Willamette Industrial History Museum

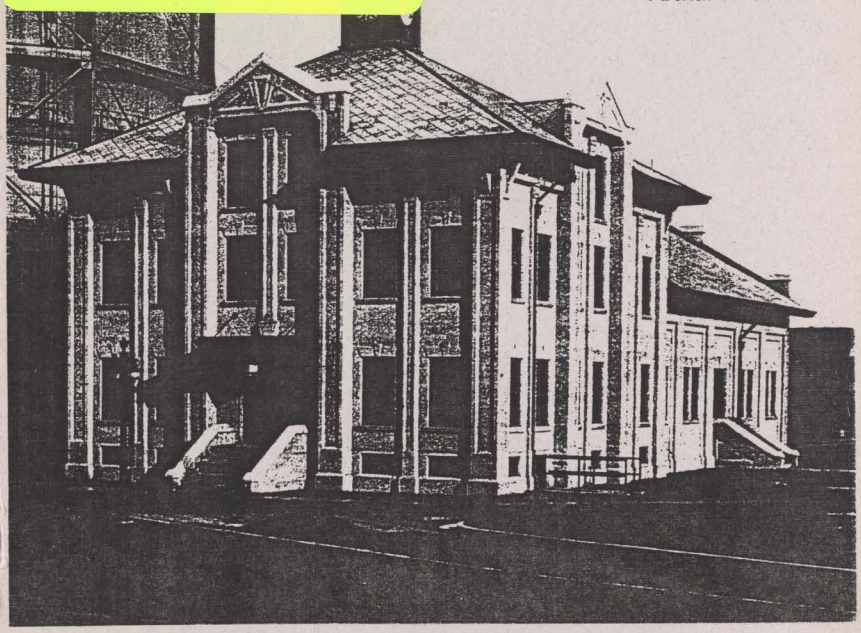
Historic Preservation - Adaptive Reuse Project for the Portland Gas & Coke Building

Portland Urban Architecture Program
University of Oregon

Terminal Research/Design Project
Peter A. Keyes, Faculty Advisor

Final Project Summary
Spring Quarter 1997

Arthur J. Cole



TERMINAL PROJECT CERTIFICATE OF COMPLETION

STUDENT: Arthur J. Cole

TERMINAL PROJECT TITLE: Willamette Industrial History Museum

Historic Preservation - Adaptive Reuse Project for the Portland Gas & Coke Building

ADVISOR: Peter A. Keyes

ADVISOR'S SIGNATURE
Certificate of Completion

5-30-97
DATE

NOTE: The Terminal Project, required of all Option II students in Architecture, is intended to be an opportunity for Option II students to pursue research/design interests and synthesize such interests in a documented project to be retained by the Department and by the AAA Library. The Advisor's Signature (above) is a statement of the satisfactory completion of the Terminal Project requirement.

Students should mount this form as the first page of the Terminal Project. This signed form, with the two copies of the Terminal Project, must be presented to the Department's Administrative Assistant for Curricula no later than 5:00 PM during the Friday of Final Exam Week the term of anticipated graduation.

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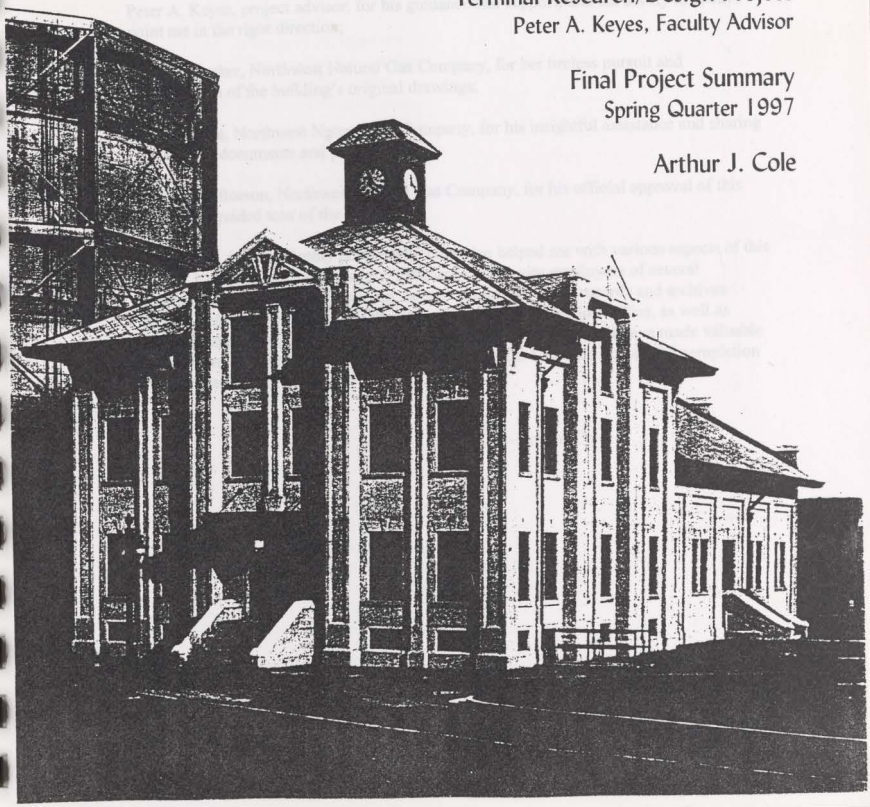

Acknowledgments

This project began with the accidental sighting of a beautiful historic building, and now, almost two years later, ends with this summary report. It has been an enjoyable and educational experience. Along the way I've received help and encouragement from many people; I gratefully acknowledge the invaluable contributions of the following:

Peter A. Keyes, project advisor, for his guidance and support, and the ability to always point me in the right direction;

Myra M. Parker, Northwest Natural Gas Company, for her tireless pursuit and apprehension of the building's original drawings;

Ross A. Lisle, Northwest Natural Gas Company, for his insightful assistance and sharing of historical documents and photographs;

Daniel J. Haftorson, Northwest Natural Gas Company, for his official approval of this project and guided tour of the building.

There are dozens of other people who have also helped me with various aspects of this project. Library staff at the Oregon Historical Center, city employees of several departments in the Portland Building, county employees at the records and archives division, preservation officials at the State Historical Preservation Office, as well as architects, engineers, and others with specific areas of expertise; all have made valuable contributions in time and effort. It is to all of them that I owe the successful completion of this project.

--Arthur Cole

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Introduction

I had been living in Portland only a few weeks and was driving North on Highway 30 to look at the St. Johns Bridge; I was told it was the most beautiful of Portland's bridges. I could see the bridge in the distance but it was something else that suddenly caught my attention. Off to the right of the highway was what looked like an old schoolhouse. It was a two-story concrete building with a clock tower. I quickly pulled off the highway onto a driveway to take a closer look at the building. I wasn't able to get very close to it, but I knew I had found something special.

The building, I later learned, was the old office and laboratory building of the Portland Gas & Coke Company, what it now the Northwest Natural Gas Company. The company still owns the building but has not occupied it for many years. The fifteen-acre plot of land around it is still used by the company and has several large natural gas storage tanks as well as one very large tank which holds liquefied natural gas. Portions of the land are currently leased to other companies. After learning more about the building, I decided to use the building as the topic for a research and design project to satisfy the Option II research requirement in the University of Oregon, Portland Urban Architecture Program.

During Fall Quarter I obtained many of the original architectural drawings from the gas company and researched precedent studies using the highway, river, and industrial history of the Portland Gas & Coke Building as similarities. Many possible programs have been identified for the building and I have also tried to imagine other programs that may be viable alternatives for the building's re-use; unusual, unexpected, or unconventional uses that may successfully occur there in the future.

During Winter Quarter I finalized the choice of program; I chose to combine two of the stated possible programs to proceed with for the remainder of the project. I believe the Portland Gas & Coke Building would have the best chance for a useful and successful future in the role as the Willamette Industrial History Museum. The museum would house exhibits of historical photographs, documents, and artifacts of the area's industrial past. The present river-side industrial fabric of Portland would be included as an exhibit and accessible via tour boats on the Willamette River.

This document is the summary of research, programming, and design completed over the course of the three quarters of the 1996-97 school year.

Brief History of the Northwest Industrial District

The history of Portland's Northwest Industrial District began with an event that took place during the Summer of 1905. On June 1, 1905, the Lewis and Clark Centennial Exposition opened with 400 acres of fairgrounds planned around the shallow waters of Guild's Lake. The formal layout imitated the White City of Chicago's Columbian Exposition of 1893. The majority of the exposition's buildings overlooked the lake from the bluff on which the Montgomery Ward warehouse was later built. A wide staircase led down the slope to the lake and "The Trail," the amusement arcade where the wonders of the world were available for a dime or a quarter. A "Bridge of Nations" connected the mainland to the United States government buildings which were situated on a peninsula in the middle of the lake. The major exhibition halls followed the Spanish Renaissance style with domes, cupolas, arched doorways, and red roofs. From June 1 through October 15, over one and a half million people paid admission to the fair.

The city's business leadership gave wholehearted support to the planning and promotion of the Lewis and Clark Exposition because its purpose was a bigger and better Portland. It could give Portland an edge in the ongoing competition with Seattle and confirmed the city as a commercial center for the Pacific. The official title of the event was the "Lewis and Clark Centennial Exposition and Oriental Fair." When Oregonians of today speak about the importance of trade with the Pacific Rim, they are reiterating ideas that were common ninety years ago.

At the close of the Exposition, civic boosters had many things to be proud about. The Exposition, in the words of Harper's Weekly, "marked the close of an old epoch and the beginning of a new one for Portland." The Exposition had helped launch a boom in both business and population. The annual value of new construction quintupled between 1905 and 1910 and Portland's population passed 200,000 by 1910. Local manufacturing expanded in the same years, especially in lumber, wood products, and furniture, but the biggest growth was in trade and transportation.

Guild's Lake was gradually filled in after the close of the Exposition and new industry began to be built. The area's prime location on the banks of the Willamette River attracted many businesses that would take advantage of Portland's new-found fame as a trade center of the Pacific. Only the "Forestry Building" from the Exposition remained, but this too eventually succumbed to fire. Today, there is nothing left of the Exposition on its original site. But the effects of the Exposition are still there, the area is Portland's biggest and healthiest industrial zone.

Brief History of the Portland Gas & Coke Company

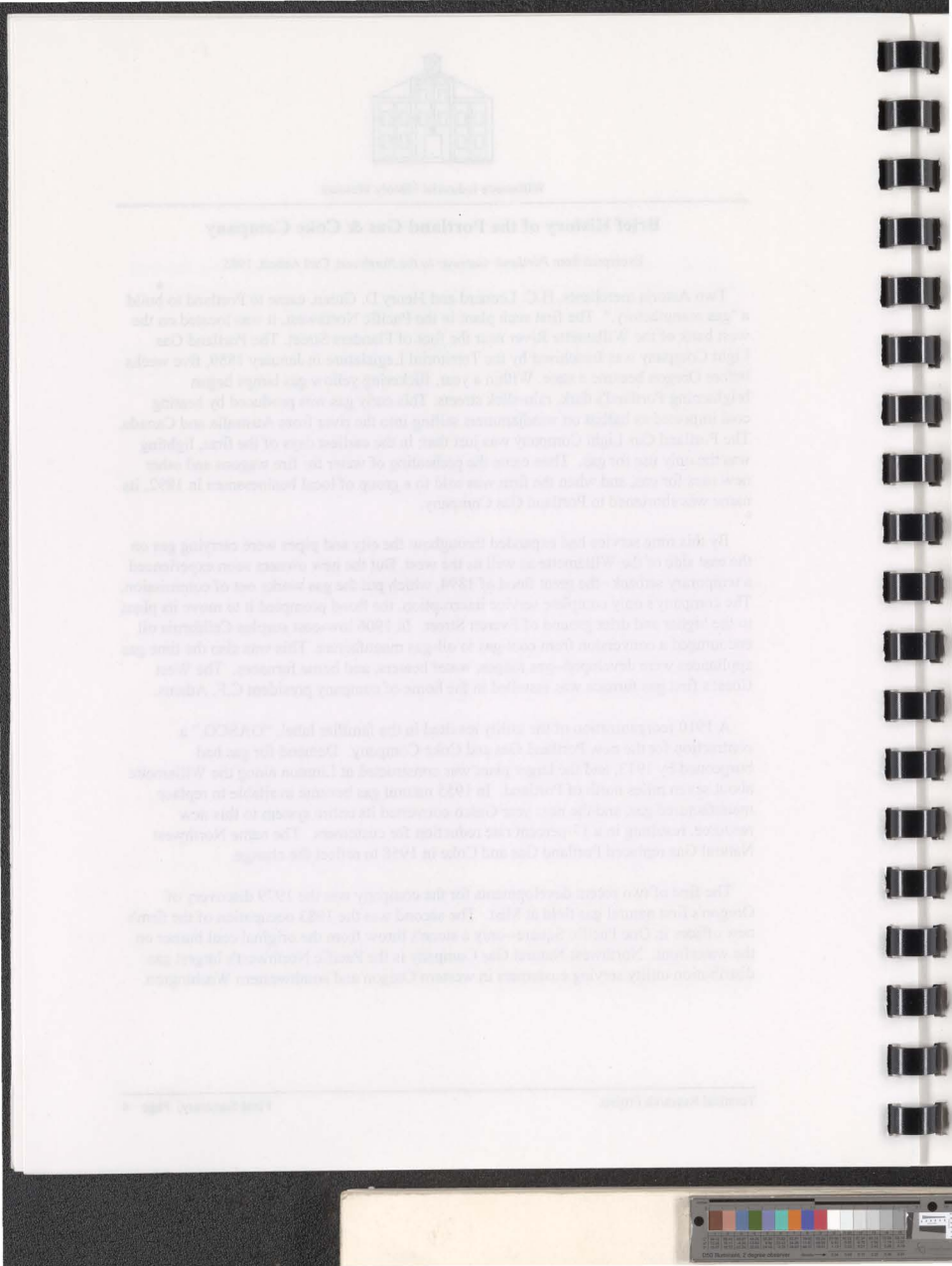
Excerpted from *Portland: Gateway to the Northwest*, Carl Abbott, 1985

Two Astoria merchants, H.C. Leonard and Henry D. Green, came to Portland to build a "gas manufactory." The first such plant in the Pacific Northwest, it was located on the west bank of the Willamette River near the foot of Flanders Street. The Portland Gas Light Company was franchised by the Territorial Legislature in January 1859, five weeks before Oregon became a state. Within a year, flickering yellow gas lamps began brightening Portland's dark, rain-slick streets. This early gas was produced by heating coal imported as ballast on windjammers sailing into the river from Australia and Canada. The Portland Gas Light Company was just that; in the earliest days of the firm, lighting was the only use for gas. Then came the preheating of water for fire wagons and other new uses for gas, and when the firm was sold to a group of local businessmen in 1892, its name was shortened to Portland Gas Company.

