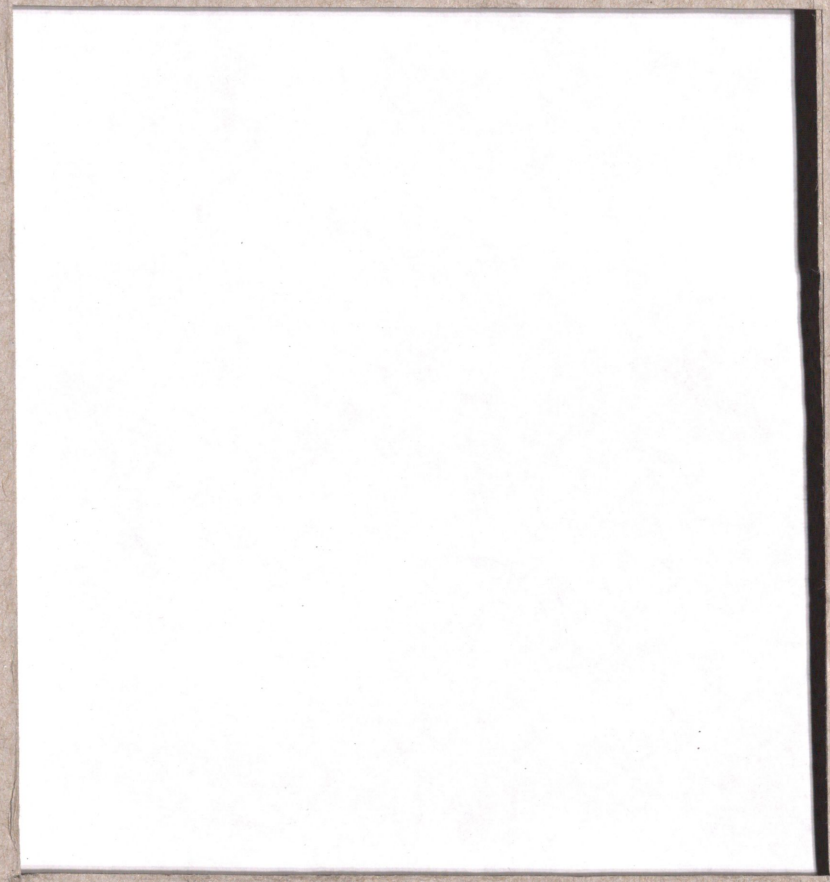
Montana State University Library, Bozeman

"It's the Wheat"

Bozeman
Milling
Company

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Bozeman Milling Company

Renovation of the Story Mill

a Senior Project

Chad B. Sutter

Interior Design, Spring 1992
Robert Peña, Advisor
Pamela Bancroft, Committee Person

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Date: MAY 15, '92

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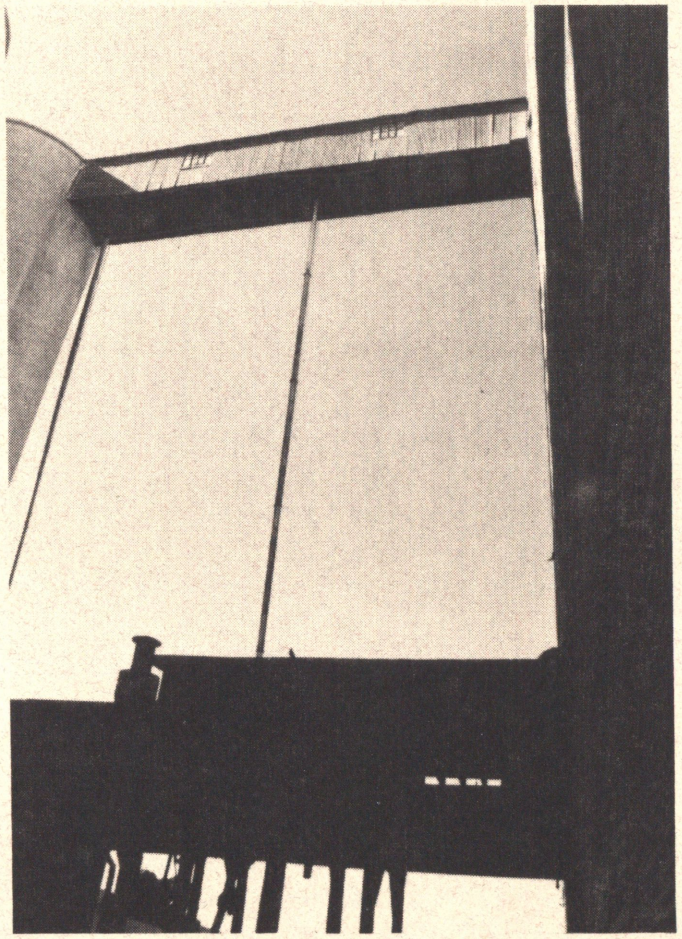
PROJECT STATEMENT



1. South side of the old shop building.

Project Statement: The purpose of this project is to develop a viable proposal for the re-use of the Story Mill in Bozeman, Montana. The process shall express skills learned during past years at Montana State University and shall promote furthering of certain skills and capabilities. These may include spatial planning, design development, rendering and modeling.The re-use will be in the form of retail and commercial space that enhances the Bozeman community and provides a positive environment for business and the public.

PHILOSOPHY



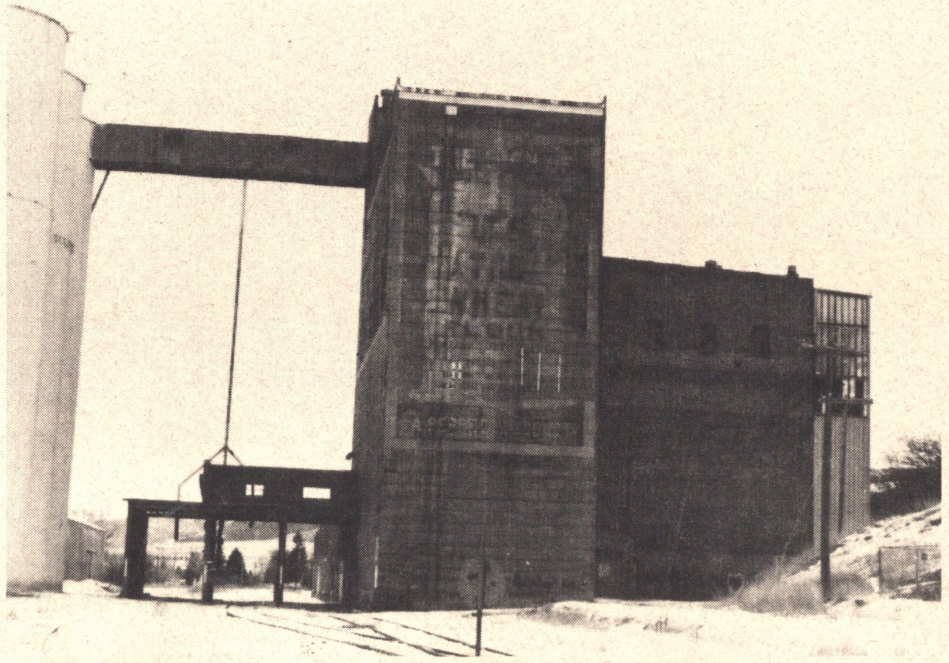
2. Catwalk between concrete grain tanks and metal elevator building.

Philosophy: I am a strong believer and advocate of preserving our past; be it in the form of architecture, antiques, cars, music, photography, art or other disciplines. Preservation is a form of conservation. This project provides an ideal ground to re-habilitate and re-use an existing site and structure. The resultant re-use of the facility may require alteration or modification of both interior and exterior spaces and facades. I intend to maintain the historic character of the milling and elevator facilities both inside and out, while at the same time providing a beneficial climate for business and the surrounding community. I also believe that the businesses which rely on the community for profits should give back to and provide for the community. I intend to provide spaces for the public that address such issues.

GOALS / CHALLENGE



3. View to South from corner of Story Mill Road and Hillside Lane.



4. View to North from railroad right of way at Story Mill Road.

Goals/ Challenge: The development of this design calls for the creation of retail and commercial spaces within and around one of Bozeman's more significant historic buildings. The final design should create a micro-environment that reflects the history of the former milling and elevator buildings and satisfies the needs of the businesses within. Attention and sensitivity to the character of the facility shall be maintained at all times. Former uses should be considered when re-developing both interior and exterior space.

Currently the mill stands silent, windows are broken and boarded over, bricks are falling and paint is peeling away from walls, and the site littered with remnants and in poor condition. An important part of the design challenge is to create a "place" to go and to be. The finished product shall draw the public to Bozeman's North-East corner; it shall be a beneficial addition to the community. The New Story Mill shall provide for retail/ shopping space, commercial/ office and restaurant space and public activity space. If executed properly the mill could become a center of activity for Bozeman and the entire Gallatin valley.



5. Old photo of mill taken in the early 1900's.

History: The Bozeman Milling Company was incorporated on March 12, 1892. The mill was started by an unknown party who ran into financial troubles. Malcolm Story bought this person out and finished the mill by the time of the Fall harvest of 1892. Materials came to the site in a variety of ways. Mr. Story brought some of the first materials by wagon from flatboats that had come up the Missouri River. A railroad spur line was eventually laid from the Milwaukee Railroad mainline in Bozeman to the mill. This line was continued on to Maudlow, the site of another elevator facility. (Today Maudlow is inhabited by only two families and the elevator is no longer in service). During the same time period as the Story Mill, several other elevator facilities were built throughout Gallatin Valley. The flour milling facility was more unique though, as the equipment required a substantial investment and expanded facilities.

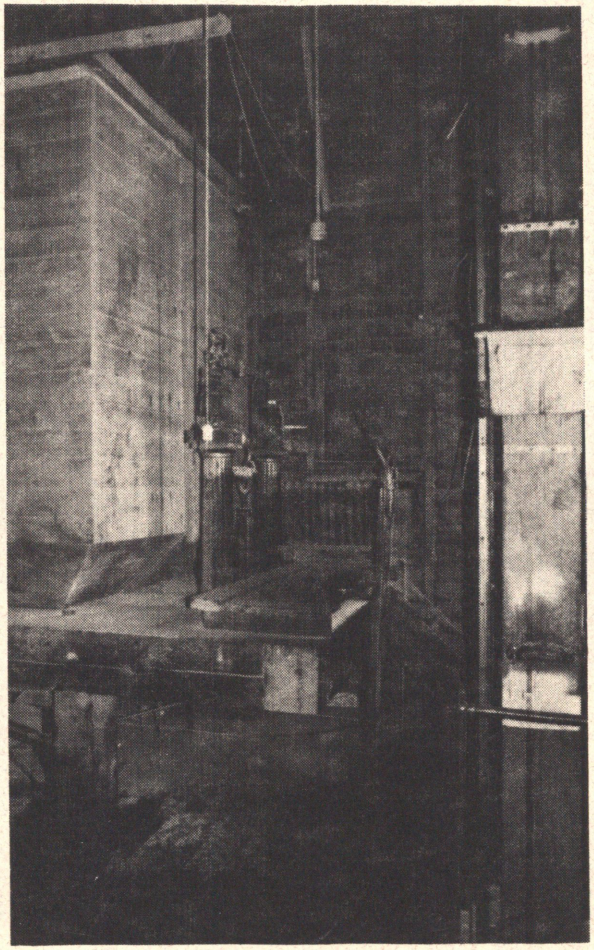
The flouring mill of the Bozeman Milling Company was built immediately adjacent to the elevator

facilities. The mill and the elevator were powered by a large water wheel that was two floors below the mill building. The canals that fed the wheel came from what is now Bridger Creek, Rocky Creek and Bozeman Creek. They are still in place today and are used for irrigation. The discharge water flowed due West to join the East Gallatin River. When electric power became affordable the plant was switched over to the more reliable power source. At one point in the mill's history coal and eventually natural gas were installed and a large boiler room was added and steam was used as a primary power source.

The flouring mill began operation in the Fall of 1892 and was run continuously 24 hours per day seven days a week, Christmas being the only exception. Ceretana Flour was milled there from 1892 through 1965 (a fire completely burned the facilities down in 1901, but it was rebuilt and back in operation the same year. This was the only time of non-operation for 73 years.). Seventy-five men worked at the



6. Old mill and elevator buildings on fire 1901. They burned down completely.



7. Platform scale and manlift on third floor in elevator building.

mill and elevator. The warehouse at the North end of the building was stacked to the ceiling with 100 pound flour sacks. The production and storage facilities achieved increased capacities over the years of operation. When first opened the flour mill could produce less than 200 barrels per day, by 1906 production capacity had increased to 650 barrels per day. Flouring activities ceased in 1965 and Roman Meal Cereal was made at the mill for four years until 1969. In the early 1970's the mill equipment was disassembled and shipped to Oakland, California where it is in use today. Some of the large metal flour holding tanks have been sent to Great Falls, Montana and are now being used by General Mills.

