AN ABSTRACT OF THE THESIS OF

Kathryn Lee Burton for the degree of Master of Science in Apparel, Interiors, Housing, and Merchandising presented on February 19, 1991. Title: A Chronology of an Interior Design Project Emphasizing Various Graphic Communication Methods.

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_UDr. Sally Francis

An interior design project was completed by the researcher on the campus of Oregon State University. The purpose of the project was to participate in, direct and record the design process of an interior design project with an emphasis on the use of graphic communication methods.

A chronology detailed the entire project and the various graphic communication methods used during the design process. An evaluation of the project compared the graphic communication methods used during the project with a previously developed model which outlined various stages of the design process and the graphic communication methods appropriate to each stage in the process. In most cases the design project followed the model closely.

A Chronology of an
Interior Design Project
Emphasizing Various Graphic Communication Methods

by

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Chapter I

INTRODUCTION

Interior design is a multi-disciplinary field of study. Verbal, written and graphic skills are essential to the interior design process. There are many references in the literature to the importance of those skills. If a design idea can not be communicated to the client it is of little use (Koenig, 1981).

Of particular interest to the researcher are graphic communication skills. Many different methods of communication using graphic skills are available to the interior designer. Sketching, rendering, drafting, and color and sample boards are among the methods.

In the literature there is very little information about individual preferences for particular graphic communication methods among professional interior designers. Studies have been conducted to determine competencies of interior designers (Baker & Sondhi, 1989; Hoffman, 1983; Myers, 1982). However, designer preferences for particular graphic communication methods were not investigated. Also, no literature was found that documented the design process for an actual interior design project. An entry-level interior designer who reviewed case studies of various design projects which emphasized the graphic communication methods may be more able to make decisions about appropriate graphic communication methods for similar projects of their own.

Purpose of the Study

The purpose of the study was to explore the graphic communication methods of the interior designer by participating in an interior design project and recording the design process for the project. Emphasis was on the effectiveness of various methods of graphic communication used in the presentation of design ideas and solutions.

Chapter II

REVIEW OF LITERATURE

A basic characteristic of the interior design profession is the communication of visual ideas. At the inception of an interior design project ideas must be communicated verbally. However, the end result of any interior design project is a visual product. This review of literature will discuss the design process, as it relates to the interior design profession, including verbal and graphic communication skills.

Architecture is a field which is closely related to interior design. Professionals in both fields create and manipulate the interior spaces of buildings. Interior designers and architects use similar techniques in designing those spaces. There is an abundance of literature that describes the design process as it relates to architecture. Therefore, references to architectural literature will be made occasionally in this review.

A discussion of graphic design competencies of students entering the design field will be included. Also discrepancies between those competencies and professional practices will be discussed.

The Design Process

Verbal Communication

Initially, in the design process, the interior designer must establish verbal communication with the client. The wants and needs of the client must be

verbally communicated before the graphic design process can begin. In separate papers Albrecht (1988) and Forester (1985) discussed the importance of verbal communication in architectural design. Forester (1985) described the initial design process as "sense-making" between architect and client. Conversations between the two result in better understanding of each other's role in the design process. Forester stated, " . . . the sense-making metaphor suggests that design activity can be understood to evolve through the communicative actions of participants in practical conversations" (p. 17). This suggests that a free flow of ideas and ease of conversation are important to verbal communication.

The more clearly the client's ideas can be brought out the more effective the design process will be. Wiegand (1986) wrote that it is up to the architect to help clients with verbal communication. The designer should act as an interpreter and support the client when issues regarding terminology come up in the design process. The author advised designers to be sensitive to the fact that the client may not understand the "lingo" of the design world.

Beyond this rather simplistic, yet crucial, step the client's ideas must be heard. Sherman (1981) developed a three-phase approach for establishing a "common language" as a necessary means of communication between architects and their clients.

In the first phase the architect must stimulate clients from unawareness to a high level of awareness of their environment. In this phase clients are encouraged to use feelings when describing their interior environments. In phase two clients are asked to try to explain the "whys" of phase one. The architect discusses a variety of spatial configurations possible in the space. Clients should be ready to elicit verbal responses to those design solutions

based on their newly discovered awareness. In the third and final phase clients are ready to communicate what they desire in a design solution. Clients are then able to "walk through" the space mentally and respond to the "feeling" the space gives them. Sherman concluded with a discussion of the importance of the "common language" in order for the architect to produce a design that meets the client's needs.

Verbal communication is the initial step in the design process. Arends (1980) stated that concepts that are visually oriented are best communicated in a graphic manner. Therefore, visual communication is a key element in the interior design profession.

Visual Communication

Many terms are associated with the visual communication stage of the interior design process. For clarification a list of definitions of terms common to the visual design process is included in this review.

Definition of Terms

Elevation--a view of interior or exterior walls. An elevation does not represent depth. Elevations are drawn to scale.

Unfolded elevation--each wall elevation is drawn as a unit along with the floorplan, as if it were a box with each corner cut down to the bottom and laid out flat.

