

ROANOKE NEW MARKET--A CASE STUDY IN
ADAPTIVE-REUSE ARCHITECTURE

by

Christopher Cooke-Yarborough

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APPROVED:

William Brown, Chairman

Fernando Ruiz

Choudhury Salahuddin

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Briefly, sincere thanks

To _____, for her smiles, tears, friendship and understanding, and never failing faith in me;

To my parents, for their undying moral support these twenty-seven years;

To my brother for being himself;

and to _____, an instructor and friend, for my three years in Blacksburg.

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PREFACE

The Roanoke New Market

This thesis is generated by a concern for preserving those irreplaceable elements in today's environment which are threatened by the unthinking, unknowing, or uncaring acts of those who would destroy them in the name of progress, growth, or social improvement.

The area of concern for this study is the Roanoke Farmer's Market, a unique situation in the heart of Roanoke, Virginia. Though unique, the true value of the market is unrealized by those who don't know or think of it, and threatened by those who don't care. This thesis is directed at one building in that complex of buildings and streets comprising the market, but the underlying rationale behind the project is to ensure the survival of the irreplaceable institution known as the Roanoke Farmer's Market.

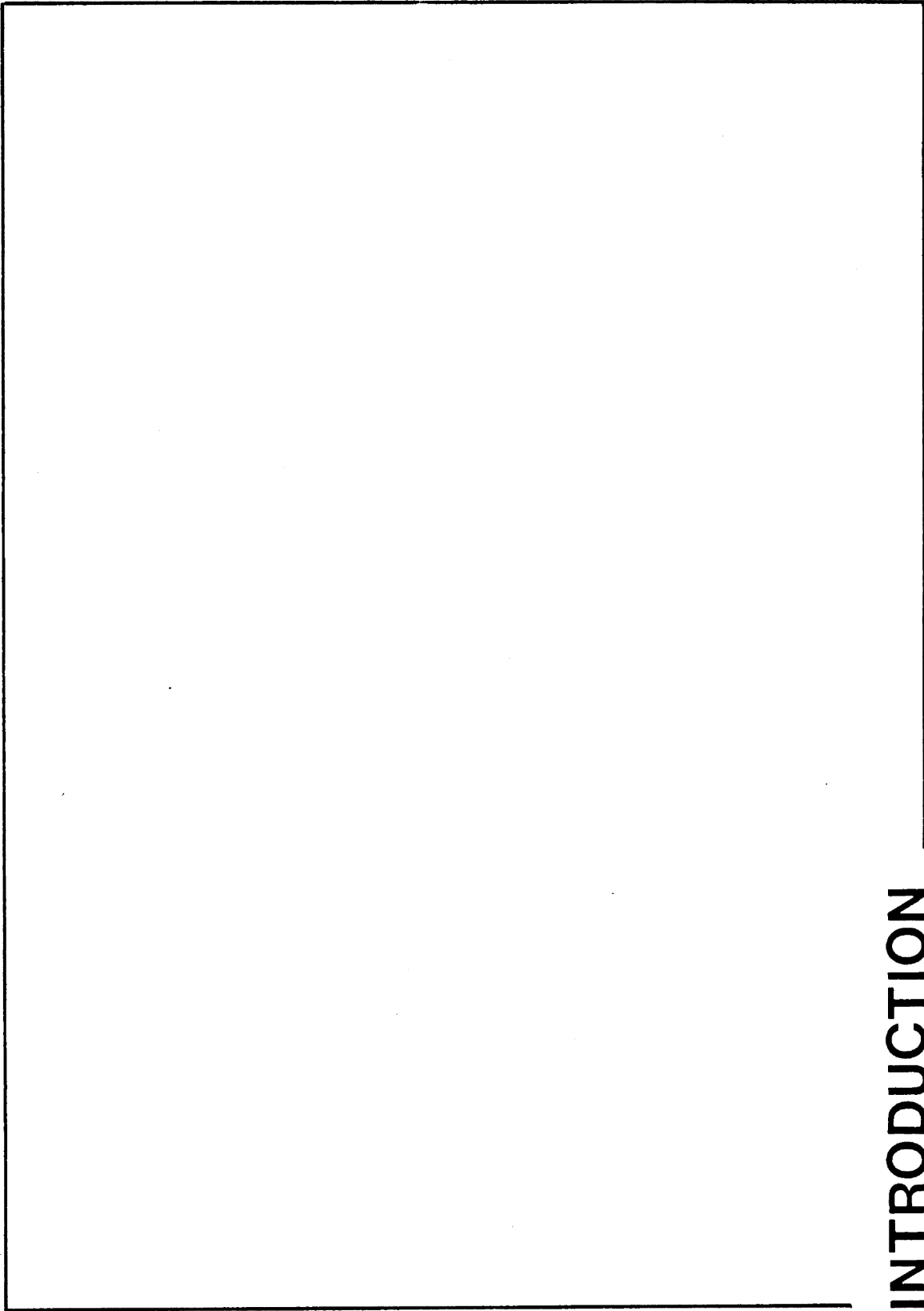
This treatise will try to explain, briefly, those considerations which led to the program and design; the final product of this thesis.

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INTRODUCTION

INTRODUCTION

The Roanoke New Market--A Place for Exchange

Conceived as a strategy for insuring the conservation of the unique but declining area of the Roanoke Farmer's Market, the Roanoke New Market redefines the concept of market. Taken in its broadest sense the market is a place for exchange; exchange of merchandise and money to be sure but also that far more complex exchange which occurs when people interact with each other. The market is a place where the shopper encounters the producer of the items he buys; shopper and seller exchange not only currency and goods but recipes, political philosophies, gardening tips, historical anecdotes, information about families, and countless other items of information which render the transaction far more personal than the transfer of cold cash, from wallet to cash register, as is done in the modern, cellophane wrapped supermarket. "I don't even have to cross the street to go to a supermarket, but a supermarket is just a commercial thing; this is a social thing."¹

In the market people are as important as commodities. The market is as much a social as a commercial entity; it is truly a place of exchange.

Developed during the last years of the 1800's and the early years of the 1900's and basically unchanged since the 1920's the

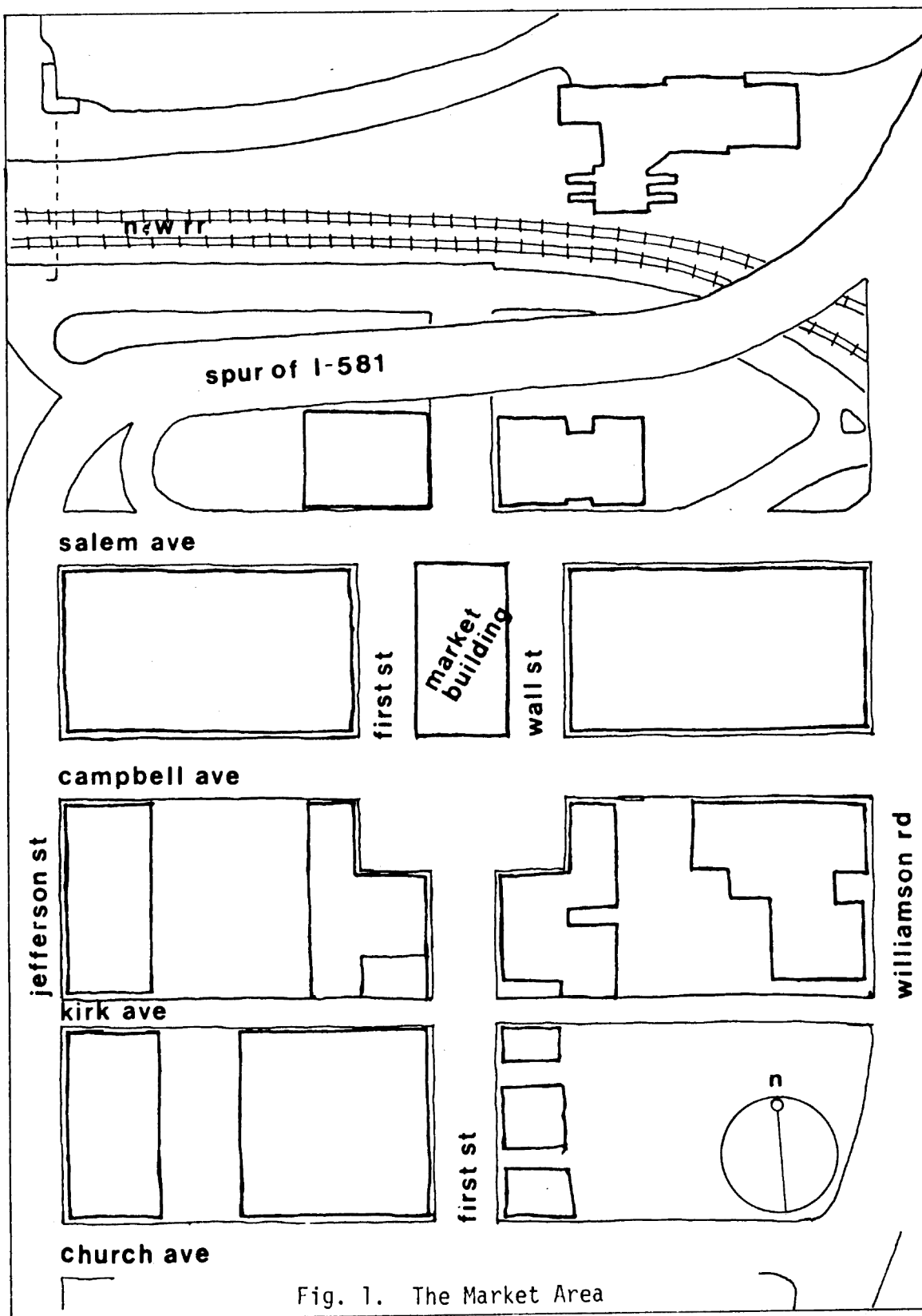


Fig. 1. The Market Area

market is an architectural time capsule. Many of the buildings now lining First and Wall Streets, and Salem and Campbell Avenues bear turn-of-the-century construction dates. Built during a time of growing prosperity and importance of the area these buildings stand as handsome, though somewhat run-down, statements of commercial pride. In each one can be seen the concern for detail, materials and proportion so seldom seen in the sprawl of commercial construction today. The Roanoke Farmer's Market area is an historical reminder of an age when economy and technology allowed buildings to be built at a human scale and with a concern for craftsmanship and detail.

In light of the unique social and architectural aspects of the market one hopes such an asset can be saved from the neglect and indifference to which many such areas in cities throughout the country have already succumbed.

Through careful modification of the environment, with an aim to improve the image of the area and the awareness of the populace, the Roanoke Market area can again become a viable and valuable element in the urban fabric of Roanoke, Virginia.

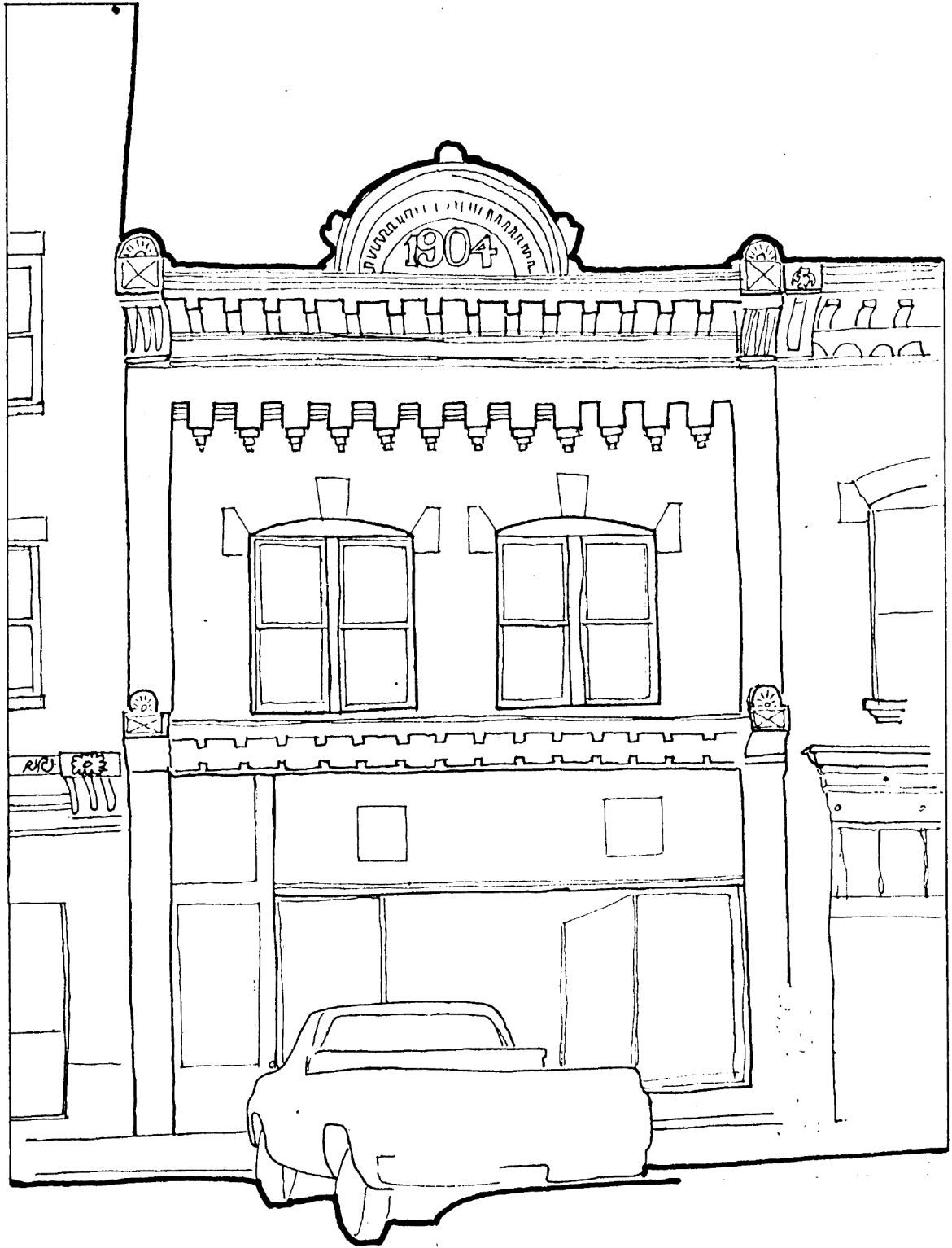


Fig. 2. Buildings Bear Turn of the Century Construction Dates

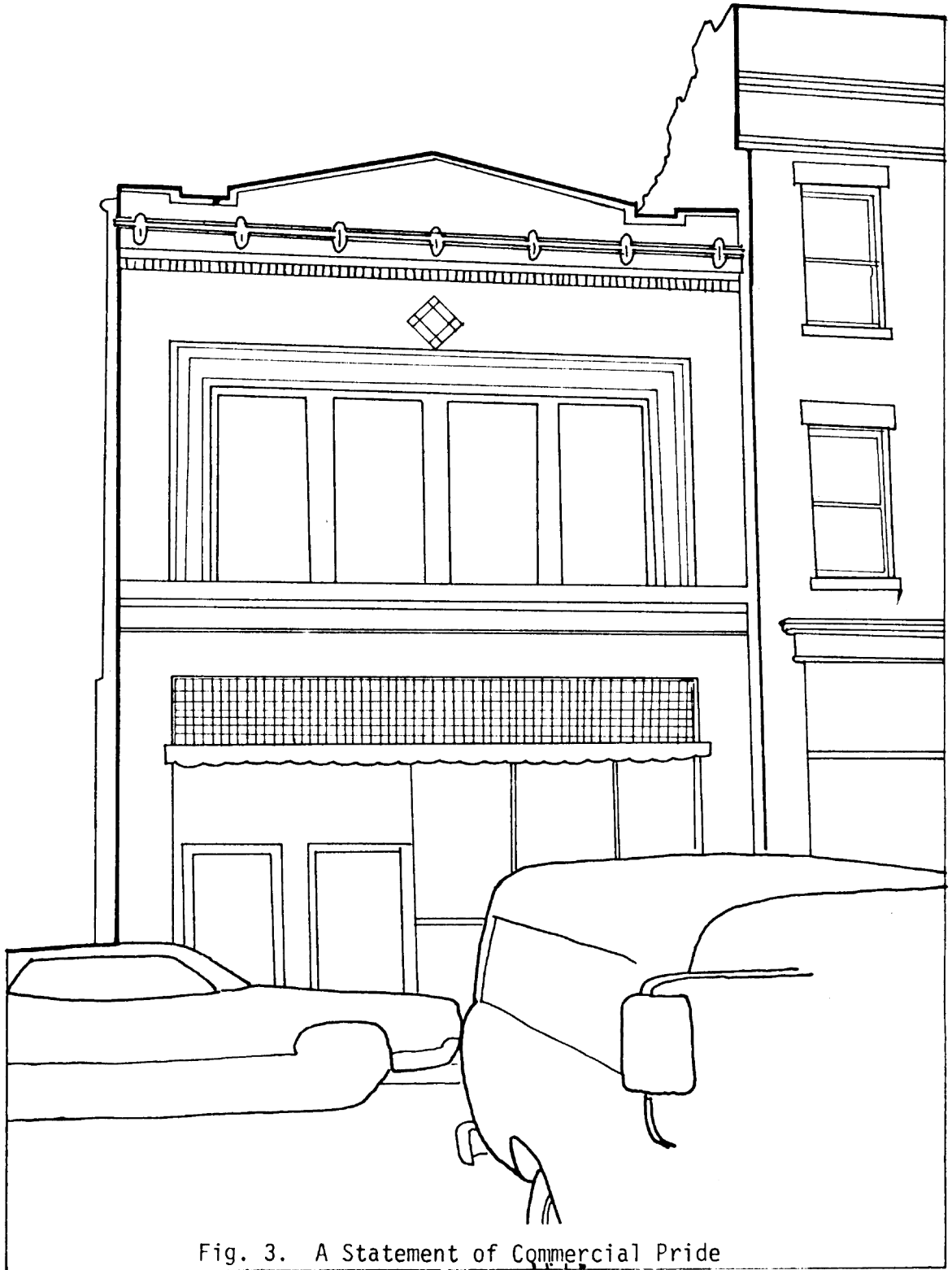


Fig. 3. A Statement of Commercial Pride

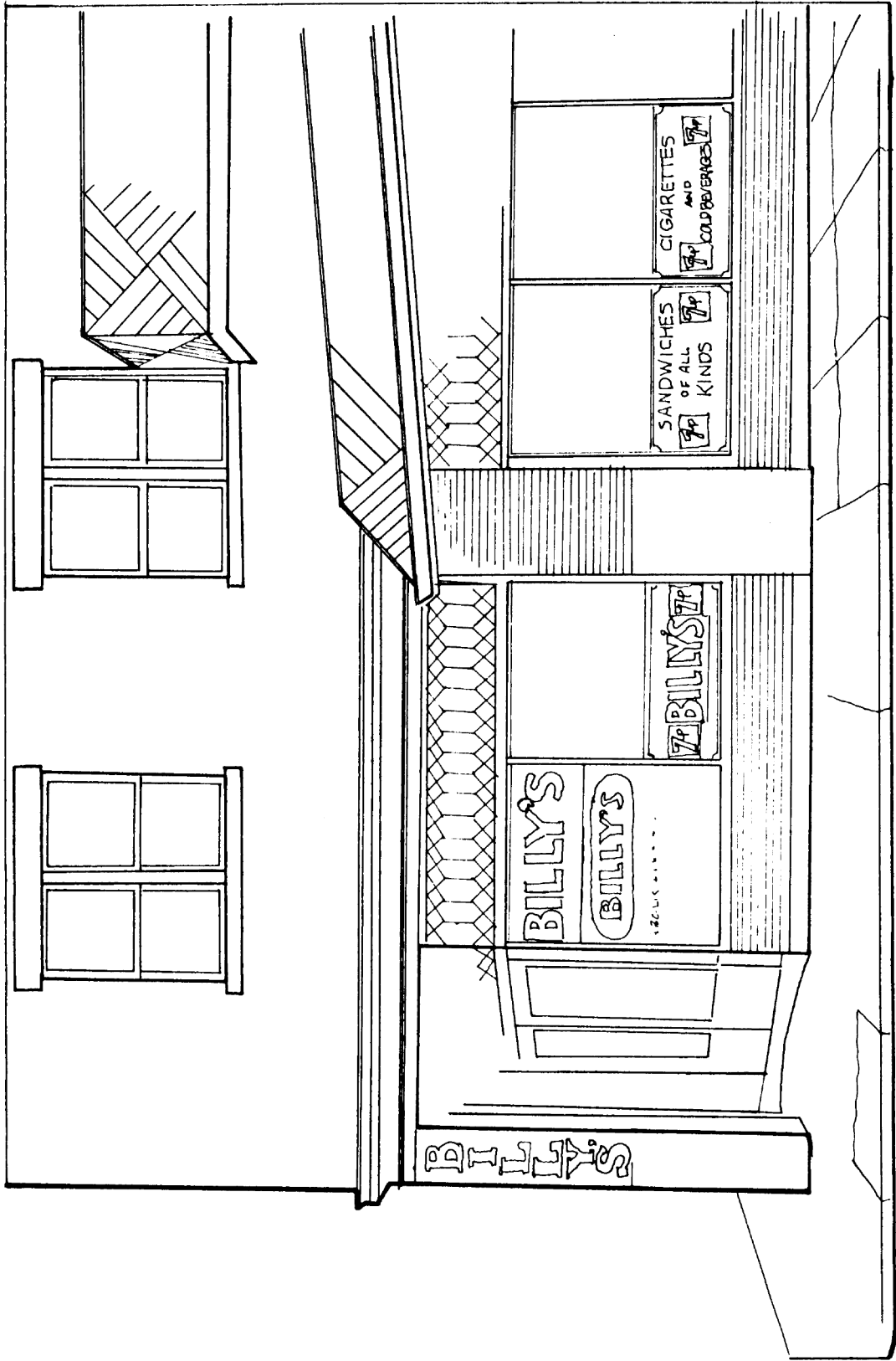
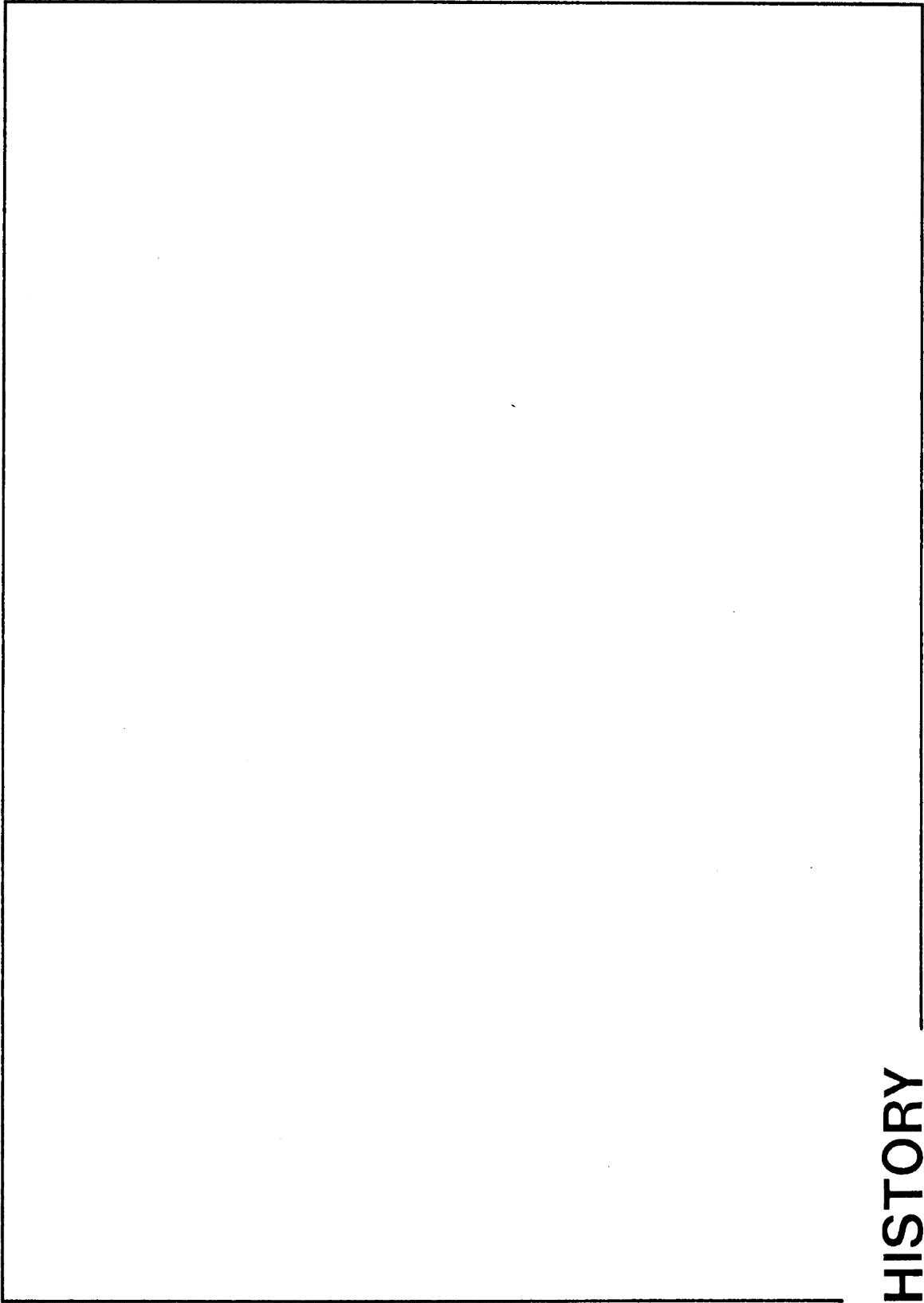


Fig. 4. A Concern for Detail



HISTORY

The City and Its Location

The City of Roanoke is the dominant urban center for a large, fertile agricultural region in Southwestern Virginia. It is located between the Appalachian Plateau and the Blue Ridge Mountains, some 175 miles west of the state capital at Richmond. Approximately 100 miles to the south stretch the cities of the North Carolina Piedmont Crescent; and the coal fields of West Virginia lie eighty miles to the northwest. For over three-quarters of a century Roanoke has served as the major crossroads for traffic moving through the Shenandoah Valley, and for travel between the Tidewater and the Midwest. This strategic location, at the lower end of the Shenandoah Valley, and the natural "gateway" through the mountains to the Midwest were instrumental in establishing the Norfolk and Western Railway's path from the ports of Norfolk and Newport News to the coal fields of West Virginia, and beyond to the cities of Cincinnati and Columbus, Ohio.

