



**First
Interstate**
Bank

P378
.M2445



THE FIRST INTERSTATE BANK OF COLSTRIP

COLSTRIP, MONTANA

By Allison McRae

**MONTANA STATE UNIVERSITY
Bozeman, Montana**

Spring Quarter, 1987

**Programming Analyses submitted in partial fulfillment
of the requirements for the degree**

of

BACHELOR OF ARTS IN INTERIOR DESIGN

Approved:



Pamela Bancroft, Advisor

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PERSONAL GOALS

1. I want to practice communicating with the client effectively. I feel it is important to learn how to ask questions and be understood, while listening to the client's needs and wants.
2. I want to enjoy this project. I feel that being familiar with the space and knowing some of the bank staff has helped me feel realistically involved.
3. I want to research some special aspect that takes the design problem one step further. An example would be to resolve some particular problem such as static electricity in the operational room.
4. I want to use some aspect of the new computer techniques I have been learning.
5. I want to become comfortable with this particular design process while relating all the pieces and processes to each other.
6. I want to learn how to plan my own calendar and stick with it. I feel this is a very important tool that sets the pace and mentally starts your mind thinking about the design problems a whole rather than one small detail.

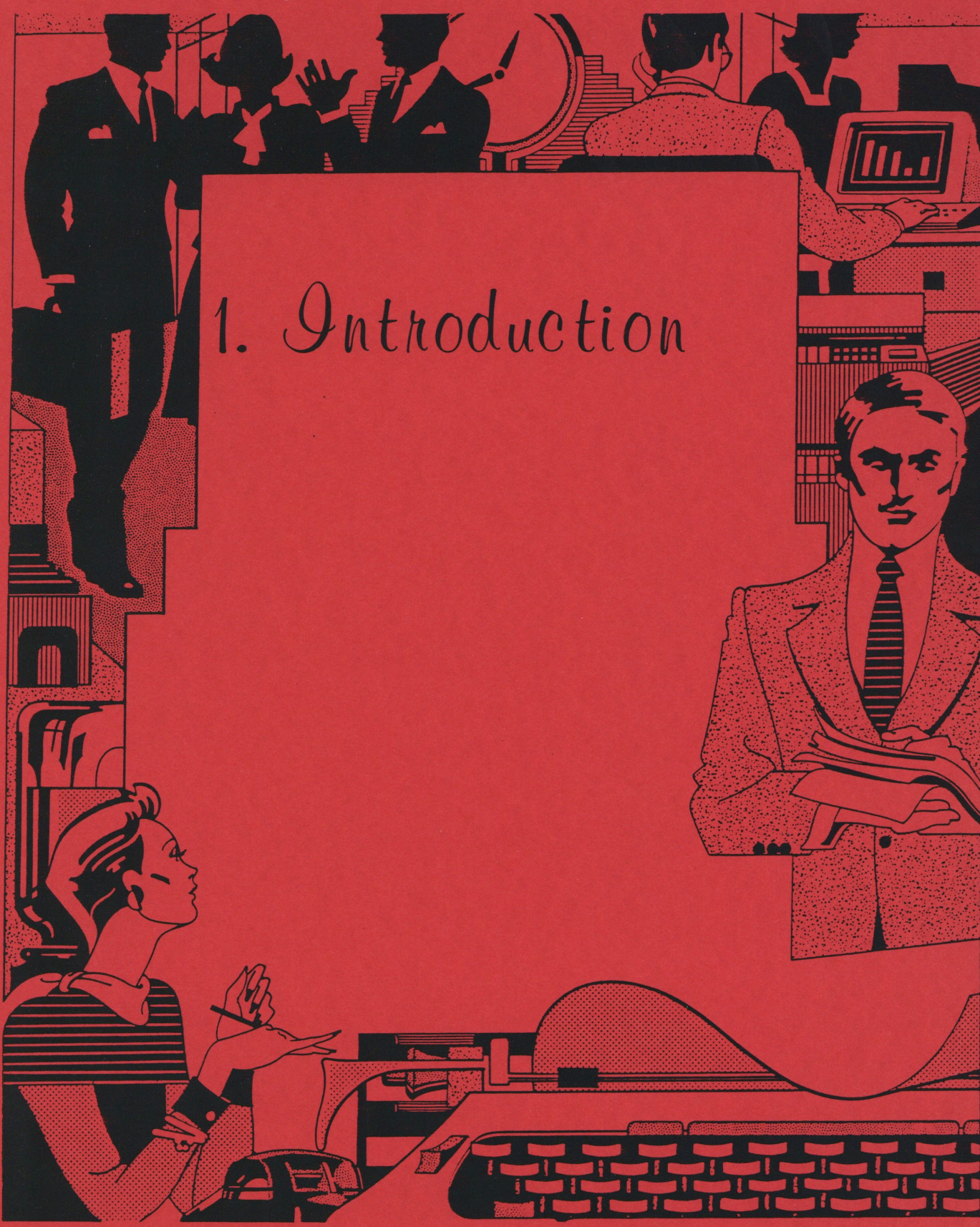
7. I want to learn how much time the parts of this design process take. I want to learn how to use time efficiently and how to place myself back on the right track if I am wasting time.
8. I want to begin this design problem with some method to help me become involved, whether it is a collage, case study, or prints from a roll of film taken at the site.
9. I want to research material for case studies, codes, and my design itself.
10. I want to become better at presenting. I feel that confidence will come with experience and preparation.
11. I want to feel like my bank design might actually be considered if it was actually being remodeled.
12. I want to be able to understand this design problem inside out. I want to be able to communicate why I made the decisions I did.
13. I want to learn how to draw faster, resolve problems, and create solutions (before my deadline) and be satisfied with the end product.

14. I want to practice lettering, designing unique presentation boards, and use not only First Interstate Bank's symbol, but other graphics to enhance my program and presentation boards.
15. I want to become comfortable with working drawings.
16. I want to begin my career feeling confident, well educated, encouraged, satisfied, and appreciative.



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1. Introduction

INTRODUCTION

The First Interstate Bank of Colstrip is located in a small mall in the center of Colstrip, Montana. The population of Colstrip is currently 3,200. The community is composed of employees for the coal mines, power plants, schools, small businesses, and ranchers. In 1973, Colstrip's only bank opened up to accommodate the boom town consisting of laborers and their families. The bank, then called the Security Bank of Colstrip, existed in a centrally located trailer house. The bank relocated into a vacant area in the mall across the street. In 1984, the bank bought into the First Interstate Banking Franchise, a regional banking affiliation that offered benefits such as an Automatic Teller Machine (ATM), and nationwide advertising.

Today, the First Interstate Bank of Colstrip functions in an inefficiently designed space. The goal of this design problem is to create a space that functions more efficiently. The solution will be achieved by studying the problem areas, the daily tasks, and the organizational chart.

EXTERIOR DESCRIPTION

The bank is accessible through two entrances. The lobby of the bank may be entered from the hallway inside the mall, or directly entered from the outside.

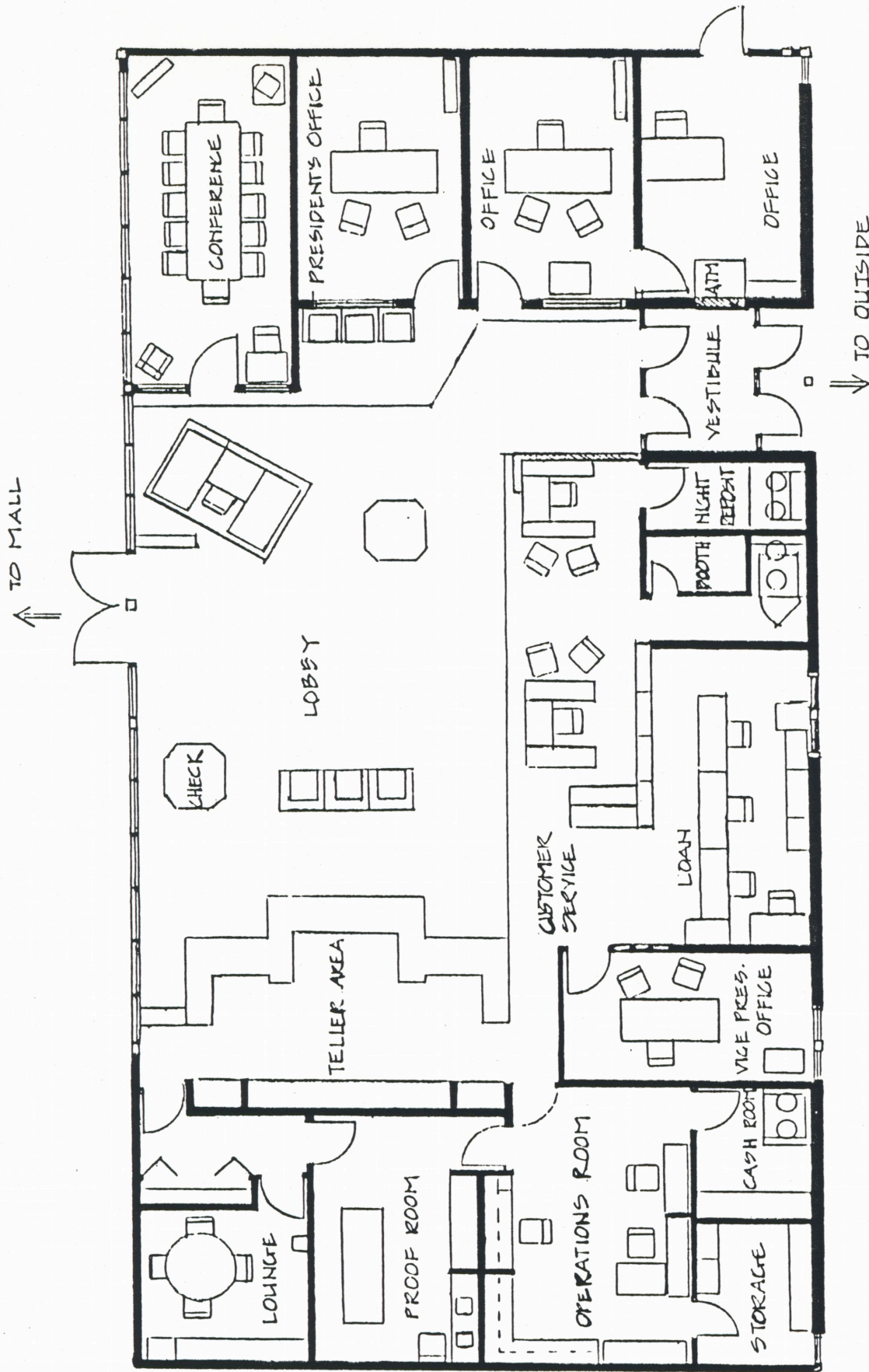
Parking is provided along the curb approximately fifty feet from the exterior entryway. This limited parking area is convenient for those who intend to use the Automatic Teller Machine (ATM) in the entry vestibule, or to mechanically deposit money when the bank is closed.

The First Interstate Bank signage is located at the beginning of the sidewalk. Boldly displayed below this signage is the popular time and temperature information.

Near the double door entry vestibule, the sidewalk becomes uniquely protected by a roof that extends out perpendicular to the length of the mall. The same charcoal gray colored shingled roofing material is applied to this roof extension. Instead of "walling off" this extension, the sixteen foot segment in the center was left open to allow light to enter the "tunnel." The eight foot walls at the beginning and end of the extension provide built-in seating on each side of the sidewalk. These eight foot long walls conceal the structural columns that support the extension. The vertical one foot wide wood panels that wrap around the structural columns are painted the same color as the brick used on the exterior of the mall. To reinforce the continuity of this extension to the mall, the black horizontal

band above the courses of brick is continued around the painted wall panels. A nicely landscaped lawn surrounds the mall. Elm trees and native Scotch Pines which are planted at random can be seen from the windows along the east wall.





EXISTING PLAN

SCALE: $\frac{3}{32}'' = 1' - 0''$

4



INTERIOR DESCRIPTION

A second entrance is located from the interior, directly from the hall. Again, double glass doors access customers into the lobby directly from the hall. Above this entry is First Interstate's logo and symbol that attracts the shoppers from the nearby hardware store, oak gift store, floral shop, movie rental shop, local newspaper office, deli, and bookstore. The wall separating the hall from the bank consists of three foot wide wall panels. A wainscot effect is created by the four foot high wall panels that support each sill and the windows that continue up seven feet from the sills. A three inch deep mullion between each window is extended down the four foot high wall (previously mentioned) to exaggerate the connection between the panels. The soft shadows, the unexposed fluorescent lighting, the healthy plants, and the reflections in the glass create a pleasant environment at the entry.

Upon entering the lobby, one experiences an open square space surrounded by offices, tellers, and the areas for bookkeeping, and opening new accounts (see page 4). Some walls are covered with a coarse felt textile. Other walls are paneled with cedar. The private offices treated one or two walls with the wainscot effect. The panels separating the hall from the bank are a textured vinyl in pale brick red. The metal blinds for the windows are similar in color. The brown glazed floor tiles are used for the front of the teller stations and the portable cubicle stations for preparing cash. Color coordinating plastic laminated counter tops compliment the scheme. Geometric

areas of overlaid carpeting create paths on the tiled floor. The only patterns are found in the upholstery and the felt wall murals behind the teller stations, and in the conference room.

Fluorescent lighting is concealed above shallow square grids suspended from the ceiling. The lighting connected under the large horizontal wooden beams in the lobby creates appealing strips of light the width of the bank. The exposed roof trusses form a peak. Near this peak, a clerestory splashes natural light down from above. The sloped ceiling creates a feeling of generous space.

Private offices along the north wall contain large windows which provide transparency along with some contact to the lobby. The offices and new account areas contain oak desks, tables, bookshelves, doors, and trim work. The entrance doors, windows, mullions, trusses, and columns are the only manufactured structural steel products exposed.



2. Goal and Concept Statements



GOAL AND CONCEPT STATEMENTS

The goal and concept statements are an important tool since they help the designer begin to define what his or her goals are. Once goals can be stated, the "thinking process" of how to accomplish these goals begins. Goals are intentionally separated from the concepts to help the designer begin to think of solutions to each specific goal.



GOAL AND CONCEPT STATEMENTS

	Goals:	Concepts:
1	Make safety deposit box viewing area more comfortable	Add more lighting to vault and viewing room along with more space to view contents
2	Create a sense of orientation	Relocate teller areas or create paths in floor patterns to direct traffic
3	Provide appropriate environment for particular tasks	Keep noisy machines separated from quiet areas Provide cooled atmosphere for machines
4	Prevent malfunction of computer output paper	Design so that static cling is controlled by choosing different material or a special system
5	Easy maintenance and well kept appearance	Choose a tile that does not show dirt
6	Get rid of unsightly distractions	Replace bent metal blinds on doors
7	Provide more privacy during board meetings	Replace windows on west wall of conference room

GOAL AND CONCEPT STATEMENTS

	Goals:	Concepts:
8	Provide audible privacy	Continue walls to ceiling or lower ceiling to existing eight foot wall height
9	Provide continuity of materials chosen	Attempt to match all wood types if not the colors alone
10	Avoid interruptions in work areas	Re-design storage so no office is in a traffic path
11	Prevent the closest teller from receiving more customers than the others	Locate tellers to draw customers to them
12	Prevent long waits at teller stations when larger amounts of money are requested	Locate main vault near teller stations
13	Create a professional atmosphere	Design neatly organized work stations Use appropriate selections for materials and colors chosen
14	Achieve functional space within a minimum budget	Attempt to improve existing spaces rather than re-design entire space

GOAL AND CONCEPT STATEMENTS

	Goals:	Concepts:
15	Provide more storage	Use vacant office next door efficiently
16	Create a more comfortable employee lounge	Enlarge the space itself
17	Create efficient interaction between the offices	Study the relationships and the organizational chart
18	Prevent wasted work time from walking further than necessary	Provide the bank employees with a toilet room
19	Create a teller window that encourages business from the mall without actually entering the mall	Design a comfortable perimeter around the window, either by partitioning off, or advertising effectively
20	Prevent wasted space	Cut down square footage behind the teller stations
21	Prevent obstructions in circulation paths	Move wires and cables away from walkways Avoid file drawers that open into circulation paths

GOAL AND CONCEPT STATEMENTS

	Goals:	Concepts:
22	Prevent "stuffiness"	Provide air circulation system and ventilation for cigarette smoke



3. Problem

Statements

PROBLEM STATEMENTS

The problem statements were obtained from "client interviews" that occurred early in the programming process. The vice president of the First Interstate Bank of Colstrip, Kelly Klem, spent time discussing the current problems, goals, and barriers. Kelly gave a detailed tour of each space and provided floor plans showing the different phases the bank has encountered. Besides looking at the layout itself, the daily routine was discussed. Machines were explained along with the heat, noise and static electricity they produce. Also discussed were customer reactions, orientation and behavior.

President Eve Benson further explained problems involved with the design of the bank. The lack of privacy in confidential areas is a major problem. Eve mentioned the poor distribution of space. She added that rearranging the space has not solved the major problems.

Board member Wally McRae explained the problems with board meetings. Lack of space, privacy, and air circulation create an unpleasant environment for important business meetings.

PROBLEM STATEMENTS

1. Static electricity near the computer output paper causes paper to cling and coil into a large mass instead of folding at creases. As a result, static guard must be sprayed daily.
2. The glazed brown tile floor shows light colored dust causing the floor to look unkempt.
3. The metal blinds at the doors are badly bent from continuously locking and unlocking the inside locks on the doors.
4. The west windows in the conference room prevent privacy from mall shoppers. When the metal blinds are closed the room feels small and clammy.
5. Eight foot walls separate the private offices, but no ceilings for private conversations are present. Instead, the offices are open at the top since the air circulation and lighting systems are currently located above the eight foot ceiling line. The lack of privacy between the president's office and the loan office creates a major problem.
6. The bank faces a definite lack of storage.
7. Oak, Cedar, and plastic laminates imitating wood clash with

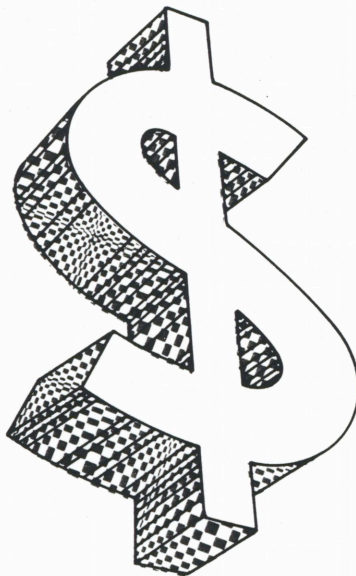
each other.

8. The teller window from the mall is seldom used.
9. The tellers are provided with too much space while other areas that need more space are lacking.
10. A drive up window is needed.
11. A reception area and after hour teller in the vestibule across from the ATM machine is needed.
12. The employee lounge is too small.
13. The vice president's office is too far from the president's office.
14. The vice president's office is too far from the operations area. Since no door is present on the south side of his office, he must walk around.
15. An employee toilet room is needed.
16. The safety deposit box is located in an awkward area.
17. The safety deposit box "viewing" room (where customers look at their valuables in private) is very small. As a result, customers take the contents out into the open public area where new accounts are opened.
18. Upon entering the lobby, customers are often disoriented. Since the president's and loan officer's office are nearest to the entry, customers often walk right in.

19. Tellers are located too far from the entrance.
20. The machines in the operations room are noisy.
21. The proofing machine must not only be air conditioned year round, it now must sit no closer than three feet from the wall because it radiates so much heat.
22. The telephone operator's keyboard is located near the postal machine and computer printer which creates a noisy environment when the operator is talking to customers on the telephone.
23. Electrical wires and cables from the computer and printer extend into the three foot walkway that leads to a storage area beyond.
24. The file drawers located in the new accounts area open right into the circulation path plugging up through traffic.
25. Since the eight foot high wall was extended to the ceiling in the conference room for private board meetings, all the mechanical air circulation was cut off. Board meetings are not only stuffy, the cigarette smoke lingers.
26. The only access to the storage room on the north end is through the loan secretary's office.
27. The room for electric wiring, etc., is only accessible through a customer service station.
28. The teller station at the left is the busiest because of its

location.

29. If a large amount of money is requested, a teller must lock his or her register, go to the back, unlock the door to the vault, then unlock the vault itself while the customer waits.



4. Interior Space Analyses



INTERSPATIAL ANALYSES

The interspatial analyses is a segmented study of exactly what each space needs to function. Hard requirements are the tangible "objects." The designer must organize the hard requirements into "needs" and "wants." "Needs" refer to what is absolutely necessary to operate. "Wants" consist of what the designer and client feels would be nice additions, but not priority pieces.

Soft requirements are adjectives used to describe the atmosphere and feeling desired for each particular space. The designer must decide how to accomplish these atmospheres by manipulating space, color, and form.



INTERIOR SPACE ANALYSES

Area	Hard Requirements		Soft Requirements
	Needs:	Wants:	
Entry	space for shelter from weather, handicapped considerations, lighting 79 s. f.	floor mats, shading device, plants	spacious, obvious, protected, conservative, subdued
Reception	1 desk or counter for greeting, 1 chair, 1 telephone 54 s. f.	plants, paintings or sculpture	noticeable, unavoidable, friendly, convenient
Waiting	seating for up to ten, space for wheelchairs, end tables 264 s. f.	magazines, plants, paintings, ashtrays, coffee pot and cups, trash can	comfortable, noticeable reserved

INTERIOR SPACE ANALYSES

Area	Hard Requirements		Soft Requirements
	Needs:	Wants:	
Lobby	cubicles providing deposit slips, pens, writing space, and a calendar (check stand) 963 s. f.	plants	provide orientation, informative, organized, appealing, lively
Teller Area	Counter top, 4 cash registers, 4 stools, trash can 247 s. f.	plants, nameplates	organized, professional, security, friendly atmosphere, spaced for privacy
Loan Department	1 desk, 1 chair, 2 conference chairs, 1 computer, file storage, trash can 414 s. f.	plants, paintings	private, comfortable, professional, confidential

INTERIOR SPACE ANALYSES

Area	Hard Requirements		Soft Requirements
	Needs:	Wants:	
Vault/ Cash Room	security lock on door, vault 80 s. f.		hidden yet convenient for tellers, security
Proof Room	proofing machine, microfiche reader and filing machine, copy machine, trash can 264 s. f.	paintings	cool, acoustically treated, bright
President's Office	1 desk, 2 conference chairs, 1 chair, 1 computer, file storage, 1 trash can	sculpture, paintings, plants, windows, shading device on windows	special, spacious, comfortable, private, friendly, bright

INTERIOR SPACE ANALYSES

Area	Hard Requirements		Soft Requirements
	Needs:	Wants:	
Vice President/ Cashier's Office	1 chair, 1 desk, 2 conference chairs, 1 computer, file storage, 1 trash can 166 s. f.	paintings, plants, sculpture	private, comfortable, friendly, bright, convenient
Loan Officer's Office	1 chair, 1 desk, 2 conference chairs, 1 computer, file storage, 1 trash can 160 s. f.	paintings, plants, sculpture	organized, private, easily accessed, bright, comfortable, friendly, subdued
Loan Secretary's Office	1 chair, 1 desk, 1 computer, file storage, 1 trash can 160 s. f.	paintings, plants, sculpture	organized, conservative, bright, comfortable

INTERIOR SPACE ANALYSES

Area	Hard Requirements		Soft Requirements
	Needs:	Wants:	
Operation Supervisor	1 chair, 1 work surface, 1 computer, file storage, trash can 160 s. f.	paintings, plants, sculpture	conservative, organized, functional
Loan Supervisor	1 desk, 1 chair, 1 computer, trash can 160 s. f.	paintings, plants, sculpture	conservative, organized, functional
Customer Service (new accounts)	1 desk, 1 chair, 2 conference chairs, 1 computer, trash can 667 s. f.	paintings	friendly, comfortable, appealing, private, subdued

INTERIOR SPACE ANALYSES

Area	Hard Requirements		Soft Requirements
	Needs:	Wants:	
Conference Room	1 large table, 10 chairs, book shelf, screen, chalkboard, video screen, trash can 288 s. f.	10 ashtrays	spacious, organized, ventilated, lively, bright, functional
Automatic Teller Machine (ATM)	operation directions specified 24 s. f.		convenient, protected, bright security
Night Deposit	operation directions specified 25 s. f.		protected, well lit, convenient

INTERIOR SPACE ANALYSES

Area	Hard Requirements		Soft Requirements
	Needs:	Wants:	
Booth	2 chairs, 1 counter top 63 s. f.	1 painting	comfortable, spacious, bright, private, secure
Lounge	storage, counter space, 1 sink, 1 pop machine, time card punch machine, 1 table, 8 chairs, 1 refrigerator, 1 microwave 216 s. f.	2 paintings	spacious, organized, bright homey
Storage	shelves 64 s. f.		convenient, conservative

INTERIOR SPACE ANALYSES

Area	Hard Requirements		Soft Requirements
	Needs:	Wants:	
Toilet Rooms	1 toilet, 1 sink, towels, 1 soap dispenser, 1 large mirror, 1 trash can 64 s. f.		convenient, conservative, simple

* Total Square Footage (s. f.) needed: 4,892

Square Footage

The existing bank facility is currently 4,416 square feet. The goal of this project is to re-design the interior space within the existing boundaries. Since an entire office space to the north of the bank has been vacant for months, the additional 869 square feet will be included in the new plan which adds up to a total of 5,285 square feet. This should be an adequate amount of space to design a very functional system. By necessity, the overall design will be compact and conservative which in turn will demand order and functionality.