By this time service had expanded throughout the city and pipes were carrying gas on the east side of the Willamette as well as the west. But the new owners soon experienced a temporary setback--the great flood of 1894, which put the gas works out of commission. The company's only complete service interruption, the flood prompted it to move its plant to the higher and drier ground of Everett Street. In 1906 low-cost surplus California oil encouraged a conversion from coal-gas to oil-gas manufacture. This was also the time gas appliances were developed--gas ranges, water heaters, and home furnaces. The West Coast's first gas furnace was installed in the home of company president C.F. Adams.

A 1910 reorganization of the utility resulted in the familiar label, "GASCO," a contraction for the new Portland Gas and Coke Company. Demand for gas had burgeoned by 1913, and the larger plant was constructed at Linnton along the Willamette about seven miles north of Portland. In 1955 natural gas became available to replace manufactured gas, and the next year Gasco converted its entire system to this new resource, resulting in a 17-percent rate reduction for customers. The name Northwest Natural Gas replaced Portland Gas and Coke in 1958 to reflect the change.

The first of two recent developments for the company was the 1979 discovery of Oregon's first natural gas field at Mist. The second was the 1983 occupation of the firm's new offices in One Pacific Square--only a stone's throw from the original coal burner on the waterfront. Northwest Natural Gas Company is the Pacific Northwest's largest gas distribution utility serving customers in western Oregon and southwestern Washington.



Brief History of the Portland Gas & Coke Building

By 1912 the gas plant at Front and Everett Streets had become so crowded and the location so unsuited for gas manufacturing that it became necessary to build a new plant further from the center of the city. A 46-acre site was chosen near Linnton, seven miles north of Portland, and construction began in 1913. "Having in mind the great future of the gas industry, a plant was built capable of indefinite expansion without rebuilding and built in such a substantial and impressive manner as to constitute a distinct addition to our civic buildings" (Gasco Bulletin, May 1922). The area quickly became known as Gasco, Oregon.

In designing the plant, two points were kept uppermost in the minds of the designers; firstly, to attain the highest possible efficiency in operation, and secondly, to eliminate what had been the principal complaint against the operation of a gas works in Portland, namely, dirt, soot, grimy and ugly buildings.

> "Several types of architecture were considered; the type finally selected conveys the impression of solidity, permanence and dignity, impressive both to the investor, ...and to the citizen in the community. The setting for the buildings is picturesque, namely, in the foreground, the wooded heights of spruce, hemlock and fir, and in the background, the glistening waters of the Willamette River."

> "The main buildings are of reinforced concrete, containing 1 inch sized crushed rock, which has been bush hammered on the exterior to produce the effect of granite, this process, besides being comparatively as cheap as plastering, is more permanent and produces a greatly superior effect. The roofs are of terra-cotta colored shingles, laid on the French diagonal method. Streets and driveways are provided with curbs, sidewalks, etc., and are illuminated with gas arc lamp posts" (Untitled history and inventory of Gasco Plant).

The office building is a two-story structure 50 feet x 50 feet in plan with attic and full basement. To the rear is a one-story wing 48 feet x 70 feet with exposed metal trusses and a partial basement. This building, as well as the northernmost portion of the 46-acre plot, including access to the Willamette River, constituted the extent of my research project and design proposal.

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The office building is a two-story structure 50 feet x 30 feet in plan with attic and full basement. The five rear is a one-story wing 48 feet x 70 feet with exposed metal trusses and a partial basement. This building, as well as the independent portion of the 46-acre plot, including access to the Willamette River, constituted the extent of my research project and design proposal.

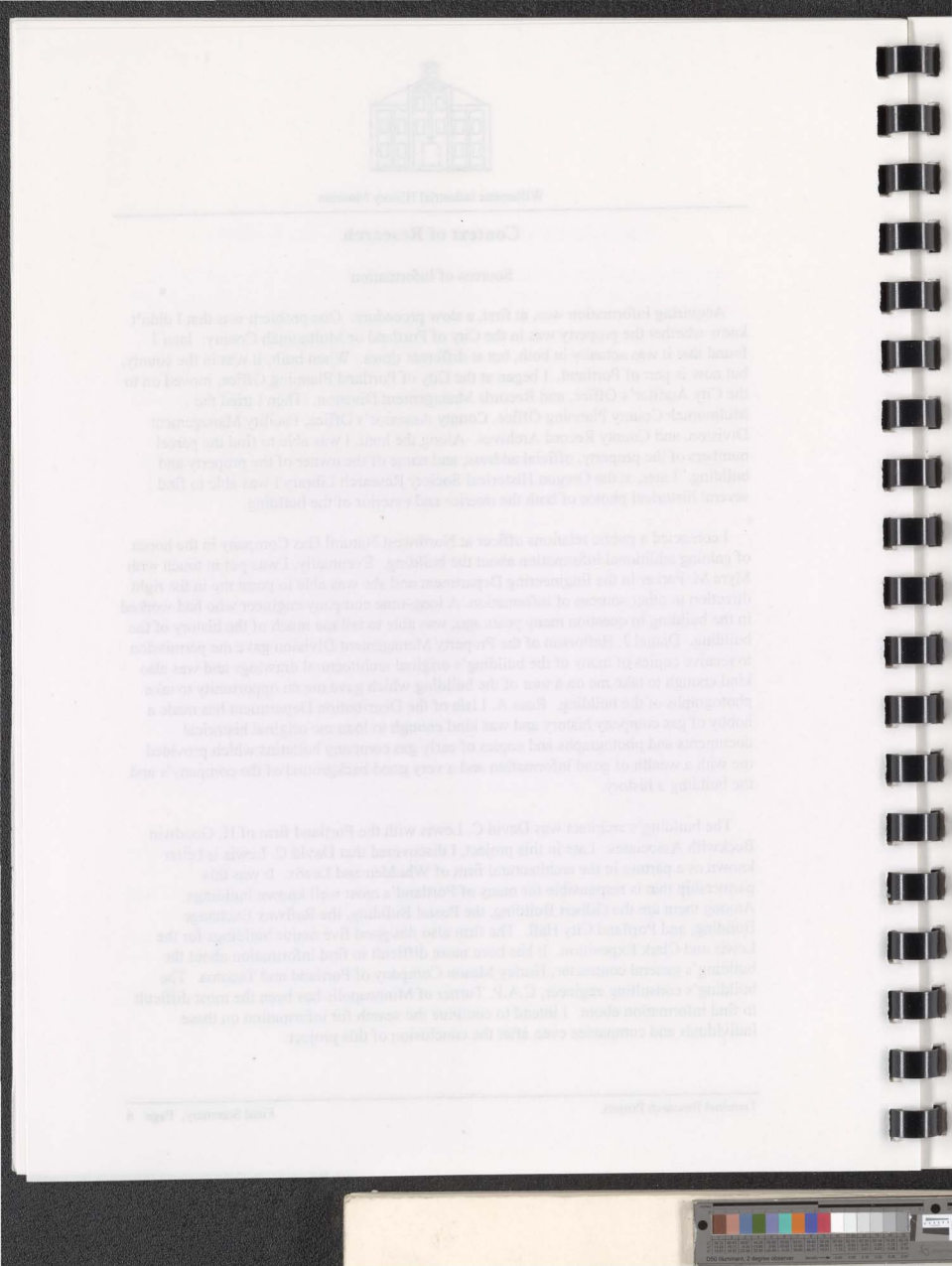
Context of Research

Sources of Information

Acquiring information was, at first, a slow procedure. One problem was that I didn't know whether the property was in the City of Portland or Multnomah County; later I found that it was actually in both, but at different times. When built, it was in the county, but now is part of Portland. I began at the City of Portland Planning Office, moved on to the City Auditor's Office, and Records Management Division. Then I tried the Multnomah County Planning Office, County Assessor's Office, Facility Management Division, and County Record Archives. Along the hunt, I was able to find the parcel numbers of the property, official address, and name of the owner of the property and building. Later, at the Oregon Historical Society Research Library I was able to find several historical photos of both the interior and exterior of the building.

I contacted a public relations officer at Northwest Natural Gas Company in the hopes of gaining additional information about the building. Eventually, I was put in touch with Myra M. Parker in the Engineering Department and she was able to point me in the right direction to other sources of information. A long-time company engineer who had worked in the building in question many years ago, was able to tell me much of the history of the building. Daniel J. Haftorson of the Property Management Division gave me permission to receive copies of many of the building's original architectural drawings and was also kind enough to take me on a tour of the building which gave me an opportunity to take photographs of the building. Ross A. Lisle of the Distribution Department has made a hobby of gas company history and was kind enough to loan me original historical documents and photographs and copies of early gas company bulletins which provided me with a wealth of good information and a very good background of the company's and the building's history.

The building's architect was David C. Lewis with the Portland firm of H. Goodwin Beckwith Associates. Late in this project, I discovered that David C. Lewis is better known as a partner in the architectural firm of Whidden and Lewis. It was this partnership that is responsible for many of Portland's most well known buildings. Among them are the Gilbert Building, the Postal Building, the Railway Exchange Building, and Portland City Hall. The firm also designed five major buildings for the Lewis and Clark Exposition. It has been more difficult to find information about the building's general contractor, Hurley Mason Company of Portland and Tacoma. The building's consulting engineer, C.A.P. Turner of Minneapolis has been the most difficult to find information about. I intend to continue the search for information on these individuals and companies even after the conclusion of this project.



Context of Research

Historic Architectural Drawings

Northwest Natural Gas Company, Myra Parker and Daniel Haftorson in particular, have been kind enough to provide me with photocopies and microfilm of many of the original architectural drawings of the building as well as several more recent drawings and site plans of the property. These drawings have been, and will continue to be, a great help in this project. A few sheets of the original drawing set of 1912 have been lost over the years, but copies of plans exist for various additions and remodels made to the building after its initial completion, which, when assembled with the remaining original drawings, make a fairly complete set. The following is an inventory of drawings made available to me:

First Floor Plan	Gasco Office Building	10-28-48
Second Floor Plan - Laboratory Installation	Gasco Office Building	10-28-48
Second Floor Plan	Gasco Office Building	1-19-38
Product Dev. Laboratory - Third Floor Plan	Gasco Office Building	5-23-47
Conference Room - First Floor	Gasco Office Building	9-12-52
Easement from State of Oregon	LNG Plant	9-30-71
Site Plan	LNG -SNG Plant	6-25-73
Longitudinal Building Section	Gasco Office Building	10-28-48
Transverse Building Section	Gasco Office Building	10-28-48
Foremen's Washroom Plan - Basement	Gasco Office Building	1-9-53
Conference Room Installation	Gasco Office Building	1-4-52
Office Revisions - First Floor	Gasco Office Building	4-18-56
Stairs - First Floor to Basement	Office Building - New Works	3-15-13
Proposed Shop - Second Floor	Gasco Office Building	12-22-45
Exhaust Fan, Steam Bath Hood, 2nd Floor	Portland Gas & Coke Bldg.	6-22-56
CS-2 Extraction Hood	Works Laboratory	11-28-51
Hooded Test Bench - Third Floor	Gasco Laboratory	3-20-52
Footing and Foundation Plan	Portland Gas & Coke Bldg.	4-5-12
Floor Reinforcing Plans	Portland Gas & Coke Bldg.	4-5-12
Beam Details	Portland Gas & Coke Bldg.	4-5-12
Column Details	Portland Gas & Coke Bldg.	4-1-12
Column Top Details	Portland Gas & Coke Bldg.	4-5-12
Stair Details	Portland Gas & Coke Bldg.	4-4-12
Misc. Structural Details (21 Sheets)	Portland Gas & Coke Bldg.	4----12

Context of Research

Site Precedent Studies

As part of this project I have been looking at precedent projects with similar characteristics and circumstances. The building that is the topic of this project is situated between Highway 30 and the Willamette River in a historic industrial area. While this area is still zoned exclusively for heavy industry, I have not, up to this point, let this bit of reality cut down the possibilities for reuse and redevelopment of this building. The possibility for re-zoning of portions of this area may not now exist, but will, I believe, become a stronger possibility in the future. I have, instead, concentrated on the highway and the river as keys to my precedent studies. Both contribute significantly to the site and its possibilities for the future.