From its original dependency on the railroad and iron mills and foundries, Roanoke has developed a diversified, complex economy based not only on manufacturing and transportation but also on extensive trade and service operations. Since World War II such new industries as electronics and plastics have developed in the City and its metropolitan area, complementing the existing oldline manufacturers of textiles, furniture, and apparel. Increases have also been made in metal fabrication and food processing. Retail trade and other

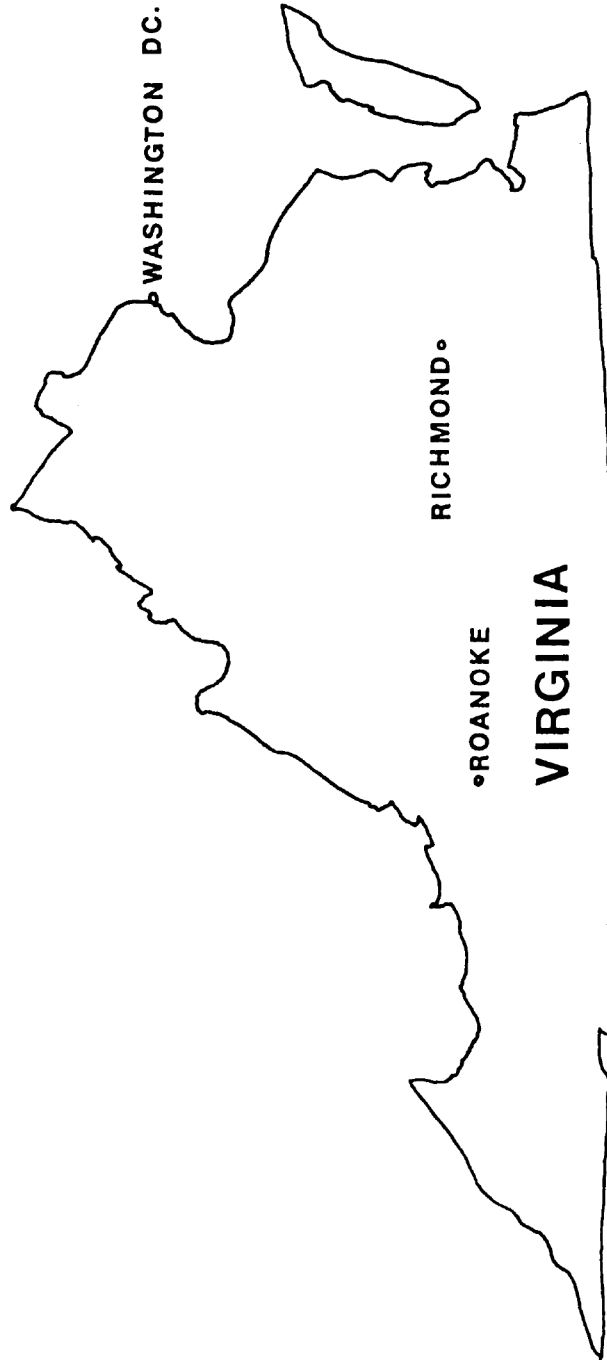


Fig. 5. Virginia

economic activities have expanded to such proportions that their present service area includes some sixteen counties in Virginia, containing over one-half million people.

History and Development of the Market

Although the Roanoke market was established in 1874, it was not until some ten years later that anything resembling a city serving facility appeared. Since the population of Roanoke, then named Big Lick, was less than a thousand during the 1870's, this original market place must have been of only neighborhood importance. As Roanoke grew and prospered during the early 1880's, the need for a permanent market building became apparent. By 1884 the population of Roanoke was slightly more than 5,000 and the town was chartered as the City of Roanoke. This original charter formally authorized the establishment of a municipally operated city market. In the following year a bond issue was passed to provide funds for several needed facilities within the new city; as a part of these funds, 10,000 dollars was set aside for the construction of a market building. Land near downtown was immediately acquired; and in 1886 the building was completed and dedicated.

This two-story, brick structure was built within a few feet of the present building, and became the focus of the City's food distribution, a position which it was to enjoy until the 1940's. The building was designed in a style very similar to the markets which developed during colonial times. The second floor was used as an opera house; the ground floor was devoted entirely to meat dealers' stalls; and around the periphery of the building, partially sheltered by a canopy, were the spaces occupied by farmers selling fruits and produce to the City residents.

The rapid growth of the City of Roanoke during the end of the 19th century and early years of the present century was followed closely by an expansion of the market. Squares used for produce marketing developed in front of the market building, one of which is in use at this very day. Grocery stores and other allied businesses, many serving the visiting rural populace, grew up around the market. During these years the market was the scene of intense activity during most of the daylight hours. Farmers, many of whom had traveled for two days from the more remote areas of the six county region, arrived at the market early in the morning; they were met by the many grocery men and buyers for hotels and restaurants. Throughout the day the area was active with housewives doing their daily marketing.

It was not long after the turn of the century that Roanoke's market was felt to be inadequate by many people. In 1905 Randolph Street Market was initiated, but did not prove to be popular; it failed and closed in 1907. About 1927 the West End Market, located twelve blocks to the west of the existing market, was opened by the City of Roanoke. But, because of the public's long established habit of buying food at the original market, this facility also failed. Again, in 1932 another market was built. This privately financed produce outlet, called the Arcade Market, was constructed within the southeastern block of the present market area. This market remained in operation until shortly after the end of World War II when declining business forced its closing.

Throughout most of its history the City Market was faced with competition arising as a result of the creation of facilities similar to its own. The popularity of the original market building, in its central location enabled the market to survive and prosper, despite its increasing congestion and the rather frequent attempts at encroachment on its business. Of course, the fact that the study area had built up as a complete center for all types of food distribution also gave it a favorable advantage over any intruders.

By 1920 the old market building was judged to be completely inadequate for the large, 20th century Roanoke. The venerable structure was razed in 1921, and replaced by the existing building in 1922 at a cost of 210,000 dollars.

After the early 1920's the physical appearance of the market area changed little. The two decades preceding the Second World War were the most active years of the market; and it was during this period that the wholesale produce trade tended to dominate the area. The vast majority of farmers using the market sold most of their produce through wholesale channels, and there developed a large complex of food wholesale dealers within the area. It was not until 1945 that the crowded conditions, which were intolerable even in the mid-1930's, and trends toward decentralization would cause a general market decline. Even as late as 1941 a plan for the expansion and improvement of the Roanoke market, particularly its wholesale functions, was proposed but developments after 1945 precluded any need for a greatly expanded market.

The Roanoke Market Today

Moving east from Roanoke's downtown retail shopping core, the urban scene changes abruptly. Within a block one is transported from a world of modern department stores, sophisticated specialty shops, large office buildings, and impressive banks to a district of the City that has remained fixed in time--the Roanoke market area. With few exceptions the present market appears much as it did over forty years earlier; and its basic function, the distribution of food products, has changed little since the erection of the first City market building nearly ninety years ago.²

It is the lack of any significant change of activity, however, which has contributed to the decline of the area. After World War II, with the spread of the population to the suburbs, the food distribution system became decentralized with supermarkets catering to the suburban population. Though its function as a food center was diminishing no new enterprises were brought into the area and as business declined so did the environment.

Within a compressed space of less than six city blocks the historic market area holds its own. Traditional year round businesses such as Sam's Work Apparel, Agnew Seed Store, Mason & Hannabass Meat Store, and the Post World War II A & P do a steady business, but they are clearly seen as the last vestiges of a time when the market more than maintained itself, it prospered. As older establishments close their doors they are now replaced by second class businesses such as

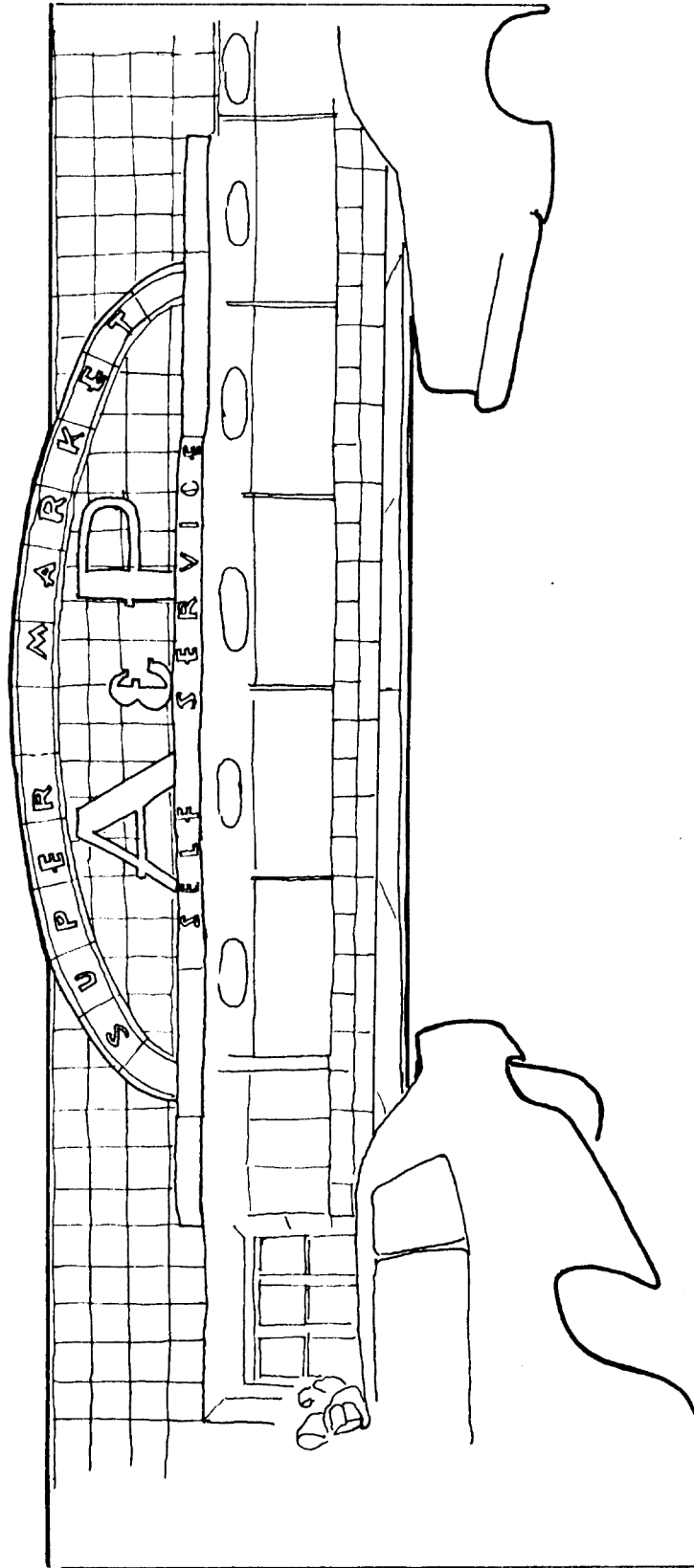


Fig. 6. The Post WW II A&P

junk shops and adult book stores. The upper floors of most buildings in the area are vacant and several buildings are completely closed down. Vacant lots dot the area telling mutely what lies ahead for those buildings which remain.

Typical of older central districts in most cities, the Roanoke market area suffers from considerable structural deterioration and obsolescence. In a survey conducted by the Roanoke Building Commissioner's office in 1963 it was disclosed that of the area's 54 buildings, 37 are in need of extensive repairs. This comprehensive study, which included all buildings within the central business district, evaluated structural deficiencies through an inspection of each building's interior, as well as its outside appearance.³

Within the market area nine restaurant/cafes compete for what business there is. Though some, such as Roanoke Weiner Stand, cater to a broad segment of the population, most seem to be "private clubs" for regulars and the "outsider" definitely feels the part. Although none of the eating establishments is really more than a diner, several are clearly little more than soup kitchens catering to the indigent population of the area.

"The area is liberally sprinkled with a great array of other retail business uses, some of which, if it were not for the attractive powers held by the food marketing function, could be considered as 'skid row' activities."⁴

Considering the declining food marketing function of the area these "skid row" activities increasingly set the tenor of the market. ". . . as it is, the pawn shops, tiny cafe's, low cost hotels, and various second-hand stores add extra flavor to the area."⁵

One may romanticize about the "flavor" of the area but it is necessary to understand the ingredients which generate it. The main ingredient here is clearly a hefty dose of declining prosperity.

Within the context of these year round businesses is found the Farmer's Curb Market. At curb side stalls along First and Wall Streets farmers sell their produce directly from the backs of pick-up trucks. It is this activity which brings the market to life.

The Roanoke market is open six days a week; and the normal market day begins at 7:00 A.M. with the opening of the Market Building and the collection of curb fees. The majority of farmers enter the study area prior to the official market opening time, in order to gain an advantageous curb location and to set up their produce exhibits at the rear of their trucks. Many of the larger growers arrive at the market several hours in advance of this time for the purpose of selling their produce to retail merchants, itinerant truckers, wholesale dealers, and others buying in bulk quantities, unsold produce is then later marketed at retail from the curb areas. It is during this period of relative quiescence, the very early morning hours, that these wholesale transactions take place, uninterrupted by the bustle of later market activity. Sufficient space can be found along streets for the loading operations of large trucks, and prohibitive regulations are not stringently enforced during this time. The area near and within

the eastern square, immediately south of the Market Building, is the favorite location for farmers selling through wholesale channels. Although, as will be brought out later, wholesaling by farmers has declined considerably in recent years, it is still of importance within the market function.

Of noteworthy significance is the high level of utilization that the market enjoys during an entire year with over 50 percent of the farmers' curb market spaces being occupied during the winter months. As a contrast to many markets located in northern cities, the Roanoke study area is actively used throughout the year. From its lowest amount of occupancy, during the months of January and February, space demands build up during the spring and early summer months with the arrival of vegetable crops. Market activity culminates late in the summer and early fall with the harvests of peaches, apples, and other late maturing vegetables and fruits. For over two months available space is completely occupied as the market is flooded with a rich abundance and great variety of agricultural products. The demand for space during this period frequently outstrips the allotted space, and additional curb areas must be temporarily put into use. As winter approaches the need for vehicular space declines sharply, offset briefly by the sale of Christmas trees during the third week of December.

Also of importance is the amount of shopping done by the farmers within and near the study area. Nearly 90 per cent of the

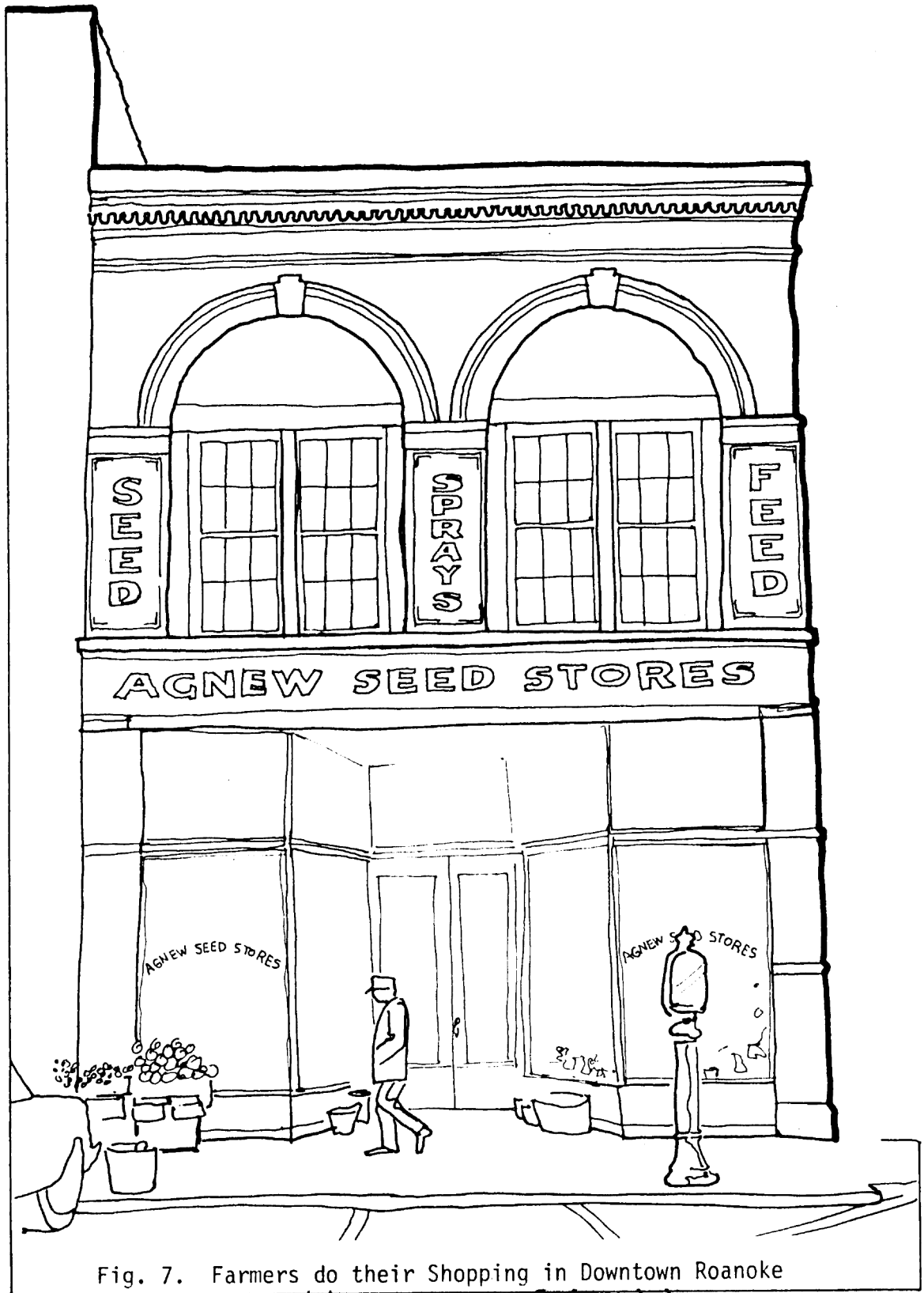


Fig. 7. Farmers do their Shopping in Downtown Roanoke

farmers interviewed indicated that they do some or all of their shopping and other business while in downtown Roanoke.⁶

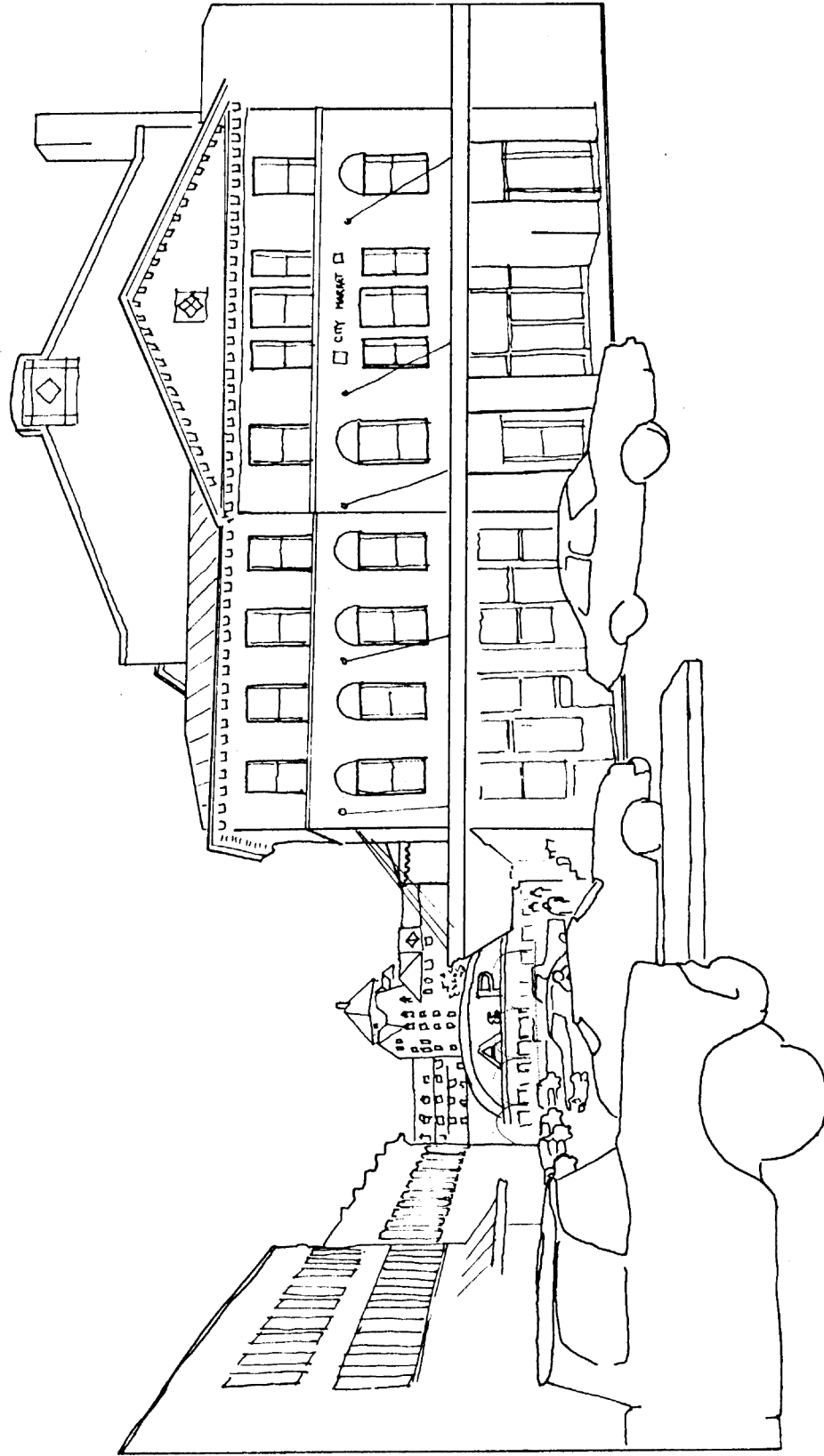


Fig. 8. The Roanoke City Market with Historic Hotel
Roanoke in the Background

The City Market Building Today

Situated in the heart of the market area the Market Building has fared rather better than others in recent times; yet the signs of decay are no stranger to it. Consisting basically of two rooms, one over the other, of 135' x 52' x 20', surrounded by an apron of small shops, the building is no longer fully utilized. Built as market and community center, the building once pulsed with life. Encircled by small shops the city meat market filled the first floor; 20 feet above, the auditorium/civic center/sports arena saw heavy use. "It was a busy place in those days," Mitchell said, "The only two gyms in town were at Jefferson High and the City Market."

