

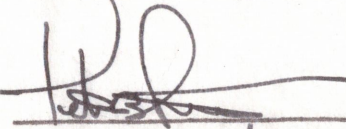
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A handwritten signature in dark ink, appearing to be 'R. D.', written over a horizontal line.

Date

June 10/76

A SELF INITIATING RESEARCH-DESIGN-PRODUCTION OPERATION

by

PETER B. STEIN

A thesis submitted in partial fulfillment
of the requirements for the degree

of

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THESIS STATEMENT

Now has come a time for design to operate as an agent of cultural synthesis. Design meaning the conscious creation of artifacts in a cultural context.

Many conditions both environmental and social are beginning to be felt simultaneously in the reshaping of man's identity in relation to his fellowmen and his environment. In turn these are causing industry, institutions and professions to adjust their roles also. American interest in environmental and ecological issues was not ignited until the publishing of Rachel Carson's Silent Spring in 1962. But not until recently has the man-environment issue assumed a quality of urgency. The doubling of the cost of Mid Eastern oil in 1973 was the economic blow which awakened many Americans to the realization that a new philosophy of conservation was needed. Unlimited growth and materialism were going to have to end. But the problem is not so simple as this. Out of the sixties came the beginnings of a new awareness which countered the same growth-materialism philosophy, but for entirely different reasons. In the sixties both growth and materialism were going strong, so much so that people began to lose themselves in it. Life was losing its meaning. Young people began to reject the traditional American way of life.

"There were few jobs which combine meaningful and important work and self-fulfillment. The traditional American response to this problem has been materialism; workers who can't find self-respect and dignity in their work search for it through material possessions -- the

two cars, the color TV, the house in suburbia. Yet this is the road most young people have rejected." (1)

Also thrown into the equation for the new orientation were the reactions to the Vietnam War, the economic recession of the 70's, and the uncovering of corruption in the government by the Watergate incident.

So in a nutshell the picture presented to us today is all of these points of stress -- rising population, limited energy resources, increasing pollution, limited food production and the social identity crisis -- converging simultaneously upon us and demanding some kind of comprehensive, harmonious solution. Where are the solutions to come from? Just what exactly are the problems? Potentially part of the answer could come from the design professions, but the design professions today have their own specific internal problems which are restricting their ability to deal directly with the important comprehensive problems. So now the complexity is even further compounded when we have to consider these internal issues. Perhaps the most important problem of the architectural profession is that historically it has mainly been concerned solely with an economic elite. Most middle income housing is not the result of a direct user-architect relationship. It is either indirect through a developed-landlord or non-existent as in the case of mobile homes and tract house developments.

In 1968 at the annual AIA Convention in Portland, Oregon, this condition was brought forth strongly by Whitney

Young, Executive Director of the National Urban League when he charged the AIA with lack of involvement and professional concern in the social problems of the inner city. Whitney Young's statement initiated more concern in the AIA and it stimulated the growth of CDC's -- Community Design Centers -- in American cities. To date the CDC's have proven to be quite inefficient and the problems still exist.

More and more industry turned to mass production in taking over the middle income architectural scene. This situation coupled with the repressed economy is causing the established profession of architecture to do some rethinking as to advertising and expanding services into design-build operations. In this way they might begin to compete or at least hold their own ground against the package builders and mass producers.

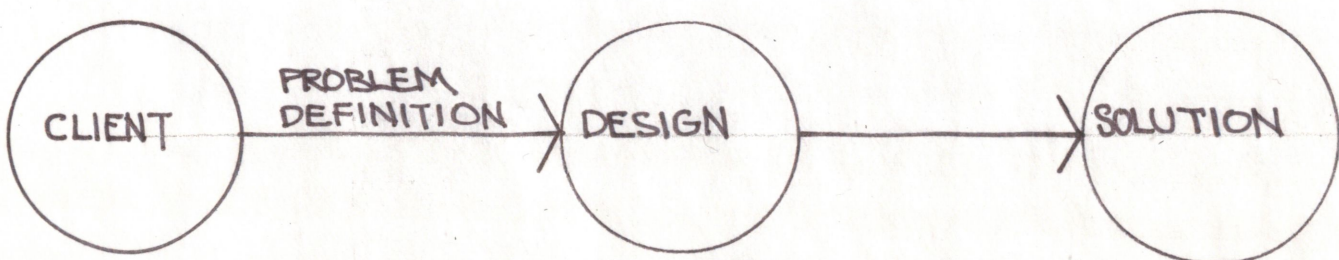
"A major debate on the future of the profession has been quietly building. It began with a search for guidelines for architects' involvement in design-build-bid situations and other forms of combined design and construction services." (2)

As a direction toward solving these many and inter-related problems, I am proposing that persons of expertise in architecture, engineering, ecology, and sociology, to name a few, peel off from their traditional working role to an alternative direction involving more personal initiative in both the defining and solving of these problems. Buckminster Fuller states it very clearly:

"The responsibility for man's interim - survival success on Spaceship Earth falls to the gradually increasing use of man's intuition and intellect. The present urgency of man's problems poses quite a challenge to that intellect. But only under the stresses of total social emergencies thus far demonstrated by man do the effectively adequate alternative technical strategies synergetically emerge. Here we witness mind over matter: Man is unique among all living phenomena as the most adaptable omnienvironment, exploring, and operating organism.

So, planners, architects, and engineers take the initiative. Go to work, and above all don't try to gain at the expense of another. Any success in such lopsidedness will be short lived. These are the synergetic rules that evolution is employing. And they will give us the flight controlling capabilities in bringing all of humanity in for a happy landing." (3)

The change I am proposing for an alternative design practice mainly involves a change in the problem definition mechanism of the design process. Traditionally the problem definition mechanism has involved the initiative of a particular client.



The client might need a home, a hospital, a school, a housing structure, etc. In this situation the client's view of the problems are usually not very comprehensive. He is usually interested in relatively short term incentives. The enlightened, traditional architect might try to steer him toward solar energy or a high density, cooperative type of facility, but in general he pretty much ends up doing what the client wants. So the basic problem is that the clients are not defining their projects in response to the numerous and interrelated factors that must be considered if we, (man), are to get ourselves out of the mess we have gotten ourselves into. I propose that the problem definition mechanism be changed to an activity of inquiry and research.

