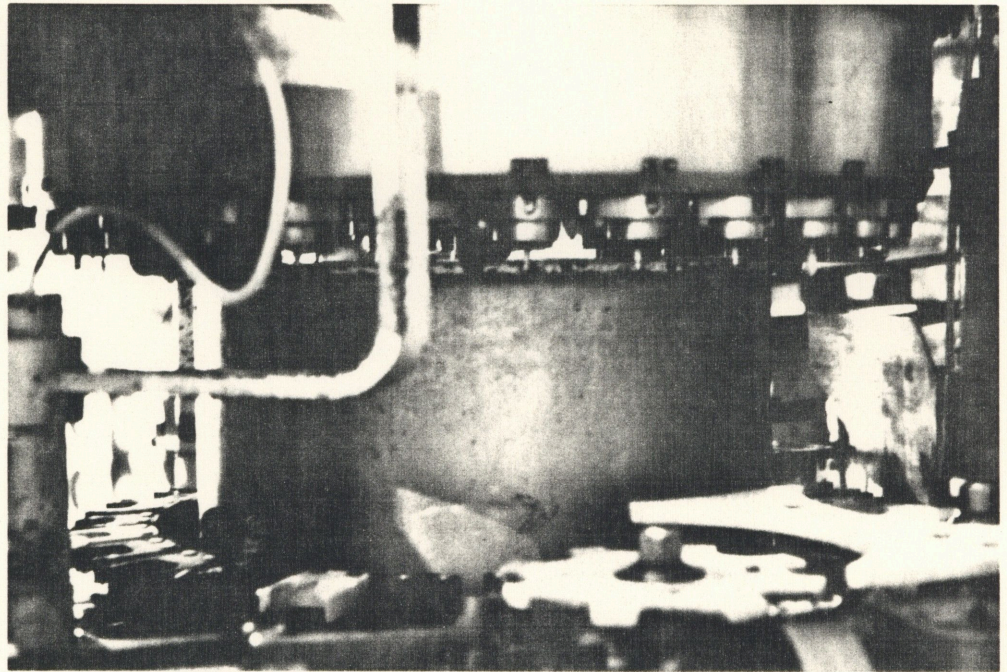
11. Bottles are put on line here.



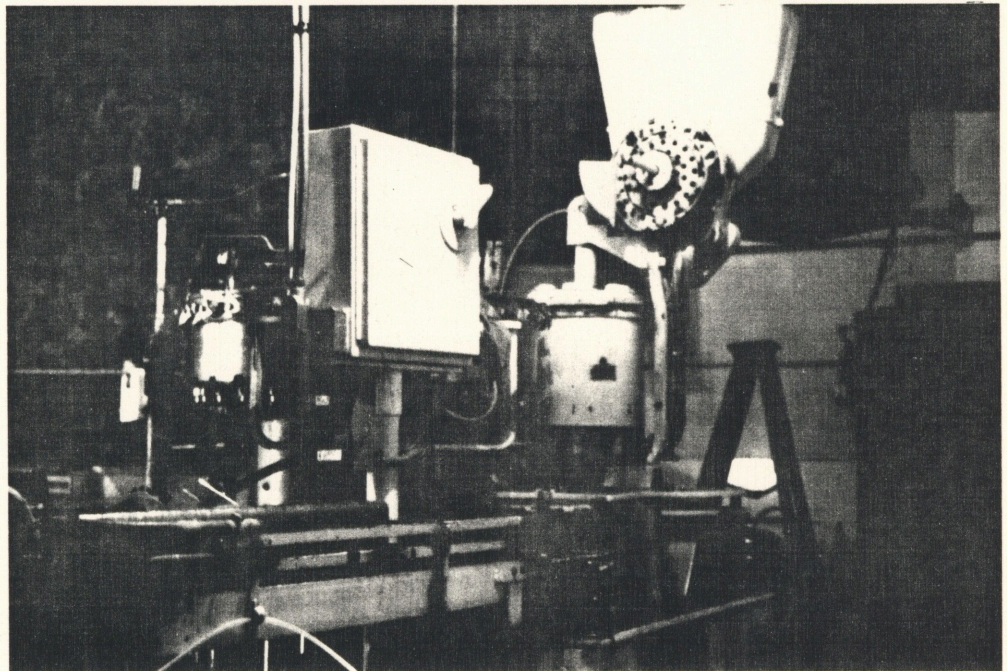
12. The bottles are sanitized and freed of any gas which could cause air bubbles to reject the beer.