The grain elevator facilities saw a great deal of change during their lifetime, too. The elevator when first built had a capacity of 75,000 bushels. By 1965 the dry storage capacity had grown to 882,000 bushels; this by the addition of concrete and metal silos and a large (350,000 bushel) metal warehouse-type building. Originally the eleva-

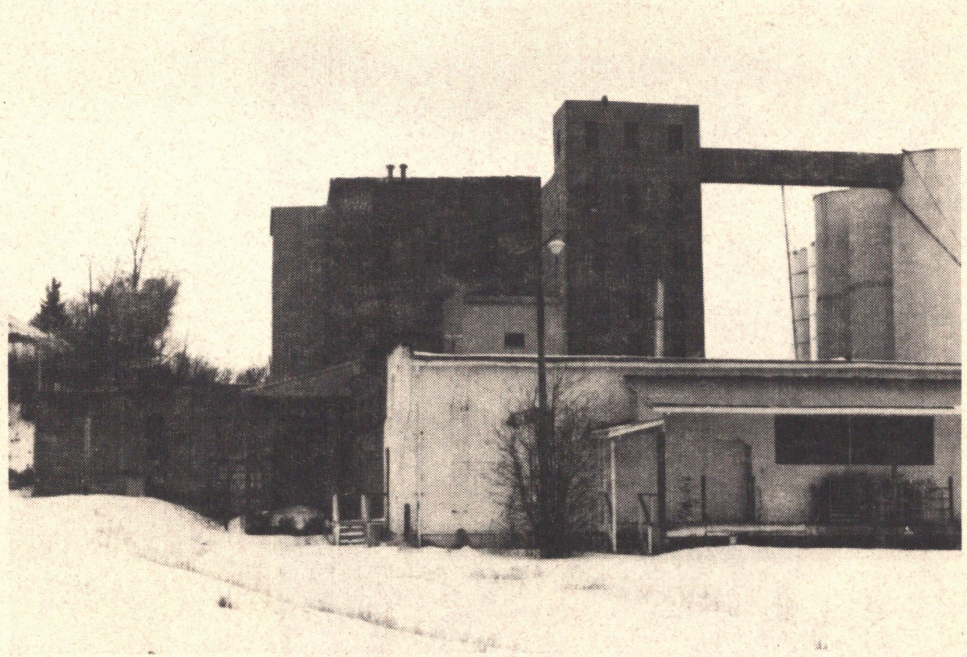
tor was filled a wagon load at a time. Horse drawn wagons entered the scales between the mill and elevator and dumped their grain after weigh-in. As the years progressed, trucks and trains replaced horses and wagons. From the mainline the railroad tracks branch off into three spurs, some of which were divided further.

The elevator and storage tanks were last filled to capacity in the early 1980's under the U.S. Government Credit/Commodity Grain Program. In September of 1989 the final load of grain left the elevator . The buildings were used for dry storage of feeds and fertilizers for a few years, but today they are mostly vacant and empty. Little has been done to maintain them and vandalism has taken almost as much of a toll as the harsh Montana weather.



8. Portrait of mill workers in the 1890's.

CONTEXTUAL INFORMATION



9. View of Northeast corner of the facilities. (taken from Hillside Lane)

Regional Information:

Bozeman is located in the Southwest portion of Montana in the Gallatin Valley, high in the Rocky Mountains. The scenery is of majestic mountain ranges and broad rolling valley fields. Bozeman is the home of Montana State University and the community has developed into a diverse haven for scholars, artists, students, farmers and businesses.

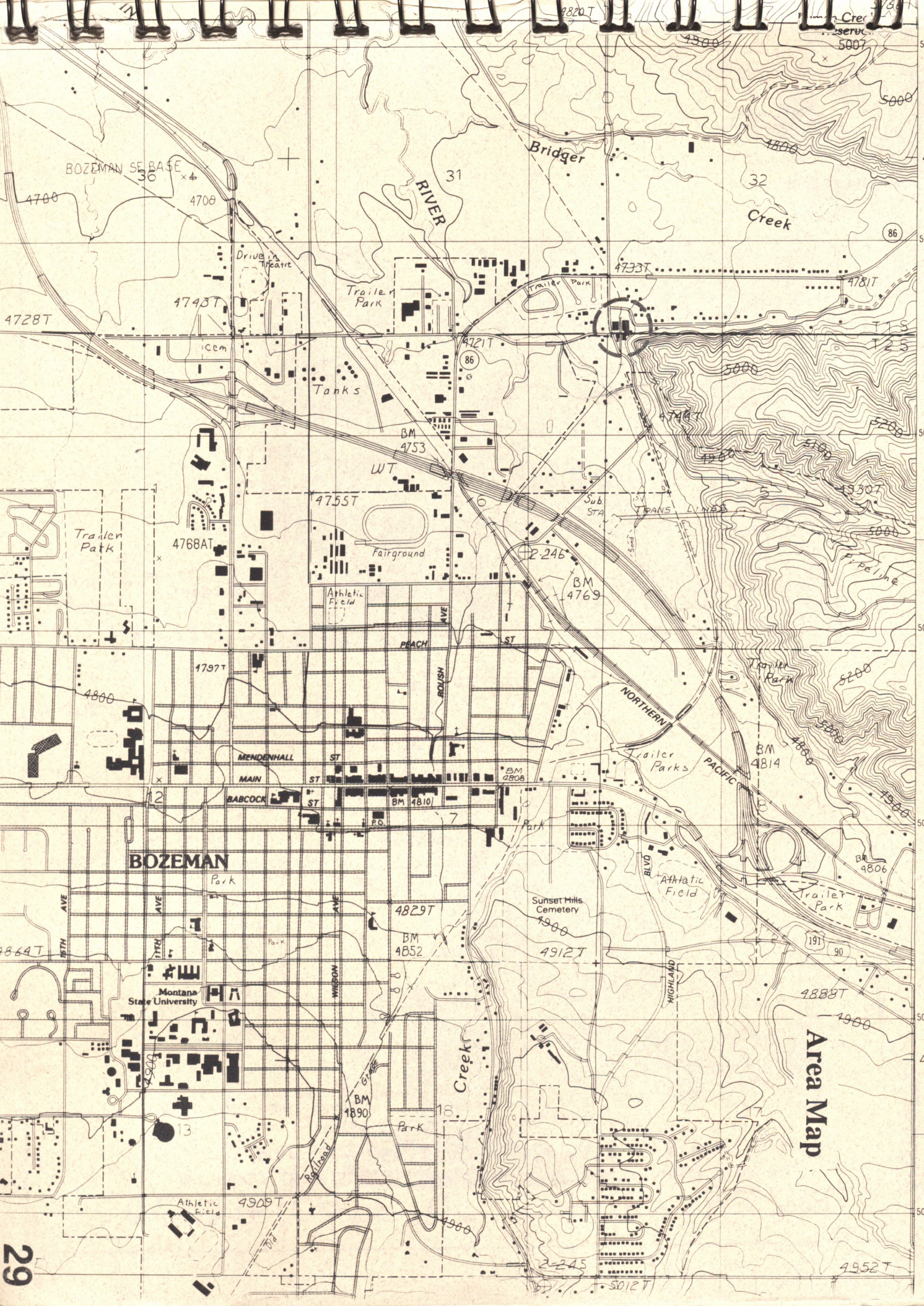
The climate in Bozeman is known for extremes, with winter lows dipping to -40 degrees and summer highs reaching into the upper 90's. Temperature changes of up to 40 degrees have been recorded within an hours time. Snowfall can be very sudden and very heavy. Winter days can be short (as little as 8 hours) and summer days can last up to 15 hours. These climatic conditions need to be addressed when developing plans for renovation.

Neighborhood Information:

The immediate area around the mill grounds is composed of residential, agricultural and commercial uses. A small stockyard lies to the West and is the home of The Bozeman Livestock Sales Company; to the North and East are several small residences; to the south are open pastures. Care should be taken not to overwhelm the residential areas and not to interfere with other businesses in the area. Sight and scenery issues should be address in a manner that will unify the mill with its surroundings.



10. View of canal and holding pond on hillside behind mill. (taken from top of large brick mill building)


BOZEMAN SE BASE
Bridger
RIVER
Creek
Drive-in Theatre
Trailer Park
Tanks
BM 4753
WT
Fairground
Athletic Field
PEACH
MENDENHALL
MAIN
BABCOCK
BOZEMAN
Park
Montana State University
Sunset Hills Cemetery
Athletic Field
Trailer Parks
NORTHERN
PACIFIC
BOUSH
WILSON
HIGHLAND
BLVD
Railroad
Grade
Area Map
42' 30"
40'
29

CERTIFICATE OF SURVEY No. 1224

A TRACT OF LAND LOCATED IN THE SW 1/4 SECTION 32, T.1S., R.6E. AND THE NW 1/4 SECTION 5, T.2S., R.6E., P.M.M.

GALLATIN COUNTY, MONTANA

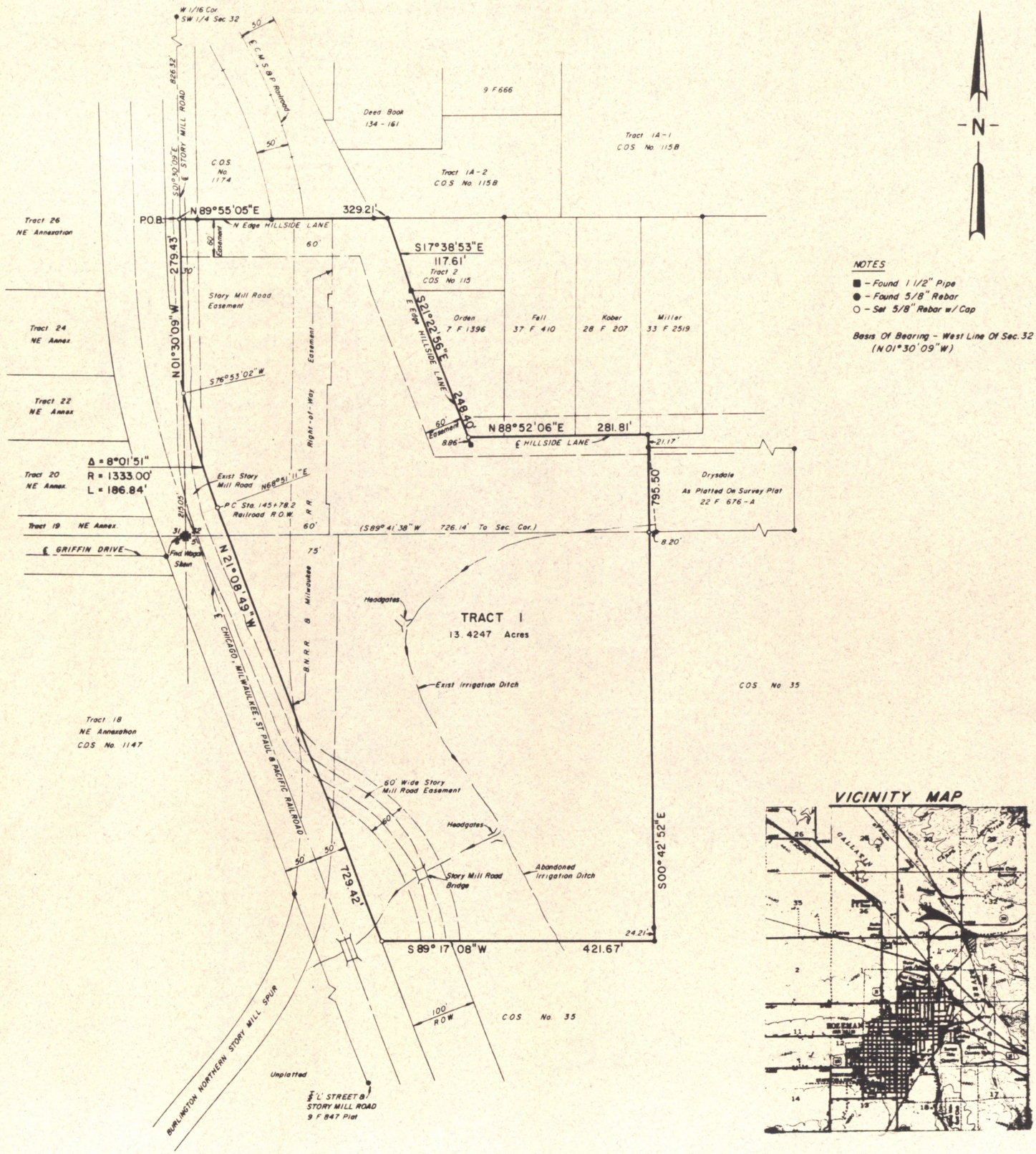
FOR: MONTANA FLOUR MILL COMPANY TO CLARIFY BOUNDARY OF EXISTING TRACT
BY SANDERSON/STEWART/GASTON ENGINEERING INC.