5. *Diagrams*

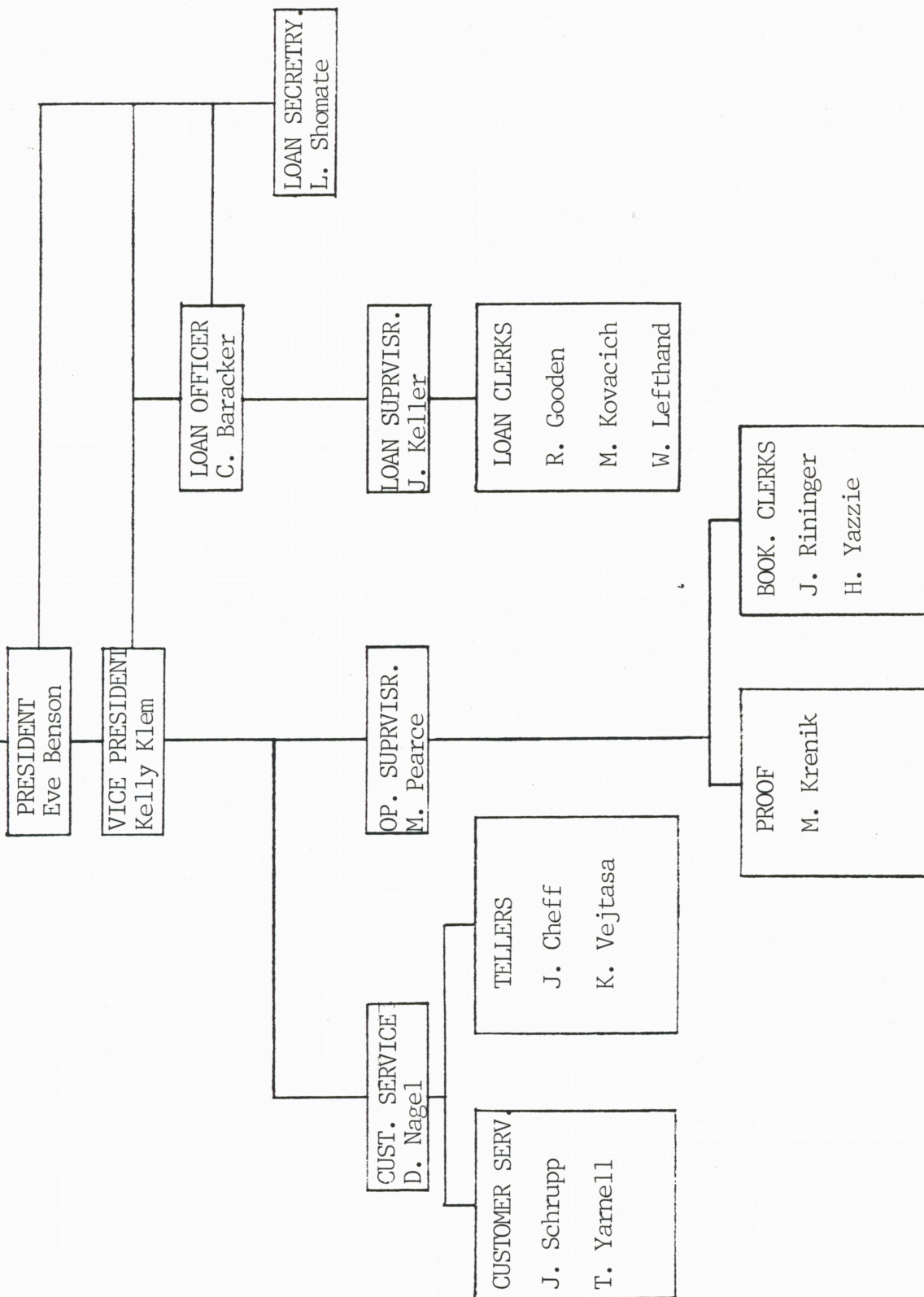


ORGANIZATIONAL CHART

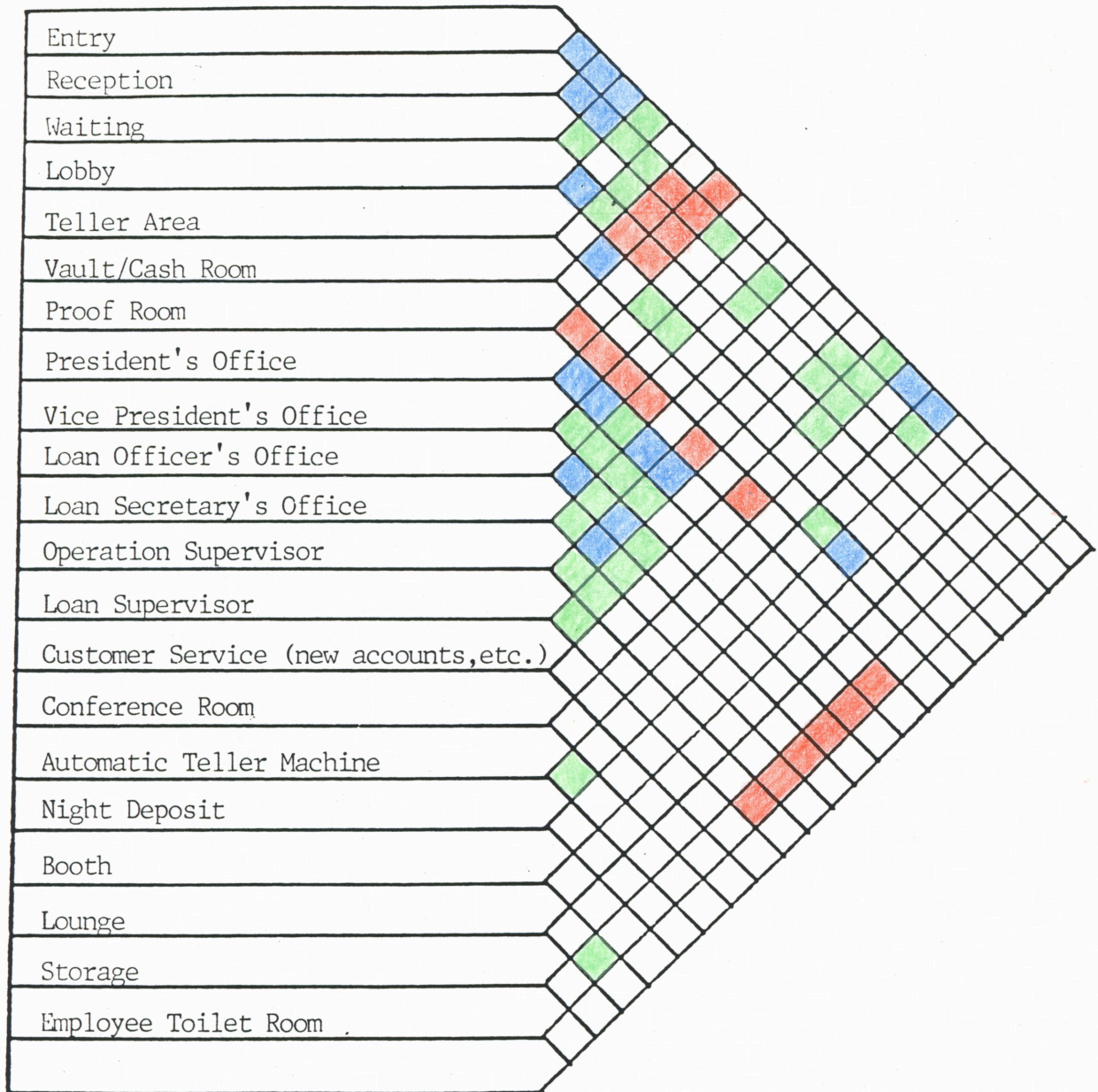
An organizational chart has been provided to show the hierarchial breakdown of this banking system. The purpose for this addition is to study what relationships are necessary to efficiently accomplish daily tasks. The organizational chart is similar to the interspatial matrix since the goal of each is to graphically display what areas need to be located near each other for business interaction. The organizational chart and interspatial matrix are intentionally located together to help the designer understand how this system's operational practice will affect the new design layout.

BOARD:

E. Benson
T. Scott
N. Fandrich
G. Garfield
T. Taylor
T. Wagner
V. Olson
K. Klem
W. McRae



INTERSPATIAL MATRIX



Adjacency Requirement:

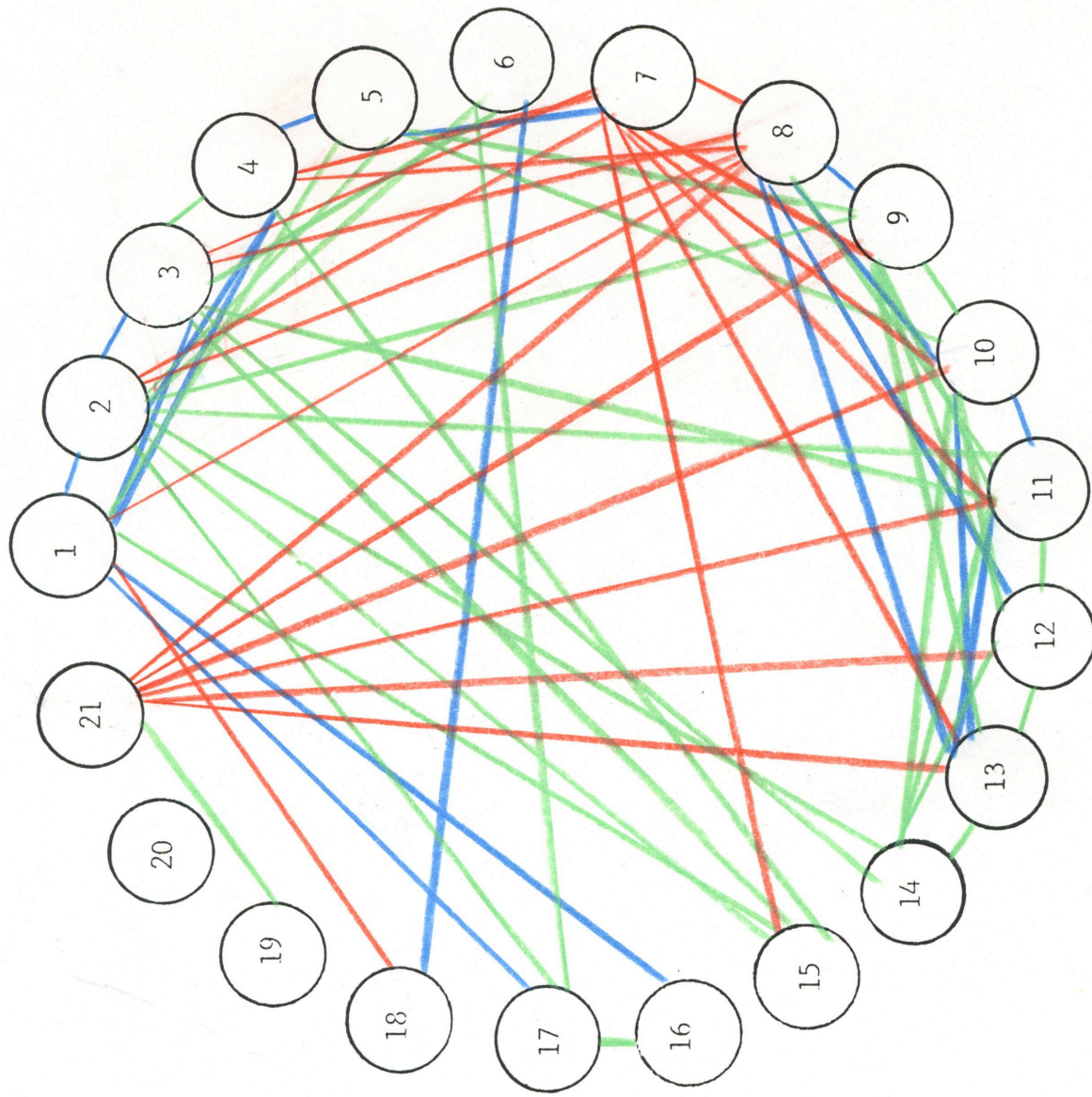
Essential ■

Desirable ■

Non-essential

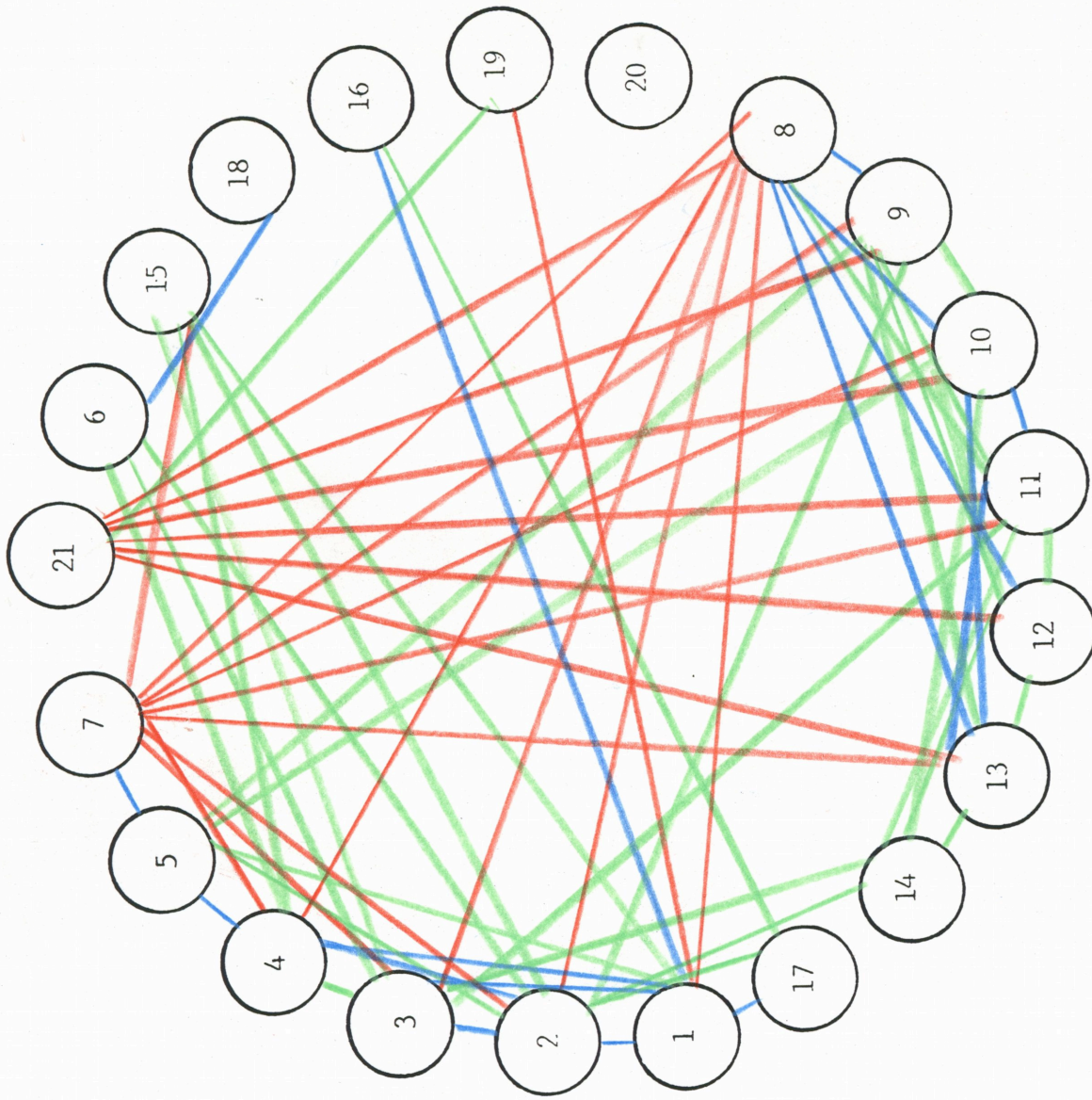
Non-desirable ■

1	Entry
2	Reception
3	Waiting
4	Lobby
5	Teller Area
6	Vault/Cash Room
7	Proof Room
8	President's Office
9	Vice President's Office
10	Loan Officer's Office
11	Loan Secretary's Office
12	Operation Supervisor
13	Loan Supervisor
14	Customer Service (new accounts)
15	Conference Room
16	Automatic Teller Machine (ATM)
17	Night Deposit
18	Booth
19	Lounge
20	Storage
21	Employee Toilet Room
	Essential
	Desirable
	Non-desirable



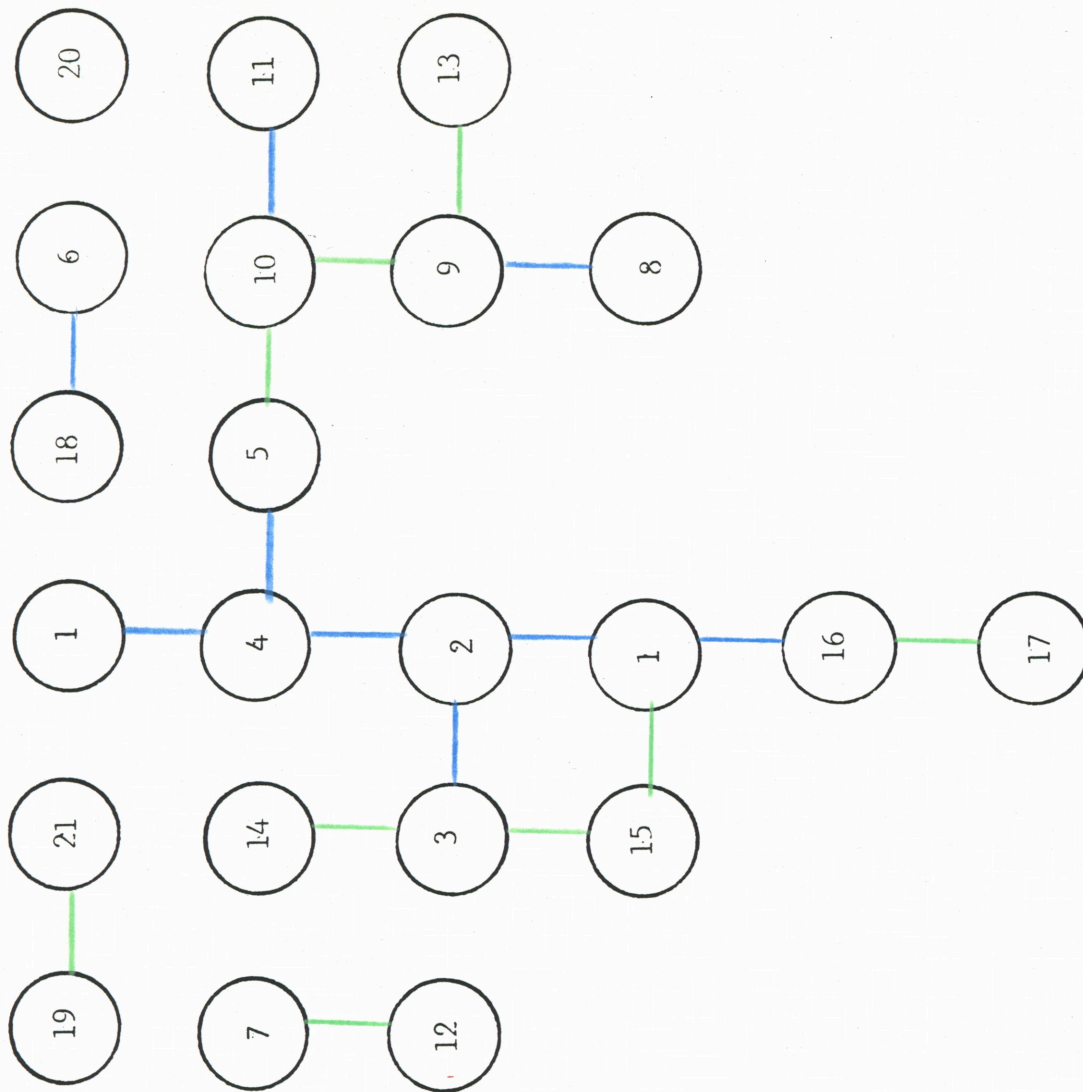
PHASE 1: General Adjacency Hierarchy

1	Entry
2	Reception
3	Waiting
4	Lobby
5	Teller Area
6	Vault/Cash Room
7	Proof Room
8	President's Office
9	Vice President's Office
10	Loan Officer's Office
11	Loan Secretary's Office
12	Operation Supervisor
13	Loan Supervisor
14	Customer Service (new accounts)
15	Conference Room
16	Automatic Teller Machine (ATM)
17	Night Deposit
18	Booth
19	Lounge
20	Storage
21	Employee Toilet Room
	Essential
	Desirable
	Non-desirable



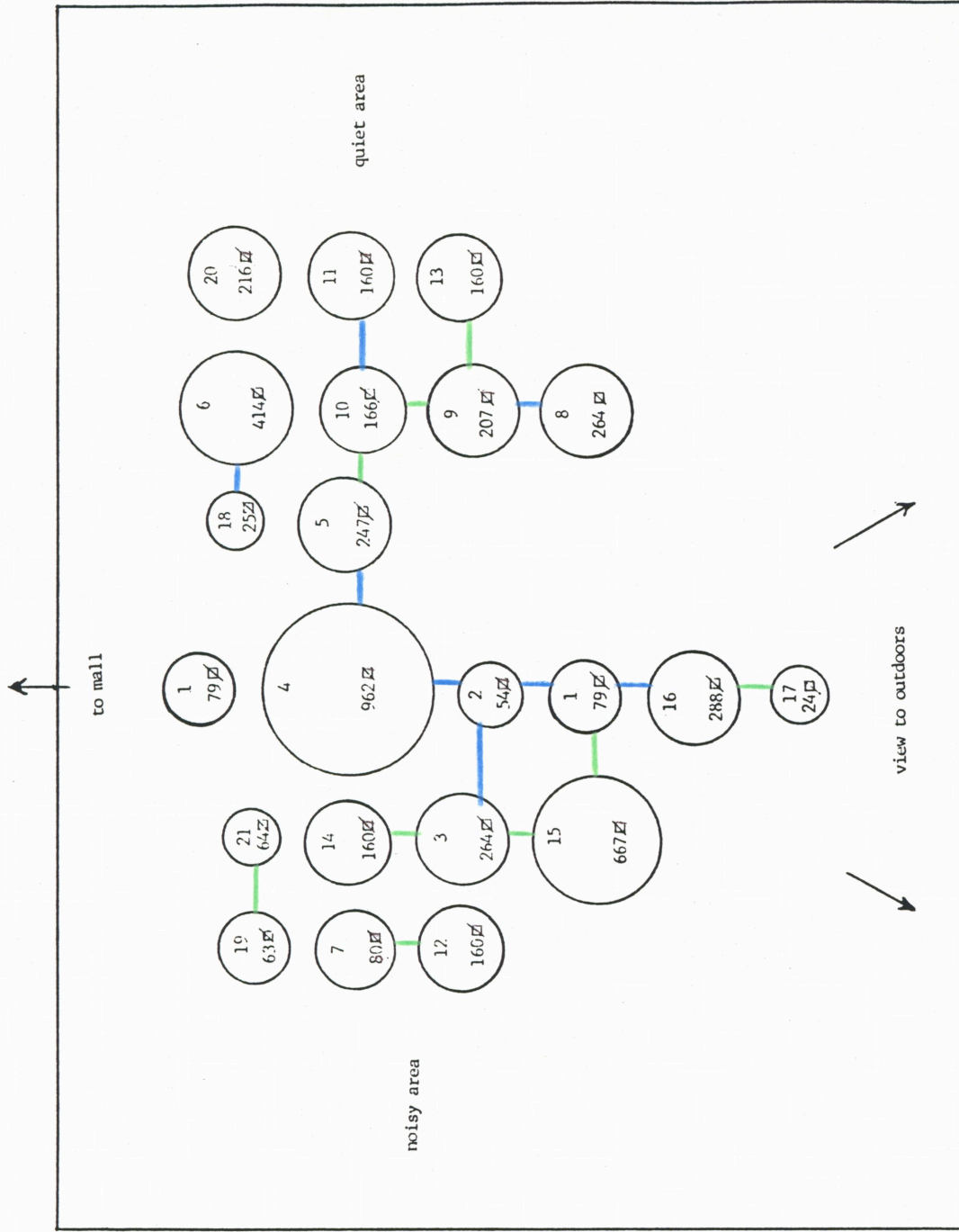
PIASE 2: Reorganized General Adjacency Hierarchy

1	Entry
2	Reception
3	Waiting
4	Lobby
5	Teller Area
6	Vault/Cash Room
7	Proof Room
8	President's Office
9	Vice President's Office
10	Loan Officer's Office
11	Loan Secretary's Office
12	Operation Supervisor
13	Loan Supervisor
14	Customer Service (new accounts)
15	Conference Room
16	Automatic Teller Machine (ATM)
17	Night Deposit
18	Booth
19	Lounge
20	Storage
21	Employee Toilet Room
	Essential
	Desirable
	Non-desirable



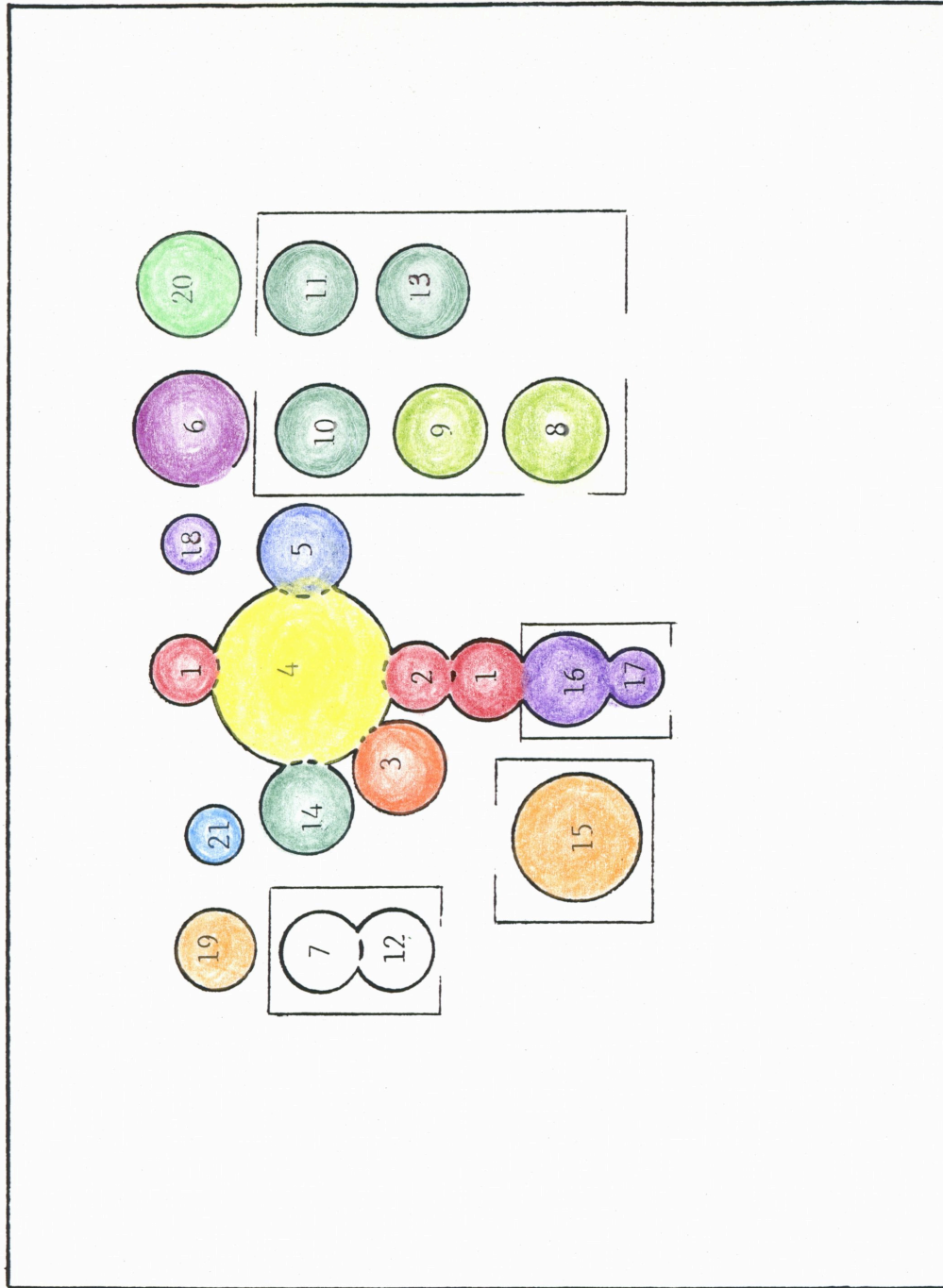
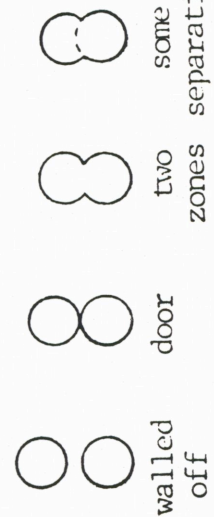
PHASE 3: General Adjacency Plan

1	Entry
2	Reception
3	Waiting
4	Lobby
5	Teller Area
6	Vault/Cash Room
7	Proof Room
8	President's Office
9	Vice President's Office
10	Loan Officer's Office
11	Loan Secretary's Office
12	Operation Supervisor
13	Loan Supervisor
14	Customer Service (new accounts)
15	Conference Room
16	Automatic Teller Machine (ATM)
17	Night Deposit
18	Booth
19	Lounge
20	Storage
21	Employee Toilet Room
	Essential
	Desirable
	Non-desirable
sq	Square Feet



PHASE 4: General Adjacency Plan Roughly Indicating Size of Estimated Square Feet

1	Entry
2	Reception
3	Waiting
4	Lobby
5	Teller Area
6	Vault/Cash Room
7	Proof Room
8	President's Office
9	Vice President's Office
10	Loan Officer's Office
11	Loan Secretary's Office
12	Operation Supervisor
13	Loan Supervisor
14	Customer Service (new accounts)
15	Conference Room
16	Automatic Teller Machine (ATM)
17	Night Deposit
18	Booth
19	Lounge
20	Storage
21	Employee Toilet Room
	protected, bright, convenient
	spacious, organized, bright
	organized, plentiful, bright
	convenient, conservative
	spacious, obvious, subdued
	comfortable, noticeable, reserved
	orientation, informative, appeal
	professional, friendly, security
	private, comfortable, professional
	friendly, special
	convenient, hidden, security
	cool, spacious, bright



PHASE 5: "Leap Vehicle" Connecting Bubble Diagram to Actual Design Within Shape of Existing Building's Boundaries

6. Studies



Security and Psychology of Bank Design

As a graduating senior, I am presently organizing a design package to fulfill the requirements for my degree of Bachelor of Arts in Interior Design. In March I submitted a proposal for my senior project in addition to a calendar schedule. I chose to remodel the small First Interstate Bank of Colstrip in Colstrip, Montana. I felt the bank was a reasonably sized project for the amount of time I was allotted. Since the bank currently suffers space and efficiency problems, I feel this particular project will be a challenge and a learning experience.

In addition to four completed "case studies" on existing banks, I would like to introduce how space is manipulated in the design process. One main goal of this research paper is to introduce the reader to the responsibilities of a designer which include effective communication skills with the user of the future space, psychology of behavior, and the detailed programming process involved. Once the reader is introduced to the processes involved in creating a functional design, I will zoom in and focus on a special aspect of bank design: The interior design of banks and the psychological deterrence of bank robberies and vandalism. One particular source, Robert Sommer's Social Design: Creating Buildings With People in Mind, emphasized the necessity of collecting information from libraries. Sommer

stated that too many design students make more use of the library slide collection than of the book collection. "Library exercises should be part of design education," he stated.¹

A building is made up of so many different kinds of systems and is subject to a wide variety of technological, aesthetic, and social constraints that it is often exceedingly difficult to resolve a design problem. Since buildings serve people, function is defined by the attributes necessary to satisfy human requirements.² Buildings are first and foremost structures that enclose space in a certain way. The design tells us something about the building's purpose and what goes on inside. The design also encourages and discourages certain behavior. Buildings influence behavior by structuring relationships among members of the organization. Buildings encourage some communication patterns and discourage others. Hierarchical positions of importance are assigned to units of the organization. The design of a building has effects on behavior, planned or not, by embodying messages such as how the company operates, what it values, and where it has been and is going.

Designing is a process considerably more complex and more contradictory than architects have previously admitted it to be. Designing requires a more disciplined effort than most have devoted to it. Most architects think of the spatial experience as primarily visual, often in terms of two-dimensional drawings and renderings. Clients have to actually be in the space after it is finished before the clients can experience the space.