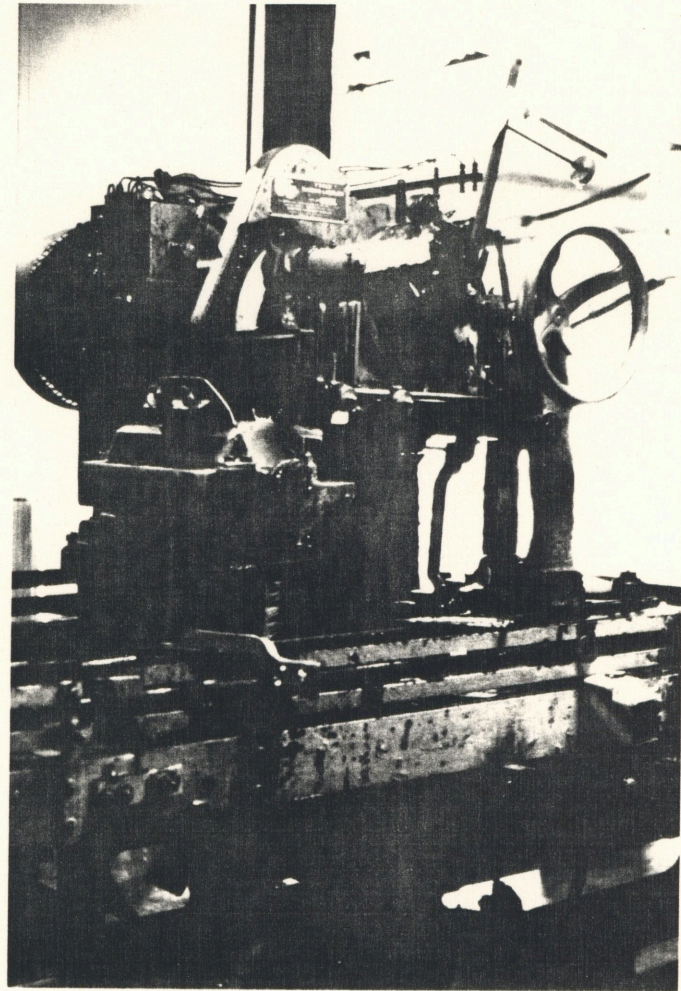


13. The bottles are filled,



14. capped,





15. and labeled.

*Historical Preservation Requirements
and Implications*



The Billings Depot along with the Billings Townsite Historic District is listed in the National Register of Historic Places. This Register gives national distinction to buildings and properties of historical significance and works through the State Historic Preservation Commission.

The standards used for the preservation of historic buildings are those set forth by the U.S Secretary of the Interior in the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. (See appendix C for these guidelines). However, the Historic Preservation Commission has a final say on any alteration, replacement, rehabilitation or renovation to the buildings and properties in the National Register of Historic Places.

"Rehabilitation", as defined by the Secretary of the Interior is as follows:

... the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values.

The rehabilitation discussed here is mainly directed at the character-preservation of the exterior of the building, as the interior has little historical significance. There are concerns, then, with the interior design conflicting with the overall character of the building. Possible conflicts are:

Cleaning exterior masonry:

should be done only when necessary to stop deterioration or remove heavy soiling.

Repairing/replacing roofing and windows:

repairing is preferred, however if replacement is necessary, the new material must match the old material exactly. If this is not technically or economically feasible, then a compatible substitute material may be considered.

Installation of new openings:

may be installed on rear or other non-character
defining elevations as required by the new use.

Replacing loadbearing masonry walls or replacing structural
features:

repairing is preferred, however if replacement is
necessary, the historical importance should be
considered. New material must match the old material,
and if the unit is exposed, it should remain as a
character definition.

Introduction of new mechanical systems:

must minimally disturb historical features and
materials.

Dropped ceilings:

should not interfere with the visual integrity of
window openings on the exterior.

Retaining interior features and finishes:

these should be retained when they're important to the
definition of the historical character.

Providing barrier-free access:

must not radically change, obscure, damage, or destroy
character-defining materials or features.

General Requirements



BUILDING CODES

The Uniform Building Code Book outlines the building requirements for historic buildings in section 104 (f). This section states that repairs, alterations and additions necessary for the preservation, restoration, rehabilitation or continued use of a building or structure may be made without conformance to all the requirements of the code when authorized by the building official, provided:

1. The building or structure has been designated by official action and recognized by the code to have historical or architectural significance.
2. Any unsafe conditions as described in the code are corrected.
3. The restored building or structure will be no more hazardous based on life safety, fire safety and sanitation than the existing building.

