

THESIS 76

LIBRARY
MONTANA STATE UNIVERSITY
BOZEMAN

A THESIS

Presented To:

The School of Architecture
Montana State University

In Partial Fulfillment for
An Undergraduate Degree in Architecture

Presented by
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Thesis Statement:

Analysis of local history can identify
a regional character that can be applied
to architectural renovation.

**RE-USE,
HISTORY,
AND
EARLY
MONTANA
ARCHITECTURE**

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INTRODUCTION

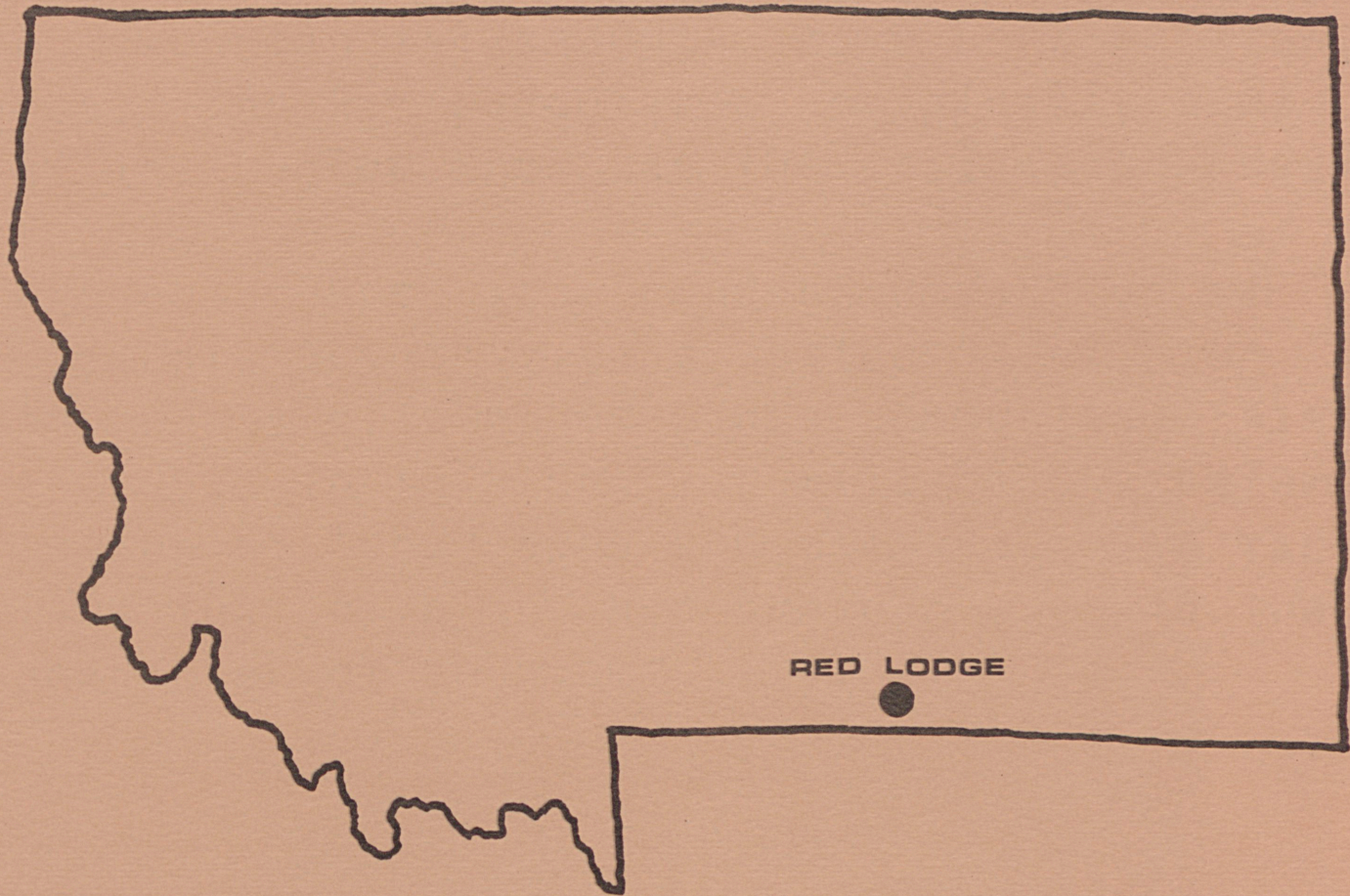
This thesis is intended as a guide for small shop owners who are concerned with rehabilitation of their old business establishment. Although the building may be old, it need not have a special "historical" significance, and still be suitable for renovation. The design terms used in this thesis have been kept non-technical so they may be understood by the individual shop owner.

The thesis will attempt to break down the everyday misunderstandings of architectural renovation. The end result will better serve the need for identity in the business world and still retain the best parts of its original character. Therefore, a large part of this book will be tying history to renovation, and how a good renovation should "look".

The author believes that good design can be achieved in most instances by the average person on a limited budget if he is interested in going about things in the right way... The book, in short is for those who want to give new life to old buildings and care enough about them to want to do it well. (George Stevens, Remodeling Old Houses, New York, Alfred A. Knopfung. 1972)

REGIONAL HISTORY

MONTANA



RED LODGE

A large volume of material has been written about the history of Montana. and lesser, but substantial amounts, have been written about the Red Lodge area, originally part of the region known as the Yellowstone Basin.

Presented here is a condensed version of that history to give a better "feel" for the roots of the Red Lodge community. Also included in this section will be characteristics of topography and climate. Two factors that give an even broader base to the character of the community.

In 1641, DeSoto, on the Pacific coastline, claimed it as a colony for the Spanish empire. On January 1, 1743, Chevalier de la Verendrye crossed the Rocky Mountains after having ascended the Missouri River from Fort Berthold and established a claim to this area in the name of France. In 1762, this region was ceded to Spain, but in 1800, returned by a treaty again to France. Napoleon Bonaparte sold it to the United States for fifteen million dollars and the deed to the Louisiana Purchase was signed in December of 1803. (1:1)

The first successful expedition sponsored by the United States was the Lewis and Clark expedition. The expedition left St. Louis, April 8, 1805, and reached the great falls

of the Missouri, June 14, and the convergence of the three forks of that river, July 27. They named these forks the Gallatin, Madison, and Jefferson, and chose to continue their trip on the Jefferson as far as they could go. By September, they had crossed the Rockies to the Colombia. Oct., 1805, found the party building winter quarters near the Mandan villages, the traditional jumping-off place for exploring parties headed further west. What happened here during the next few months was to have a definite bearing on the exploration of the Yellowstone Basin. Several Frenchmen and a British trader named Hugh McCracken were at the nearby Indian villages. When Mr. McCracken returned to Fort Montagne a la Bosse, he took with him a letter from Lewis

and Clark explaining their mission. British curiosity was immediately aroused since their interests were in trading, and they sent an official party out to investigate. There was friction between the British party and the Lewis and Clark party. The latter did not want any foreigners in their party. When Larocque, the head of the British party, returned with the news to Fort la Bosse, the company officials organized an exploration of their own in the Yellowstone Basin. (2:24)

Although he never visited the Yellowstone country, it was David Thompson of the British Fur traders who calculated the source of the Yellowstone from information received from the Indians at the Mandan villages and was

a mere 21 miles inaccurate. It was also in his records that the words "Yellow Stone" were first used. (2:23)

On March 23, 1806, the Lewis and Clark party started their return and after crossing the Rockies on July 3, they divided into three parties; one took the north line along the Marias River to eventually join a second party that had gone back down the Missouri. The third party took a route that put them on the Yellowstone and thus started the history of the Yellowstone Basin. They joined the other groups at the mouth of the Yellowstone in August, and reached St. Louis, September 23. At this time the Yellowstone Basin was basically the property of the Indians. (1:2)

The success of the Lewis and Clark journey stimulated future explorations of the West. The new knowledge of this country also attracted more trappers, hunters, wolvers, and fur seekers. Trading posts were established along the Yellowstone. The history of the Yellowstone did not progress materially until the end of the Civil War, except for the Gore expedition. Gore's records in 1855, spoke extensively of the area including the Shields, Boulder, and Stillwater Rivers (1:2)

In 1863, the James Stuart party started from Bannock City, to explore a portion of the Yellowstone area for the purpose of discovering gold mines. On May 5, they were at the mouth of the Big Horn, and the expedi-

tion was attacked by the Crow Indians. Again, while the Stuart party was camped on the banks of the Yellowstone where Columbus now stands, a band of thirty Crow Indians appeared and managed to steal articles of all kinds. They were robbed beyond the possibility of future travel. The failure of the Stuart expedition halted future exploration until the survey parties of the Northern Pacific in 1871, 1872, and 1873. (2:196-7)

In 1874, the citizens of Bozeman were determined to open up the Yellowstone area with a road to the head of navigation of the river and open the most direct route connecting with the present terminus of the Northern Pacific Railway, Bismarck, North Dakota. The stories of gold discoveries on

the south side of the Yellowstone between the Rosebud and Powder Rivers, attracted numerous adventurous men for this party. On February 12, they reached Countryman's Ranch, (three miles west of Columbus), but the Indian's attacks forced them to return to Bozeman. (1:2)

An army report in 1877, said, "The Indians are bitter and hostile and the route is fraught with extreme danger." With such a situation it is little wonder that the Yellowstone Basin was slow in developing. The Sander's edition of the History of Montana, in 1885, indicates how sparsely the area was settled and how important the natural resources were. Even though the mining areas had drawn many prominent residents, this

still the land of the Indian, a few cattlemen, and a few homesteaders, who came when the N.P. came through. (1:3)

Carbon County was formed from parts of Park and Yellowstone Counties, on March 4, 1895. its name was derived from extensive local coal deposits. The county seat was placed at Red Lodge. As was mentioned earlier, this county was part of the Crow Indians lands. In the 1860's, both the Bozeman and Bridger trails traversed the area, as did one of the Texas Longhorn Trails. Coal deposits at Red Lodge were first developed in 1887, and in 1889, the Northern Pacific Railroad completed a branch line from Laurel to Red Lodge. After that, many settlers took up claims in the fertile valleys. In the beginning livestock raising was the dominant agricultural activity; later, farms became popular and more important as irrigation projects were developed. The nearby coal mining commun-

ities provided a market for produce. In 1915, the first commercial oil well was drilled in the Elk Basin field and later the Dry Creek Field was discovered. The Elk Basin has continued to be one of the leading Montana oil fields. The natural gas from Dry Creek has also been important.(3:379)

TOPOGRAPHY

Montana was aptly named by James M. Ashley, for it contains extensive areas of "Mountainous regions". The Rocky Mountains are wider here than to the south and occupy approximately one-half, (49,000 Sq. Miles), of the state. Within the rugged, generally forested, region are found twenty-five or more ranges. (3:2) Of all the mountains in Montana, the Bear-tooth range is considered by many the most impressive. Granite Peak, the highest peak in Montana, lies in this range. The Red Lodge Area contains this range as well as the plains of the more eastern part of the state.

This makes the Red Lodge Area unique. It has the grandeur of the high peaks capped with snow, the benefit of the streams which begin here, and the fertile basin that promotes agricultural production.

CLIMATE

The climate of Carbon County varies considerably from one area to another because of the wide range of topographic conditions. The effect the topography has on the climate is important to the water resources of the county. Prevailing west to southwest wind flowing across the high mountains of Carbon County provide the highest annual precipitation values. A "rain shadow" effect occurs to the east of high mountains in the Clark's Fork Valley near Belfry, which in turn results in the lowest precipitation values in the county. As an example of the net effect of these conditions, a precipitation measuring station 18 miles southwest of Red Lodge, recorded a twelve-year average annual total of 35.23 inches, while a station nine miles southwest of Belfry recorded a ten-year figure 5.51 inches. Less than 25 miles separ-

ate the two measuring stations. Precipitation amounts north of the mountains decrease to annual averages of 19.91 inches at Red Lodge, 15.45 inches at Roberts, 14.09 inches at Joliet, 10.23 inches at Bridger, and 15.98 inches six miles east of Edgar. Precipitation occurs as steady rains in the spring months of April through June, intermittent showers throughout the summer and early fall months, and as snowfall during the winter months. Snow does not tend to remain on the ground in the lower elevations of the county due to "chinook" wind conditions and frequent winter warming spells. Snow begins to accumulate in November, in the higher mountain valleys, however, and continues to build up until late March, or early April. Average annual snowfall in the

mountains is estimated to be several hundred inches. An average of just over 100 inches of snow falls annually at Red Lodge. The temperature also varies throughout the county including some of the warmest and coolest temperatures in the state.

RED LODGE HISTORY

Red Lodge received its name from the first white settlers because it was once inhabited by the Crow Indians. Many people contend it was named for a specific Crow Indian medicine man, who's home, or "lodge" was red in color.

Coal deposits in Carbon County were first developed in 1887, in Red Lodge, and coal mining then became a leading industry. In 1889, the Northern Pacific Railroad completed a branch line from Laurel to Red Lodge, for the main purpose of shipping coal. The Railroad also brought with it many settlers which took up claims near Red Lodge. The nearby coal mining operations provided a market for the livestock and produce. (3:379)

The population of Red Lodge grew four times in size between 1889 and 1920. Then an unexpected phase out of the railroad's coal mines spelt economic ruin for the community.

By 1917, the Northwest Improvement Company, a subsidiary of Northern Pacific Railway, had invested two million in the Red Lodge area. But still the Red Lodge mines couldn't fill the companies needs.

There were other reasons for the phase out of coal production. The cost of Red Lodge coal was too high, mainly due to transportation costs to Laurel. Labor union troubles were continually hindering operations at the Red Lodge mines. There were extended strikes in 1919 and 1922. Strikes were anticipated for 1923 and 1924.

In 1923 the Northwest Improvement Company had opened a strip mine coal operation at Coalstrip Montana. The coal here was of lesser quality and the strip mine had been meant only as a threat to break strikes at the Red Lodge Mines.

After one years operation of the Coalstrip mine the company found it could save \$700,000 to 1 million dollars by strip mining. A cost comparison of the two mines showed that Red Lodge coal cost \$3 per ton while Colstrip coal cost only \$.65 per ton. Even the high grade Red Lodge coal could not off-set the savings. This spelt almost instant economic doom for the community. (4:449)

Many people today feel the deisel locomotive put the Red Lodge mines out of business,

But in fact the steam locomotive survived Red Lodge by 20 years. The now prominent Coalstrip mines were the end of Red Lodge prosperity.

HISTORICAL ANALYSIS

A study of the boom-busts era of Red Lodge shows its most significant architectural period to be before 1924. This was the time when the economy was prosperous and buildings could be buildt on liberal budgets. After 1924, Red Lodge suffered the effects of economic depression. Although Red Lodge never became a ghost town, some parallels can be drawn about their past.

Montana has had a history of temporary towns. In the frontier days, the discovery of precious metals caused a rapid growth of many communities throughout the state. The residents of these communities did not recognize the boom-bust implications in the economic base of their towns, and consequently, put great effort and expense into the devel-

opment of what the residents considered to be the nucleus of a new and permanent city. Some of these towns did provide many social amenities such as opera houses, dance halls, fraternity lodges, brothels, and, of course, the local saloons. But the mines dried up and the economic base disappeared, the residents had to move and leave behind their sometimes considerable investments. The "permanent city" was really only temporary, and due to a lack of long range planning, it was inevitably destined to become a ghost town. (5:4-5)

Red Lodge did not become a ghost town, but it did lose half its population in a few short years. The assessed value of the city was reduced by a third from 1920 to 1930. This left the community with many vacant

buildings in its central business district. Many of these buildings have not changed measurably to this day and hold a great potential for restoration or more extensive renovation.

Today the community of Red Lodge has lost its rich history under a mass of tourists getting signs. The rich heritage is there and needs to be brought to the surface. The restoration would have a two fold effect. It would give the residents of the community a sense of identity and bring forth a unique character that would attract tourists as much as huge signs.