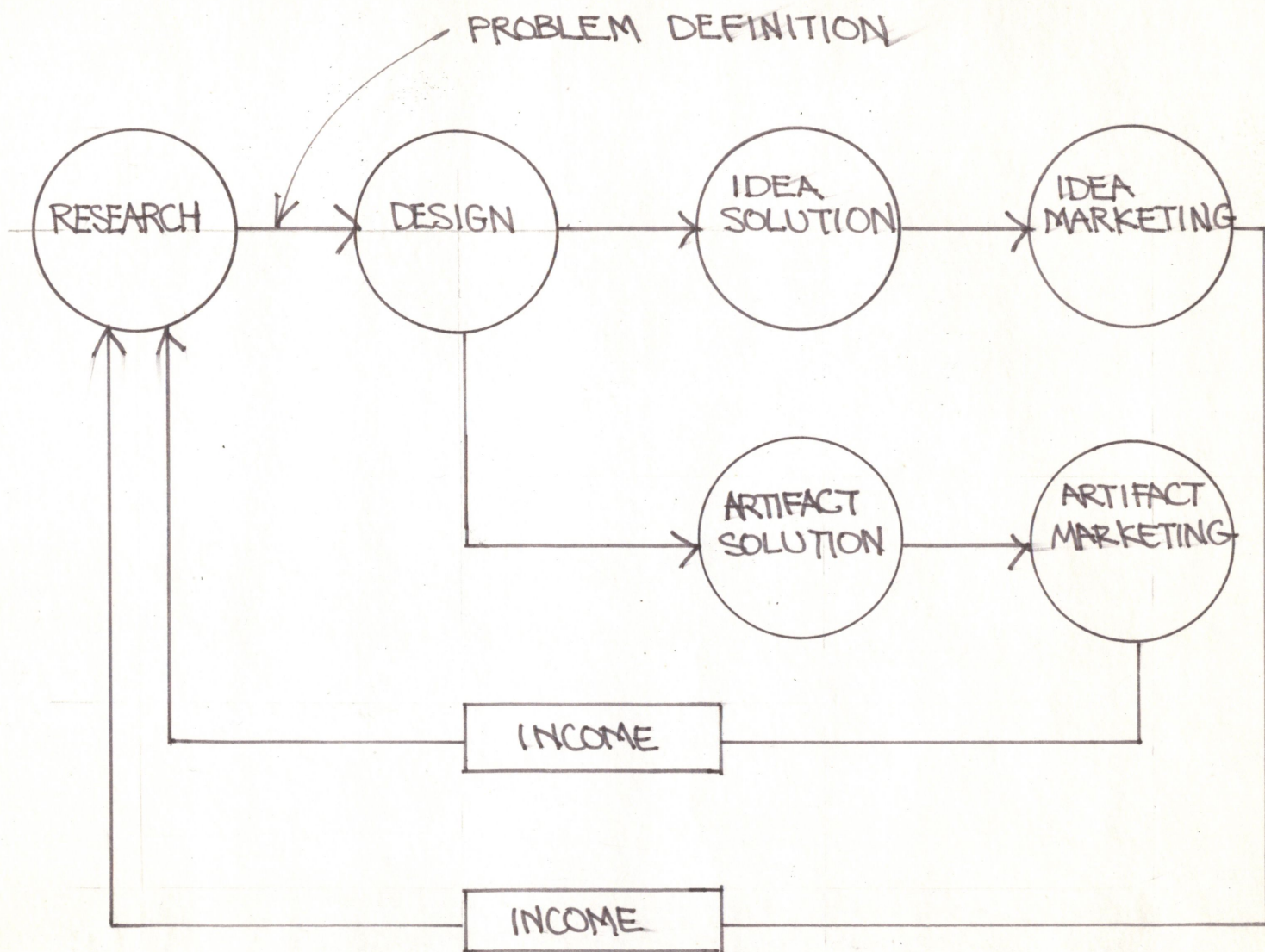
Architects could begin to study and assess the conditions of man-environment and begin to develop comprehensive problem definitions from which meaningful solutions could be developed. It is basically a process of the architect taking the initiative at problem definition and solution rather than waiting for a client.

Again, Buckminster Fuller was thinking along these lines when he wrote, "Architects might solve design problems of world-resource use before people get into resource troubles. Architects might thus join forces, as do scientists with the integrity of inter-self accrediting of the respective abilities of each individual on the team.

Architects might begin the laboratory pooling of their resource capabilities at the university level." (4)

If we have a self-initiating research and design operation excluding the income producing clients, an alternative form of supportive income must be devised.

I propose that the research-design operation work in alliance with some various fabrication shops producing in limited production runs, artifacts which would be marketed both in the facility itself and in external shops in other cities. The research and design operation could then be broadened to include work on the artifacts being produced as well as the architectural ideas. So we begin to have a fairly generalized research-design-build operation determining its own directions. The production runs on particular artifact designs would furnish an opportunity to develop an effective apprenticeship training program. Production line experience would rapidly develop the technical skills of the apprentices. Learning experiences could be maintained by the trading off of tasks during particular production runs. In this way the entire operation from the production shops to the research studios would provide those involved with a meaningful and educational working experience. The conceptual structures would look as follows:



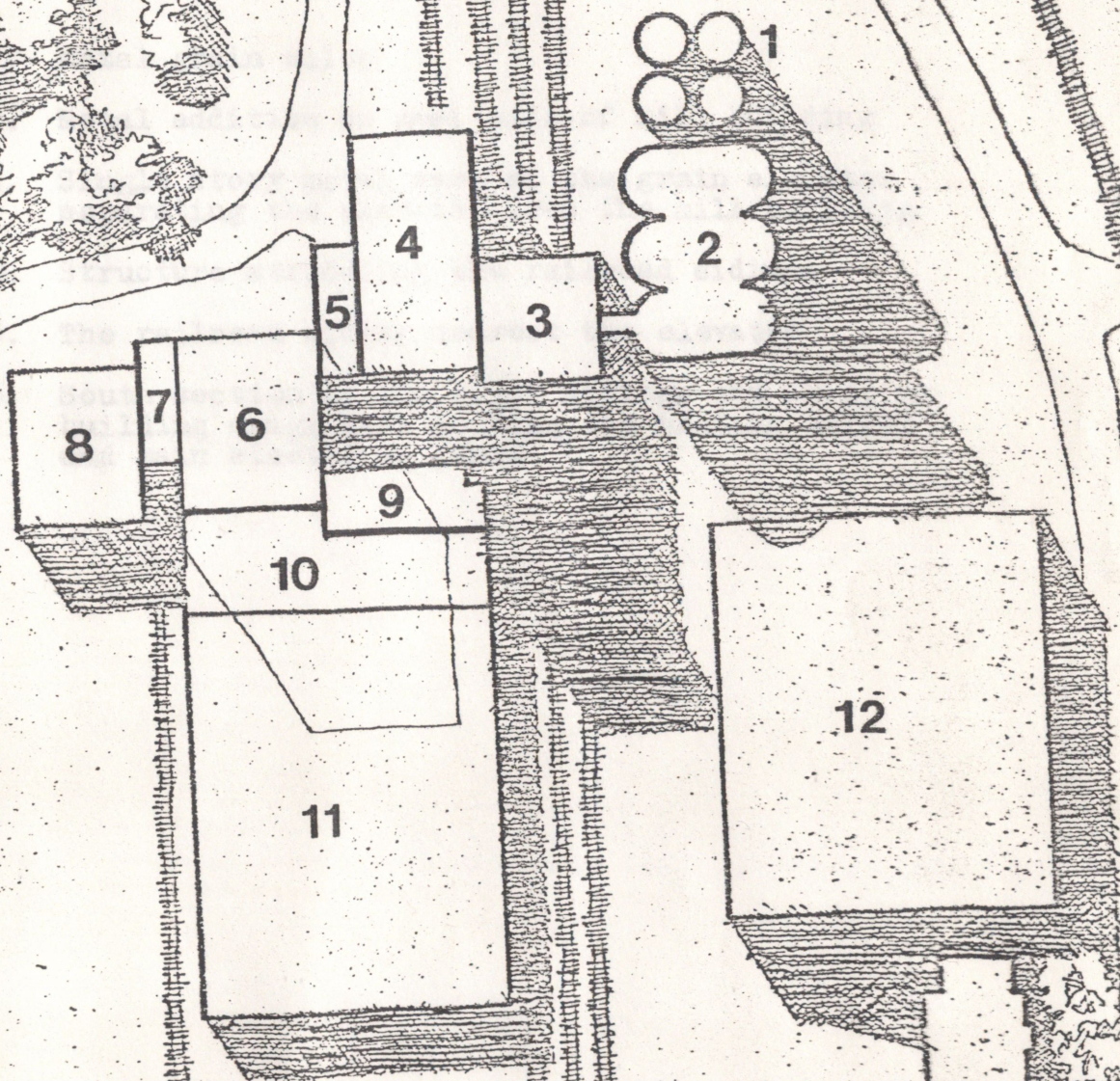
A HYPOTHETICAL APPLICATION
OF A SELF INITIATING RESEARCH
AND DESIGN OPERATION

I discovered an old flour mill local to the Bozeman, Montana, area which was being phased out of operation. Having generous spaces suitable for workshops and design studios, it seemed to be ideal for the program. Also, it had already numerous railroad sidings and loading platforms so it began to seem analagous to a great shipping port capable of sending artifacts to almost any part of the country. And, too, a re-use project is usually a much more efficient route to go in terms of energy and resource conservation in the construction process.

The existing uses for the mill complex are as follows:

1. Metal grain storage silos
2. Concrete grain storage silos
3. Single story, wooden, grain loading shelter
4. 7 story wood and metal grain elevator
5. 1 story metal truck dumping shelter
6. 6 story brick milling building
7. 6 story brick milling building
8. 2 story brick storage and administrative building
9. 1 storage mechanical room
10. 2 story flour processing
11. 1 story flour storage and shipping
12. 1 story metal grain storage building

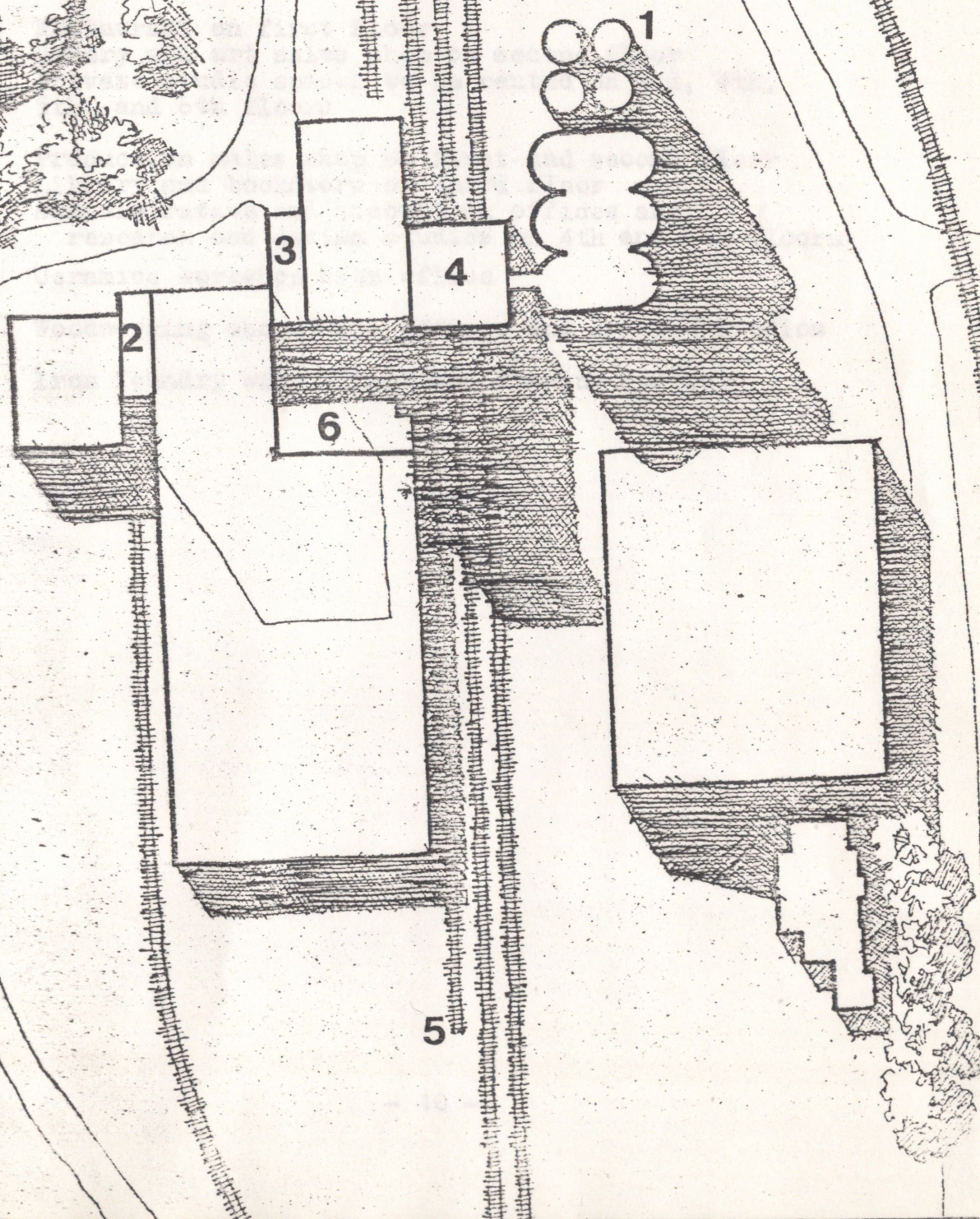
EXISTING USES



PARTS TO BE REMOVED

1. Metal grain silos
2. Metal addition on east side of mill building
3. Single story metal part of the grain elevator separating the elevator from the mill building
4. Structure straddling the railroad sidings
5. The railroad siding nearest the elevator
6. South section of the brick storage and shipping building originally housing the heating boiler and main electrical panel