The depot presently is not hazardous to life or fire safety and sanitation applications will remain the same for the new use. However, in order for the depot to fulfill the current building codes in its new use, the following would apply for a mixed occupancy of groups A-3 and B-2:

Occupancy Separations	none required		
Uses	Dining, Kitchen, Offices and Brewery		
Occupant Load Factors	Dining	15	
	Kitchen	200	
	Offices	100	
	Brewery	100	
Occupant Load	Dining		505
	Kitchen		14
	Offices		06
	Brewery		22

Number of Exits Required

Dining	2
Kitchen	1
Offices	1
Brewery	1

Total Width of Exits

Dining	10.1
Kitchen	.28
Offices	.12
Brewery	.44

Distance to Exits

not more than 200 ft.
where sprinklers are
installed
not more than 150
where no sprinklers
are installed

Doors

Swing Out Required
Special Hardware Required

in the direction of travel
shall be operable from the
inside without the use of
a key or any effort or
special knowledge

Corridors

Width
Height
Openings

not less than 44 inches
not less than 7 feet
total area shall not
exceed 25% of the area
of the corridor wall of
the room which it is
separating from the
corridor

Sprinklers Required
Flame Spread Requirement
Corridors

yes

Rooms

Class II (Class I with
sprinklers)
Class III (Class II with
sprinklers)

ZONE IMPLICATIONS

Currently the Billings depot is located in the Central Business District (C.B.D.). The restrictions and limitations of this district present the Depot Restaurant and Brewery with the need to attain special reviews and variances to the code.

Special Review

Sec. 27-802. Supplemental commercial development standards.

Certain commercial uses shall be specifically restricted as follows:

1. **Bars and Taverns.** Any person desiring to use any premise or to erect, construct or alter any new or existing building or structure for use as a bar, tavern or any commercial establishment which serves alcoholic beverages as a primary or accessory use shall first make application for special review as regulated in section 27-1003. No building, structure or premises shall be used for retail alcoholic beverage sales unless:

a. The lot or parcel of land so to be used has a street frontage of at least one hundred (100) feet and an average depth of at least (100) feet;

b. A distance of six hundred (600) feet between property lines measured in a straight line from any school, playground, public park, public recreation area, churches or other public buildings.

Exceptions to the terms of this section may be granted by the city council when upon recommendation by the zoning commission, it is found that the strict application of the provisions of this section may result in undue hardship, and that granting of such exception shall be in the public interest.

Variance

Also, places of alcohol manufacture and packaging are prohibited by the zoning commission, therefore a variance is necessary to accommodate the brewery.

Off-Street Parking

Mixed Occupancies: In the case of mixed uses, the total requirements for the various uses shall be computed separately. The total requirements are to be the sum of the area computed. Off-street parking facility for one (1) use shall not be considered as a substitute for joint use.

Food or beverage places with sale and consumption on the premises: If over 4,000 sq. ft. of gross floor area must allow 40 plus 1 per 300 sq.ft. or 0.3 spaces per seat.

Manufacturing uses, research testing and processing, assembling, all industries: 1 per 2 employees on maximum shift but not less than 1 per 800 sq.ft. of gross floor area.

Signage

Sec. 27-713. Signs in the historic district.

a. Statement of special purpose. This special code acknowledges the unique visual concerns associated with the Billings Townsite Historic District as defined in section 6-1103, and recognizes the benefits of restoring the district's visual appearance of prosperity, cohesiveness and historic integrity, while continuing to promote business, advertising, variety, individuality and growth.

b. Signs permitted in the historic district. Within the Billings Townsite Historic Districts, signs are permitted as follows:

1) Signs and sign lettering within the Billings Townsite Historic District shall be designed and installed to compliment the architectural style.

2) No sign shall be permitted to obscure or cover any significant architectural detail or decorative element of the existing building.

3) Only signs that advertise an activity, business, product or service conducted or available on the premises on which the sign is located, shall be allowed within the Billings Townsite Historic District.

4) No new roof signs shall be permitted.

5) Excluding window signs, one additional sign type per business is allowed, except for businesses with entrances on more than one street, in which case one sign type per street entrance is allowed.