"Let today's Montanan stop occasionally by the remnants of the mining town, with its

blankly staring windows, its collapsed roofs, occupied only by field mice and prairie dogs, and its bank--the door agape, the vault empty. It is important to remember."(6:97)

Not only is it important to remember the past but it is also important to understand its comparison to today's life style. This brings to the surface the comparison of architecture of incident (past) and architecture of diagram (present).

Architecture of incident can be defined as patrons who invested, designers who thought, and craftsman who realized. Producing a building that reflected human purpose; "A sense of place."

As compared to architecture of diagram:

money diverted from building fabric, domination of construction technique, and slick architecture from hard materials, results in a product with sameness and repetition; "lose of sense of place". (7:266)

The interest and vitality of a communities business district must come from the individual shop owner. Each shopkeeper should be responsible for his sales environment. He should compel his large corporate counterparts to conform to his street architecture, and meet the needs of his clients. People are demanding a more organic rate of change in their world and an architecture they can identify with. To produce a street quality that is four-square. The outcome of human struggle, not a paper thin simulation. (7:274)

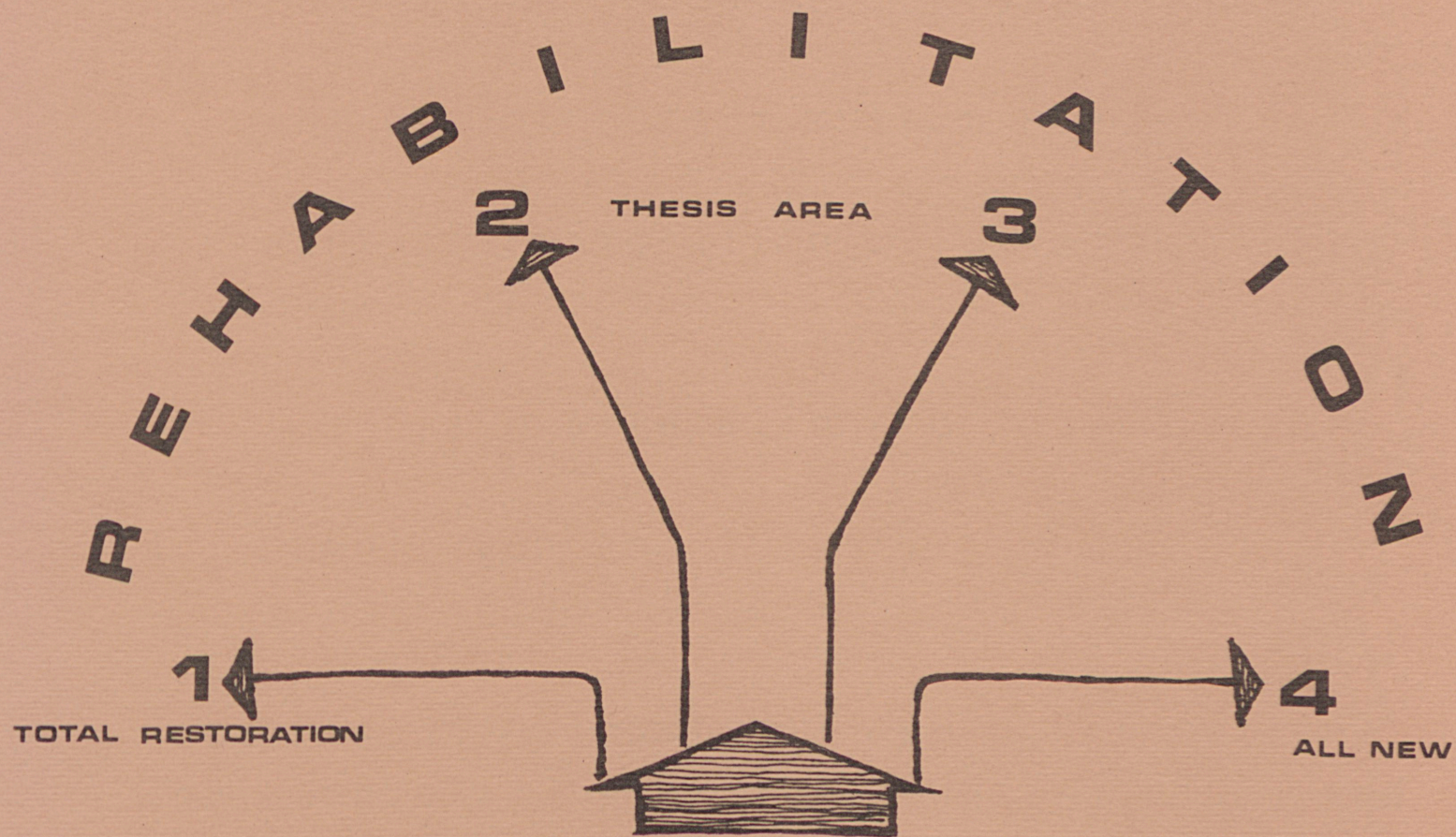
**RESTORATION,
RENOVATION,
OR NEW?**

Restoration--Returning a building, as much as possible to its original condition. (8:8)

Renovation--Partial restoration plus introduction of new elements that are non-historical but that if well designed in themselves, can relate well to the older parts of the building. (8:8)

New--The opposite end of the scale from restoration, involves demolition of old building and totally new construction.

The diagram on the following page attempts to illustrate the complete spectrum for improving older buildings.



The numbers as job descriptions:

1. The building as a museum piece.
2. Partial restoration of exterior, with modern interior.
3. Extensive alterations or additions.
4. Demolition and totally new building constructed. (8:11)

Comparisons of cost for new construction and renovation show a savings in money and consequently a conservation of materials. The following graphs compare construction costs and operating costs of renovation versus new construction. ((9:55)

	NEW CONSTRUCTION	RENOVATION
1. Property acquisition	\$ 3.00	\$14.00
2. Front end renovation		1.50
3. Demolition	.15	
4. Basic building	38.00	7.00
5. Tenant improvements/finishes	<u>8.00</u>	<u>8.05</u>
TOTALS	\$49.15	\$30.55

*Architectural Record, March 1976

OPERATING COSTS*

	REHAB. net/sq. ft.	NEW net/sq. ft.
1. Energy (air conditioned)	.70	.90
2. Janitorial	.55	.55
3. Building operating, reserve, maintenance	.75	.95
4. Vacancy allowance	.25	.40
5. Taxes	<u>.60</u>	<u>1.10</u>
TOTAL OPERATING COSTS:	\$2.85	\$3.90

*Architectural Record, March 1976

LANGUAGE OF DESIGN

The following terms are the basic elements and principles with which the architectural designer works. Some readers may be wondering why it is so important to know about the possible choices on the application of these elements when in the average renovation job they have already been largely determined by the original designer of the building.

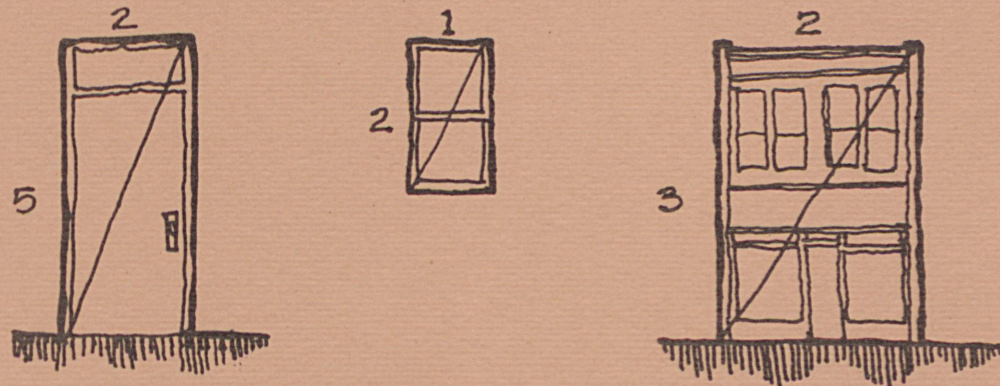
It is important because the person who knows something about the basic elements of architecture design is in a better position to appreciate how the original design character of the building was formed and therefore to respect and preserve the best of it when making any alterations (8:29)

TEXTURE is the "touch" quality or the de-

gree of roughness or smoothness of a material or surface. This ranges from the smoothness of glass to the pitted richness of old brickwork. It is very important that the design be enhanced rather than just "jazzed-up" by the textures, as it is all too easy to use slick materials such as "natural", or uncoated, aluminum and glass curtain walls, so popular at one time in commercial renovation, to cover up good honest masonry. (8:19, 20)

PROPORTION is simply the ratio of two or more dimensions. This can refer to the ratio of the width to the height of a door opening, window opening or, on a large scale, to the ratio of the width to the height of a whole building. In general, most older buildings tend to emphasize the height, or verti-

cal proportion. (8:22)

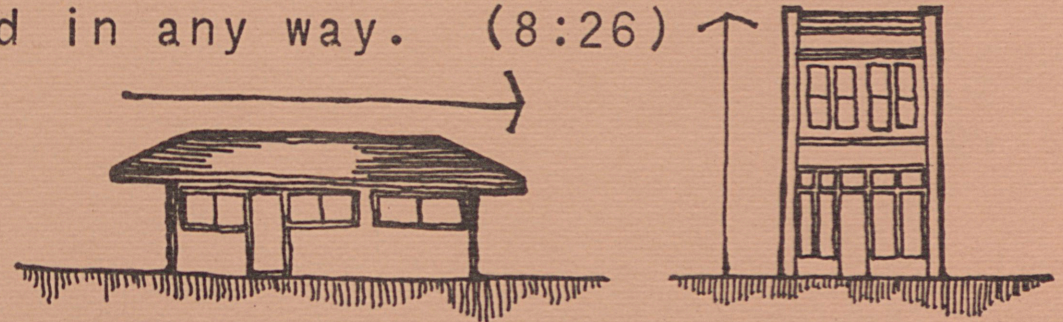


SCALE is yet another form of proportion-- This time expressed as the relationship of the "apparent size" of a building, space, or object to the size of a human being. (8:24)



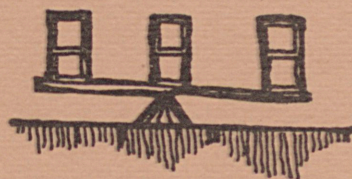
DIRECTIONAL EMPHASIS of a building is one of its most important characteristics, and, with very few exceptions, most of the older build-

ings eligible for renovation will be predominantly vertical in character--at least in the most important details such as windows, doorways, and so forth. This is important to remember when making any alterations or additions to the original design--and most particularly when new or existing windows are involved in any way. (8:26)



SYMMETRY is one of the traditional methods of achieving balance. Many design problems arise from the careless mixing of symmetrical and nonsymmetrical elements. In a symmetrical building, for instance, the doorway will be in the center and should be

symmetrical itself. (8:29)



**ANALYSIS &
DESIGN SUGGESTIONS**

The following are design suggestions based on historical analysis. These particular design suggestions are a result of the building character and history of the Red Lodge Community.

Although these suggestions are based on a single community, the design procedures may well apply to other small mining towns in Western Montana.

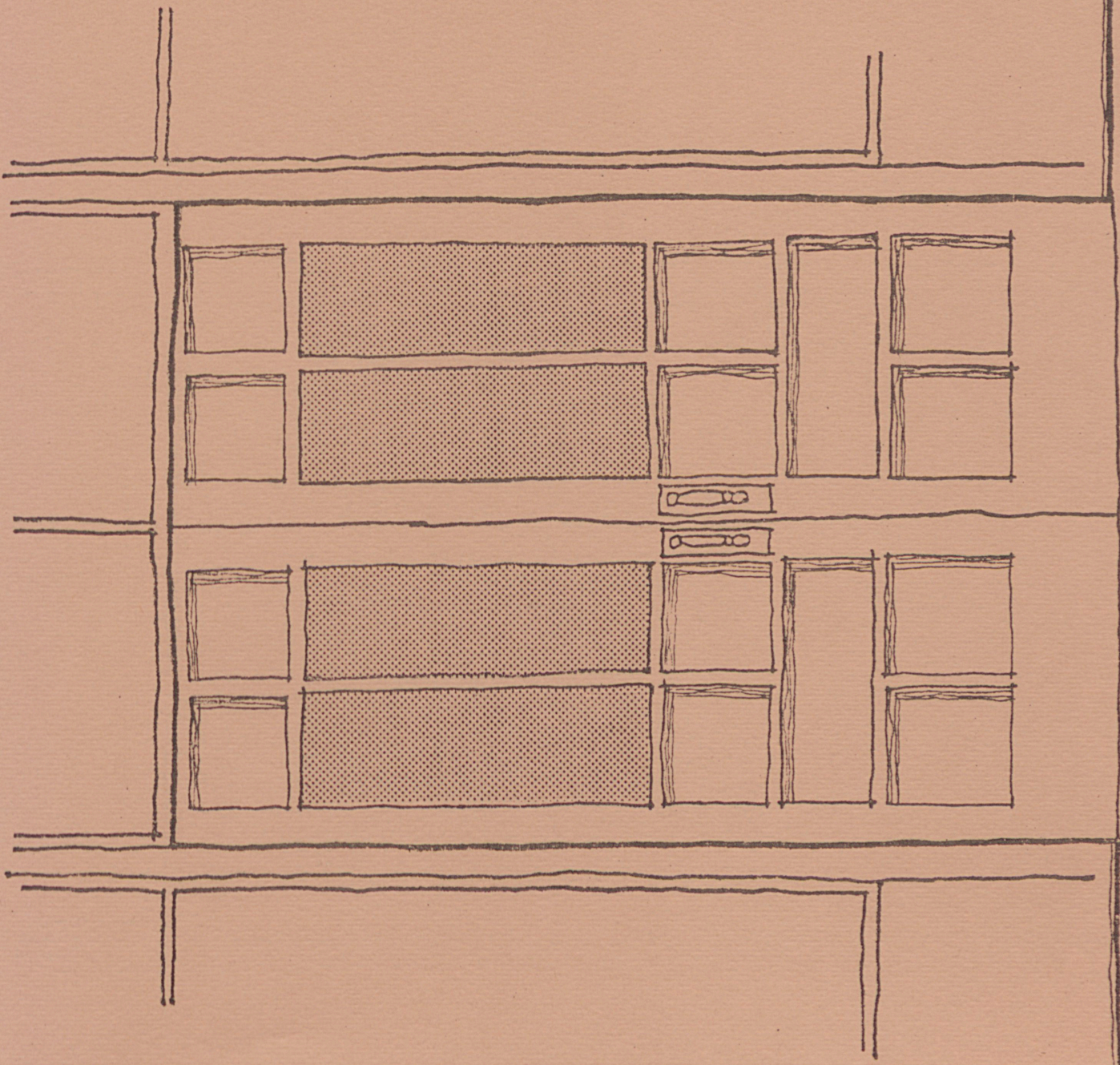
If one wanted to establish restoration and renovation criteria for the small towns of Northern and Eastern Montana--the procedure and outline described in this book could be followed to identify a unique architectural character.