The place only held about 300 but many times I have seen more than 500 packed in the place. . . when the fire marshal wasn't looking. I know at some of the big games with NBC, there would be a packed house and the steps leading up to the gym would be loaded and those inside would be passing down the score of the game.

But fortunes have changed for the market and the market building. Within the meat market fully one half of the space is now vacant and low brick pediments indicate where once meat display cases stood. The meat market appears to be undergoing limited demolition even as it struggles to survive. The auditorium, once the scene of community gatherings, is now donated to the local boxing club, for whose needs it seems necessary to paint stripes on the floor, stencil homilies on the walls, and smash holes in the ceilings. The auditorium has seen little use in recent years partially due to

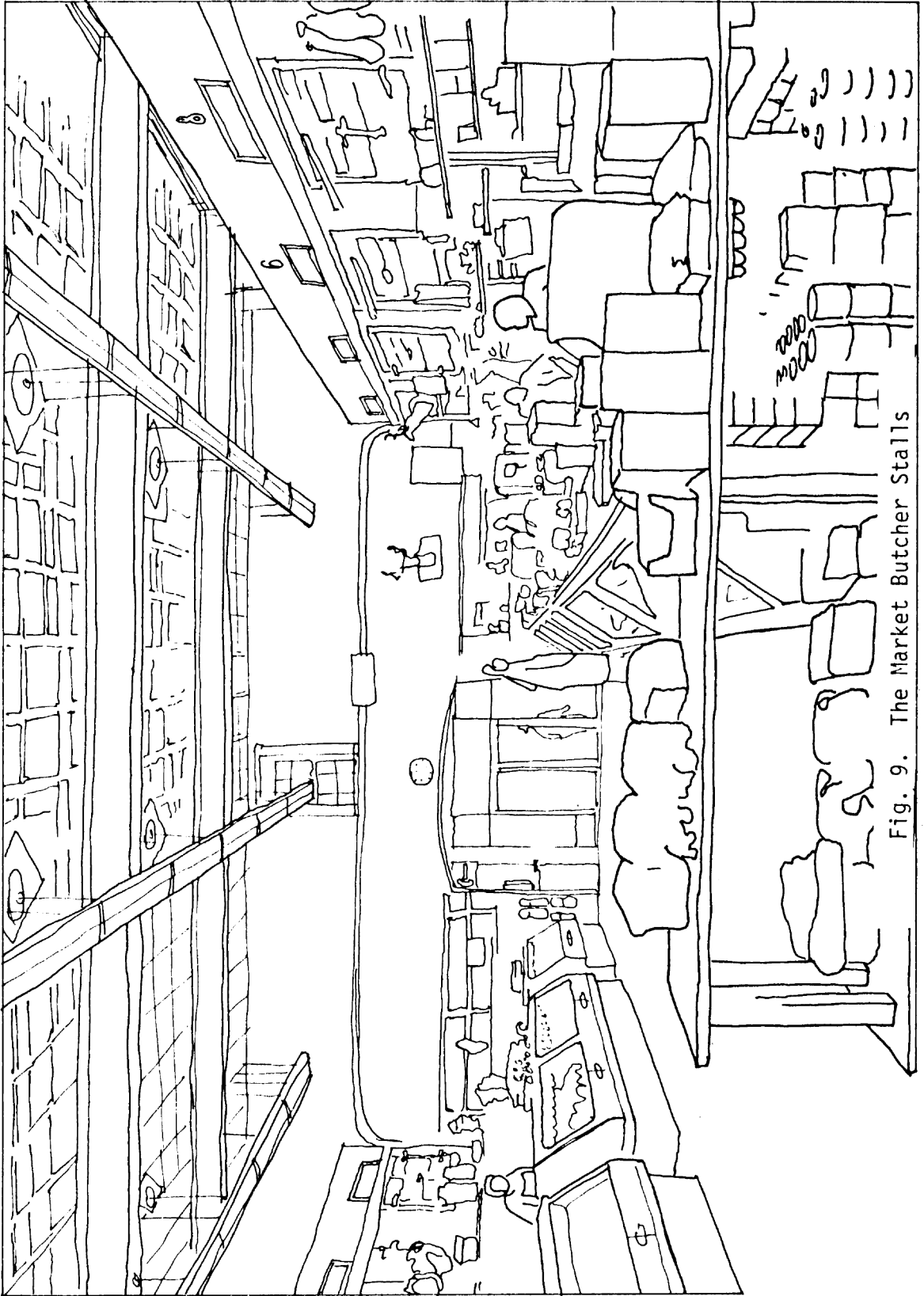


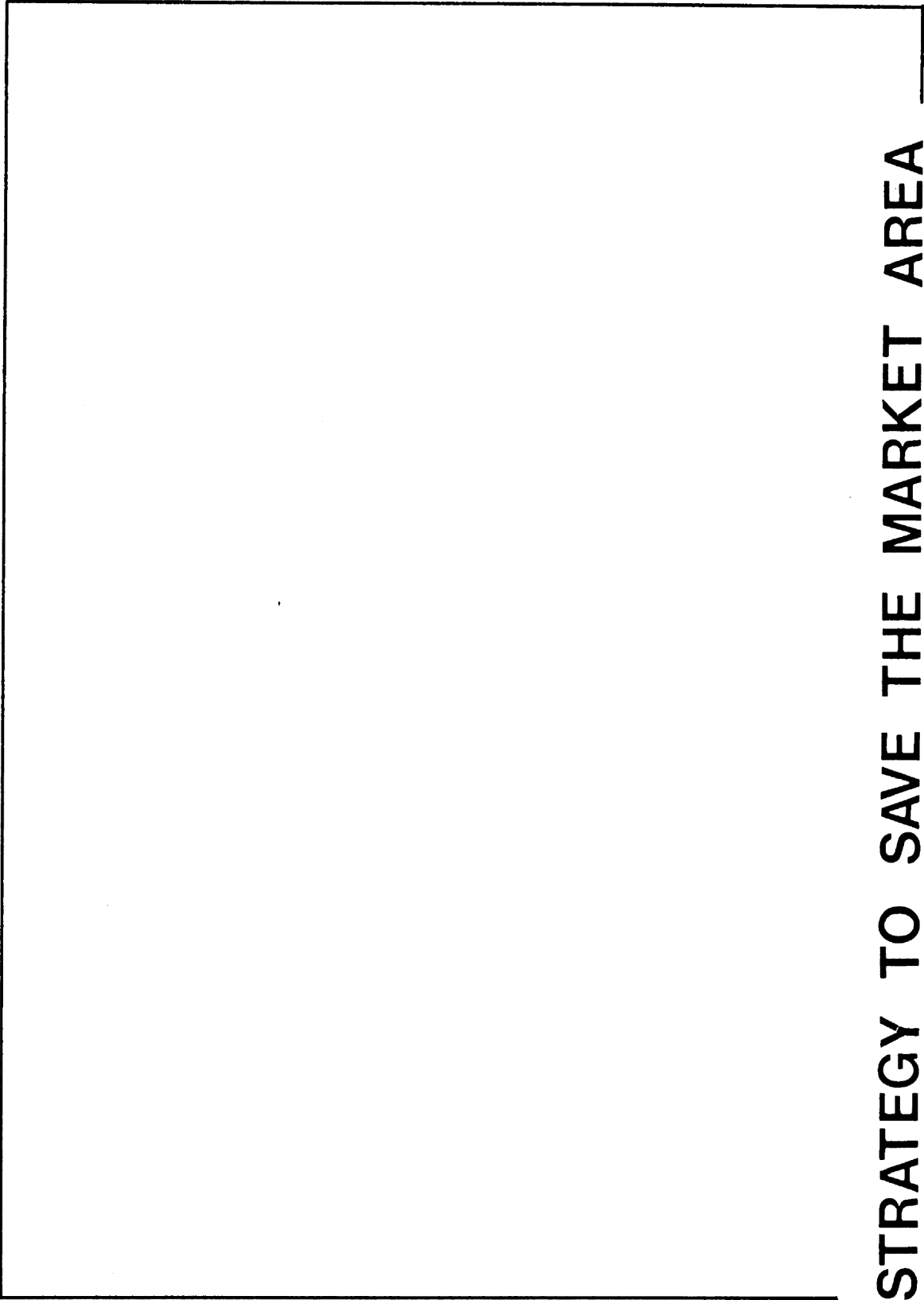
Fig. 9. The Market Butcher Stalls

violations of codes. The city, as owner, seems uninterested in bringing the building into compliance.

Built basically of brick bearing walls, steel beams and roof trusses, and wooden purlins, joists, and rafters the building appears structurally sound; there being no cracks in the walls or sags in the floors. The tin clad roof appears substantially watertight although there are one or two areas in the auditorium which have suffered water damage. Interior detailing and finishes of the building are simple yet carefully done. The meat market ceiling is the traditional turn-of-the-century embossed tin tile. The rest of the building is finished in plaster and paint with a wood floor in the auditorium.

Financially the market building reflects the trend of the area; it is holding its own. With revenues from the rental of meat stalls, apron shop areas, and farmers market curb space, the building pays its utilities, and perhaps covers the expense of the part time market manager. However, inasmuch as the building is owned by the city, all maintenance is done by the city maintenance under that department's budget and as such these costs are not considered directly in the operating expenses of the building. If all costs immediately connected with its operation were tallied, the figures would show the city losing money to keep that building open.⁸ The people of Roanoke now support, through their taxes, the old market building. Finding a new and profitable use for the building, whether

under continued city auspices or new ownership, would help ensure the survival of an important part of Roanoke's history while relieving the taxpayers of an unneeded burden.



STRATEGY TO SAVE THE MARKET AREA

The Determining Factor

With due respect to the social and architectural aspects of the market, the final determining factor of its fate is money. It was because of its declining commercial viability that the area declined and it will be a reestablishment of money generating enterprises which will save it. Money is a factor of exchange; as the volume and range of interaction increases so does the flow of funds. The problem is determining how to increase this range and volume of exchange. Two possibilities present themselves.

The First Alternative--A Museum

The first alternative is to restore the entire area, restore it to a particular point in its history. The final product in this scheme would be a "Williamsburg" environment, one more conducive to tourism than general commerce. By first considering the disruptive effects of such a totalitarian program and then understanding the tourist generating potential of southwest Virginia, one can see that Williamsburg in Roanoke is not a viable scheme.

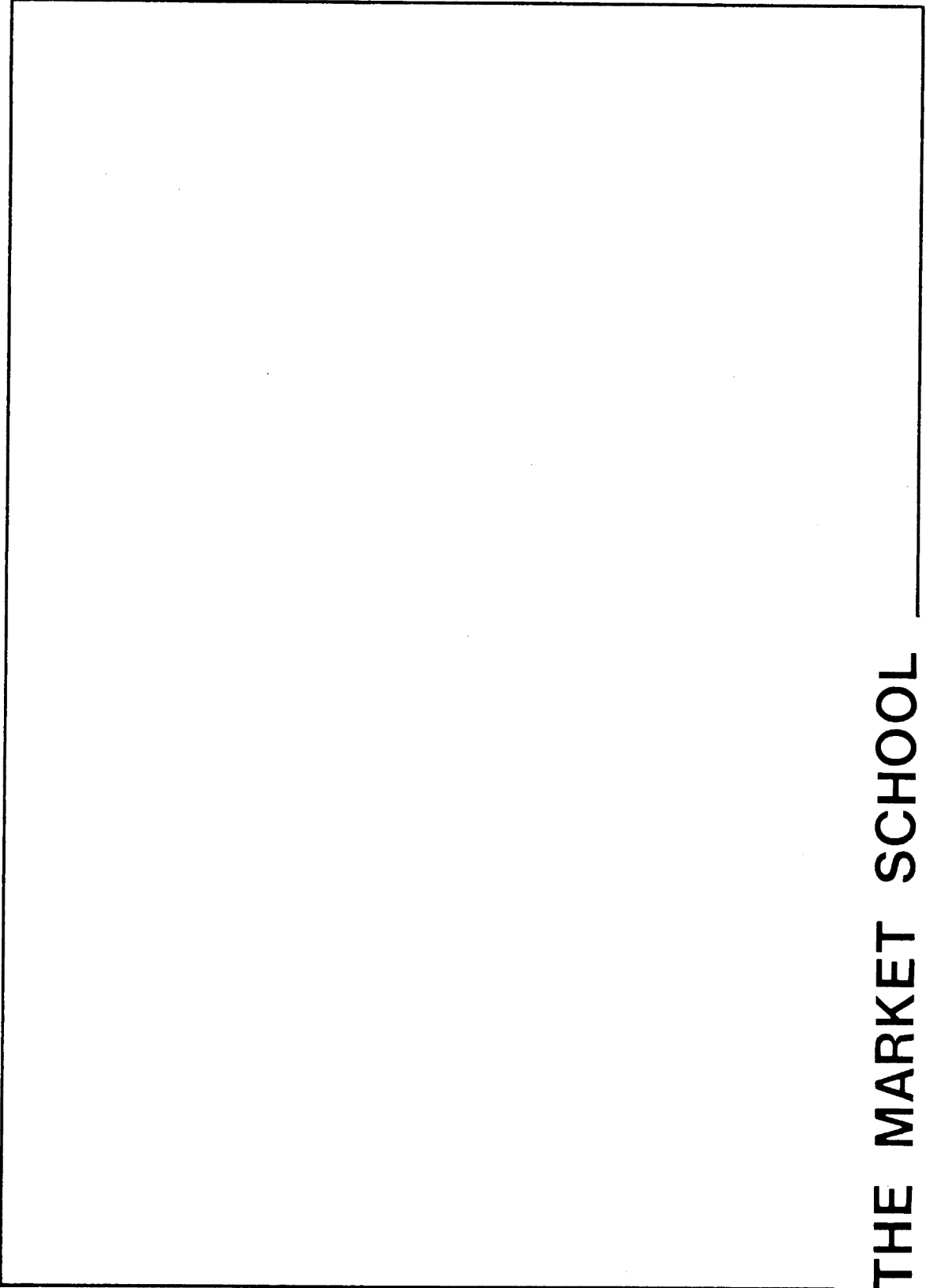
The Second Alternative--Gradual Change

The second alternative is to reestablish the market as an area of viable private enterprise, exactly what it was forty years ago. Such a plan would be based on gradual improvement, allowing all elements of the market to accommodate and take part in that change. Disruption would be minimized thereby ensuring a sense of continuity

of the past with the present. The final product of this plan is no fixed product at all but rather a healthy, vital, ever adapting environment which grows on its strengths, rectifies its weaknesses, and accommodates change.

Within this context of gradual and progressive change, concern for retaining the unique buildings must be considered. The identity of the area and its prosperity must be linked with the historic buildings so that the mutilation or removal of any building will be seen as a detriment to the entire market and hence a threat to business. To further ensure protection of the market, an area business association can establish regulations concerning alteration, addition, or removal of buildings. Such a body will have limited powers, but with a coordination of efforts it can influence zoning regulations to further strengthen its stand.

In short this second scheme depends on a sense of community pride and private enterprise to ensure its success and it allows the market to be what it always has been, a place for and of the people of Roanoke.



THE MARKET SCHOOL

The School as a Place for Exchange

How does one increase the range and volume of interaction in the market? How does one make the market attractive to a larger segment of the Roanoke population? And how does one overcome the stigma of decay which now shrouds the area?

Return to the concept of exchange. If the market is a place for the exchange of goods, services, and personal information, can it not also be the place for the formal exchange of ideas--a school? In many ways it is already a lesson, an open book about people, colors, smells, language, food, and life styles.

The following outline will touch on those issues considered in the formulation of the concept of the market school.

Finances. Many schools, such as Virginia Polytechnic Institute and State University or Virginia Western Community College, are supported by public funds. Such a school, financially independent of the now depressed economic status of the market, presents itself as vital element in the area. With its support coming from outside the market the risk of it closing and further adding to the stigma of decline is lessened.

Cultural mix. Most students live on very limited budgets as do many of those people who now live or shop in the market area. In addition, students are in the process of learning, of gathering new ideas, and they tend to be more accepting of life styles different

from their own. With consideration of finances and attitudes one can see that a student population is compatible with the market area as it is now. Further, the business community recognizes that students of today are the business community of tomorrow. Whereas the established executive would feel uncomfortable rubbing elbows with less-than-affluent people he feels less discomfort in a student area. Bringing students into the market would allow for the mix of a broader range of the population.

Location. With the interest in education being what it is today, any school which programs its courses to the needs of the community is guaranteed student involvement. However, unlike most commercial situations where the customer can choose the locale in which he shops, the range of choices is not so large for the student; he must go where the schools are. By locating a school in the market and properly planning its program of study, an influx of students is assured.

To be considered is the market's central location to public transportation; it is at the juncture of several bus routes and is thus easily reached by those living within the public transportation network. For those living farther away the market is two blocks from the interstate highway spur of I-581.

The market's one block distant location from the central business district presents possibilities of having courses directed

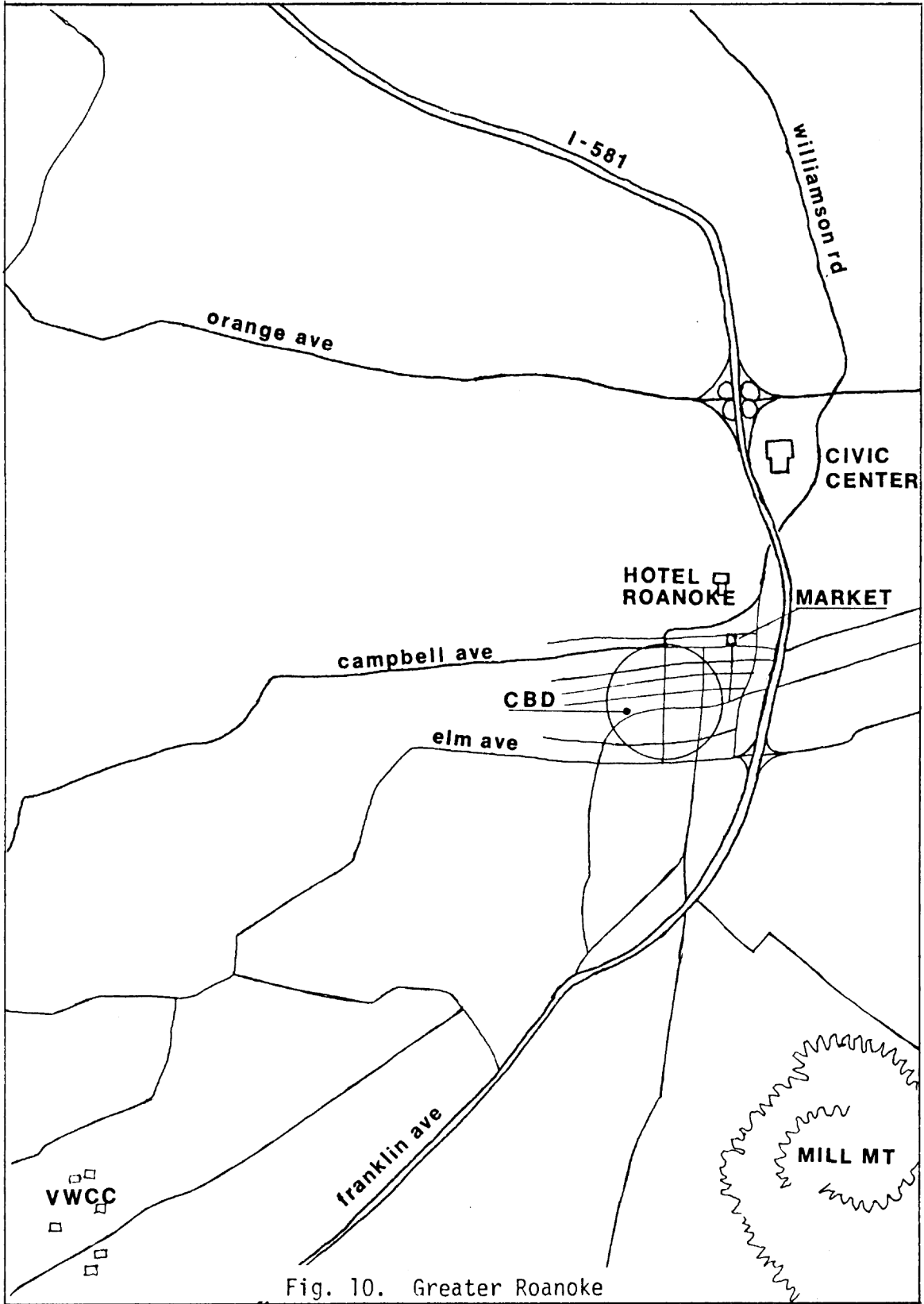


Fig. 10. Greater Roanoke

toward the working man and woman, their needs and their schedules. Having a school so close to downtown adds to the resources of the area.

Finally, one must consider the issue of expansion--is there room for it? At present there are many buildings in the area standing vacant, with forethought, space in these buildings can be acquired and leased until that time when it is needed by the school.

Traffic. It was not until 1945 that the crowded conditions, which were intolerable even in the mid-1930's, and trends toward decentralization would cause a general market decline.

The problem of market area congestion was the result of shoppers and shippers competing for limited space. The delivery of goods had to compete with the arrival of customers and often the resulting congestion brought things to a standstill. In considering a school in the area one should keep in mind that for every square foot of school space there is one less foot of shop space with its subsequent truck access problem. A school will increase the population of the area but it will also help eliminate that over abundance of trucking which so significantly adds to the problem of urban entanglement. In addition, future plans by the city traffic authority are to shunt traffic off the major street through the area, Campbell Ave., and route it along Salem Ave. which runs north behind the market.¹¹ This act alone will be a great help in relieving congestion in the area.

Students driving to school need places to park and at present there appears to be a shortage. However, in studying the situation one finds the problem is not lack of space but rather a lack of organization of space. With the establishment of a market area parking authority, whose job it is to coordinate the interests of the various parking area owners, a cohesive plan can be instituted to better utilize the existing lots. This increases the number of available spaces, a benefit to student, customer, market businessman, and parking lot owner.

Residential possibilities. At present zoning for the market and central business district restrict residential facilities to hotels and highrise apartments (six stories or more). But Roanoke is no stranger to the myth of the American dream and the wonder of the suburban 1/3 acre. As the city center grows and consumes urban residential areas, those who can, move to the seemingly boundless country. As yet there is no perceived need or interest in highrise apartment living and so there are no highrise apartments downtown. The restrictive zoning seems to make little sense, With the daytime work force of Roanoke fleeing to their suburban homes at the close of the business day, downtown Roanoke seems deserted by early evening.

A school in the market presents the following situation. Although the chances are small of there arising any significant need for student housing, the possibility should not be ruled out. Should housing become an issue, the school, using the boarding house/hotels

as precedent, can establish a dormitory or student apartment program. Now vacant hotels can be refurbished and once again made habitable.

Another possibility is that with increased awareness of the market area and a renewed vigor of downtown Roanoke, urban living may become once again desirable, especially to young professionals. Through the organization of a growing city-oriented housing market, pressure can be brought to bear to change zoning to allow the establishment of households in the now "deserted after five" area.

In either of the previous situations the increase of a "round-the-clock" population will further stimulate business, enticing some to keep later hours and encouraging others, such as theaters, discotheques, and taverns to establish themselves in the area (an increase in the range and volume of exchange).

The school as a generator of business. Often a large or successful store will generate enough flow of customers to justify the establishment of other shops nearby. The key to this pattern is to guarantee the success of the first store.

In the market the school acts as that first store with the surety of its success enhanced by its governmental funding. As the school establishes itself, supportive enterprises are drawn to the area. For those so located a new clientele will be attracted to them. Already in the area are many stores which lend themselves readily to student needs. These are:

Allans Clothing Store

Sam's Army Navy Store

Kicks and Thread Clothing Store

Turner Drug Store

Fox Bargain Clothing Store

The Army Navy Store

A & P Foods

Bowles Bakery

Parker's Sea Foods

Belmont Restaurant--prominent among the nine or so in the area.

Additional stores which would do well in the area are book, record, audio component, plant, stationers, and art supply shops. One or two small movie theaters could also do well.