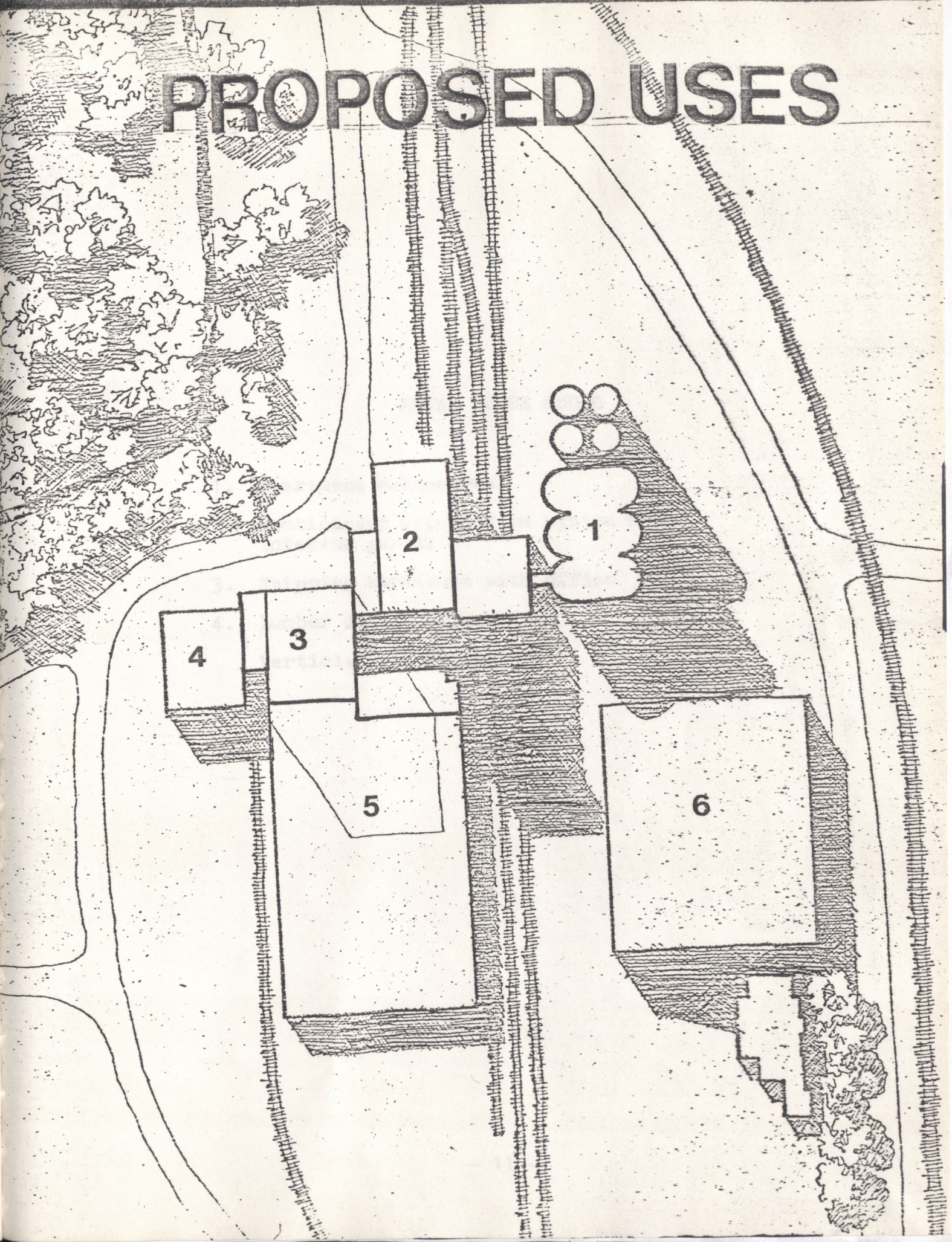
TO BE REMOVED



PROPOSED USES

1. Apartments
2. Restaurant on first floor
Bakery and art sales shop on second floor
Private studio spaces to be rented on 3rd, 4th, 5th, and 6th floors
3. Production sales shop on first and second floor
Library and bookstore on third floor
Administrative and accounting offices and research and design studios on 4th and 5th floors
4. Ceramics workshop with office
5. Woodworking shops with offices and drawing studios
6. Iron foundry with office and drawing studio.

PROPOSED USES

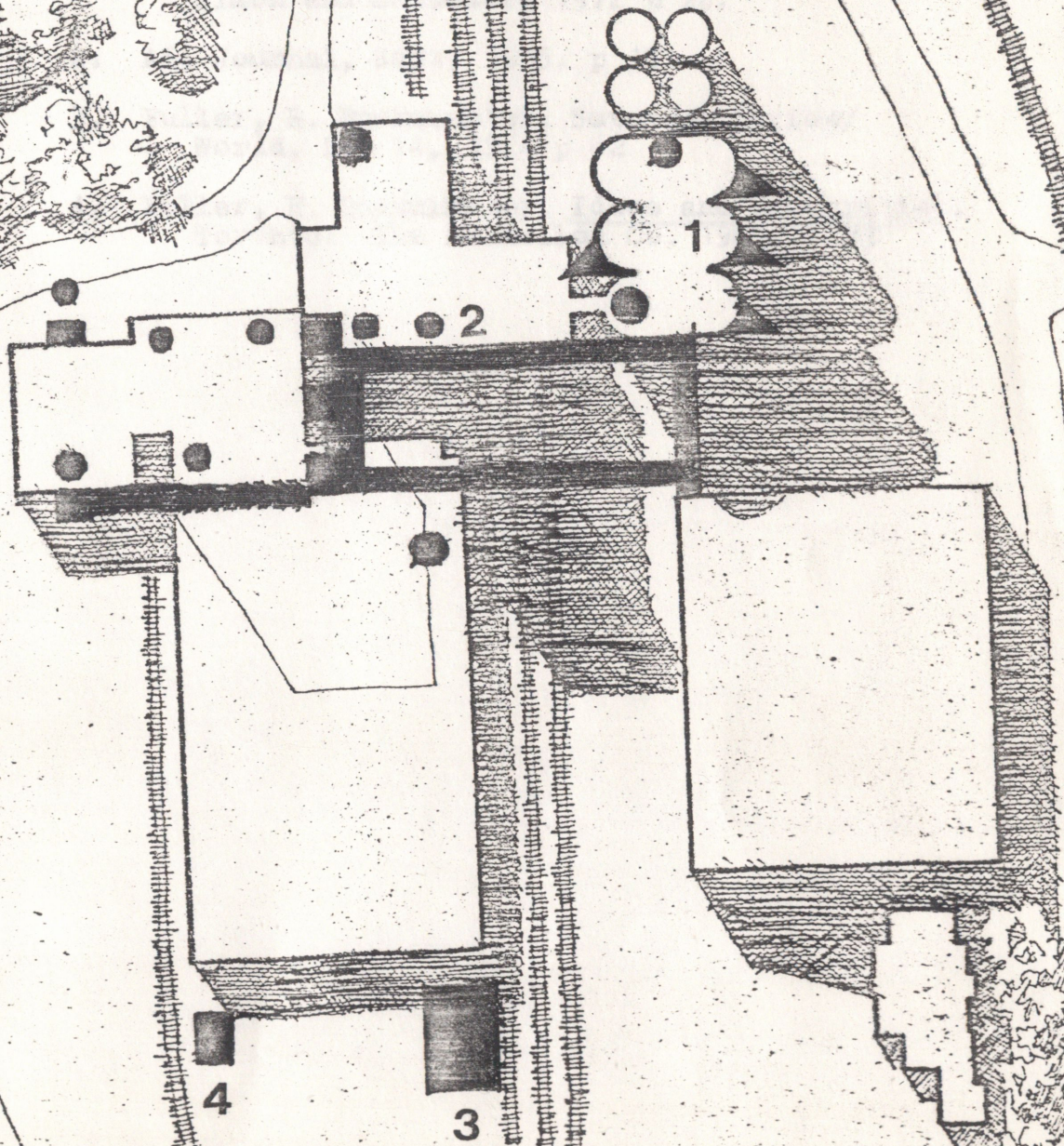


PARTS TO BE ADDED

1. Apartment extensions
2. Rectilinear circulation system with interior garden
3. Shipping warehouse with office
4. Lumber drying kiln

Verticle circulation

PARTS TO BE ADDED



FOOT NOTES:

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3. Fuller, R. Buckminster, Saturday Review/
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Laws Rules and Regulations Applicable to the Practice of
Architecture in the State of Montana. State of
Montana Board of Architects.