Scale--a ruler. A scale has the markings of a regular ruler on it, however, on its other two edges it has the markings " . . . that represent feet and inches reduced in a consistent proportion to one of the usual scales used for

architectural drawing" (Diekman & Pile, 1983, p. 30). Scale is also a word used to describe the proportions within a drawing. Scales typically used in architectural drafting are 3/8" = 1', 1/4" = 1' or 1/8" = 1'.

Drafting--a system for drawing precise, scale drawings which involves the use of specific equipment, such as, straight-edges and/or T-squares, scales, triangles and many other more specialized tools.

Perspective--drawings that visually communicate space, dimension and depth as closely as possible to the way they would occur in the built space. One-point and two-point perspective are typically used. The terms one-point perspective and two-perspective refer to the number of vanishing points of planes not parallel to the vision of the viewer.

Paraline drawings--includes axonometric and oblique drawings. Paraline refers to "parallel-line" drawing. In contrast to perspective drawings paraline drawings do not use vanishing points. Foreshortening is determined by the angle at which the space is drawn.

Floorplan--a horizontal section through a building four feet above floor level. This drawing helps the designer establish things such as, traffic-flow, window and door placement, and interior and exterior wall placement. Floorplans are drawn to scale.

Rendering--drawings which are more finely crafted than the sketch (see p. 7). Details of the interior space are more "faithfully produced." The rendering can be presented in either black and white or full color (Leach, 1978).

Informal Presentation--refers to a casual presentation of design ideas between designer and client. Designer and client use two-way dialog to discuss the project. Drawings as well as verbal communications are used to communicate ideas (Leach, 1978).

Formal Presentation--refers to a more structured presentation which usually involves more than one client. Visual and verbal communication methods are employed. Slides and audio-visual tools may be used as well as drawings to convey visual communications. After the presentation has been made the client is free to ask questions about the design and examine more closely the various design elements (Leach, 1978).

Section--represents a vertical "slice" through a building drawn to scale. Ceiling, wall and floor structure are shown as well as the interior space that is created within those structures. Sections can be shown as elevations or in perspective.

Sketch--loose, freehand drawings. A sketch may suggest scale and proportion but sketches are used to work through design possibilities rather than to act as exact representations of spaces.

Visual Design Process

The visual communication process includes many levels of graphic development. At the lowest or private level, a designer produces what Herbert (1988) described as "study drawings." At its highest level of development detailed drawings, or construction drawings are drawn. These detailed drawings include both written communication techniques and visual communication skills to achieve a high degree of understanding between the designer and, at this point, the installer (Diekman & Pile, 1983; Lockard, 1968). Between these two levels are presentation skills. Presentation in this context refers to the presentation of design ideas and possible solutions to the client.

Sketching. Herbert (1988) discussed various properties of "study drawings." One of these properties is that "study drawings provide the graphic means to add information from our cognitive experience to the solution of design problems" (p. 29). Koenig (1981) called the drawing skill a design tool in the first phase of the interior design process. Later, drawing skills are used as a way to communicate design concepts to the client. Rey-Barreau and Whiteside (1983) described drawing as a problem-solving tool. They stated, "Through drawing, students and professionals are able to solve problems by generating schematic conceptualized ideas of possible solutions" (p. 14). Similarly, Laseau (1981) referred to drawing as "graphic thinking." Laseau described "graphic thinking" as a cycle consisting of working through a problem, such as a design solution, by developing images and allowing those images to be recycled through the thinking process again and forming a new image which can then take visual shape.

In the initial drawing stages rough sketches are meant to aid the designer through the beginnings of the design process. The sketches can gradually change shape and depth and eventually become part of the more "public drawings," or the presentation to the client (Herbert, 1988).

Drafting. Mechanical drawing, or drafting, is yet another drawing tool for the interior designer. Diekman and Pile (1983) used the term "measured" drawings. They discussed the importance of "measured" drawings. Freehand sketches have their place as a basis of "conceptual" form but these must make way for representing the space to scale. Drawings which are usually drawn to scale consist of plans, elevations and sections.

Arends (1990) stated that plan drawings help the designer establish window and door placement, space planning options and traffic flow through the space. Arends also contended the plan can be roughed out but eventually must be refined. According to Arends, "At the end of the design process, plan drawings form the primary vehicle for transmitting information to the contractors and suppliers" (p. 7). Lockard (1968) agreed but pointed out that there is a difference between "design drawings" and "construction drawings." A "design drawing" of a plan view would show only the architecture. A "construction drawing" includes dimension lines, schedule information, or references to details.

Presentation techniques. There comes a point in the design process when the ideas or possible design solutions must be presented visually to the client. These presentations can include sketches, renderings, color and sample boards, floor plans, and elevations (Leach, 1978). Various styles of presentations can be employed. There are two types of presentations, formal and informal. Informal refers to a presentation between client and designer. Simple sketches as well as detailed renderings can be shown. A formal presentation is a more structured presentation. A designer or a design team presents the design ideas.

Presentation methods can be simple or complex. A complex presentation may involve an audio and visual slide presentation or a movie about the design concept. This method is used more often for a larger group of clients than the informal presentation method (Leach, 1978).