SEPTEMBER, 1984
BOZEMAN, MONTANA

SCALE: 1" = 100'

100 0 100 200

Site Survey



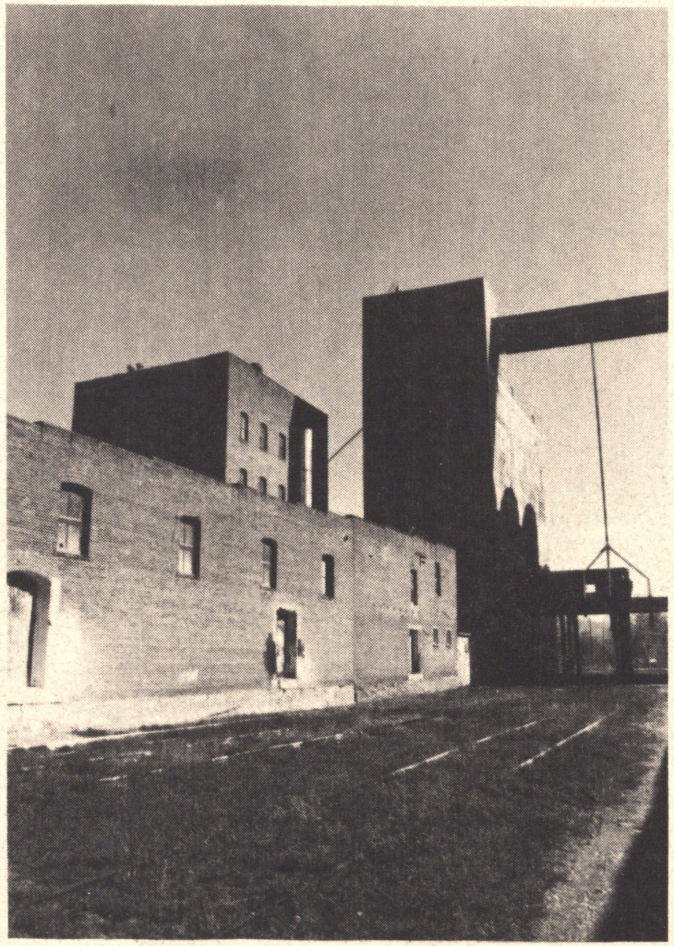
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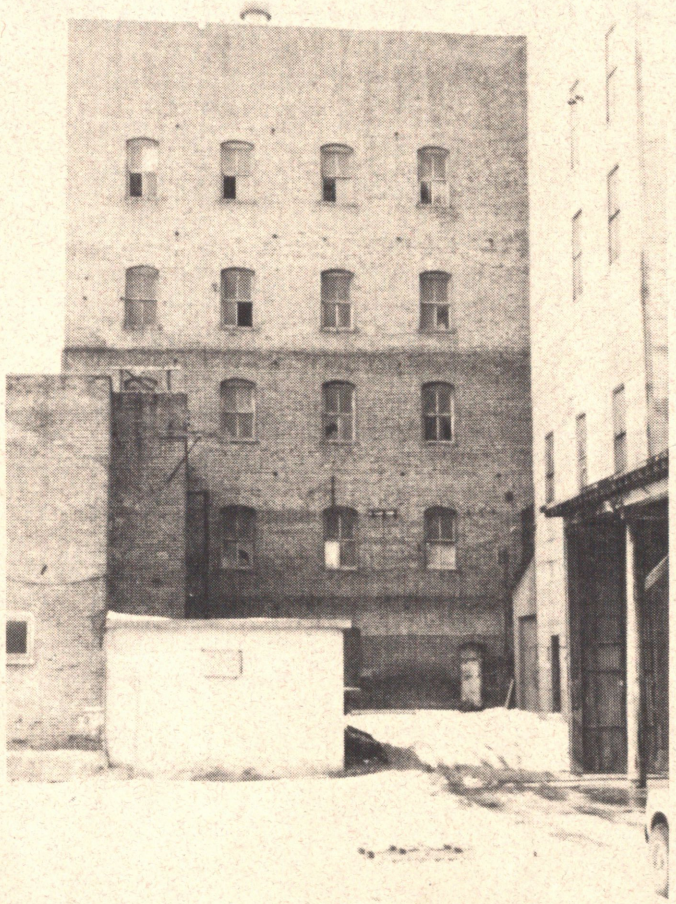
■ - Found 1 1/2" Pipe
● - Found 5/8" Rebar
○ - Set 5/8" Rebar w/ Cap

Basis Of Bearing - West Line Of Sec. 32 (N01°30'09"W)

VICINITY MAP



11. View to South of warehouse, mill, and elevator from railroad right of way.



12. View to East of mill building and steam shop.

PROGRAM REQUIREMENTS

Public Circulation Space:

30% of the total area of the finished space shall be devoted to open areas. These should be versatile in use and should reflect the former character of the spaces they occupy.



13. Second floor of intermediate space between mill and warehouse (looking South).

Large Retail Space:

A minimum of three large retail spaces shall be provided with a minimum of 2000 s.f. each.



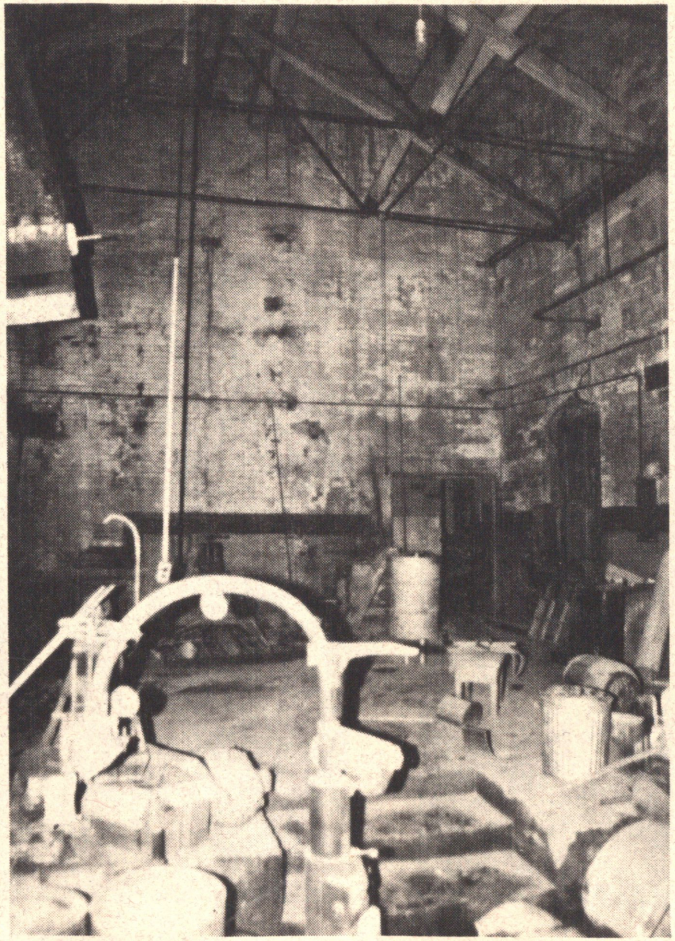
14. View of warehouse from second level Southeast corner.

Medium Retail Space: A minimum of six medium retail spaces shall be provided with not less than 1000 s.f. each.



15. View to Northeast corner of mill building, third floor. Notice holes in floor and ceiling where drive belts once ran between floors.

Small Retail Space: A minimum of thirty small retail spaces shall be provided; none to exceed 600 s.f.



16. Looking East in the steam shop. Notice combination of wood and steel in trusses.

Restaurants: Space shall be provided for a variety of eating experiences / conditions. Two of these spaces shall have ample room to seat 30 persons; two more spaces shall have seating for 15 persons and an additional two spaces shall be allocated for convenience / novelty food sales.



17. Looking East on second floor of mill building.

Commercial / Office Space:

Offices for the operation and management of the mill shall be provided with a minimum of 500 s.f. Additional office / commercial space shall be provided as space allows. Privacy and access should be kept in mind when locating offices.



18. Warehouse from first floor looking Southeast.

Mechanical / Elevator / Storage / Miscellaneous:

Not more than 10% of the total space shall be occupied by these uses. Included in this category should be mechanical equipment, elevators / escalators, refuse disposal and holding areas, storage for seasonal and maintenance items, and custodial spaces.

PLEASE NOTE:

Exact square footages are not given as it is up to the designer's discretion which existing structures to retain and/or utilize and which to raze and/or not use. The given volumes / spaces are suggestions that will help to create an optimally designed space.

EXTERIOR SITE REQUIREMENTS

Parking and Vehicular Traffic:

Parking and traffic patterns shall be designed according to current zoning and code requirements. Areas for automotive use shall be integrated into the surrounding area through the use of landscaping. Special care shall be taken to provide for truck and delivery traffic. This shall include trash collection and maintenance vehicles. (Refuse containers are to be readily accessible, yet out of sight to the general public).

Pedestrian Traffic:

Safety and ease of access shall be a top priority when developing pedestrian pathways/walks. All laws and codes shall be addressed. Bicycle traffic and storage (lock-up) shall be addressed with equal importance. Existing pathways and railroad right of ways should be considered for use as pathways and access routes from other parts of town.



19. Grain storage tanks, storage building (on left) and mill building (looking East).

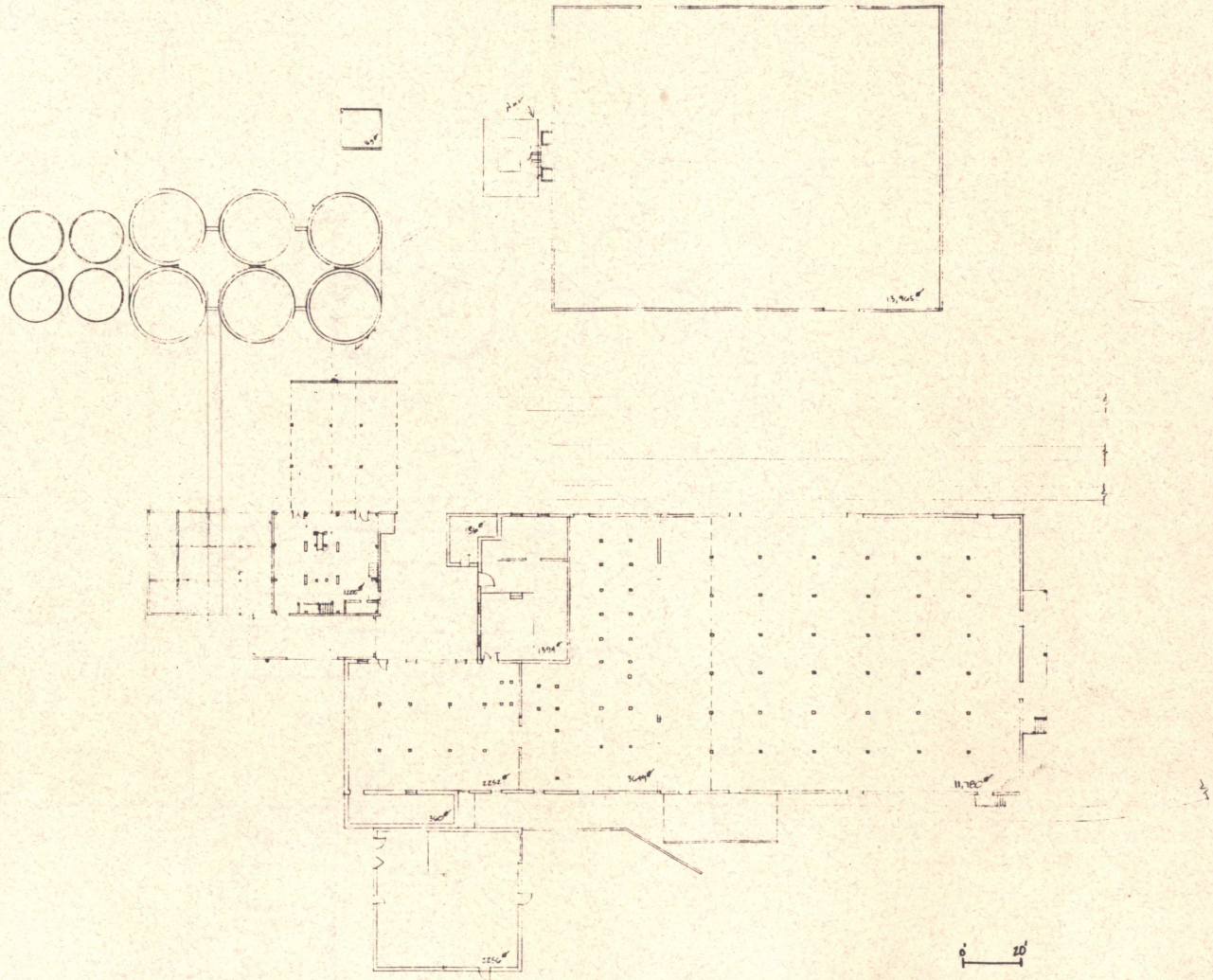
Public Recreation Areas:

Certain areas and features of the site allow for possible recreational uses by the public. Picnicking, sledding, ice skating and bicycling are some activities possible. A public destination area/place shall be created to enhance the grounds at the mill; this will serve to draw the public for reasons in addition to shopping and will give the community a sense of unity with the redeveloped mill.