Organized space as an "orientation" is a design concept

which seeks to organize space for its predictive value. The idea is that a space should have a singular definition and use. In terms of orientation, the spaces are cued with landmarks which act as focal points for functionally different spaces. Artificially created environments, if they are to satisfy man's nature, should contain not only variety, but surprise and challenges. The layout of space should reflect the relationships among activities, while separating unrelated activities. A place should be provided for each citizen to call his own. A variety of space needs to be provided for meetings consisting of different sized groups. Variations in light intensity, color, acoustics, and other acceptable forms of peripheral stimulation should be of functional size and character. Qualities such as efficiency, safety, and good aesthetics should be possible without trading off one against another.

According to a crime-within-apartment-buildings expert, Oscar Newman, good defensible space makes it easy for people to see what is going on, challenge intruders, and take other appropriate action.³ Newman observed two major components of defensible space: surveillance and territoriality. Surveillance refers to the ability of occupants to see what is going on in and around specific areas, and to keep track of suspicious activities. Good surveillance is achieved by proper positioning of windows with respect to entrances, parking lots, and grassy areas. On existing projects where faulty design creates areas hidden from public view, high technology solutions such as alarms

or video cameras may be substituted for the human presence. These are, however, considered a less desirable alternative than the presumed presence of people.

The occupant's feelings of territoriality are enhanced through real or symbolic barriers that mark areas belonging to particular departments. Strangers can be challenged when they enter marked space with a polite "Can I help you?" or with a firmer language if necessary. Real barriers include hedges, fences, gates or walls.

The term "social design" reflects the combination of participatory planning methods and social science concepts.⁴ Social designers are distinguished from their more traditional counterparts by an explicit and primary commitment to the occupants. Social design is working with people rather than for them. Satisfaction of occupant needs is the primary goal of architecture. Loyalty to materials, exciting form, and appropriateness to the landscape are ways of accomplishing this objective. Talking is as much a part of the social designer's job as drawing and writing. Graphic presentation is essential both for showing people design alternatives and for allowing their views to intersect with traditional design approaches which involve sketches, models, and drawings.

Most architects rely on drawings and photographs to describe their work, yet pictures do not show how a building fits the moods and activities of the occupants. Behavioral scientists and designers share a belief that knowledge of human behavior improves the design process and that knowledge about the physical

environment would improve the understanding of human behavior. The connection between design and social science is expected to enrich theory in both fields. Most architectural theories have dealt with buildings apart from people, and most psychological theories deal with the human psyche separately from the environment.

Today, designers use a tool called "programming" to determine an establishment's goals, facts, concepts, needs and problems while considering function, form, economy, and time.⁵ The process of programming often leads to the statement of an architectural problem and the requirements to be met in offering a solution (see the general model and the phase of the designing process pages 47 and 48). Although programming is the prelude to good design, it is still distinct and separate from design. Programming is problem seeking, not design. Design entails problem solving. Programming provides a sound basis for responsive design. Programming is not just asking questions, instead it is based on a combination of interviews for data gathering and work sessions for decision making. The purpose of programming is finding out what the whole problem is by providing the basis for a more comprehensive solution. Limits are established along the scope of possibilities. Programming is the same process for any building type that processes raw data into useful and essential information regardless of the size of a project or size of the firm. Programming is a cooperative process emphasizing client decision making while raising the client appreciation and aspir-

ation for better building design. Obviously, programming is more than making a list of wanted spaces; it requires a high degree of communication that is able to distinguish between "wants" and "needs" while determining present and future needs.⁶

In a recent study, it was found that certain design characteristics of banks, such as interteller distances and lobby size, affect the incidence of bank robberies. Through the cooperation of the Seattle City Police, four and a half years of bank robbery records were recorded and examined. The records do not rely on what bank robbers say they do, or what security personnel believe they do. Instead, the approach was to access police records of bank robberies. The bank robberies in Seattle were similar to those experienced elsewhere in North America. The comparisons showed remarkable consistencies in terms of the day of the week (Friday) and time of day (early afternoon) when most robberies are likely to occur.⁷ The study concluded that bank robbers make highly selective and opportunistic use of bank interiors to aid their crimes. Crime prevention through environmental design can go far beyond the "hard security" items of locks, alarms, and surveillance cameras. Security design is proposed here as any physical manipulation that can act directly or indirectly to affect criminal behavior.⁸ This means that conditions such as line of sight, perceived barriers, paths of movement, or even an atmosphere of a bank interior can be examined for the ways in which they may encourage or discourage a criminal act.

Many reports may give the impression that bank robbers are quite uncaring about the types of banks they target. They portray the robber as impulsive, impetuous, unplanning, and unskilled in his robbery behavior. Studies found that robbers were sensitive.

It is apparent that bank robberies occur in at least three very different ways. There is a takeover; there is a robbery where a gun is displayed and a verbal demand made, and there is a type where a note is passed and no threat at all exhibited. The question is whether each of these types of robbers is attracted to similar or different types of banks. The nature of robbery varies with the status of the weapon. Although guns were observed in 44% of all robberies, they were twice as likely to accompany a verbal demand (43%) compared to a written demand (21%). While a verbal demand where no weapon was shown nor threatened occurred only 30% of the time, the same lack of weapon or threat condition accounted for 6% of those robberies when a demand note was presented.⁹

Effects of Design on Incidence of Bank Robbery

1. Interteller Distance: The groupings of banks with an interteller distance of greater than five feet had more robberies than those banks with an interteller distance between three and five feet.
2. Lobby Aspect Ratio: This is the ratio of the depth over the breadth of the lobby area. Lobbies that are nearly square in proportion have more robberies than those that are very

compact, both visually and physically.

3. Number of Exterior Doors: This is the number of entry/exit doors available to the public. Banks with single doors have over twice the incident rate for being robbed than banks with two or more entrances.
4. Location of the Exit Teller: The exit teller is that teller position facing the exit from a single line organizing system, which directs customers to the first available teller. The exit teller is victimized almost twice as frequently as the other tellers.
5. The Interior/Lobby Ratio: This is the ratio of the whole interior area of the bank to the area of the bank lobby. For large interior/lobby ratios there is a strong pattern that the end teller nearest the door is victimized.
6. Contingent Effects of Interior Design on Bank Robberies: The height and width of a teller's counter may act to discourage any style of robbery while they actually aid another. Basically, contingency can be summarized as follows:
 - A. Unarmed, non-threatening note passers are most concerned about detection and surprise. He chooses larger banks with interior conditions that allow him to easily monitor the lobby. He prefers the bank officers to be visible to him, and he prefers a dimly lit interior. This type of robber also selects banks with teller stations that had a higher frontal partition, deeper counter, and wide interteller distances. In

this sort of robbery, the robber is definitely not in control, and wants to remain as unnoticed as possible. He selects banks that give him the best opportunity to enter and leave without detection.

- B. Armed robbers wish to control a teller with a weapon display, and they target banks that allow them to exercise this control without bank officer interference. Armed robbers have a tendency to choose teller lines with low frontal partitions and narrow counter depths.
- C. Armed robbers prefer a bank interior that is highly visible from the outside, with the teller line fully visible from the door, and with views from the bank officer's area obscured.
- D. Unarmed, non-threatening robbers appear to be slightly discouraged by high exterior visibility to the interior, and by a teller line that is fully open to the door. Also, they feel inhibited by the lack of bank officer's views and by a layout that places bank officers out of their own field of view.

7. Individual Examples of How Interior Design Affects Bank Security:

- A. In some banks, the fluorescent light tubes that suspend over the teller line completely cut off camera views of robber's faces leaving no usable pictures for identification.
- B. Cameras over doors, as opposed to behind tellers, take

the best picture of robbers as they leave.

- C. In several robberies the robbers deliberately used interior columns that obscured them from other bank personnel. In one instance where a column abutted a checkstand, the robber first waited at the checkstand, then pulled a ski mask on and robbed the nearest teller. All of this took place out of sight from the bank officers across the lobby.

When a bank interior is designed, the types of robberies it is likely to experience are designed into it to a degree. The various styles of robbery, and their reliance on different design features or different values of the same features, imply that there is no single answer in a design approach to bank security. When the bank's setting is designed, the selective risks are designed into them. Rather than treat all bank customers as a potential threat, environmental security acts to constrain or limit the criminal's choice, increase the difficulty of their actions, or aid their identification and later apprehension.

When someone alters part of the physical environment without the consent of the owner or manager, the act is considered vandalism. Vandalism costs between 250 million and 500 million dollars annually to repair.¹⁰ Sociologically, vandalism may be a problem of values, but operationally, it is a problem of behavior. People will capitalize on every opportunity to benefit themselves regardless of the costs of others, and must be stopped

by designs that effectively resist the most determined attacks- a design strategy commonly known as "target hardening."¹¹

Target hardening is the design rationalist's answer to the number of individuals that can be expected to abuse the setting in ways that serve their own ends. Target hardening means substituting unbreakable polycarbonates for glass windows and fixtures, removing everything that is not absolutely necessary for minimum function.

Researchers who have performed field surveys of property damage estimate that two thirds to three fourths of all vandalism is aided by characteristics of the setting itself, and is therefore controllable, to some extent, by the designer's pencil and eraser.¹² Most controlled quantities that are involved with social interaction, such as relative height, eye contact, and distance, can be affected by designing the setting to either constrain or enhance the associated behavior. Property damage can be avoided by design elements that do more than resist attack; design can be used to subtly steer the user away from destruction.

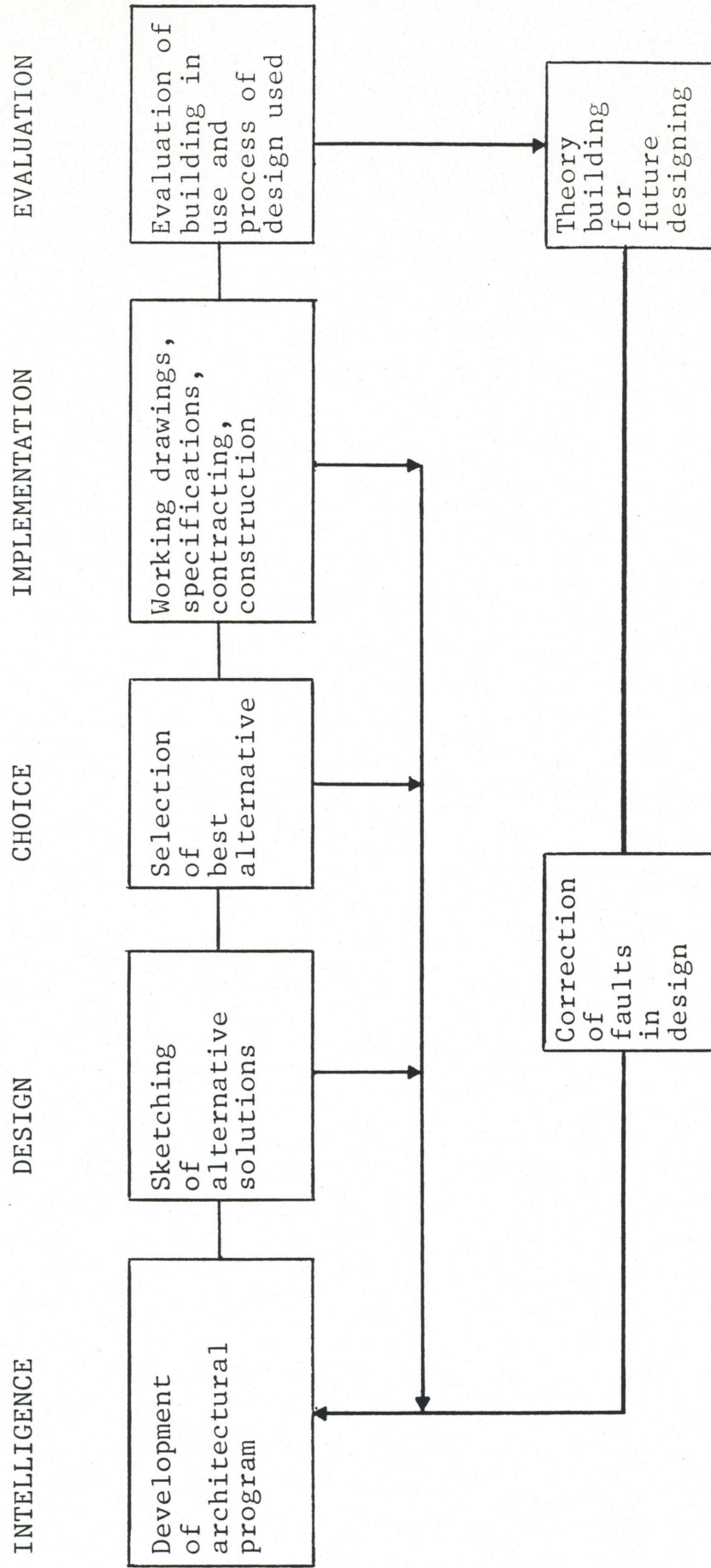
De-opportunizing is a term for creating a setting that welcomes users while protecting itself against them.¹³ De-opportunizing design can reduce vandalism by lessening the vandal's reward. This doesn't mean building overwhelming resistance into the setting, but simply altering it so that the object is less fun to play with.

Fortunately, most customers are more concerned about the demeanor of bank employees than the physical environment. The employees, however, are concerned about their working environ-

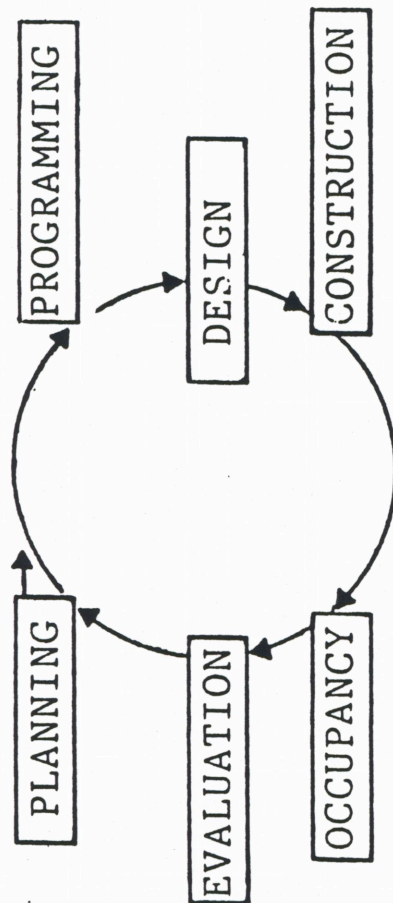
ment and feel that improvements in their physical surroundings could translate into improved customer-employee relations.

To design a school building and not consult teachers and students, or to design a hospital without consulting patients and staff members would be absurd. Evaluating examples of the building type deepens the evaluator's understanding of people-place relationships, and enables the observer to see a particular space in a way he has never seen before. The social designer needs to know something about observational procedures, interview and questionnaire methods, photography (how to include people in pictures), and case studies of important buildings. Social design theories can be used to identify the social consequences of proposed solutions early in the planning process, when various alternatives are still being generated, thus helping to determine the appropriateness of proposed alternatives for different goals and objectives. A new environment that incorporates the fundamental qualities of a company's character produces new behavior that will stimulate new ways of operating that are both unanticipated and more productive than what had been envisioned. Well-integrated design produces an organic product that has a life of its own, independent of its designers.

GENERAL MODEL OF THE DESIGNING PROCESS



PLANNING → PROGRAMMING → DESIGN → CONSTRUCTION → OCCUPANCY



PHASES OF THE BUILDING PROCESS

CASE STUDY

Project: Chembank, New York

The financial institution's divisional office

Designer: Gatje Papachristou Smith

This particular bank space is used for back-office operations such as personal loan business. This division's work calls for meetings of top-executives with important customers. The clients requested their wishes to somehow reminisce the old traditional financial institutions while visually acknowledging the high degree of automation in the plan. The designer settled on a look best described as transitional. Traditional design aspects are expressed by extensive use of mahogany for baseboards, crown moldings, doors, and trims. The stretched fabric over the vertical surfaces surrounding the stairs adds another touch of old time elegance. The contemporary treatments of simple clean lines with subdued wood tone colors avoid all fussiness. Overall, the plan is a flexibly rearrangeable office system.

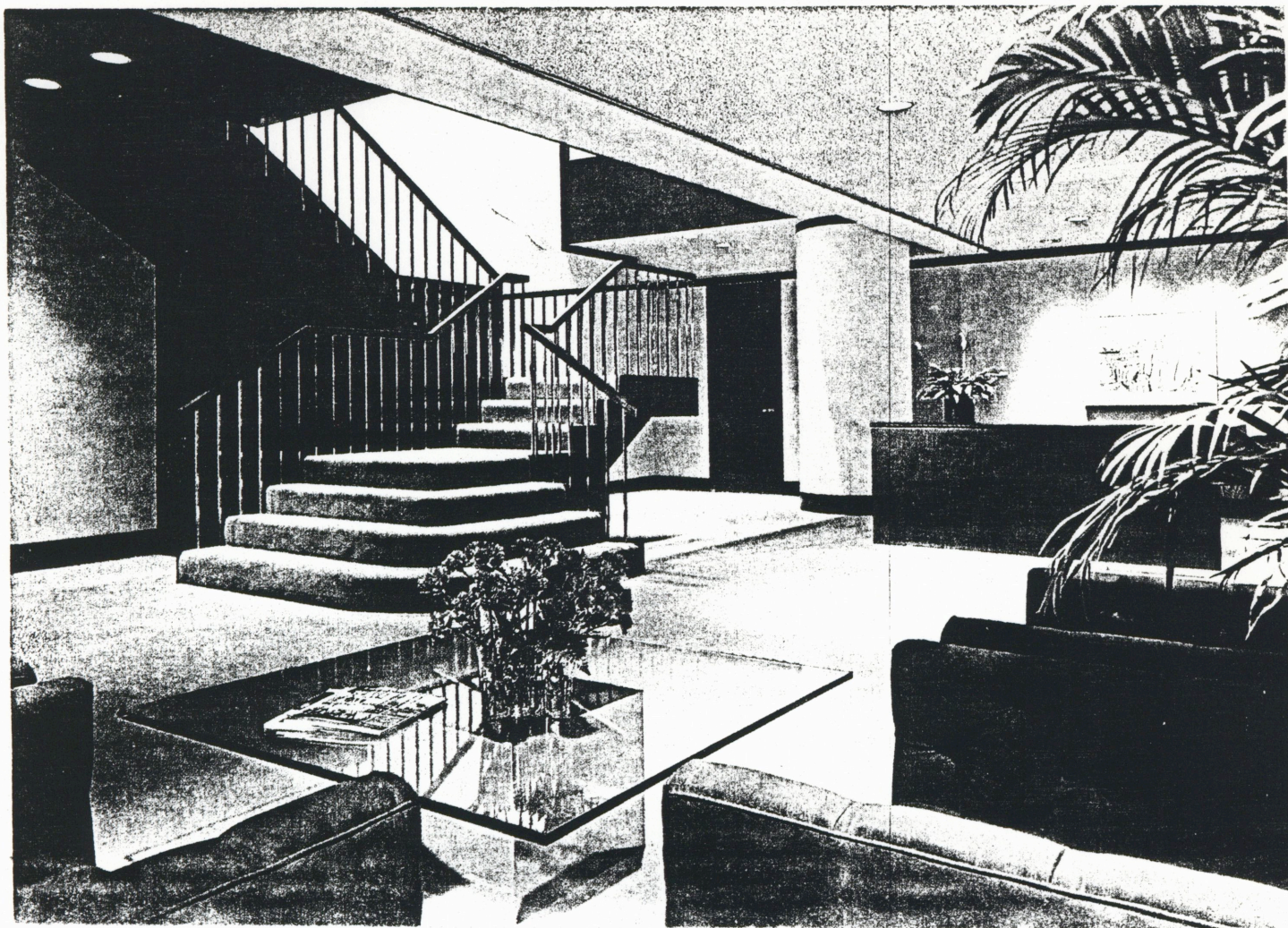
Observation for the First Interstate Bank of Colstrip

Some aspects of Chembank could easily blend into the First Interstate Bank of Colstrip. As far as materials are concerned, Chembank appears to be less extravagant than the other banks I have researched. The overall scheme looks affordable yet professional. The designer successfully pulled out the requested traditional look through the furniture styles and mahogany. The cream carpet is soft and appealing in the office spaces, but

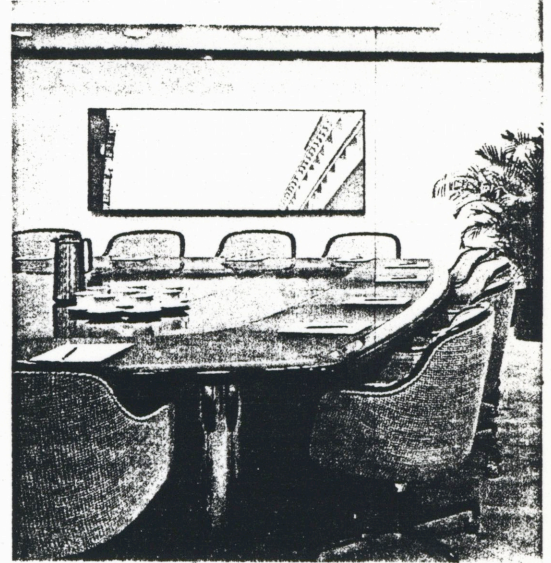
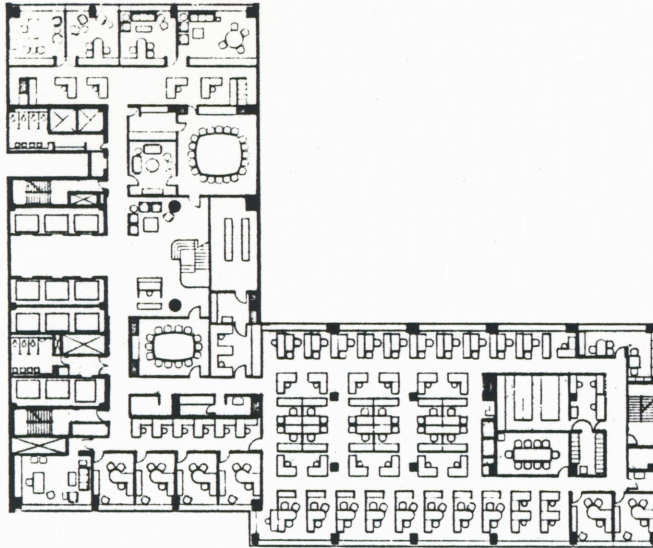
Colstrip could never keep up with plush carpet in their reception area. Also, I feel the lack of patterns in wall coverings, upholstery, or carpet becomes almost monotonous. All the rooms appear to have the same treatment without hierachial considerations.

Observation According to Security and Psychology of Bank Design

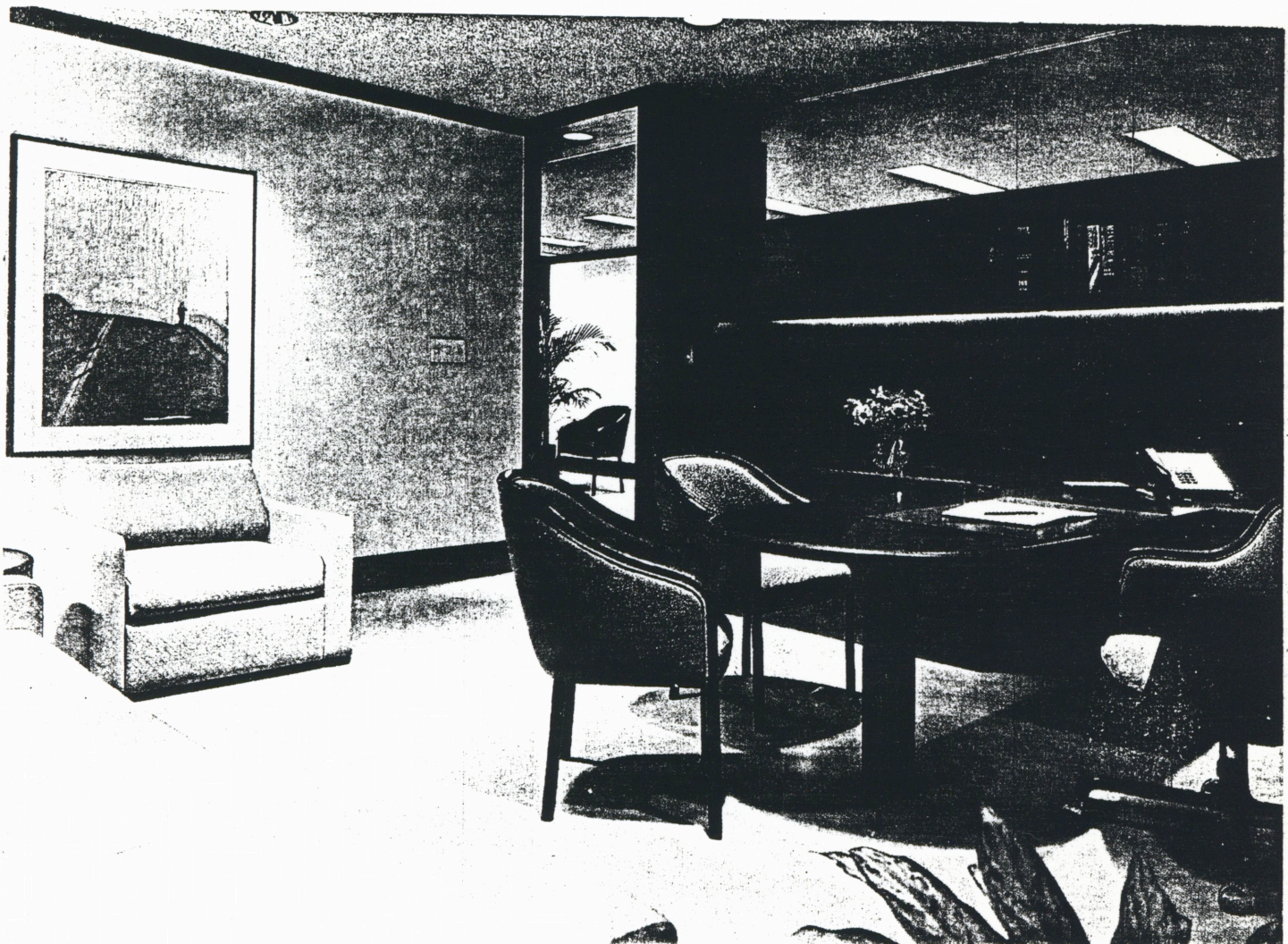
Although the reception area definitely can aid and control visitors, the location of the reception desk appears to be isolated from contact between other staff members. However, this office set-up appears to be oriented more for business than cash handling.



Reception area.



Part of conference room.



Chief executive's office.

CASE STUDY

Project: Dime Savings Bank

The executive quarters of the bank's Long Island headquarters

Designer: Owen and Mandolfo, Inc.

When the Dime Savings Bank relocated their headquarters, executives left behind luxurious offices complete with wood paneling and details plus classic interior treatments identified with minimal International Style. Owen and Mandolfo's primary goal was to create an environment within a restricted budget that was comparable to the very beautiful offices they were leaving behind. The executive quarters were composed of offices for the chairman, president, and five executive vice presidents in addition to the conference room, kitchen, secretarial zone and storage space. The allotted 5,900 square feet created many decisions about materials and finishings. The designers realized that attempts to replicate the woodworking of the previous premises would be challenging. Instead of custom work, the designers turned to stock woodworking elements such as double doors and pediments, and moldings. A comfortable, interesting space was created through careful finishing and choices of color. The color scheme is based on light beige for the walls with blue grey wash to emphasize the details. "The colors are fresh but not bright," the partners state. "We were trying to use colorations that suggest light coming from behind." Walls in the reception area were covered with 109-inch wide textured sheets of

fabric that allowed a seamless installation. The columns and tiles of composition granite blended with the soft colors and moldings provide a welcome degree of classicism to this Manhattan space. Most furnishings were recycled from the previous quarters as requested by the client. Fortunately, the designers found the majority to be high calibre pieces, including a sizable collection of Brno chairs.

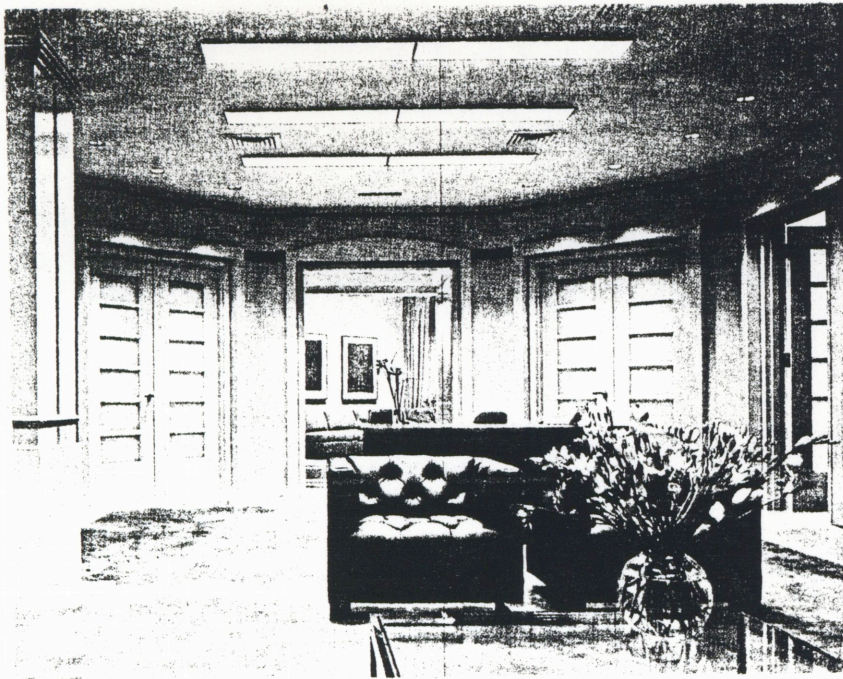
Observation for the First Interstate Bank of Colstrip

The Dime Savings Bank immediately projects an appealing, clean atmosphere. As the designers stated, the colors are not overwhelming, instead they are subtle and refreshing. The use of moldings near the ceiling line, exaggerated door frame moldings, and changes of planes creates interesting highlights and shadows as they play with the light. The furniture compliments the simple but effective theme. The bank looks functional and conservative, but confusing near the entry. The compact plan appears to lack orientation for first-time customers. The layout appears to be for bank business and private conferences rather than business with tellers.