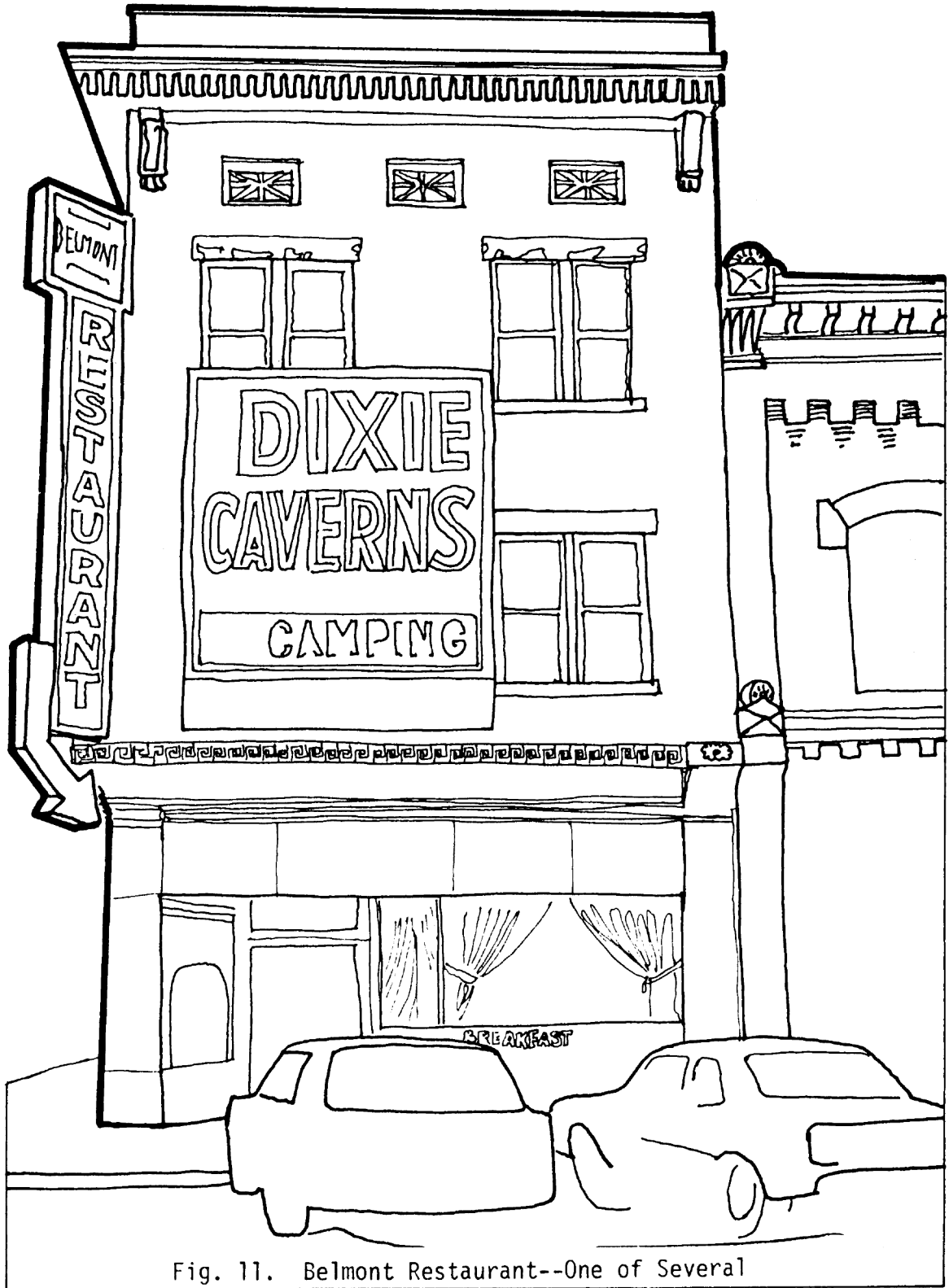


Fig. 11. Belmont Restaurant--One of Several

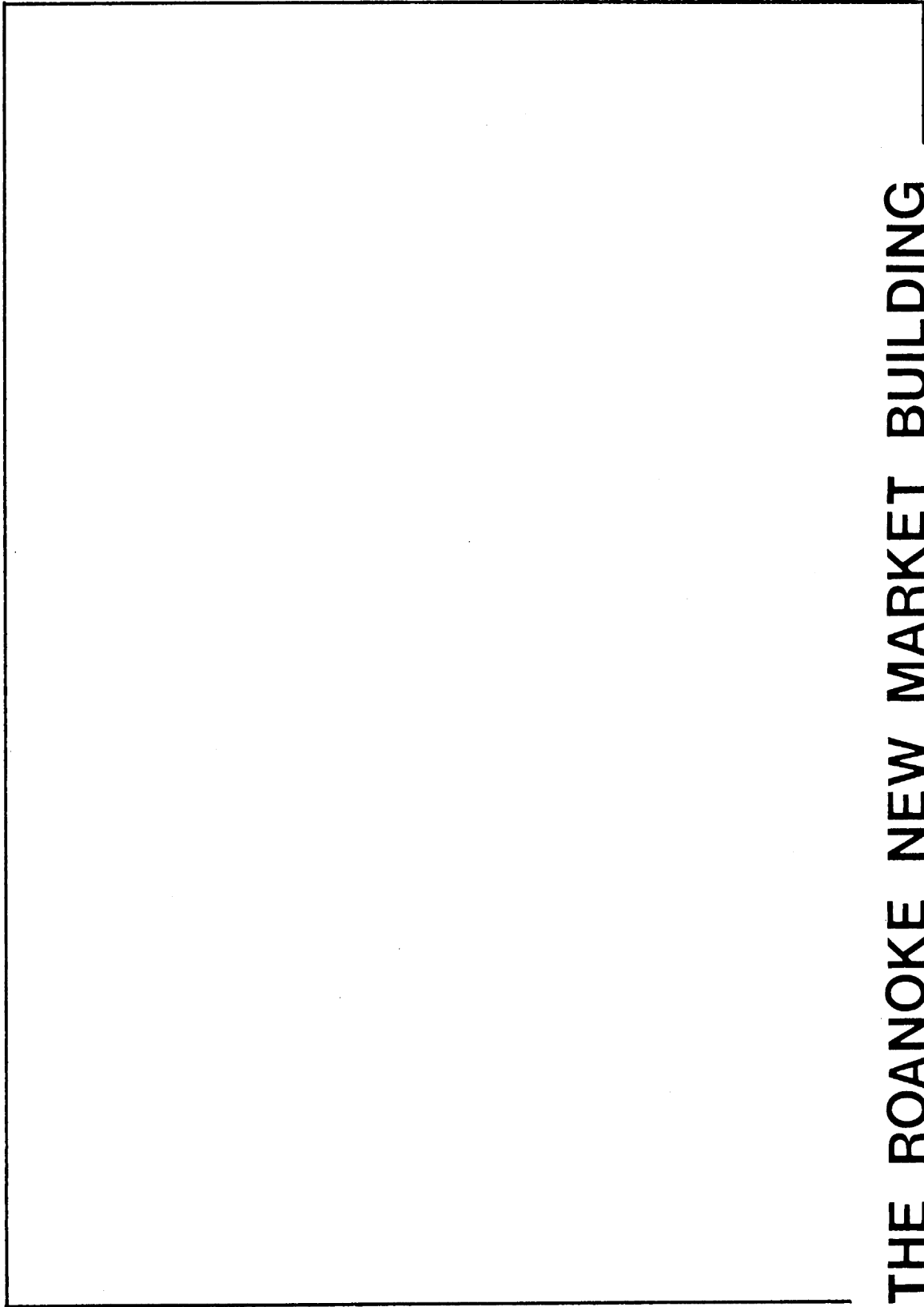
The New Market Art School

The preceding were general considerations of how a school will benefit the area. As a further inducement for increased attraction to the area, the school and its activities should be highly visible and interesting elements in the market fabric for other than just students. The functions of an art school are well suited to such a program, being not a mute activity but one which produces items that are themselves interesting. The possibility of seeing artists at work or even of purchasing the work at school sponsored shows adds yet another dimension to the complex issue of exchange which is the Roanoke market.

It is with these considerations in mind that a program for an art school was developed as the catalyst for the renaissance of the Roanoke Market, a program which will enrich the idea of the market and yet allow the original market to continue; a program which, by its many spheres of influence will generate a new interest and a new appreciation for the city market, a program of the Roanoke New Market.

The school as a branch of Virginia Western Community College. Certain aspects of the preceding program could well succeed on the basis of the market school being an autonomous institution. The larger issues of student housing and developing political influence, however, may require the prestige of a larger organization. It is for this reason the art school is being considered a division of

Virginia Western Community College (VWCC), a state supported college, located four miles from the market. Research has shown VWCC to be in need of 150,000 square feet of additional space.¹² The 20,000 square foot potential of the Roanoke New Market Art School can be one element of the urban extension campus of VWCC with another element being the now vacant, 75,000 square foot post office building, located five blocks distant. With the market building, and post office utilized as educational facilities, downtown Roanoke gains a vital new enterprise which contributes economically and culturally to the core of the city.



THE ROANOKE NEW MARKET BUILDING

Program Considerations

The program for the Roanoke New Market was developed with the following ideas in mind.

Existing functions of the market, on the first floor and under the canopy, are to remain. The meat shops in the south end of the building will continue to operate and it is a consideration of this thesis that the ongoing business of the market suffer as little disruption as possible due to construction. A strategy to achieve this end is to consider the building in zones, each one being readily isolated from the rest of the building. Based on the degree to which it will tolerate disruption each zone will influence the design in terms of major construction which can occur in it. In terms of minimizing disruption the primary zone of importance is the south end of the market floor where the meat stalls now are. No major construction should occur here. The north end of the market floor, now unused, is free of such restrictions and behind a construction screen major work can be done. The auditorium, almost completely unused, is isolated from the floor below and can suffer any construction necessary. The north and south annexes of the building, also isolated and unused (with the exception of the market manager's office which is open two hours a day) can withstand any needed reworking of spaces.

Again, the south end of the building, in elevation as well as plan, is of the traditional market and should appear unaltered.

The north end of the building, being of the art school, can reflect those changes necessary to accommodate the functions of the school. The east and west elevations, being the interfaces between the new and the old, must respect the traditions of the area in any changes made.

With the preceding zoning established an outline of the program is developed. In the north half of the main market room, over now vacant and partially dismantled meat stalls, will be a new mezzanine floor, a gallery displaying student work and visiting art shows. This gallery, easily accessible from the market floor, is the interface between market and school. The market stalls below the mezzanine will be reinstated as shop areas selling specialty foods, crafts, or whatever.

Above the market floor is the auditorium. This large space will be cleaved by inclusion of another floor eleven feet above the original. On these two floors, of roughly 7,000 square feet each, are the studios and classes of the school. Considerations for the studios include light, ceiling height, venting, acoustic control, and elevator access. The juggling of these factors determines the location of the various studios relative to each other. As a concession to lighting needs, the removal of the auditorium ceiling and development of skylights in the roof is a possibility.

At either (north and south) end of the main market and auditorium block lie smaller annexes of the buildings which will

serve as support areas for the larger spaces. Office space, storage space, and primary vertical circulation can be developed here.

Preliminary Program

The following preliminary program was developed through a survey of local art facilities at VWCC, Radford College, and Virginia Polytechnic Institute and State University.

Studios--with 15 to 20 people in each

1. Painting--acrylics
watercolors
oils--3 studios at 750-1000 sq. ft. each
2. Graphic Arts--drawing
print making
advertising art--3 studios at 750-
1000 sq. ft. each
3. Sculpture--metal
casting
modeling
carving--4 studios at 600-800 sq. ft. each
4. Metal Smithing--one studio, possibly shared with
sculpture, at 500 sq. ft.
5. Ceramics--one studio at 900 sq. ft.
6. Photography--dark room(s)--600 sq. ft.
7. Architectural Sciences and Drafting--Possibly a
studio/classroom at 600 sq. ft.

Class Rooms

1. Introduction to Art and Art Education, at 600 to 800 sq. ft.

Display

1. Gallery--for student and traveling exhibits, at 1200-1600 sq. ft.
2. Audio/Visual Room--for use also as a classroom, 400-600 sq. ft.

Offices

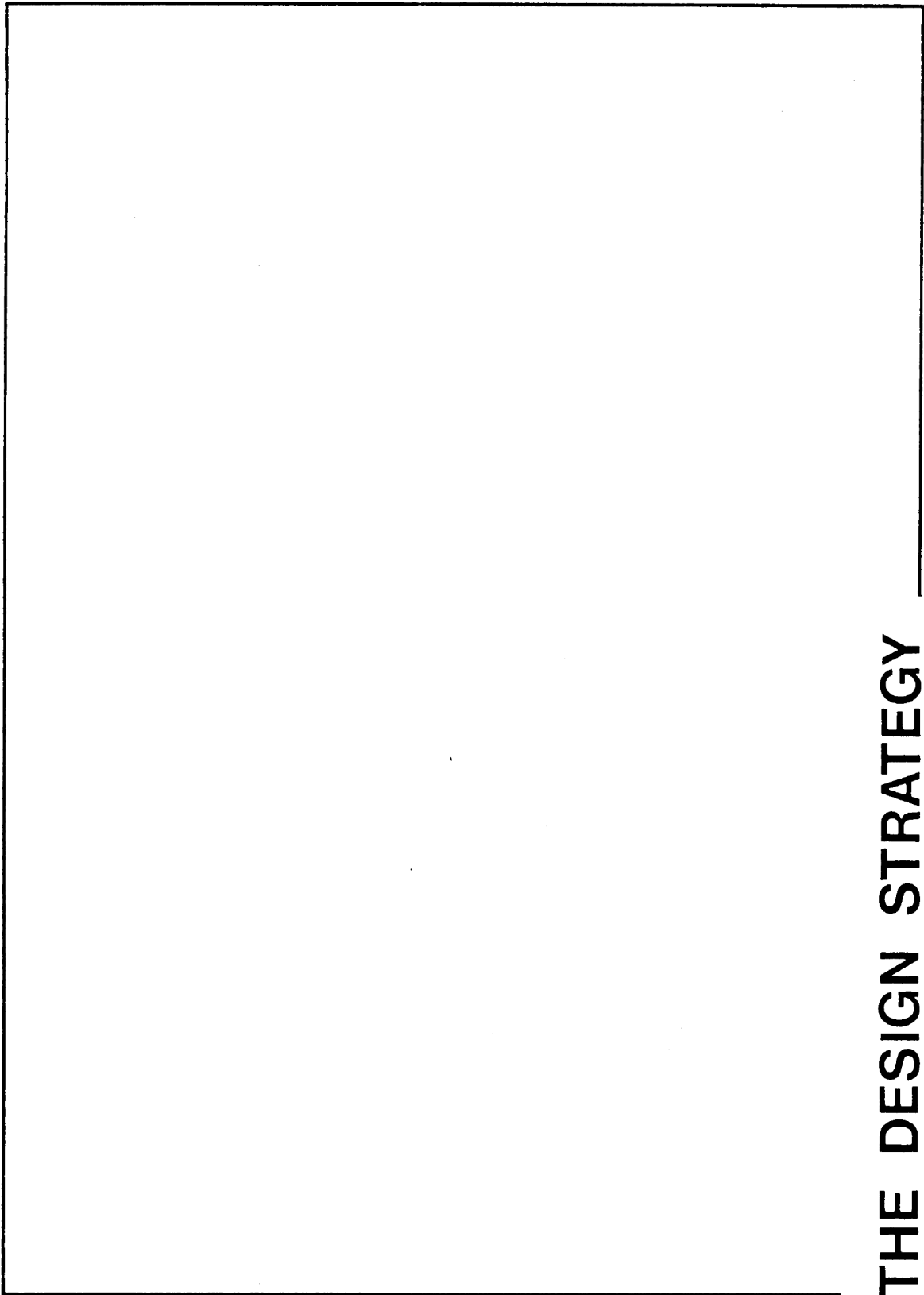
1. Director and Secretary, 200 sq. ft.
2. Faculty Offices, 14 at 100-130 sq. ft.
3. Faculty Conference Room, 400-500 sq. ft.
4. Faculty Lounge, 400-500 sq. ft.
5. Student Lounge, 400-500 sq. ft.

Storage

1. Student work--in or near studios, 800 sq. ft.
2. Work materials, 400 sq. ft.
3. Building materials and supplies, 225 sq. ft.
4. Exhibitions--near gallery, 600 sq. ft.

Minimum area--total 16,950 sq. ft.

Maximum area--total 21,145 sq. ft.



THE DESIGN STRATEGY

The Design Strategy

Given the Roanoke City Market Building, I perceive my task to be that of instilling new life in a slowly dying structure. Any action taken must be well conceived and firmly executed, establishing a definite statement of renewed vitality while remaining respectful of the building's historic image. With an appreciation of the building as a strong statement in its own right, I approach my problem with restraint. The question is--what is the minimum I must do to make the building not only usable but significant again?

A study of the building, in plan and section, reveals an ordering system based on the 30/60/90 triangle. I choose the 30/60 diagonal as a new ordering system. The new geometry, apparently foreign to the old building but actually inherent in its original design, speaks of a new life. The design which follows is the development of that idea.