Landscaping:

The overall site should be landscaped in such a way as to optimize and enhance the character of the finished product. Landscaping should serve to provide sight lines for prominent features, it should help to create focal points, define boundries and circulation routes, and it should aid in hiding undesireable views.

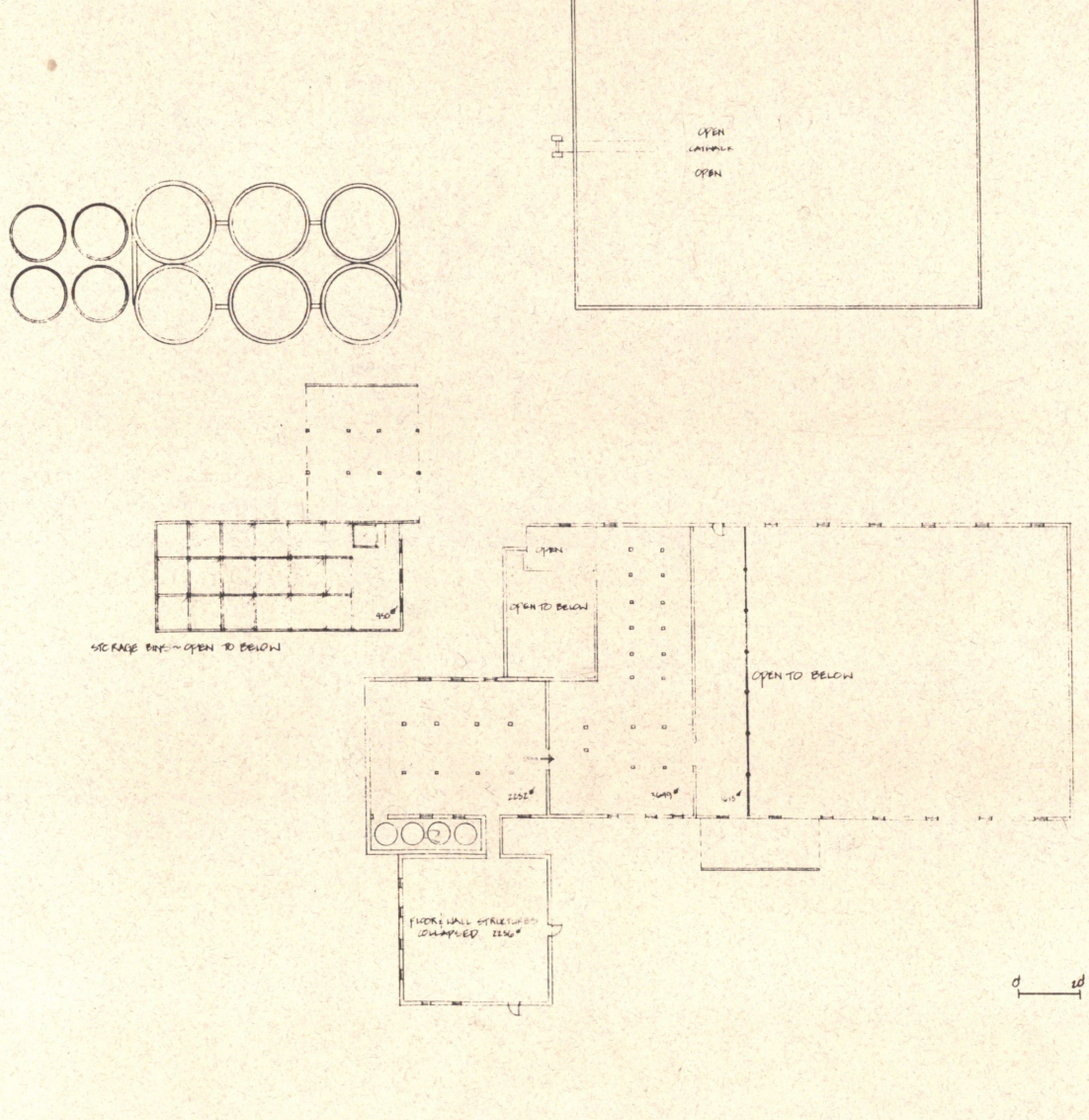
EXISTING CONDITIONS



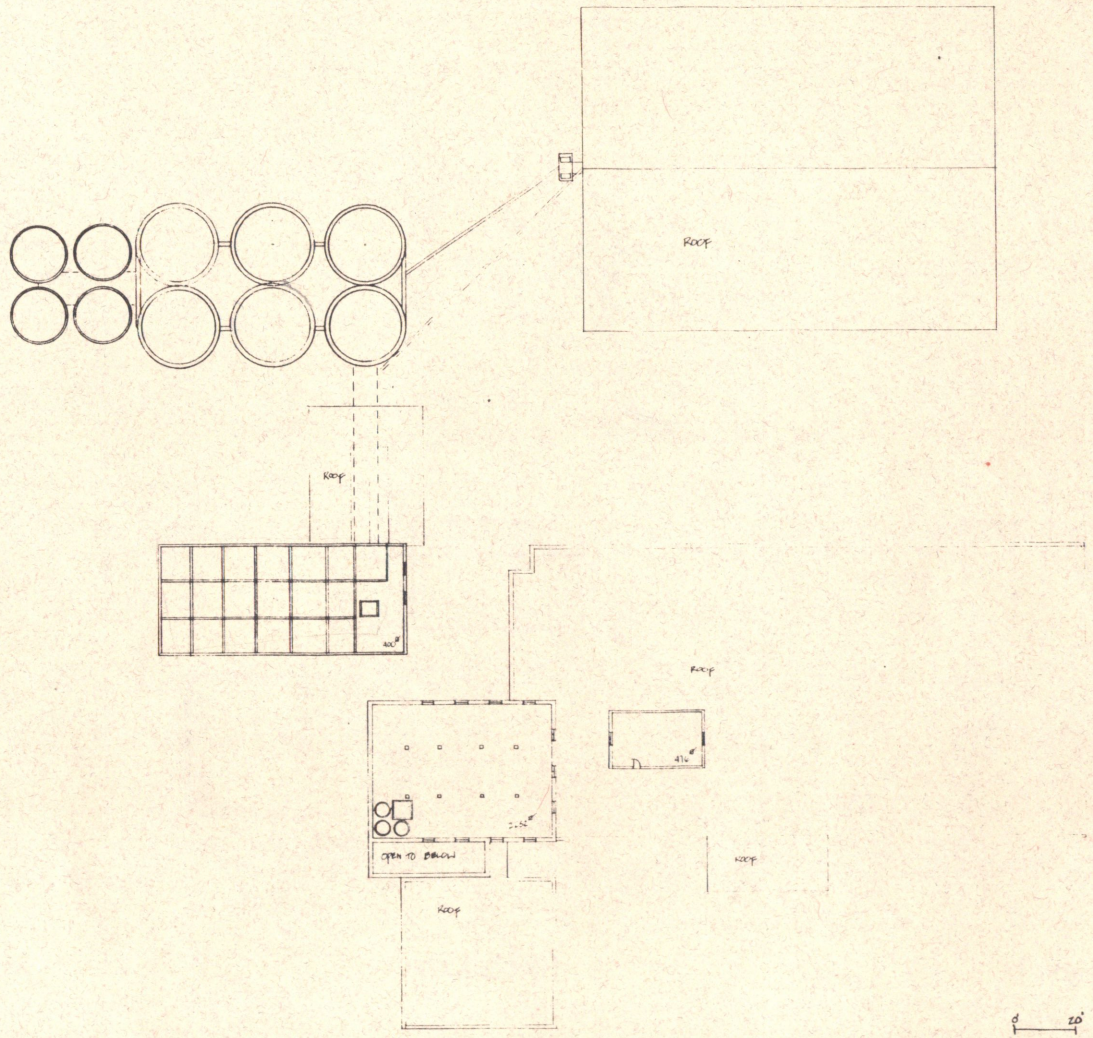
Ground Level

REVISIONS	

60,646± ft²
Date
Scale 1"=60'-0"
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Job
Sheet
Of Sheets