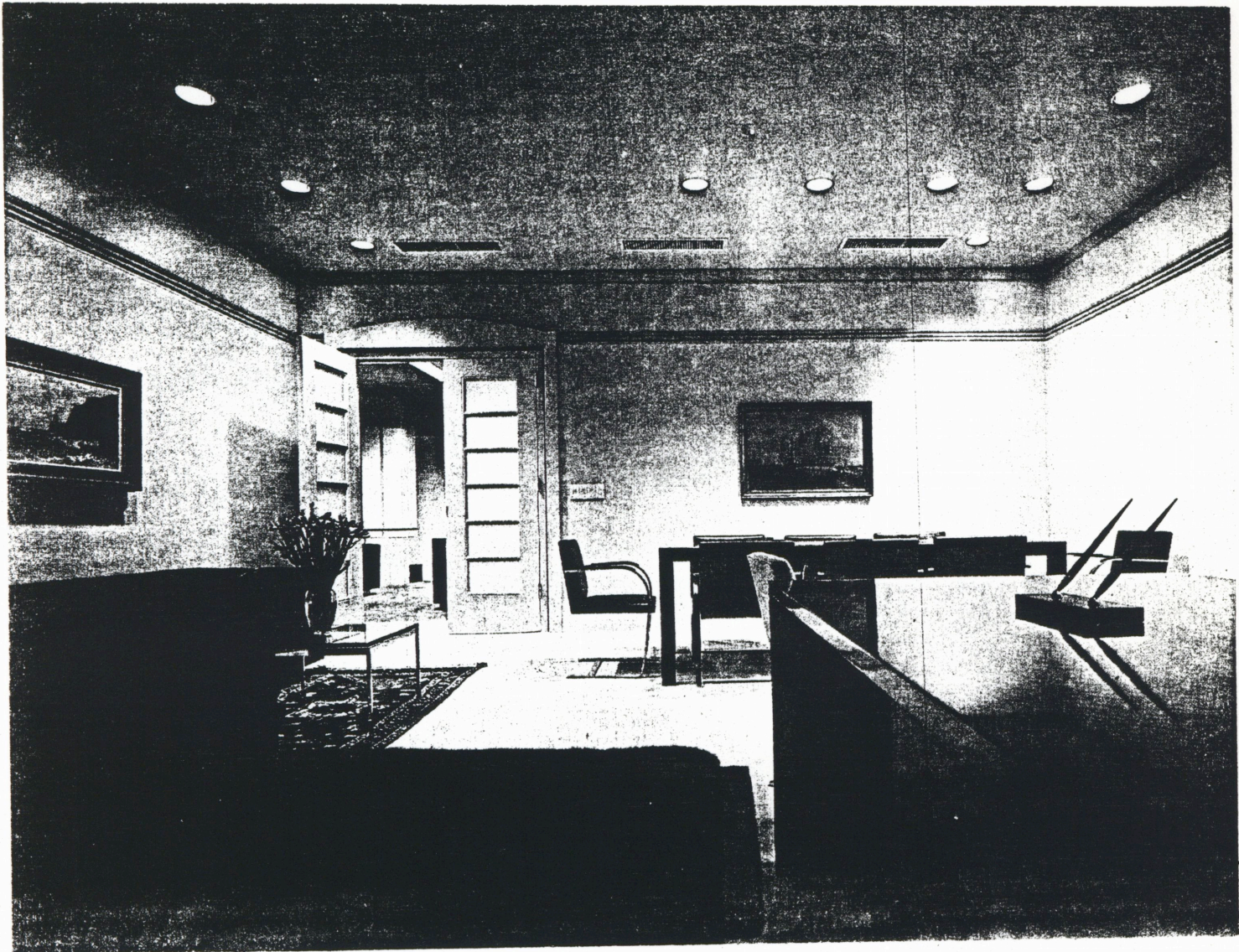
Observation According to Security and Psychology of Bank Design

The Dime Savings Bank is an office oriented space. The geometry is appealing, but the teller area creates problems. The lobby's circulation space is tight and contains only one main entry besides the doors that lead to private offices. The interteller distances are close together (approximately three

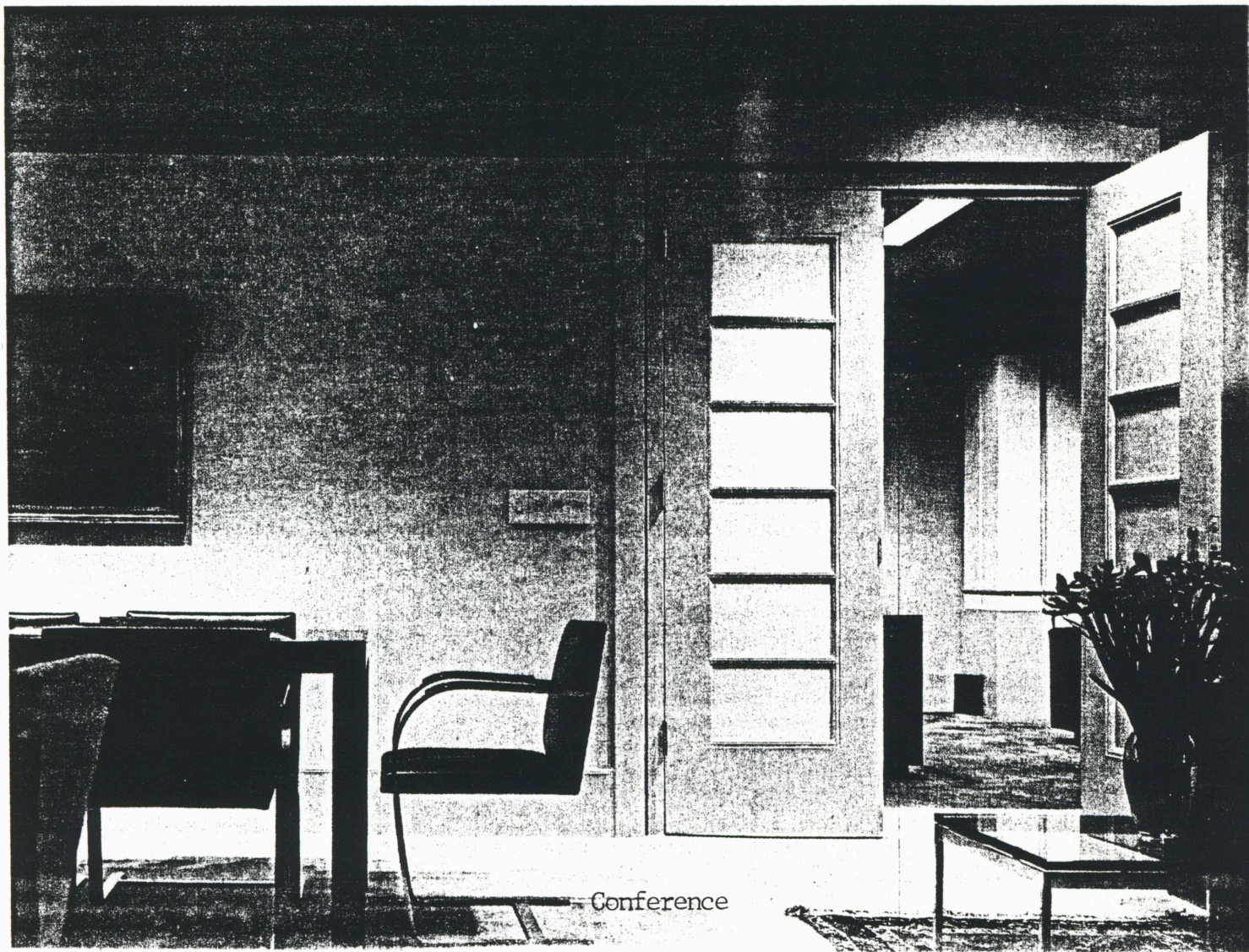
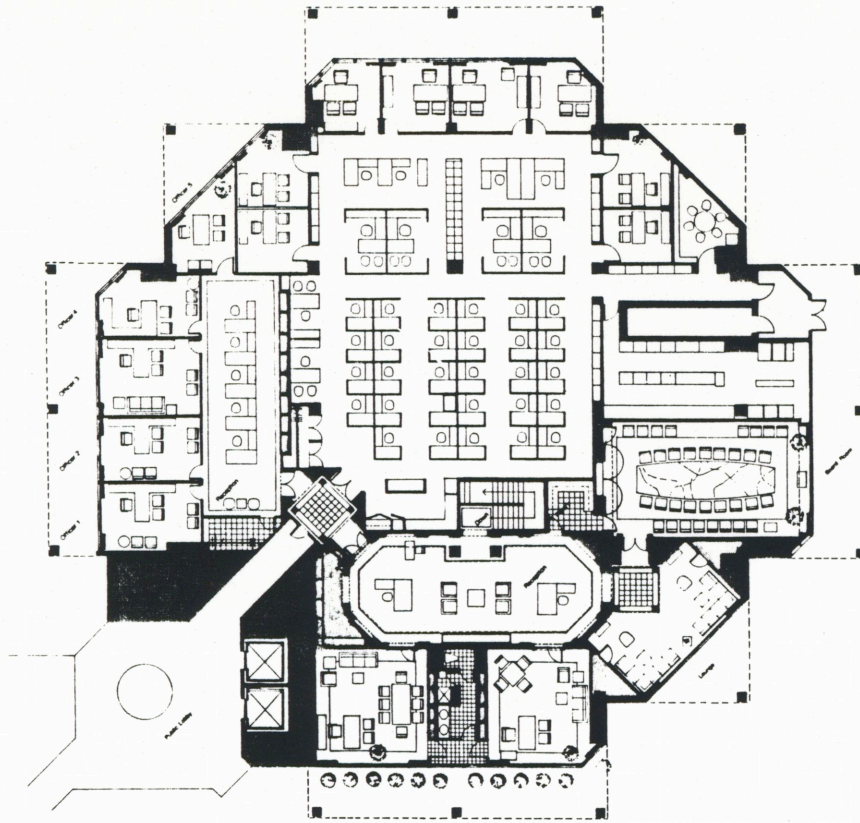
feet) which is a quality. Since the teller area is so isolated and near the entry, robbers would be able to block off all the doorways except the main entrance and leave without being detected from the exterior. The first teller station is ideally located near the entrance for a quick exit. Unarmed, non-threatening robbers appear to be discouraged by high exterior visibility to the interior, and by a teller line that is fully open to the door. In this situation, robbers may feel inhibited by the lack of bank officer's views and by a layout that places bank officers out of their own field of view.

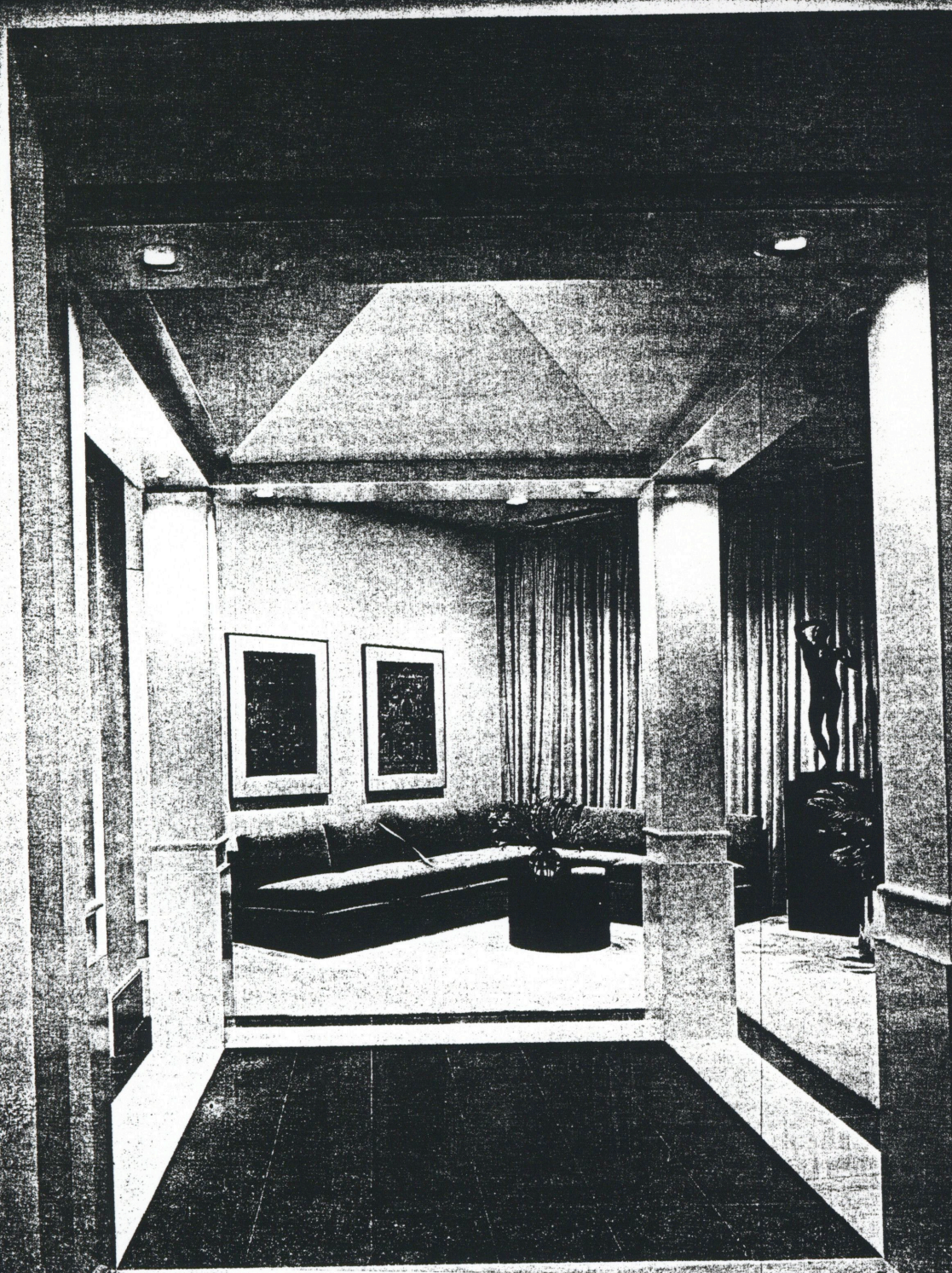


The reception area, furnished with existing pieces, has double doors, with frosted glass between horizontal mullions, leading to the president's and chairman's office. The acoustical tile ceiling and fluorescent lighting were necessary due to budgetary constraints.



One of two nodes, this connects the reception zone with the board room and lounge while the other links the reception and vice-presidential areas. This linkage device is defined by columns, a pyramidal ceiling and flooring of travertine and composite granite.





The chairman's office shows the pervasive color scheme based on beige painted walls and subtle blue/gray tint for the applied detailing. Furnishings, carried over from previous headquarters, are arranged into conference, lounge and work groups.

CASE STUDY

Project: Summit Savings Association

Interior Design: Hermanovski Lauck Design, Dallas

Introduction

In November 1986, Interior Design magazine and the Institute of Business Designers published the winners of their annual competition. This particular competition is considered the most major to interior designers with new and previously unpublished work. The 1986 gold award and best of competition was a financial service facility in Dallas, Texas by Hermanovsky Lauck Design.

Although the Summit Savings Association is well established through a series of branch banks in rural Texas communities, a new challenge was undertaken. A decision was made to open an operation in the city of Dallas. The quest became one of creating a sophisticated image denoting strength and wealth, while insuring a sense of confidence to customers who were considering depositing their money. The design firm concentrated on producing a scheme with a visual impact of large scale and substance. The design problem, was accomplishing the scheme within a relatively small area of 2,800 square feet located in a corner of the Stanford Office Center's lobby. The designers took

granite, stainless steel, and rosewood, the primary materials used in the structure's public spaces, and repeated them inside the bank premises. The combination of materials suggested both linkage and individuality. The bank, as seen from the Stanford Office Center's lobby, consists of rosewood paneled portals and heavy glass doors on the glass wall. The transparency from this lobby is a unique feature. Upon entering the glass doors into the bank lobby, the two foot square granite grid changes to a diagonal polished axial pattern that runs parallel to the vaults. The inlaid polished and honed Brazilian Uba Tuba granite marked the grid intersections with stainless steel discs. The entry portals are of rosewood with a stainless steel inlaid threshold concealing an alarm system. Another application of the reflective metal is found in the radial fixtures delineating the vault and crescents.

The granite enclosures at the teller stations are topped with 3/4 inch-thick slabs radiused at their front edges, and supplemented with stainless steel pin-held glass etched on the underside to suggest a deal plate. Perpendicular glass panes, sandblasted and punctuated with clear portholes, define each segment of the stepped line up.

The spots of carpeting, the rosewood paneling, and the seating upholstery for the offices and work stations provide a contrast to the central hall's hard materials. In some areas the ceiling drops to 7'-6" while the highest points of the vaulted overhead plane rise up 10'-8". A lacquered wall partition, entered through an unobtrusive flush door, leads to the

computation room and the tellers work section. The refurbished circa-1886 vault door opposite is purposely conspicuous. The door is decorated with massive fittings plus etched metal scrollwork and surrounded by smooth stainless steel. The entire design is carefully detailed with several rich materials that create a "presence" for the bank.

Observation for the First Interstate Bank of Colstrip

The Summit Savings Association caught my eye not only because of the rare material combination, but I instantly was attracted to the geometry in the floor plan. I feel the diagonal granite floor grid that branches off from the straight grid in Stanford Office Center's lobby makes the design unique. I feel the strongest point of this particular design is the fact that the customers are directed straight to the tellers. No receptionist is needed to direct the "traffic." The diagonal grid in the granite floor and parallel to the round ceiling vaults leads the customer to the four staggered teller stations.

The entire wall at the entry is glass, including the unobtrusive flush door. The rosewood wall panels were spaced two feet from the glass wall which created a space for plants on the floor and signage on the rosewood wall panels. This glass wall helps the small space appear to be larger. The glass also creates reflections along with the hard polished granite. The soft cream carpet, plush waiting area and rosewood successfully soften the atmosphere. I never would have considered a combination of rosewood, stainless steel and polished granite,

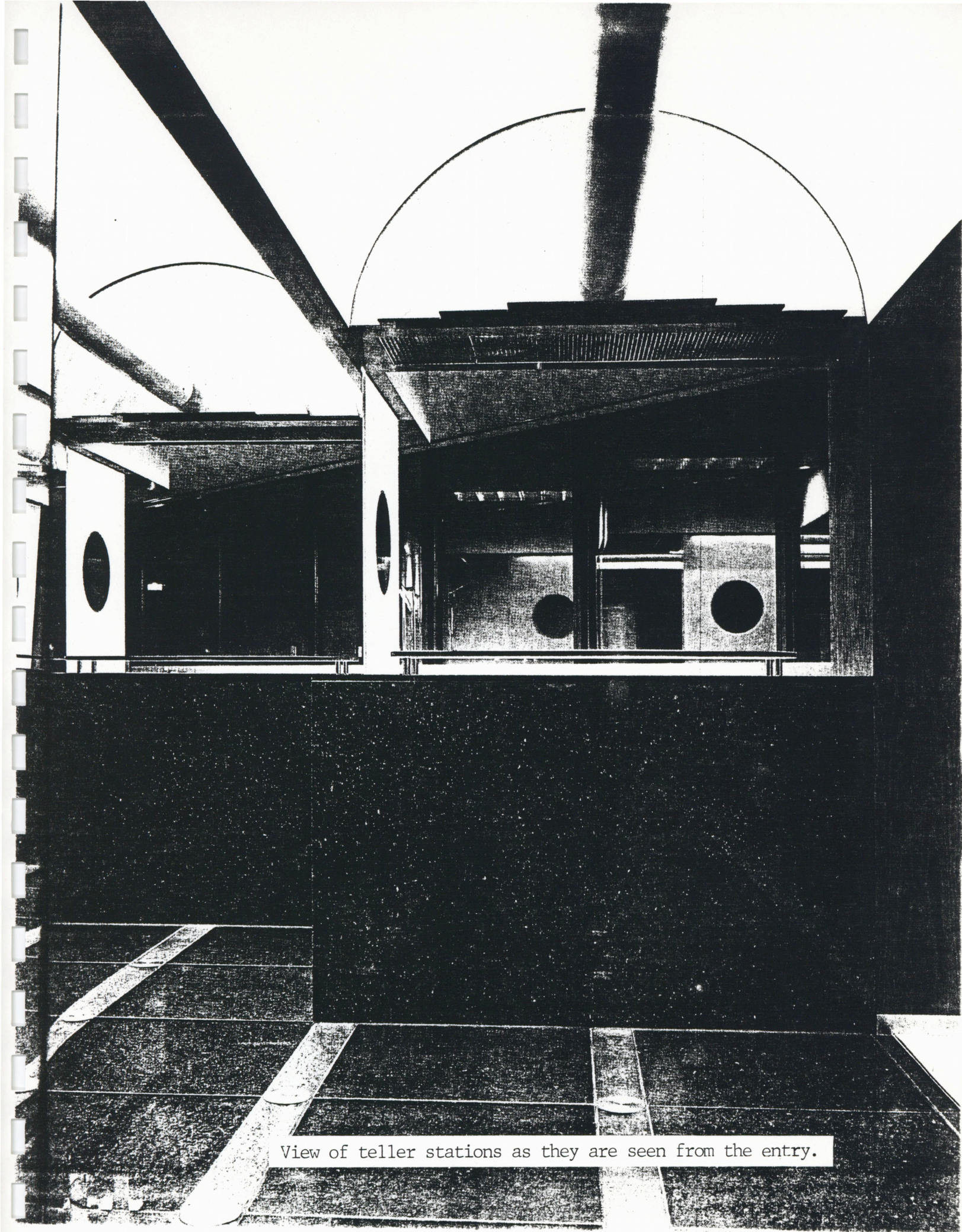
but the contrast is very appealing. The exposed, exaggerated vault is another brave addition I feel was successful. It is fun to look at, but looks too heavy and dangerous to touch. I noticed that no infrared detectors or cameras are visible which immediately makes me suspiciously question, "where are they?" I feel that the stainless steel discs at the linear intersections of the granite floor grid ties in the stainless steel-inlaid threshold which conceals an alarm system.

The rounded vaulted ceiling and the thoughtful use of light throughout creates just enough soft curves to balance the space.

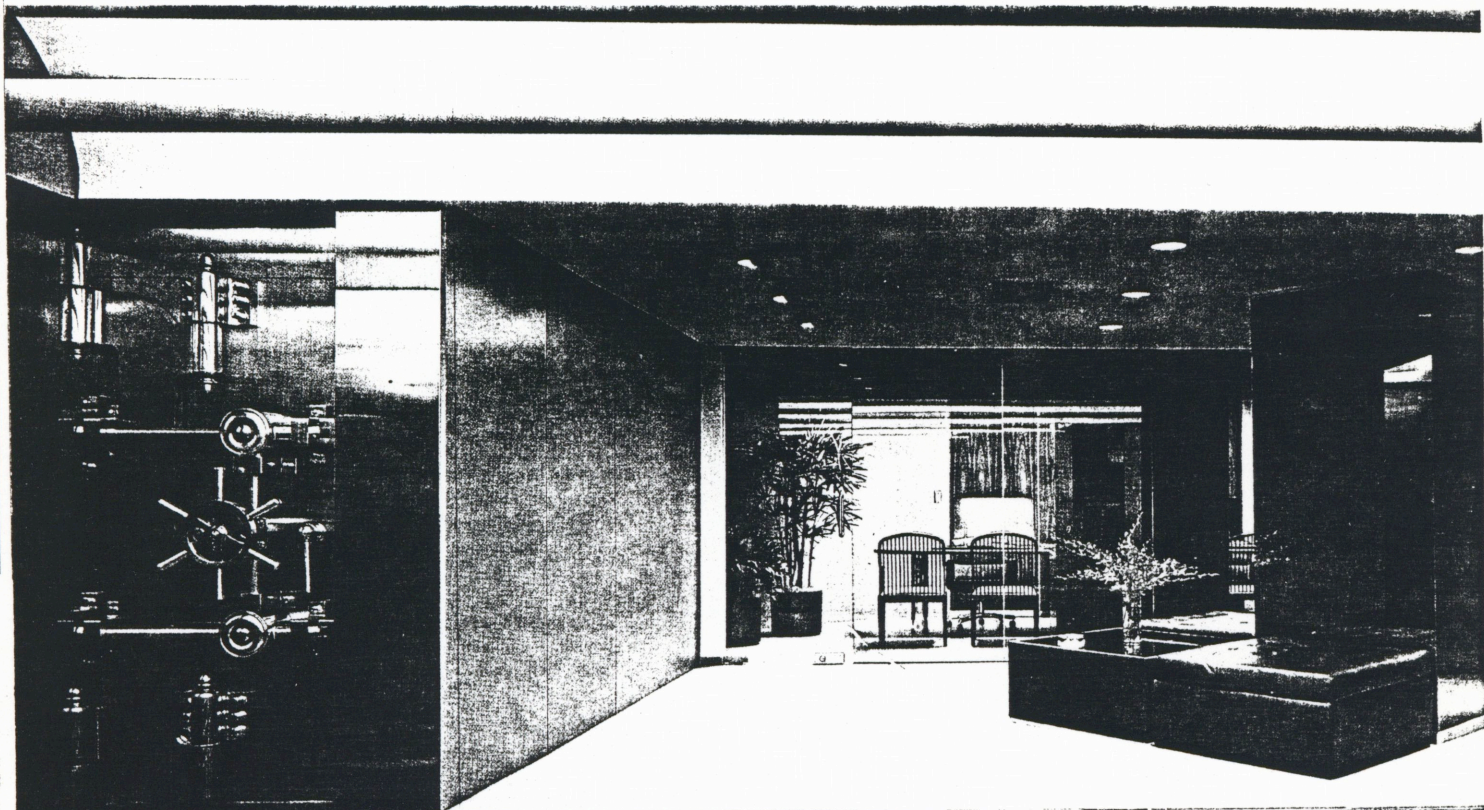
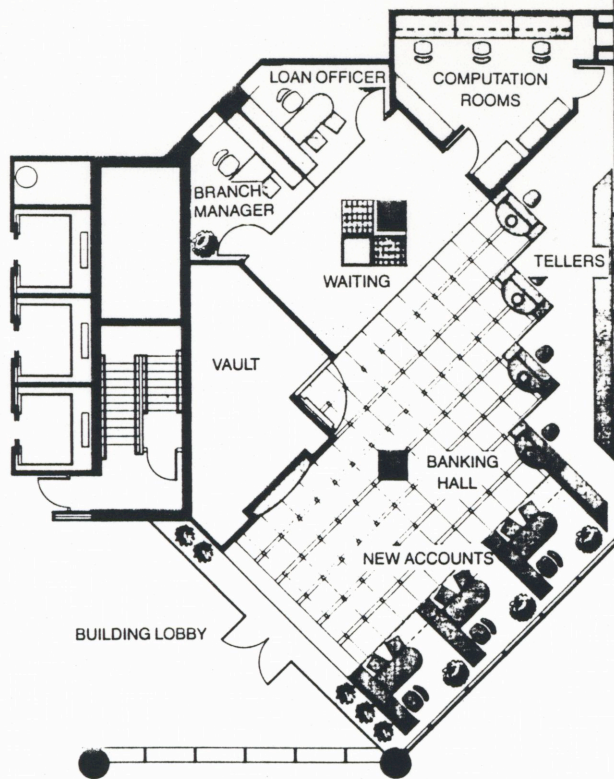
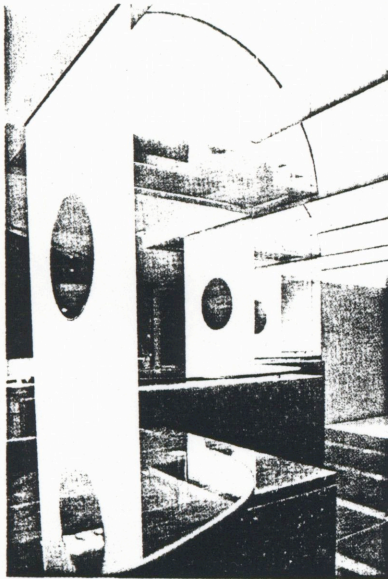
Overall, the bank is opened up, but safe looking. I feel that the designers made a valuable decision when they chose to integrate the materials in the Stanford Office Center into the bank. The design itself created the individuality that the designers were seeking.