During my precedent studies I have cast a wide net, then discarded some and kept others. The most interesting and relevant of these precedents are briefly listed here:

Winslow Building, Troy, New York

- Built 1860's as chemical laboratory building, Rensselaer Polytechnic Institute
- Abandoned in early 1950's, plans call for re-use as children's museum

Lake Shore Inn, Glenbrook, Nevada

- Built 1906 on site of old mill town, operated as resort in until 1970's
- Plans call for old inn to be re-used as community meeting house

Plan for Jim Thorpe, Pennsylvania

- Preservation and new development for historic district in old mining town
- Preservation, adaptive re-use, and new commercial development together

Bu Ye Tian Project, Singapore, Malaysia

- Historic boat quay and warehouses on Singapore River
- Conversion of warehouses to cultural, recreational, and commercial complex

Thompson-Pell Library, Fort Ticonderoga, New York

- Fort Ticonderoga historic site, very crowded historic area
- Nearby telephone switching building re-used as library expansion space

The Clock Tower, San Francisco, California

- Built is seven phases since 1907, originally housed a fruit crate label printer
- Adaptive re-use as live/work units with new commercial development

Context of Research

Function Precedent Studies

Now that I have decided on the type of facility to be installed into the building and upon the site, I have continued my precedent studies using the museum and history center as keys to further study. Following are the local facilities I have studied to enhance my understanding of this type of program. The Portland area does not at present have a museum for showcasing its industrial history.

- Oregon History Center
- Oregon Museum of Science and Industry
- Portland Art Museum
- Audubon Society of Portland
- Oregon Maritime Center & Museum
- World Forestry Center
- Gresham Pioneer Museum
- Troutdale Rail Depot & Museum

Several of these museums are very large and inclusive organizations, some are smaller and more specialized, but only one includes its building as a major, and fitting, exhibit. The Troutdale Rail Museum is housed in an old railroad depot. The building and its exhibits are completely intertwined. This is how I envision the Willamette Industrial History Museum. The building will be as much an exhibit as the artifacts it holds. The building is most fitting in this role; it is where a part of Portland's industrial history took place. It is where this history will be seen and even relived to a certain extent. What is to be avoided is a common problem I have seen in most modern museum buildings; the historical artifact rigorously and permanently separated from any hint of its natural life. The exhibits in the Willamette Industrial History Museum should look much more at home in a building that more closely matches their own age and their own time. If this type of museum can entice the visitor, even for the briefest moment, to forget the present and more thoroughly understand the past it will be a success.

Issues of Concern

Site Relationships

As mentioned earlier, the project site is located between Highway 30 and the Willamette River, just south of the St. Johns Bridge. Highway 30, also known as the Columbia River Highway and St. Helens Road, is one of the oldest highways in Oregon; it was historically Portland's main roadway link to Washington state and the Pacific Coast. The Willamette River is, both figuratively and literally, the heart of Portland. It is what one pictures when thinking of Portland. It is the reason Portland was founded where it was; the furthest upriver that big ships can easily sail. Much of the land between these two transportation routes was, of course, used for heavy industry that relied on transportation of raw materials and produced goods. The gas plant was built here because the early process required coal from which gas was extracted, and this coal came by ship. With the discovery of natural gas, coal is no longer required and nothing is delivered to the property by ship anymore. The gas company-owned land is now used only for the storage and distribution of gas.

Waterways everywhere are being returned to the people and Portland is certainly no exception. Land along the banks of the Willamette River is becoming more and more non-industrial. In downtown Portland, the West side of the river has gone from industry to freeway to park. The East side has gone from industry to freeway, and there is talk of getting rid of the freeway. This trend will undoubtedly continue and this particular site will see this kind of transformation at some time in the future. It is my hope that this project will, in some way, provide a glimpse of this future and lead to the preservation and adaptive re-use of significant architectural and industrial artifacts in this area.

Issues of Concern

Structural Integrity

The Portland Gas & Coke building is constructed almost entirely of cast-in-place reinforced concrete - floors, walls, columns, beams, and roofs. Architectural details show a large amount of rebar in floors and walls. The concrete in the building has an overall good appearance and there are no visible structural problems on the interior. The building does show a few signs of deteriorating concrete where rebar is visible on the exterior surface of a few of the columns, and as in any old concrete structure, seismic stability is always a real concern.

My visit to the site was on a day with heavy rain and there were no signs of water leaking through the roofs or basement walls. There are many broken windows and this does let a little water into the building, along with many pigeons, but I saw no signs of structural deterioration on the interior of the building. The original roof shingles are deteriorated in many areas and will most likely need to be replaced.

Concerns about the seismic stability of the structure led me to contact a structural engineer who teaches engineering courses in the Civil Engineering Department at Portland State University. After a brief look through the architectural drawings provided by Northwest Natural Gas, he stated his belief that the building seemed to be somewhat over-designed and that it would most likely stand up to the forces of an earthquake quite well. The second floor and attic of the building were originally used as laboratory space and the building may have been designed to withstand a gas explosion.

Because of this, and my own visual inspection, it is my conclusion that the building is in fairly good structural condition for a building of its age and that it would not need significant seismic upgrade work. Building modifications and additions will, of course, have to be made to provide for emergency egress and handicapped access as well as any specialized needs of the program chosen for its adaptive re-use.

Issues of Concern

Environmental Factors

The 46-acre plot of gas company land has been used for the manufacture and storage of gas and various by-products for over 80 years. During this time, with several conversions in equipment, process, and materials there has undoubtedly been periodic releases of hazardous or toxic materials into the soil. The extent, content, and levels of these releases is unknown at present and no clean-up plans yet exist to my knowledge. Whether this site has a serious contamination problem or just a minor one I do not know. The northernmost portion of the plot will most likely turn out to be the least affected because most chemical processing facilities have historically been in the central and southern portions of the lot.

For purposes of this project, I will not restrict my design for the adaptive re-use of the Portland Gas & Coke Building and additional site development because of this potential issue.

Research Conclusions

Precedent Study Conclusions

During the course of this project I have looked at many precedent studies. At first I wanted to explore the possibilities of the site. The site precedent studies are all situated between a major highway and a body of water, and have been adapted to new uses. Later I concentrated on the museum and history center to see what has been done, what works, and what does not work. The program precedent studies, all located in the Portland area, cover a wide range of building types, sizes, and ages. Some were built as museums and others have been adapted for use as a museum.

The site precedent studies showed me the importance of using both approaches to the site, not ignoring the highway or the river, but using both to their greatest advantage. In this project, the main approach will be from the highway but the river will be used to gain access to a new pier and tour boats to include the present industrial fabric of the area as an exhibit. The pier could also be used as a station for a river boat taxi service if Portland begins such a venture in future.

The program precedent studies showed me some things that seem to work very well and many more things that do not. At the larger facilities it is too easy to include too much, to widen the scope and loose focus. The new Oregon Museum of Science and Industry is like this. There is a little bit of everything; theater, laser show, submarine, interactive exhibits with a lot of flash; it is more of an amusement park than a museum. On the other hand, the Oregon Maritime Center and Museum keeps a tighter focus but, for me at least, the contrast between the facility and its exhibits is just too great. If the exhibits look uncomfortable, so am I. The Oregon History Center, and many other of the facilities in the area, places too many of its exhibits behind plexiglas panels that effectively separate the viewer and the artifact and its history. Crystal clear plexiglas is a hard, sterile material and stops much more than children's sticky fingers. I know it must be used at times to protect especially valuable articles, but its use should be the exception rather than the rule.

The best facility I looked at is the Troutdale Rail Depot and Museum. It is small, focused, and comfortable to be in. Its greatest attraction is its building, a former railroad depot. The exhibits seem perfectly at home in their surroundings. This is much how I see the Willamette Industrial History Museum, a building that is as much an exhibit as its exhibits. This would be a place where many of its artifacts are large and sturdy, things that can be touched, moved, or turned, a place where, even on a slow day, visitors would outnumber the plexiglas display cases.

Research Conclusions

Program Possibilities

During the course of this project I have researched many precedent studies using the highway, river, and industrial history of the Portland Gas & Coke Building as similarities. I have also tried to think of other programs that may be viable alternatives for the building's re-use. I have tried to imagine the unusual, unexpected, or unconventional use that may successfully occur there in the future. The following is a simple listing of all the possibilities that were considered for this project.

- Industrial History Museum
- Linnton Community Meeting House
- Children's Museum with Industrial/Waterfront Themes
- Retail Shops with Local/ Waterfront Goods
- Branch County Library Location
- Artists/Craftsman Studio Workshops
- Gallery for Industrial Related Art
- Waterfront/Willamette History Museum
- Local Worker Training Center
- Northwest Natural Gas Company Workshops
- Recording Studio and Sound Mixing Facility
- Tourist Information Center / Visitor Center
- Neighborhood Arts & Crafts Center
- Bank Branch Office
- Water Taxi Station / Main Terminal
- Portland Bridge Museum

Research Conclusions

Research Summary

This document is a summary of this year's research on the Portland Gas & Coke Building. The purpose of Fall Quarter's research was to gather information, identify issues of concern, search out precedent studies, and come to preliminary conclusions to provide guidance and direction for the remainder of the project. Winter quarter's project tasks began with finalizing the program and the initial design phase for adaptive re-use of the building and site, and building a scale model of the site. Spring quarter was spent on final design for the building, site, and additional development that will be part of this project, design of the outdoor exhibition spaces and tourboat pier, and preparing a detailed cost estimate and drawings of the proposed design.

I began the project knowing almost nothing about the building or its site and ended with a substantial amount of historical data about the building, site, structural and environmental elements of the project, and a proposal and design for a possible adaptive use of this important building. I have had the opportunity to talk to several individuals involved with or interested in the building. Northwest Natural Gas Company officers, City of Portland officials, and others with specific areas of knowledge; all have greatly helped me with this project. It has been an easy task to get people to talk about this building, their views are strong ones, although many times contradictory. Some want it preserved and see successful possibilities for its future, some see nothing but a problem, and others just wonder why I'm interested in this sort of thing. They all have been happy to voice an opinion and I have been happy to receive a good variety of viewpoints.

Program possibilities have covered a wide spectrum, from artist's workshops to library and bank branches and many others detailed in a previous section of this document. I believe that the chosen program, the Willamette Industrial History Museum, could be a successful use of the building and site, and certainly a better alternative than allowing it to further deteriorate from disuse or abuse. Its ultimate success would, of course, depend in a large part on other developments, what happens to adjoining properties, future zoning in the area, and even as yet unidentified concerns.

Proposed Project

Proposal Statement

The Portland Gas & Coke Building has played an important role in Portland's industrial past. It was built because of rapid population growth and increased demand on the city's gas supply. It was built as a statement in support of corporate and civic architecture and a declaration that Portland's future growth and prosperity would be assured. Now, eighty-five years later, the building has played out its original role and is today the last remaining building of Portland's only gas manufacturing plant.

It is the proposal of this research and design project to adapt the building to be used as the Willamette Industrial History Museum. The building, its site, and surroundings would all be parts of the exhibits on display. The site includes access to the Willamette River and would be used to accommodate access to a new pier and boats offering tours of Portland's present river-side industrial sites.

Parking areas would be built between the building and the Columbia River Highway to accommodate visitors to the museum as well as tourboat patrons. Because of the nature of the site, access will be primarily by car or bus so little attention will be paid to pedestrian access to the site from the highway. Many large artifacts that could not fit inside the building could be displayed in various areas around the site. The area between the museum building and boat pier will be a pedestrian friendly environment. There is a gentle slope down toward the river, but the bank remains high enough for direct access to the boat pier.

Upon entering the museum, the visitor will encounter a reception area to one side and the museum gift and book shop to the other. Small scale exhibits ahead will guide them to the rear wing which is a dramatic 3200 square foot, column-free space. This is by far the largest space in the building and will hold the centerpiece exhibit, a large scale model of Portland's 1905 Lewis and Clark Exposition. It was this exposition that brought Portland to the attention of the rest of the country and spurred the growth of industry in the region. The original site of the exposition was only a couple miles to the south and was the real beginning of the Northwest Portland industrial expansion that began at the close of the fair.

The second and third floors of the building will be primarily exhibit space. The existing stairs and a new elevator will provide access to these floors as well as the basement. The basement will become mostly staff related spaces; offices, workrooms, storage, kitchen and lounge. The building's main mechanical equipment will also be in the basement. The basement has two existing direct entrances which will accommodate most staff and maintenance needs.