6) No off-premise signs are permitted.

7) The size of signs in the historic district is limited to fifty (50) percent of that allowed in the existing sign code.

8) Once the copy of an existing sign is changed it must come into compliance with the special provisions of the historic sign district and the existing sign code.

HANDICAPPED REQUIREMENTS

BUILDING ACCESSIBILITY:

1. At least one primary entrance shall be accessible to the physically handicapped.

DOORS:

1. Required doorways shall be at least 36 inches wide and have a clear opening of not less than 32 inches when the door is opened fully.
2. The threshold of all doors shall not exceed one-half inch.
3. There will be a floor or landing on each side of a doorway, with a minimum diameter for turning of 48 inches, however a 60 inch diameter is recommended. Landing length shall be no less than 60 inches.

CHANGES IN FLOOR ELEVATIONS:

1. Changes in floor elevation shall be made by means of a ramp.
 - a. The width of the ramp shall be the same as required for stairs.
 - b. The slope shall not be steeper than a 1 to 12 slope.
 - c. Any ramp exceeding five feet of rise must have an intermediate landing.
 - d. The surface of a ramp shall be roughed or of a slip-resistant material.

ACCESS TO TOILET FACILITY:

1. There shall be a clear space of not less than 44 inches on each side of the doors to the toilet rooms. The distance shall be measured at right angles to the face of the door when in a closed position and not more than one door may encroach into the 44 inch space.

2. A clear space shall be provided in the toilet room of sufficient size to inscribe a circle with a diameter of not less than 60 inches. Doors in any position may encroach into this space by not more than twelve inches.

3. A clear space not less than 42 inches wide and 48 inches long shall be provided in front of at least one water closet stool.

a. Entry to the water closet compartments shall have a clear width of 32 inches when located at the end and a clear width of 34 inches when located at the side.

b. A door, if provided, shall not encroach into the required space in front of the water closet.

c. Except for door swing, a clear unobstructed access not less than 48 inches in width shall be provided to the toilet compartment.

4. Grab bars must be located near each side or on one side and the back of the toilet stool.

a. They must be securely attached 33 inches to 36 inches above and parallel to the floor.

b. Grab bars at the side shall be 42 inches long with the front end positioned 24 inches in front of the water closet stool.

c. Grab bars at the back shall be not less than 24 inches long for room installation and 36 inches where the water closet is installed in a stall.

d. Grab bars shall have an outside diameter of not less than one and one-quarter inch nor more than one and one-half inches and shall provide a clearance of one and one-half inches between the grab bar and adjacent surface.

ACCESS TO LAVATORIES, MIRRORS AND TOWEL FIXTURES:

1. Except for the projection of bowls and waste piping, a clear unobstructed space 36 inches in width and 17 inches in depth shall be provided under at least one lavatory.

2. Mirrors shall be installed so that the bottom of the mirror is within 40 inches of the floor.

3. At least one towel fixture and one disposal fixture shall be within 40 inches of the floor.

TELEPHONES:

1. At least one telephone shall be installed so that the handset, dial and coin receiver are within 54 inches of the floor.

2. Unobstructed access within 12 inches of the telephone shall be provided and such access shall be not less than 30 inches in width.

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Appendices



APPENDIX A

THE BREWING PROCESS

The brewing of bright beer refers to the process by which malted barley is extracted with water, boiled with hops, cooled, and then fermented with yeast. This liquid is then clarified and dispersed in an effervescent condition; what we commonly refer to as beer.

The brewers primary raw materials are malted barley, water and hops. The malted barley is first ground in such a way that the husk of the grain is left intact while the remainder becomes a very coarse powder. This is referred to as milling. The milling product, or powder is rich in starch and in the enzymes which are capable of rapidly degrading the powder when water is added to it.

After milling, there are several methods of mashing to obtain a satisfactory wort (the liquid extract of the malt). These methods are: infusing mashing, decoction mashing, a double mash system, a combination of decoction and double mashing, and a temperature-programmed mashing system. These systems all involve the attack of enzymes on the malt and its degradation products (amylolysis), which produces a sweet wort when hot water (or liquor as brewers refer to it), is added to it.

The wort produced by the mashing process is then boiled in order to arrest further enzyme action, sterilize the wort, and hasten certain chemical changes. This also precipitates some of the proteinaceous material of the wort as a coarse coagulum (referred to as hot trub) and is often mixed with the spent hops and used in cattle feed. In some cases, during the boiling process additional sugars or syrups are added. Other additions may include materials which encourage coagulation of protein and hops or bitter products derived from hops. The optimum boiling length is approximately 90 minutes depending on the desired bitterness.