Observation According to Security and Psychology of Bank Design

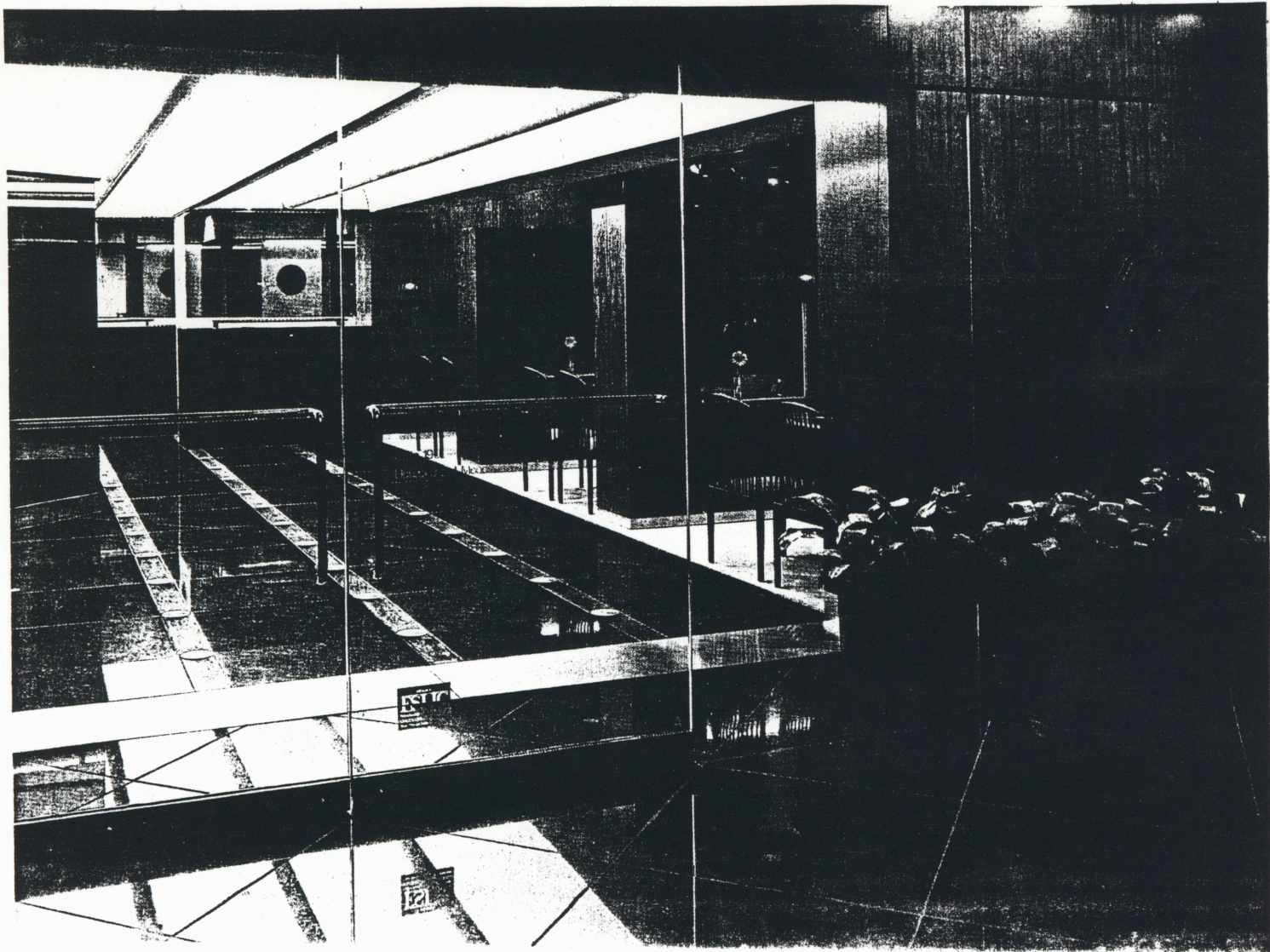
The bank appears to be too "heavy" and dangerous to rob. Although the lobby is rather small and contains only one entrance/exit, the transparency from the bank in the Stanford Office Center allows enough contact between the lobbies to intimidate robbers. The distance between the tellers appears to be around five feet which is the maximum for safety. The end tellers are very protected since they are not isolated. The fact that the large vault is boldly displayed seems to make a statement that the vault is meant to look at but, too dangerous to touch.



View of teller stations as they are seen from the entry.



View across waiting space to branch manager's office where ceiling, as holds true for all areas surrounding the vaulted banking hall, flattens out from 10'-8" apexes to 7'-6" planes. At left is 1886 scroll-worked vault door set in stainless steel-clad segment.



The banking hall, with new accounts offices at right, seen from the building lobby. Beyond the rosewood-paneled portals the granite flooring grid changes to polished/honed axial patterning, running parallel to the overhead vaults, with stainless steel discs at linear intersections.

CASE STUDY

Project: Union Trust Bank, Baltimore
A multi-floor headquarters project

Designer: GN Associates

The Union Trust Bank was a detailed job involving 175,000 square feet covering more than half of nineteen floors in a new commercial building. The main objective was to raise the bank's image ranking by balancing traditional "substance" as well as contemporary awareness in the design. Both concepts, as applied inside, take their clue from the buildings exterior. The granite is brought from the outside and appears as a prime ingredient in public spaces along with Hoduran mahogany. In addition to this, the architectural detailing of the Pilkington system of connector pins in glass panel facades is reinterpreted inside. Derivatives of the pattern can be seen in the polished steel-and-glass balcony railing, granite and marble floors, granite-clad teller's backdrop wall, and etched glass set in mahogany elevator-bank doors. Other neo-classical touches include the fabric paneled walls with wood trims, banded columns surfaced with granite, and furniture styling in executive offices.

Except for the street floor branch of the bank, space layouts are planned to allow circulation along windowed perimeters. Natural exposure to light further can be enjoyed by staffers stationed in open offices along east and west walls. The private enclosures for executives are the north and the south

sides. The boardroom and chairman's dining room can, when not in use, be closed off to free the outside circumference for traffic flow. The signage, as seen from the exterior, announces that the coast is clear for public transit.

Observation for the First Interstate Bank of Colstrip

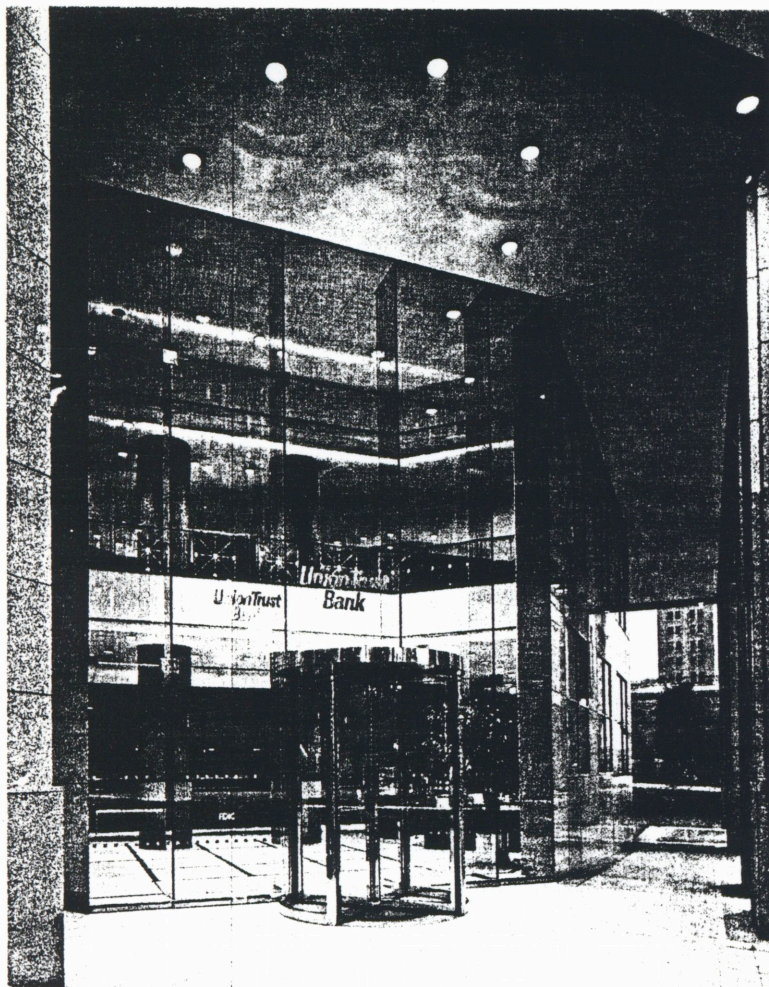
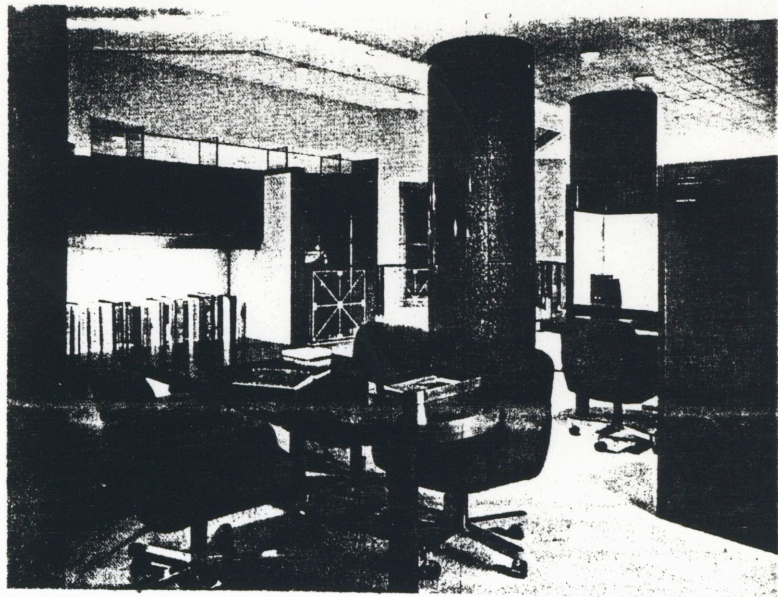
The Union Trust Bank has made a great attempt (successfully) to combine bold colors with solids and prints. Sharp areas of spotlighting are used to focus on special features such as paintings. Ceiling grids and heights vary. Soffits wrap around the perimeter of some rooms. The color and selections of furniture styles look professional, almost formal more than businesslike. Special detail such as panel-finished corners help define the planes. The spaces were treated differently according to the tasks. Enough variety exists without preventing a necessary flow of continuity. I feel this case study along with the others, proves that simplicity can lead to appealing atmospheres.

Observation According to Security and Psychology of Bank Design

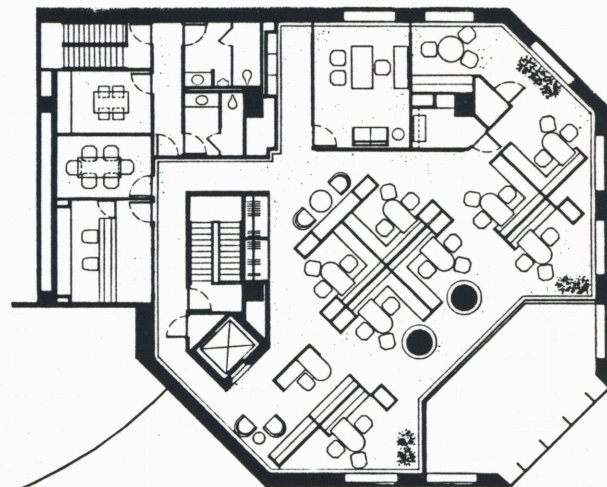
The exterior of this building is very transparent to the exterior. This high exterior visibility to the interior discourages unarmed, non-threatening robbers, but armed robbers prefer a bank interior that is highly visible from the outside, with the teller line fully visible from the door, and with views from the bank officers' area obscured. In this particular design, the exit teller is not necessarily open to robbery any more than the other tellers. The spacious lobby is one advantage

that discourages robbers, but the fact that only one main entry/exit door exists still allows controlling the staff members in the event of a robbery. The large round columns that are a focal point may aid a robbery by allowing a blocked view to reveal a gun.

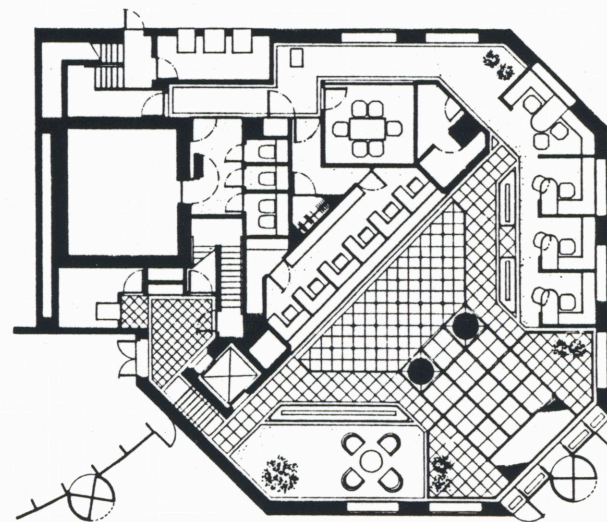
Officer's work station on branch bank's mezzanine level allows ample space and audio privacy so as to compensate for loss of private offices assigned to ranking occupants in previous premises.



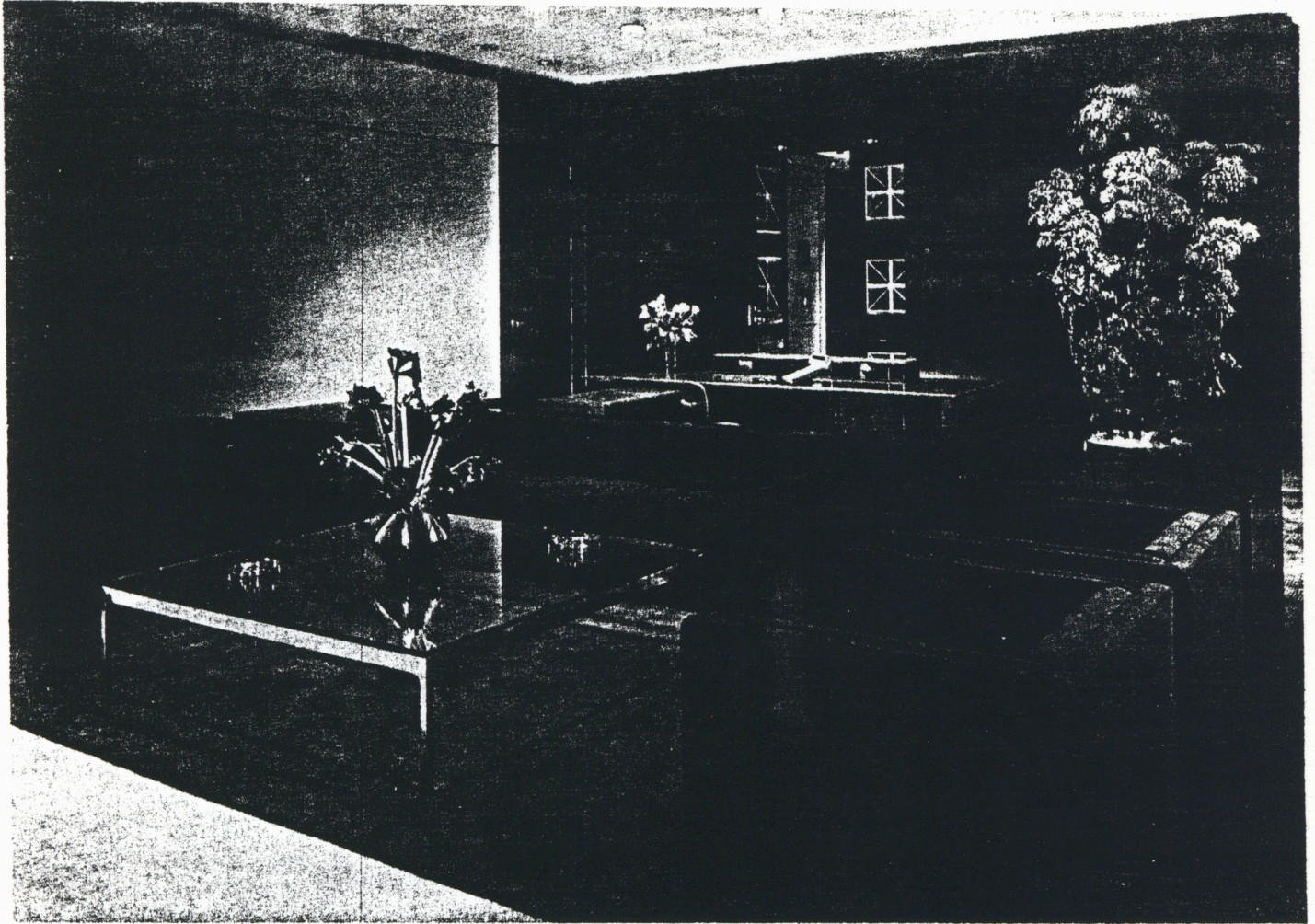
Entry segment showing theme-setting pin-and-glass facade reinterpreted inside.



MEZZANINE



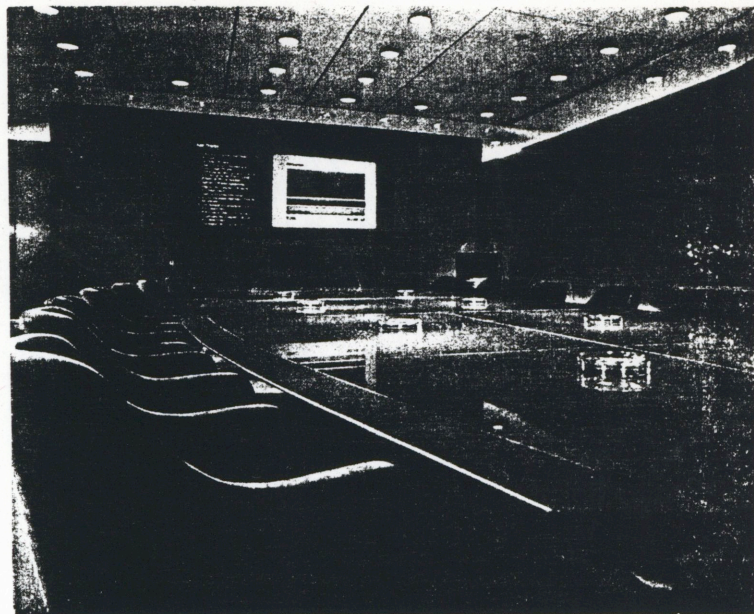
GROUND FLOOR



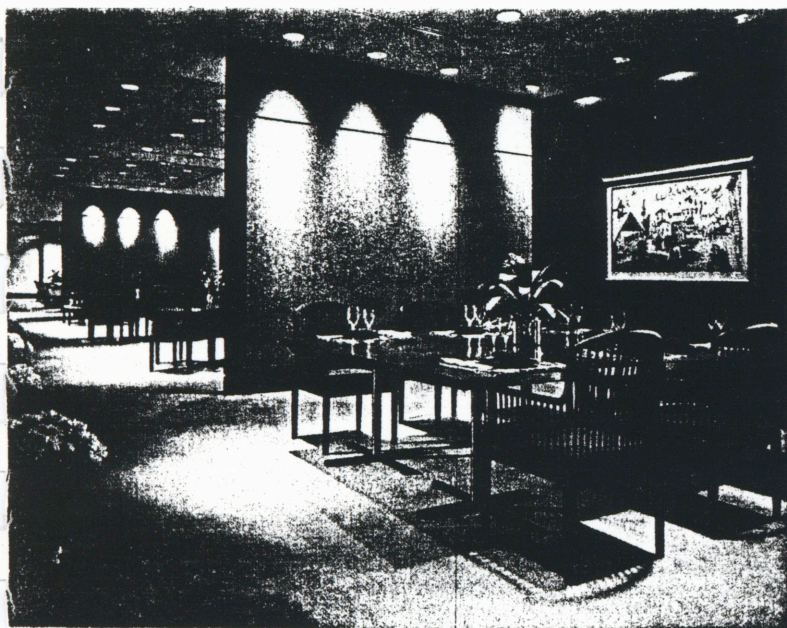
Reception area on executive floor introduces applications of Honduran mahogany prevalent throughout.



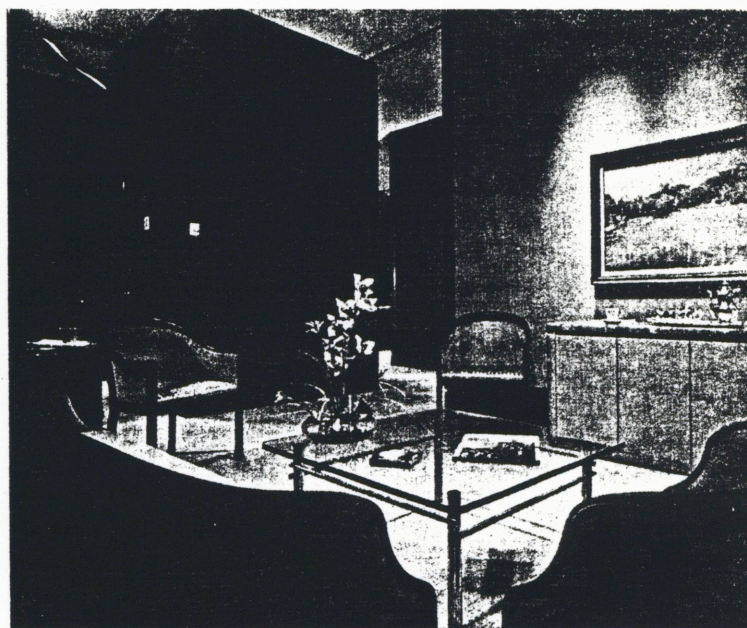
View to elevator lobby, every bit as elegant as perceived upon entering, here as seen upon completion of the circle tour along the perimeter passage.



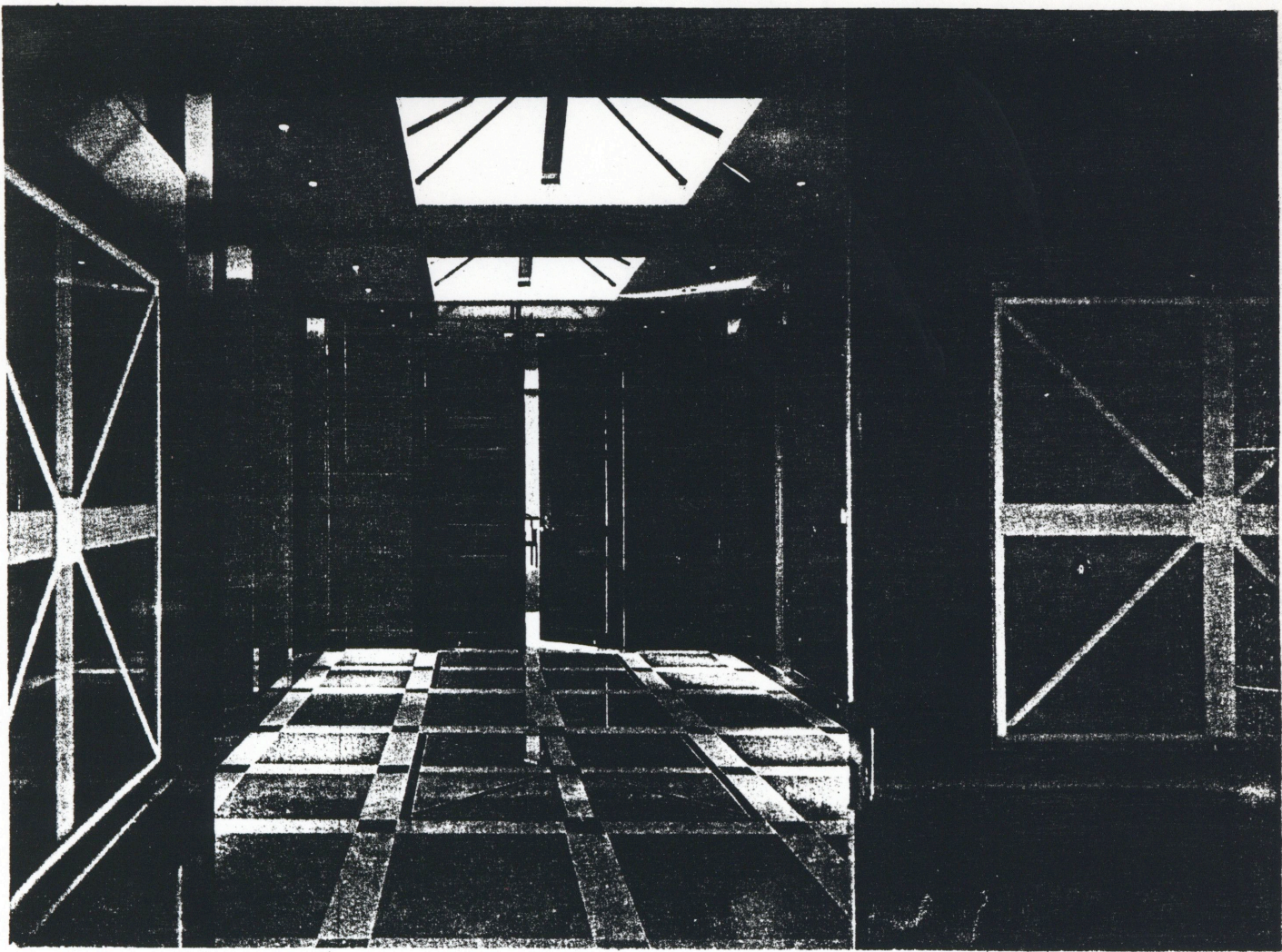
Board room table is of granite with leather-wrapped edges; fabric-surfaced wall panel is motorized.



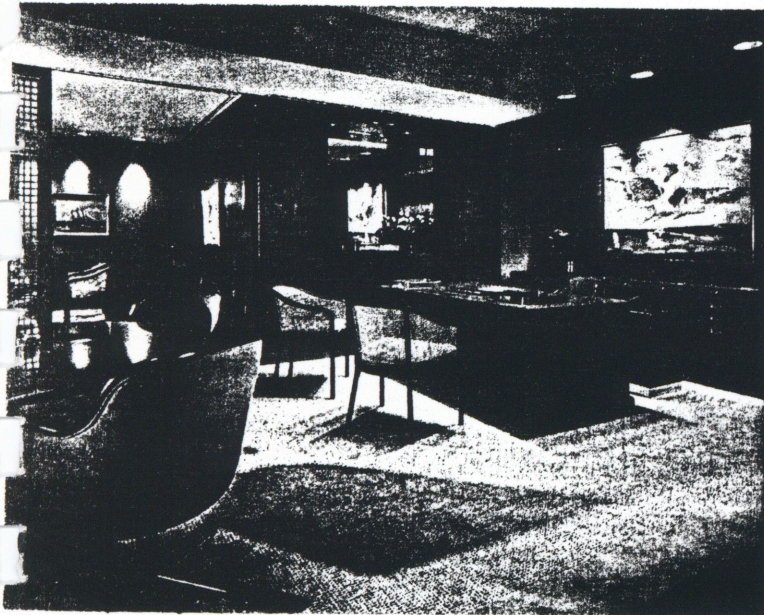
Chairman's private dining room (fronting manager's dining facility) can be closed off with screens, also motorized. Vertical surfaces and ceiling utilize acoustic-control fabric coverings.



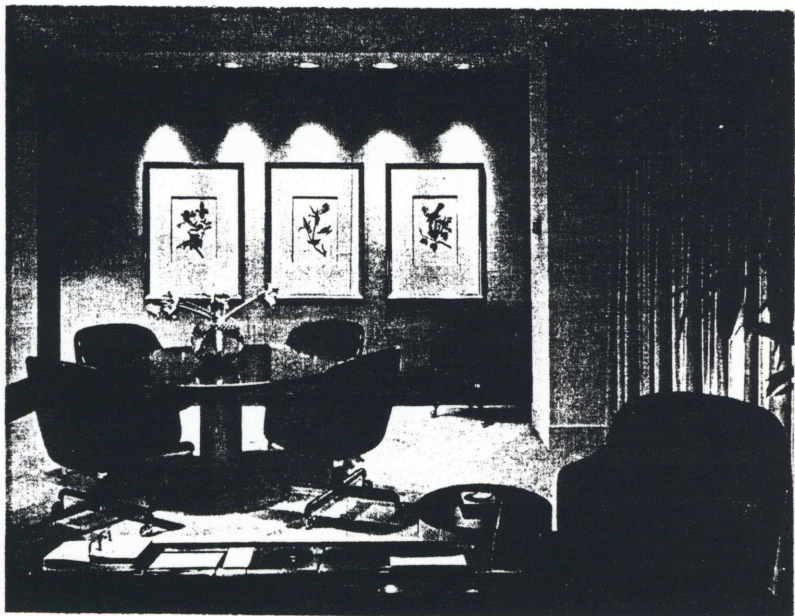
Ante-chamber to board room focusing on painting.



Elevator bank with fabric-covered walls, floors of granite and doors of mahogany/etched glass.