The literature revealed many different presentation techniques. Some of these techniques are "unfolded elevations" (Greenstreet & Shields, 1988) and

paraline drawings, including axonometrics and obliques (Arends, 1990; Greenstreet & Shields, 1988). (See Definition of Terms p. 7.) Each of these techniques has fairly particular purposes in design presentation. For example, according to Arends (1990), "parallel-line" (paraline) drawings ". . . show a sense of the true three-dimensional volume of an object or space as well as the relative position of each element to each other in the space" (p. 9). Although these techniques are specialized, the literature suggested that basic presentation techniques would include elevations, sections, plans and perspective drawings (Arends, 1990; Diekman & Pile, 1983: Greenstreet & Shields, 1988; Lockard, 1968).

In addition to these basic techniques is color and its application to presentation drawings and the overall presentation. Lockard (1968) expressed a concern that because of the cost involved with the extra time and care required for color application, architectural drawing may become "black and white art." He pointed out that color, however, is an integral part of the end product and should be depicted that way. No one can deny the interest, and above all, attention color can command. Halse (1960), in his book about architectural rendering, discussed the ability of color to make projects seem more real in renderings.

Greenstreet and Shields (1988) devoted a chapter in their book to "color application." Three main methods of color application were listed: (1) colored pencils; (2) watercolor (3) pastels. Arends (1990) listed colored markers, chalk, colored papers, pastels and colored pencils as tools for color application.

Doyle (1981) wrote a book, Color Drawing, about color in drawings because of his feeling for the importance of communicating in color. Doyle discussed the use of colored markers and colored pencils as the sole method of

coloring drawings. He pointed out that markers and colored pencils are ideal to work with throughout the entire design process, from design drawings discussed earlier, to the final presentation drawing. The way the two work together make them very versatile.

Color boards and sample boards are used to present design ideas. Sample boards involve samples of fabrics, carpet sections and color schemes that are mounted on boards, such as matte board, and presented to the client. In this way the client can see the effects of the whole project at once (Leach, 1978).

The literature reveals agreement on the use of elevation drawings in presentations. Arends (1990), Greenstreet and Shields (1988) and Lockard (1968) discussed the effectiveness of presenting an elevation drawing. (These references did point out the shortcomings of using such a flat means of projecting a space.)

Opinions differ, however, on the use of perspective drawings in presentations. Koenig (1981) discussed the "pictorial nature" of perspective drawings. In this presentation manner the design solution can be depicted accurately and in a way that is easily understood. However, according to Greenstreet and Shields (1988),

> Although they [perspective drawings] can convey some spatial
> characteristics convincingly, perspectives are not as optically real
> as they may seem. For example, basic perspectives cannot deal
> with the observed phenomenon of the curving of straight lines as
> seen in peripheral vision. Other shortcomings have been

observed which must to some degree temper a designer's trust in perspectives as a "true and objective" medium of spatial depiction. (p. 68).

On the other hand Arends (1990) pointed out that two-point perspective represents the best view of an interior space. This is because of the dynamics of the lines and the area a two-point perspective can include. Lockard (1968) contended that " . . . the perspective is as close to the reality of a building as a drawing can get" (p. 10). Lockard did not believe one- and two-point perspective drawings, frequently used in architectural rendering, are adequate. Lockard (1968) devised a system which he believed should be used freehand (other systems are more mechanical in nature) and the process should be quick and easy. Lockard's method involved setting up a "depth judgement plane" in which figures and objects as they appear in the space to be drawn will relate to their location and size along this plane.

Based on this review of techniques related to interior design presentations, the observation can be made that many options are available and useful to the interior designer. However, it suggests the question of what techniques are actually used by practicing interior designers in typical presentations and what are the graphic skills necessary to become a practicing designer?

Design Education and Professional Practice

Graphic communications skills are very important to interior design students and interior design professionals. Drawing enables students and professionals not only to communicate ideas visually but also to work through

problems (Rey-Barreau & Whiteside, 1983). Rey-Barreau and Whiteside developed a system for educating design students. They began by developing a "Matrix for Design Communication." Rey-Barreau and Whiteside stated, "This Matrix, . . . includes the various stages of the design process, the purpose of each stage, the type of communication necessary to facilitate the exchange of information, and with whom the communication occurs" (p. 15).

According to Rey-Barreau and Whiteside (1983) during the "preliminary design/concept development" stage informal verbal and graphic communication skills are used. The authors list orthographic drawings, such as plans, sections, elevations, details; axonometric, or paraline, drawings; and one- and two-point perspective drawings as the "primary communication methods." At this stage the communications are directed to the client. The following stage is called the "design development idea presentation" stage. At this point "formal and /or informal" graphic communications methods are used. Orthographic, axonometric, and perspective drawings are used in this stage also. A graphic method added in this stage is rendering using "tonal value, shade and shadow, and color" (p. 17).

The last three stages in the design matrix refer to construction drawings and installation. As a result of producing the matrix Rey-Barreau and Whiteside (1983) developed courses they felt addressed the graphic skill needs of their students.