Second Level



Third Level

REVISIONS	BY

3rd Level

Date

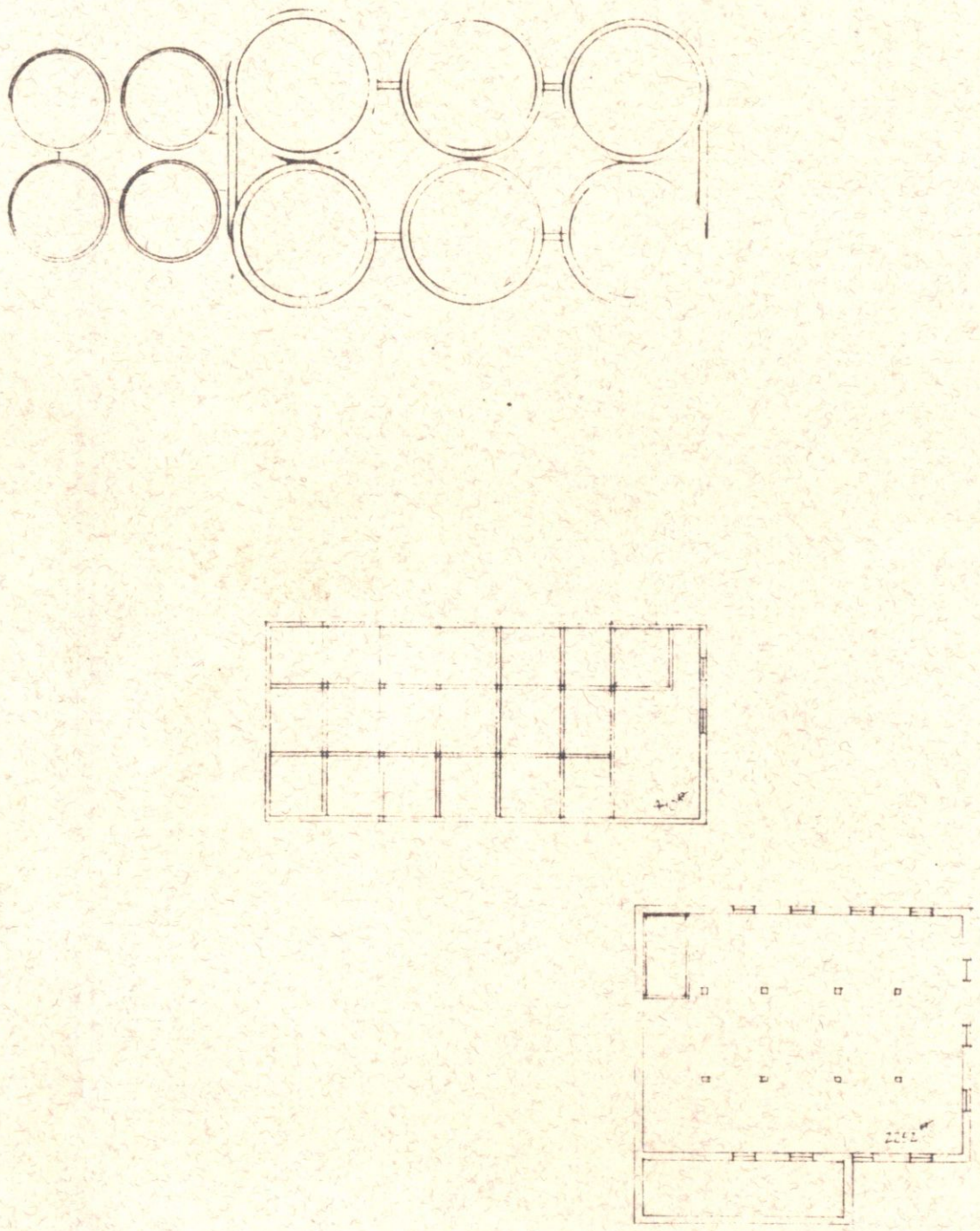
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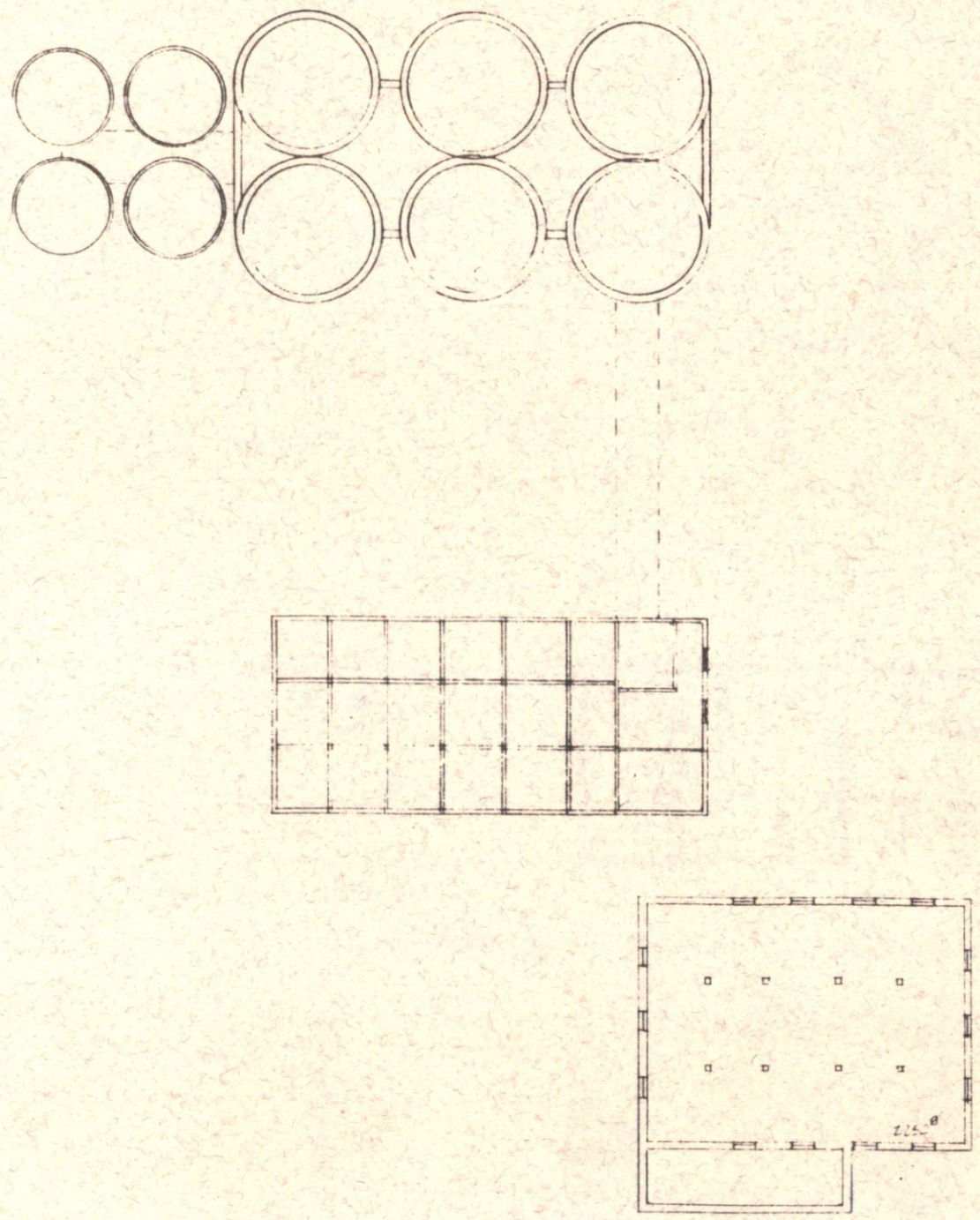
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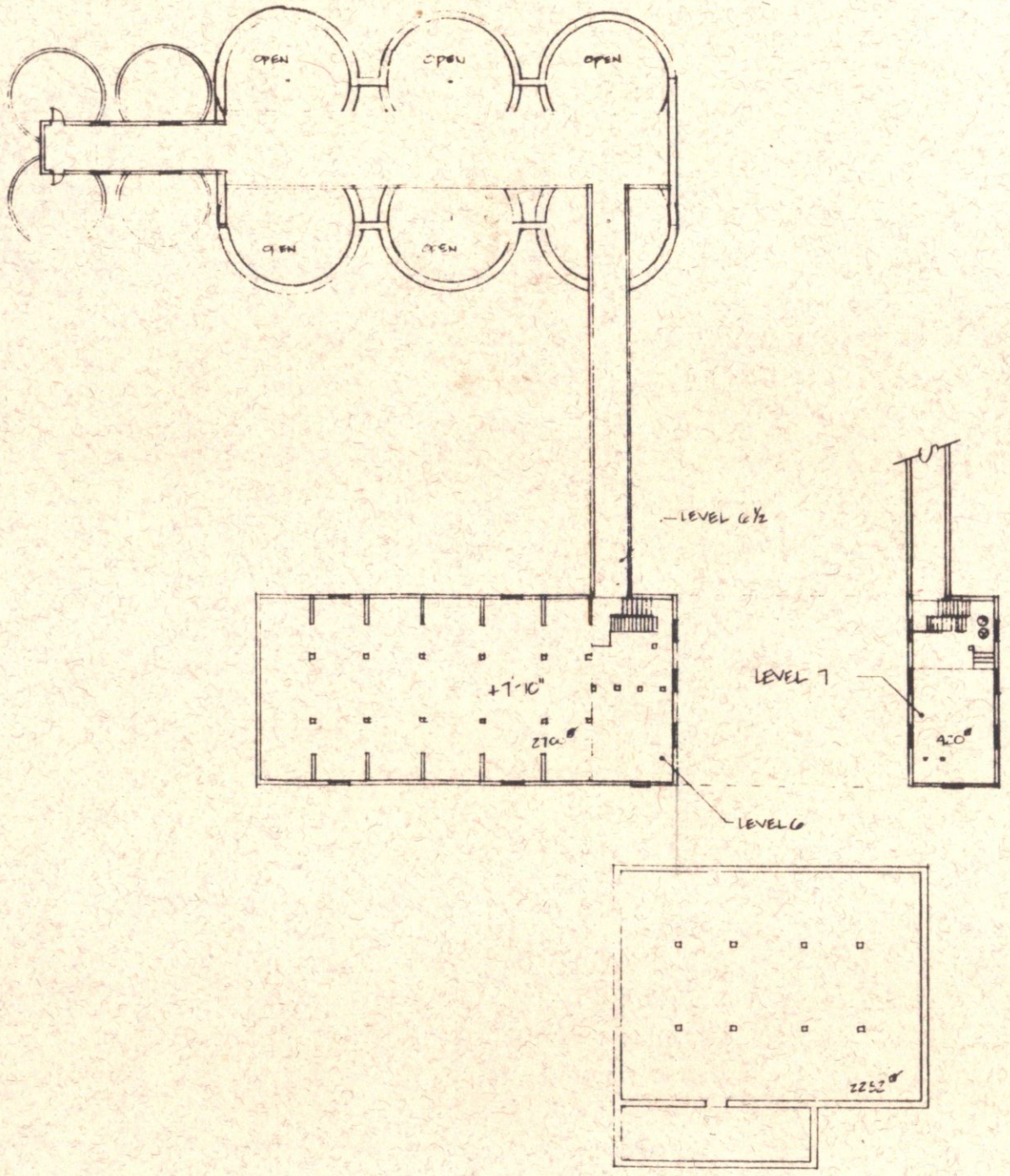
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Fourth Level



Fifth Level



Sixth & Seventh Levels

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Scale

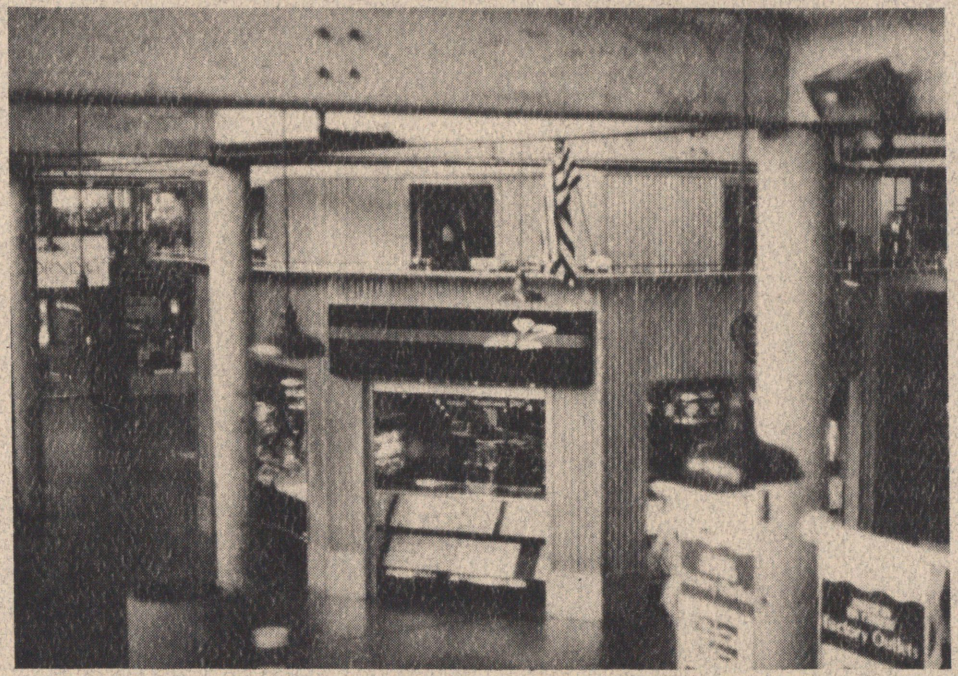
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Sheet