If a building is to be successful, it must

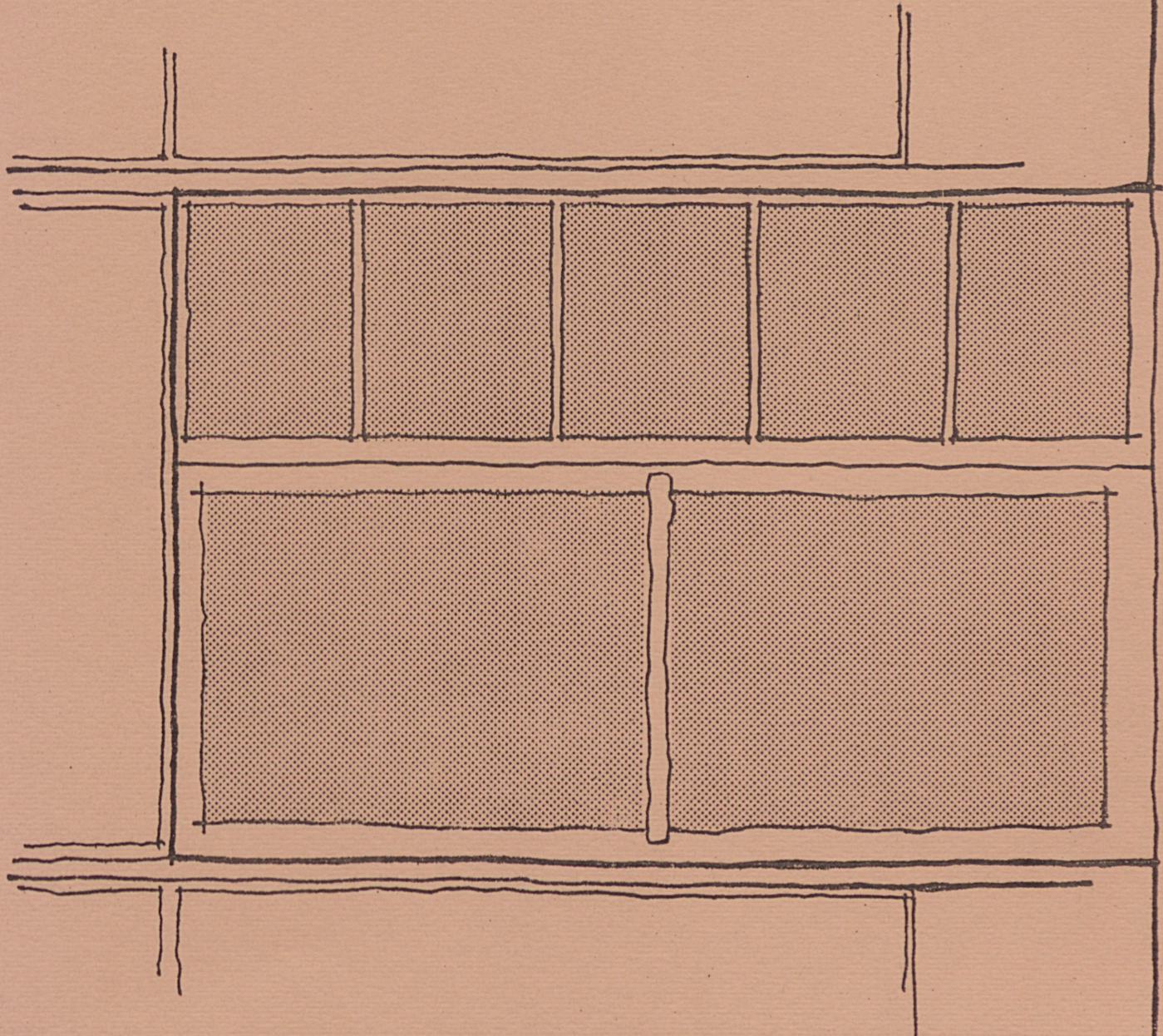
subscribe to it's past harmonies. This does not mean that it must duplicate the architectural style of it's past; what it does mean is that it's height, it's position in relation to existing street lines, the character and color of it's materials, and other matters like these, must be carefully considered.

We want a village architecture that is robust and colorful--as the village architecture of the past generally was. (10.69)