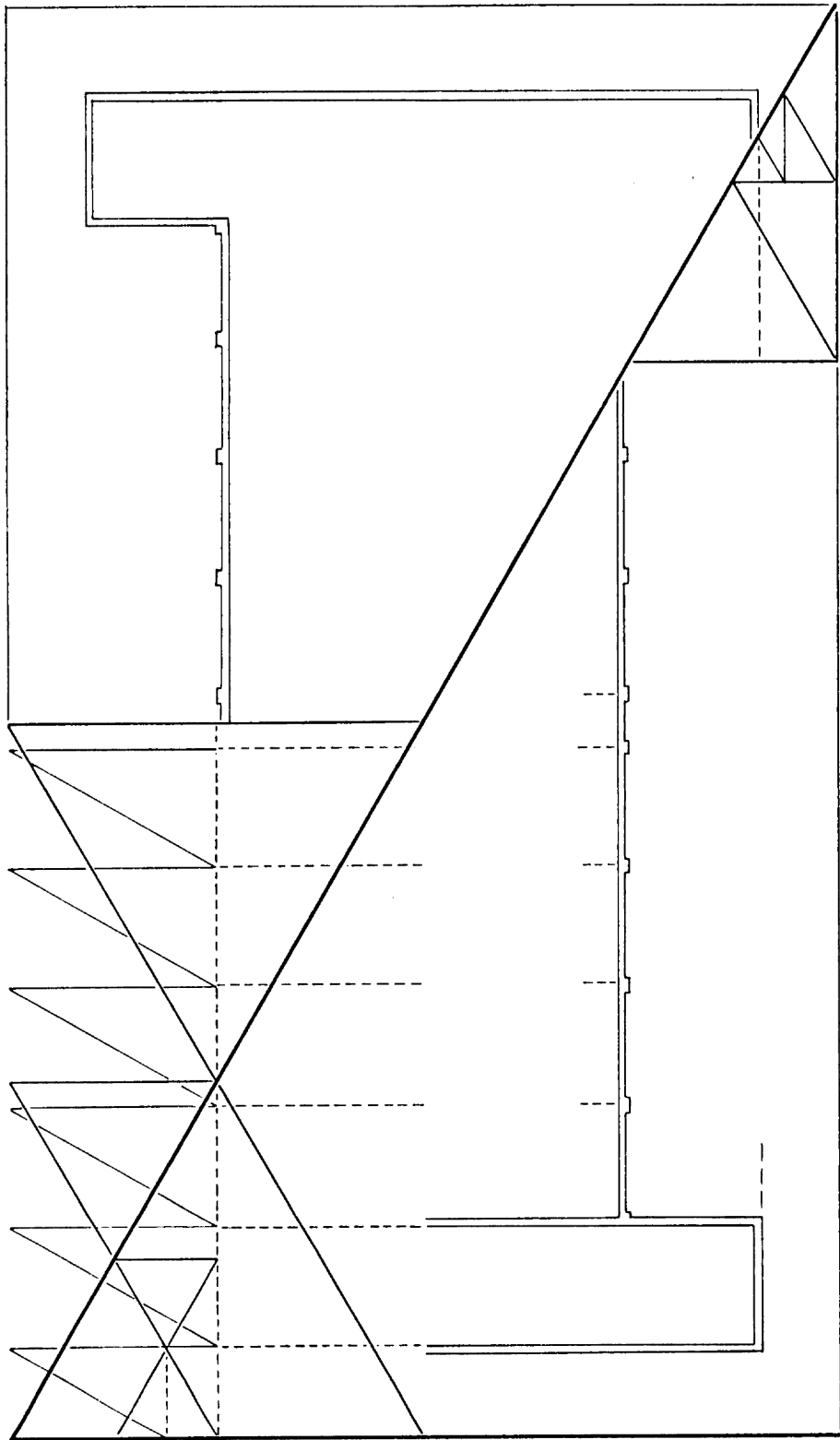


Fig. 12. 30/60/90 Geometry of the Market Building Plan

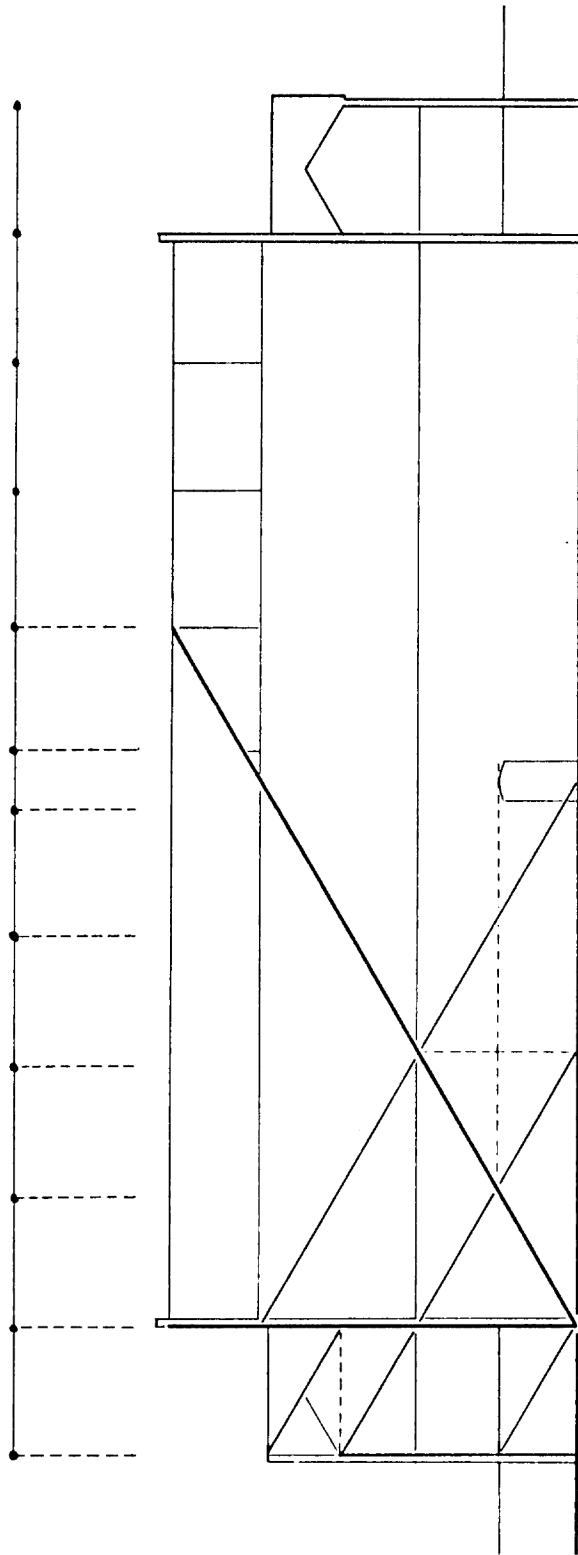


Fig. 13. 30/60/90 Geometry of the Market Building N-S Section

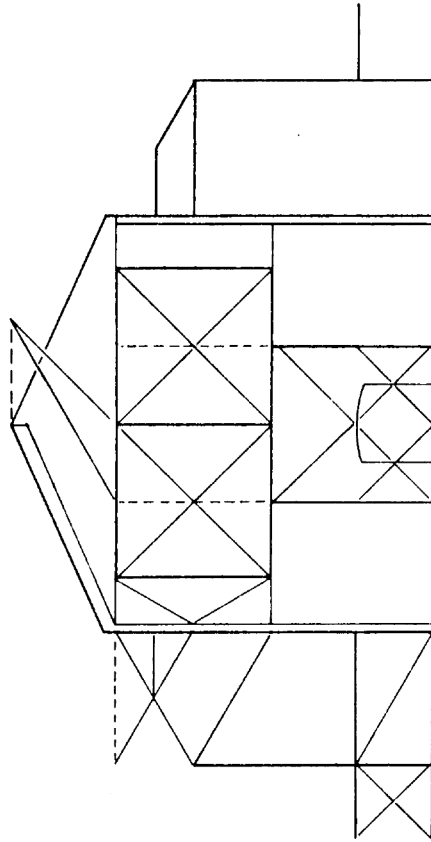
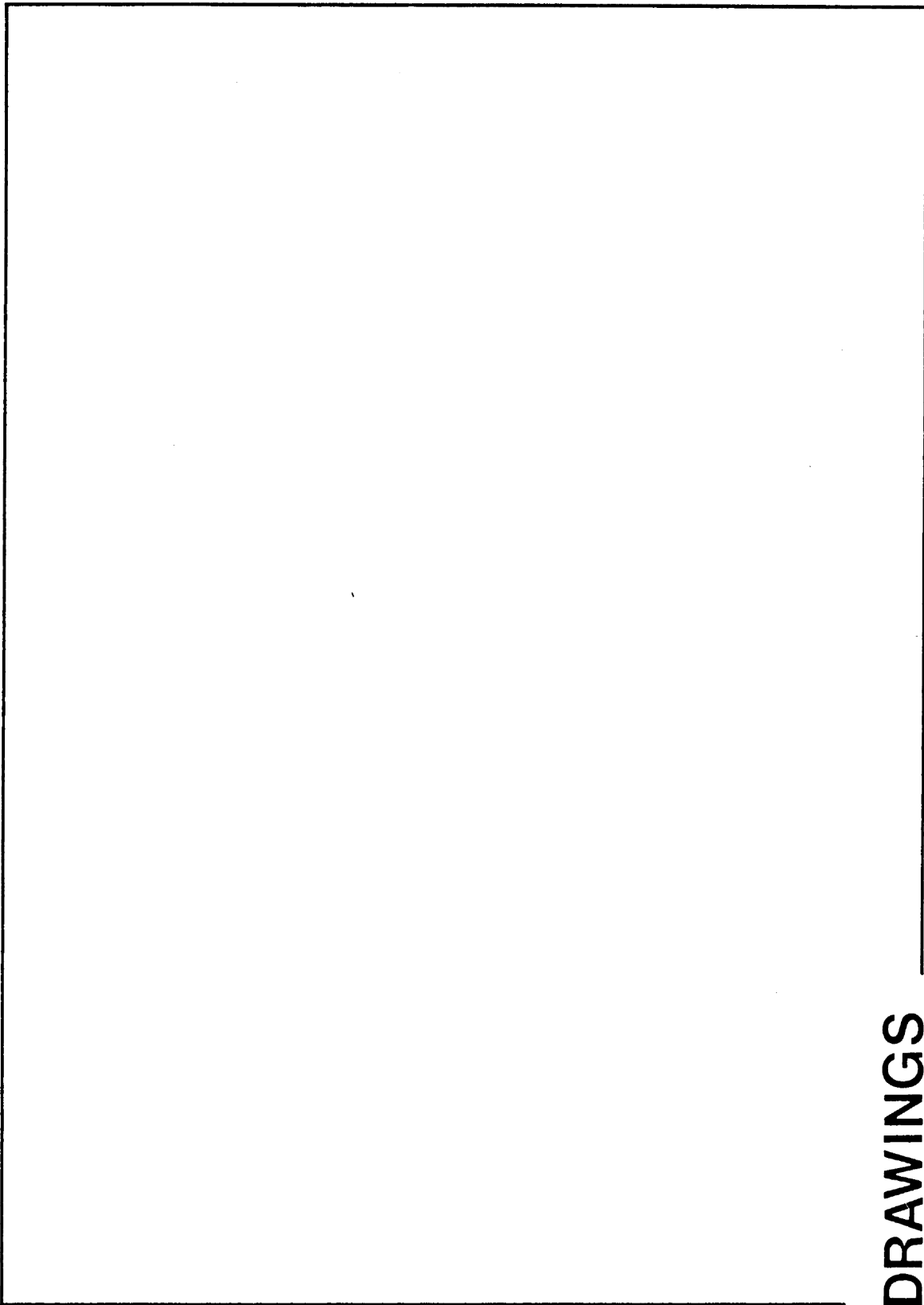
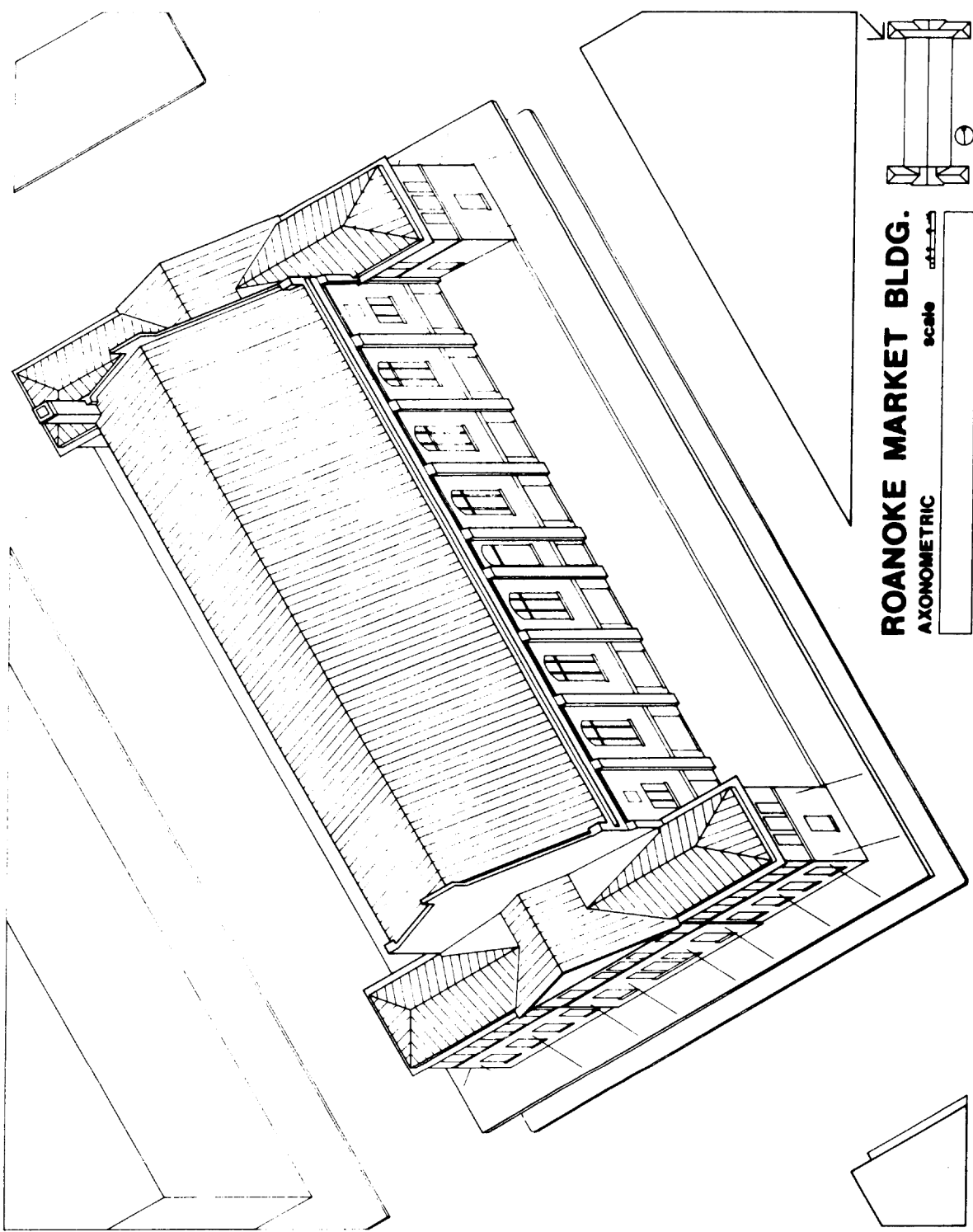


Fig. 14. 30/60/90 and 45/45/90 Geometry of the Market Building
E-W Section

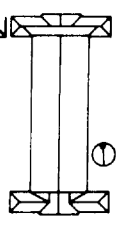


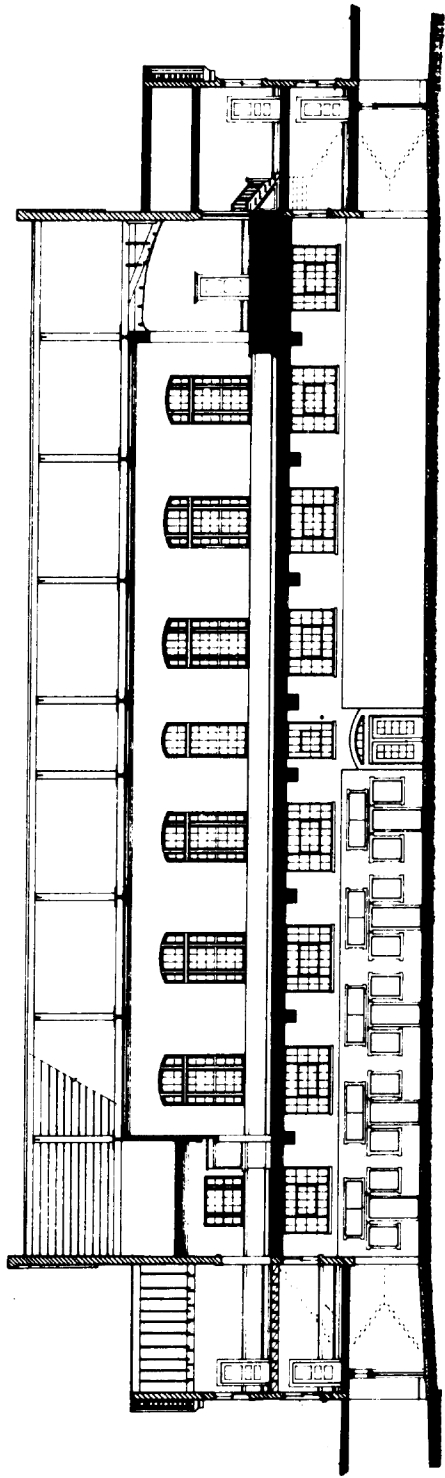
DRAWINGS



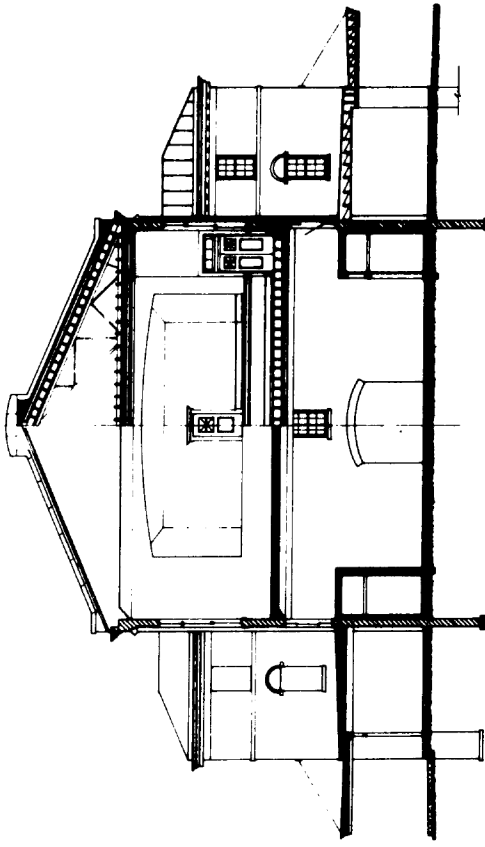
ROANOKE MARKET BLDG.
AXONOMETRIC

scale

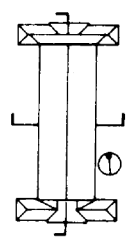




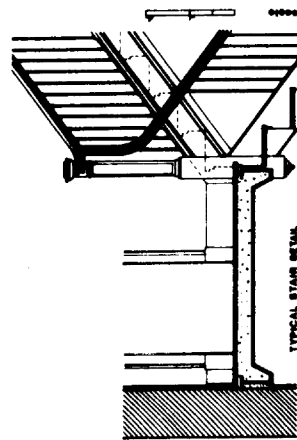
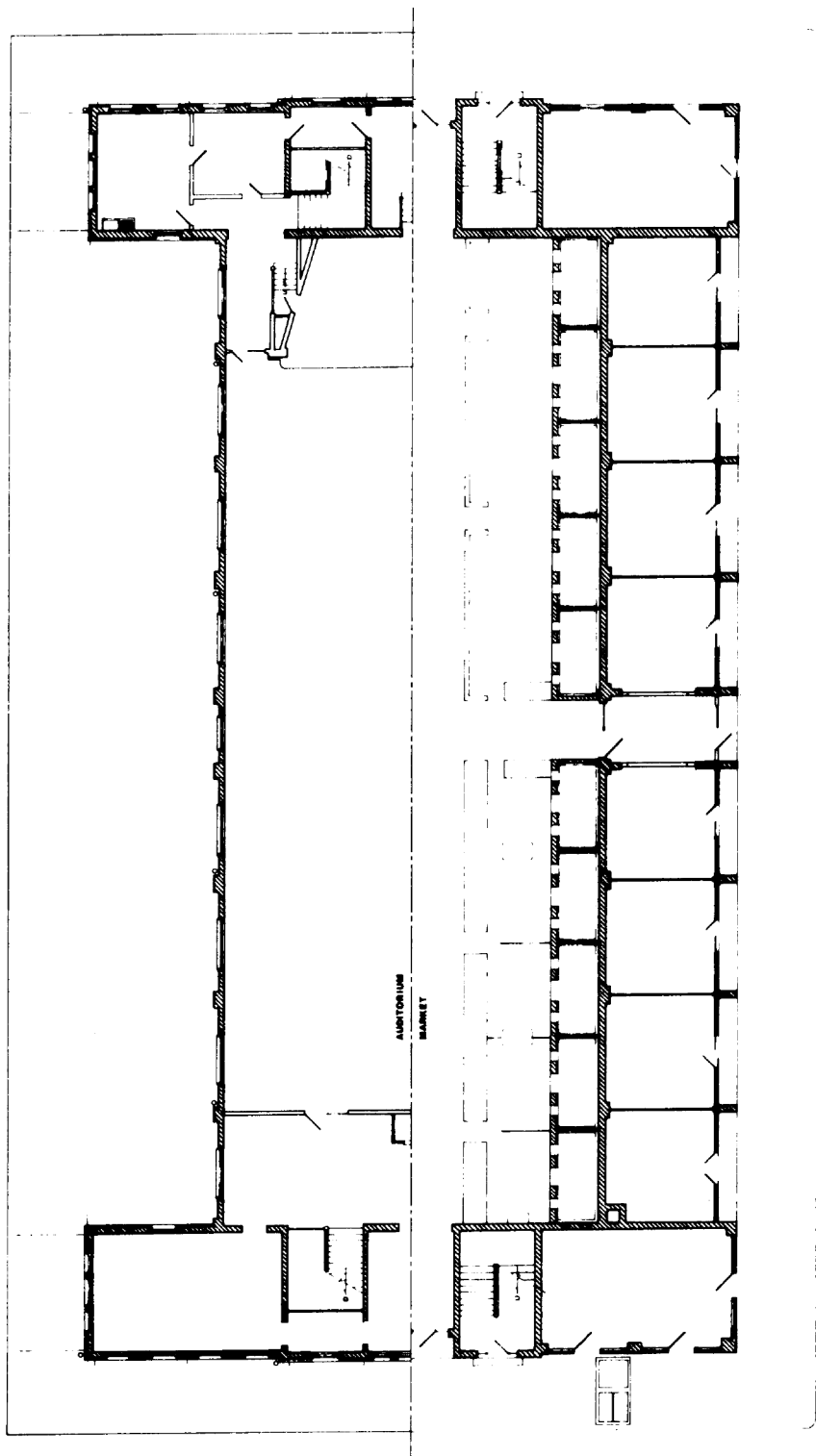
south north



west east

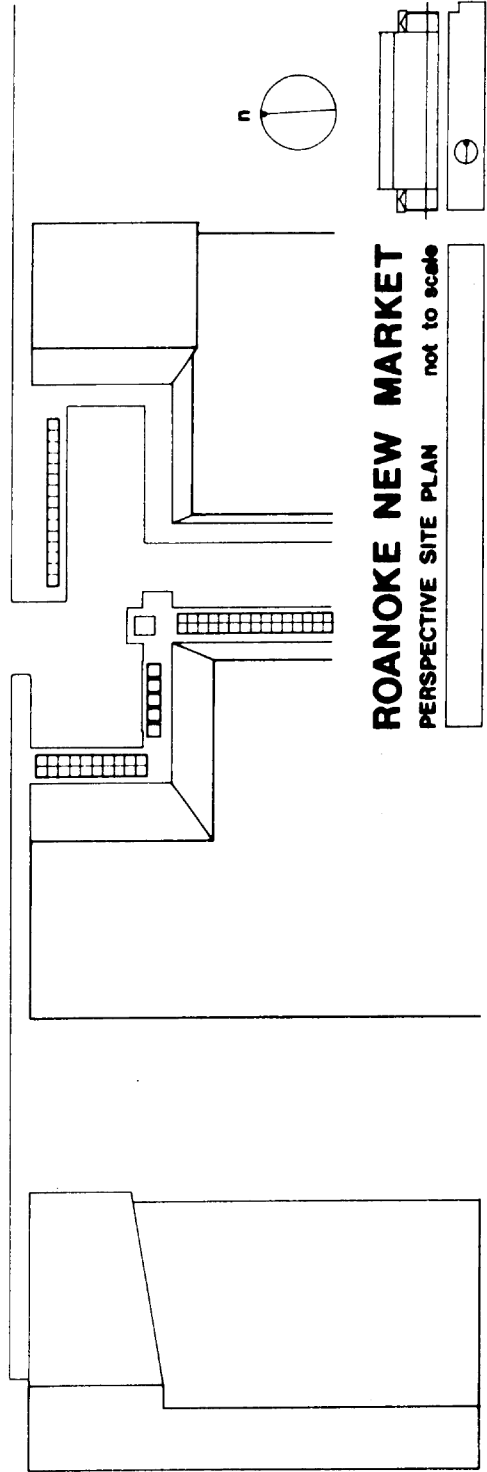
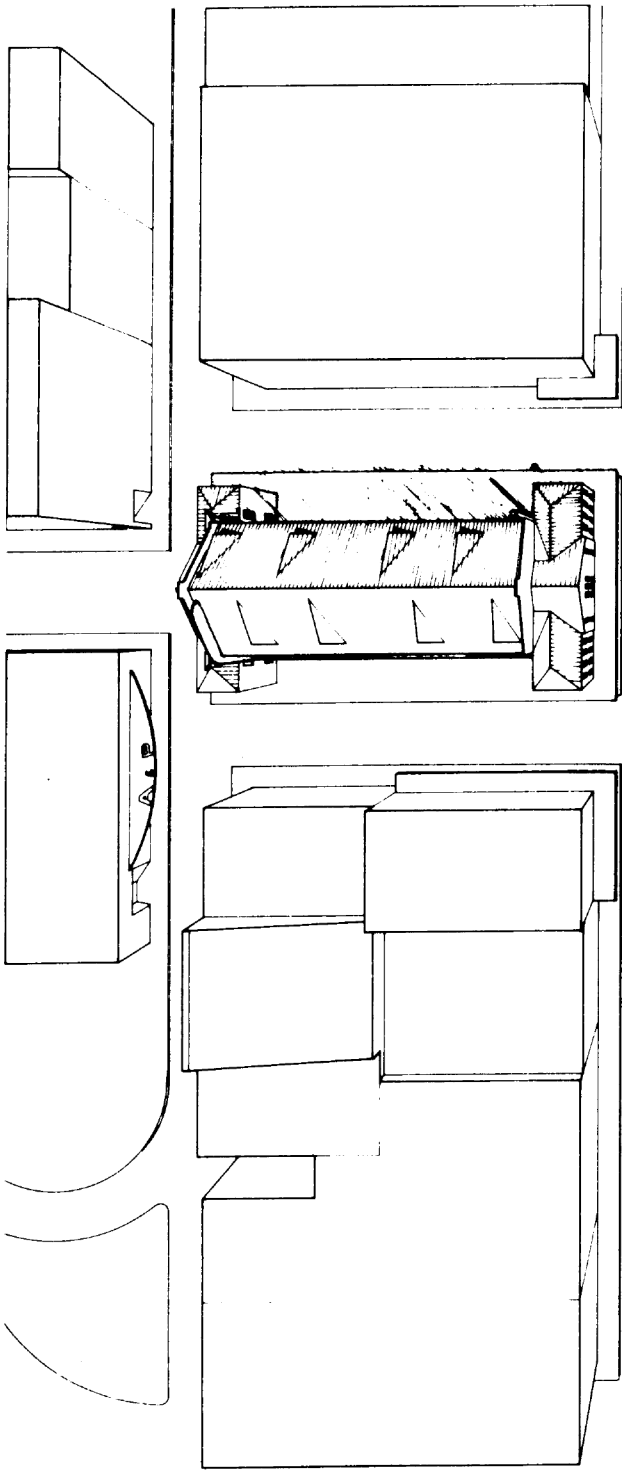


ROANOKE MARKET BLDG.
SECTIONS
scale



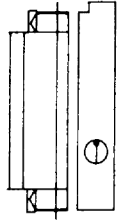
ROANOKE MARKET BLDG.
MARKET/AUDITORIUM PLAN scale