Proposed Project

Program and Site Data

Site Data: (all square footages are approximately)

• total site (see site plan, page 33)	232,000 SF
• square footage in river	26,000 SF
• river frontage	240 feet
• highway frontage	440 feet

Building Data:

First Floor (see first floor plan, page 34)	
• Main Building:	2500 SF
• Rear Wing:	3200 SF
Second Floor (see second floor plan, page 35)	
• Main Building:	2500 SF
Third Floor (see third floor plan, page 36)	
• Main Building;	2500 SF
Basement (see basement plan, page 37)	
• Main Building:	2500 SF
• Rear Wing:	700 SF
Total building square footage:	13900 SF

Proposed Program:

First Floor:	Reception Are a	250 SF
	Book & Gift Shop	500 SF
	Restrooms	400 SF
	Exhibit and Display Area	4000 SF
Second Floor:	Exhibit and Display Area	2500 SF
Third Floor:	Exhibit and Display Area	2500 SF
Basement:	Staff Offices	500 SF
	Kitchen & Lounge	300 SF
	Workroom & Storage	700 SF
	Restrooms	200 SF
	Mechanical Area	1600 SF
Site:	Parking (50 spaces)	15,000 SF
	Outdoor Exhibit Area	15,000 SF
	Pier & Support Buildings	15,000 SF

Proposed Project

Project Cost Estimate

(See Appendix H for a detailed project costs spreadsheet)

Means No.	System Description	Cost
0010	Demolition (Existing Interior)	27,800
0100	Foundations (Stair Addition)	336
0200	Substructure (Stairs and Ramps)	2,484
0300	Superstructure (Stair Addition)	23,240
0400	Exterior Closure (Existing Bldg.)	295,200
0500	Roofing (Existing Building)	200,120
0600	Interior Construction	141,850
0700	Transportation	48,000
0800	Mechanical	162,750
0900	Electrical	132,050
1000	General Conditions	56,000
1100	Equipment	62,550
1200	Sitework	133,100
3000	Contractor Fee, Bonds, Insurance	115,693
4000	Escalation Contingency	89,983
5000	Design & Estimating Contingency	192,822
	Total Estimated Construction Cost	1,285,480
	Total Estimated Cost Plus Fees And Contingencies	1,683,978

Williamson Independent School District

Proposed Project

Projected Cost Estimate

(See Appendix H for a detailed project costs spreadsheet)

Measure No.	Special Description	Cost
0010	Demolition (Existing Interior)	27,800
0100	Fire Sprinkler (Entire Addition)	516
0200	Substructure (Slab, and Footings)	2,484
0300	Superstructure (Entire Addition)	23,240
0400	Exterior Closure (Existing Bldg.)	292,300
0500	Roofing (Existing Building)	200,120
0600	Interior Construction	141,850
0700	Transportation	48,000
0800	Mechanical	142,750
0900	Electrical	132,050
1000	General Conditions	56,000
1100	Equipment	62,550
1200	Sitework	173,100
3000	Contractor Fee, Bonds, Insurance	115,693
4000	Escalation Contingency	69,941
5000	Design & Estimating Contingency	192,822
	Total Estimated Construction Cost	1,283,440
	Total Estimated Cost Plus Fees And Contingencies	1,687,978

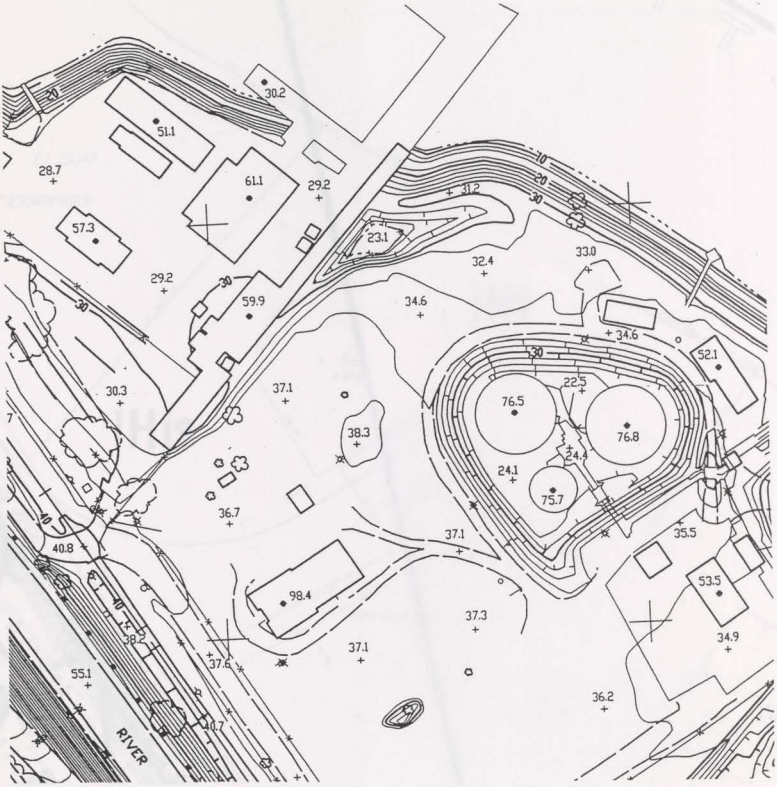
Conclusion

The Portland Gas & Coke Building was an important building of its time and remains a visible reminder of Portland's industrial history. The Willamette Industrial History Museum will preserve, protect, and adapt this building into a new and useful purpose. Portland's founding, its location, and continued existence is wholly based on its early years and the industries that located here. There are few remaining signs of those early industries; most have been removed to make way for new buildings, roads, or simply removed because they were no longer needed in their original purposes. The preservation of this building is important, and its transformation into an industrial museum is especially fitting. It is a matching of building and use seldom seen in preservation.

The inclusion of Portland's 1905 Lewis and Clark Exposition as the museum's centerpiece exhibit is also appropriate. Nothing remains of the original exposition site with the exception of a small historical marker. This exposition was a milestone in Portland's history, yet little has been done to commemorate it. It was the city's invitation to the rest of the country, and the world, to come see what Portland had to offer. It worked even better than anyone had hoped; investment and growth soared after the exposition. With the one hundredth anniversary of the Exposition approaching, it is even more appropriate to commemorate it with a special place in the program of this new museum.