ENTRANCE

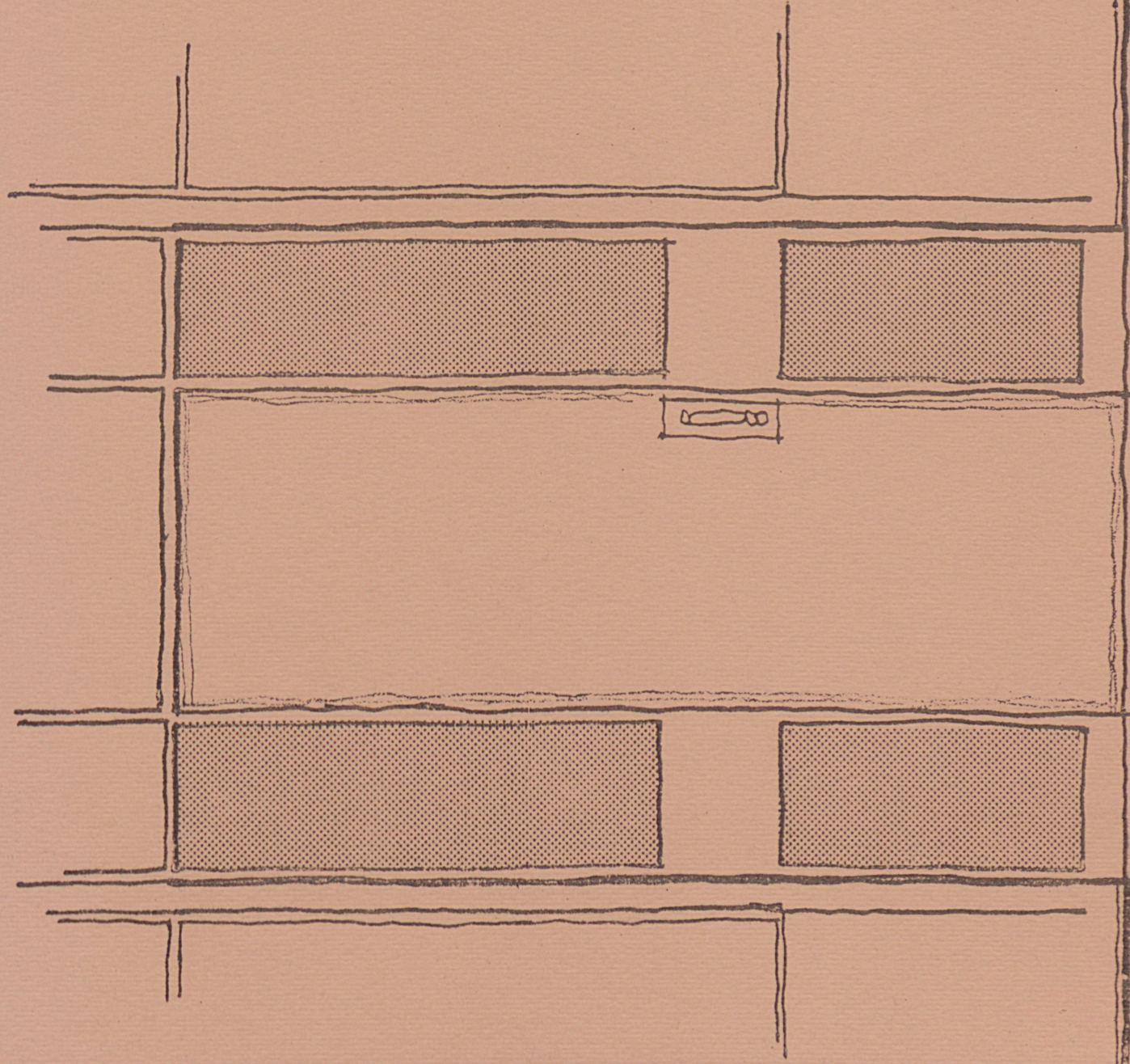


YES
TRADITIONAL



NO

SYMMETRY & PROPORTIONS
CONTRADICTED



MAYBE

SYMMETRY & PROPORTIONS
RETAINED

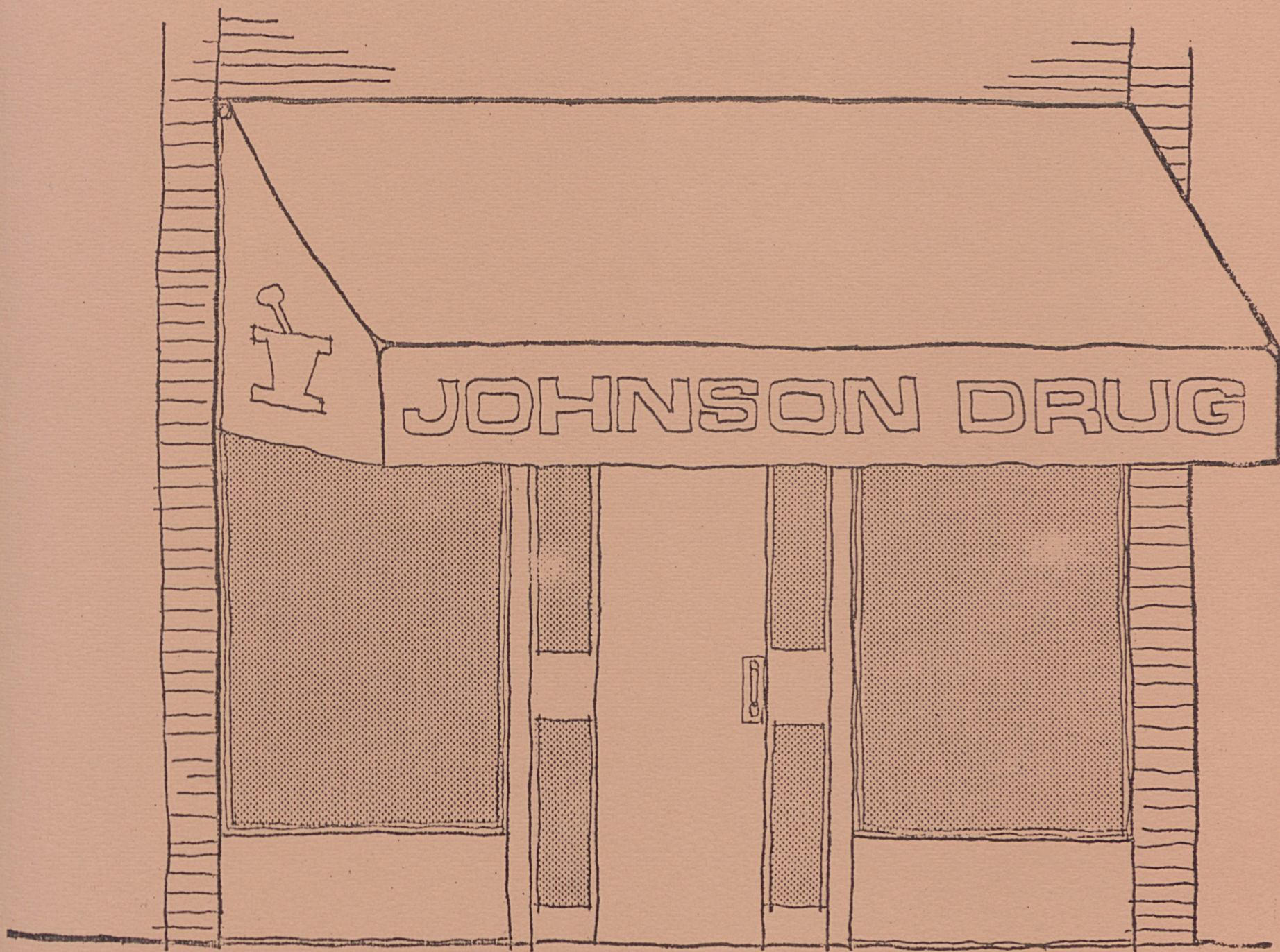
AWNINGS



YES
ORIGINAL - CANVAS

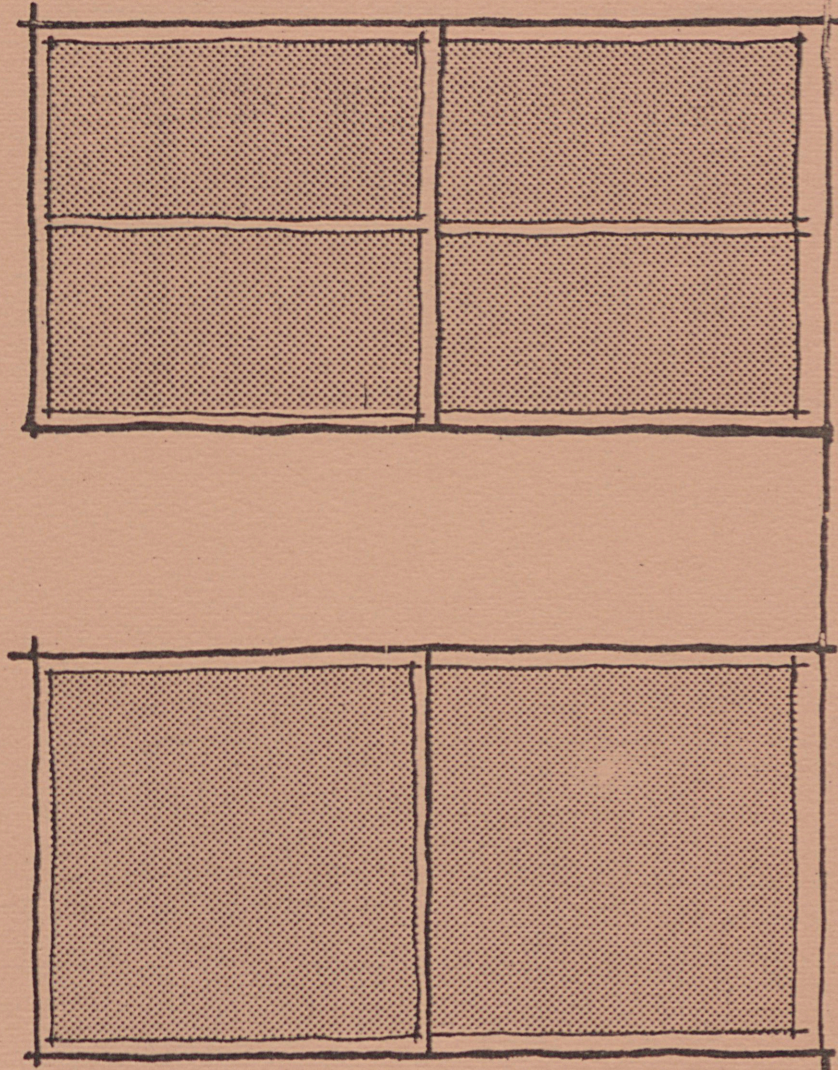


NO
ALUMINUM OR METAL

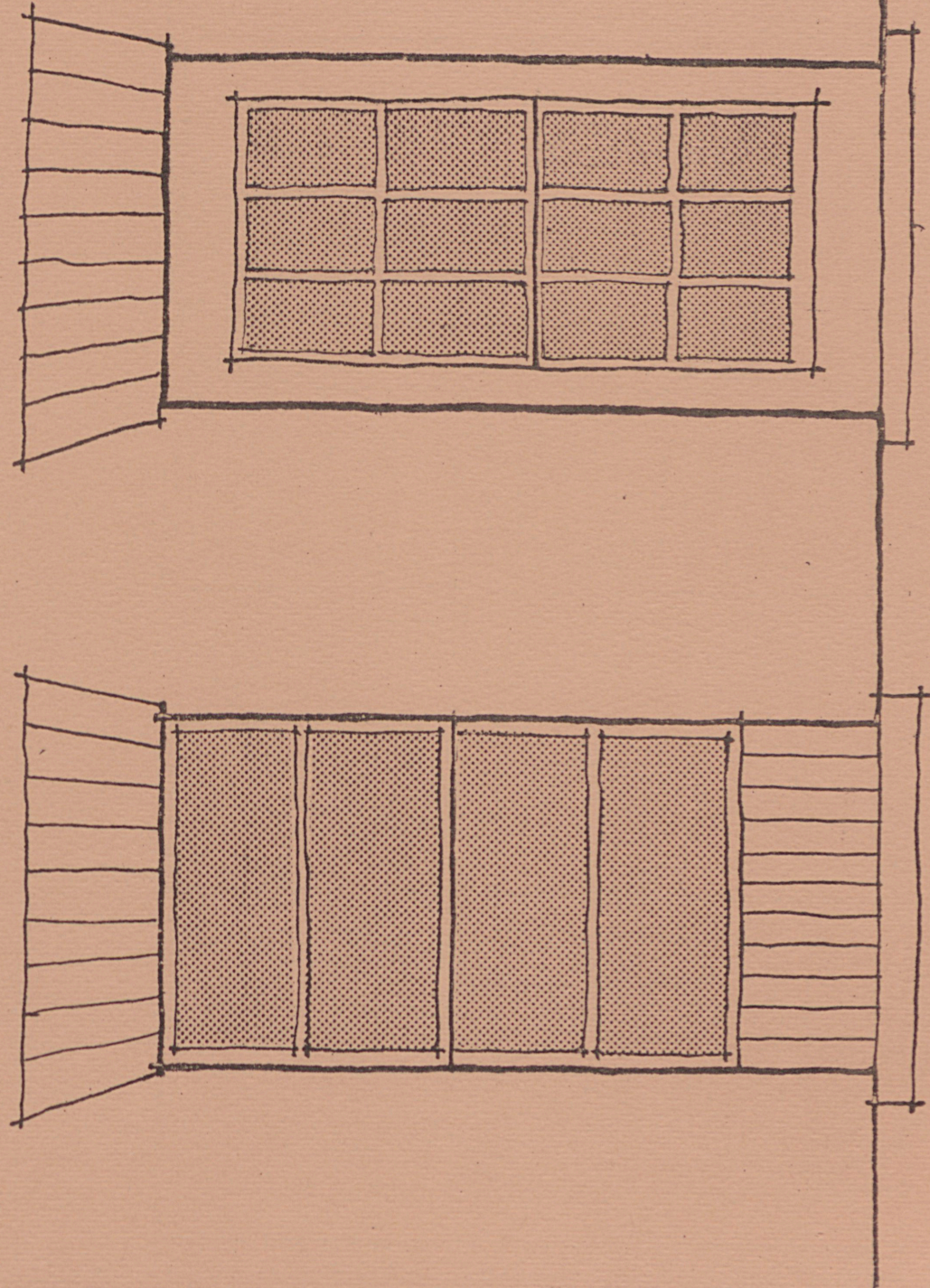


MAYBE
MODERN - CANVAS