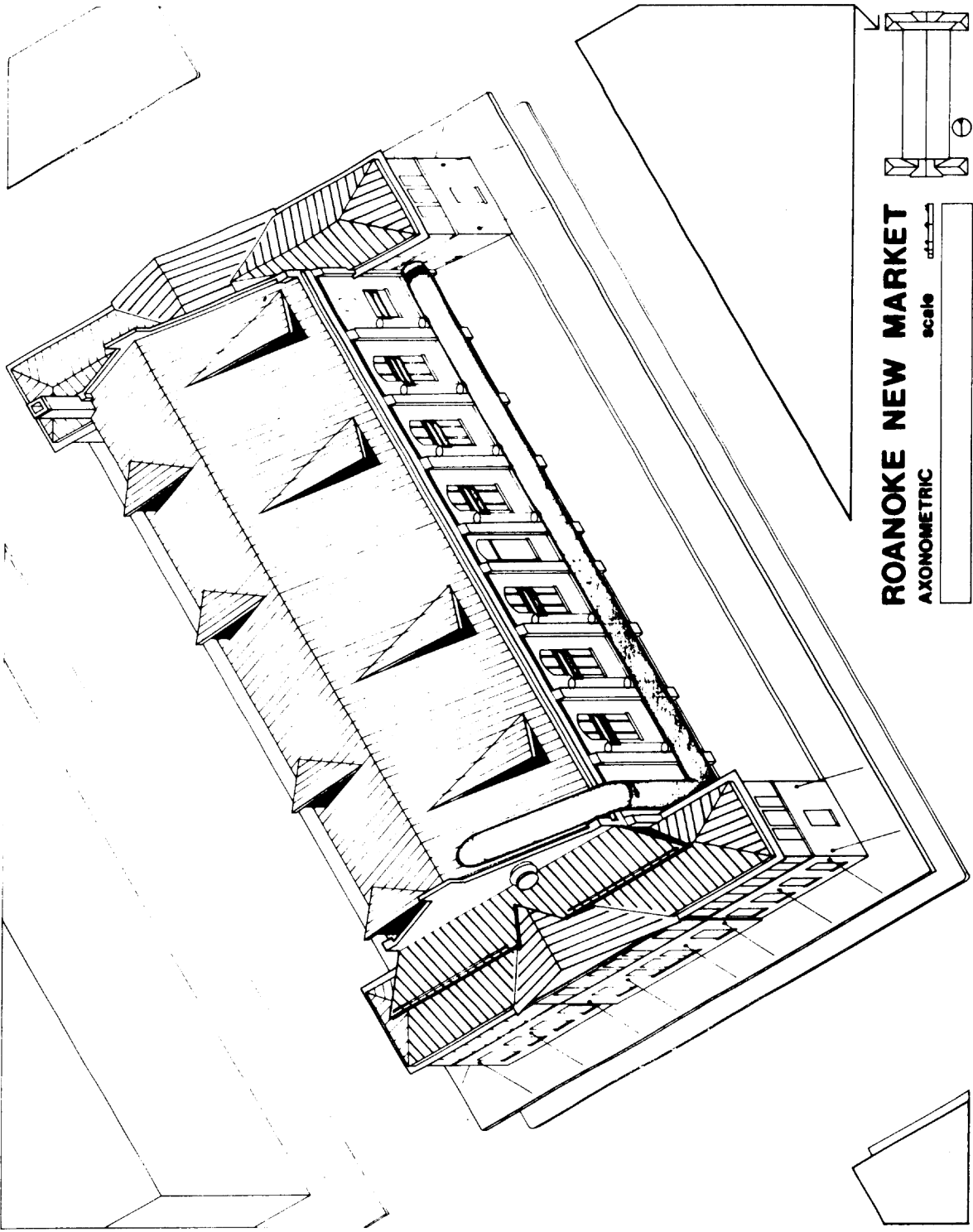




ROANOKE NEW MARKET
PERSPECTIVE SITE PLAN

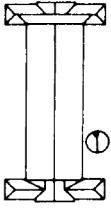
not to scale

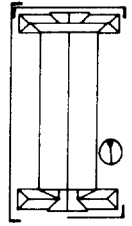
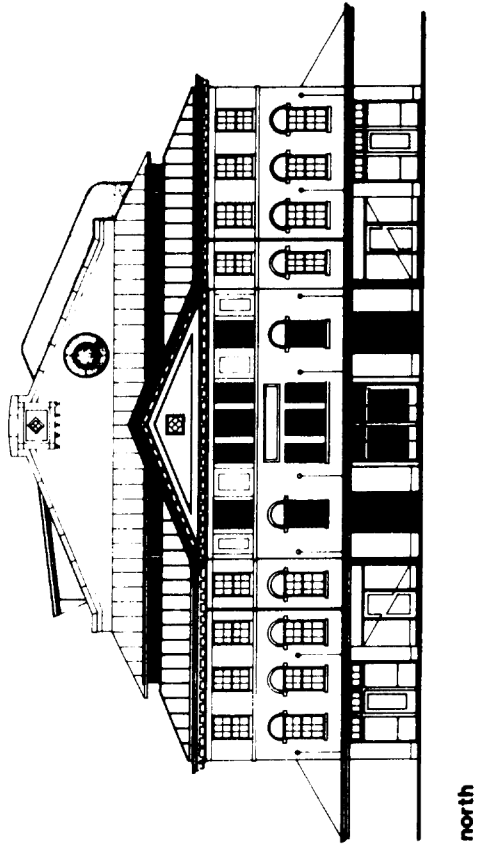
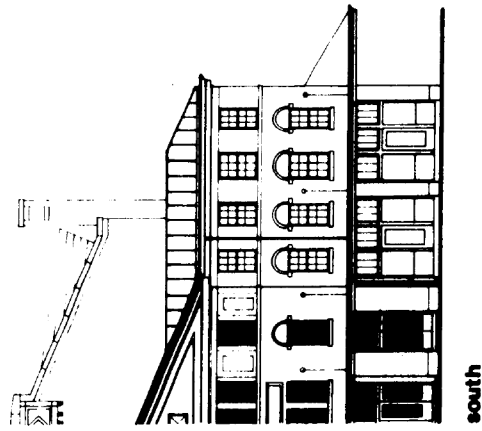
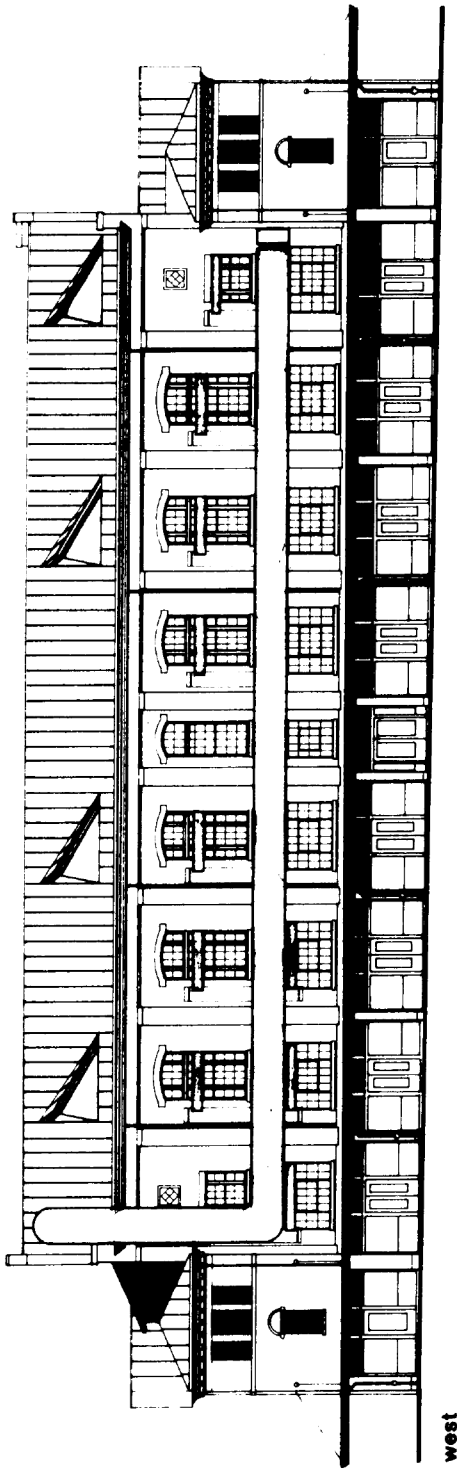




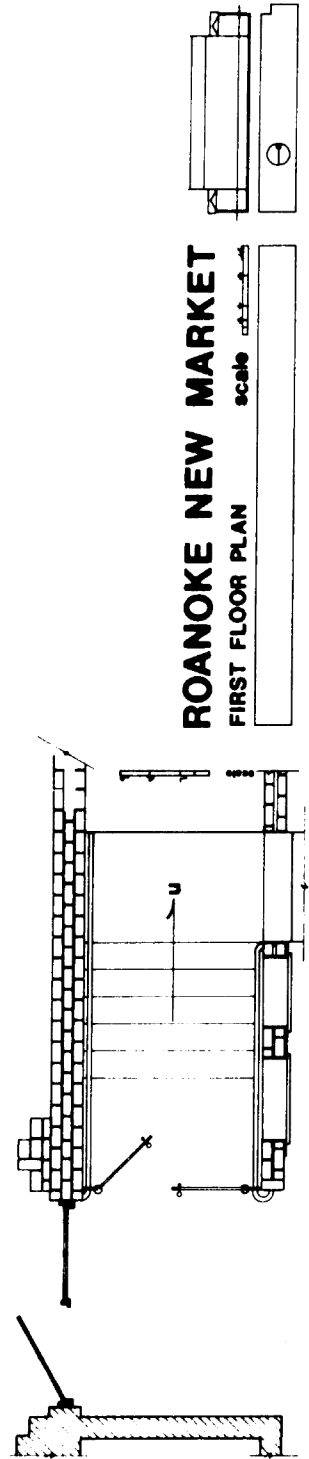
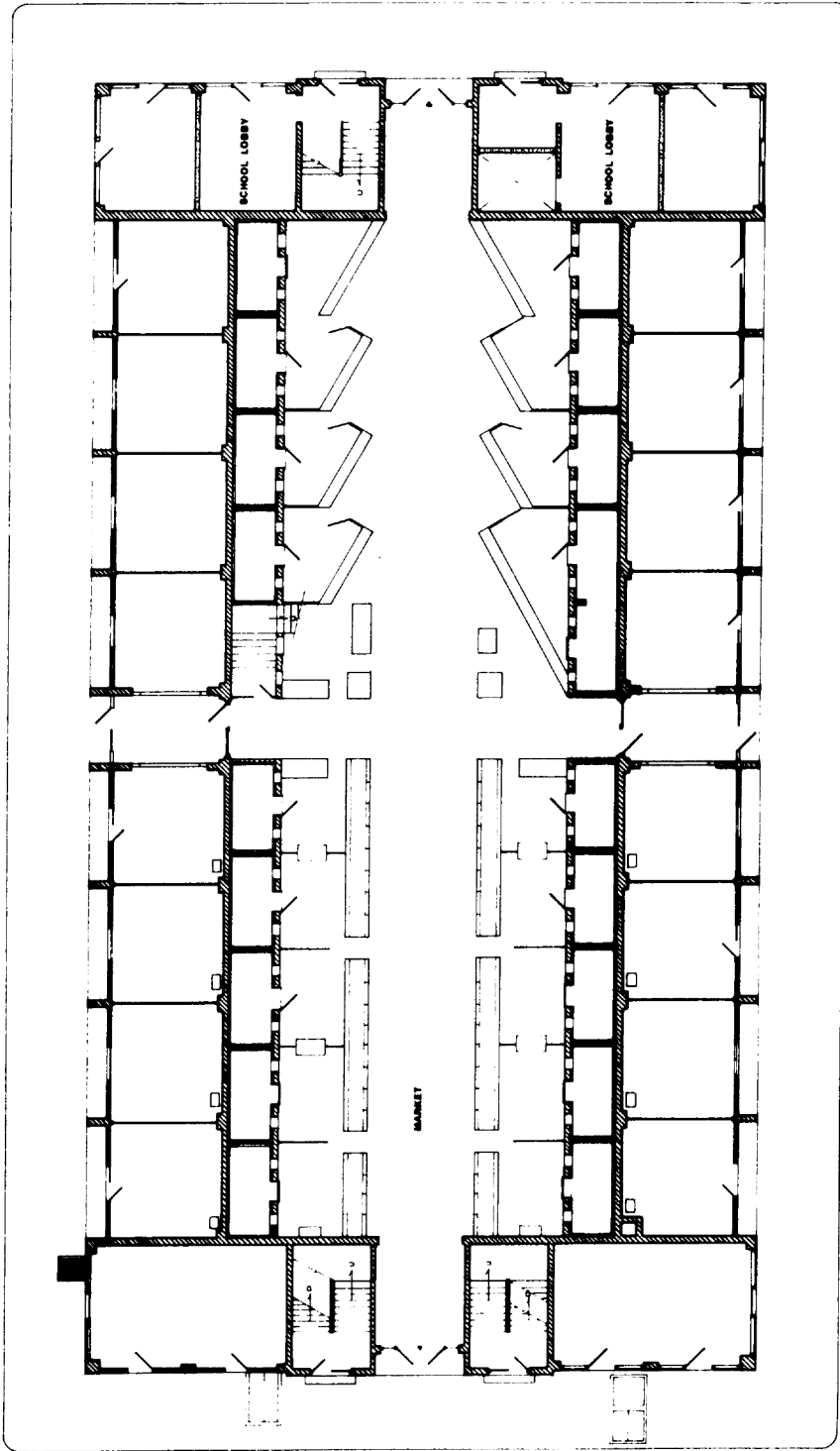
ROANOKE NEW MARKET
AXONOMETRIC

scale



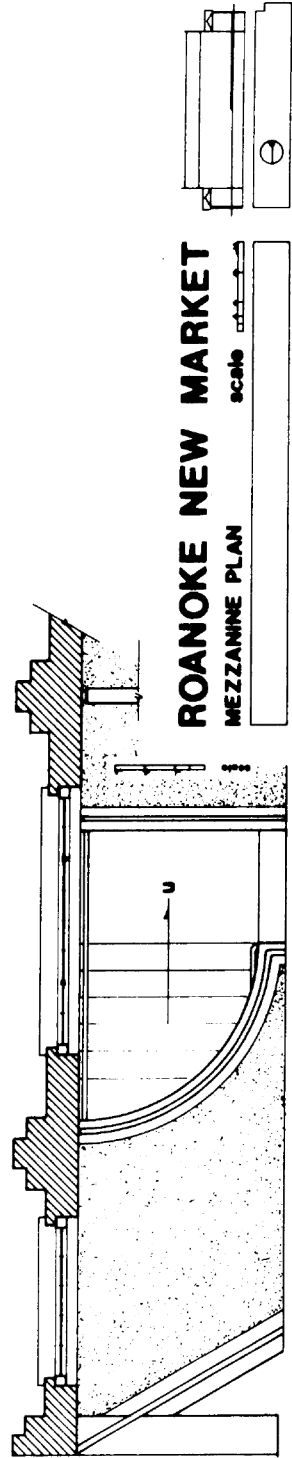
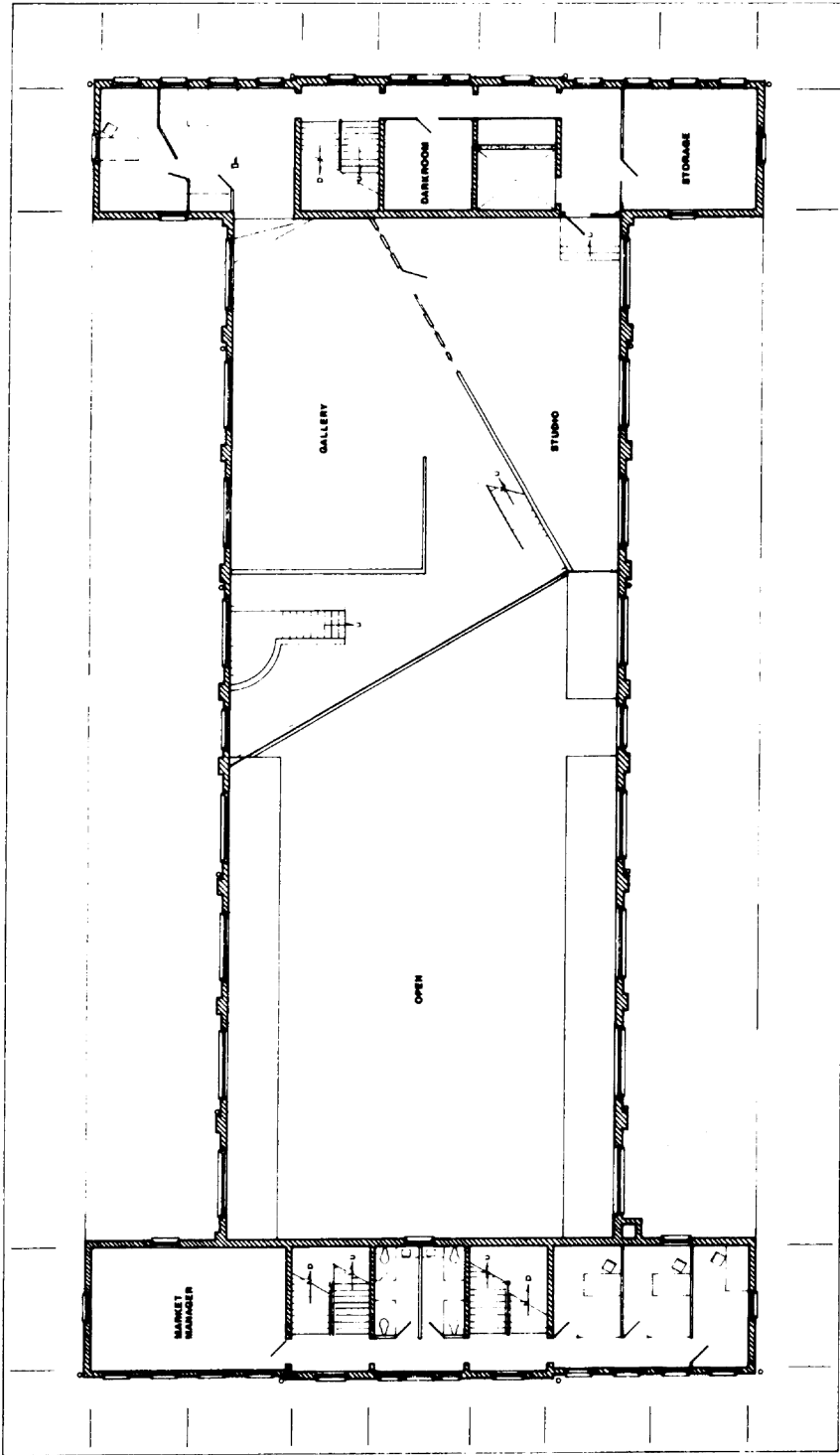


ROANOKE NEW MARKET
ELEVATIONS
scale 1/4" = 1'-0"