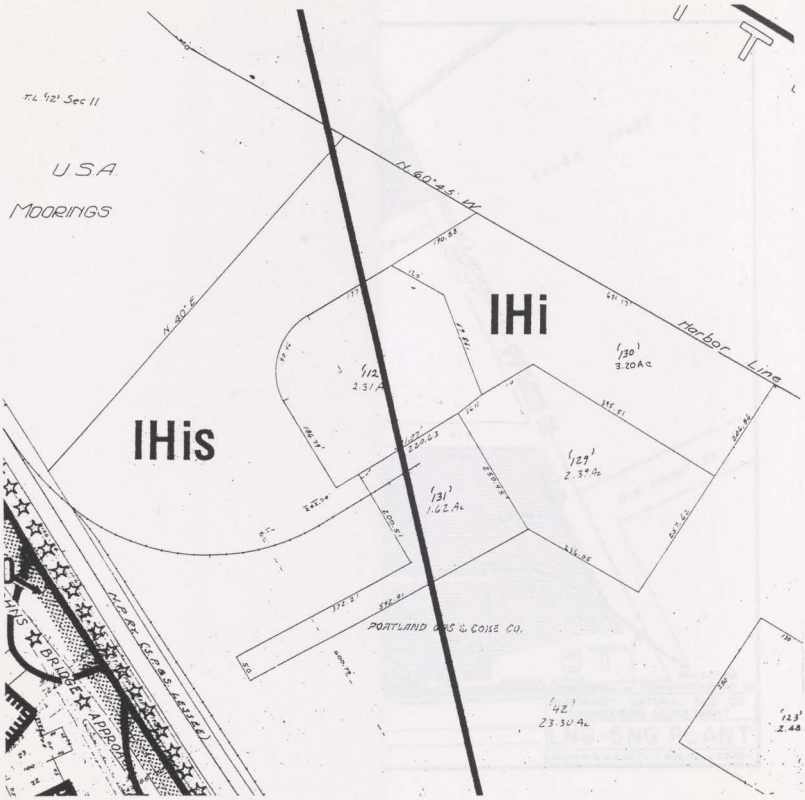
Appendix A

Site Topographic Map



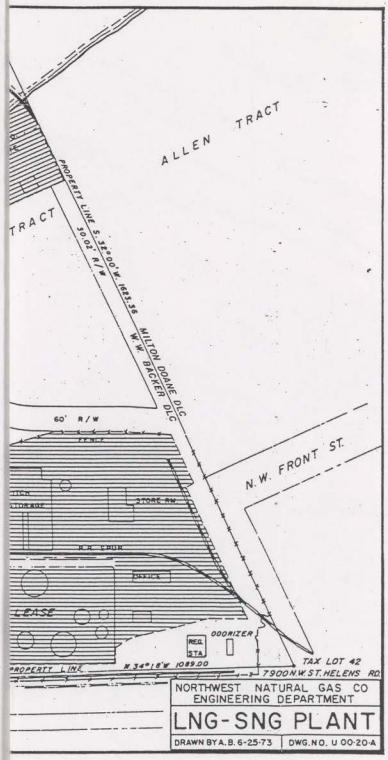
Appendix B

Site Parcel / Zoning Map



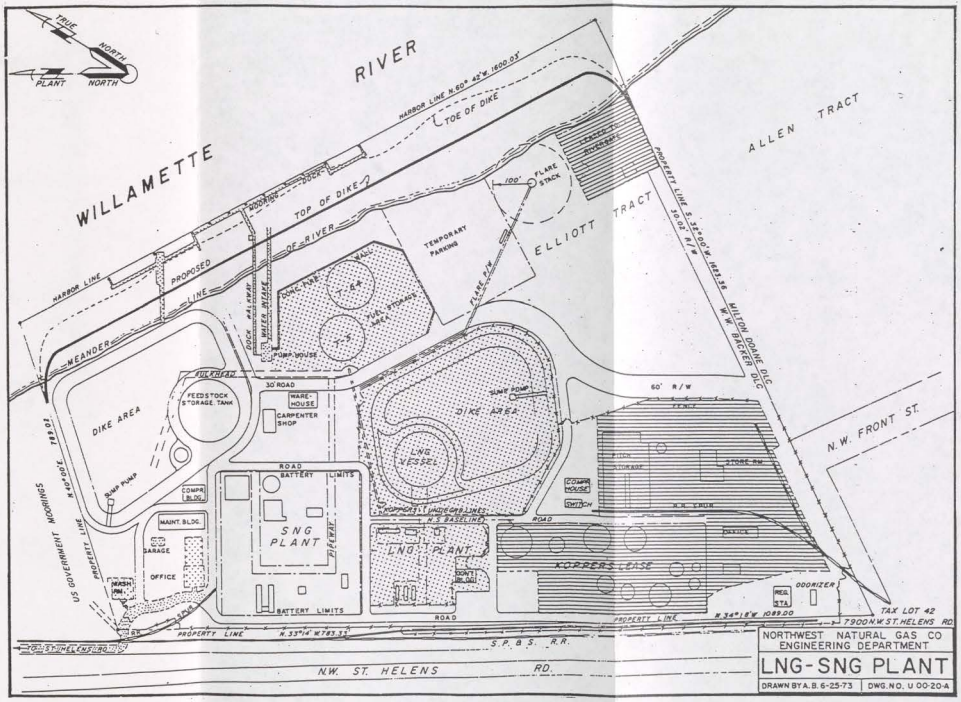
pendix C

ite Plan

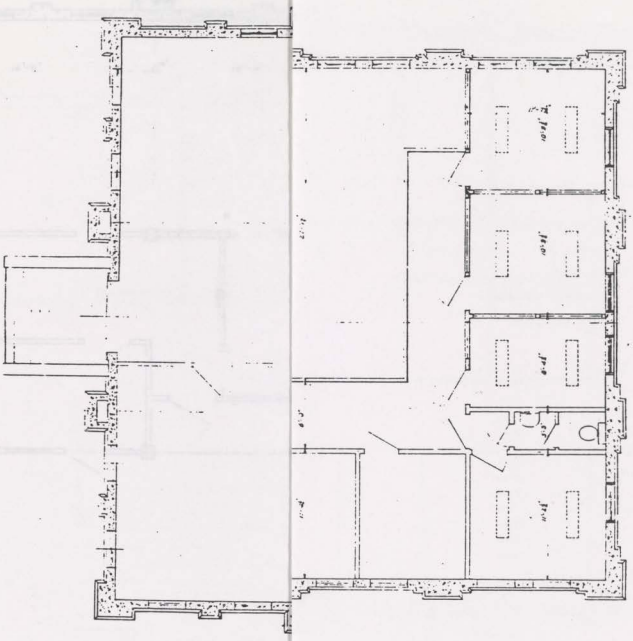


Appendix C

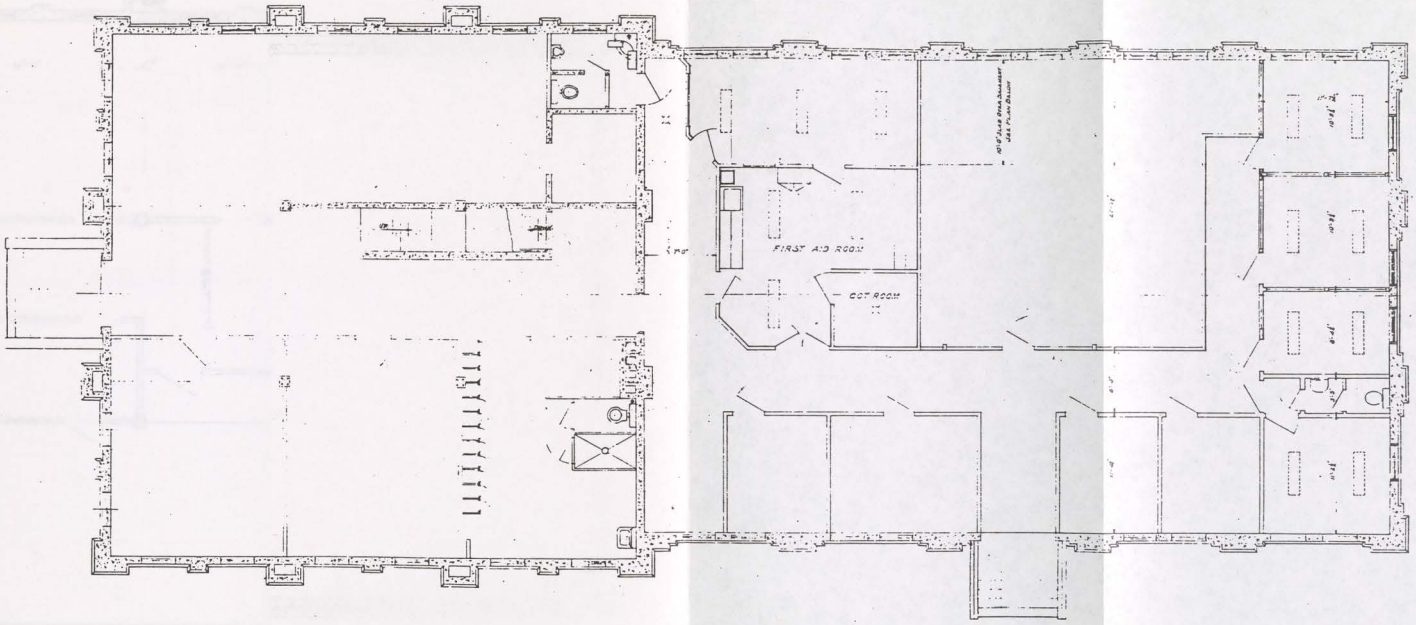
Site Plan



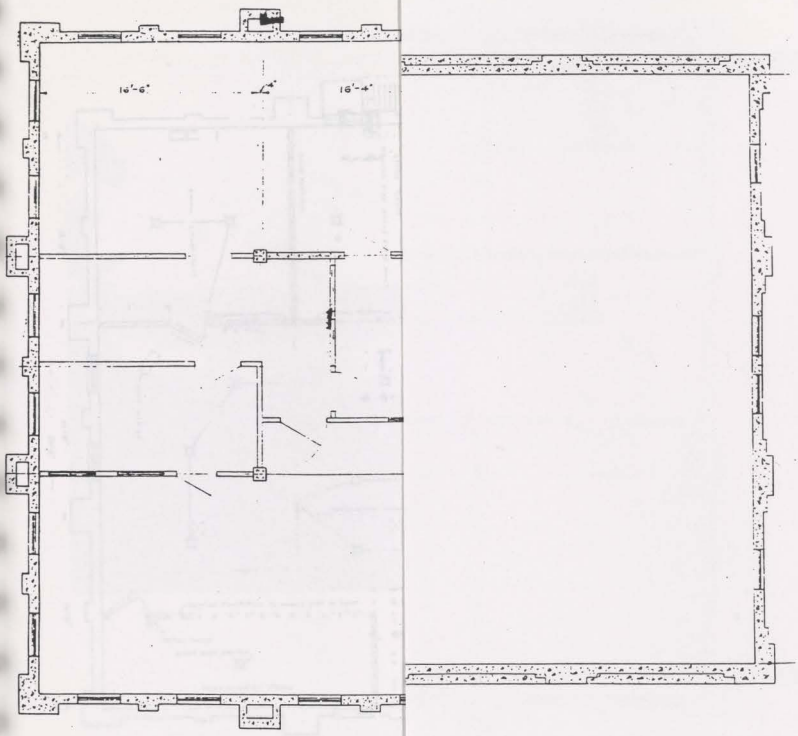
Floor Plan



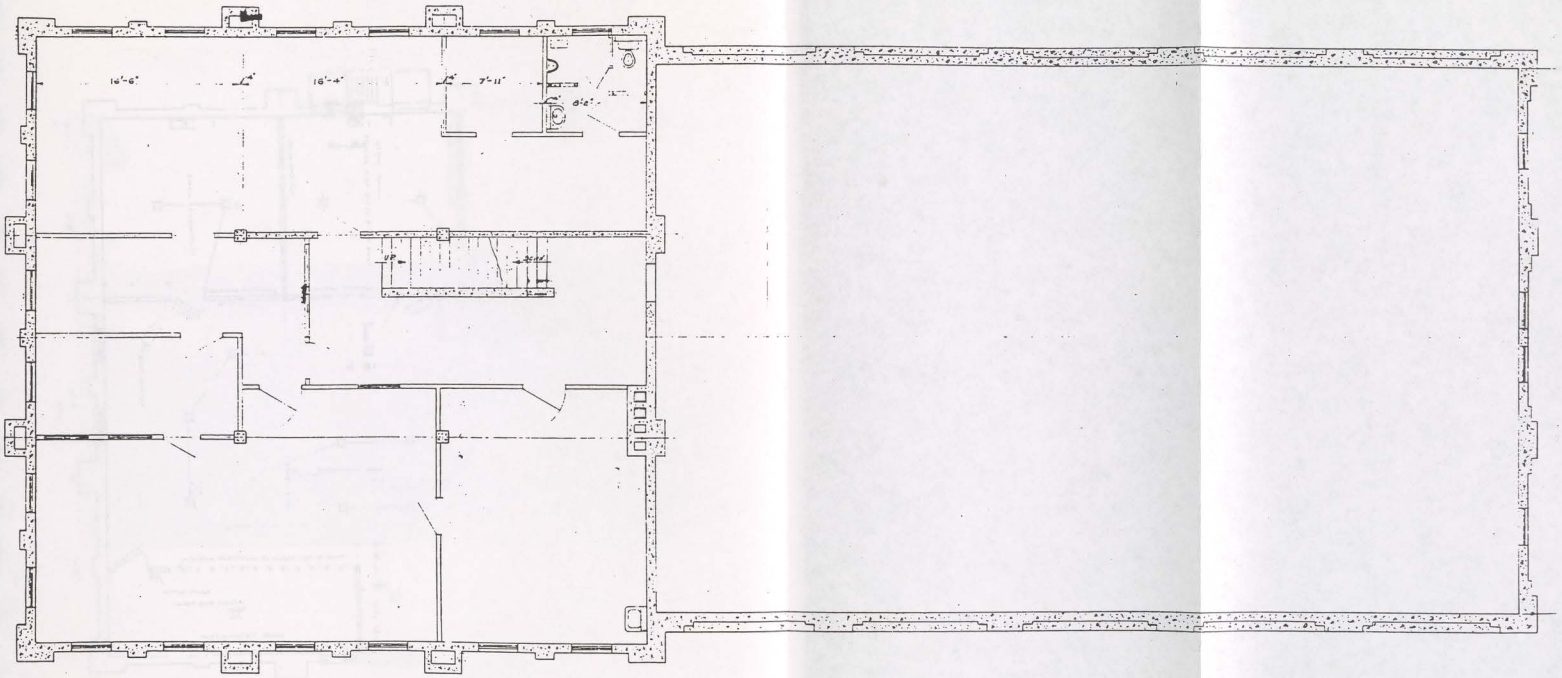
First Floor Plan



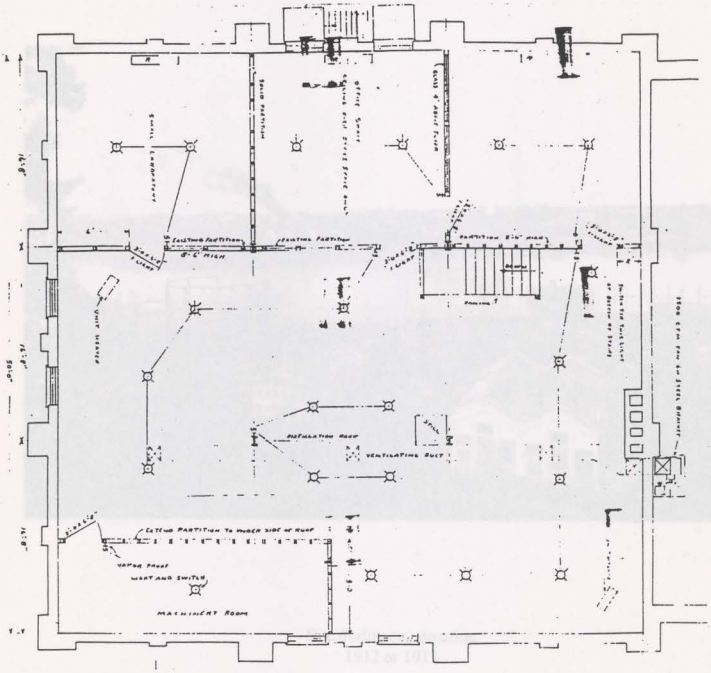
d Floor Plan



Second Floor Plan



Third Floor Plan



Appendix D

Historic Building Photographs