RESEARCH RESOURCE PEOPLE

Rick Applegate - Director, Center for the Public Interest

Dick Forte - Manager, Caird Engineering Works, Helena
(a foundry)

Dave Cornell - Director, Archie Bray Foundation, Helena

Dr. Terry Anderson - Professor of Economics, MSU

Dr. Jerry Calvert - Professor of Government, MSU

Doug Rand - Local architect

Olsen Springer Group - Local Architectural Firm

Don McLaughlin - Architect staff & local architect

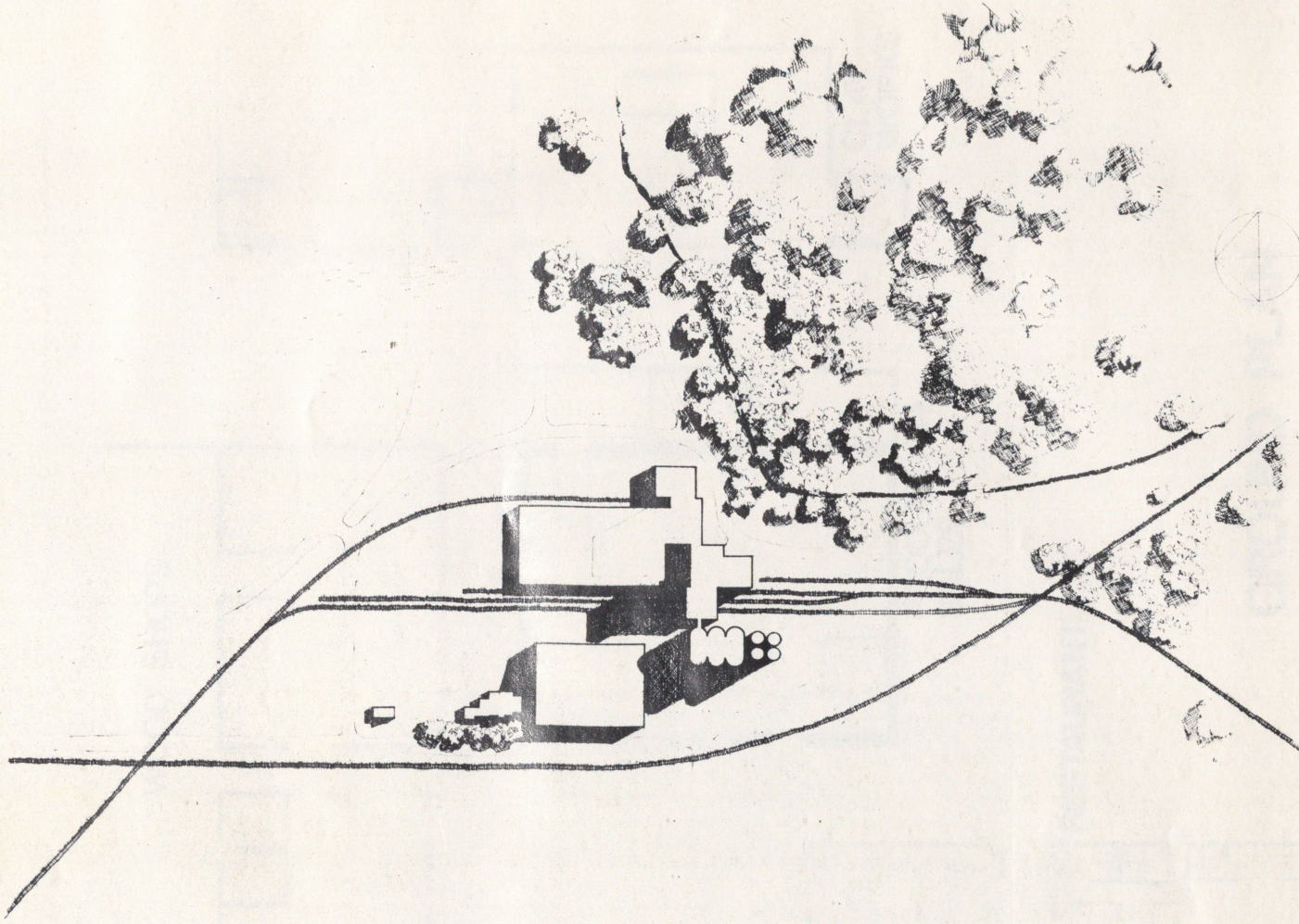
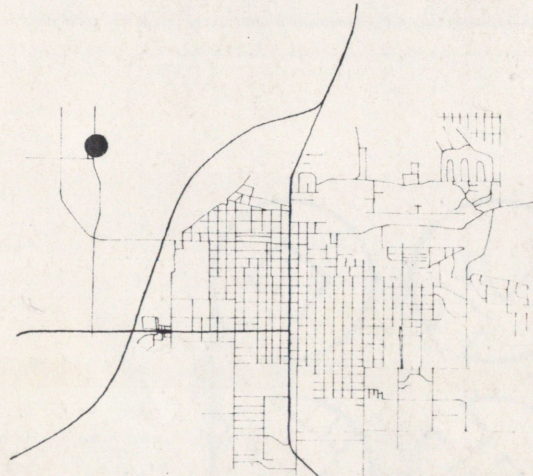
Logan Testor - Caretaker of the formerly Story Flour Mill,
Bozeman