Hops are selected primarily on the bases of their bitterness. Recently, there has been an increase in the use of hop powders, pellets and extracts. These varied forms of hops are easier to store, so full advantage can be taken of the years when good hops are abundant. Also, they are less bulky than whole hops, deteriorate faster, and require less cold storage and boiling time.

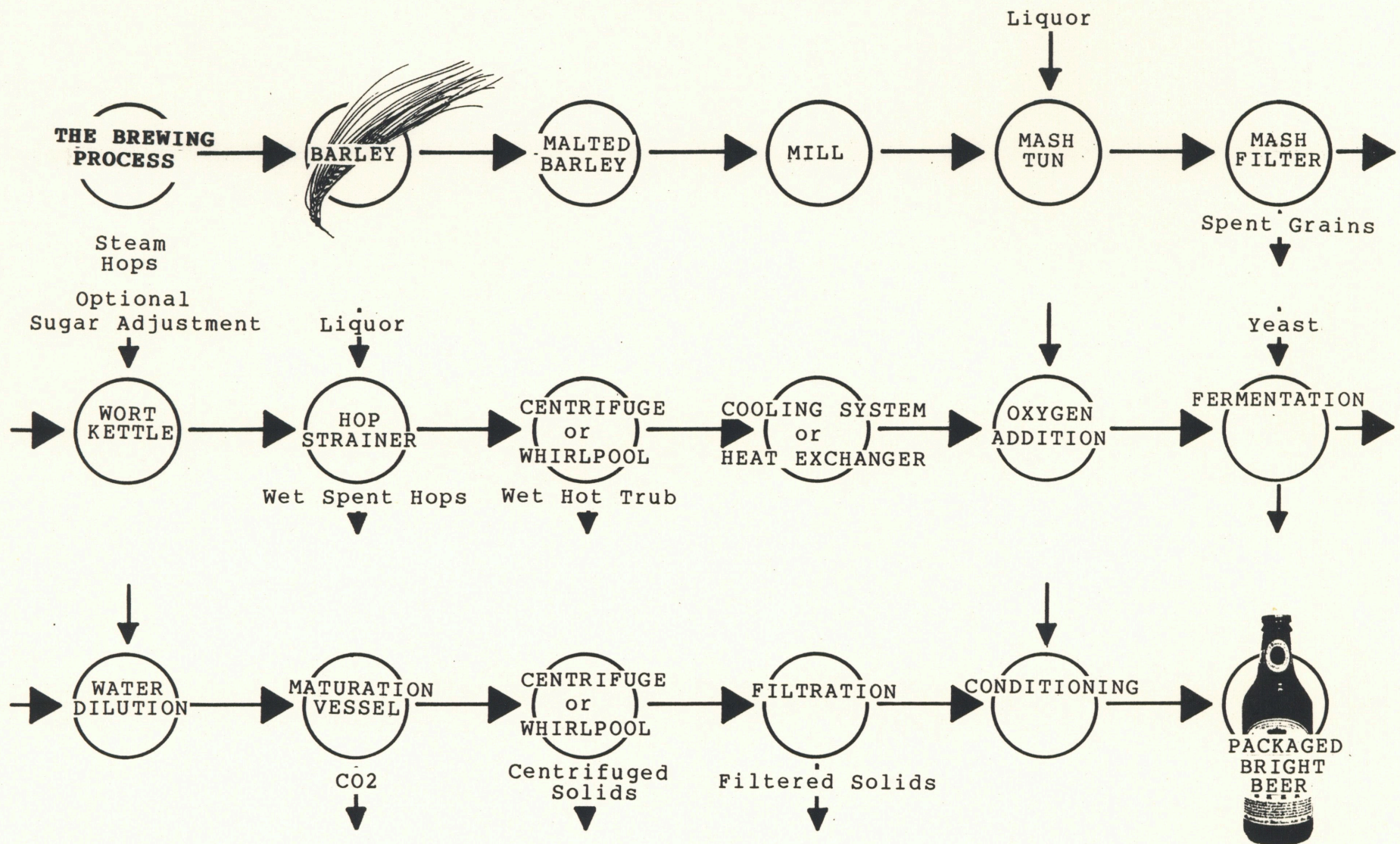
At this point in the brewing process more hot trub is sifted out of the wort by centrifugation or by a whirlpool process.