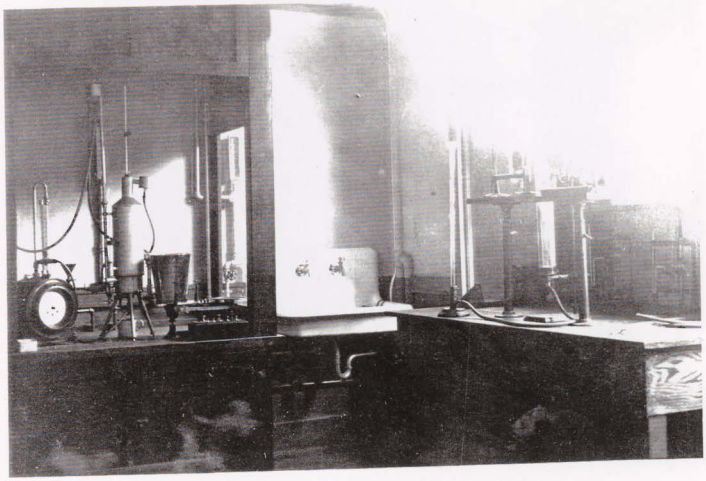
Site during construction
1912 or 1913

Historic Building Photographs

Site after completion of construction
1913 or 1914

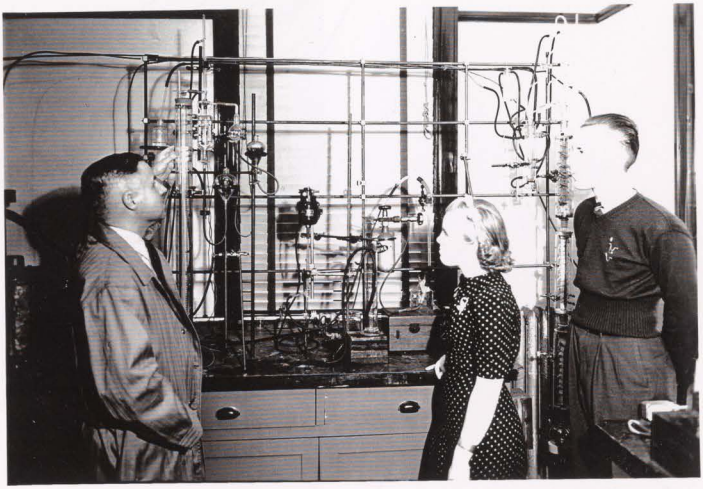
Historic Building Photographs

Front of building during construction
1912 or 1913



Interior - Laboratory
Second Floor

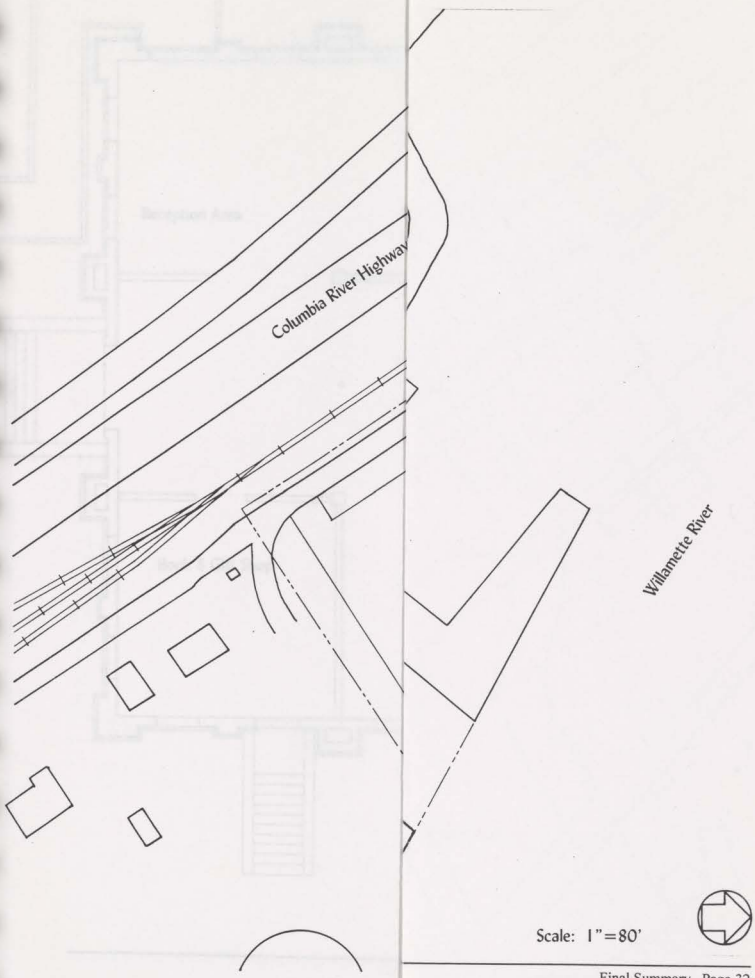
Interior - Laboratory



Interior - Laboratory

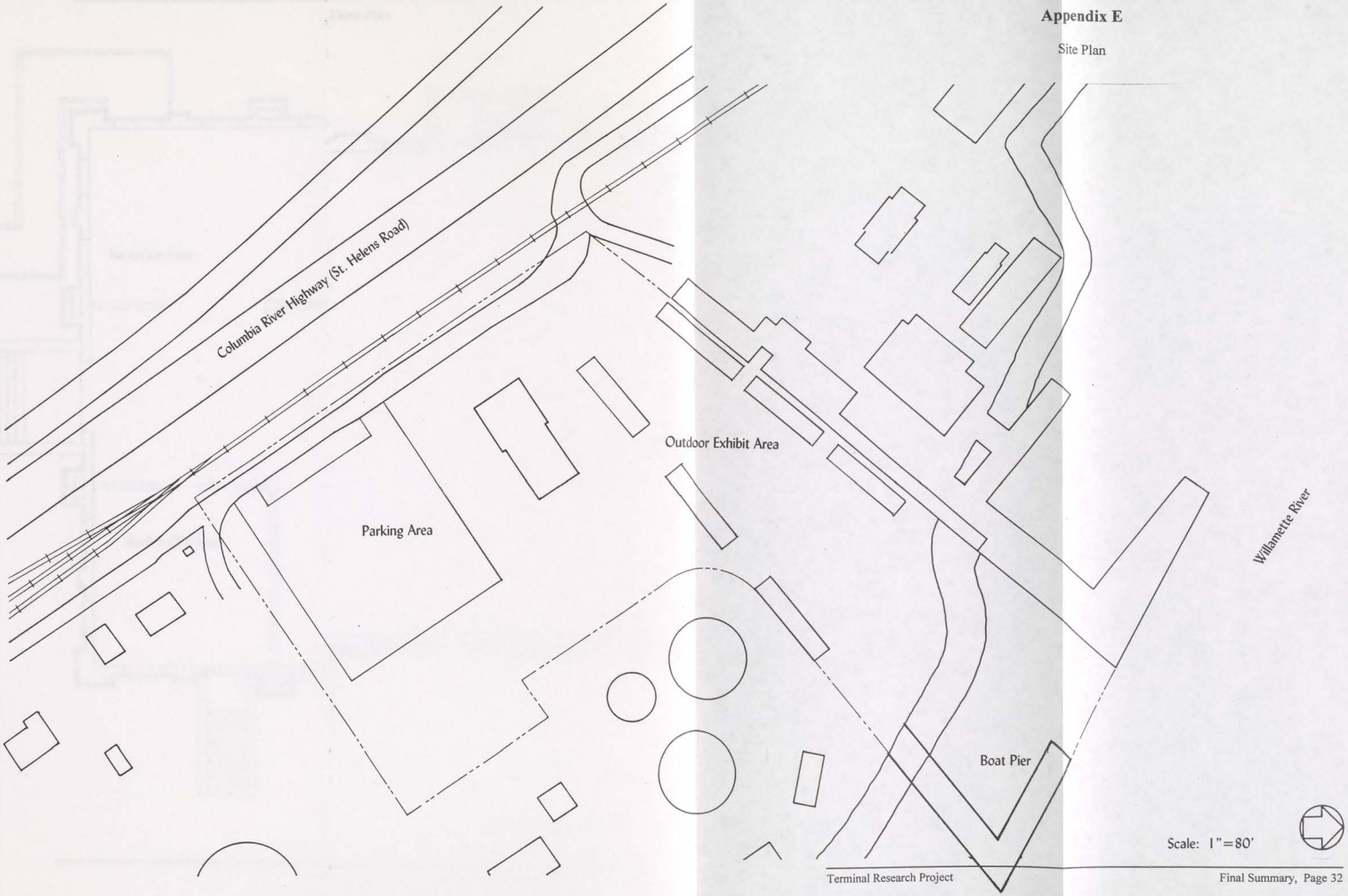
pendix E

Site Plan

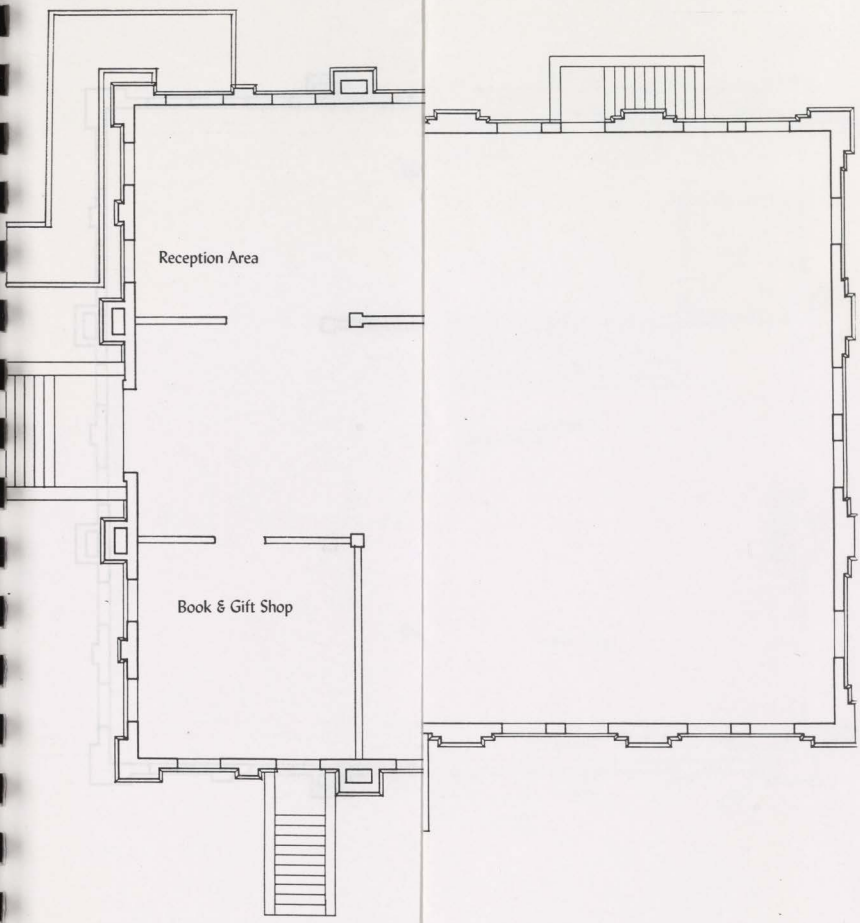


Appendix E

Site Plan

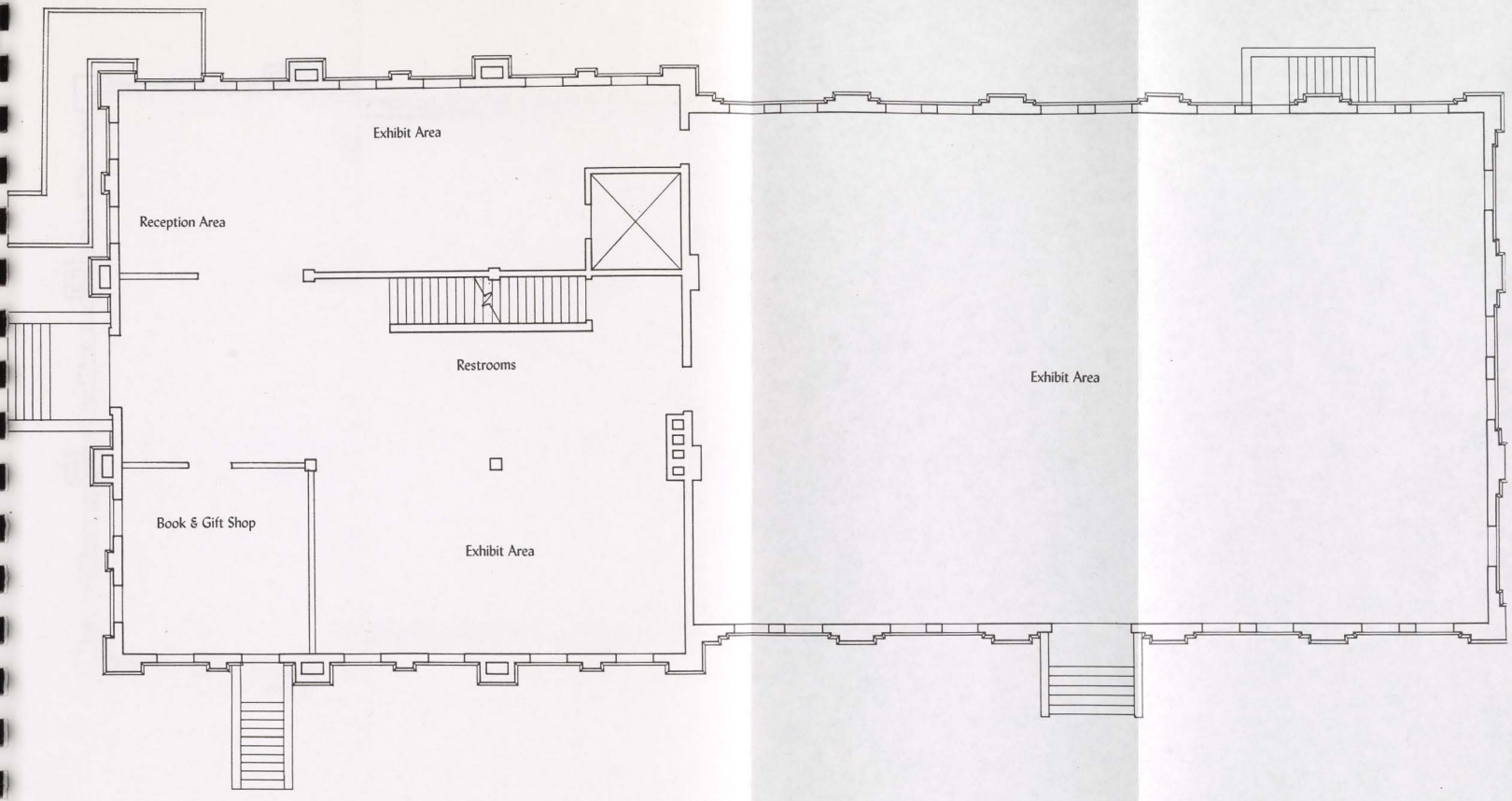


Floor Plan



Scale: 1/8" = 1'- 0"