Harold Rose' - Dean of Professional Schools, MSU

Professor Reinvald - Director, School of Architecture, MSU

THE MILL WORKS

A SELF-INITIATING
DESIGN AND RESEARCH COMPLEX
AT BOZEMAN MONTANA



FOUNDRY

WOOD SHOPS

paint room

storage

salt and
raku kilns

shuttle
kiln

storage

electric
kilns

CLAY
WORKS

office

clay
mixing

pug mill

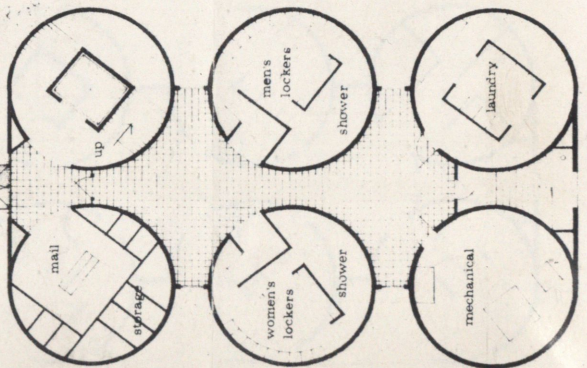
clay
storage

PRODUCTION
SALES

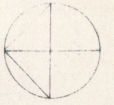
COURTYARD

RESTAURANT

kitchen

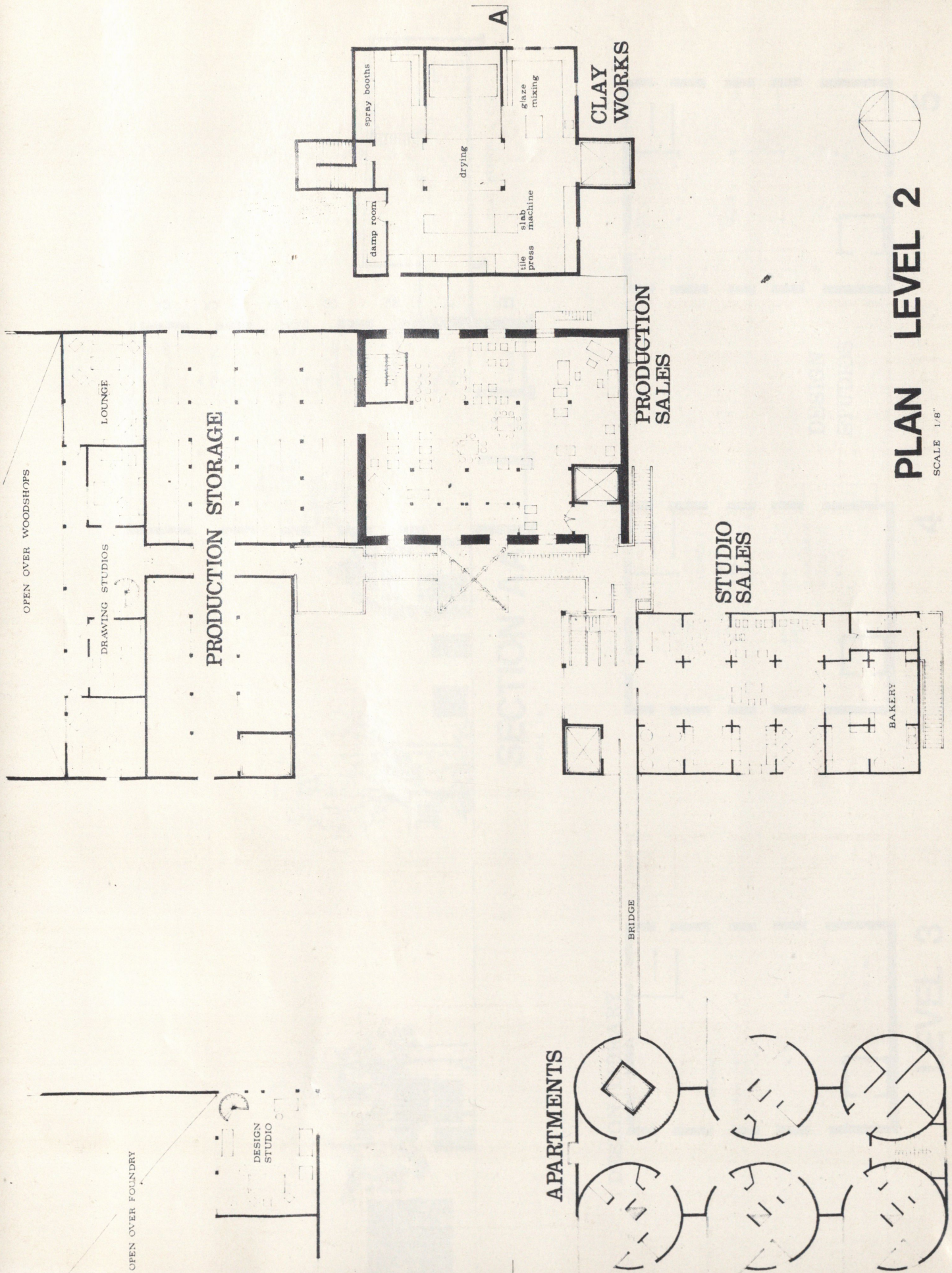


SERVICES



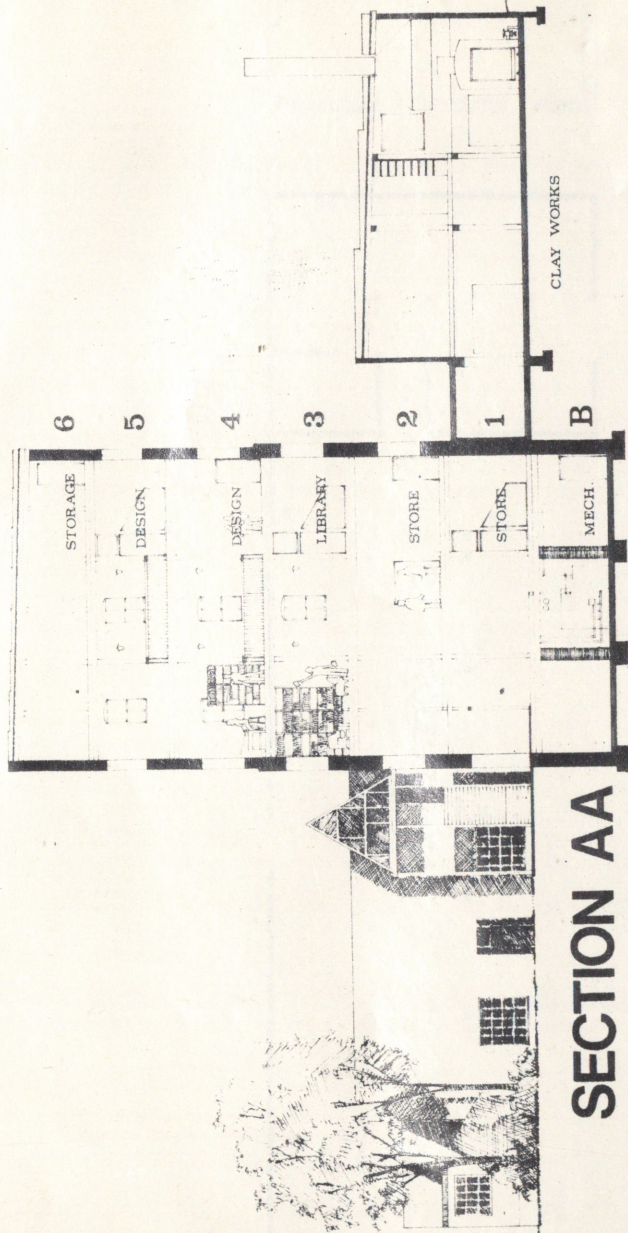
GROUND PLAN

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PLAN LEVEL 2

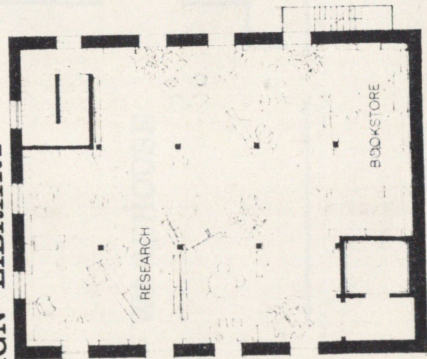
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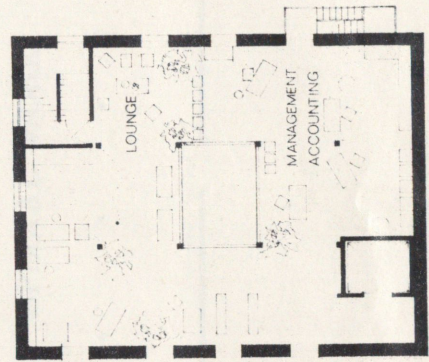
SECTION AA