Next the clear hopped wort is cooled in order for fermentation to take place. This usually takes place in a heat exchanger. More solid waste product (trub) is extracted out; it is now called cold trub and it basically appears in the wort solution as a haze. During this cooling process, oxygen is mixed with the wort. Oxygen encourages the growth of yeast which is involved in the next step of the brewing process, fermentation.

The fermentation process involves the mixing of yeast with the wort. The temperature at which this is done determines the fermentation level and therefore the type of beer it becomes. When mixed at 16 degrees Celcius, it becomes a top yeast mixture or ale. And at 10 degrees Celcius, it becomes a bottom yeast mixture, or lager. Fermentation generally takes ten days to four weeks depending on the temperature chosen.

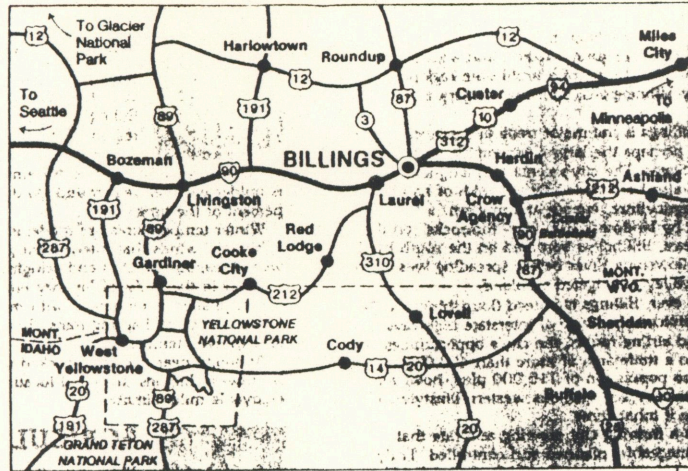
Generally, yeasts are separated out through centrifuges and then chilled and filtered again, thereby flushing out the last of the volatile substances with carbon dioxide which also carbonates the beer. This is a simple description, however. There are many conditions and processes by which brewmasters achieve different types and tastes of beer. In most cases, the end product is referred to as a bright beer.

For most bright beers, it is considered desirable that they remain brilliantly clear even after several months stored at any temperature, they develop a stable white foam when poured, and the flavor and gas content remain constant.



SURROUNDING AREA

CITY MAP OF BILLINGS, MONTANA



APPENDIX C

THE SECRETARY OF THE INTERIORS STANDARDS FOR REHABILITATION

1. Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration of the building, structure, or site and its environment, or to use a property for its originally intended purpose.
2. The distinguishing original qualities or character of a building, structure, or site and environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.
3. All buildings, structures, and sites shall be recognized as products of their own time. Alterations that have no historical basis and which seek to create an earlier appearance shall be discouraged.
4. Changes which may have taken place in the course of time are evidence of the history and development of a building, structure, or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.
5. Distinctive stylistic features or examples of skilled craftsmanship which characterize a building, structure, or site shall be treated with sensitivity.
6. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historic, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other buildings or structures.

7. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.

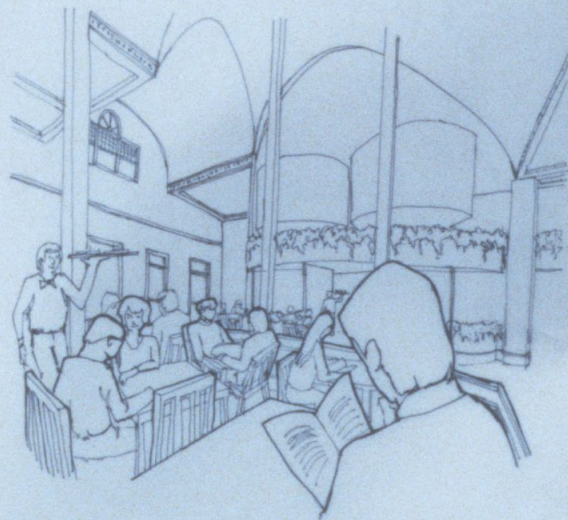
8. Every reasonable effort shall be made to protect and preserve archeological resources affected by, or adjacent to any project.

9. Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant historical, architectural or cultural material, and such design is compatible with the size, scale, material, and character of the property, neighborhood or environment.