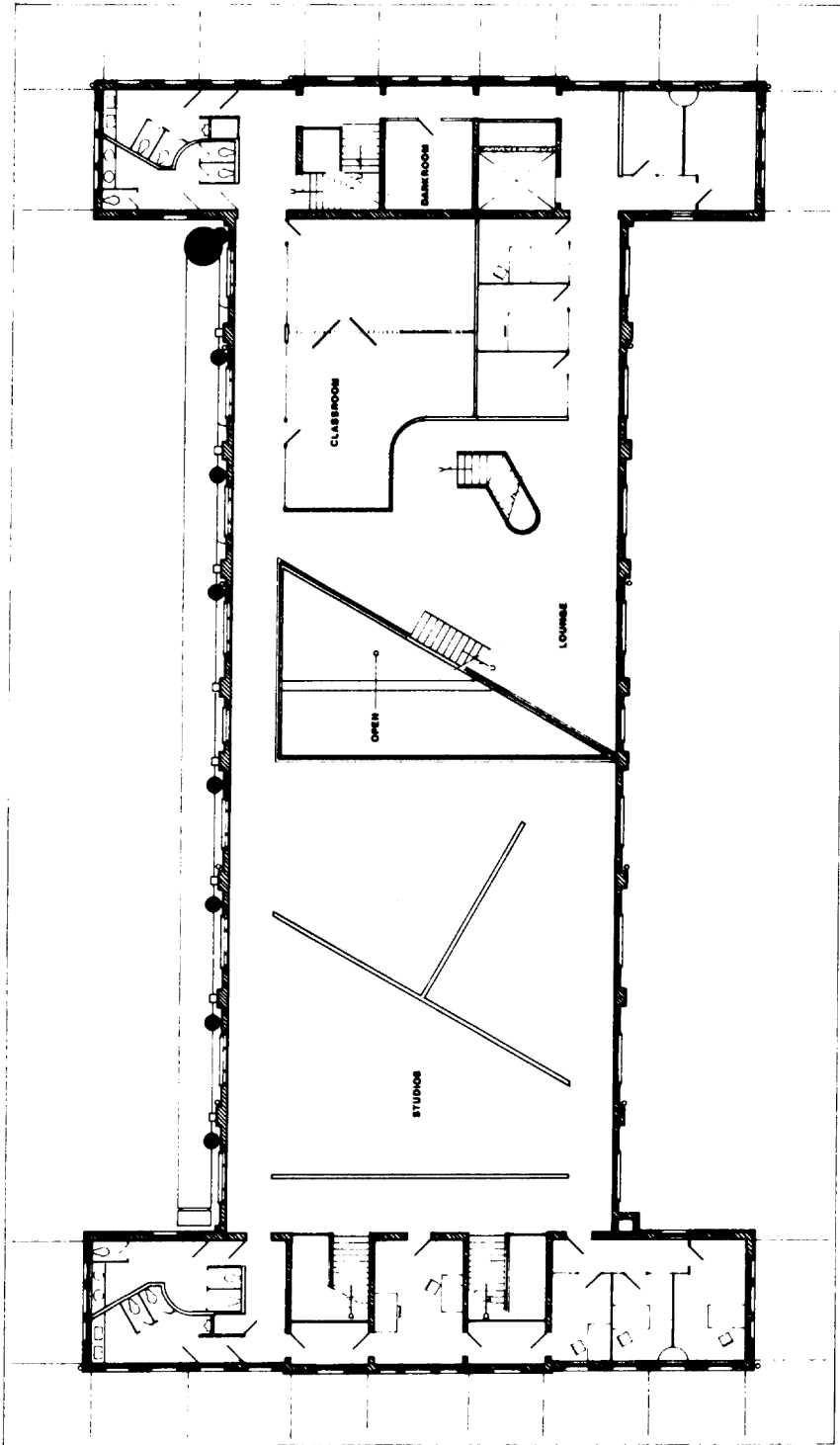
ROANOKE NEW MARKET
FIRST FLOOR PLAN

scale

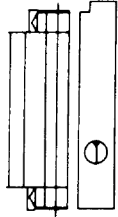


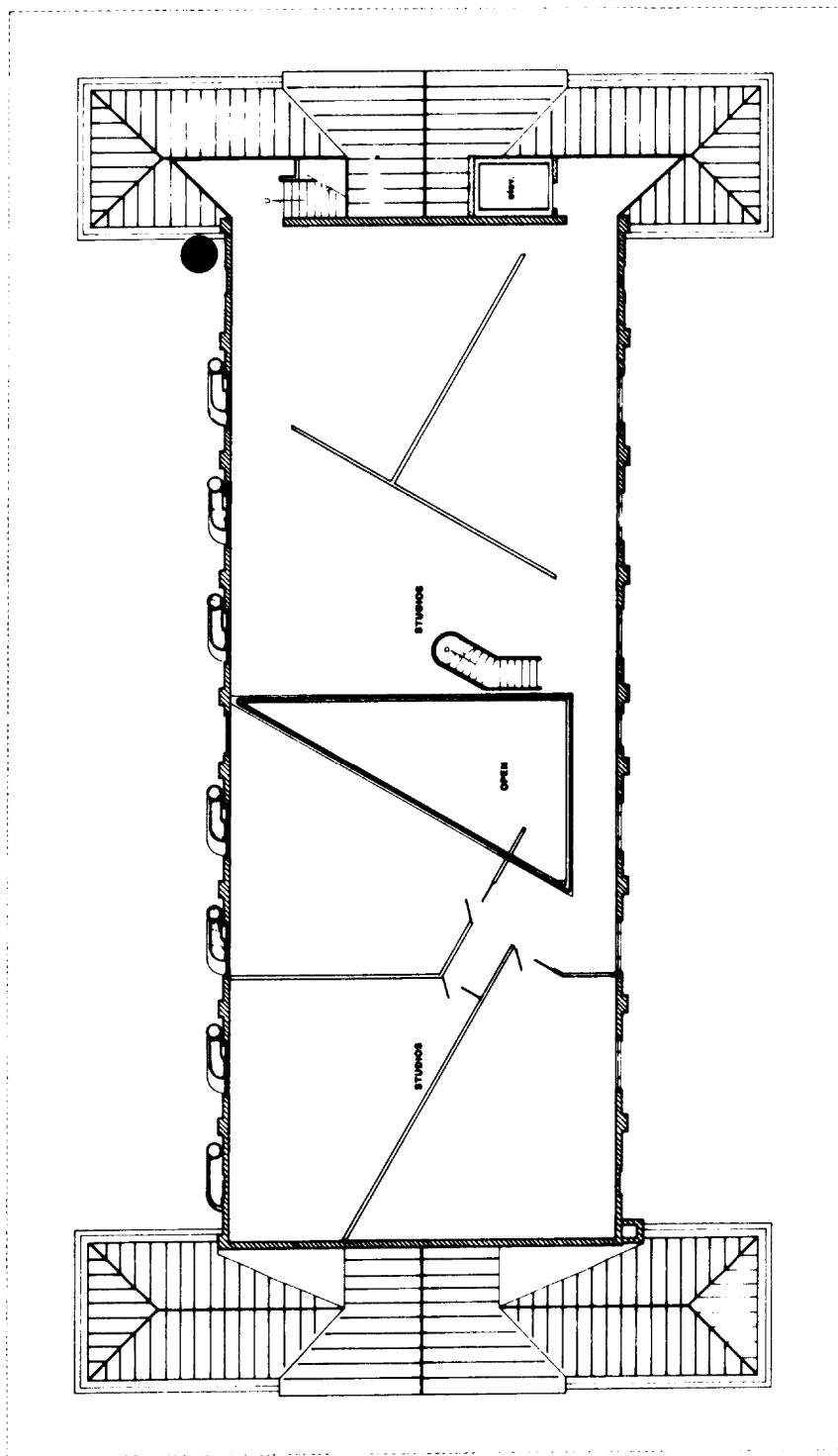
ROANOKE NEW MARKET
MEZZANINE PLAN

scale



ROANOKE NEW MARKET
SECOND FLOOR PLAN scale

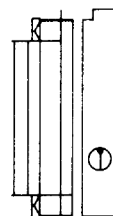


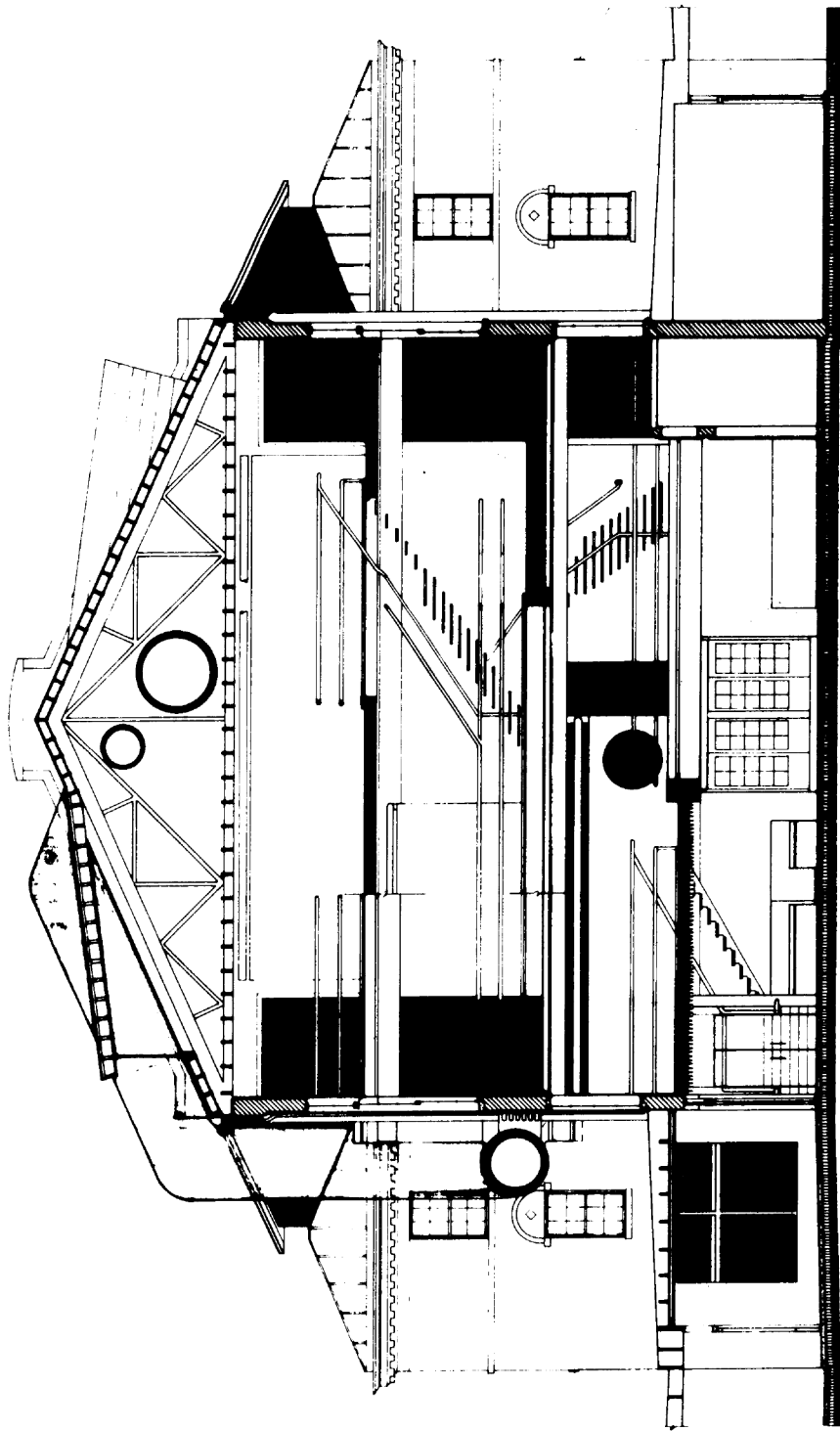


ROANOKE NEW MARKET

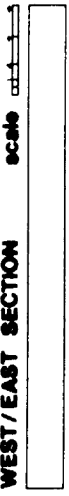
THIRD FLOOR PLAN

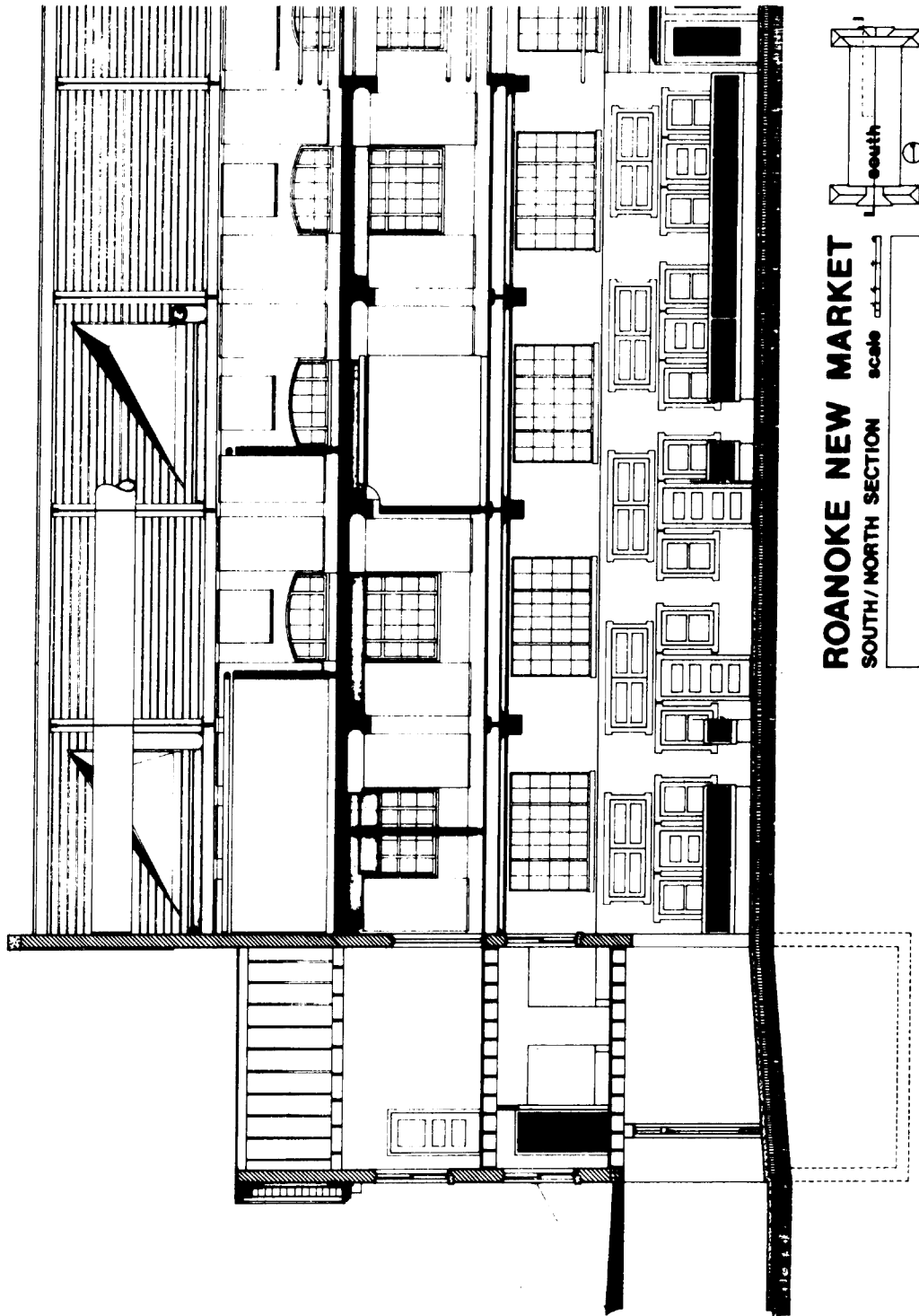
scale

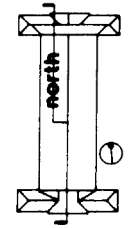
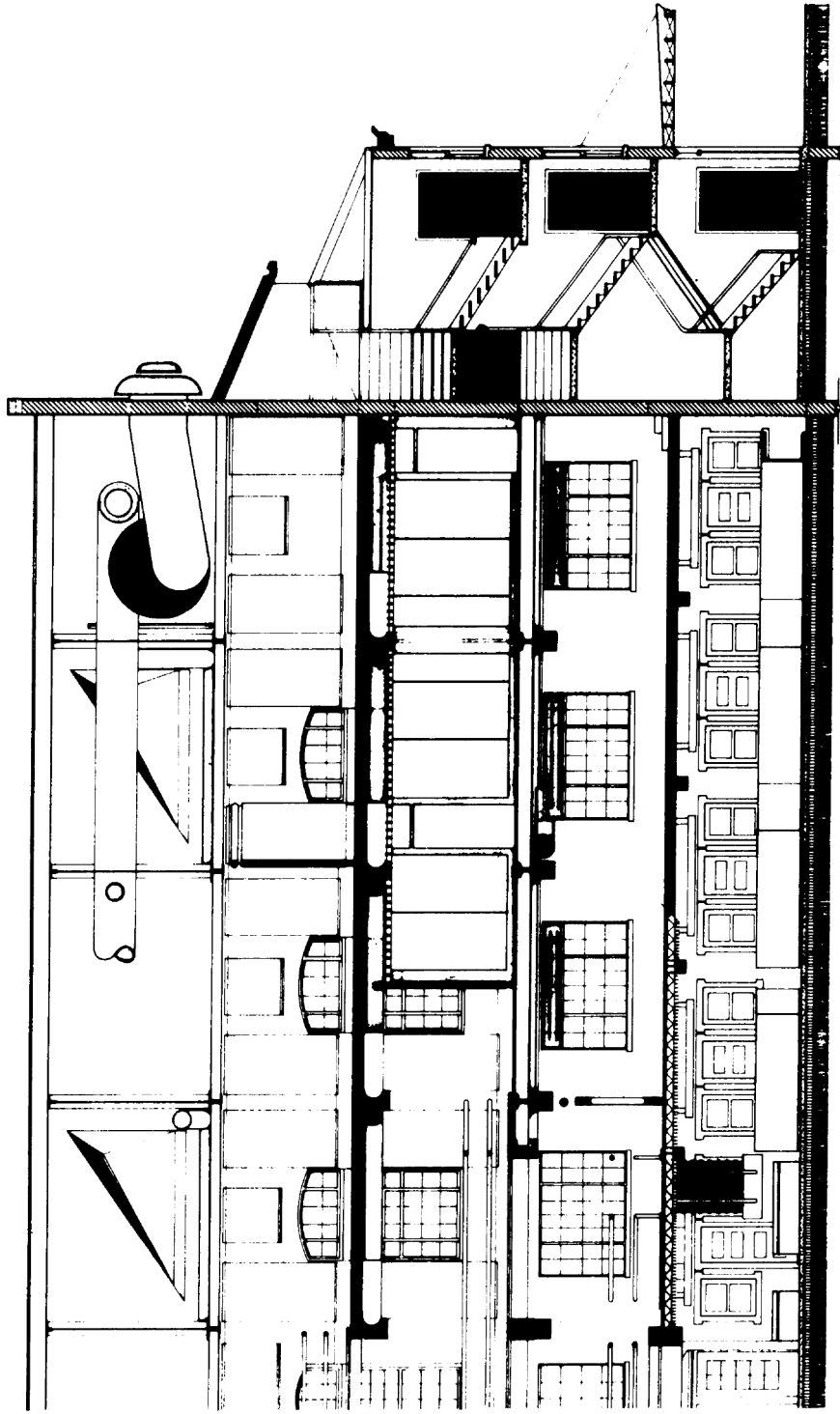




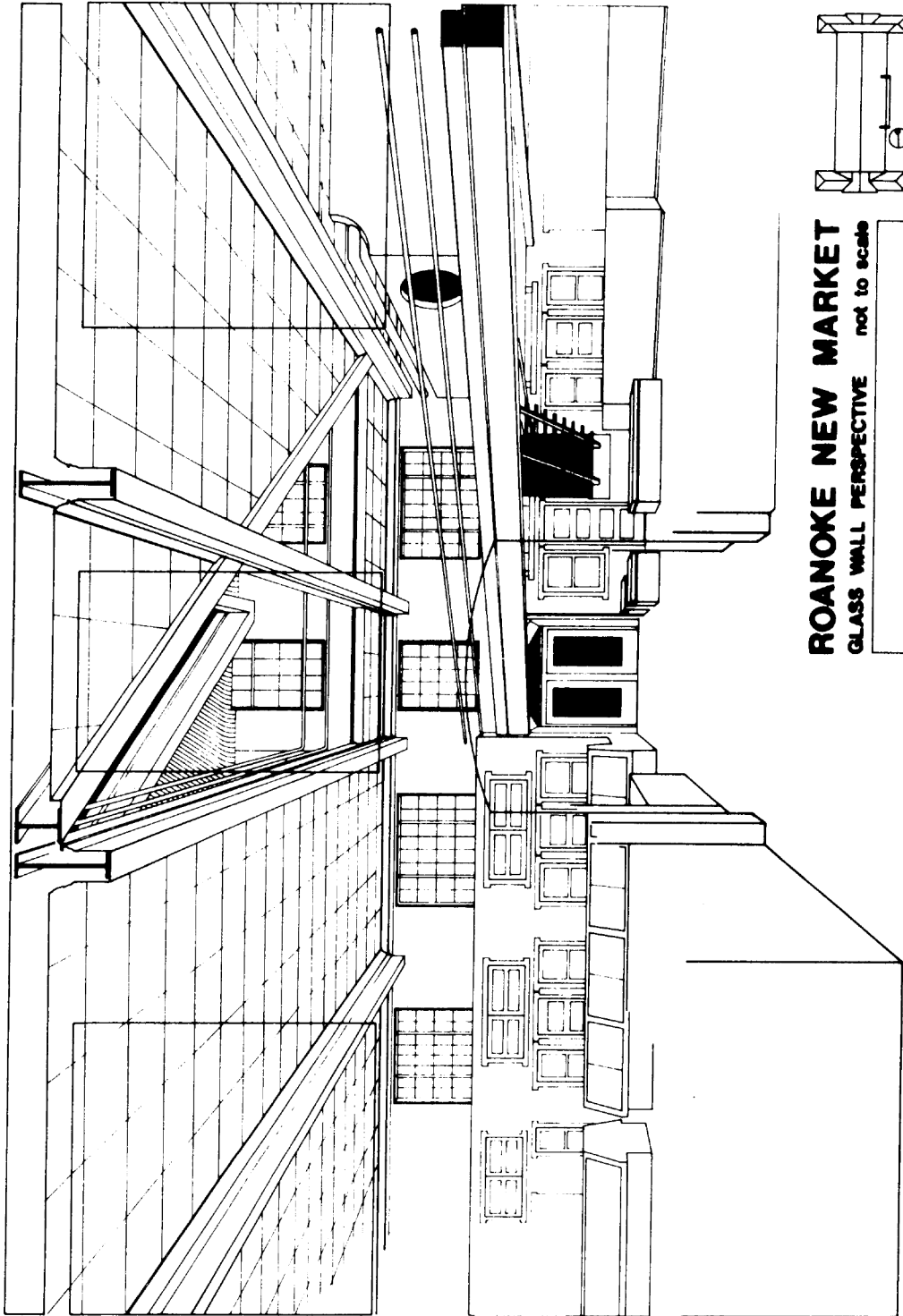
ROANOKE NEW MARKET
WEST/EAST SECTION



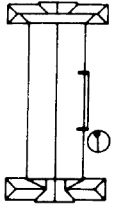


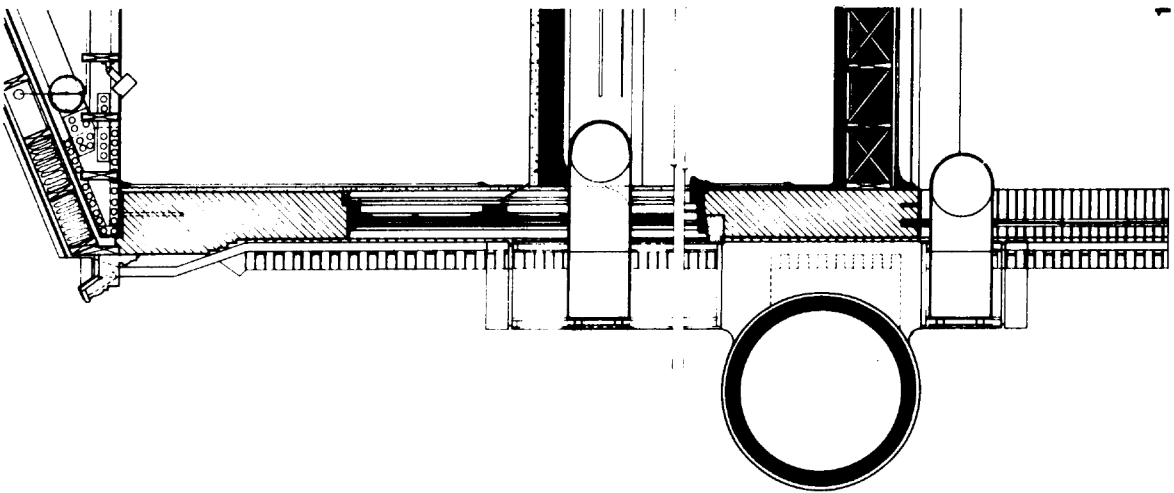
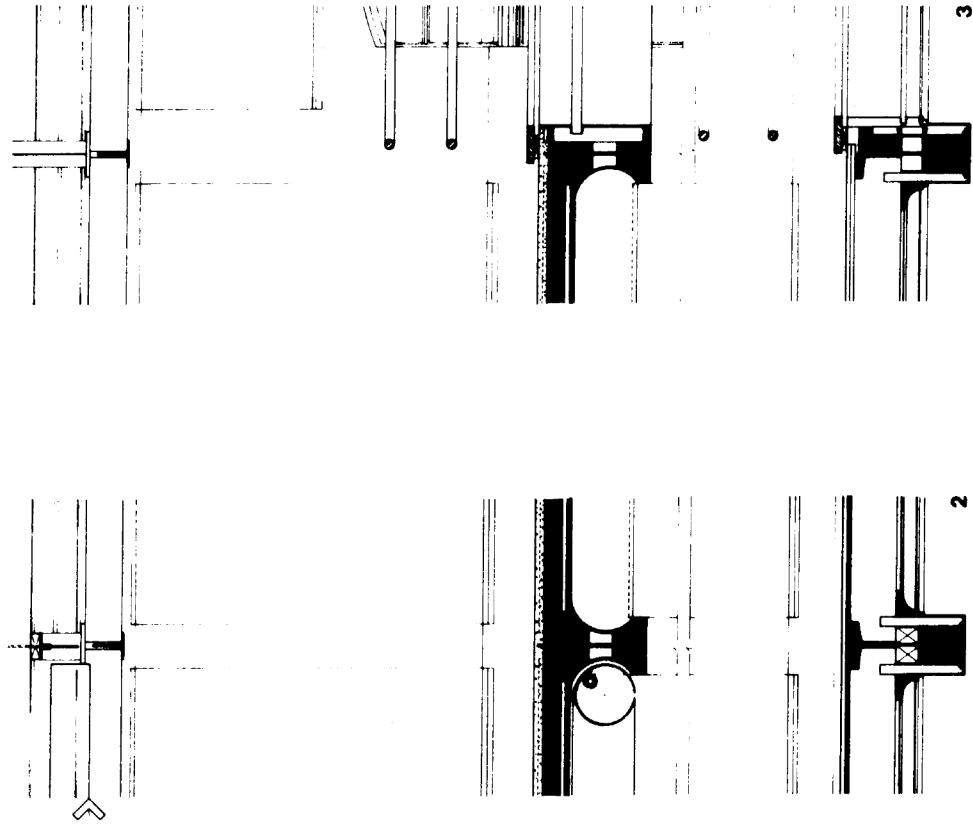


ROANOKE NEW MARKET
SOUTH/NORTH SECTION
scale



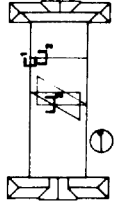
ROANOKE NEW MARKET
GLASS WALL PERSPECTIVE not to scale



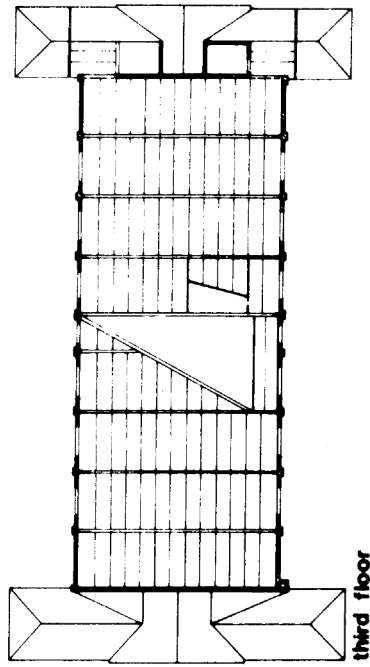
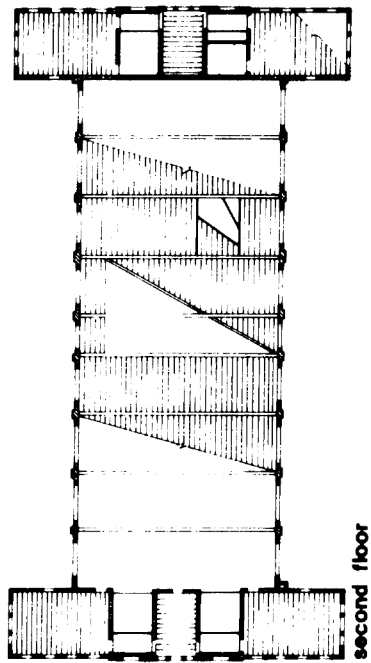
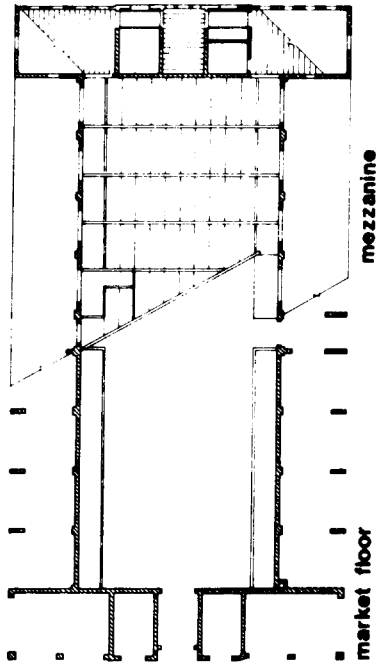
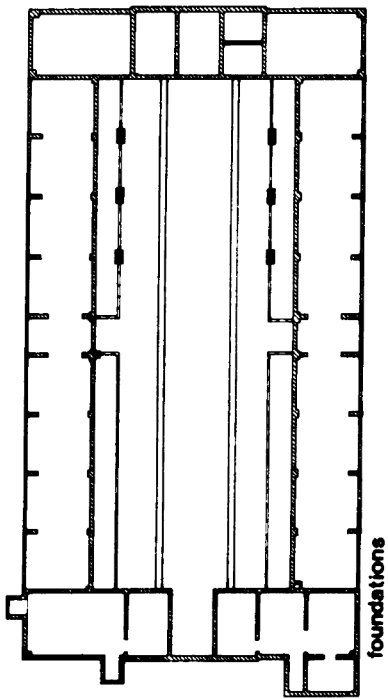


ROANOKE NEW MARKET
SECTION DETAILS

scale

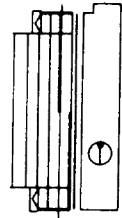


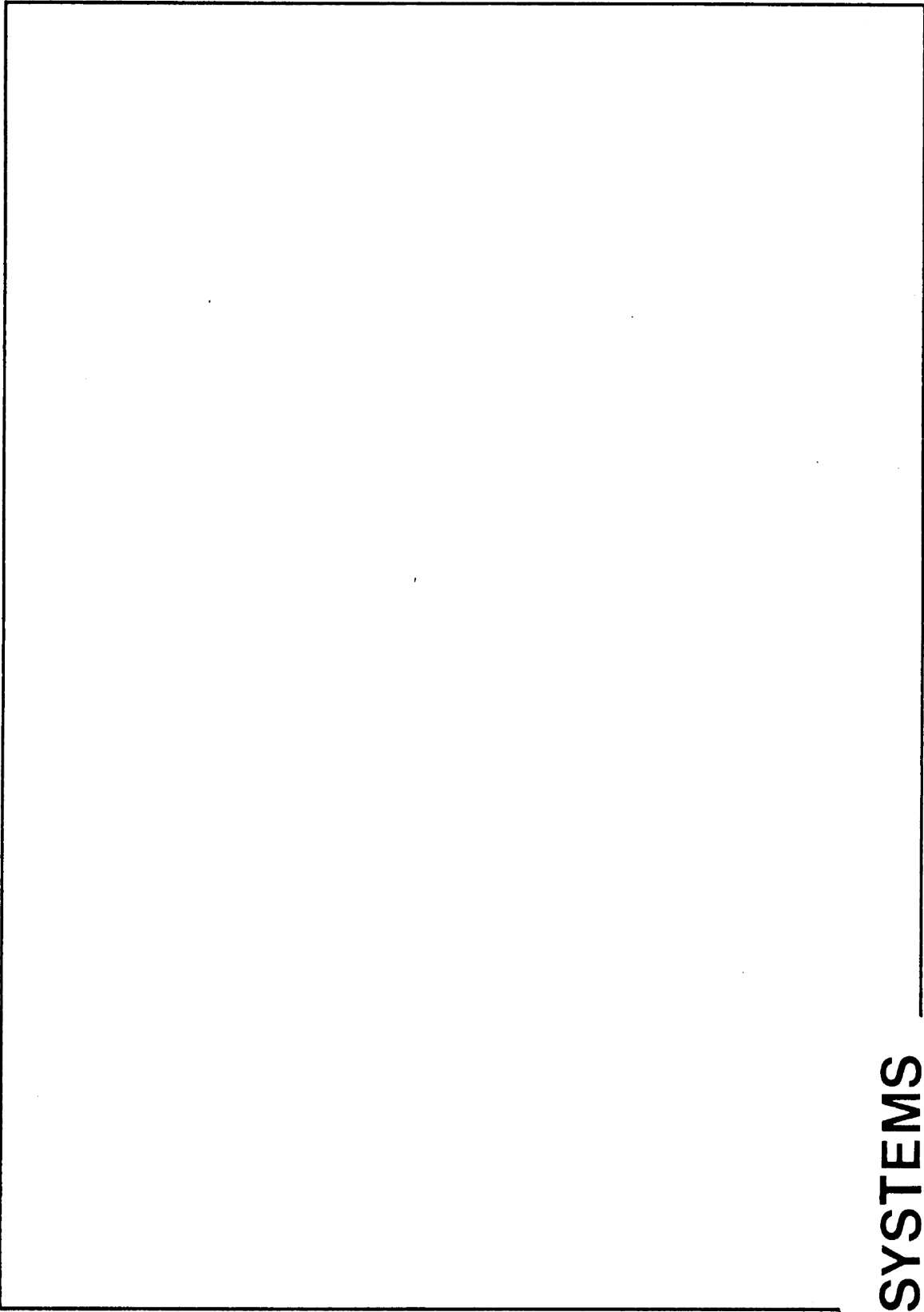
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ROANOKE NEW MARKET
STRUCTURE

scale





SYSTEMS

Structure

Based on the zoning criteria discussed previously new construction will depend on the existing structural system rather than being independent from it. Existing bearing walls will carry additional loads whenever possible and any new structure will be consonant with the existing pattern, the exception being two major beams which for architectural purposes establish a diagonal across the building.