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DESIGN LIBRARY

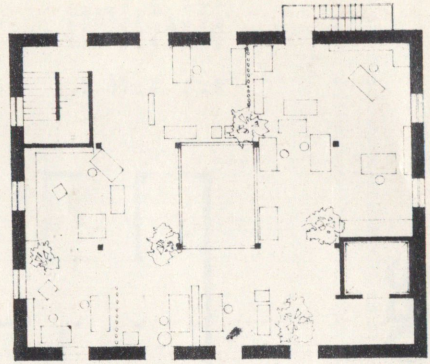


LEVEL 3

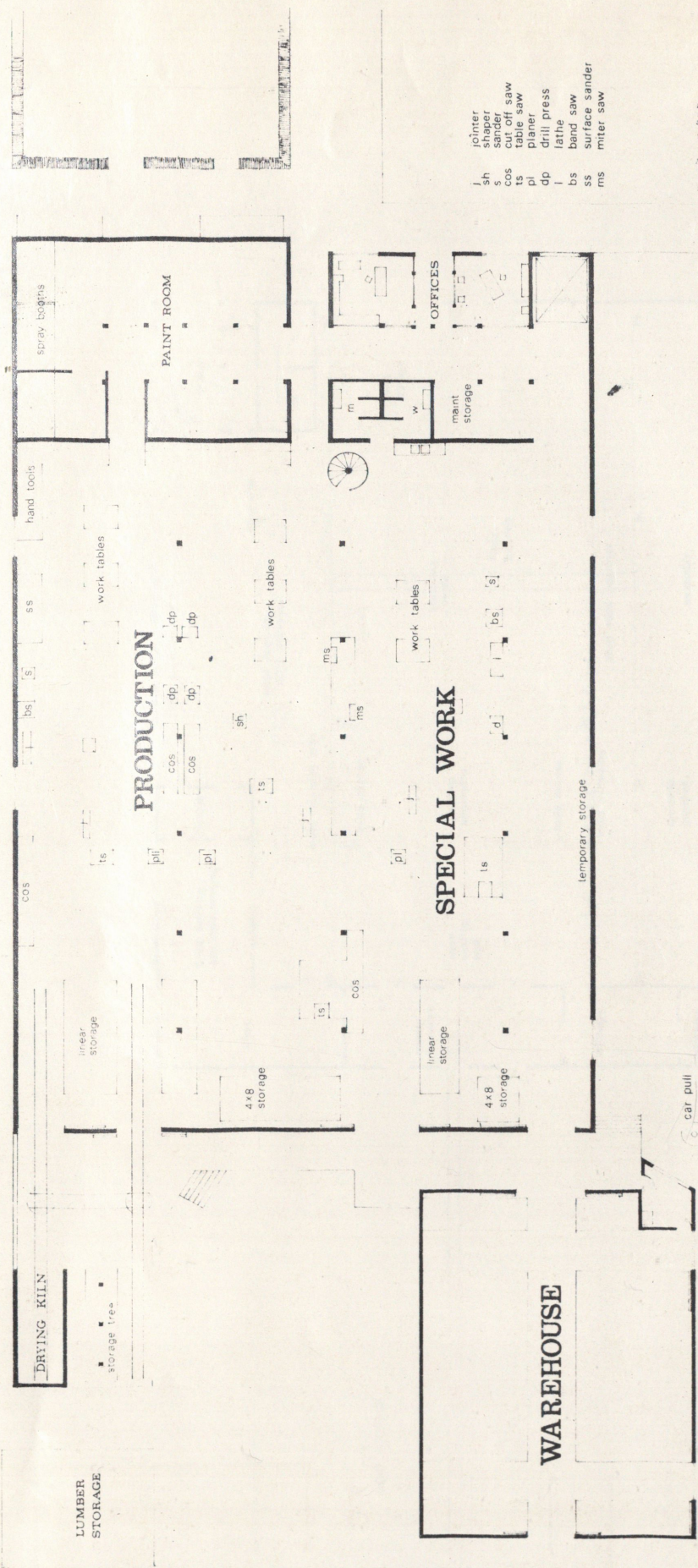


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DESIGN STUDIOS

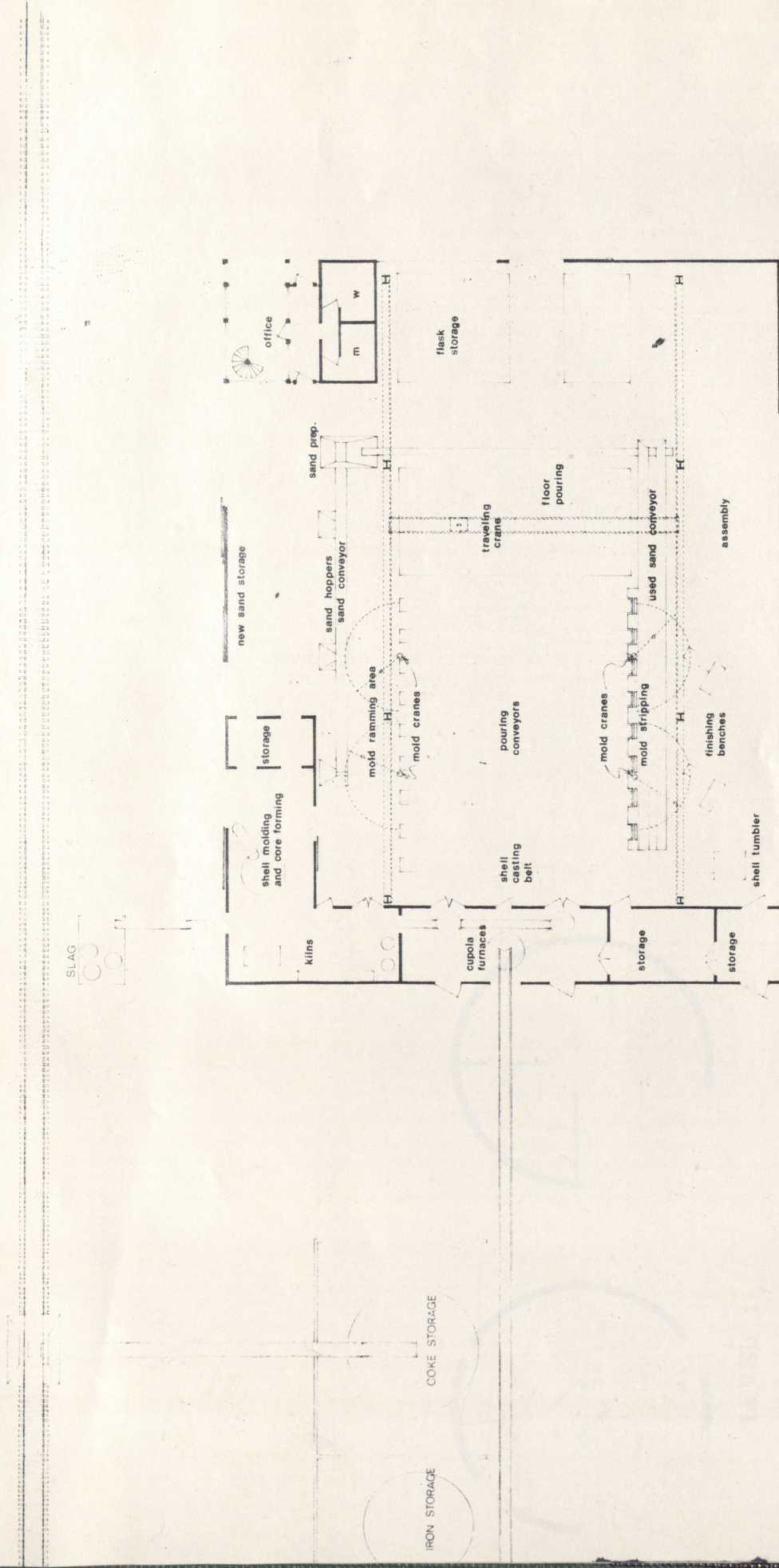


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WOOD SHOPS

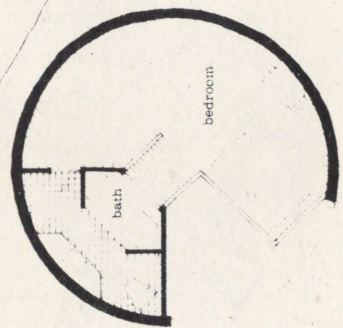