First Floor Plan



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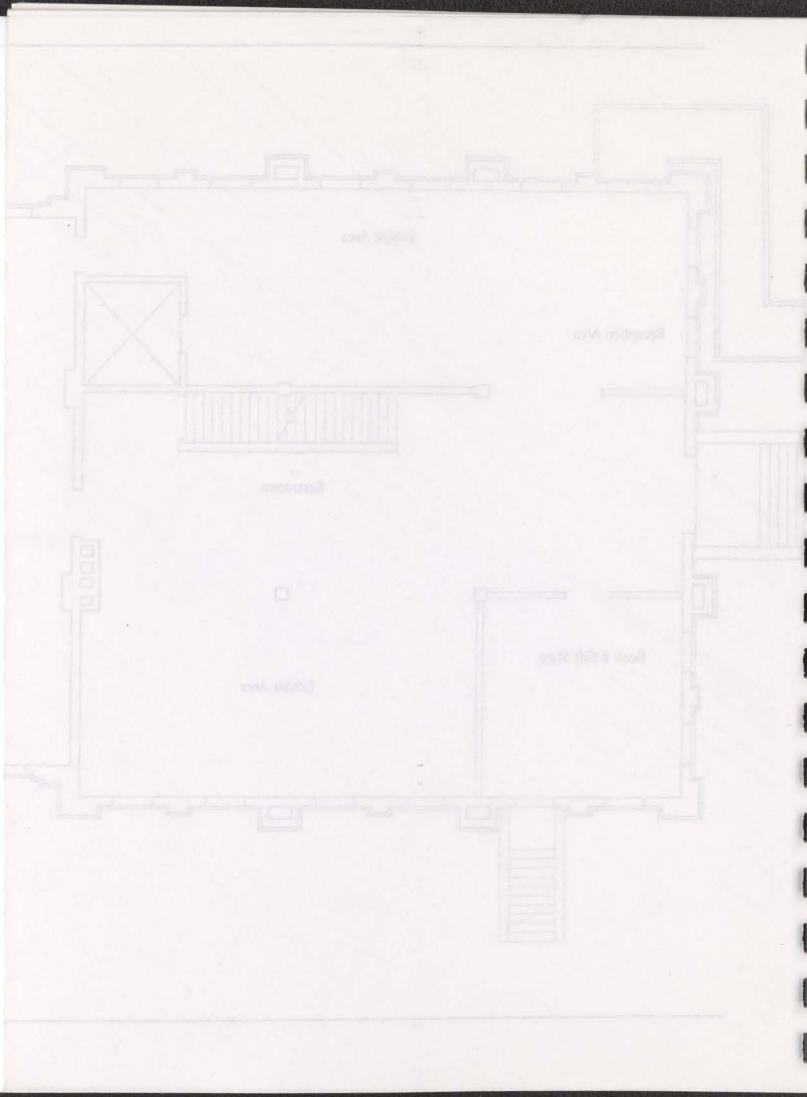
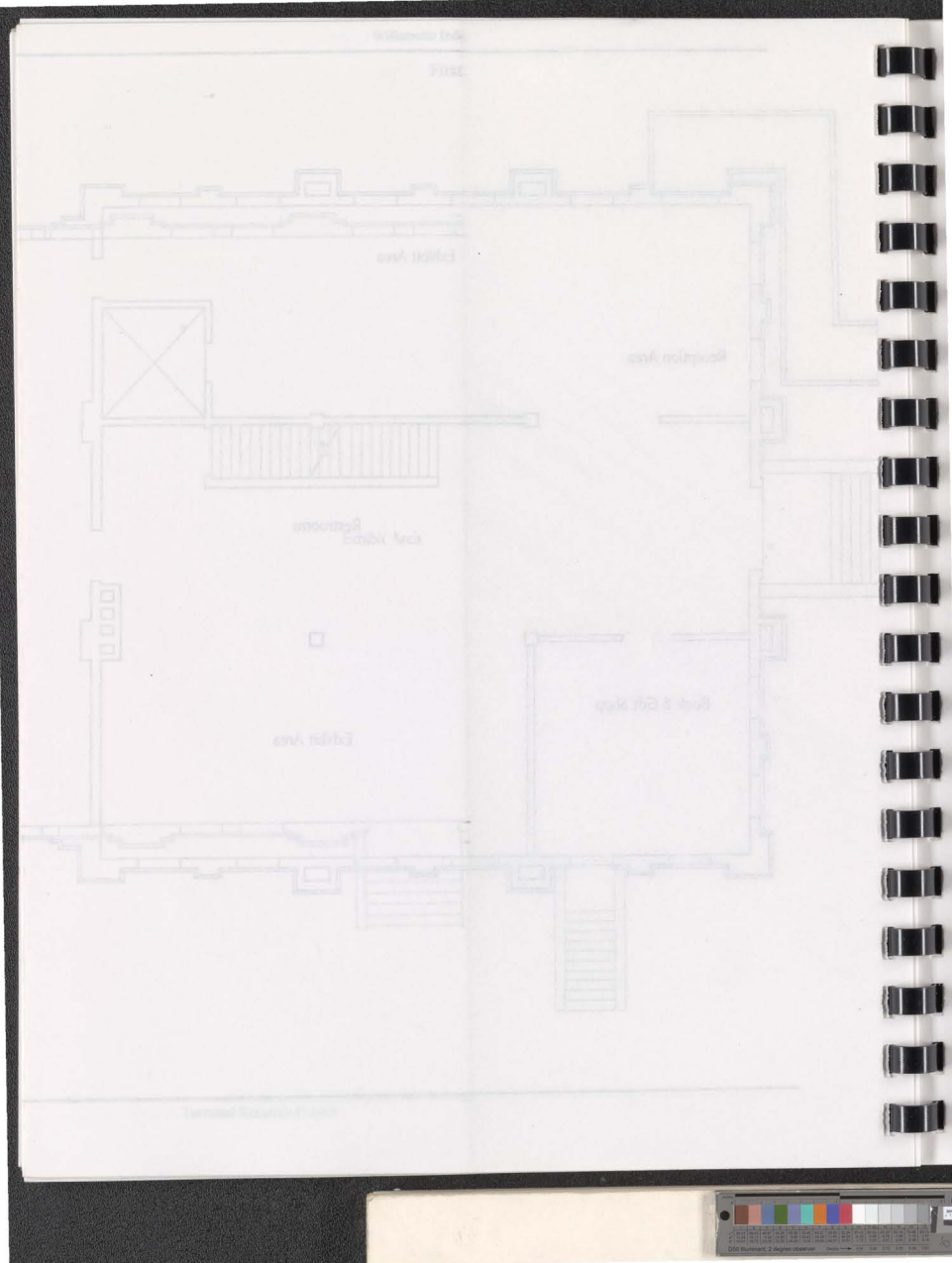
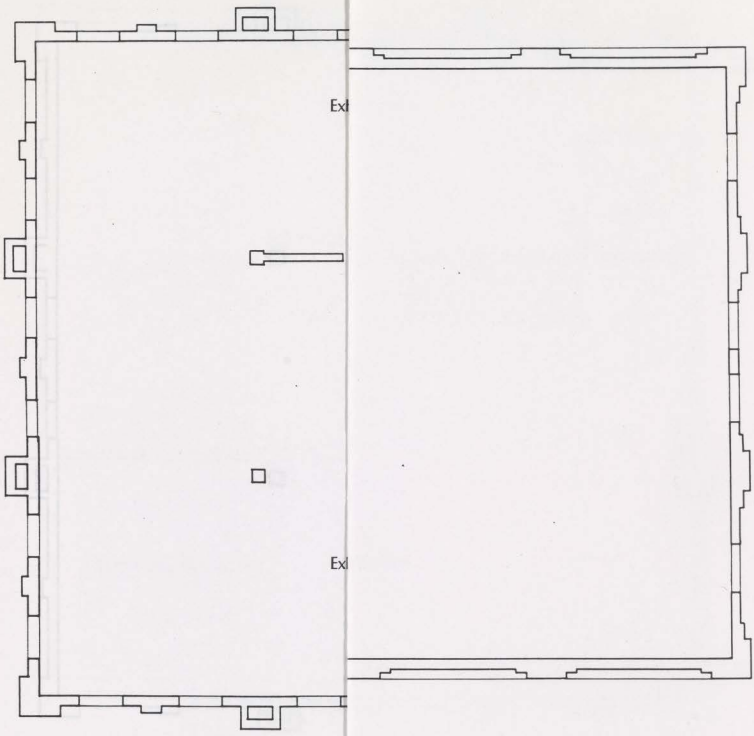


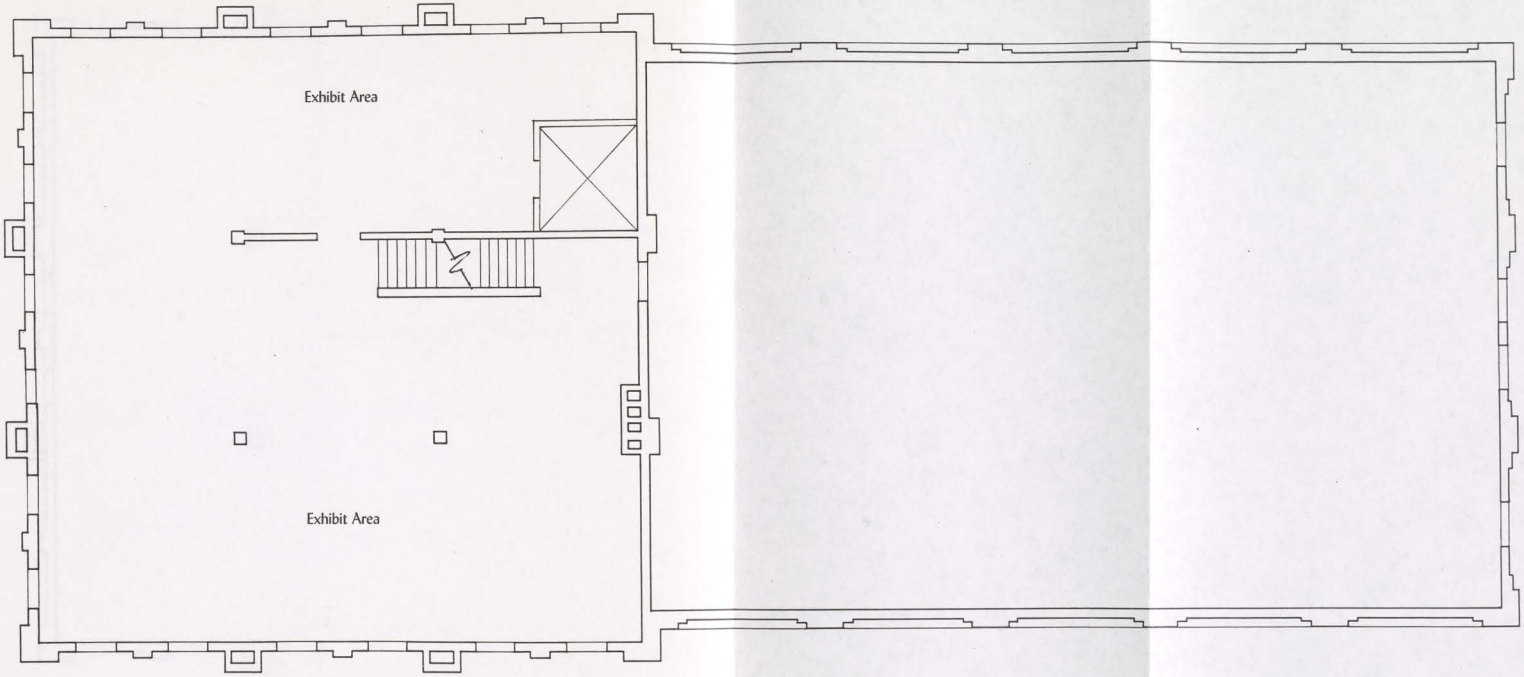


d Floor Plan



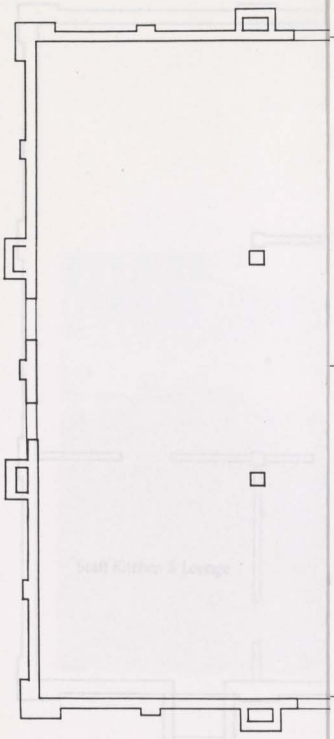
Scale: 1/8" = 1'- 0"

Second Floor Plan



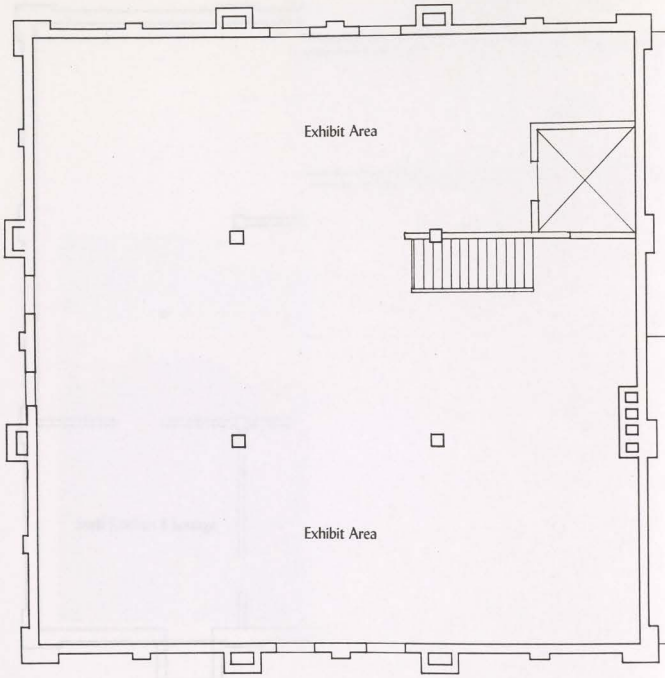
Scale: 1/8" = 1'- 0"

l Floor Plan



Scale: 1/8" = 1'- 0"

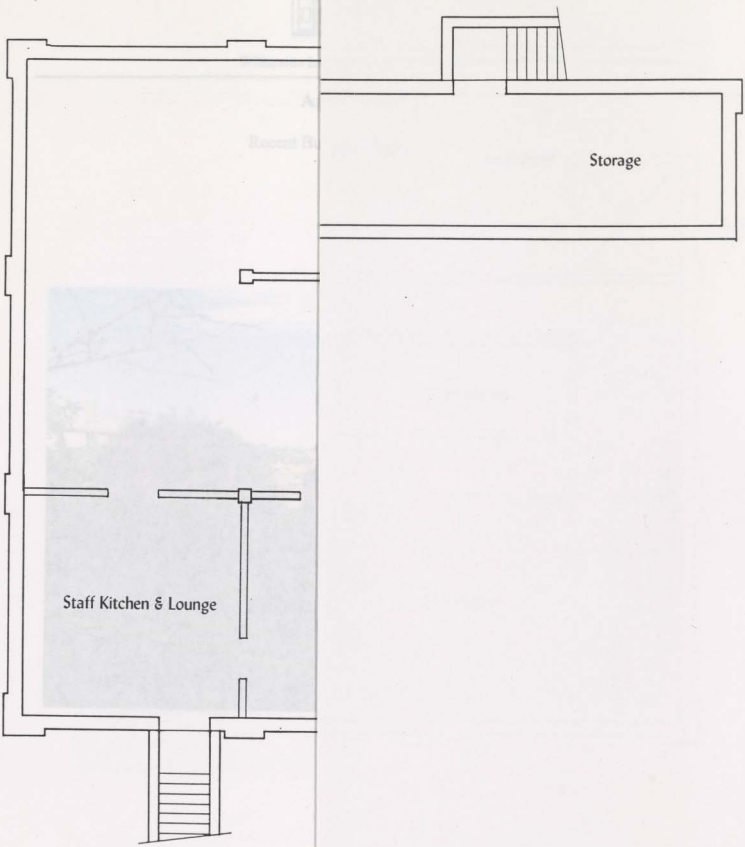
Third Floor Plan



Scale: 1/8" = 1'- 0"