In two recent articles researchers have studied the relationship between interior design practitioners and interior design education. Harwood (1989) compared the Foundation for Interior Design Education Research (FIDER) recommendations for educational programs and the National Council for Interior Design Qualification's (NCIDQ) job analysis study. (NCIDQ is the

testing organization for the interior design profession) Harwood stated, "It is well recognized that competence in interior design is acquired and verified through a sequence of education, experience and examination" (p. 41). Harwood (1989) found that several commonly held hypotheses were verified:

> 1) that most professional practice knowledge comes through actual work experience; 2) that problem solving through a practicum experience is important to both education and practice; 3) that much of the technical knowledge used in design should be more fully developed through practice; 4) that codes knowledge is important, but must be supported through work experience; 5) that some content areas taught in schools and included in the FIDER standards (such as history and research methods) are important for design related background, but may not be as important in practice. (p. 47).

Harwood (1989) wrote that certain subjects that are found in the FIDER guidelines for design curriculum were rated low in the knowledge areas in the NCIDQ job analysis study. Two of those areas of study were graphic skills perspective or axonometric drawings and rendering. However, drafting was ranked important by both FIDER and NCIDQ.

The 1988 FIDER standards and guidelines list the design process from concept to problem solving and evaluation as subjects for which competency by students is required. Also oral, written and graphic design presentation skills are competency level skills. Graphic design skills include drafting, rendering and sketching.

Baker and Sondhi (1989) researched the issue of competencies of students graduating from FIDER accredited interior design programs and the importance of those competencies in the field. The purpose of the study was to learn what skills top design firms considered important for entry level designers. Two-hundred top ranked design firms listed by Interior Design magazine in 1988 were sent questionnaires. A Likert scale was used to rate 91 competencies. These competencies were based on past research as well as the 1988 FIDER recommendations. Problem solving, as it related to the design process, was the top rated competency. The second and third highest mean ratings were given to oral communication and design concept. Drafting was rated 9th, sketching 19th and rendering 47th. Perspective drawing rated 30th.

The results of the Baker and Sondhi (1989) study showed perspective drawing and rendering competencies rated much lower than the author expected. Previous discussion in this review outlined the importance of those skills in representing the design solution to the client. The results contradict this concept. Perhaps because of the complexity of renderings and perspective drawings they are not cost effective for the majority of projects.

Hoffman (1983) found similar results in her study comparing graphic competencies of interior design professionals to students of interior design. It was found that rendering was the lowest ranked competency by the professional. Reading and interpreting floor plans was ranked first. Students ranked drafting floor plans first and rendering fourth, or lowest. Professionals did fewer three-dimensional drawings (e.g. perspectives) than did students. Some professionals reported that they did not have time for three dimensional drawings, had a lack of skill, or that their job was more decorating than designing.

It was suggested by Hoffman that students, unless they are highly proficient in graphics, could prepare themselves better for " . . . professional practice if they constructed fewer time-consuming renderings . . . " (pp. 18-19) and concentrated on other areas that professionals consider more important such as business competencies (Hoffman, 1983). The results of this study. support the findings of the Baker and Sondhi (1989) study. Drafting is considered an important skill. However, rendering and perspective drawings require time and skill which limits their use in the design process.

Myers (1982) conducted research to determine the competencies of interior designers entering the field. The results of questionnaires sent to a sample of "professional" members of the American Society of Interior Designers (ASID) and a sample of "corporate" members of the Interior Design Educators Council (IDEC) were compared. Combined responses showed "working drawings" listed most often as a "psychomotor competency." ("Psychomotor" refers to the use of motor skills, " . . . some manipulation of material and objects . . . ", or co-ordination. Myers, 1982.) Some variation of responses occurred in the "psychomotor competencies" category. The IDEC respondents listed "presentations" more frequently than the ASID respondents. When an analysis was done on the combined responses "drafting" was the most listed competency, and thus " . . . was the competency most frequently identified as being necessary for the apprentice interior designer" (p. 22).

Benhamou (1980) researched the frequency of different skills performed by professional interior designers in areas of academic studies. Also the frequencies of different skills used by interior designers in professional practice were measured. Drafting was found to be a high frequency activity in the "academic areas". Graphic skills, in general, were found to have high frequency

across the many groups of subjects in the study such as contract designers, sellers, residential designers.

Discussion and Conclusions

The basic steps of the design process are well documented. Many presentation options are available to the designer. The literature seems to say there are many choices but there is not one "correct" method. Only detailed, or construction drawings are fairly straight- forward in method and presentation; they must be clear and accurate.

Most of the cited studies found that drafting was a very important graphic skill for an interior designer. Renderings and perspective drawings were found to be of less importance. It would appear that the designer must rely on skills inherent and/or learned to make important decisions regarding style of presentations. But the question of how a designer chooses presentation methods remains.