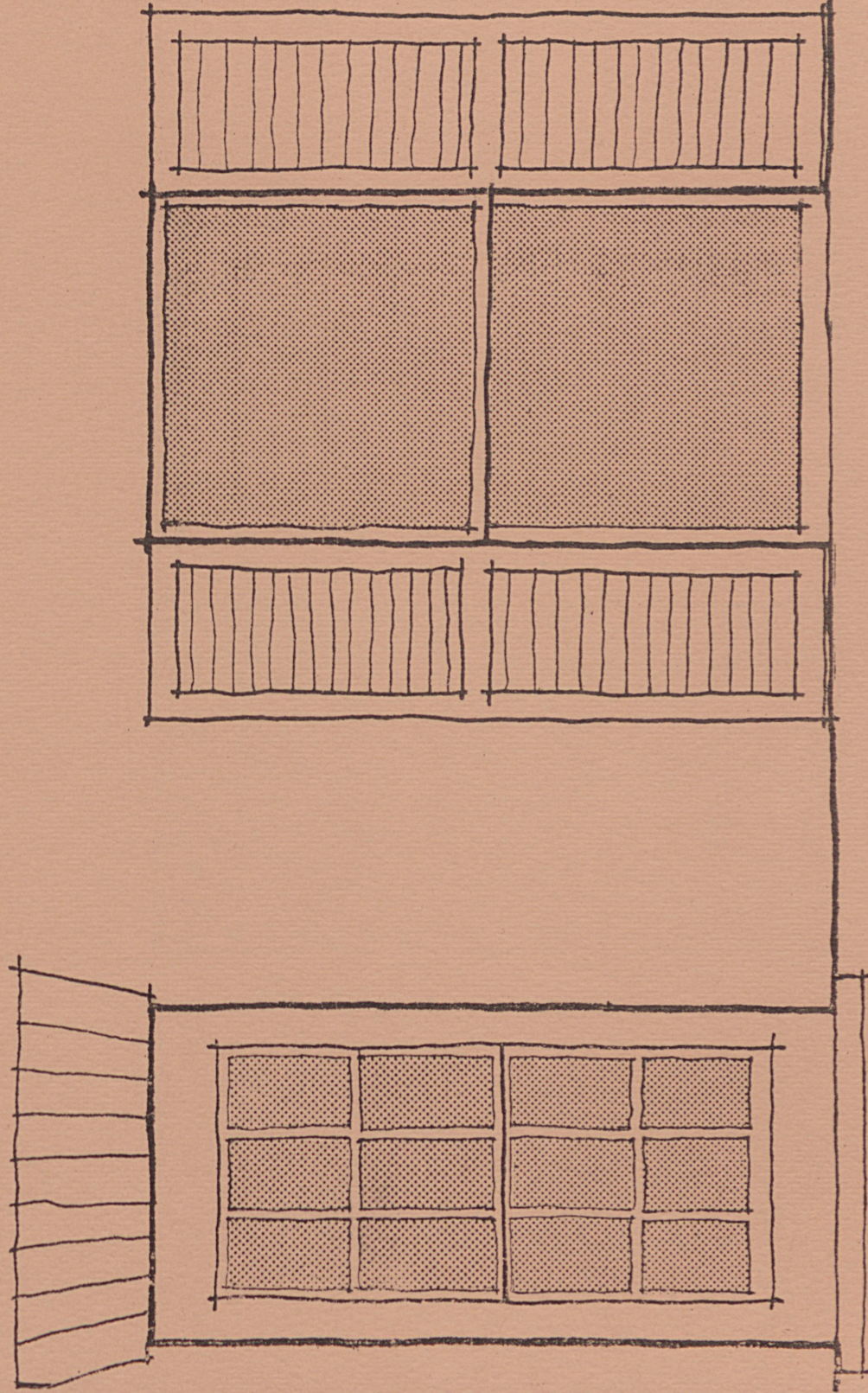
WINDOWS



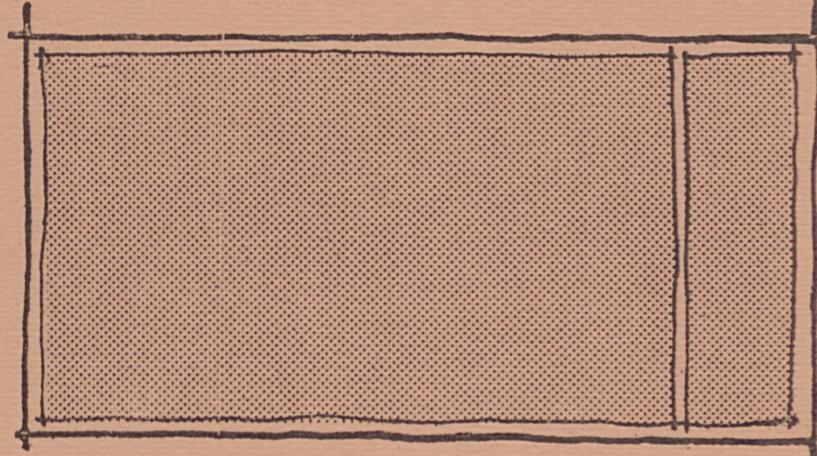
YES
TRADITIONAL



NO
BLOCKED-UP; OR IN

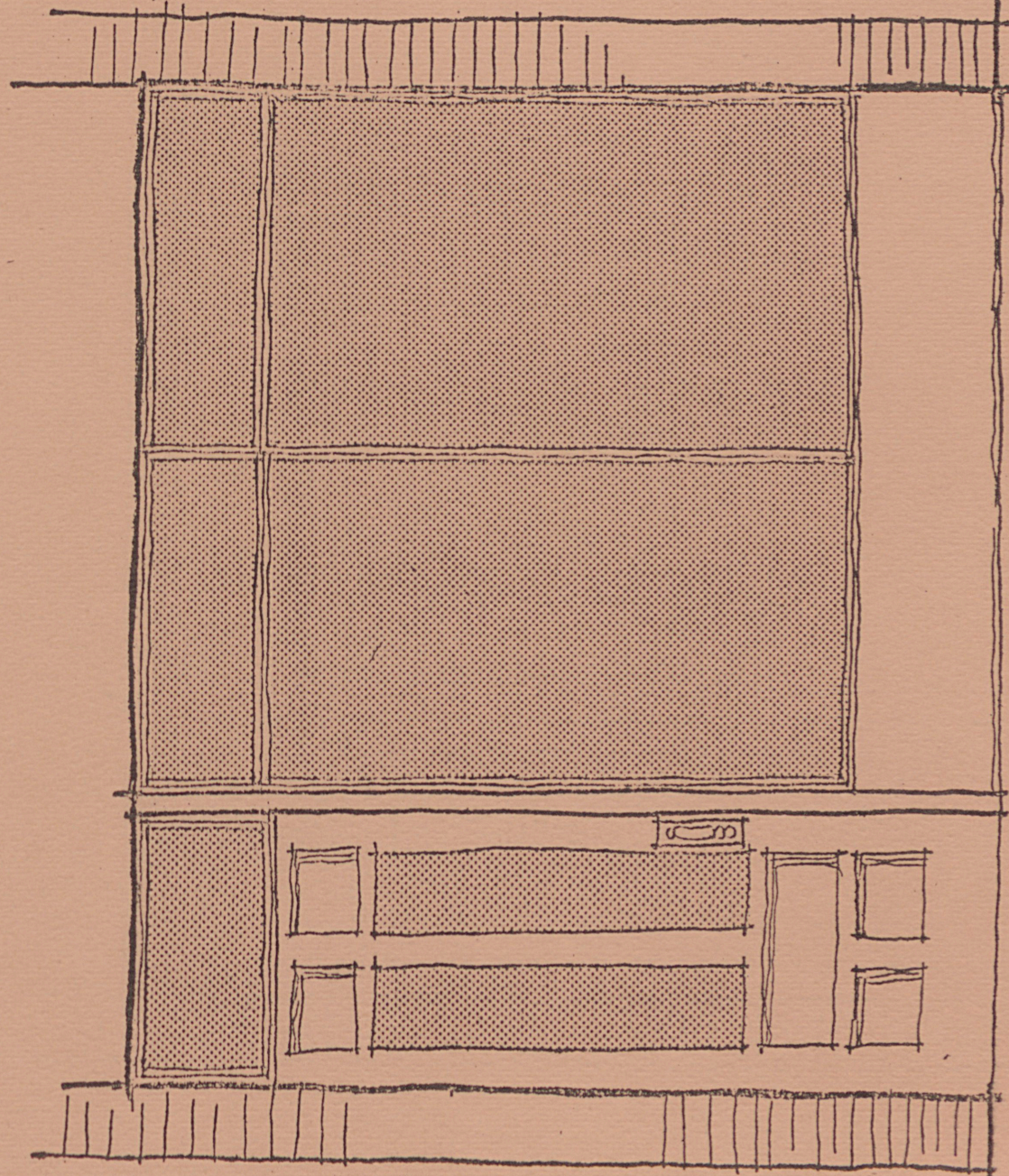


PHONY TRADITIONAL

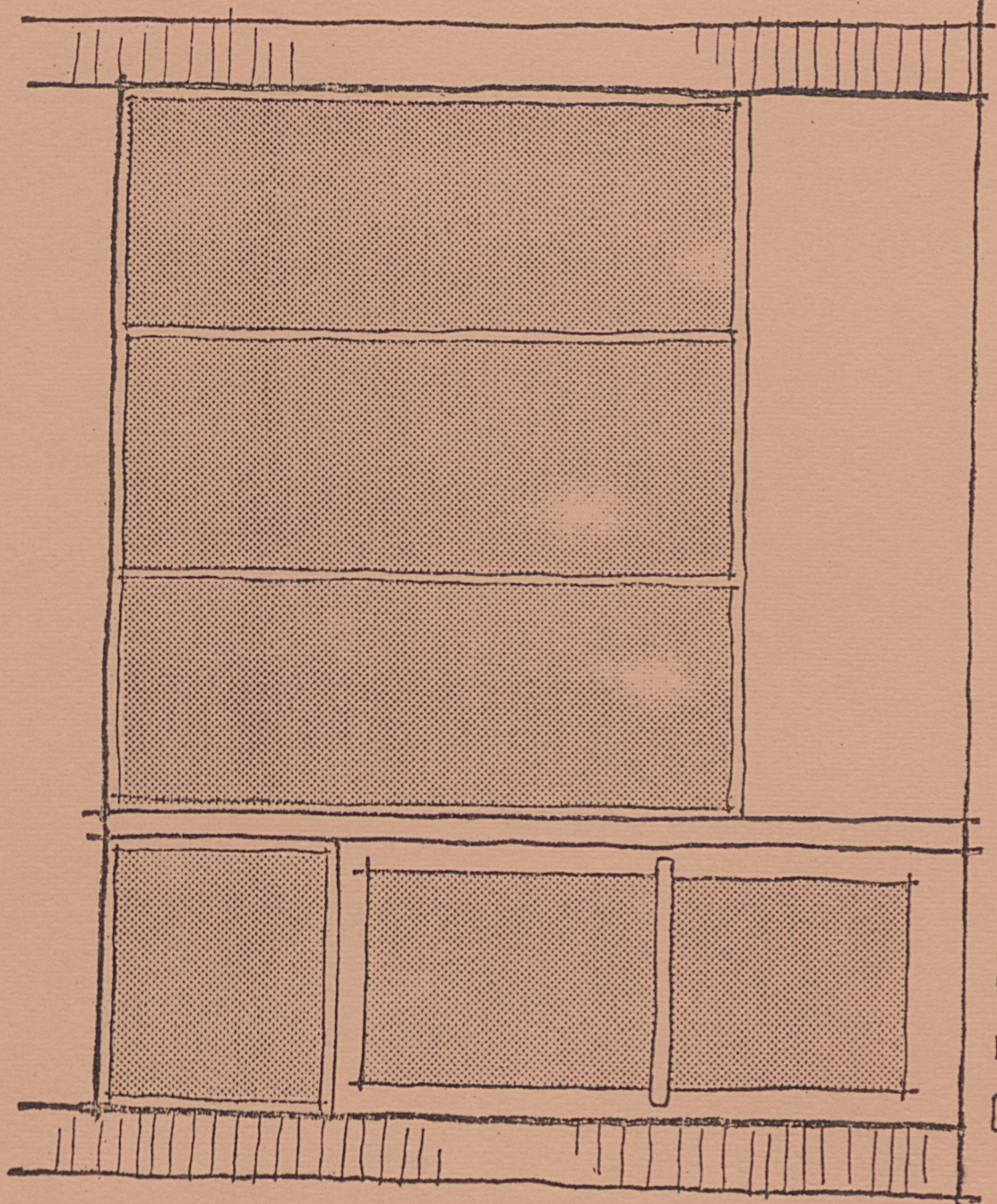


MAYBE
MODERN

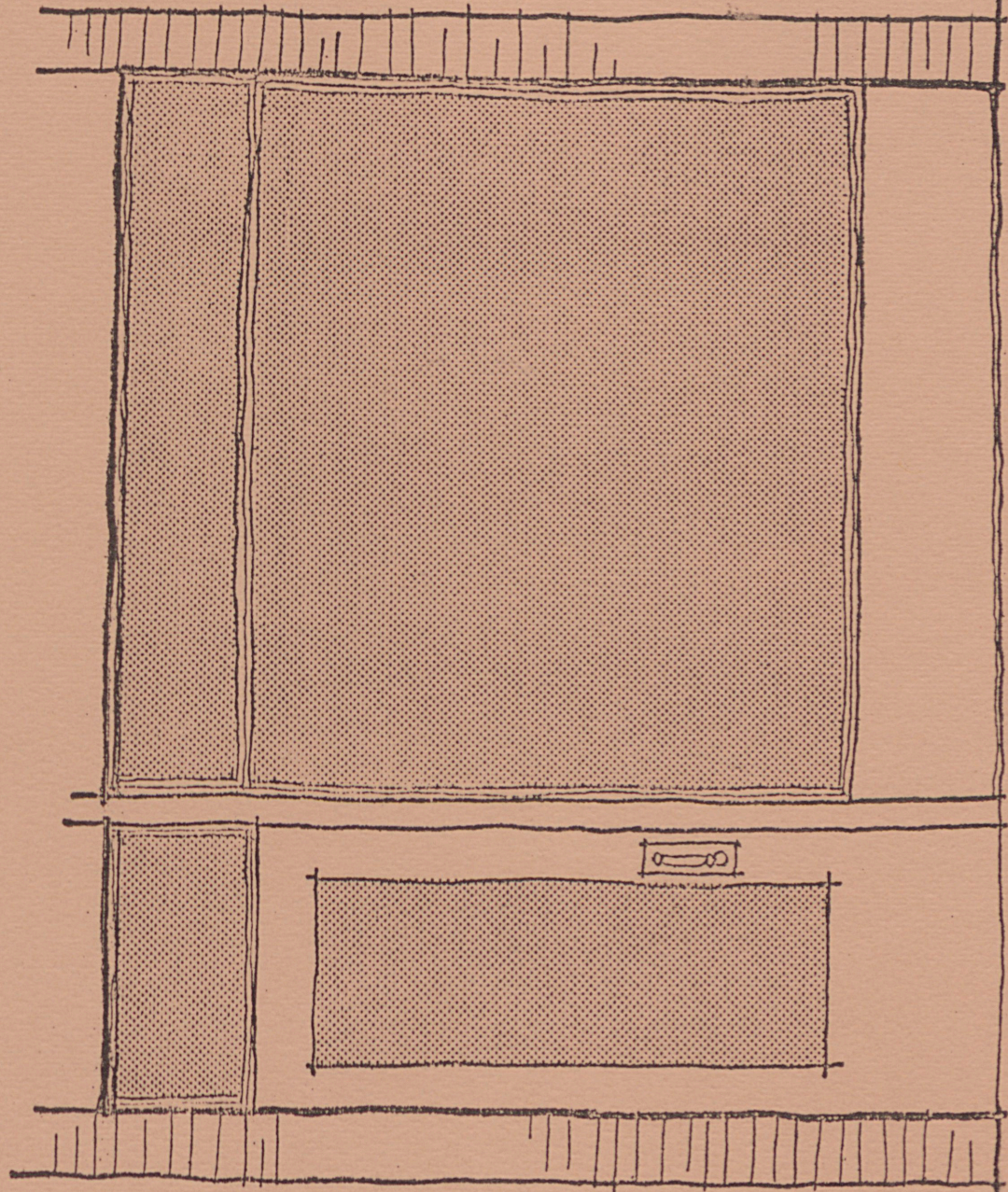
CLERESTORIES



YES
ORIGINAL FRONT



NO
"MODERNISTIC"