The primary structural issues of this project develop from the inclusion of two new floors in the existing space. One floor, a mezzanine in the market area, spans 40 feet and bears on the brick freezer walls. These walls are nine inches thick and additional structural support can be established by the placement of steel columns on the interior of the freezers. Underpinning the walls to supplement the present footings must be considered. Each beam supporting the floor is to be tied into the diaphragm walls which separate each freezer from the other. By so doing the beam is fixed at the ends and a shallower member can be used. In the 17' 3" floor to beam height of the existing space, establishing a floor of minimum depth is of utmost importance.

To avoid the imposition of columns on the spaces below, the third floor, that above the auditorium, has a clear span of 52' 0" with beams resting on the load bearing walls of the building. Concern here is whether the fifty year old brick bearing walls can take the new load. In an actual situation of this sort an expert

structural masonry engineer would be consulted. For the purposes of this project masonry bearing capacities are extrapolated from the chart which accompanies these calculations.

The floor system for both the mezzanine and third floors, are based on the Hambro composite floor system which integrates bar joists with a concrete slab. Use of this system allows for a shallower floor section with a shallower slab, and proportional decreases in weight over conventional systems.¹³

Mezzanine Floor

Span 40'-0 at 13'-0 on center

Load is 100 psf. live load and 40 psf. dead load (Hambro composite floor system 35 psf. + 5 psf. for partitions)

$$\text{For a fixed beam } M = \frac{wL^2}{12}$$

$$wL^2 \text{ } 13'-0 \times 140 \text{ psf} = 1820$$

$$M^2 \frac{1820(40)^2}{12} = 242,560 \text{ ft. lbs.}$$

$$\text{Section} = \frac{M}{f} \frac{242,560 \text{ ft. lbs.} \times 12''}{24000 \text{ psi}} = 121.128 \text{ in}^3.$$

From allowable stress design selection table

TABLE 1

ALLOWABLE STRESS DESIGN SELECTION TABLE ¹⁴

In ³	Shape	Moment Kip. ft. ¹	Flange Width ²
130	W 24 x 61	260	7"
129	W 18 x 70	258	8 3/4
128	S 20 x 75	256	8 3/4

Third Floor

Span is 52'-0 at 16'-0 on center

Load is 100 psf. live load + 40 psf dead load (Hambro composite floor system--35 psf. + 5 psf. for partitions).

$$\text{For a simple beam } M = \frac{Wl^2}{8}$$

$$W^2 \text{ 16'-0 x 140 psf} = 2240 \text{ lbs./linear foot}$$

$$M^2 \frac{2240(52)^2}{24000} = 757,120 \text{ ft. lbs.}$$

$$\text{Section} = \frac{M}{f} = \frac{757,120 \times 12}{24000} = 378.56 \text{ in}^3.$$

TABLE 2

ALLOWABLE STRESS DESIGN SELECTION TABLE 15

In ³	Shape	Moment Kip. ft.	Flange
380	W 30 x 132	760	10 1/2
404	W 27 x 145	808	14
414	W 24 x 160	828	14 1/8

This beam can also be used for the two diagonal beams as they too span 52'-0.

Bearing Walls

Load of third floor at either end--

$$\frac{52'-0 \times 16'-0 \times 140 \text{ psf}}{2} = 58,240 \text{ lbs}$$

$$= 58.24 \text{ kips.}$$

Bearing Surface-Minimum = 29" x 21" = 602 sq. in.

TABLE 3

ASSUMED COMPRESSIVE STRENGTH OF BRICK MASONRY¹⁶

Compressive Strength or Units, PSI	Without Inspection		
	Type N Mortar	Type S Mortar	Type M Mortar
14,000 plus	2140	2600	3070
12,000	1870	2270	2670
10,000	1600	1930	2270
8,000	1340	1600	1870
6,000	1070	1270	1470
4,000	800	930	1070
2,000	530	600	670

High Value 3070

Low Value 530 minus

2 | 2540

1270

530 plus

$f_m = 1800 \text{ PSI.}$ This value is chosen for structural calculations.

TABLE 4

ALLOWABLE STRESSES IN NONREINFORCED BRICK MASONRY

Description	Without Inspection	With Inspection
Compressive, Axial		
Walls, fm	0.20 fm	0.20 fm
Columns, fm	0.16 fm	0.16 fm

Value Chosen is 0.20 fm

$$0.20 \times 1800 \text{ PSI} = 360 \text{ PSI}$$

Area x bearing strength = Max. load

$$609 \times 360 \text{ PSI} = 219,240 \text{ pounds of } 219.24 \text{ Kips.}$$

The new floor load is 58.24 Kips, the load capacity of the wall is 219.24 Kips, so it is assumed that the wall can take the new load.

Heating, Ventilating and Air Conditioning

The HVAC system of this building developed from a concern for adequate heating and ventilating of all spaces coupled with a desire to achieve some degree of energy efficiency. The result of these concerns is a series of exposed ducts which handle ventilation needs and a pipe/boiler/chiller system which deals with thermal problems. With the air handling mechanical room located in the roof and the boiler/chiller located in the existing basement mechanical rooms. The confluence of the two systems occurs in the air ducts. Here nominally heated or cooled air passes over pipes connected to the boiler/chiller system. It is at this point final thermal adjustments are made.

A final point is that the HVAC system is designed to act as an acoustic buffer by producing a background noise. This noise will help mask the low frequency sounds of the studios such as talking and in effect will help isolate the individual spaces in what is otherwise a rather open plan. The following calculations are for the large exterior duct which serves the mezzanine and second floor. Also included are the figures for the secondary ducts in which final thermal adjustments are made and from which air is distributed to the studio or gallery spaces. Calculations are based on a rate of three air changes per hour.

Typical Zone: $52' \times 16' \times 9' = 7488 \text{ cu. ft.}$

$7488 \text{ cu. ft.} \times 3 \text{ changes per hour} = 22464 \text{ cu. ft.}$

$22464 \text{ cu. ft.} \div 60 \text{ min} = 391.6 \text{ cu. ft./min.}$

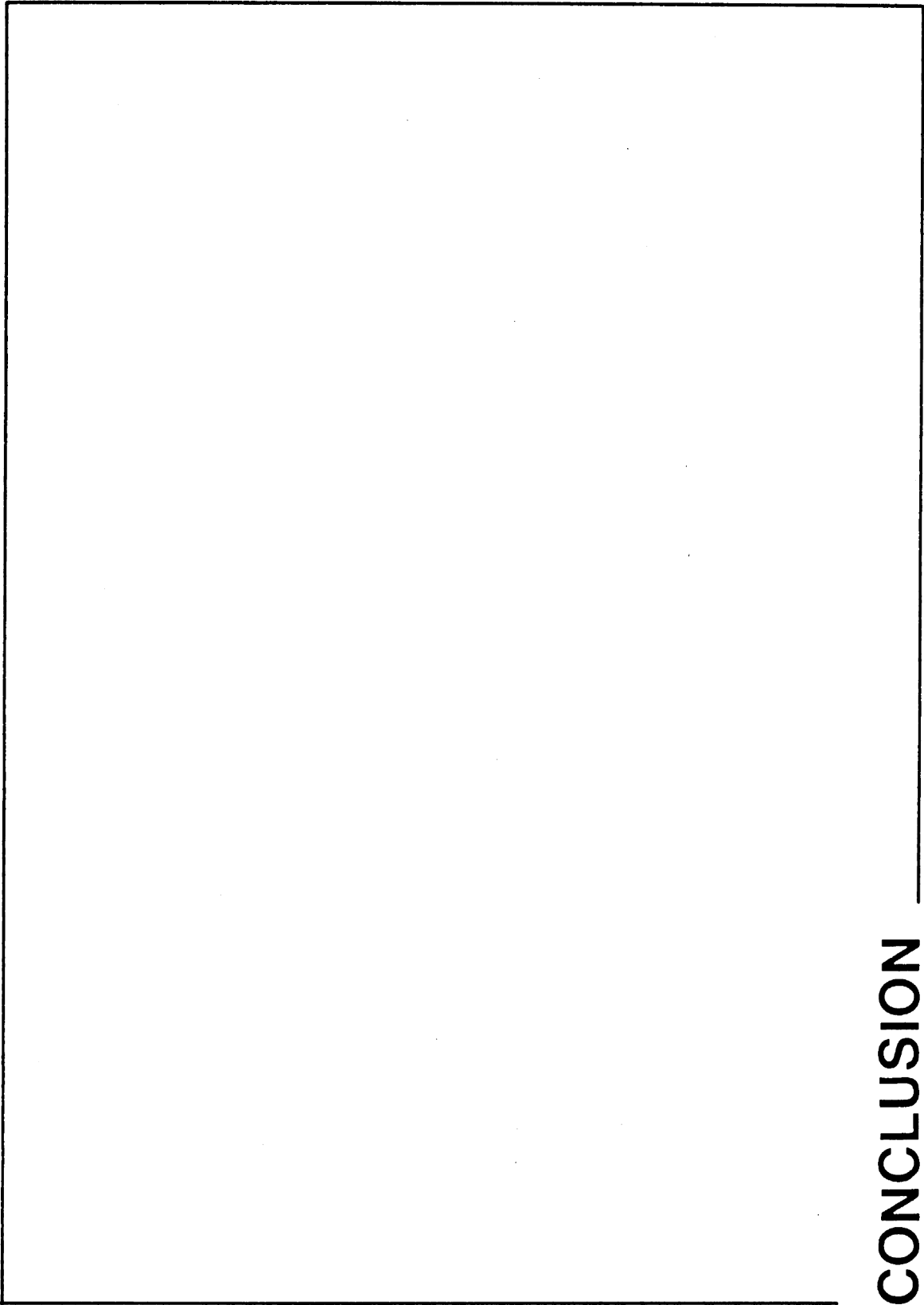
Such a load requires a 14 to 16 inch circular duct with an air speed of 300 FPM.¹⁷

Entire Second Floor: $52' \times 137' \times 9' = 64116 \text{ cu. ft.}$

$64116 \text{ cu. ft.} \times 3 \text{ changes/hr.} = 192348 \text{ cu. ft.}$

$192348 \text{ cu. ft.} \div 60 \text{ min.} = 3205.8 \text{ cu. ft./min.}$

Such a load requires a 34 inch circular duct with an air speed of 600 FPM.¹⁸



CONCLUSION

CONCLUSION

In writing this conclusion I must identify those issues to which my thoughts and activities have been directed for these last eight months.

Of primary concern during this course of study has been that of architecture, understanding what it is, and how to successfully bring about a cohesive, integrated, ordered, and properly developed concept which presents itself in built form. To this end I feel confident of having reached a degree of success, the market project being based on my understanding of that discipline. The most difficult part of design is the attempt to make one's understanding operational and I feel any weaknesses in my design are more a function of this difficulty of transfer than of the primary understanding. With a grasp on these issues which comprise the field of architectural design I can continue in a self-directed study of making that understanding operational.

Concurrently I have considered what often seems a conflict between formal, conceptual architecture and functional and experiential architecture. The dichotomy of conceptual versus practical, cerebral versus sensual, is of long standing and one must recognize the value of both areas of concern. Having now achieved that point of recognition and understanding of the issues I am better able to identify that area of the continuum to which I may direct my attention.

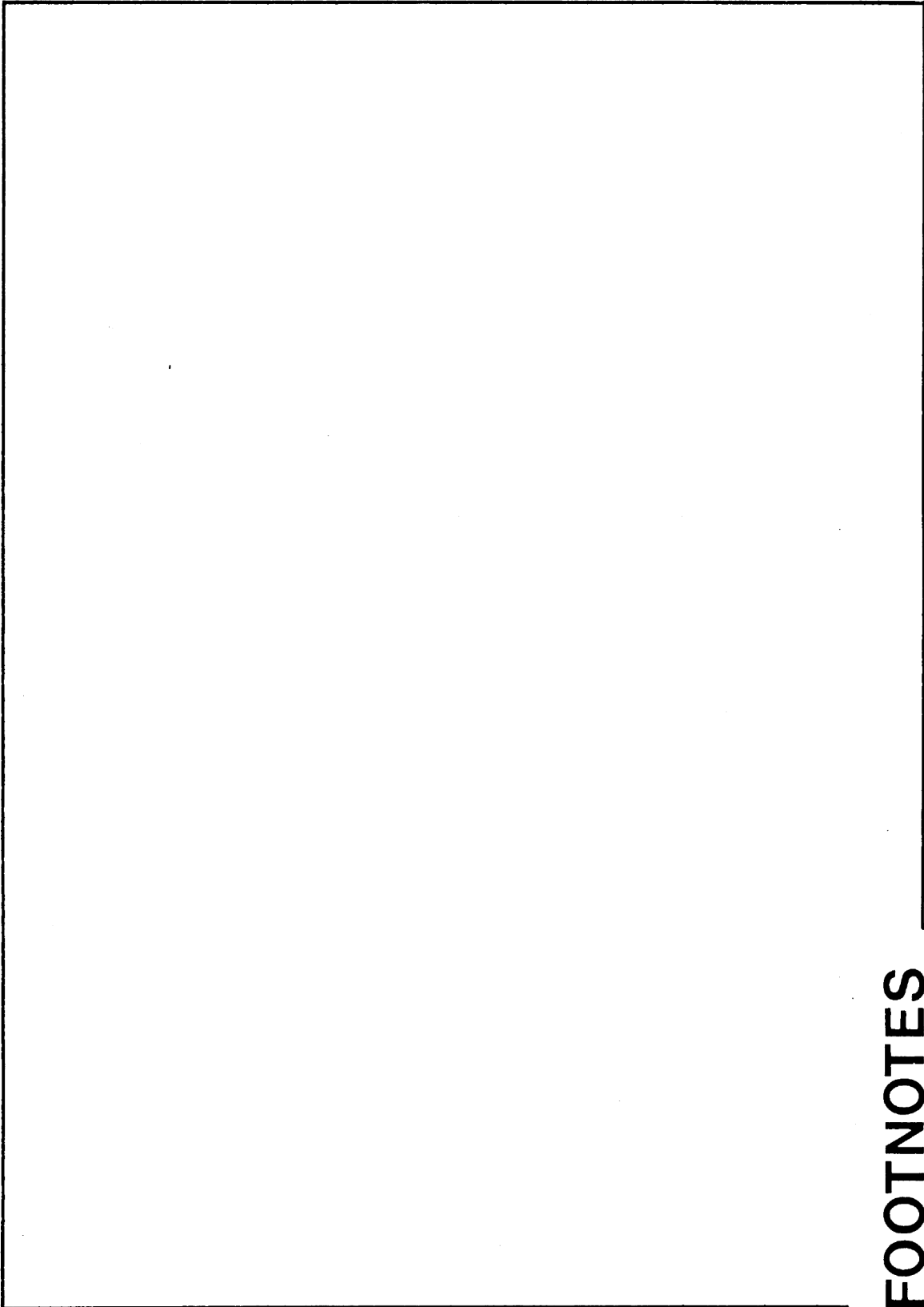
The second, though no less important, aspect of this thesis has been the identification of those issues concerning the altering

of buildings to suit uses for which they were not originally built. From my studies I have developed the following analogy which identifies what I feel are the prime concerns of adaptive-reuse architecture.

Architecture is a conversation and buildings are statements. Between the architect and his building a dialogue must exist where each aids in the development of the other. In dealing with existing buildings a third voice is added to the conversation and the statement made is that of the old building. As buildings are statements, each must speak in a voice of some volume and it is of this point the architect must be most aware. To he who builds on or in the work of his forebearers, a careful appreciation of the existing building's message, intent, and volume is the first step in any work.

To further the analogy, a building can be dull and quiet, it can be indecisive and mumbling, it can be forthright and clearly heard, or it may be bold and shouting. By understanding where, on the continuum, a building lies the architect can further understand what will be required to make his message heard. For example, to the indecisive building the architect needs only add a stroke of clarity to make obvious his intention. On the contrary, to the bold and shouting building, the best course of action may be to accept the existing message and subordinate subsequent design work to it and in support of it rather than attempt to supercede it. In a conversation where both parties shout, neither message is heard. The architect who works with existing buildings converses not only with himself and his design but also with

the architect of yesterday. The challenge of adaptive re-use architecture is that of conversing with issues spread over time, understanding what the building was and is and, through redesign, establishing what it will be.



FOOTNOTES

¹"Saving Places for People: Two Humanity Preserves," Progressive Architecture, LIII (November, 1972):75.

²John J. Morse, The City Market (Roanoke, Va.: Department of City Planning, 1965), pp. 29-36.

³Ibid., p. 97

⁴Ibid., p. 42

⁵Ibid.

⁶Ibid., pp. 47-48.

⁷"Old Gym Echoes Contests," The Roanoke Times, Market Square 100th Anniversary Edition, July 28, 1974, p. 6.

⁸Interview with William Snead, Market Operations Manager, Roanoke, Va., November, 1976.

⁹John J. Morse, The City Market, p. 36.

¹⁰Alan M. Vorhees & Associates, Inc., Downtown Development Program, Roanoke, Virginia, Report to City Engineers, Roanoke, Va., 1969 (McLean, Va.: Alan M. Vorhees & Associates, Inc., 1969), p. 16.

¹¹Interview with Harold H. Hopper, Ph.D., President of Virginia Western Community College, Roanoke, Va., November, 1976.

¹²Canam Hambro: 5|Hambro Composite Steel Joist Floor/Roof, Mid-Atlantic Hambro, Inc., Baltimore, Maryland, 1975, pp. 8-9.

¹³Manual of Steel Construction (New York: American Institute of Steel Construction):2-7.

¹⁴Ibid., 1-13.

¹⁵John H. Callender, ed., Time-Saver Standards for Architectural Design Data (New York: McGraw-Hill Book Co., 1973):282.

¹⁶Ibid.

¹⁷Ibid., 819.

¹⁸Ibid., 820.

**PEOPLE AND READINGS
OF INFLUENCE TO BOTH DESIGN AND TEXT**

PEOPLE

William Brown--Committee Chairman

Fernando Ruiz--Committee Member

Choudhury Salahuddin--Committee Member

Dr. Richard Chase, Adjunct Professor, Johns Hopkins University

L. Hannabas, Butcher

Robert Heterik, Professor, Virginia Polytechnic Institute and State University

William Hill, Director, Downtown Roanoke, Inc.

Harold H. Hopper, Ph.D., President, Virginia Western Community College

William W. Snead, Operations Manager, City Market

and

The shoppers and vendors of the Roanoke Market who, through their openness and friendliness, helped me come to know the true value of the Roanoke Market.

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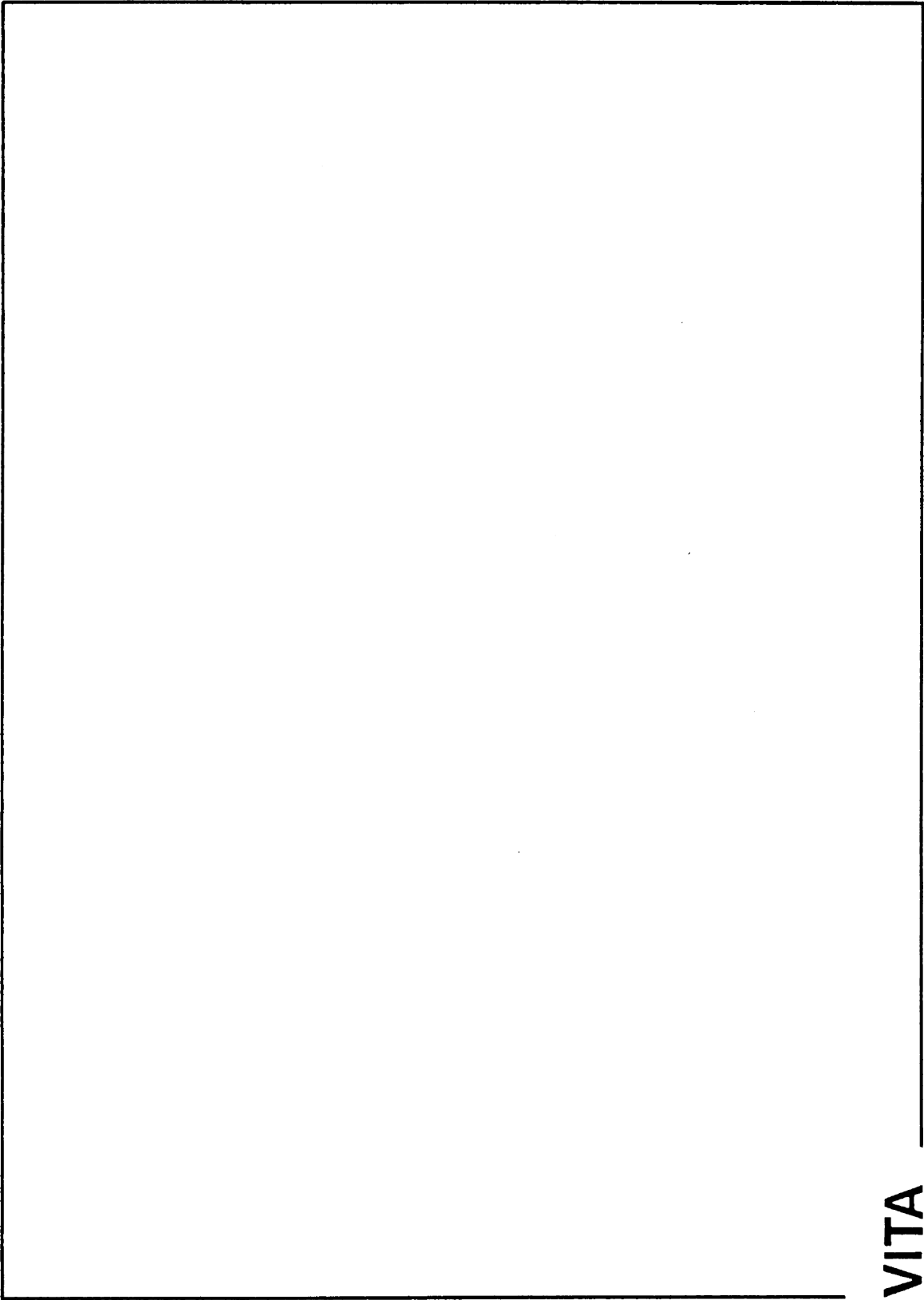
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ROANOKE NEW MARKET--A CASE STUDY IN

ADAPTIVE-REUSE ARCHITECTURE

by

Christopher Cooke-Yarborough

(ABSTRACT)

This thesis concerns the revitalization of the Roanoke City Market Building, an historic structure in the heart of downtown Roanoke, Virginia. Generated in two parts this thesis first explains the rationale for saving the building and the strategy developed to that end. Secondly, the building design is presented, showing in physical terms, the possibilities of the Roanoke New Market, a building adapted for re-use.