Koenig (1981) illustrated one possible answer when he stated, "Although economic and budgeting constraints affect the extent to which presentation drawings can be used, it is well known that presentations can sell the job, making them a wise investment of time and money" (p. 7). Although this statement contradicts the studies that found renderings and perspective drawings are used less frequently in the field than other graphic skills it makes an important point. Drawing is important to the design process. How an interior designer develops and uses that skill is perhaps determined on an individual basis. Perhaps it depends on the job, how large or small it is or the budget for a particular job.

A discussion of "typical" presentations that professional interior designers use and under what circumstances they use them would be of interest to students studying graphic skills. A method for developing such a discussion might be to chronicle an actual project from the verbal communication stage through to installation. In this way valuable insight would be gained about presentation methods and their effectiveness in solving an actual design problem.

Chapter III

CHRONOLOGY OF THE DESIGN PROCESS

The Project

The interior design project the researcher participated in was located on the campus of Oregon State University, Corvallis, Oregon. Two spaces within Kerr Library on campus were used in the project, the new undergraduate student Computer Laboratory and the adjoining Reserve Book Room. Both of these rooms are open twenty-four hours a day during the school year.

The Computer Laboratory has approximately 2000 square feet of area. Within in this space there are approximately 103 computer workstations for use by students. In this area was a printer bay containing 10 printers which serve the computers in the room. Students checked into the Computer Laboratory at an open counter area. Behind this counter was an open room which is shared by the Computer Laboratory and the Reserve Book room staff. The stacks for the Reserve Book Room are in this area. Students sat in chairs which are lined up against the entry wall while they are on the waiting list for computer availability.

The Reserve Book Room has slightly less square footage. This room contains a number of tables and study carrels, as well as many chairs. There is an open counter area in the room where students check in and out the reserved books. Behind this counter is the area shared by the Computer Laboratory staff.

In 1988 the Vice President for Academic Affairs suggested that the Apparel, Interiors and Merchandising Department consult with the Director of Computing Services and the Director of Library Services regarding ways to "warm up" the two areas. At that time he allocated a $2,000.00 to $3,000.00 budget for the project.

During the fall term of 1989 the project was presented to the author of this paper (henceforth referred to as "designer") as a possible creative project in lieu of a thesis. At the beginning of winter term 1990 the designer began work on the project. The following is a month-by-month chronology of the steps involved in the design process for the project.

<div align="center">

January, 1990

</div>

The project began under the guidance of a professor of interior design at Oregon State University. A graduating senior in Interior Merchandising was assigned to work with the designer during winter term as part of the requirements of a one-credit special project.

The client at this point was the Director of Computing Services at Oregon State University. The Computing Services Department would act as the main contact for the whole project. (Later in the project the Reserve Room Book Department in Kerr Library would become involved.) The initial step in the design process was to develop an appropriate list of questions to use while interviewing the client. Under the design professor's guidance a list of questions about the project was formed.

The designer and her senior student assistant met with the Director of Computing Services. The scope of the project was discussed, as well as the

budget and time frame. The client explained that there was a small budget for the project. An unlimited time frame was offered. The basic premise for redesigning the space came from the idea that the new undergraduate Computer Laboratory had an "institutional" look to it. The client requested that the room be "warmed up." This was interpreted by the designer to mean using a warm color scheme to make the room appear less institutional and more hospitable to the students who use it. Color and decorative elements could be used to achieve the desired effect.

After this meeting the designer and her assistant measured the laboratory. From these measurements an accurate floor plan was drawn. The existing furniture layout was included in the drawing.

The designer then began developing a color scheme for the Computer Laboratory. The interior design professor suggested that two schemes be presented to the client thereby giving him a choice. The decisions about the color scheme selections were based mainly on the budget. Painting the entire room would be expensive. Therefore, the designer made the decision to offer one design solution that involved a minimal amount of painting. Offering a choice of a warm or cool color scheme was also advised.

A warm color scheme was devised which would be cost effective as well as achieve the "warm" look specified by the client. In this scheme the existing teal color of the room would remain intact. A warm rose color would be added as a six inch stripe around the entire room.

To accentuate these colors banners would be made which would contain two different values of the rose color. An accent of the existing teal color would be designed into the banners to tie the color scheme together. The seven banners would hang flat against the walls at various intervals around the whole room.

The warm color scheme also involved painting or resurfacing the existing counter area. A medium value gray color was chosen to complement the existing gray computer workstations.

To complete the design, a furniture style sample was chosen for the waiting area. An appropriate upholstery for the furniture was also chosen.

The "cool" color scheme consisted of painting all the walls a medium value gray to complement the existing gray computer workstations. Stripes of two different colors and widths would be painted to encircle the entire room. A wide stripe of deep charcoal gray would be painted below a thinner warm pink stripe. The stripe effect would begin six inches beneath the level of the window frame.

The existing counter area would be painted or resurfaced. A warm pink color would be used.

Two furniture styles were chosen for this color scheme. Upholstery fabric was found that complimented the color scheme. One furniture style idea was an upholstered bench which would be fastened at the floor along the entry wall. The other style was a sled type chair.