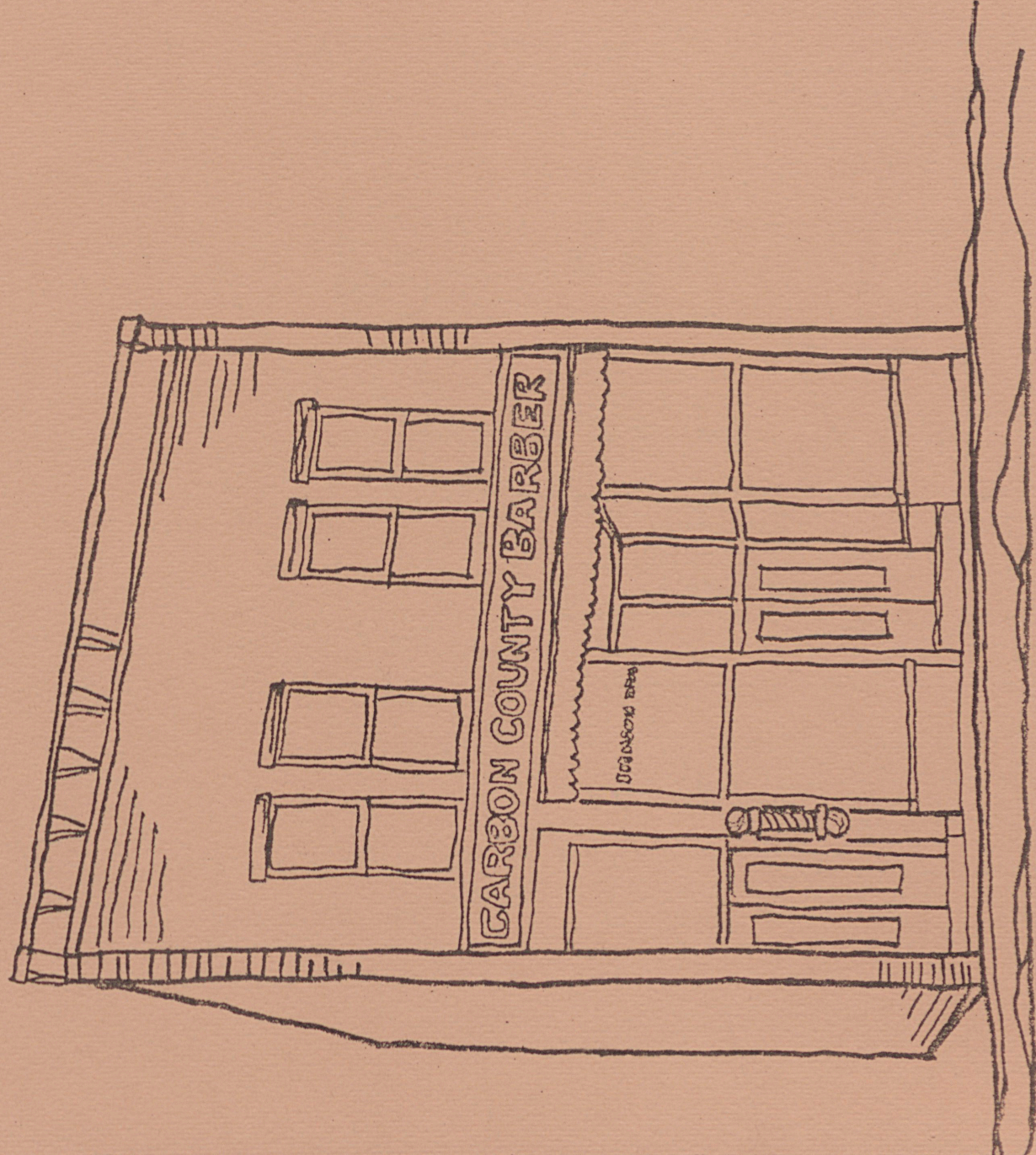


MAYBE
BASIC PROPORTIONS
RETAINED

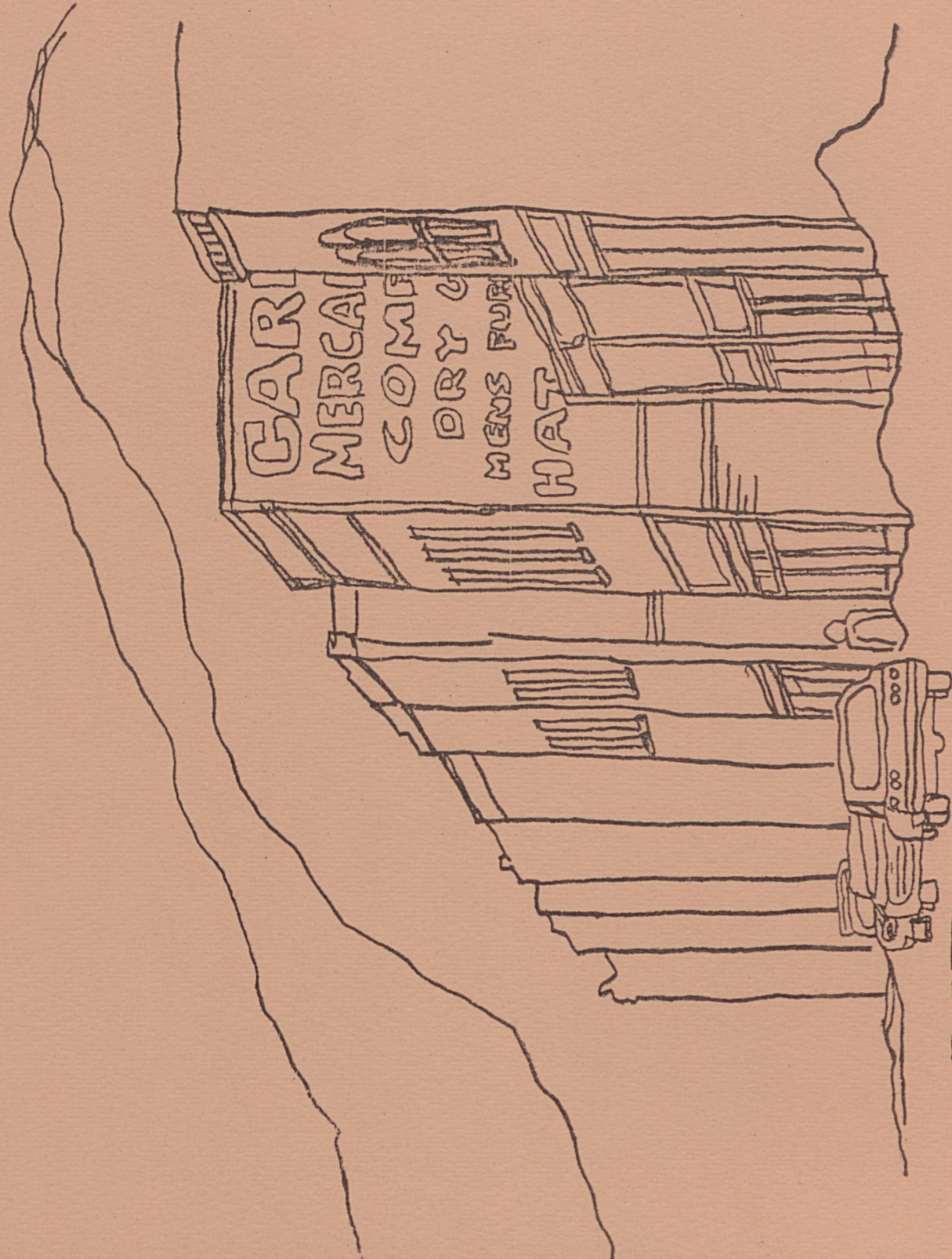
SIGN PLACEMENT & SIZE



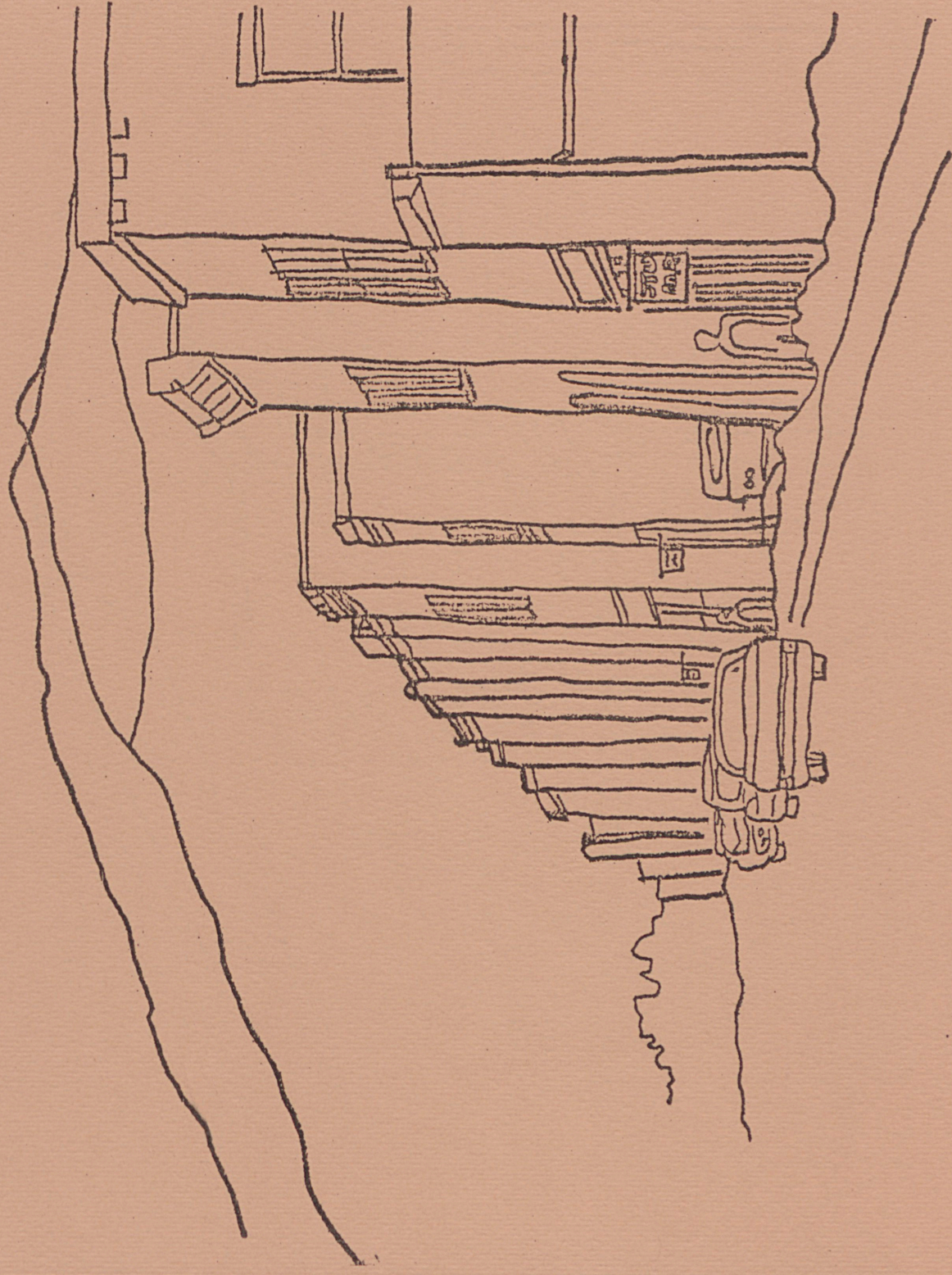
YES
LETTERING ON WINDOW



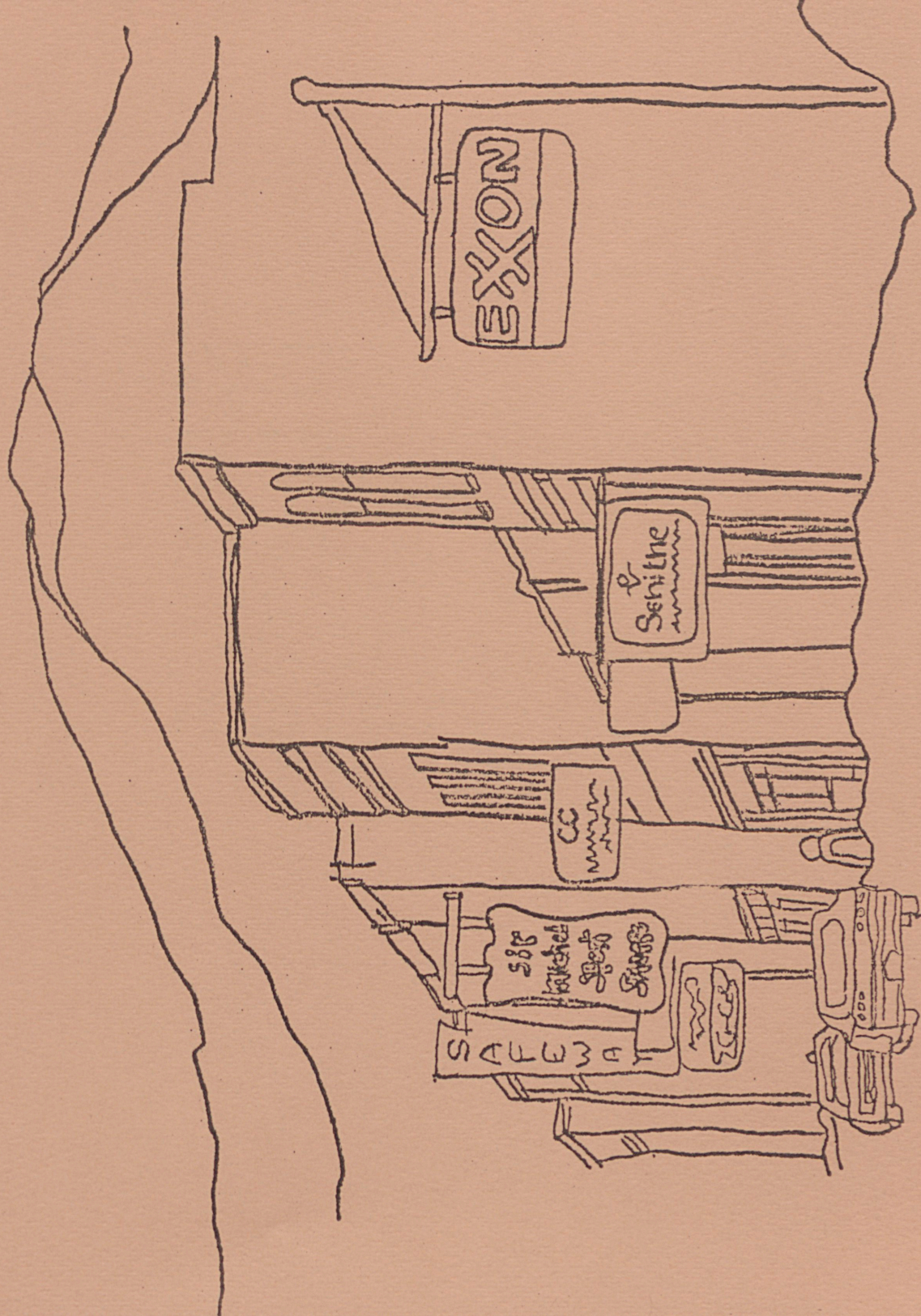
YES
SPACE ABOVE CLERESTORY
AND IMAGERY



YES
SIDE OF BUILDING



YES
AT PEDESTRIAN LEVEL

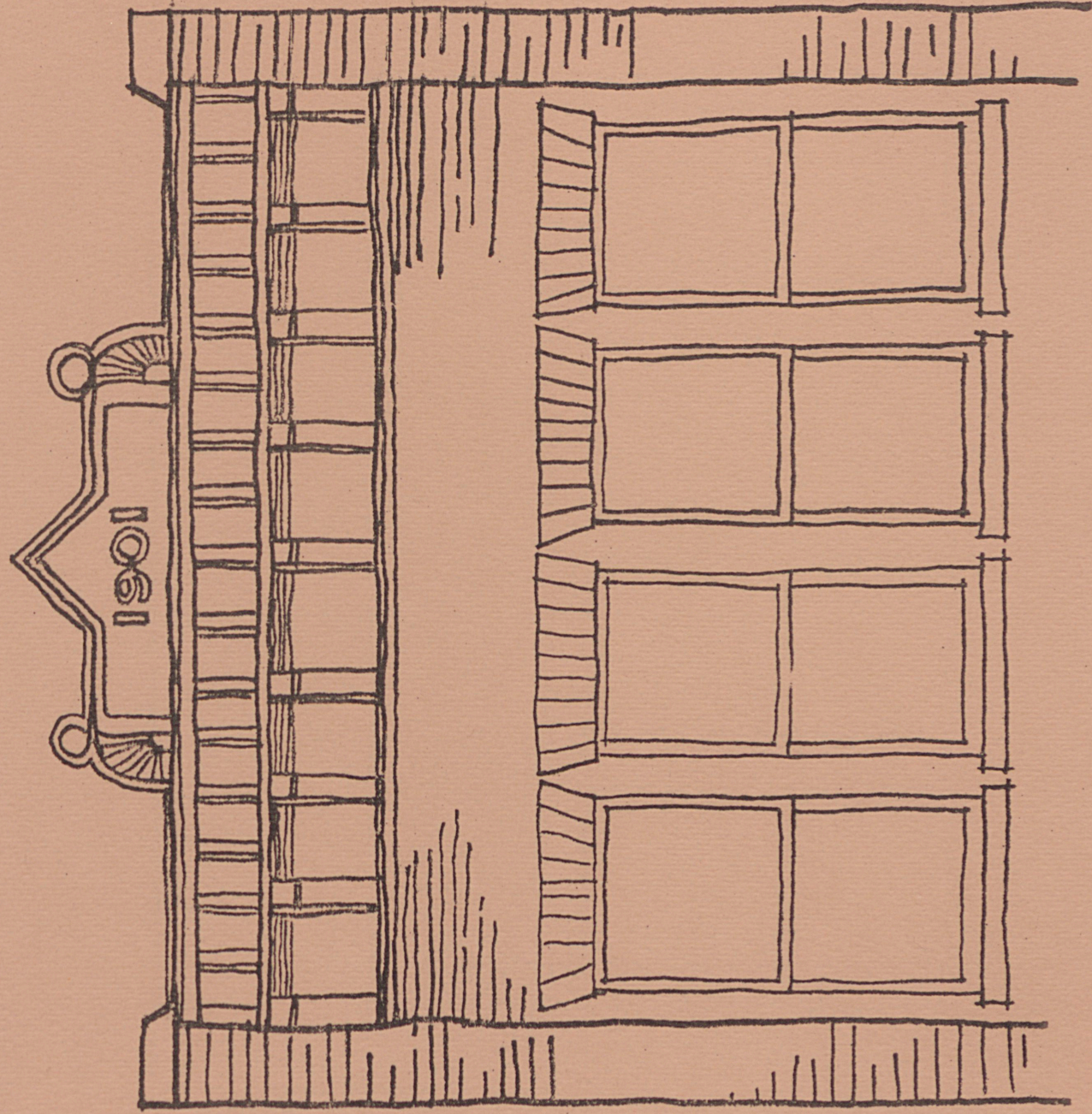


NOT OUT OF SCALE



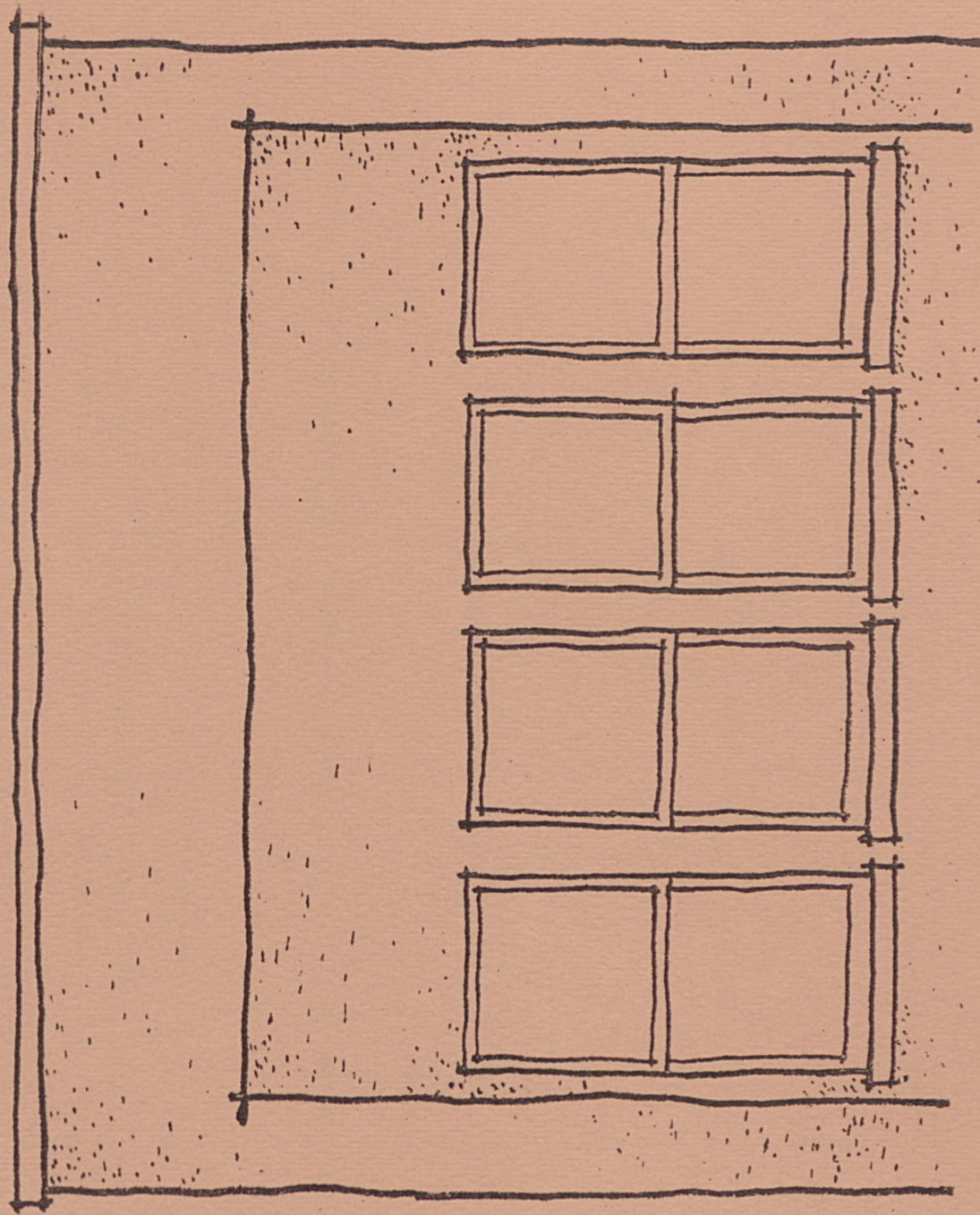
MAYBE
LETTERING ON AWNING

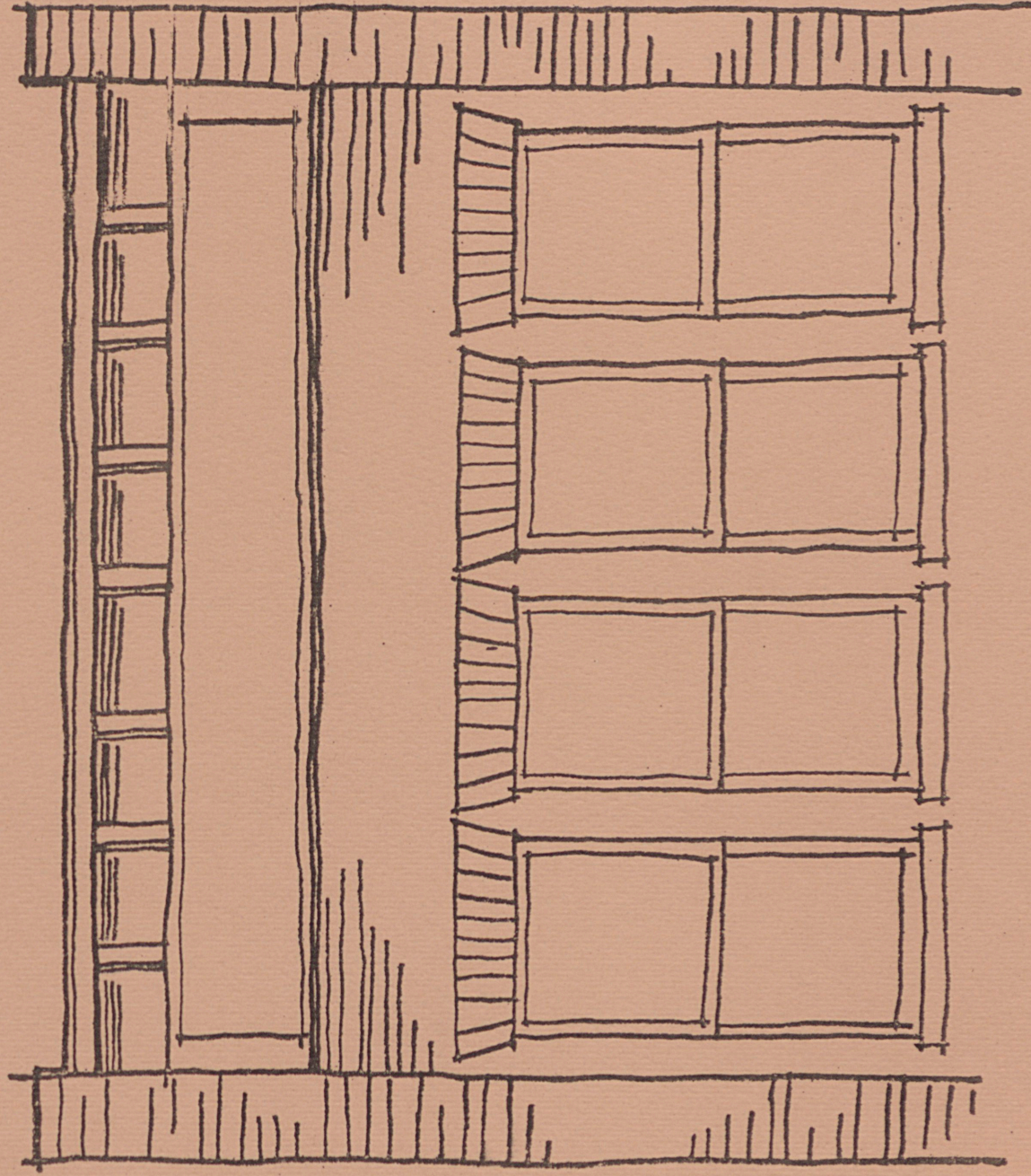
CORNICE



YES
ORIGINAL CORNICE

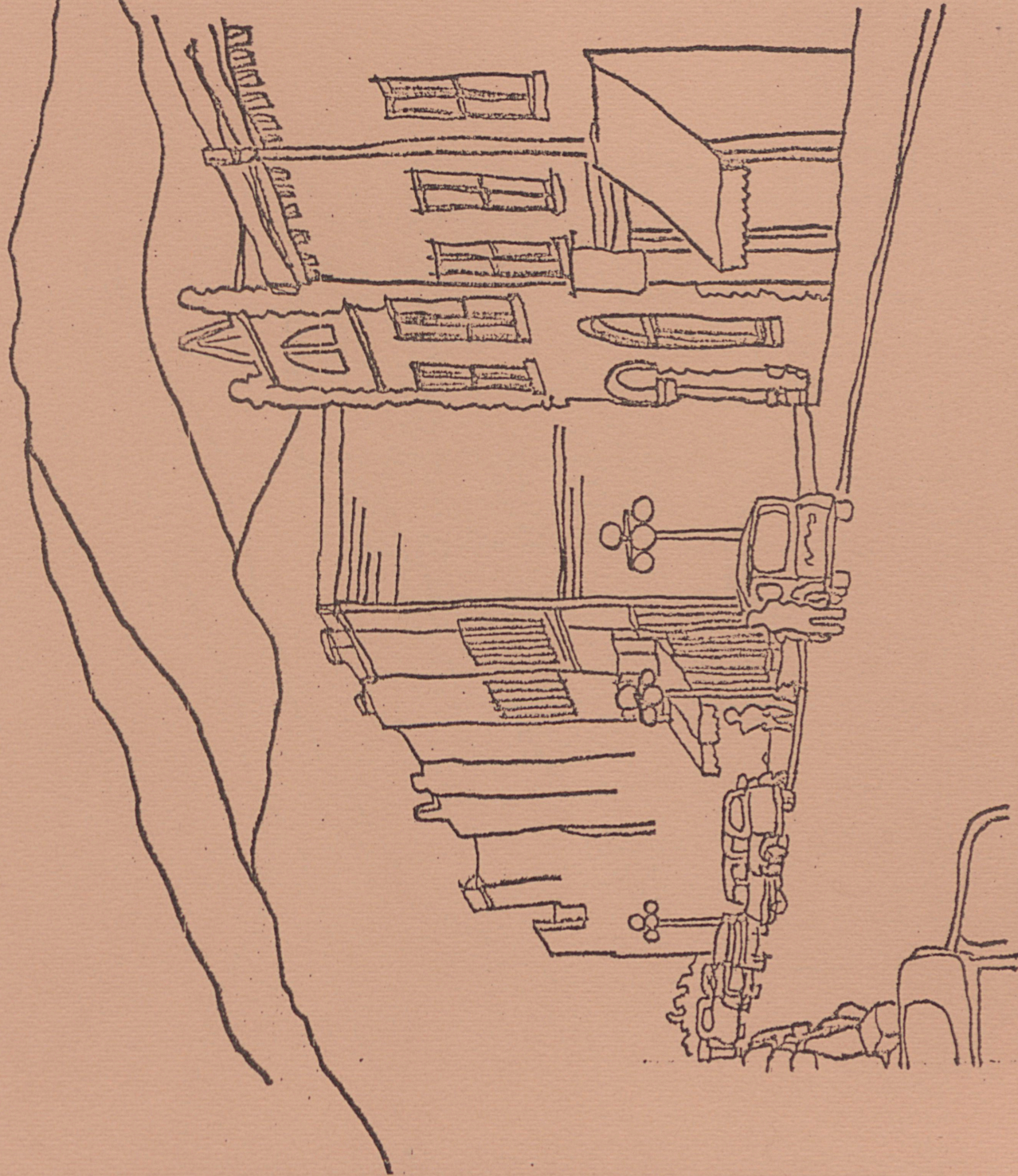
NO PHONY MODERN



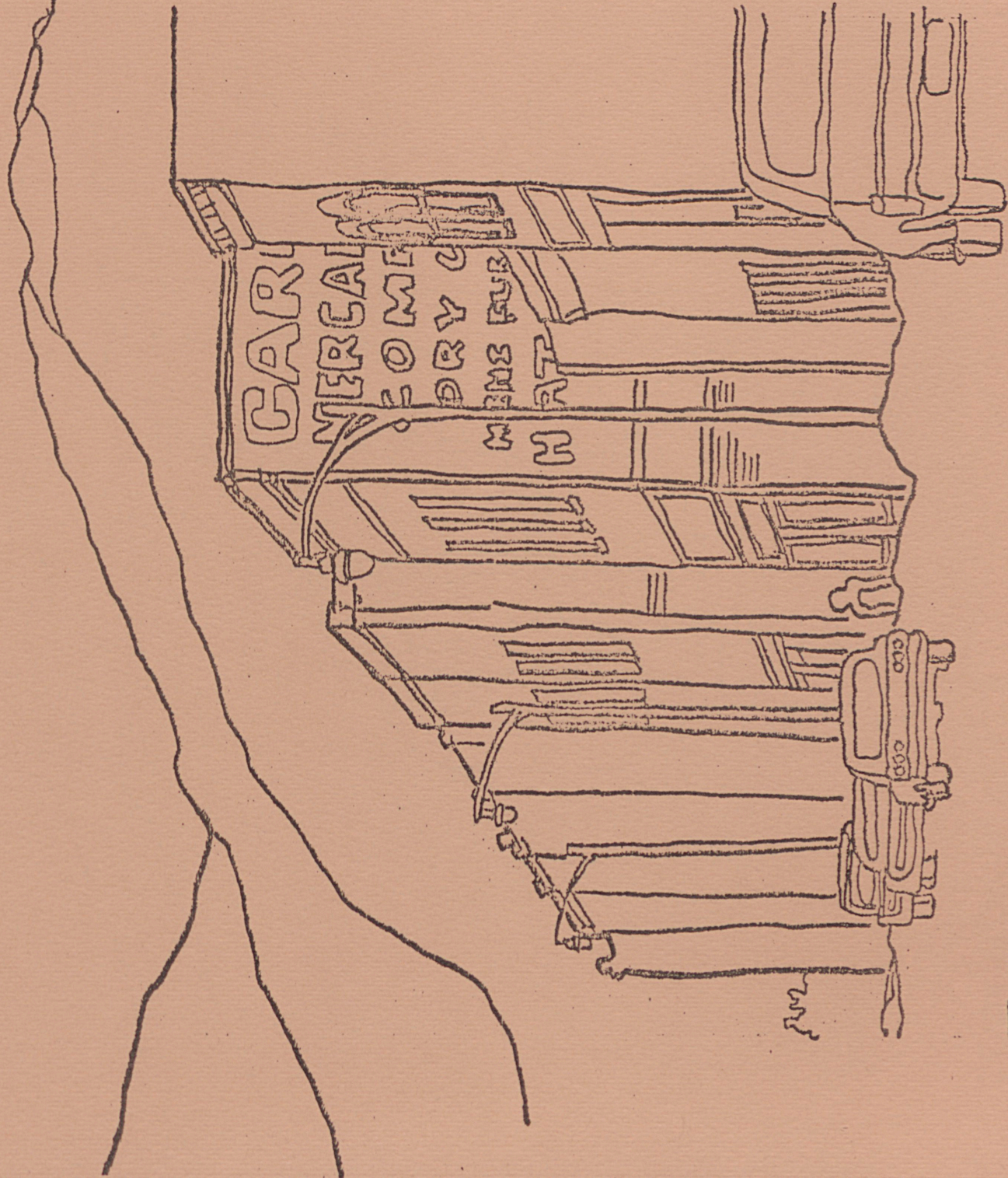


MAY BE
SOME DETAIL RETAINED

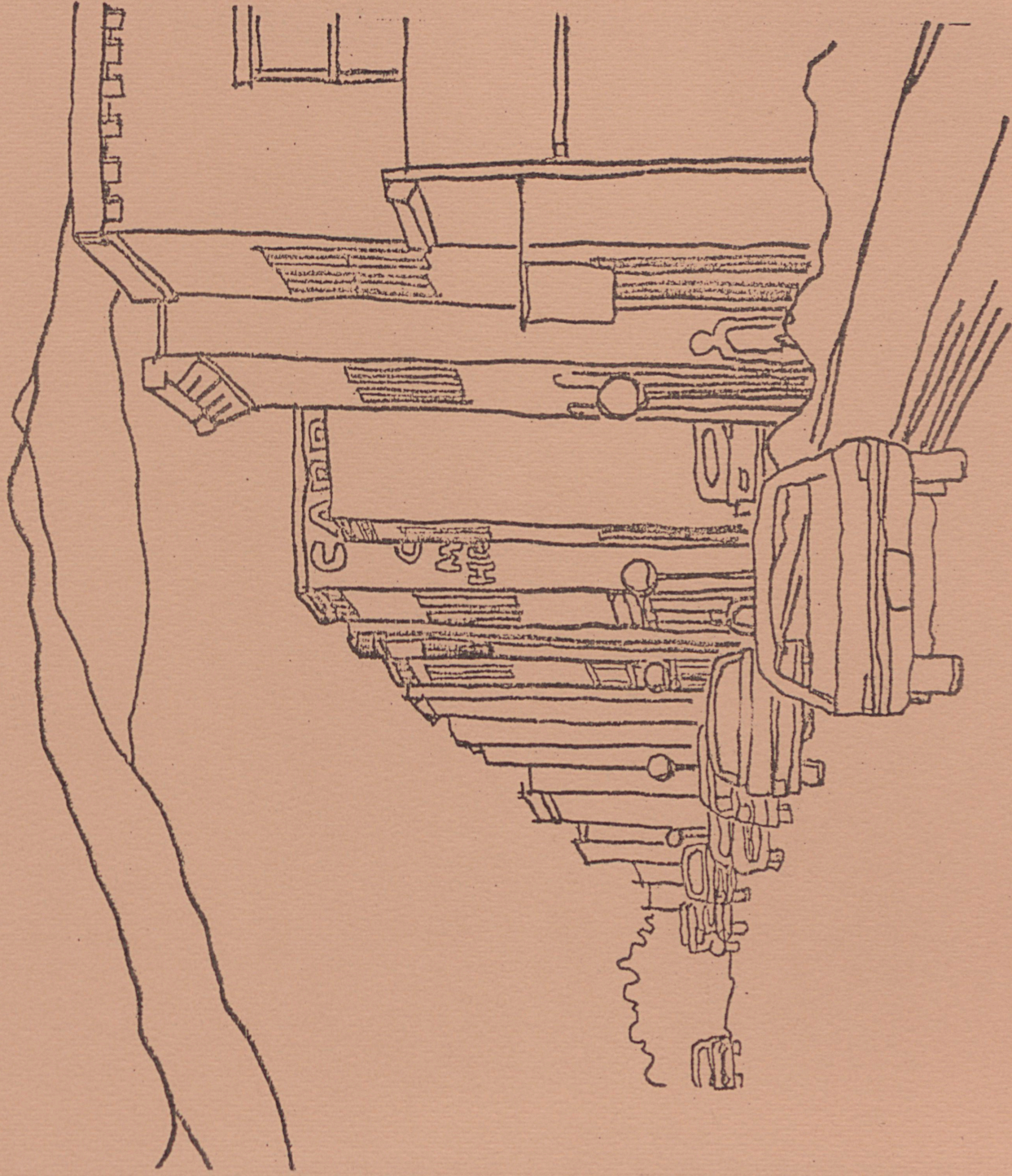
STREET LIGHTING



YES
LIGHTS TO HUMAN AND
BUILDING SCALE



NO LIGHTS OUT OF SCALE