10. Wherever possible, new additions or alterations to structures shall be done in such a manner that if such additions or alterations were to be removed in the future, the essential form and integrity of the structure would not be impaired.



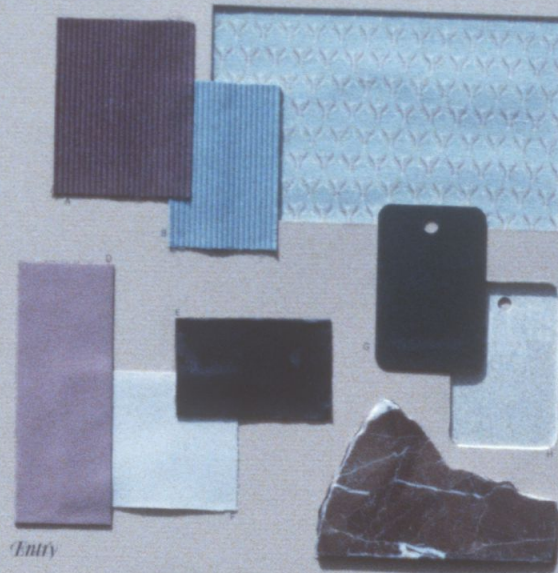
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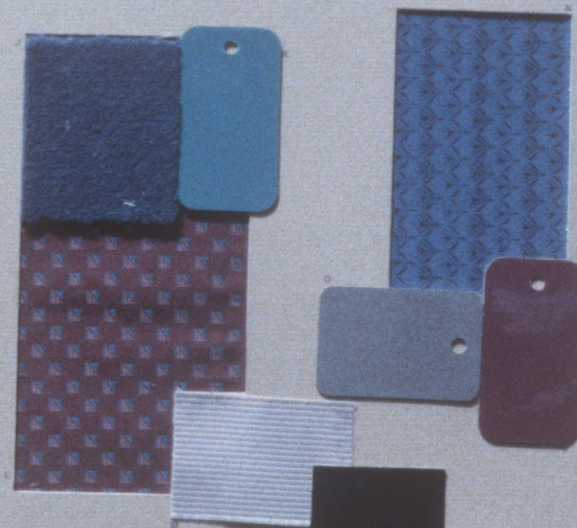
Dining