These two color schemes were drawn and rendered in full color by the designer. Each color scheme was placed on a separate half-piece of mat board. The black and white floorplan was mounted separately. All of the components for the boards were mounted on foam core before being mounted on the mat board. Because of the detail and color of the drawings a light neutral color was chosen for the mat board. An accent of (chartpak) vinyl line was applied to the bottom of each board.

February, 1990

The designer and her assistant presented the proposed design solutions to the interior design professor, for her comments and input. A date and time was arranged to meet with the client.

At the meeting with the client the designer and her assistant were introduced to a Computing Services staff member who would also be considered a client at this point. He is the Manager for Academic Support Systems for the Computing Services Department of Oregon State University. The two design proposals were presented to the clients. Each color and sample board was explained as well as the design concept behind the decisions. The meeting lasted approximately one and one- half hours. After the designs were presented the clients asked questions about various aspects of each design. They both agreed that the "warm" color scheme was the most appealing. They both liked the banner idea and design. New printer cabinets were discussed. The necessity for new printer cabinets was agreed upon.

The Director of Computing Services discussed the possibility of a new counter idea. He explained that seeing the drawing of that area made him realize that perhaps another way of using the counter could be found. The new idea would eliminate the seating in the entry area.

At the end of the meeting it was suggested that the designer make drawings of the counter ideas that were discussed. The drawings were to be discussed further at the next meeting.

A cabinetmaker was recommended by the client. The cabinetmaker had done other work for the client and the client was pleased with his work. Later this month the suggested cabinetmaker was called. The project was discussed briefly. The cabinetmaker was interested in working on the project.

March, 1990

The new drawings were presented to the clients. They approved the basic idea. The presentation board was taken, after the meeting, to the student workers in the Computer Laboratory for their input.

The designer had a phone conversation with the Director of Computing Services. The clients have discussed a new idea for the counter. A meeting was scheduled for after spring break to discuss their new idea.

At that meeting a time frame for the project was discussed as well as the new counter idea. The meeting lasted for one and one- half hours. Also discussed at this meeting was the possibility of moving the entire printer area to a different location in the room. The concern behind this idea was the congestion in the entry area to the Computer Laboratory. It was resolved that the printer area would remain in its current location because it was easily accessed by the Computer Laboratory staff, as well as the students. If the new counter was built the congestion would be lessened in this entry area.

April, 1990

This month the entire project was presented to the Director of Library Services for Oregon State University's Kerr Library, and an administrative assistant for the library. The Reserve Book Room was included in the initial plan to update and "warm up" the space. To access the Computer Laboratory students have to pass through the Reserve Book Room. The library staff approved the color scheme chosen by the Computer Laboratory clients for use

in the Reserve Book Room. They also approved the banner idea and the painted stripe around the room.

The counter area proposal for the Computer Laboratory was discussed with the library staff at this meeting. The Reserve Book Room would be affected by a new counter configuration because Computer Laboratory student employees also take on the Reserve Book Room duties between 3:00 a.m. and 8:00 a.m. The new counter idea was approved by the library staff in concept. However, concern was voiced about the width of the modesty panel in front. It was expressed that it was not wide enough for comfort.

Later in the month the designer had a meeting with the clients and another Computing Services staff member. This staff member oversees the Computer Laboratory operation. The counter plans were discussed as well as the needs of the student employees of the laboratory. Some negative comments had been voiced by student employees when they were shown the presentation boards. There was concern on the part of some student employees about taking away the waiting area. There was also some concern about how well the operation would work in the early morning hours while Computer Laboratory employees also run the Reserve Book Room.

These concerns were taken into account by the client and the designer but the basic counter idea remained. However, at this point the straight counter idea was modified. At this meeting an angled counter area was discussed. The counter would have shelving beneath it for storing paper items as well as holding a computer hard drive unit. The need for a bookcase was also discuss to provide access to the many manuals used by the employees in the daily operation of the laboratory.

Following this meeting the designer spoke to the cabinetmaker. He was still interested in the project and was willing to build the counter and bookcase.

The designer sketched the newest counter idea in more detail than the previously discussed counter idea. This drawing was approved by the clients.

A phone call was made to the cabinetmaker and a meeting was scheduled to go over the drawing and discuss the plan. The printer cabinets needed to be discussed also.

The designer took a set of slides of the laboratory and Reserve Book Room to document the original appearance of these spaces in the final presentation of this project

A note was written to the Physical Plant outlining the painting needs of the Computer Laboratory and Reserve Book Room. A contact person at the Physical Plant was established.

In April the designer met with the cabinetmaker. The plans for the new counter were discussed. Also discussed were two new visually handicapped computer workstations that the Computing Services Department requested. These workstations will be similar to the existing workstations which the cabinetmaker had built previously. The modifications to that design were discussed.

The major emphasis of discussion at this meeting regarding the new counter design was the need for the old counter to be concealed. Possibilities for a floor to ceiling partition were discussed. The refacing and resurfacing of the counter in the Reserve Book Room was also discussed. The cabinetmaker would call with an estimate on the project in a day or two.