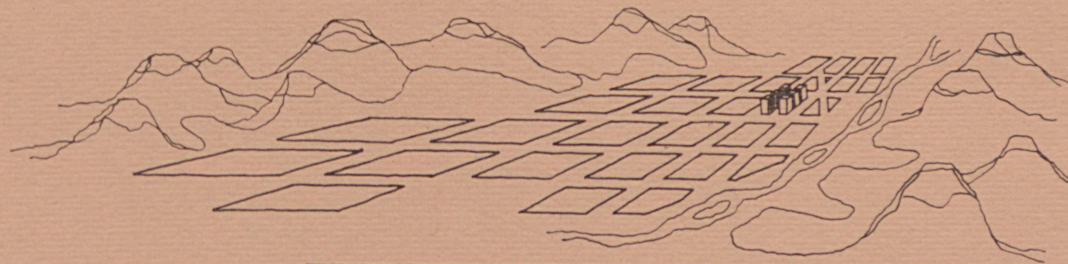


MAYBE
LIGHTS TO MORE
APPROPRIATE SCALE

THESIS PRESENTATION

RE-USE, HISTORY, AND EARLY MONTANA ARCHITECTURE

ANALYSIS OF LOCAL HISTORY CAN IDENTIFY A REGIONAL CHARACTER THAT CAN BE APPLIED TO ARCHITECTURAL RENOVATIONS.



THESIS 76

KEN RICHARDSON

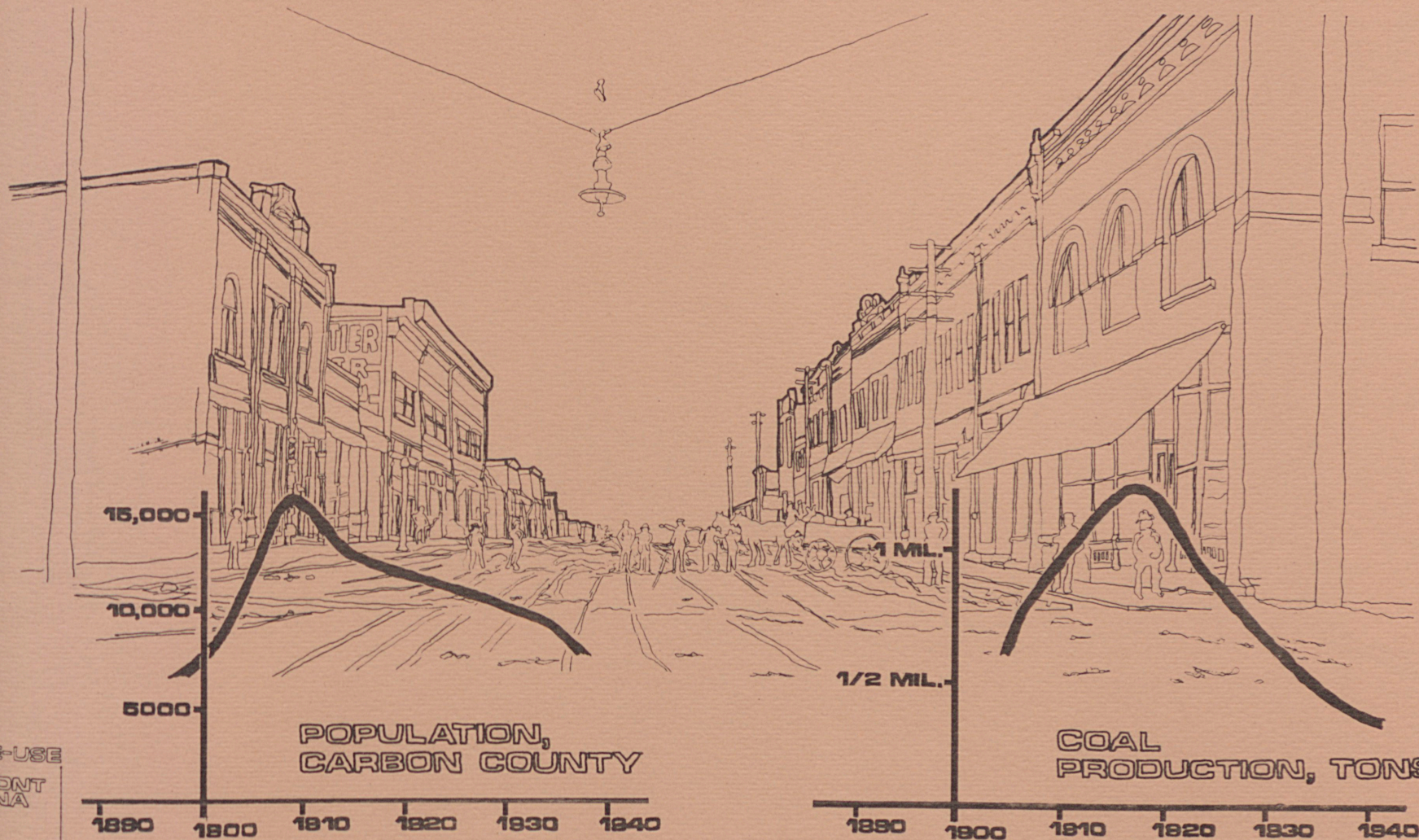
A STUDY OF COAL,
SMALL TOWN MO
NTANA, A NEW LIF
E, & PRESER
VING CHAR
ACTER



RE-USE
IN MONT
ANA



THE COMMUNITY: RED LODGE



RE-USE
IN MONT
ANA



1907: A COAL BOOM TOWN



RE-USE
IN
MONT
ANA



1976: A LOST IDENTITY

BUSINESS
PROFILE:

- RESIDENTIAL
- RETAIL
- FOOD & DRINK
- OFFICE
- AUTOMOTIVE

BUILDING
AGE:

- PAST - 1914
- 1915 - 1929
- 1930 - 1944
- 1945 - 1959
- 1960-PRESENT

RE-USE
IN
MONT
ANA

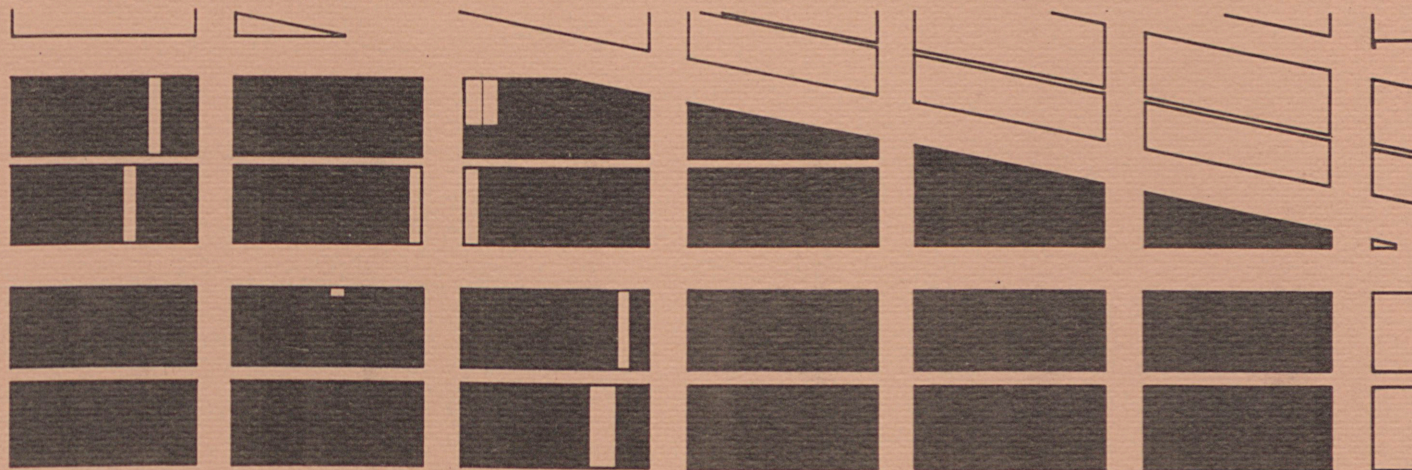


DOWNTOWN BUILDING STUDY

BUILDING
STRUCTURE:

● MASONRY

● WOOD

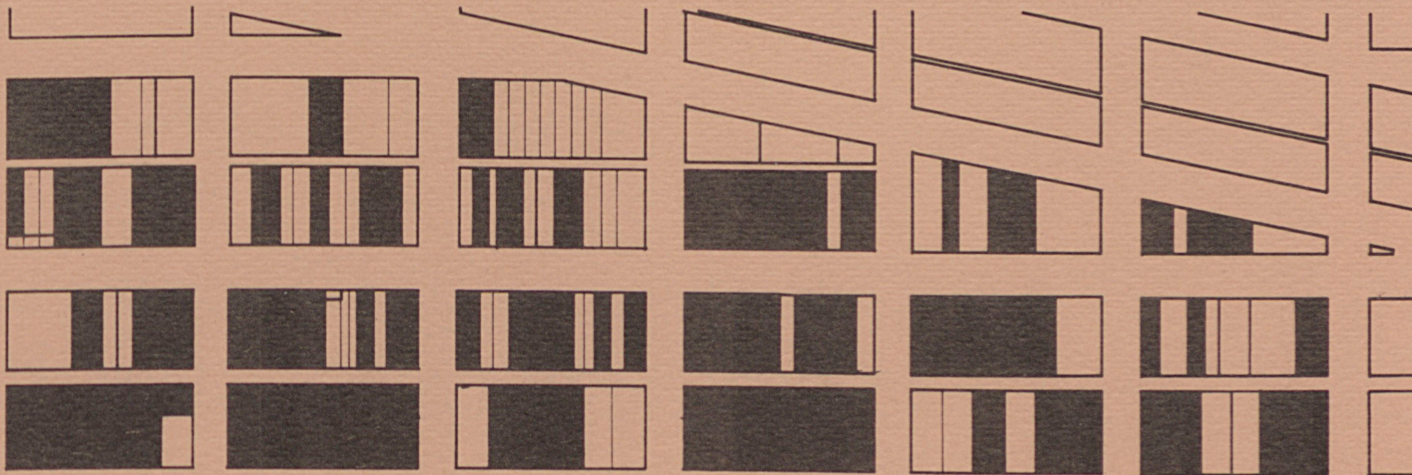


BUILDING
CONDITION:

○ GOOD

● FAIR

● POOR



RE-USE
IN
MONT
ANA



DOWNTOWN BUILDING STUDY

CONSIDERATIONS:

- MEET THE NEEDS OF A SMALL SHOP OWNER
- RESTORE AS MUCH AS IS PRACTICAL
- PORTRAY THE CHARACTER OF THE EARLY COMMUNITY

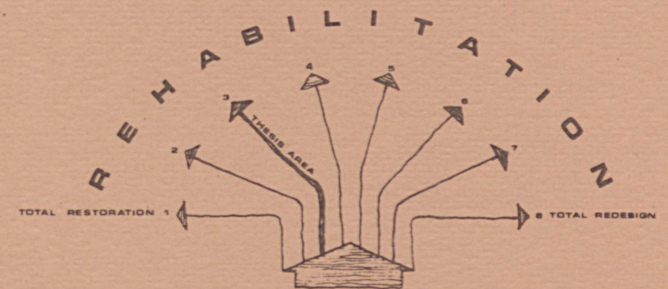
CONDITIONS:

BUSINESS: 68% SMALL SHOPS - ONE OWNER
24% VACANT BUILDINGS

AGE: 66% BUILT BEFORE 1914
22% FROM 1914 TO 1930

STRUCTURE: 92% MASONRY

CONDITION: MOST RETAIN ORIGINAL ELEMENTS OF DESIGN
& HAVE RENOVATION POTENTIAL



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RESULTS: BUILDING SURVEY

MAIN
STREET:

EAST
SIDE:

WEST
SIDE:

BUILDING HEIGHT:

MOSTLY SINGLE STORY

MOSTLY TWO STORY

PREDOMINANT MATERIALS: WOODEN FRONT
BRICK
STONE BLOCK

BRICK
STONE BLOCK
WOODEN FRONT

PREDOMINANT FEATURES: RECESSED ENTRY
AWNINGS: CANVAS
METAL
CLERESTORY, COVERED

DECORATIVE BRICK
AND STONE WORK
AWNINGS
CLERESTORY

WINDOW DETAILS:

WOOD FRAME
AND SASH

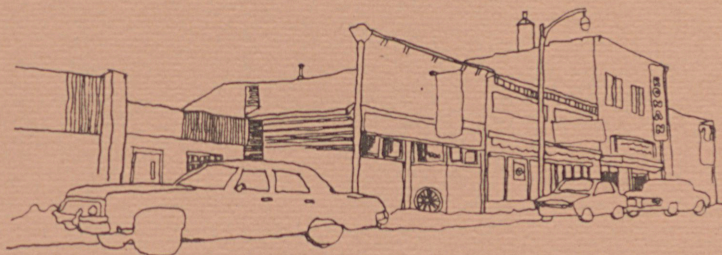
ARCHES
STONE LINTEL & SILL

CORNICE:

FALSE FRONT

ORNATE CAPPING

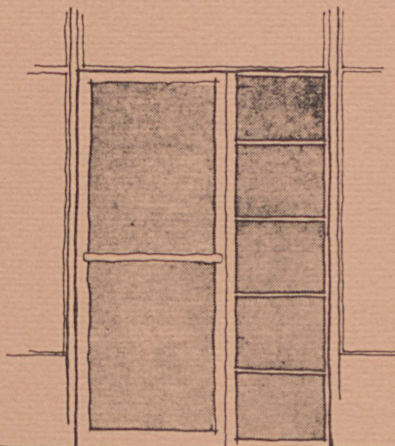
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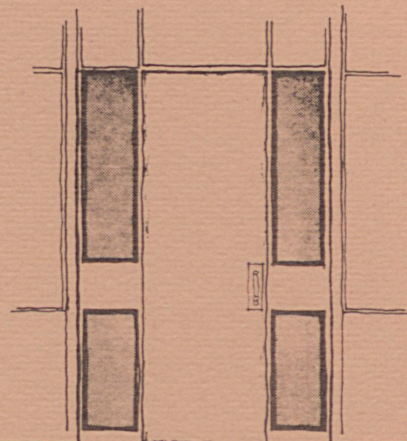
8 RESULTS: BUILDING SURVEY



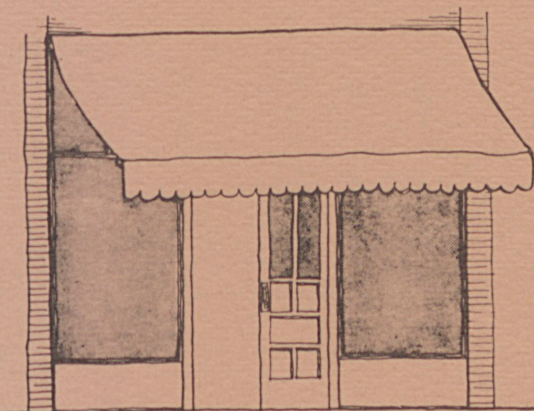
YES
TRADITIONAL



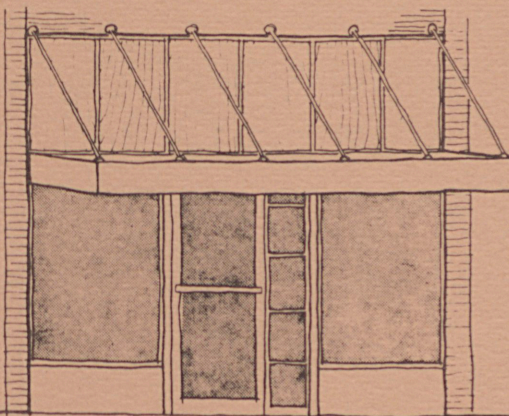
NO
SYMMETRY & PROPORTIONS
CONTRADICTED



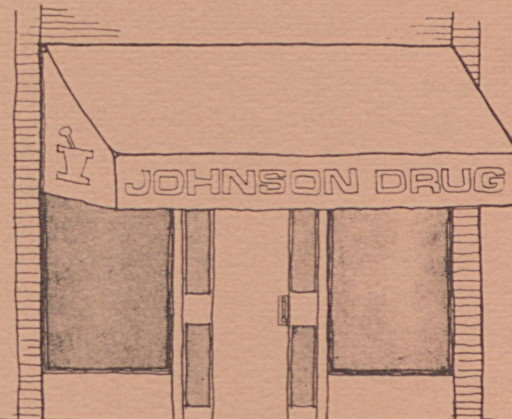
MAYBE
SYMMETRY & PROPORTIONS
RETAINED



YES
ORIGINAL - CANVAS



NO
ALUMINUM OR METAL

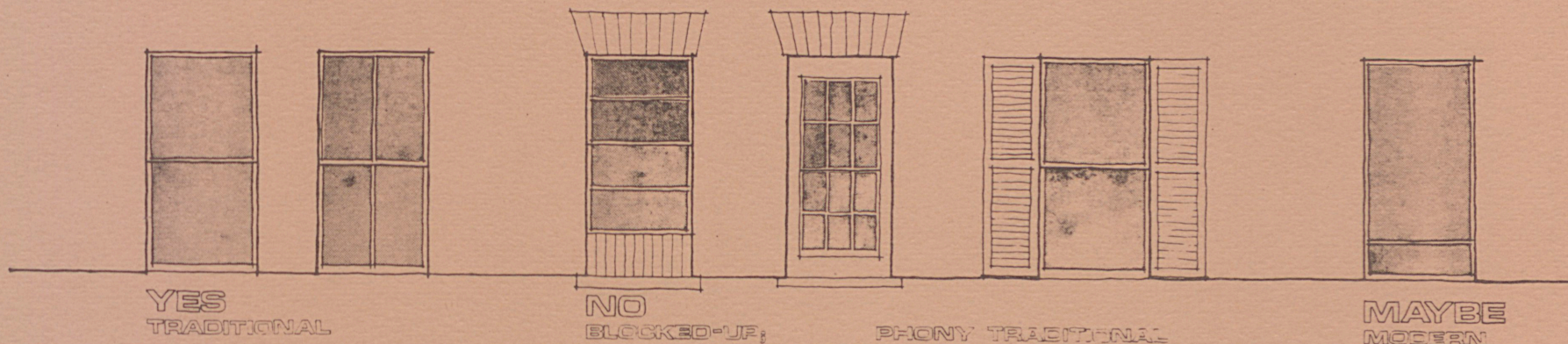


MAYBE
MODERN - CANVAS

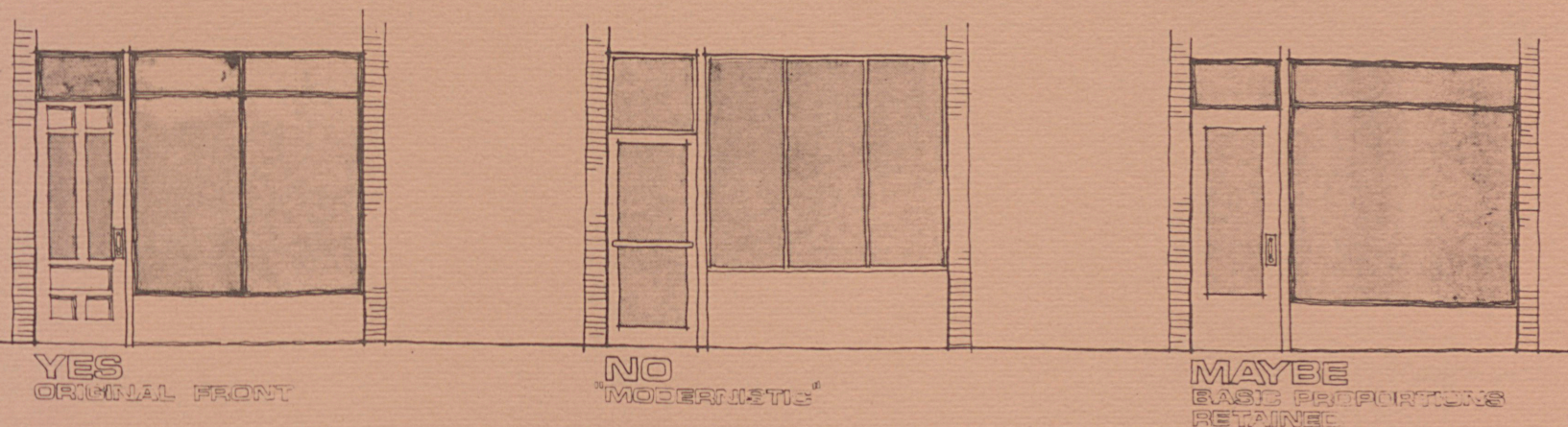
RE-USE
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ENTRANCE AND AWNINGS



RE-USE
IN
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101 WINDOWS & CLERESTORIES



YES
LETTERING ON WINDOW



YES
SPACE ABOVE CLERESTORY
AND IMAGERY



YES
SIDE OF BUILDING



YES
AT PEDESTRIAN LEVEL



NO
OUT OF SCALE

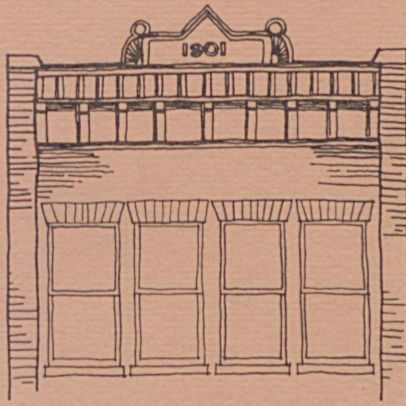


MAYBE
LETTERING ON AWNING

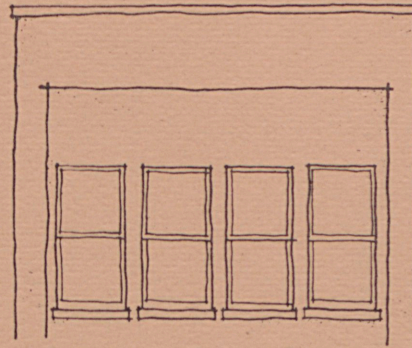
RE-USE
IN
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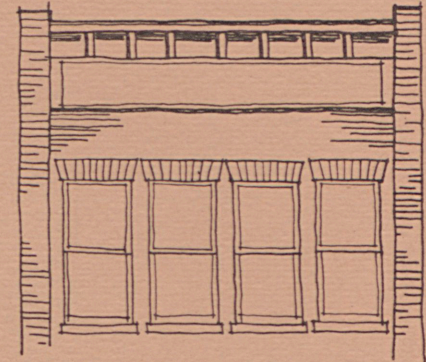
SIGN PLACEMENT & SIZE



YES
ORIGINAL CORNICE



NO
PHONY MODERN



MAYBE
SOME DETAIL RETAINED



YES
LIGHTS TO HUMAN AND
BUILDING SCALE



NO
LIGHTS OUT OF SCALE



MAYBE
LIGHTS TO MORE
APPROPRIATE SCALE

RE-USE
IN
MONT
ANA

121 CORNICE & STREET LIGHTING



NO
A POOR RENOVATION



YES
RESTORATION NEAR TO THE ORIGINAL DESIGN

RE-USE
IN
MONT
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13 SUGGESTED RESTORATION



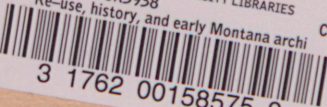
14  SUGGESTED RENOVATION

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