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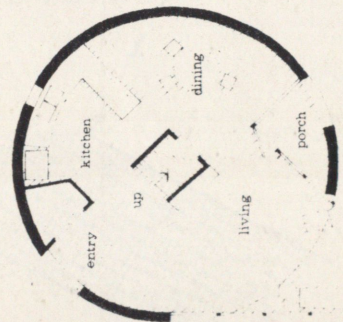
IRON FOUNDRY

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SILO APARTMENTS



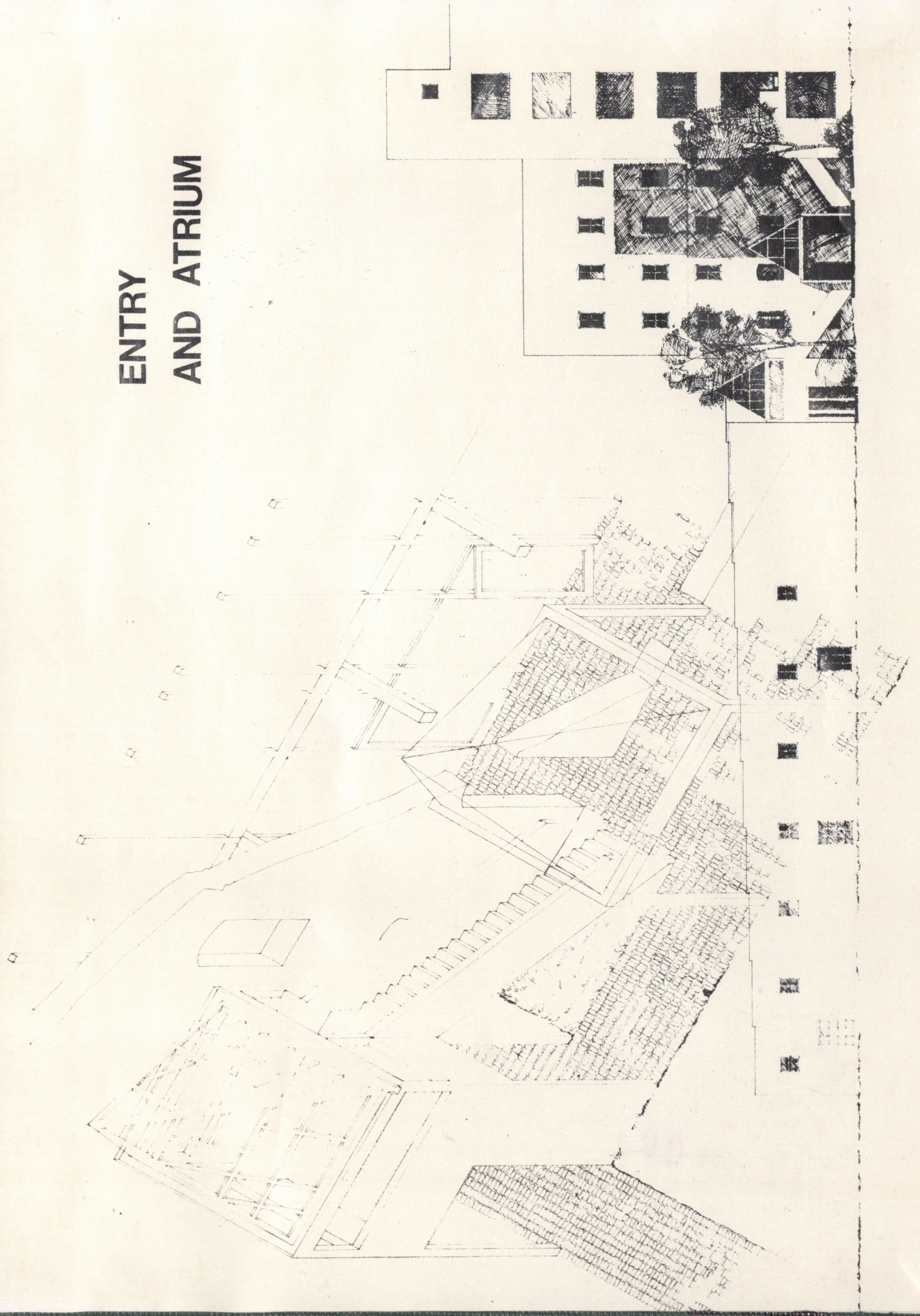
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LEVEL 1

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ENTRY AND ATRIUM



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