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CASE STUDIES



20. Interior of renovated Tin Cannery. Note use of industrial, high wear materials.



21. Natural light and surface texture are combined to create a dynamic environment.

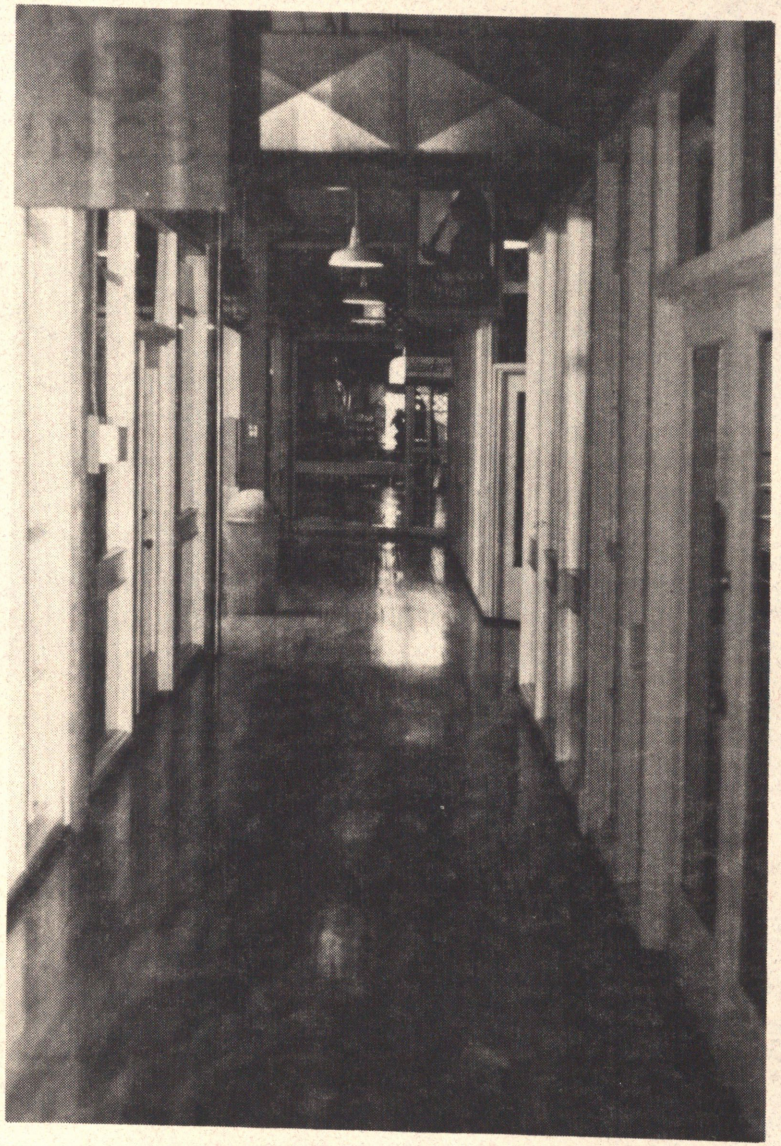


22. Potted plants and wood are use to add warmth and life to the space.

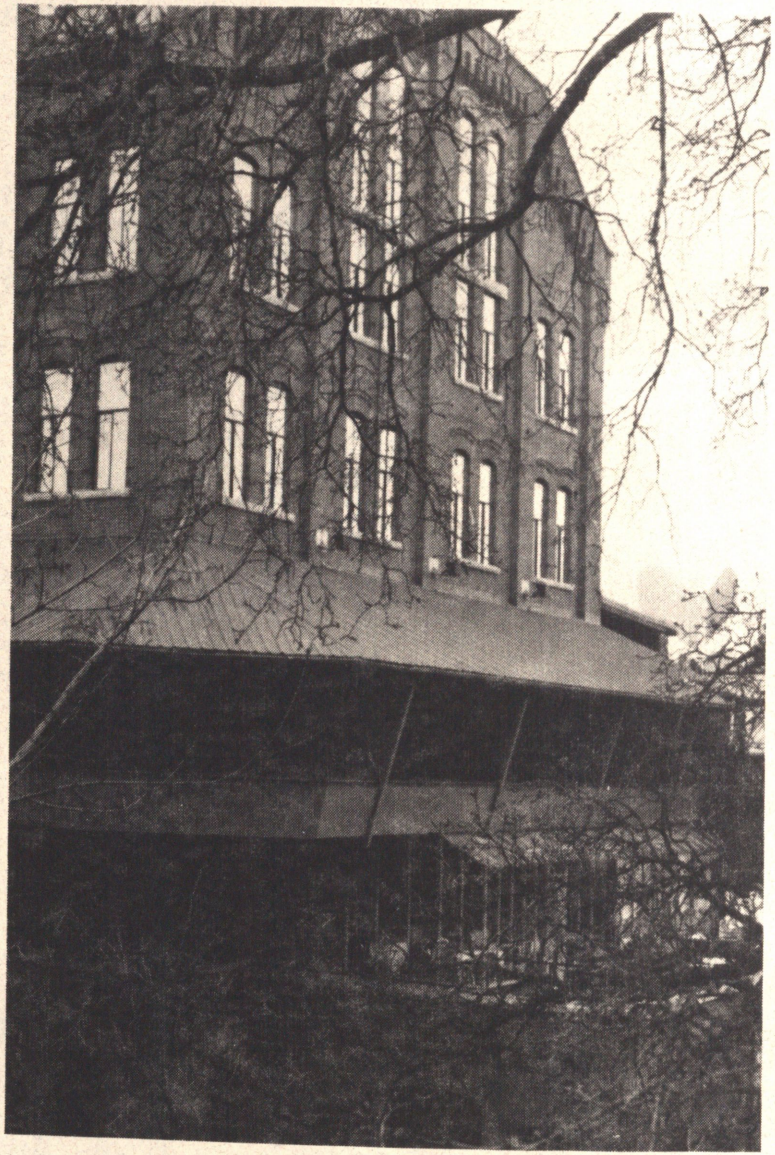


23. Brightly colored canopies, banners, flags and signage are combined with the original facades to lure and invite the public.

The American Tin Cannery, Monterey, California: This renovation project took place in the remains of an old sardine cannery at the West end of Monterey's historic Cannery Row. During the heyday of sardine fishing the cannery facilities would have been busy filling small tins with sardines 24 hours a day. The sardines were over-fished and the great schools were harvested for the last time in the late 1930's. Many of the sardine processing facilities had burned or collapsed by the early 1980's. It was at this time that the American Tin Cannery was chosen for renovation. The original structure was kept relatively intact and several retail and commercial spaces were created inside. Materials were chosen to reflect an industrial character. Colorful banners combine with wood, metals and glass to create a unique retail and commercial environment. The finished development has successfully maintained the historic character of Cannery Row while providing a dynamic renovation.



24. Interior hallway of the Old Flour Mill showing character of interior spaces.

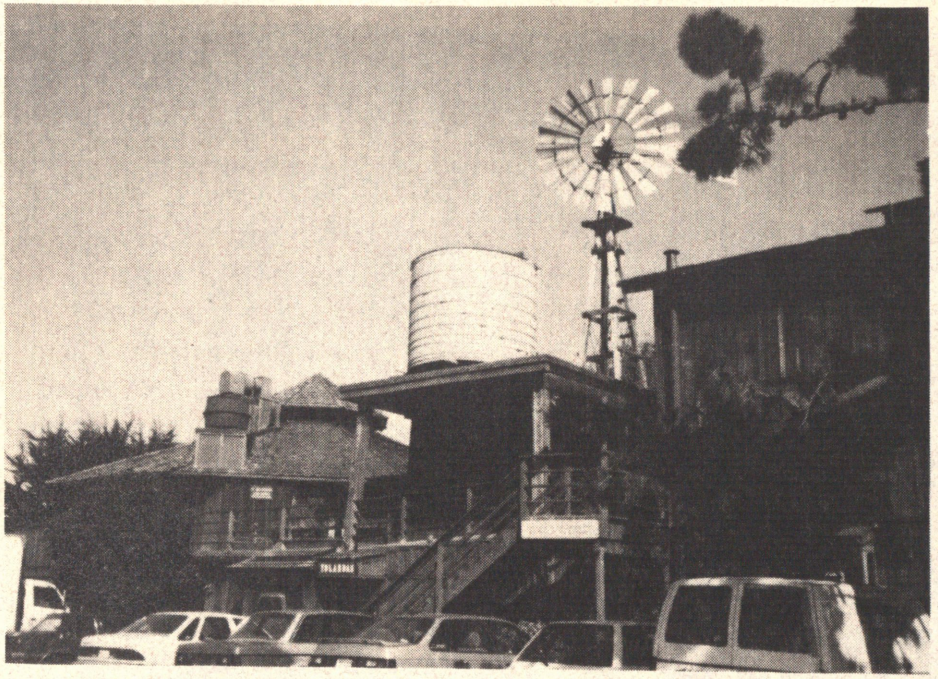


25. Exterior showing contempory additions to the older buildings.



26. Exterior view looking at West facade.

The Old Flour Mill, Spokane, Washington: The Old Flour Mill is located in a busy, high traffic area of downtown Spokane. The retrofitting of the mill into retail and commercial spaces has been very successful for the businesses within. Stores, restaurants and offices have filled its spaces and additional spaces have been added to accomodate more. Unfortunately the added spaces are not very sensitive to the original structure and they are very obviously a product of a later era. The interior spaces within the mill have tried to be more in character with the former use of the building but still lack the authenticity and feel of a flouring facility. The intent with the Old Flour Mill seems to have keyed around maximizing retail space at a minimum cost. Not a lot of effort went into creating an industrial aesthetic within which a variety of uses/functions could take place.



27. View from parking lot showing outbuildings and water tower.



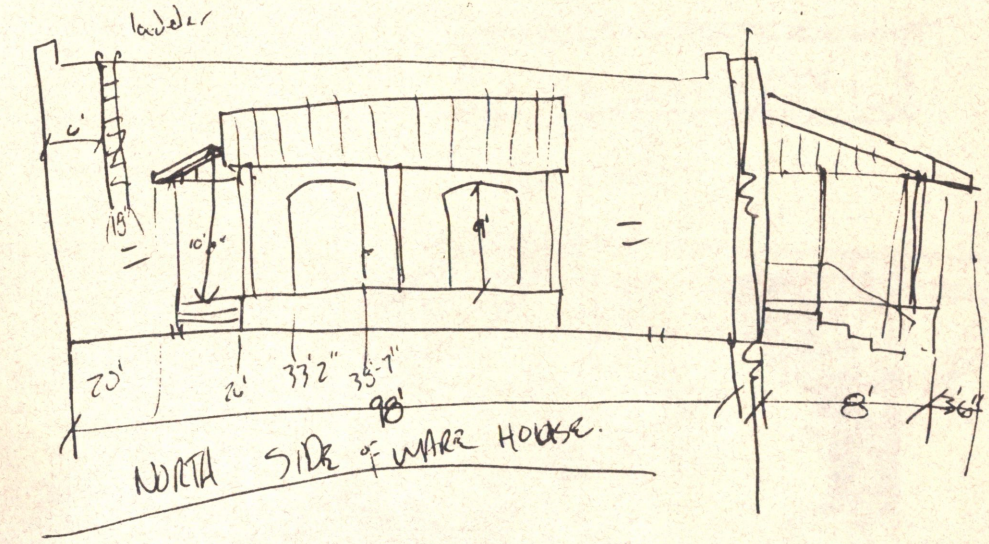
28. Landscaped courtyard at center of Barnyard development.

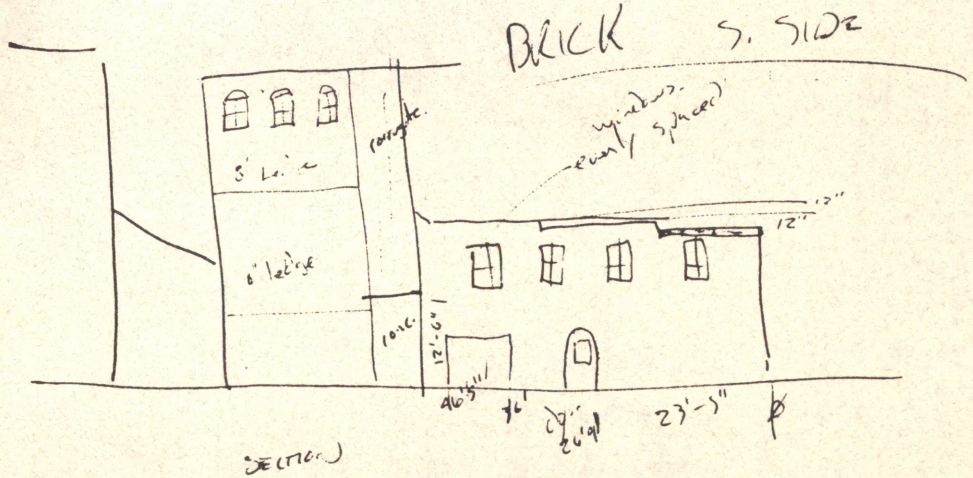


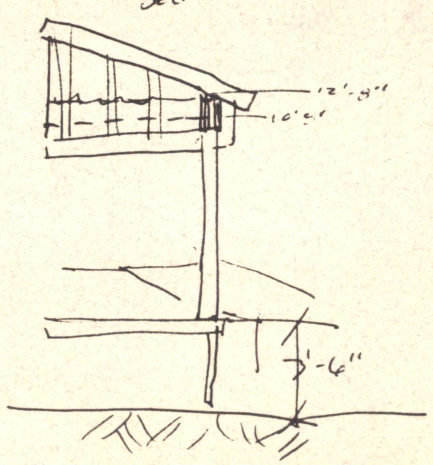
29 Walkways and store fronts of one of the "barns".

The Barn Yard, Carmel, California:
The Barn Yard was a from scratch development built at the mouth of Carmel Valley in California. It is located in an area that is known for being warm and sunny. The design therefor took on a very open, outdoor character. Though a farm was never present on the site the use of a barn yard as a source of inspiration for design has been very effective. Several large barn-like buildings have been grouped with smaller outbuildings to create a pleasant place to be. Landscaping is extensive and very much a part of the design. The use of vegetation in conjunction with the orientation of the buildings creates a series of courtyards and focal points, each offering a unique experience.