A meeting was scheduled with Physical Plant staff later in April. The painting job was discussed at that meeting. The designer was told to supply

him with a paint number so the Physical Plant Paint Shop could mix the paint. The designer was told that another option was to purchase the paint through the Computer Services Department and deliver it to the paint shop for the job.

May, 1990

The cabinetmaker called with purchase order information and estimates regarding the printer cabinets. He did not give an estimate on the new counter because funding for it was coming out of the Computing Services budget not the University's budget, therefore, there was no rush to have an estimate. The cabinetmaker would send a written estimate for the printer cabinets soon.

The cabinetmaker was working on the printer cabinets and would like to install them between the end of spring term and the beginning of summer term. The designer checked with the Director of Computing Services about the convenience of that time schedule. He agreed to having the cabinets installed during that time.

The designer talked to the contact person at the Physical Plant about the painting job estimate. He voiced a concern about painting the stripe on the rough surface of the wall material in the laboratory and Reserve Book Room. He was concerned that the edges would not appear crisp enough. This concern was taken into consideration.

The designer shared the dollar amount of the Paint Shop's bid for the painting job with the interior design professor. She thought the figures looked a little high for the job. She suggested getting outside bids for the job. However, approval for this move would have to be obtained from the Director of Computing Services.

The Director of Computing Services did not approve of outside bidding because of the job site. He believed that on campus jobs should be given to Physical Plant employees whenever possible.

The Computing Services Manager was anxious to see the estimates in type-written form. The estimates needed to be sent over to the Vice President for Academic Affairs Office as soon as possible for approval of funding.

The estimate lists for the Computer Laboratory and Reserve Book Room were prepared separately. The estimates for the Computer Laboratory included monies for the printer cabinets, the paint job, the banners and an acknowledgement sign. The acknowledgement sign would be used to list the contributors of various elements, such as equipment, in the Computer Laboratory.

A written estimate from the cabinetmaker was received this month. The Physical Plant's written estimate was also received. The estimate from the Physical Plant was in the form of a combined authorization for the paint job in the Computer Laboratory and Reserve Book Room. This authorization form needed to be signed by the Computing Services Department.

As the designer reviewed the work itemized on the authorization form work outline it was noticed that some necessary painting work was not included. A telephone estimate of this work was given by the Physical Plant contact person. The client felt that for the amount of dollars difference a new estimate was not necessary. The designer delivered the cost estimates for the Reserve Book Room to the client's box in the Computing Services Department. Included in the estimate were the costs for the painting work, banners and counter resurfacing job.

Later this month the cabinetmaker called with questions about the new

workstations for the visually impaired. The location for grommets for computer wiring was discussed. A telephone call to the client was necessary to answer the question. The designer called the cabinetmaker back with the correct spacing for the grommets.

June, 1990

The cabinetmaker called in the estimate for the counter area in the Computer Laboratory. This new information needed to get to the client because the client wanted to have the information as soon as possible.

The designer sent a sketch done by the cabinetmaker for the Reserve Book Room counter resurfacing job to the client. The written estimate for the job was also sent.

The client called this month to tell the designer that the Vice President for Academic Affairs had approved $5,300.00 as the budget for the Reserve Book Room and Computer Laboratory projects. After reviewing the figures for the proposed counter in the Computer Laboratory the client would like to proceed with the project. The costs for the counter would be paid for by the Computing Services Department.

The new gray printer cabinets were delivered and put in their place in the Computer Laboratory. The two new computer workstations for the visually handicapped had also been delivered. A permanent location for these workstations had not yet been determined.

It was necessary for the designer to find a paint resource. Paint chips which had been used as the basis for the color scheme of the project were a brand not available locally. Therefore, a near match would have to be found. Time was spent by the designer looking at local paint stores for matching paint

chips. The correct colors were not found. At a meeting with the Physical Plant contact person the designer was given a paint chip book to help match the colors. However, the book did not have matching paint chips.

July, 1990

Earlier in the project the designer had chosen fabric samples for the banners. Rip-stop nylon had been the fabric of choice. However, no fabric of this type was found that matched the color scheme. Cotton fabric was found which matched well. These materials were discussed with the interior design professor. During the month of July the designer checked to see that enough fabric was available for the banners. At this time the designer secured a seamstress to sew the banners.

The seamstress and the designer had a meeting to calculate the exact yardage and review the design of the banners. A sketch was made by the designer which was used in the yardage calculations. After the meeting a purchase order for the fabric was requested from the Business Manager for the Computing Services Department.

A couple of days later the fabric was purchased by the designer using the purchase order. The fabric was then left at the fabric store to be picked up by the seamstress. The designer began working on a way to hang the banners once they were completed.

August, 1990

The designer talked by telephone to the cabinetmaker about the time schedule for completing and installing the new counter. The Computing

Services Department wanted the new counter installed before fall term began on September 24, 1990. The Reserve Book Room wanted to have their counter refinished by then also.

The seamstress called to say that the banners were finished. The designer picked them up and signed the bill for the labor. The designer then submitted the bill to the Business Manager at the Computing Services Department.