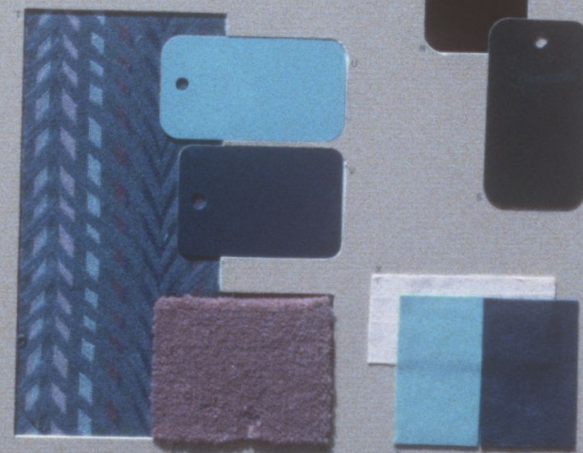
Beer Gardens



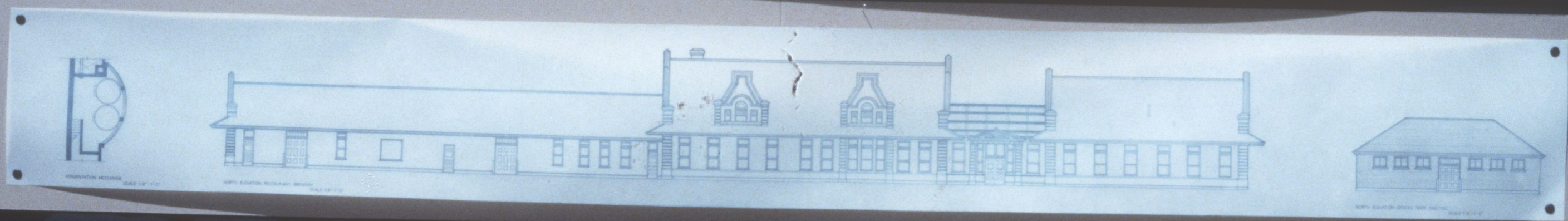
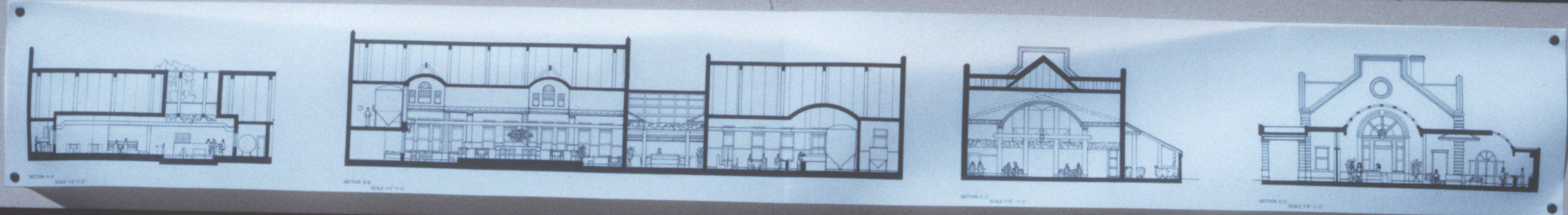
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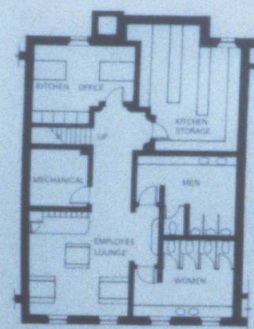


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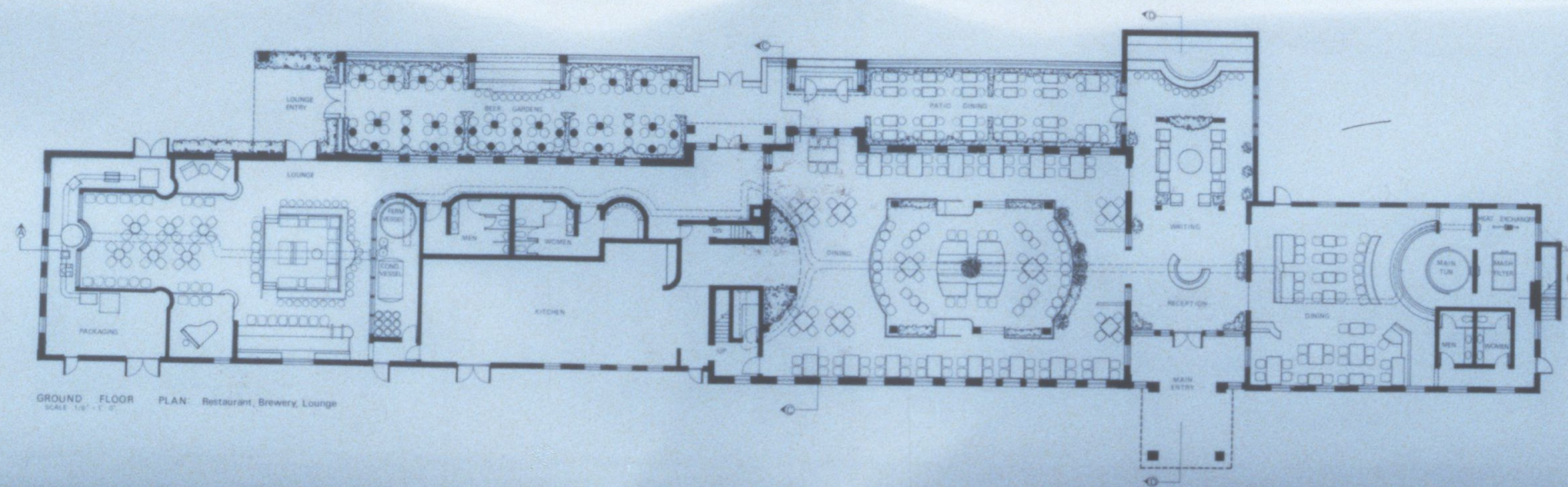


Lounge

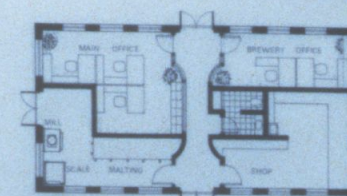




BASEMENT FLOOR PLAN Restaurant
SCALE 1/8" = 1'-0"



GROUND FLOOR PLAN Restaurant, Brewery, Lounge
SCALE 1/8" = 1'-0"



FLOOR PLAN Office, Shop, Milling
SCALE 1/8" = 1'-0"

NORTH

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