DESIGN DEVELOPMENT



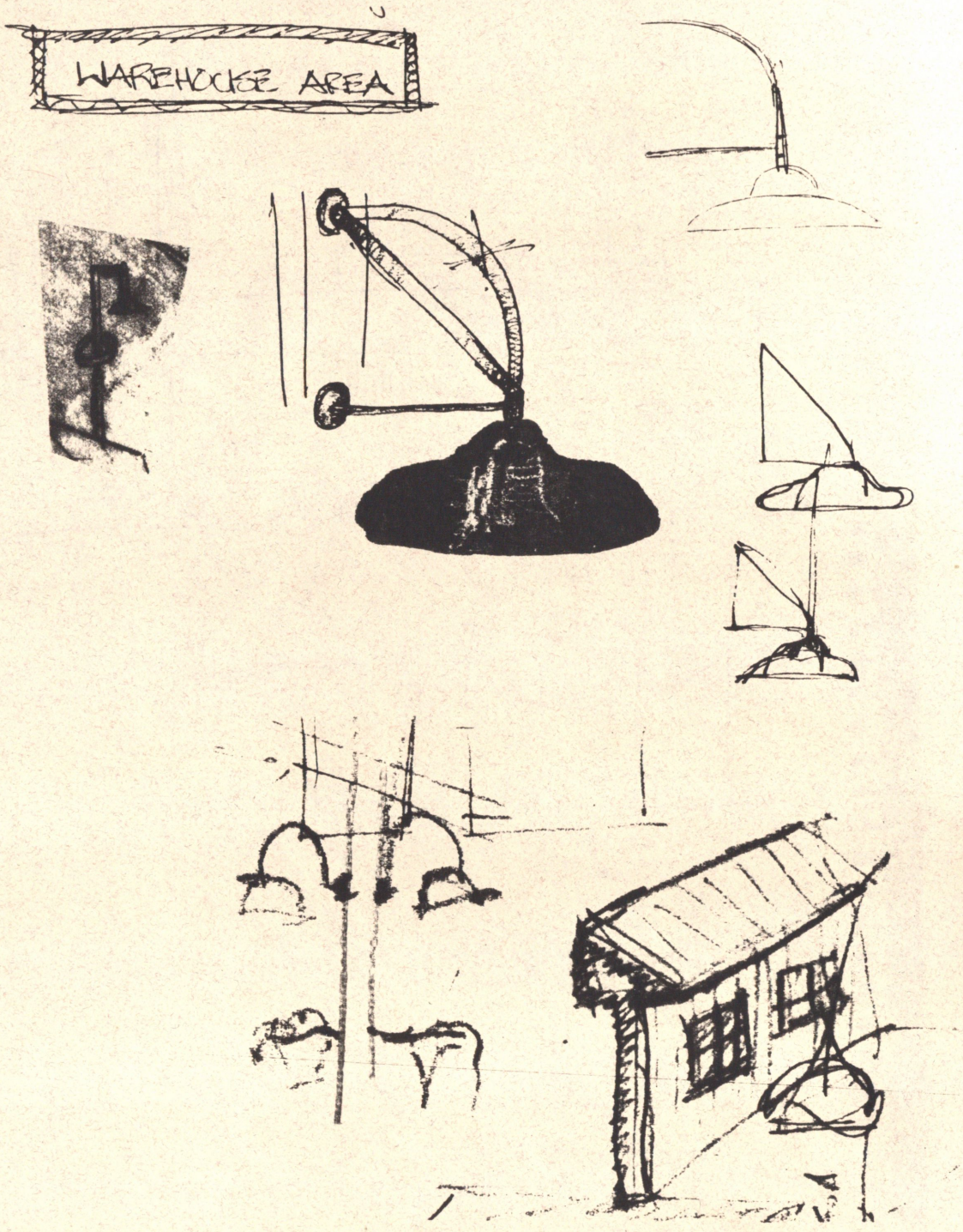


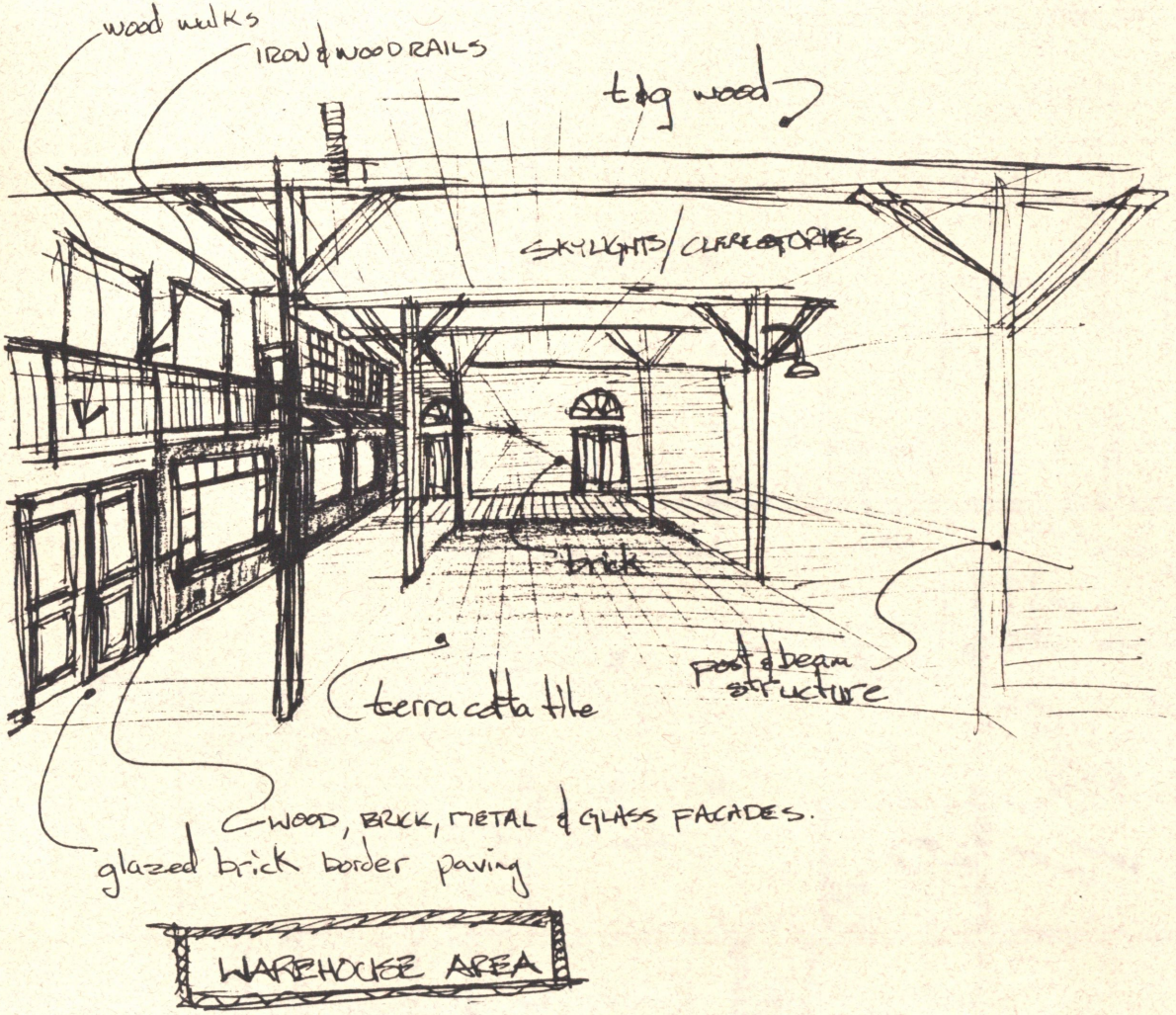


In developing the programming book and establishing goals for this project I had undertaken several tasks. One of these was the documentation of the existing buildings and conditions. While taking measurements and drawing sketches of the existing buildings an intimate understanding of the spaces and their nature evolved. I have crawled in the darkest of corners and climbed countless stairs and ladders in pursuit of an understanding and familiarity of the site. In addition to my work at the site I sought to find out as much as time allowed about the history of the Story Mill and the Bozeman Milling Company as I could; this through personal interviews with former workers and their families, and through written and photographic documentation.

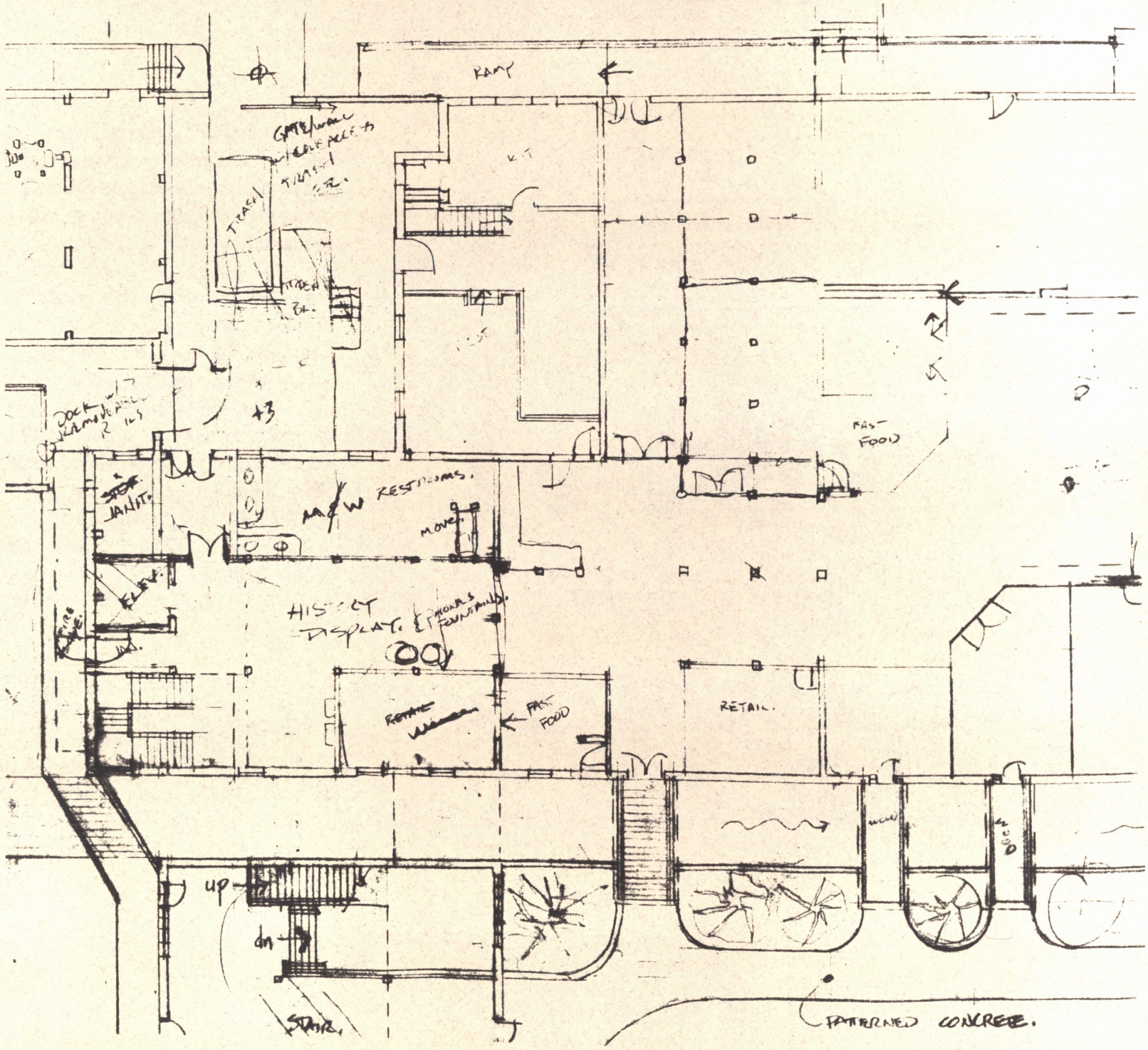
As I documented and studied what was there, (now and in the past), I began to feel what kind of a space was appropriate for each building and outdoor area. Post and beam construction and the grids that it creates began to drive a sense of order and scale. Materials that would fit into a high wear industrial setting seemed appropriate. The historical uses of the spaces played a role in the volumetric layout of space and forms.

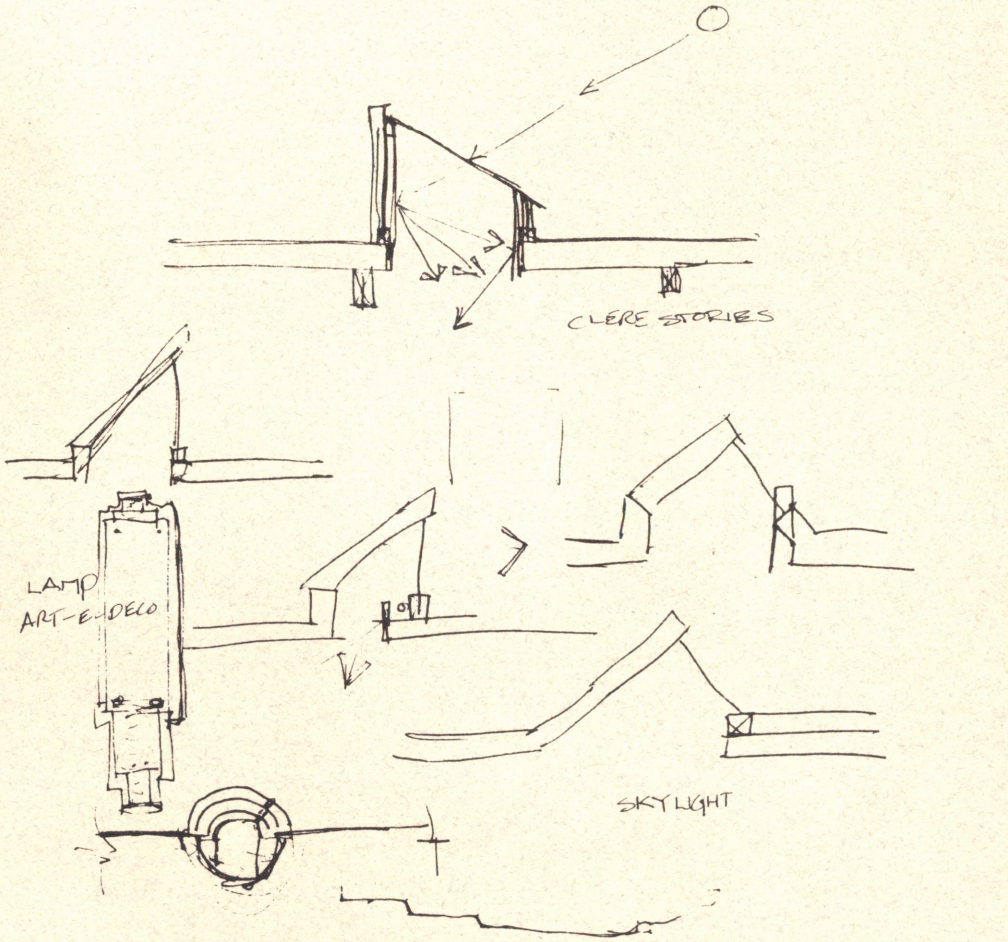
Personal experiences of renovated buildings and the case studies I did gave a sense of the type of place I wanted to develop. One which was open and flexible in uses. Shops that were like those that would be found on a narrow busy street; having a variety of facades and entrances. Spaces that one has to enter into in order to experience- not the large open fronted volumes common to most malls. The circulation paths should be interesting and diverse, offering unique experiences around each corner.