President's office.



Executive vice president's quarters.



7. Code

Applications

BUILDING CODE APPLICATIONS

Project First Interstate Bank of Colstrip Job No. 1

Location Colstrip, Montana

Required Code
Building 1985 UBC

Occupancy Group (50) Table 5A, B-2

Fire Resistance of Exterior Walls 1 Hr. < 20'-0"

Openings in Exterior Walls Not Permitted < 5'-0"

Construction Type Type 5 (1 Hr.)

Allowable Floor Area 8,000 s. f.

Maximum Building Height Two Stories

Fire Resistive Requirements	<u>1 Hr. < 20'-0"</u>
Exterior Walls	<u>1 Hour</u>
Interior Walls	<u>1 Hour</u>
Partitions	<u>1 Hour</u>
Structural Frame	<u>1 Hour</u>
Shafts	<u>1 Hour</u>
Floors	<u>1 Hour</u>
Roofs	<u>1 Hour</u>
Exceptions	<u>1 Hour</u>

Parapet Required Yes

Exits

Use
Occupant Load Factor
Number of Exits Required
Width of Exits Required
Distance Between Exits
Distance to Exits

#19 Offices
100 s. f.
2 Exits Minimum
50÷50=1 (ok)
Not < 1/2 diag. dimen.
Not > 150'-0"

Doors

Swing Out Required
Special Hardware Required

Yes
Yes (or sign)

Corridors

Width
Height
Construction
Openings

0'-44" Min.
Not < 7'-0"
Not < 1 Hour
Fire Assembly

Sprinklers Required

No

Flame Spread Requirement

Corridors
Rooms

Class 2
Class 3

8. Handicapped Requirements



HANDICAPPED REQUIREMENTS

The following general requirements are for adult sized wheelchairs.

1. For a 180 degree turn in a T-shaped space, a minimum of 3'-0" hallway is required.
2. Height for a grab bar from the floor is 33"-36".
3. All main entrances are 3'-0" minimum.
4. Grab bar distance from wall is 1 1/2".
5. A 5'-0" diameter turning space in hallways is required.
6. All interior doors or passageways are 2'-8" minimum.
7. The width of hall for a wheelchair with space for non-wheelchair circulation is 4'-0" minimum.
8. The width of a hall for a single lane for one wheelchair is 3'-0" minimum.
9. Width of hall for two wheelchairs to pass side by side is 5'-0" minimum.
10. A front diagonal reach (to telephone, light switch, etc.) is 4'-0" maximum.
11. The maximum height of reach from the side is 5'-0".
12. Maximum height of shoulder height reach to side is 3'-10".

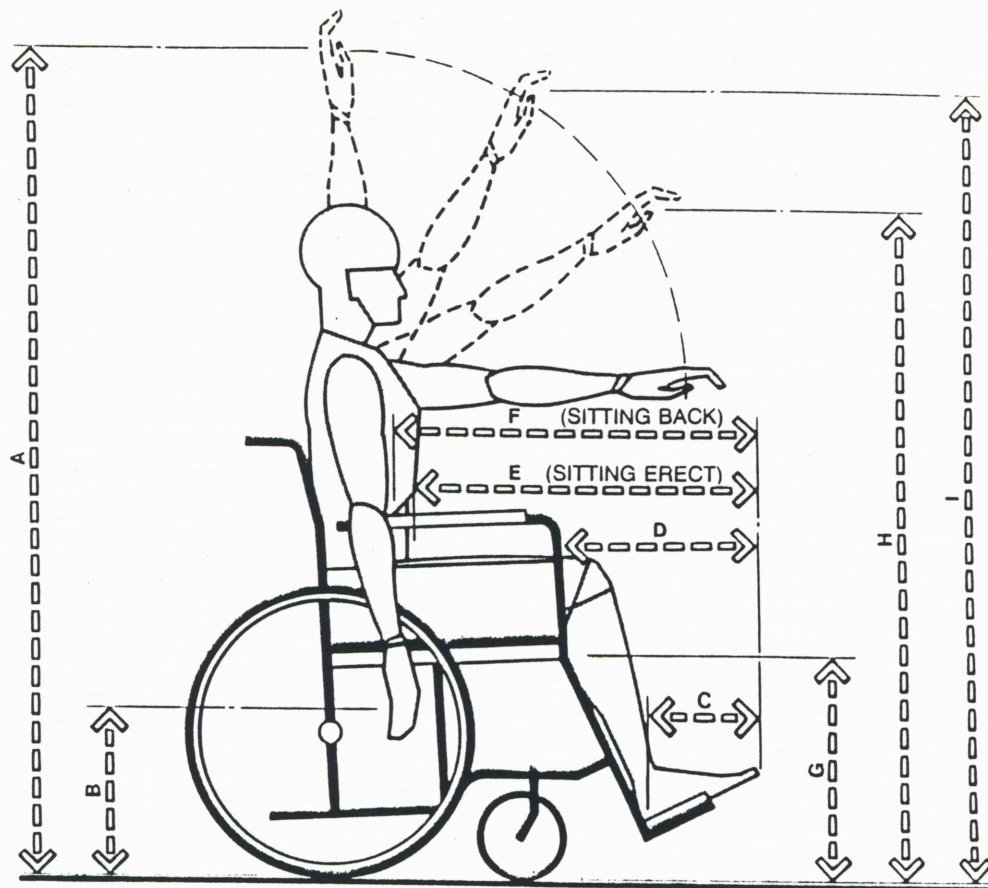
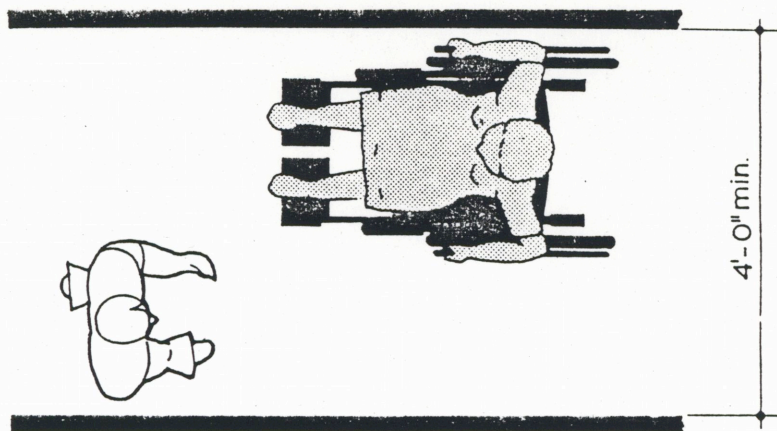
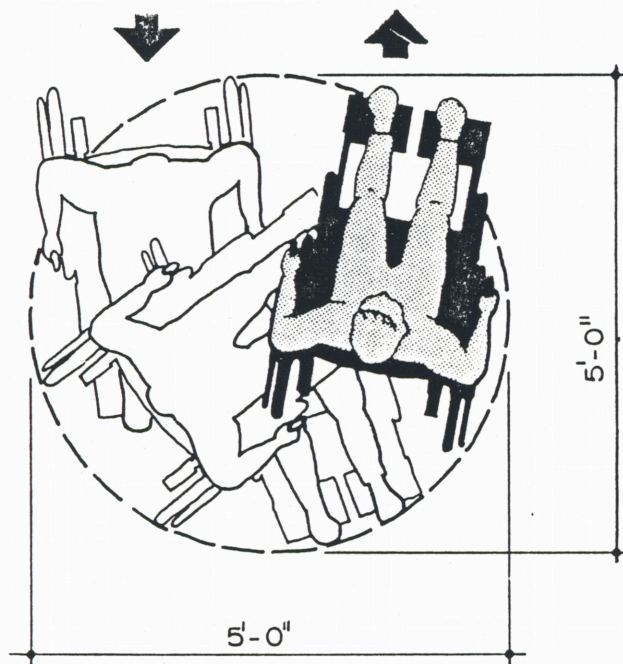


Figure 3-3. Anthropometrics of chairbound people. The side view, showing user and chair, indicates some of the more critical anthropometric measurements for both men and women. All reach dimensions are based on 2.5 percentile data to accommodate those users with smaller body sizes. It is recommended that since the female body size is smaller than the male, the female dimensions be used for the design of all reach situations. Dimensions involving clearance problems are based on 97.5 percentile data. Since the male body size is larger, the dimensions for men should be used to satisfy clearance requirements. The figure and data were adapted from Goldsmith's *Designing for the Disabled*, 1963, and were based on measurements obtained from British and American studies.

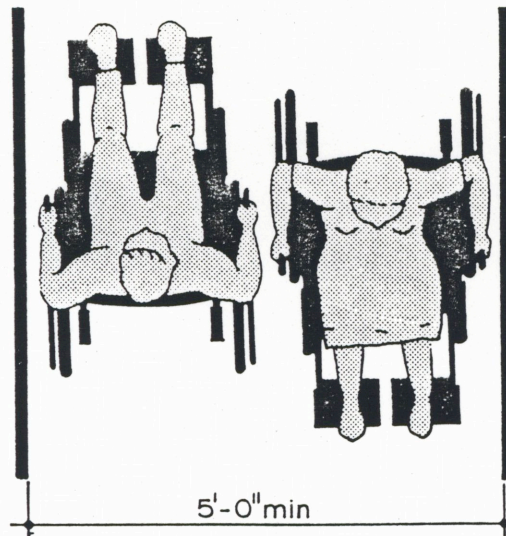
MALE		FEMALE	
in	cm	in	cm
A 62.25	158.1	56.75	144.1
B 16.25	41.3	17.5	44.5
C 8.75	22.2	7.0	17.8
D 18.5	47.0	16.5	41.9
E 25.75	65.4	23.0	58.4
F 28.75	73.0	26.0	66.0
G 19.0	48.3	19.0	48.3
H 51.5	130.8	47.0	119.4
I 58.25	148.0	53.24	135.2



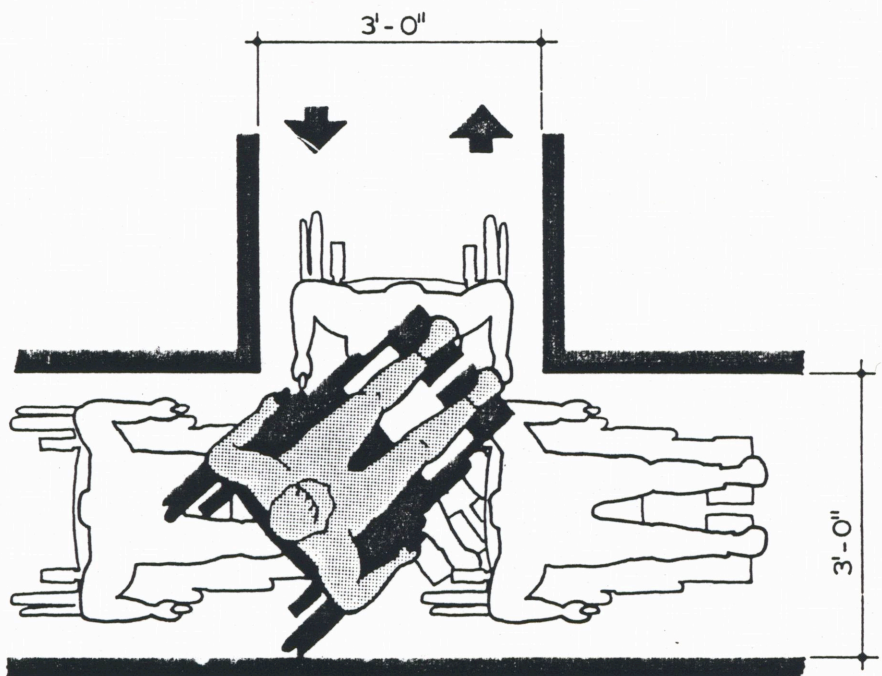
MINIMUM PASSAGE WIDTH FOR ONE WHEELCHAIR
AND ONE AMBULATORY PERSON



WHEELCHAIR TURNING SPACE

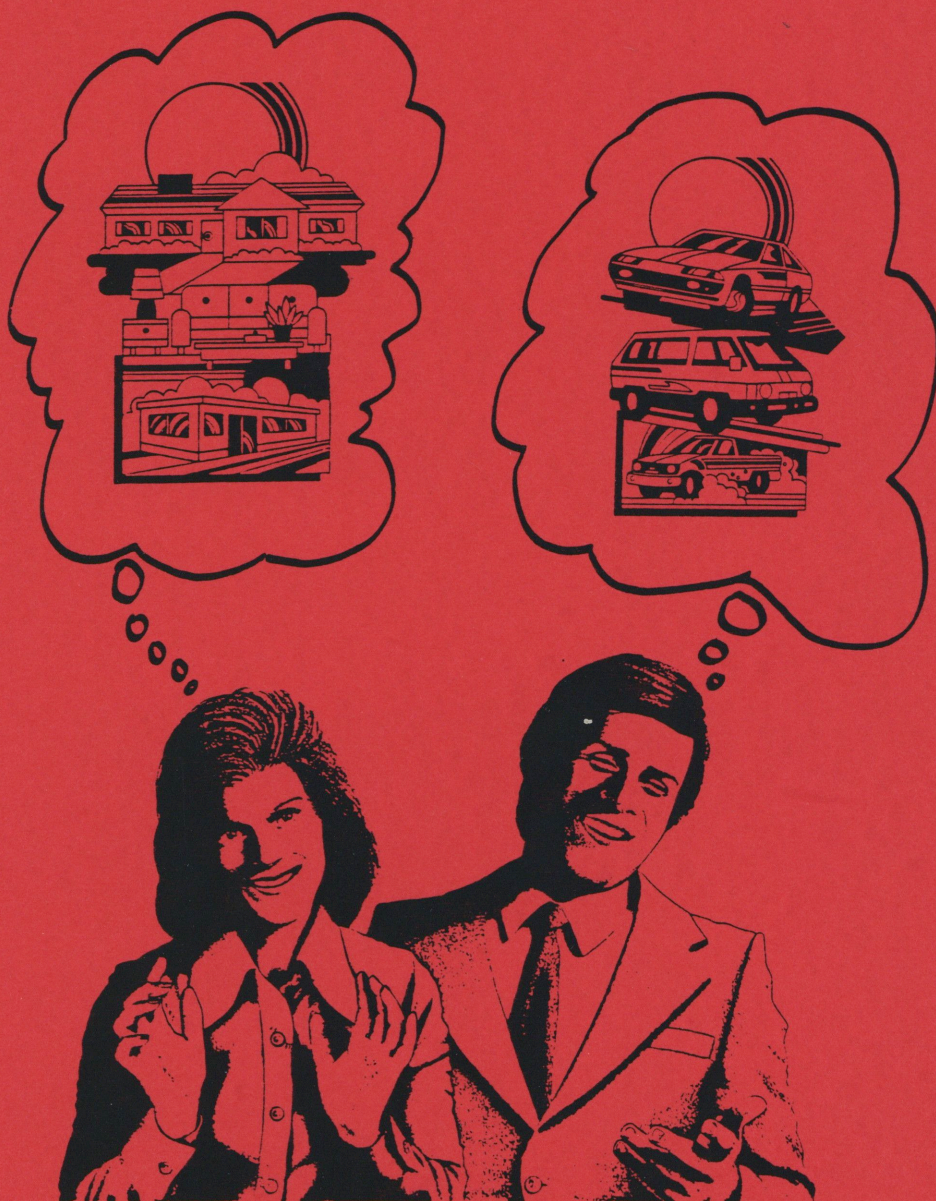


MINIMUM CLEAR WIDTH FOR TWO WHEELCHAIRS



WHEELCHAIR TURNING SPACE

9. Summary



SUMMARY

General Ideas

The intent of this project is to remodel the First Interstate Bank of Colstrip into a more efficient and functional space. The preceding design process is an aid to define what type of environment is needed to accomplish the many different tasks involved in banking. The bank is currently in an ideal location, centrally located in Colstrip's only mall, across the street from the grocery store and post office.

The goals were obtained from interviews with the bank's president, vice president, and one board member. The list of goals began a process of determining their concepts, or the design methods used to achieve these goals. Legal codes affecting the safety of people and property were closely observed. Another tool used to process information was the spatial analysis which processed a large quantity of information and organized it into "wants" and "needs." This analysis, along with the interspatial matrix of adjacencies, is helpful when entering the "bubble diagram " phase. The result of this programming is a space that is functional and organized.

10. Sources



Notes

¹Robert Sommer, Social Design: Creating Buildings With People In Mind (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1983), 315.

²James Marston Fitch, "Aesthetics of Function," in The Annals of the New York Academy of Science 128 (27 September 1965): 707.

³Sommer, 46.

⁴Sommer, 13.

⁵William Pena, Problem Seeking (Boston: Cahners Book International, 1977), 35.

⁶Ibid., 45.

⁷James A. Wise and Barbara K. Wise, "The Interior Design of Banks and the Psychological Deterrence of Bank Robberies," Proceedings of the International Conference on Building Use and Safety Technology (Seattle, Washington: The University of Washington, 1985), 25.

⁸Ibid., 24.

⁹Ibid., 26.

¹⁰James A. Wise, "A Gentle Deterrent to Vandalism," Psychology Today (September 1982): 31.

¹¹Ibid., 32.

¹²Wise, 31.

¹³Ibid, 34.

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Wise, James A. "A Gentle Deterrent to Vandalism." Psychology Today. (September 1982): 31-38.

Wise, James A. and Barbara K. Wise. "The Interior Design of Banks and the Psychological Deterrence of Bank Robberies." Proceedings of the International Conference on Building Use and Safety Technology. Seattle, Washington: The University of Washington, 1985.



11. Photographs





ENTRANCE FROM THE EXTERIOR.



THE EXTERIOR ENTRANCE TO THE BANK NEAR CUSTOMER PARKING. THE SIDEWALK LEADS TO THE ENTRY VESTIBULE WITH THE NIGHT DEPOSIT EXPOSED TO THE LEFT OF THE GLASS DOORS.



VIEW FROM MALL DURING CLOSED HOURS. THE SMALL TELLER WINDOW AT THE FAR RIGHT IS SELDOM USED.



THIS VIEW SHOWS THE TIGHT WORK SPACE AND LACK OF STORAGE IN THE SECRETARIAL AREA.



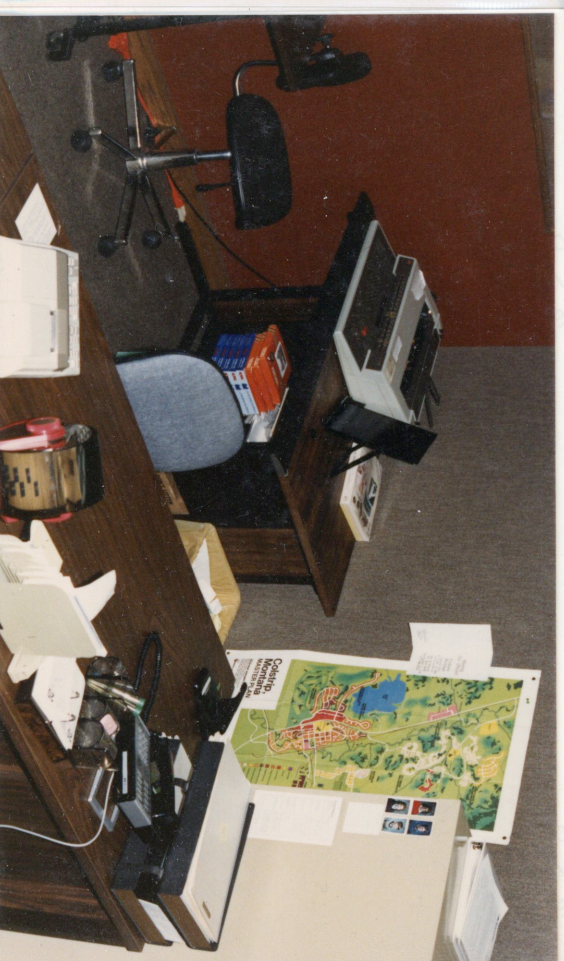
ALTHOUGH THE TABLE IN THIS EMPLOYEE LOUNGE IS SMALL, NO SPACE IS PROVIDED FOR CIRCULATION AROUND ITS PERIMETER.



SECRETARIAL WORK STATIONS. THE FILES AT THE FAR RIGHT OPEN DIRECTLY INTO THE CIRCULATION PATH.



THIS VIEW OF THE OPERATIONS ROOM SHOWS THE RESULT OF STATIC ELECTRICITY COMBINED WITH COMPUTER OUTPUT PAPER. THE CAN OF STATIC GUARD ON THE DESK MUST BE USED DAILY.



THIS VIEW REVEALS THAT EVERY SQUARE FOOT OF SPACE IN THE SECRETARIAL AREA IS USED TO ITS CAPACITY.



ENTRANCE TO THE BANK FROM THE INTERIOR OF THE MALL.



ENTRY VESTIBULE TO THE BANK FROM THE EXTERIOR.



VIEW OF THE LOBBY FROM THE MALL ENTRANCE. THE METAL FRAMED DOORS IN THE CORNER SERVICE CUSTOMERS TO AND FROM THE EXTERIOR.



VIEW OF TELLER STATION. THE DOORWAY BEYOND LEADS TO THE VAULT, OPERATION, PROOF ROOM AND LOUNGE.



VIEW OF CONFERENCE ROOM. THE WINDOWS PREVENT PRIVACY, SO THE BLINDS MUST REMAIN CLOSED.



CONFERENCE ROOM WALL SHOWING PANELED ADDITION THAT NOW ALLOWS PRIVATE MEETINGS, BUT PREVENTS AIR CIRCULATION.

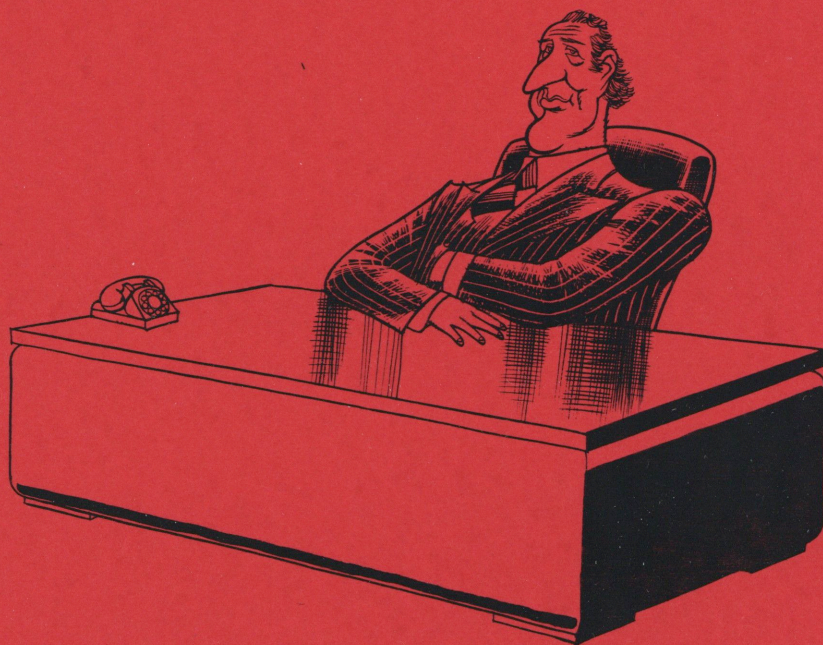


TELEPHONE OPERATOR'S STATION. NOTE THE (NOISY) POSTAL MACHINE ON THE COUNTER TO THE LEFT.



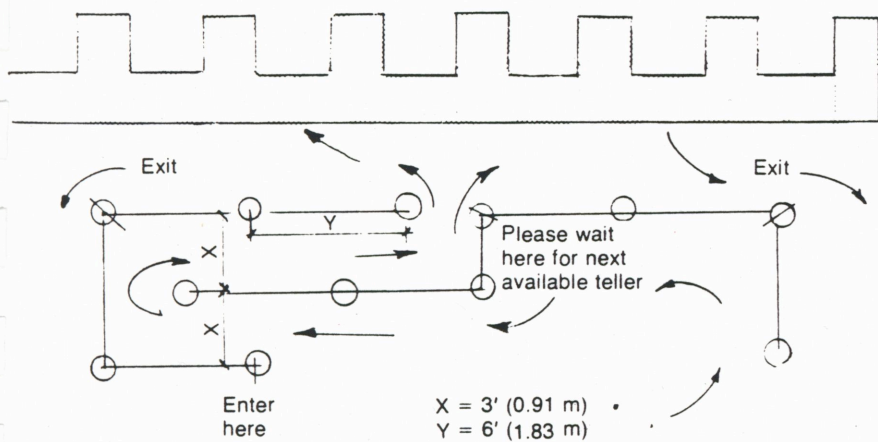
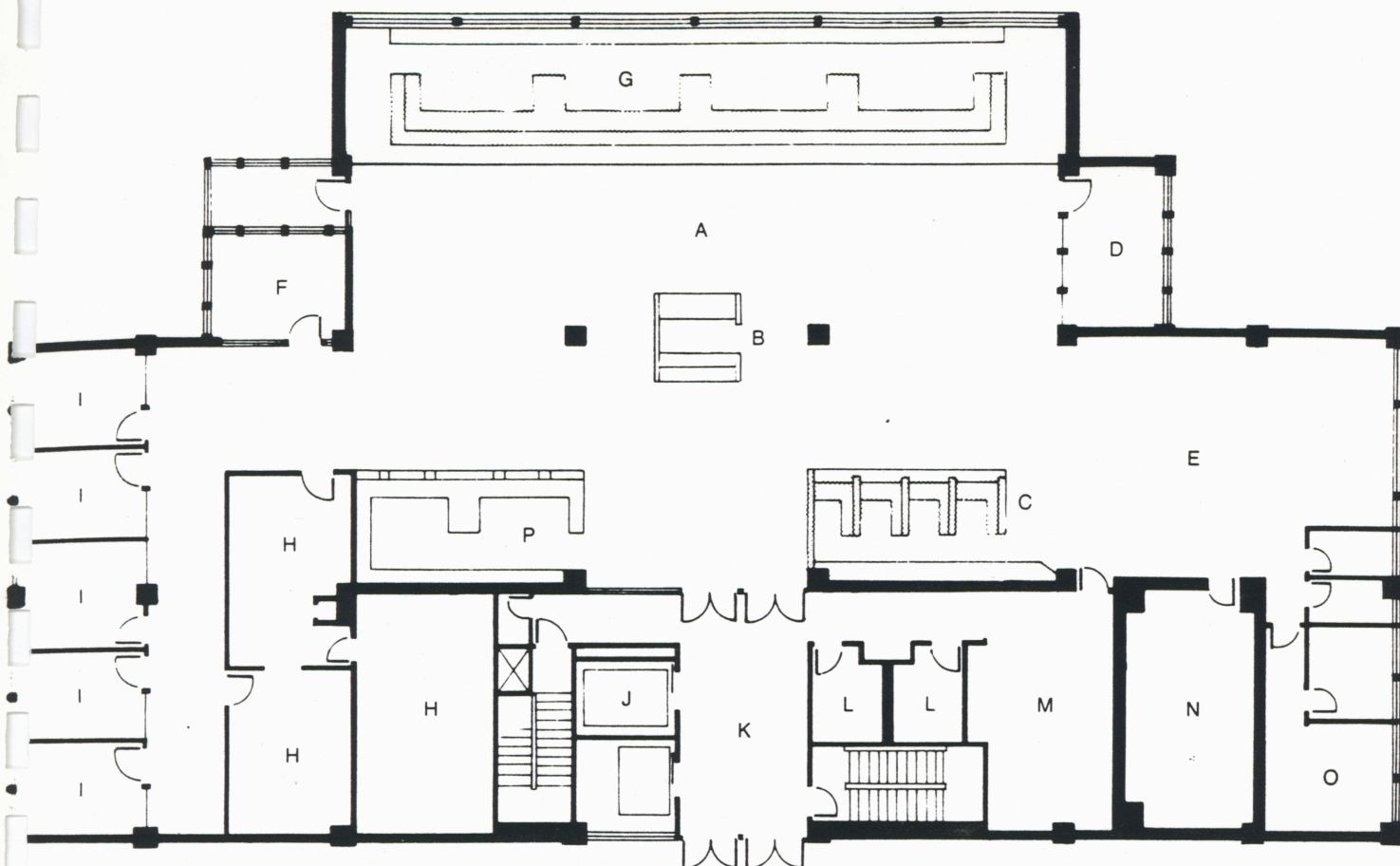
VIEW OF PROOFING ROOM. THE LARGE PROOFING MACHINE AND OTHER MACHINES REQUIRE VENTILATION.

12. Interior Graphic
and Design
Standards





*See details of custom millwork & prefabricated banking equipment on pages 437-441.