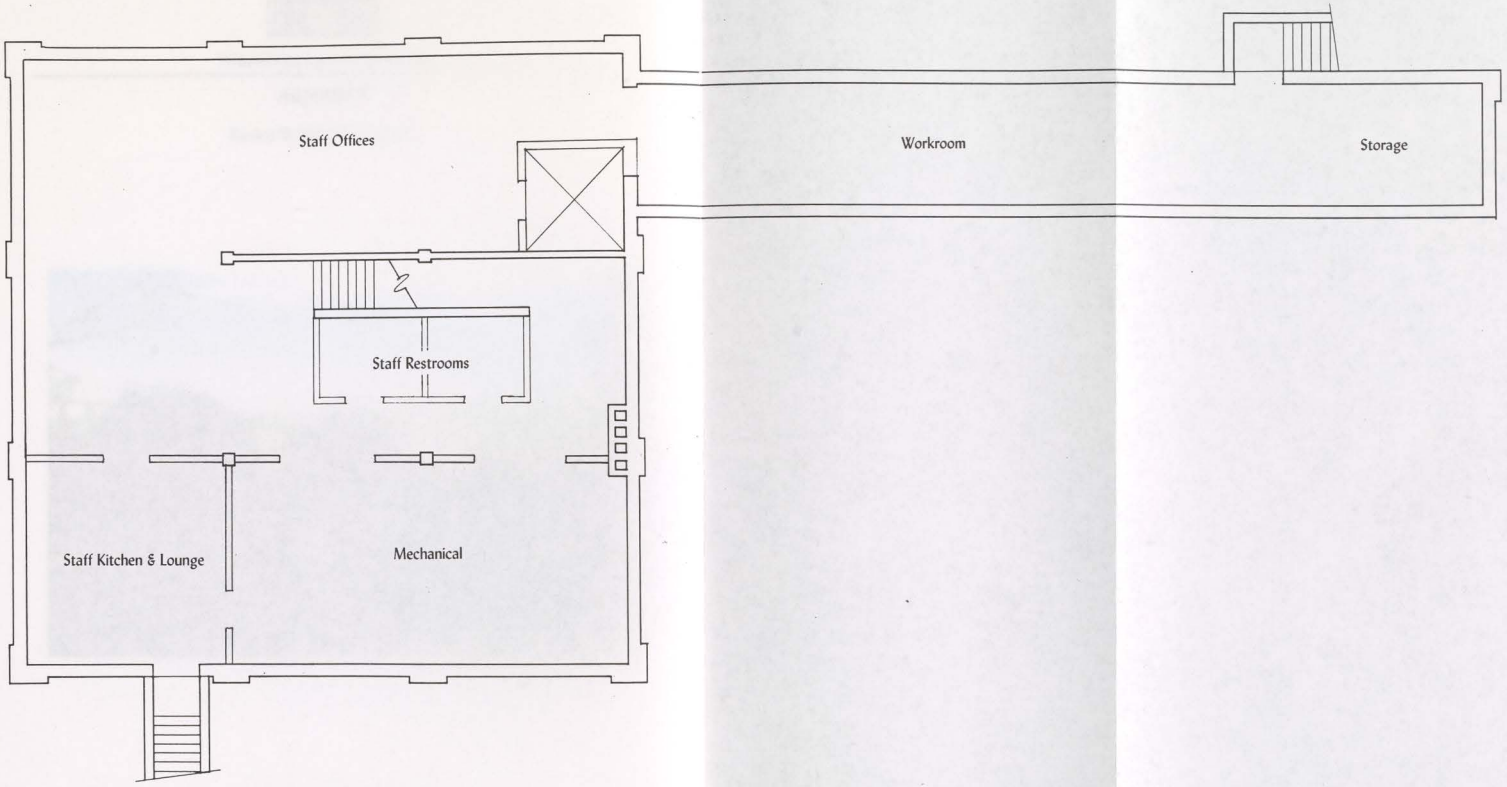
Exhibit Area
Exhibit Area

ement Plan



Scale: 1/8" = 1'- 0"

Basement Plan



Scale: 1/8" = 1'- 0"

Staff Offices
Staff Bedrooms
Mechanical
Staff Kitchen & Lounge

Appendix F

Recent Building Photographs

View from across highway

Recent Building Photographs

Front of building

Recent Building Photographs

North side of building

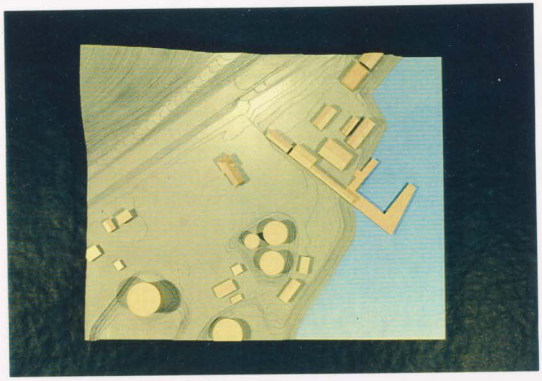
Recent Building Photographs

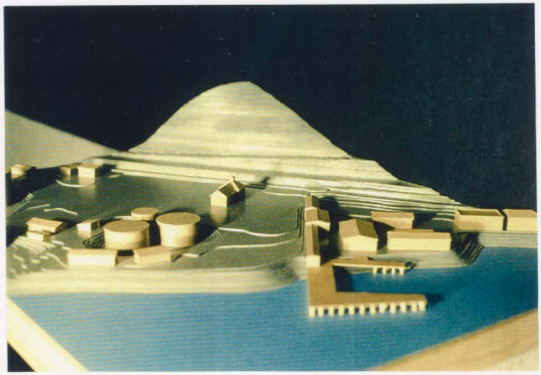
Entry Hallway - First Floor

Detail at Interior of Front Door

Appendix G

Site Model Photos





CODE NUMBER	SYSTEM DESCRIPTION	MEASURE	UNIT	UNIT COST	COST	TOTAL COST	% TOTAL	$ / GSF
0010	DEMOLITION (Existing Interior)					27,800.00	1.7%	2.00
0011	Selective Demolition	13,900	GSF Building	2.00	27,800.00			
0100	FOUNDATIONS (Stair Addition)					336.00	0.0%	0.02
0111	Wall Foundations	48	LF Fnd.	7.00	336.00			
0200	SUBSTRUCTURE					2,484.00	0.1%	0.18
0210	Slab on Grade (Stair Addition)	216	SF Slab	1.50	324.00			
0215	Entry Ramps	360	SF Ramp	6.00	2,160.00			
0300	SUPERSTRUCTURE (Stair Addition)					23,240.00	1.4%	1.67
0311	Floor Construction	144	SF Floor	4.50	648.00			
0321	Roof Construction	216	SF Roof	12.00	2,592.00			
0331	Stair Construction	4	per Flight	5,000.00	20,000.00			
0400	EXTERIOR CLOSURE (Existing Bldg.)					295,200.00	17.5%	21.24
0411	Exterior Wall Restoration & Insulation	12,000	SF Wall	18.00	216,000.00			
0421	Exterior Window Restoration	1,200	SF Glazing	34.00	40,800.00			
0423	Exterior Door Restoration	800	SF Door	48.00	38,400.00			
0500	ROOFING (Existing Building)					200,120.00	11.9%	14.40
0501	Roof Coverings - Slate tile	6,200	SF Roof	28.00	173,600.00			
0503	Roof Insulation	6,200	SF Roof	2.60	16,120.00			
0504	Flashings and Trim	520	LF Roof Edge	20.00	10,400.00			
0600	INTERIOR CONSTRUCTION					141,850.00	8.4%	10.21
0611	Fixed Partitions	8,000	SF Partition	4.00	32,000.00			
0616	Interior Doors and Frames	600	SF Door	48.00	28,800.00			
0621	Wall Finishes	24,000	SF Wall	1.35	32,400.00			
0622	Floor Finishes	13,900	SF Floor	1.50	20,850.00			
0623	Ceiling Finishes	13,900	SF Ceiling	2.00	27,800.00			

PROJECT NUMBER	SYSTEM DESCRIPTION	MEASURE	UNIT	UNIT COST	COST	TOTAL COST	% VOTAL	$ / SQFT
0010	DEMOLITION (Existing Interior)					21,800.00	1.1%	2.00
0011	Selective Demolition	13,900	CGF Building	2.00	27,800.00			
0100	FOUNDATIONS (Solar Addition)					566.00	0.0%	0.05
0111	Wall Foundations	46	LF Footing	7.00	322.00			
0200	SUBSTRUCTURE					2,494.00	0.1%	0.18
0210	Slab on Grade (Solar Addition)	216	SF Slab	1.50	324.00			
0212	Spread Footings	340	SF Footing	6.00	2,170.00			
0500	SUPERSTRUCTURE (Solar Addition)					22,340.00	1.0%	1.07
0511	Floor Construction	144	SF Deck	4.00	576.00			
0521	Roof Construction	216	SF Roof	12.00	2,592.00			
0531	Stair Construction	4	per Flight	5,500.00	20,000.00			
0600	EXTERIOR CLOSURE (Existing Bldg.)					295,200.00	12.8%	21.24
0611	Exterior Wall Construction & Insulation	12,000	SF Wall	15.00	213,000.00			
0621	Exterior Window Installation	1,200	SF Glazing	34.00	40,800.00			
0632	Exterior Door Installation	800	SF Door	46.00	36,800.00			
0800	ROOF (Bldg. Existing Building)					290,120.00	12.6%	14.40
0801	Roof Covering - Flat Tile	6,200	SF Roof	28.00	173,600.00			
0803	Roof Insulation	6,200	SF Roof	2.00	18,120.00			
0804	Flashings and Trim	500	LF Roof Edge	20.00	10,400.00			
0900	INTERIOR CONSTRUCTION					141,800.00	6.1%	10.21
0911	Fixed Partitions	8,000	SF Partition	4.00	32,000.00			
0915	Interior Doors and Frames	600	SF Door	44.00	26,400.00			
0921	Wall Finishes	24,000	SF Wall	1.35	32,400.00			
0922	Floor Finishes	12,800	SF Floor	1.80	23,040.00			
0923	Ceiling Finishes	13,900	SF Ceiling	2.00	27,800.00			

CODE NUMBER	SYSTEM DESCRIPTION	MEASURE	UNIT	UNIT COST	COST	TOTAL COST	% TOTAL	$ / GSF
0700	TRANSPORTATION					48,000.00	2.9%	3.45
0710	Elevator System	4	floor stops	12,000.00	48,000.00			
0800	MECHANICAL					162,750.00	9.7%	11.71
0810	Plumbing	18	per fixture	2,000.00	36,000.00			
0820	HVAC	40	per ton cooling	2,300.00	92,000.00			
0830	Fire Protection	13,900	GSF Building	2.50	34,750.00			
0900	ELECTRICAL					132,050.00	7.8%	9.50
0910	Service and Distribution	13,900	GSF Building	4.50	62,550.00			
0920	Lighting and Power	13,900	GSF Building	5.00	69,500.00			
1000	GENERAL CONDITIONS					56,000.00	3.3%	4.03
1010	Field Overheads	8	Months	7,000.00	56,000.00			
1100	EQUIPMENT					62,550.00	3.7%	4.50
1120	Furnishings / Display Cabinets	13,900	GSF Building	4.50	62,550.00			
1200	SITEWORK					133,100.00	7.9%	9.58
1210	Site Preparation	232,000	GSF Site	0.20	46,400.00			
1220	Site Improvements / Parking	15,000	SF Parking	3.00	45,000.00			
1230	On-Site Utilities	13,900	GSF Building	3.00	41,700.00			
3000	CONTRACTOR FEE, BONDS, INSURANCE		9% Total		115,693.20		6.9%	8.32
4000	ESCALATION CONTINGENCY		7% Total		89,983.60		5.3%	6.47
5000	DESIGN & ESTIMATING CONTINGENCY		15% Total		192,822.00		11.5%	13.87
	TOTAL ESTIMATED CONSTRUCTION COST					1,285,480.00	76.3%	92.48
	TOTAL ESTIMATED COST PLUS FEES AND CONTINGENCIES					1,683,978.80	100%	121.15

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Individuals Interviewed

Daniel J. Haftorson, Superintendent, Property Management, Northwest Natural Gas Co.

Tami Beth Katz, Staff Architect, Oregon State Historic Preservation Office

Ross A. Lisle, Operations Engineer, Distribution Dept., Northwest Natural Gas Co.

Peter Meijer, Project Architect, SERA Architects PC

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