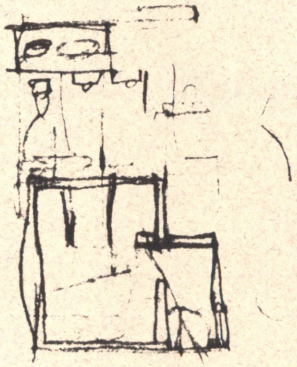


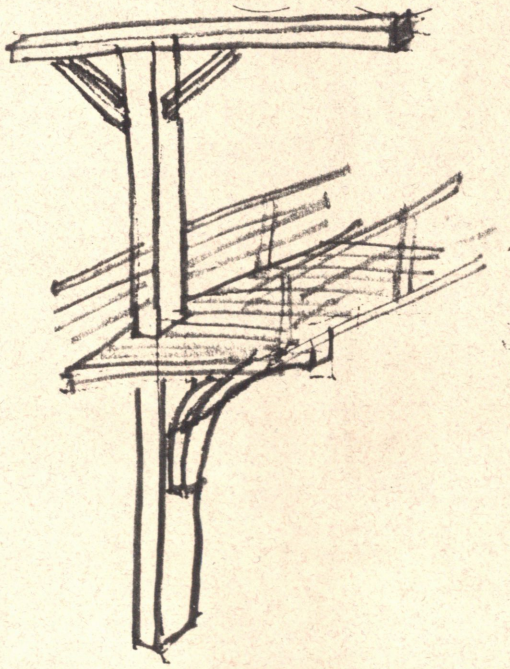


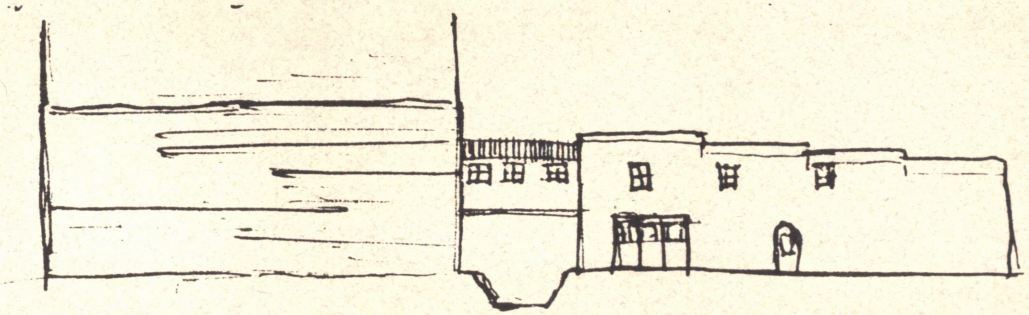
Design didn't get started until late into the semester. I had spent a great deal of time planning things out in my head and by going back to the mill and just considering the options I thought of. When I took to the drawing board I had a good idea of what I wanted and what worked. The resulting design attained the majority of the goals and requirements that I had established early in the semester; Unique spaces and experiences are offered, the historic character and integrity of the site has been retained, and a destination that offers more than just stores and offices has been created.


RAMP
TRASH
TRASH
DOCK
+3
JANIT.
M & W RESTROOMS.
MOVIE
ELEV.
HISTORY
DISPLAY
FAST FOOD
RETAIL.
FAST FOOD
up
dn
STAIRS
PATTERNED CONCRETE.


CLERESTORIES
LAMP
ART-E-DECO
SKYLIGHT







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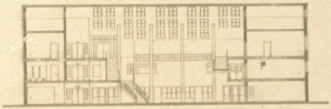
The New Architechture of the Retail Mall. Barry Maitland, Van Nostrand-Reinhold, N.Y., N.Y. 1990.











SECTION: ab



SECTION: aa

Bozeman Milling Company



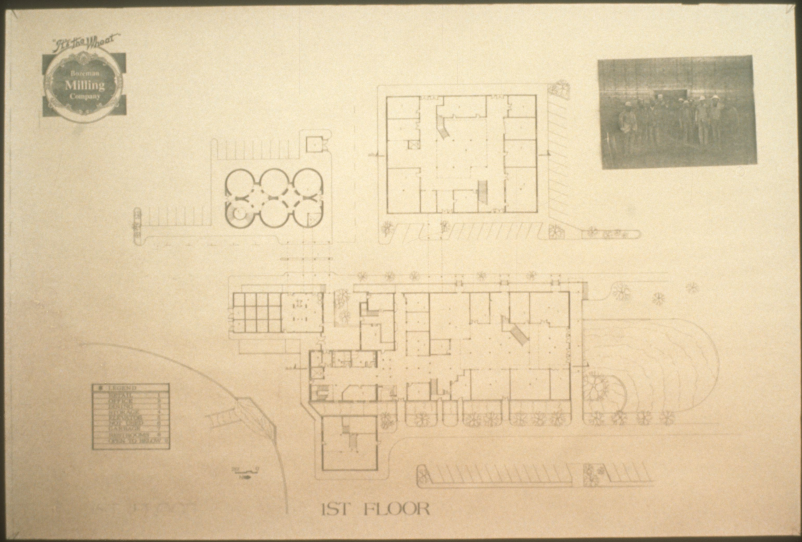








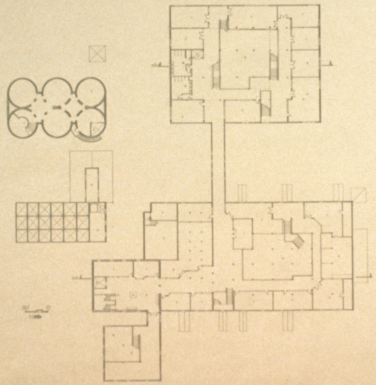
3RD FLOOR


It's the Most
Bozeman
Milling
Company
1ST FLOOR

Bozeman Milling Company



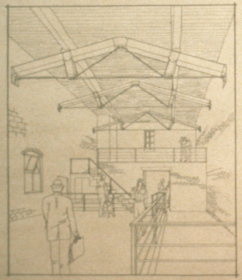




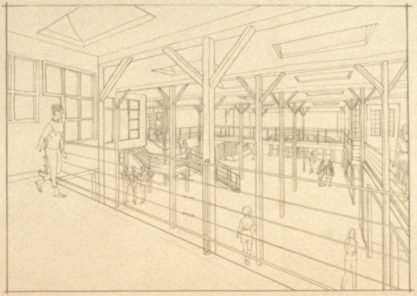
2ND FLOOR

"It's in the Heart"

Bozeman Milling Company



BOILER ROOM



WAREHOUSE







"It's the Wheat"

Milling Company

"It's the Wheat"

MONTANA

SAPPHIRE

FLOUR

MONTANA

ISIS

CLEAR

4TH FL.

5TH FL.

6TH & 7TH







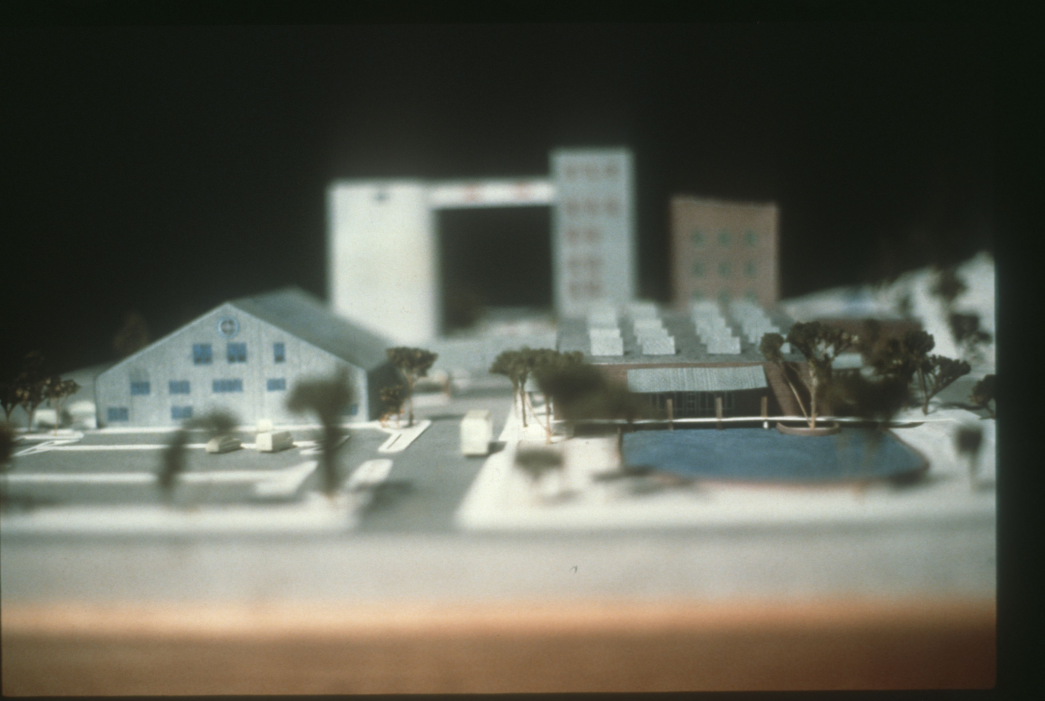







SAPPHIRE
ISIS CLEAR
ISIS

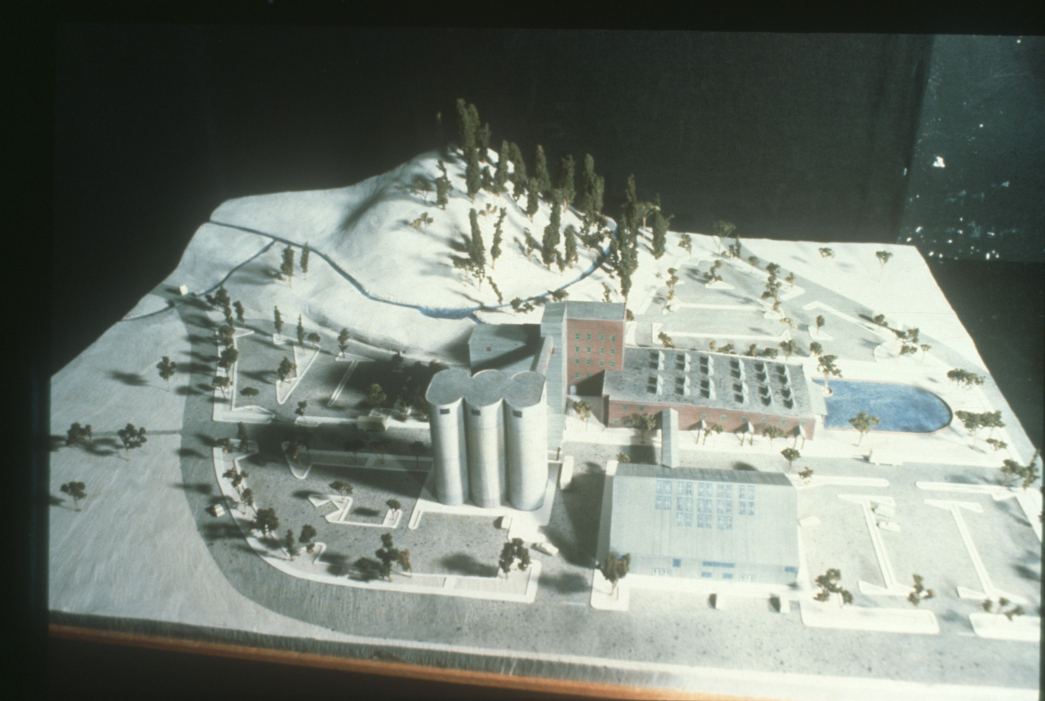

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