Typical configuration of next-teller system

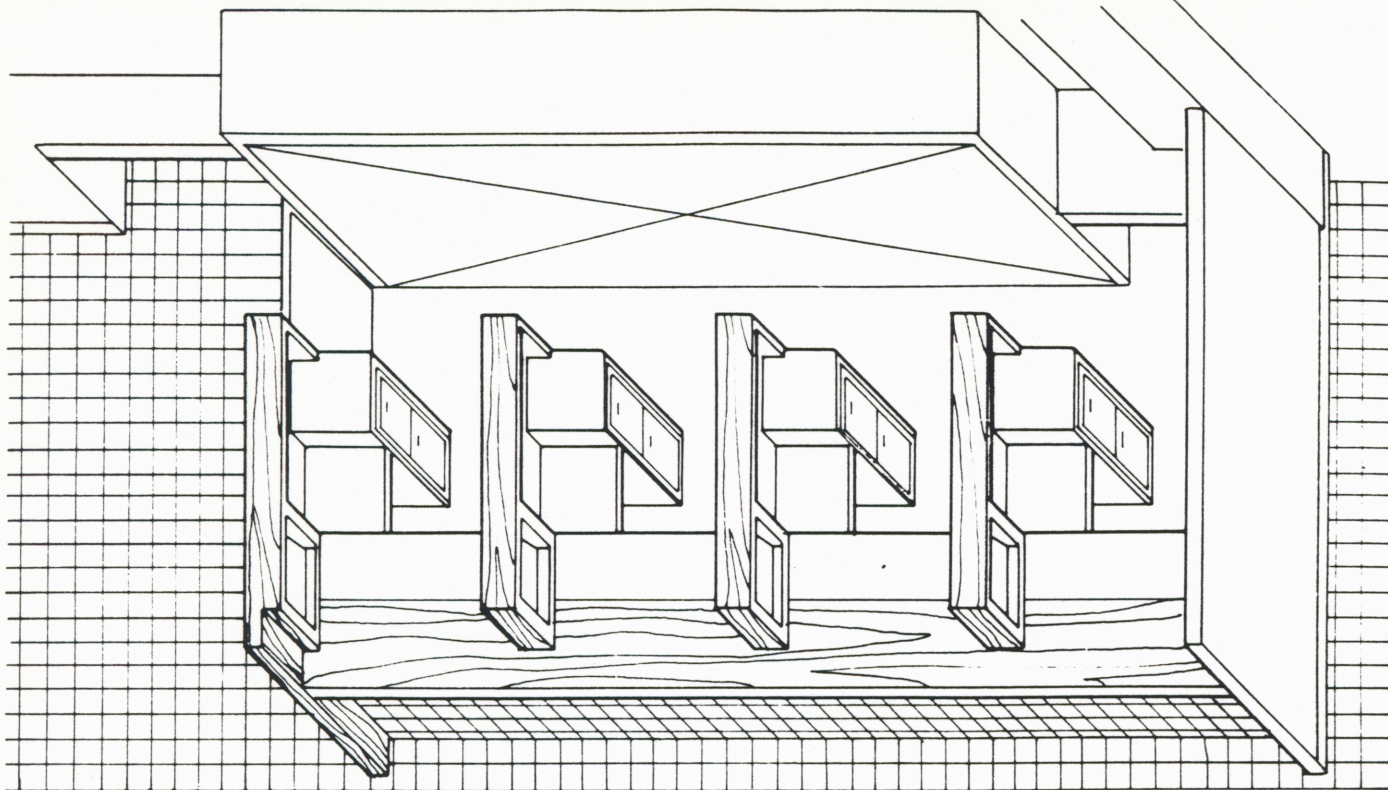
Required components

- 12 portable posts
- 4 V-frames
- 4 stock signs: "Enter here"; "Please wait here"
- "Exit" signs
- 10 velour-covered ropes: nine 6' (1.83 m) long and one 3' (0.91 m) long
- 20 snap ends

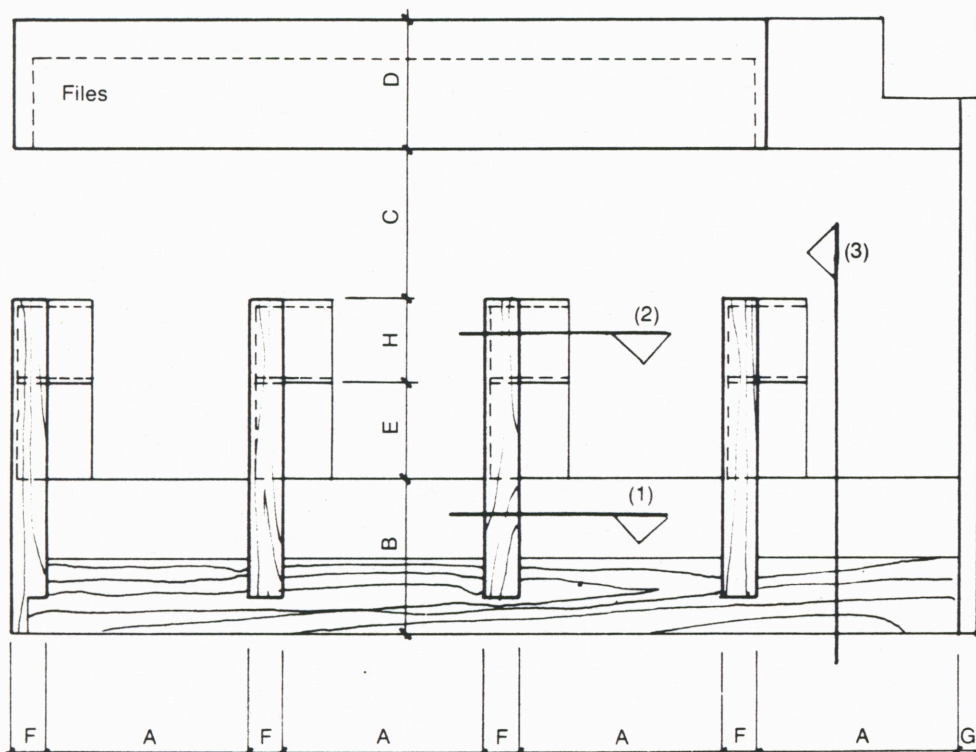
Legend:

- A = banking lobby
- B = information desk
- C = membership service counter
- D = head cashier
- E = insurance area
- F = conference room
- G = cashier counters
- H = records
- I = loan offices
- J = elevator
- K = entry lobby
- L = restrooms
- M = travel department
- N = vault
- O = lounge
- P = customer service desk

*Shaded areas are shown in detail on pages 432-435.



Axonometric



Plan

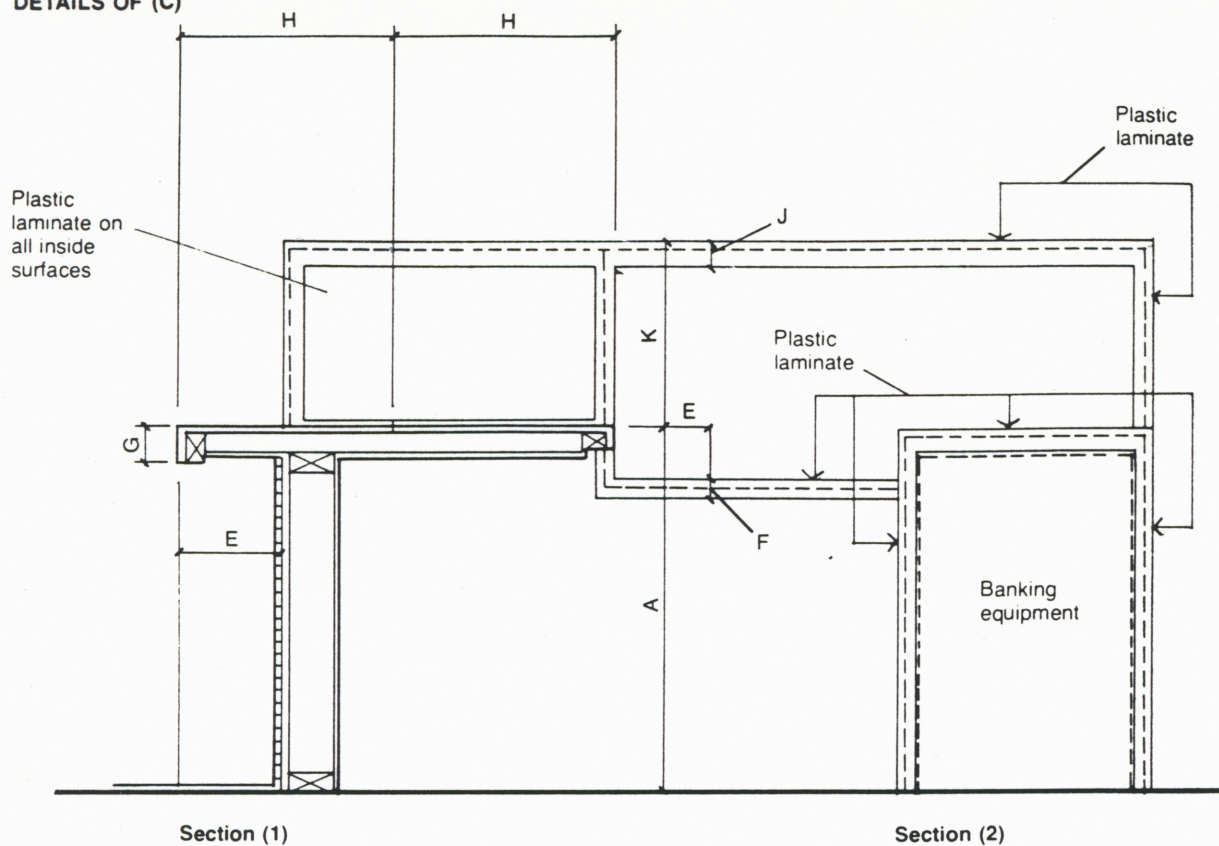
Dimensions:

	in.	cm
A =	50	127.00
B =	39	99.06
C =	37	93.98
D =	32	81.28
E =	24	60.96
F =	9	22.86
G =	4½	11.43
H =	18	45.72

Note: See sections on facing page.

*Shown in plan on page 431.

DETAILS OF (C)



Dimensions:

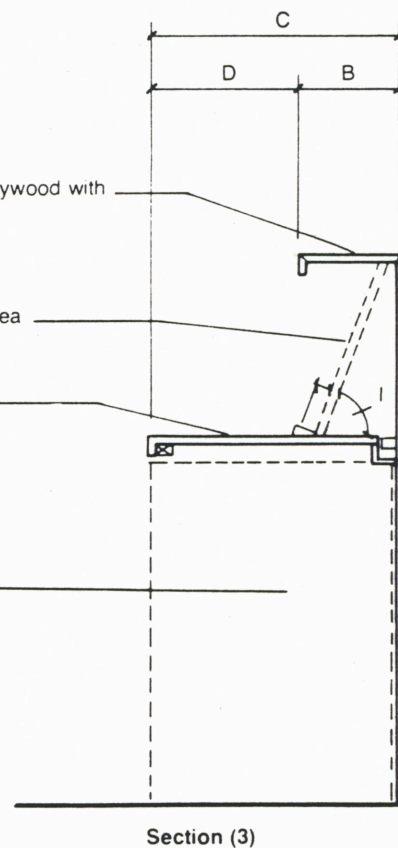
	in.	cm
A =	30	76.20
B =	9	22.86
C =	21	53.34
D =	12	30.48
E =	4	10.16
F =	1½	3.81
G =	3	7.62
H =	18	45.72
I =	70°	
J =	2	5.08
K =	15	38.10

5/6" (2.12 cm) natural finish plywood with edge nosing at each surface & mitered corners

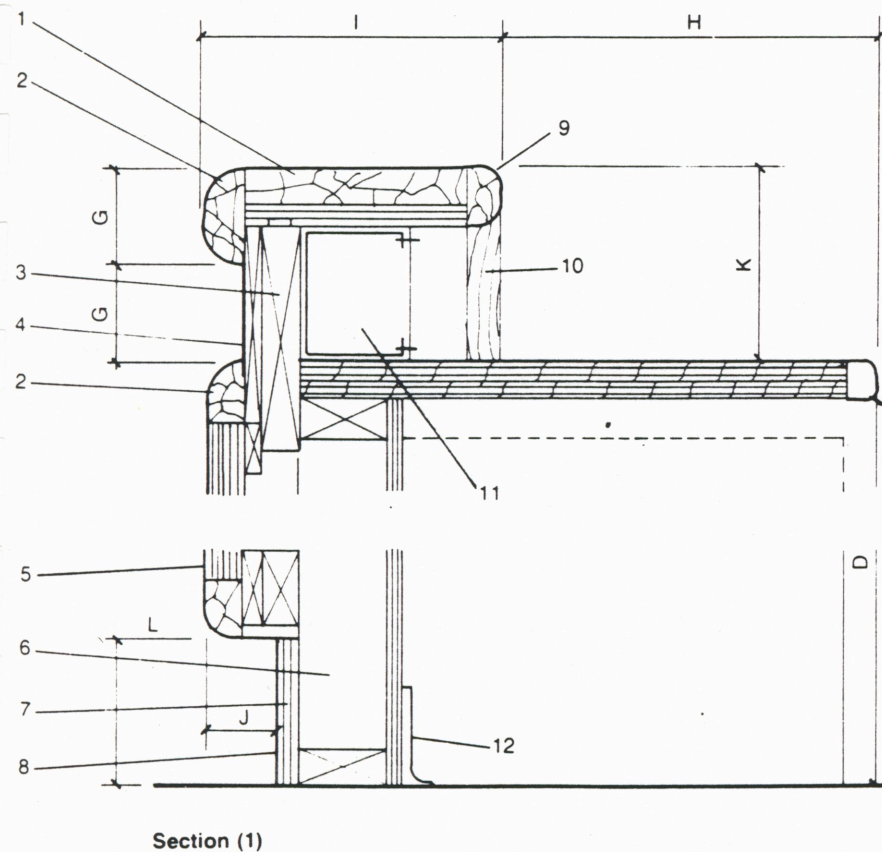
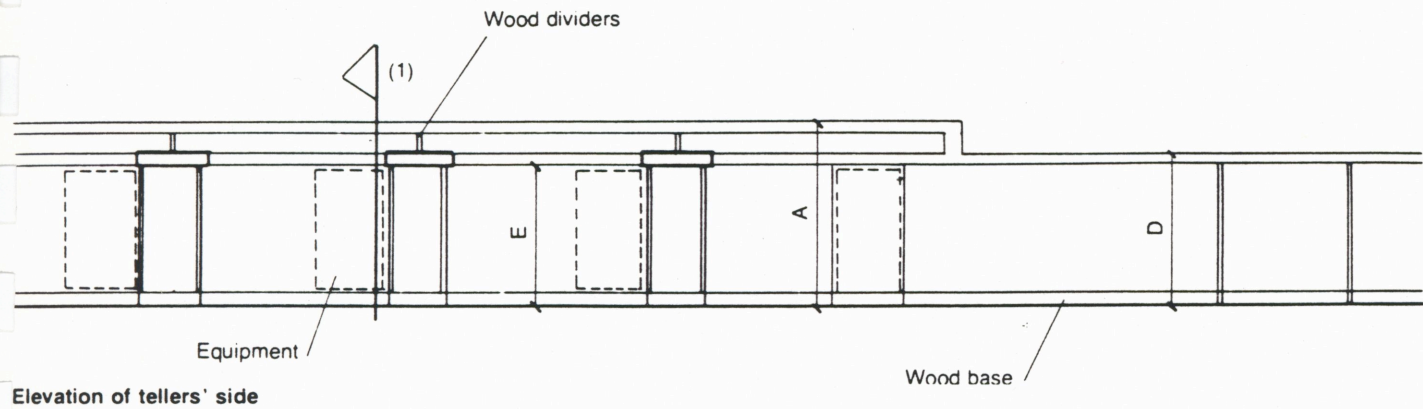
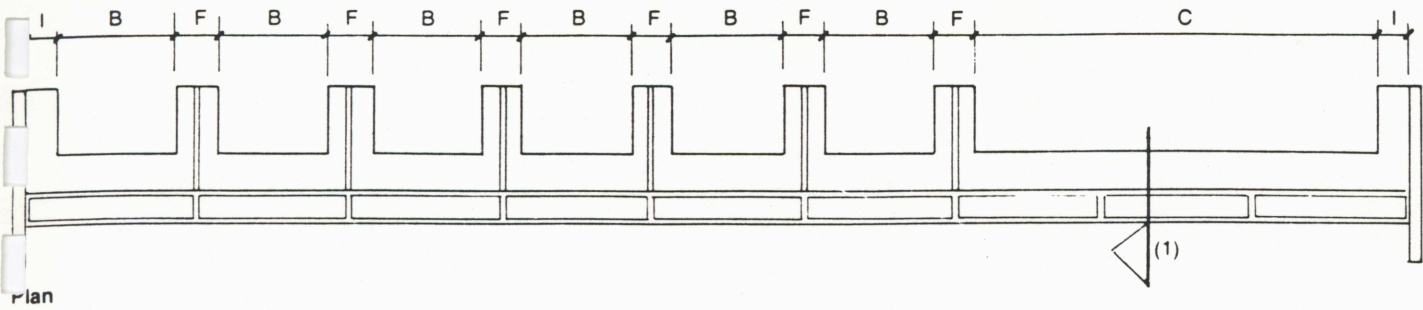
5/8" (1.59 cm) natural finish plywood on material display area

Plastic laminate top, front, & edges

Banking equipment



DETAILS OF (D)



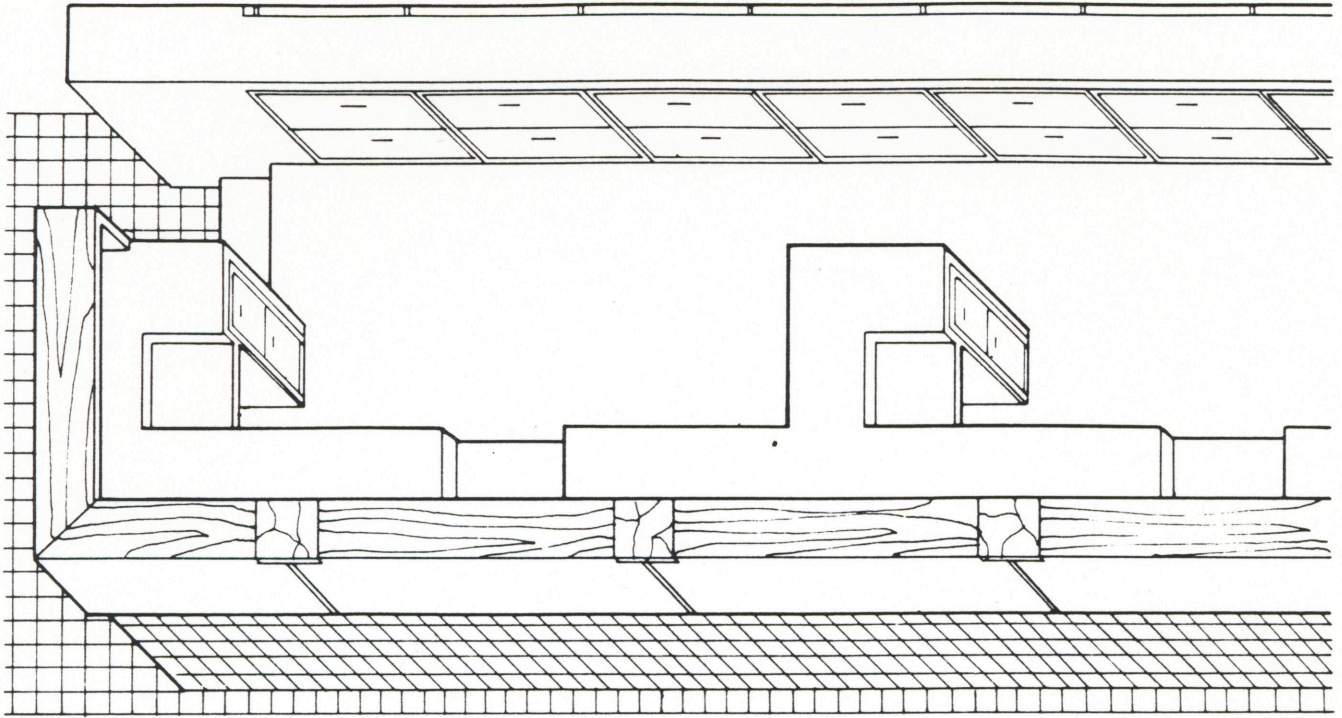
Dimensions:

- A = 4' (1.22 m)
- B = 3'9" (1.14 m)
- C = 14'3" (4.34 m)
- D = 40" (101.60 cm)
- E = 38½" (97.79 cm)
- F = 18" (45.72 cm)
- G = 4" (10.16 cm)
- H = 16" (40.64 cm)
- I = 12" (30.48 cm)
- J = 3" (7.62 cm)
- K = 8" (20.32 cm)
- L = 6" (15.24 cm)

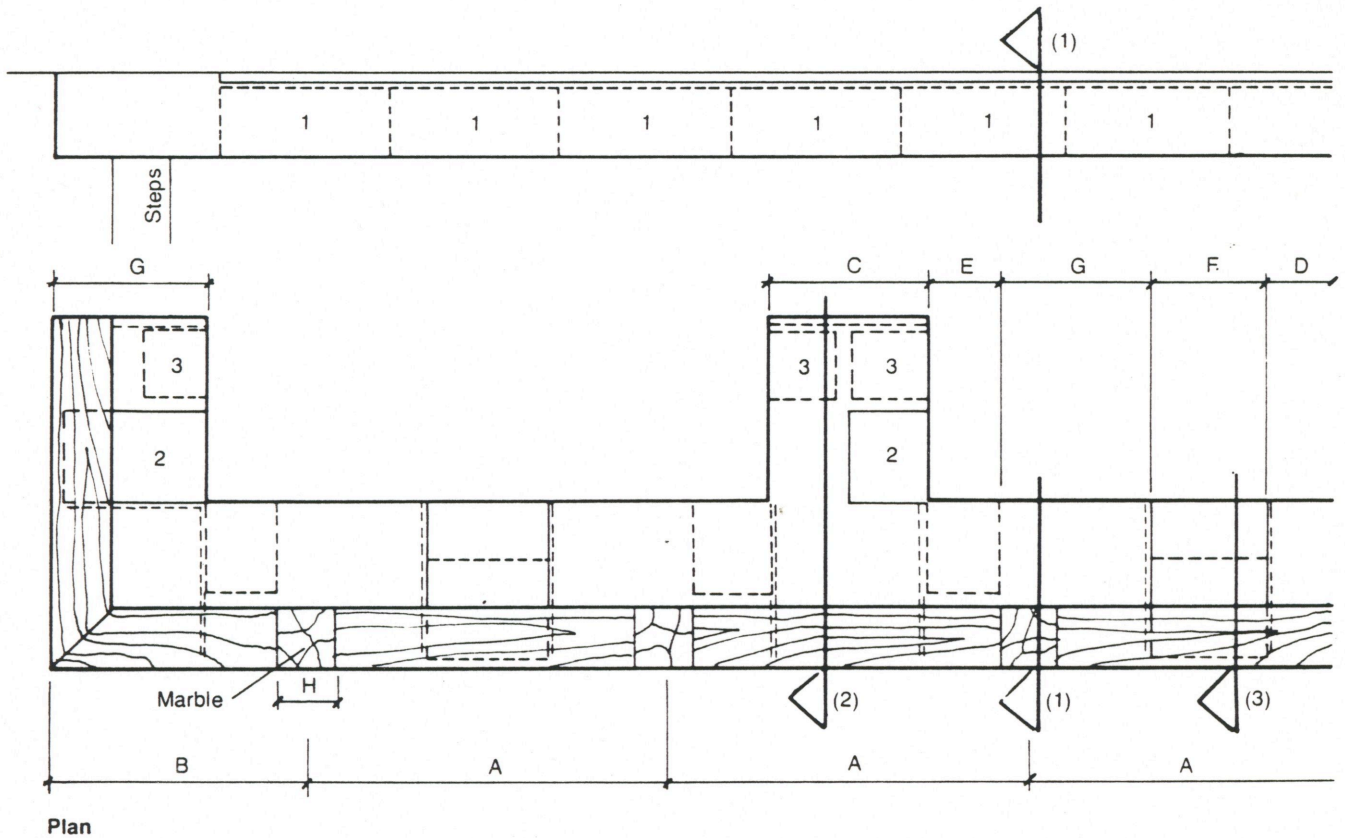
Legend:

- 1 = marble top
- 2 = marble trim
- 3 = 2" X 8" (5.08 X 20.32 cm)
- 4 = copper laminate
- 5 = natural wood
- 6 = 2" X 4" (5.08 X 10.16 cm) spaced at 2" o.c.
- 7 = ¾" (1.91 cm) plywood
- 8 = laminate
- 9 = 1½" X 2½" (35.56 X 6.35 cm)
- 10 = wood trim with radius 7¾" (19.69 cm) divider
- 11 = raceway for electrical wiring, with plastic laminate face
- 12 = rubber base

DETAILS OF (G)



Axonometric



Plan

Dimensions:

A = 7'6" (2.29 m)	E = 18" (45.72 cm)
B = 5'3" (1.60 m)	F = 30" (76.20 cm)
C = 3'3" (0.99 m)	G = 37'6" (11.4 cm)
D = 3' (0.91 m)	H = 16" (40.64 cm)

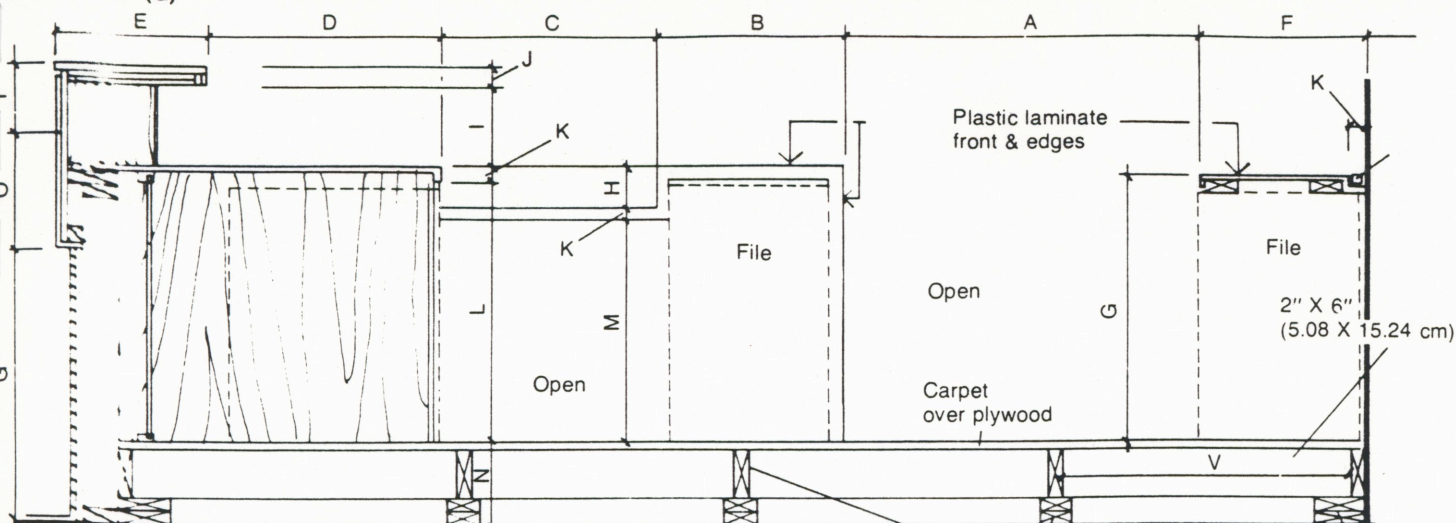
Equipment:

- 1 = lateral files
- 2 = micocomputer
- 3 = files

*Shown in plan on page 431.

Note: See sections on facing page.

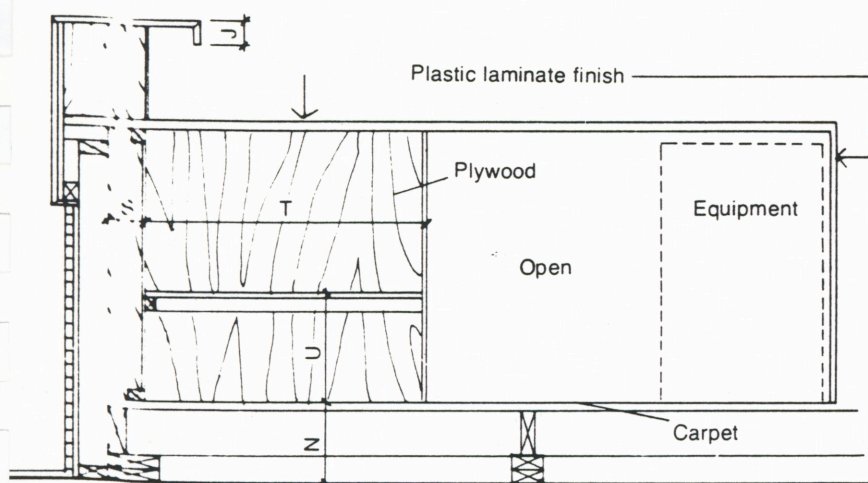
DETAILS OF (G)



Section (1). Teller's cabinet (front to back)

2" X 4" (5.08 X 10.16 cm) supported on 2" X 6" blocking, spaced at (V) maximum center to center

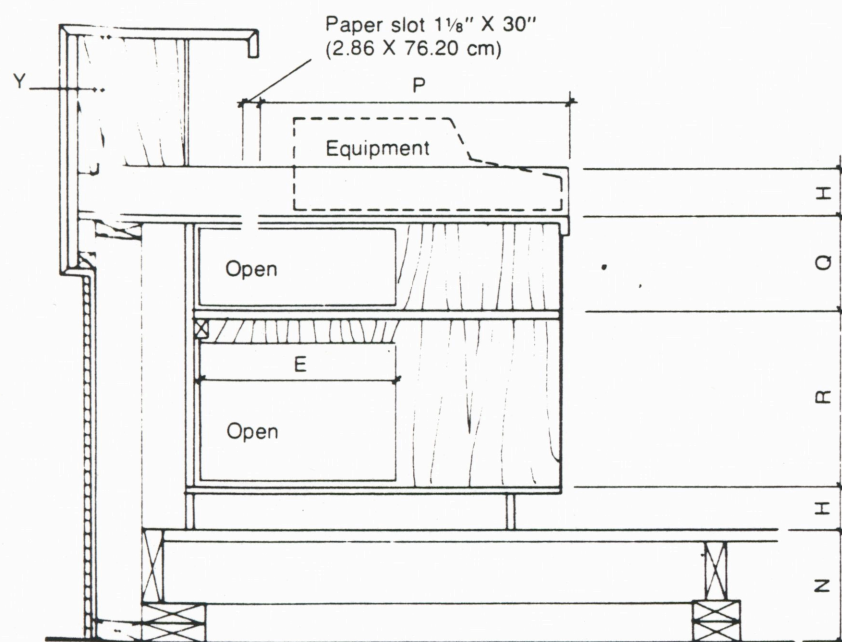
2" X 6" blocking



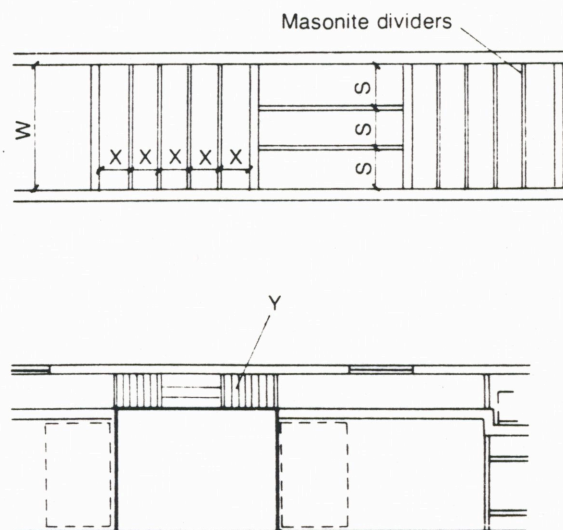
Section (2). Cashier counter

Dimensions (not to scale):

A = 3'3" (0.99 m)	N = 9 1/4" (23.50 cm)
B = 21" (53.34 cm)	O = 20" (50.80 cm)
C = 24" (60.96 cm)	P = 25" (63.50 cm)
D = 26" (66.04 cm)	Q = 8" (20.32 cm)
E = 16" (40.64 cm)	R = 14" (35.56 cm)
F = 18 1/2" (46.99 cm)	S = 3" (7.62 cm)
G = 30" (76.20 cm)	T = 32" (81.28 cm)
H = 4" (10.16 cm)	U = 12" (30.48 cm)
I = 9" (22.86 cm)	V = 48" (121.92 cm)
J = 2" (5.08 cm)	W = 10 1/8" (25.72 cm)
K = 1 1/2" (3.81 cm)	X = 5 equal spaces
L = 28 1/2" (72.39 cm)	Y = 9" (22.86 cm) deep
M = 24 1/2" (62.23 cm)	



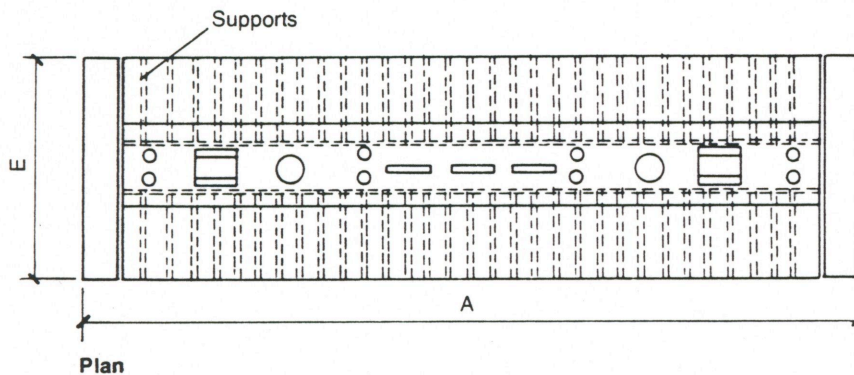
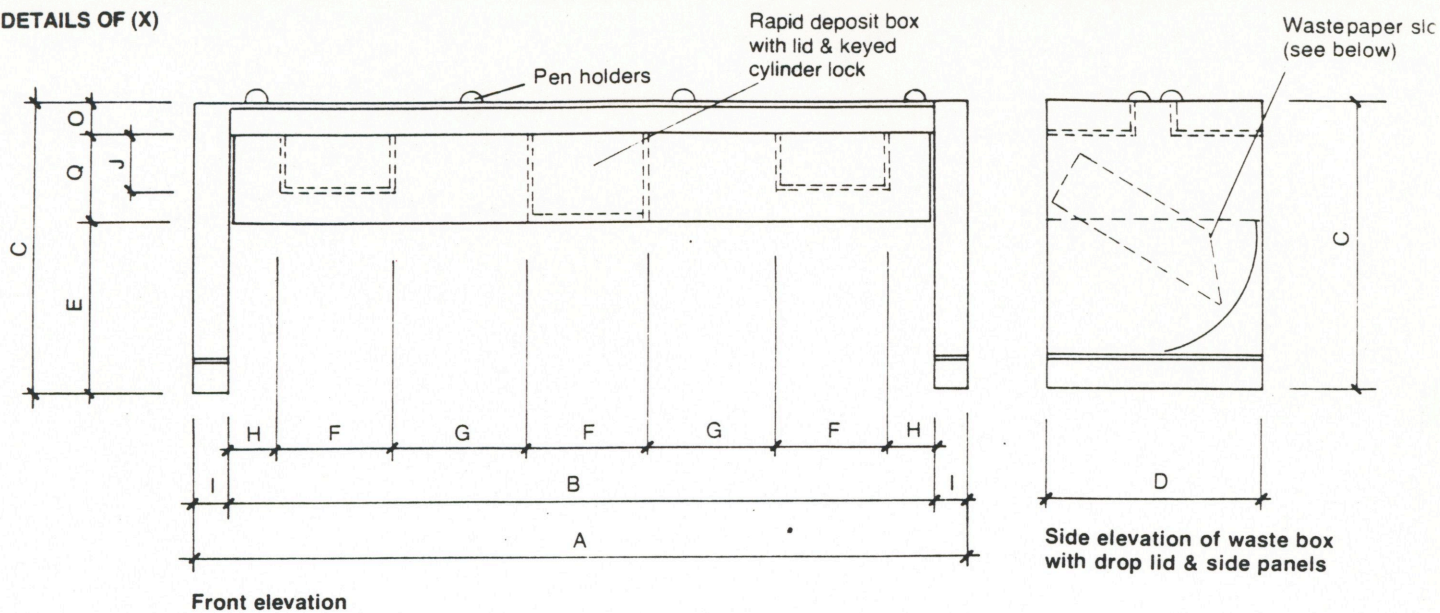
Section (3). Cashier counter



Elevations of cashier counters

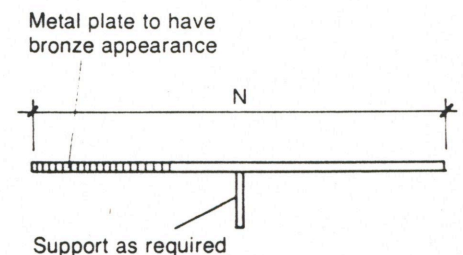
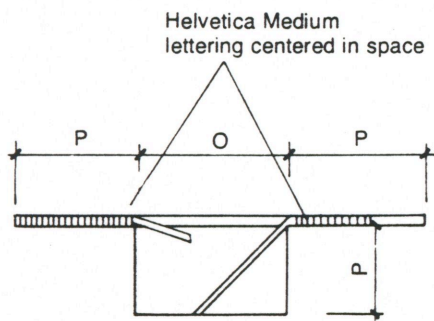
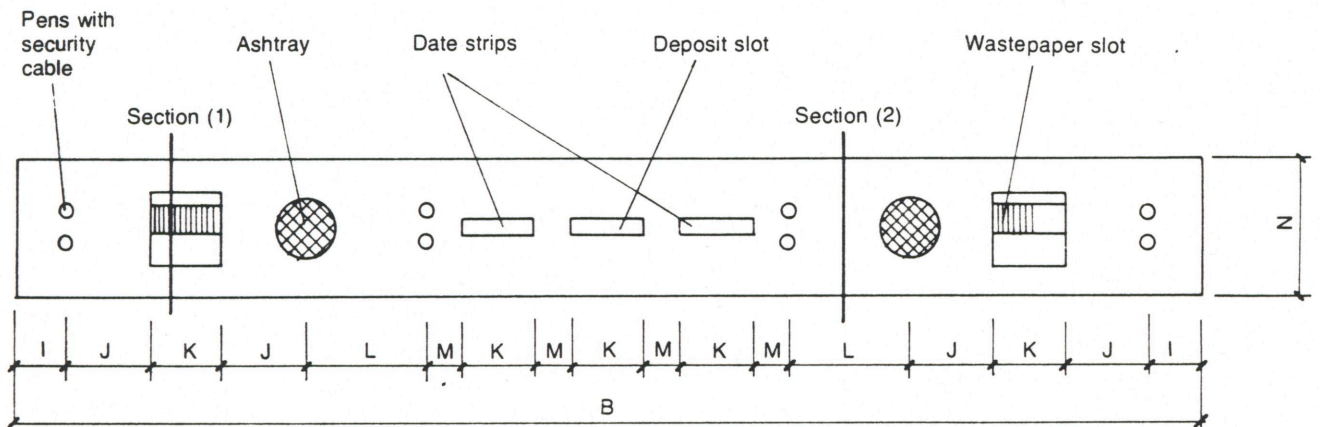
*Shown in plan on page 431.

DETAILS OF (X)



Dimensions (not to scale):

A = 9' (2.74 m)	J = 7" (17.78 cm)
B = 8'3" (2.52 m)	K = 6" (15.24 cm)
C = 40" (101.60 cm)	L = 10" (25.40 cm)
D = 30" (76.20 cm)	M = 3" (7.62 cm)
E = 24" (60.96 cm)	N = 11½" (29.21 cm)
F = 16" (40.64 cm)	O = 4" (10.16 cm)
G = 18" (45.72 cm)	P = 3¾" (9.53 cm)
H = 6½" (16.51 cm)	Q = 12" (30.48 cm)
I = 4½" (11.43 cm)	



*Shown in plan on page 436.

CLASS II VAULT DOOR

Insurance classifications

Class II vault door currently provides 5R [12" (30.48 cm) wall] or 9R [18" (45.72 cm) wall] vault classifications. See current I.S.O. Vault Classification Chart in Burglary Insurance Manual.

Important dimensions

Clear opening: 78 $\frac{1}{8}$ " X 36 $\frac{7}{8}$ " (198.44 X 93.66 cm).

Door thickness: Door proper is 5 $\frac{1}{2}$ " (13.97 cm) thick overall with $\frac{1}{2}$ " (1.27 cm) steel backplate and 5" (12.70 cm) of improved security material, forming a uniform, integrally designed monolithic security structure. It is more resistant than steel or reinforced concrete. Extensive laboratory testing has proven its effectiveness against all attack methods that must be prevented. These attack tests have included oxyacetylene cutting torch, abrasive wheels, rotating and jack hammers, carbide drills, hole saws, diamond core drills, and all commonly used hammers and tools.

Vestibule

All exposed portion of vestibule and frame clad with polished stainless steel clasps 12 $\frac{3}{4}$ " (32.39 cm) wall maximum standard for 5R insurance rating or 18 $\frac{3}{4}$ " (47.63 cm) wall maximum standard for 9R insurance rating.

Architrave

Standard: 85 $\frac{3}{4}$ " X 54 $\frac{5}{8}$ " (217.81 X 137.76 cm).

Deluxe: 85 $\frac{3}{4}$ " X 84" (217.81 X 213.36 cm).

Floor level

Minimum ramp, $\frac{1}{2}$ " floor differential.

Swing

Right or left 180°.

Day gate (rod type)

Right-hand in-swing for right-hand doors; left-hand in-swing for left-hand doors. Self-closing, keylock outside, release latch inside.

Locks

- Two counter-spy, 4 tumbler combination locks, UL listed group 1R with mechanical and thermal relock.
- 3-movement, 120-hr shock-mounted timelock with emergency release.
- Dayguard keylock.

Mechanism

Continuous full-height locking bars, interlock with frame both sides.

Ventilator

Emergency ventilator located in door frame, opposite hinge. Conduit and wiring (UL listed) supplied from vent to masonry opening power supply junction box. Alarm conduit, if required, furnished by others.

Foundations

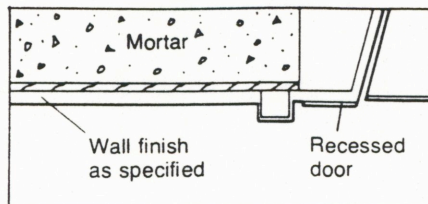
Foundation below door masonry opening to support 3,500 lb (1589 kg) minimum, 8" (20.32 cm) corbel to be full width of pit. Face of foundation and finish wall to be on same vertical plane.

Classification

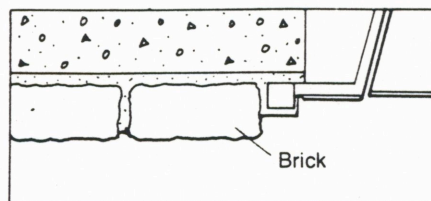
The classification and the amount of protection are based upon the net working time to effect entry. The specific attack test passed by Class II consisted of the following:

1. An attempt to knock off the combination dial, punch or drill the spindle, and then release the lock mechanism by means of picking tools.
2. An attempt to penetrate through the door to the lock box, lug, carrying bar, or other parts of the mechanism and then release the boltwork by punching, prying, picking, or cutting.

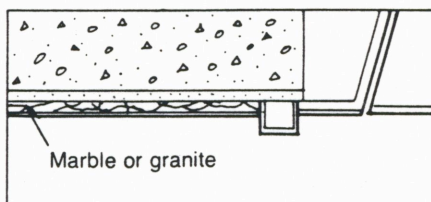
VAULT DOORS USED WITH VARIOUS TYPES OF WALL MATERIALS



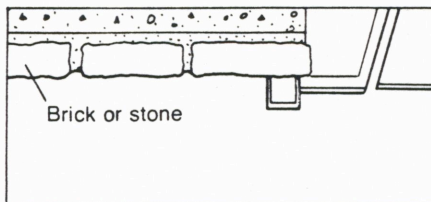
Paneling or sheetrock



Brick or stone



Marble or granite



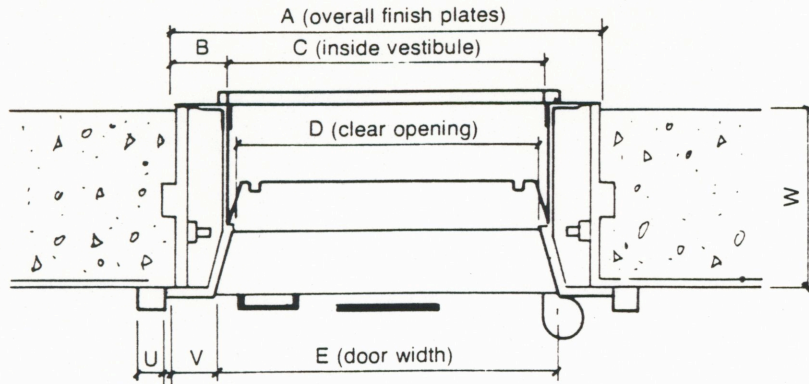
Brick or stone clasped by architrave

3. An attempt to cut a 96 sq in (0.74 m²) opening entirely through the door.
4. An attempt to cut all or sufficient bolts to allow the door to open.

UL marking

UL label to be attached to vault door plainly marked with the manufacturer's name or trademark with the specific earned classification rating—Class 1 ($\frac{1}{2}$ hr), Class II (1 hr) described above, Class III (2 hr). Each vault door shall be marked with its date of manufacture.

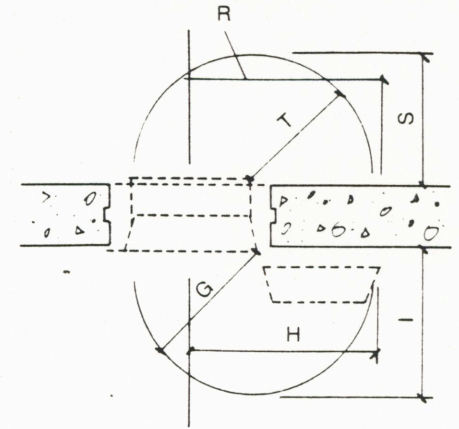
DETAILS OF (E)



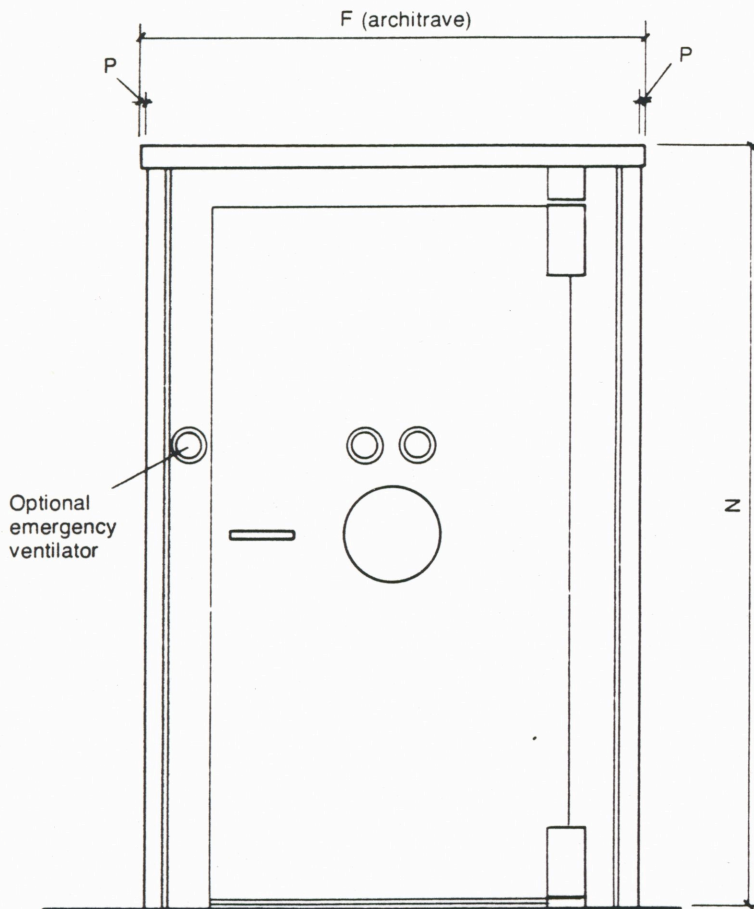
Horizontal section

Dimensions:

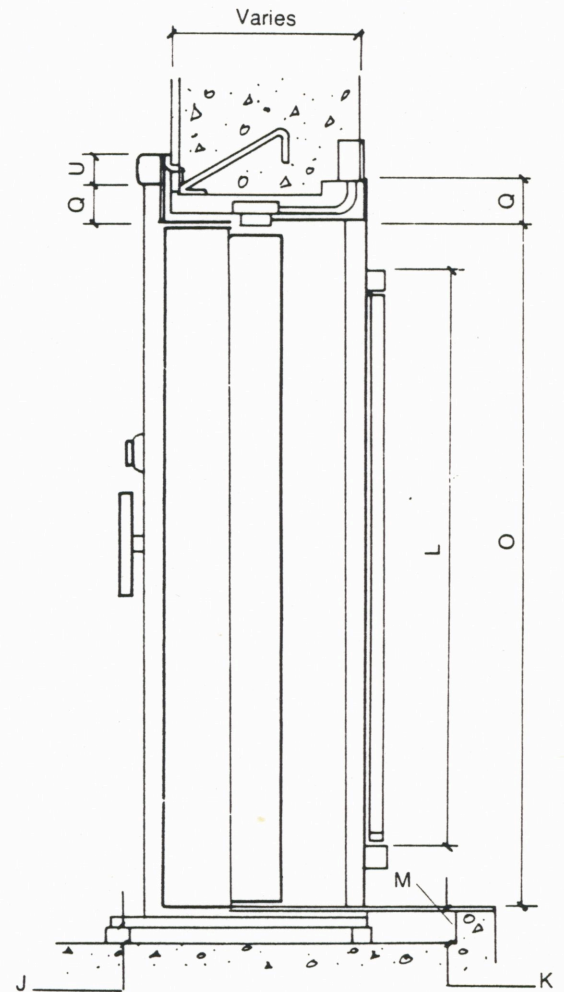
	in.	cm		in.	cm
N	85 $\frac{3}{4}$	217.81	S	40 $\frac{1}{2}$	102.87
O	78	198.12	T	39 $\frac{1}{4}$	99.70 rad.
P	$\frac{3}{8}$	0.95	U	2 $\frac{1}{4}$	5.72
Q	5	12.70	V	6	15.24
R	58 $\frac{3}{4}$	149.23	W	12-18	30.48-45.72



Door swings (right)



Front elevation



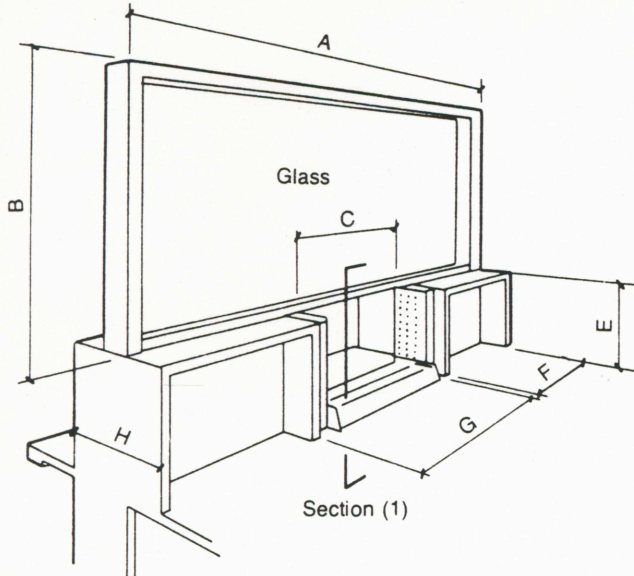
Vertical section

Dimensional variances in class II 3 $\frac{1}{2}$ ", 7", & 10" doors

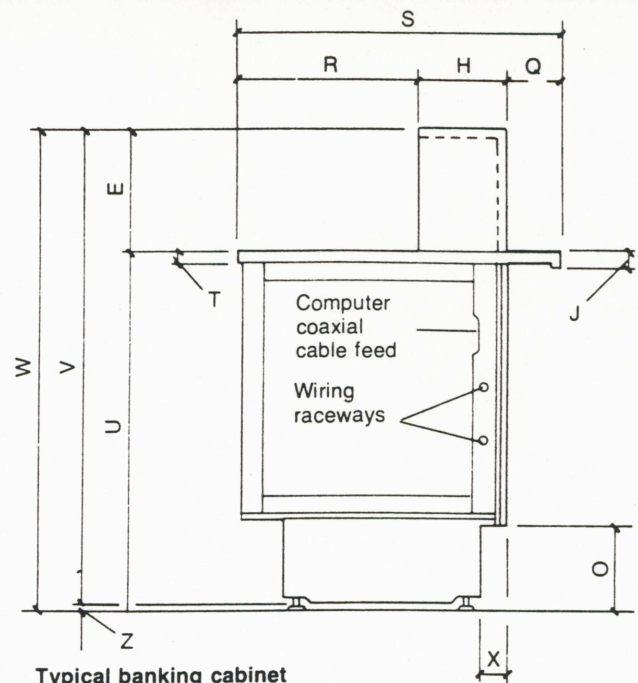
Models (in.)	A	B	C	D	E	F	G	H	I	J	K	L	M
American 3 $\frac{1}{2}$ "	51 $\frac{3}{8}$	7	37 $\frac{3}{8}$	36 $\frac{3}{8}$	38 $\frac{3}{4}$	54 $\frac{5}{8}$	39 $\frac{1}{4}$ rad.	59 $\frac{1}{8}$	42 $\frac{3}{8}$	2	2 $\frac{1}{2}$	60	9 $\frac{1}{4}$
American 7"	51 $\frac{3}{8}$	7	37 $\frac{3}{8}$	36 $\frac{7}{8}$	40 $\frac{1}{2}$	56 $\frac{1}{8}$	41 rad.	61 $\frac{1}{8}$	44	3	3 $\frac{1}{2}$	60	9 $\frac{1}{4}$
American 10"	53 $\frac{3}{8}$	8	37 $\frac{3}{8}$	37	42	58	42 $\frac{3}{4}$ rad.	64 $\frac{3}{8}$	46 $\frac{3}{8}$	3	3 $\frac{1}{2}$	60	9 $\frac{1}{4}$

*Shown in plan on page 436.

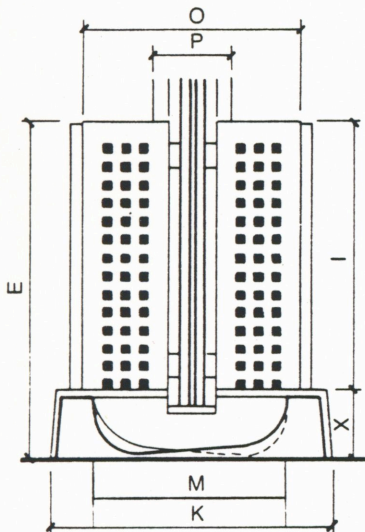
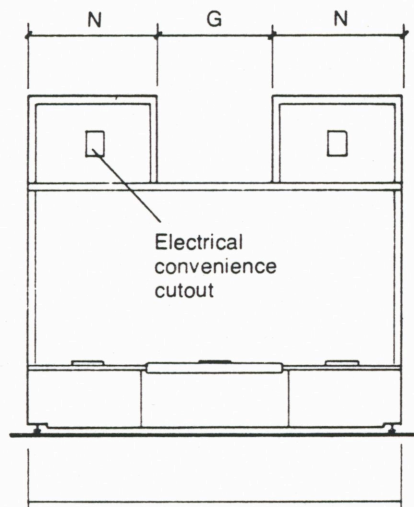
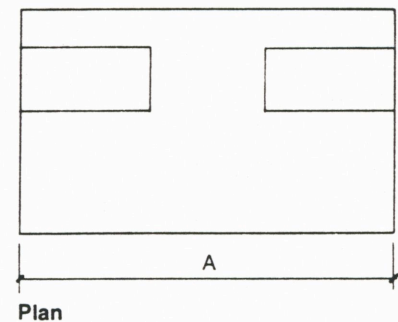
DETAILS OF (F)



Typical teller's window



Typical banking cabinet

Section (1). Deal tray in transaction opening
Located in top of counter sillElevation
Viewed from teller's side

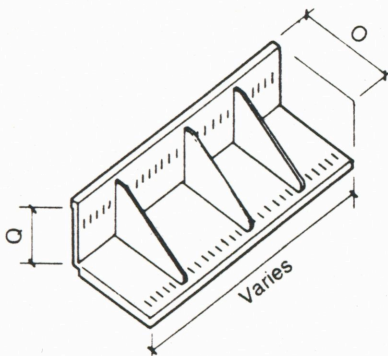
Plan

Dimensions (not to scale):

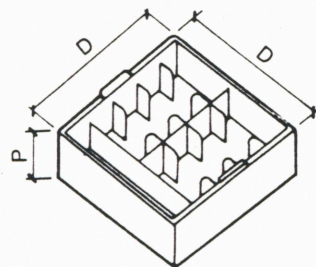
	in.	cm
A =	60	152.40
B =	30-42	76.20-106.68
C =	15	38.10
D =	15 1/8	38.42
E =	14	35.56
F =	19 1/4	48.90
G =	18 1/4	46.36
H =	10	25.40

	in.	cm
I =	11 1/8	28.26
J =	2	5.08
K =	11 3/4	29.85
L =	5	12.70
M =	8	20.32
N =	21	53.34
O =	9	22.86
P =	3 1/4	8.26
Q =	6	15.24

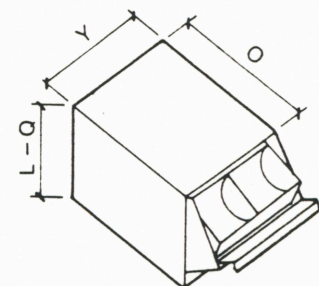
	in.	cm
R =	20	50.80
S =	36	91.44
T =	1 1/8	2.86
U =	40	101.60
V =	53 1/2	135.89
W =	54	137.16
X =	3	7.62
Y =	7	17.78
Z =	1/2	1.27



Knee space shelf



Currency tray



Pin & clip tray

*Shown in plan on page 436.

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