This month the designer met the new Computer Laboratory Manager. She works under the Computing Services Manager. She was brought up to date on the project.

The designer met with the cabinetmaker in the Computer Laboratory to review the plans for the new counter. He drew out the dimensions of the counter on the floor where it was to be placed to give the designer a better sense of its proportions. He requested a more detailed drawing of the counter and the exact dimensions of the shelves beneath the counter. He requested that he have the drawing within two days.

After that meeting the designer consulted with Computing Services staff members. The meeting was held in the Computer Laboratory so that they could see the outline of the counter on the floor. It was agreed that the dimensions were adequate for their needs. The counter design should be built as specified. Two and one-half hours were spent by the designer drafting out a detailed drawing of the counter. These plans were delivered to the cabinetmaker's office on the specified date.

September, 1990

The designer met with the Physical Plant contact person and Paint Shop employees. The designer made a rough sketch of the space with a color key of paint colors for the walls and posts. This group went over the project and estimated the amount of paint the designer needed to purchase. Because no paint chips could be found that matched the ones originally chosen it would be necessary to have the paint custom blended by a local paint store. Samples of the laminates to be used in the project were used to match colors.

A local paint store was willing to do the custom matching of the paint. A purchase order was requested from the Business Manager in the Computing Services Department by the designer.

As the installation date for the counter approached complaints by student lab employees were heard by the Computer Laboratory Manager. She then discussed the complaints with the designer.

Several employees were not happy with the new counter in general. They felt that the counter area should be left as it was. They were also concerned about the hours of the night when laboratory employees ran both the Computer Laboratory and the Reserve Book Room. They felt that it would be an inconvenience to have to go back around the old counter area which will be walled-in as the new counter design specified to access the Reserve Book Room stacks. In the existing design the employees merely moved down their side of the counter to the adjacent Reserve Book Room counter to get to the stacks. These concerns were taken to the client and he made the decision to keep the design just as it was approved. He felt that the concerns were valid

but they could be worked around without inconveniencing the employees too much. He felt that the main idea of the new counter should still stand firm. The idea for building the new counter came from a desire to make the employees of the laboratory more accessible to the students who use the laboratory.

Another idea for the new counter was brought forward by the client to perhaps help the check in of students to the lab work more smoothly. At this point the design called for a flat work surface. Computer monitors would be placed on this surface used by the employees to check students into the laboratory. The new idea was that an area of the new counter be lowered by a few inches so that as students came to the counter they would be seen more easily by the employees.

This new idea for the counter was discussed with the cabinetmaker. He was not sure how to make it work structurally and thought it may slow down the project. However, he said he would think it through.

The purchase order for the paint was picked up and taken directly to the paint store where the paint was ordered. The paint store employee said that the paint would be ready the following day.

The following day the cabinetmaker called to say that the Nevamar laminate sample "Ginger Rose" was no longer available from the manufacturer. The designer would have to select a new laminate. If the new laminate could be specified before noon he would get the earliest delivery time. The designer made a few telephone calls to local shops about a particular laminate that the cabinetmaker had mentioned. No one that was called had heard of that brand. A call to a designer friend brought a sample ring of Wilsonart laminate chips. Using the finished banners as a color guide a new laminate was chosen. To be sure of the color match the designer took the new sample to the paint store

where the paint was being blended to match the previous laminate sample. The new sample was matched to the old sample and was found to be very close in color. This information was then called in to the cabinetmaker so he could order the new Wilsonart laminate.

Later that afternoon the paint was picked up and delivered to the Computer Laboratory. A painter from the Oregon State University Paint Shop was finishing the primer coat on the areas to be painted.

The cabinetmaker was becoming concerned about the time schedule. The client wanted the counter to be finished and installed before fall term. At this point fall term was to begin in about three weeks. The Reserve Book Room counter needed to be completed by that time as well. These concerns were talked over with the Computer Laboratory Manager. She offered to allow the cabinetmaker to work on the counter day or night if it would help to get the counter finished on time.

The cabinetmaker suggested that perhaps he could work on the Reserve Book Room counter during fall term. He felt if he could reschedule that job he would be able to complete the counter in the Computer Laboratory on schedule. The designer spoke to a person in the Library Circulation Department about this possibility. She requested that work on the counter wait until after the first three weeks of the term because the Reserve Book Room is very hectic during that time. This information was passed along to the cabinetmaker.

The idea of a lowered area on the counter for a computer monitor was still being considered both by the client and the cabinetmaker. The client finally agreed to let the cabinetmaker decide whether or not to implement the idea. The client felt if the cabinetmaker could make it work he should try to construct the counter with the lowered area. However, if working on this new idea would

slow down the project he felt that the idea should be dropped. The cabinetmaker decided that the lowered area may not work structurally as well as taking up more time for the project if he were to attempt it. The counter would be built as it was drawn.

During this time the designer went to the laboratory to determine how the banners should be hung. The ceiling is made of acoustical tiles separated by metal channel. It was decided that the banners should be hung using dowels put through a casing sewn into the top of each banner. The banners would be hung from the ceiling with thin silver chains. How to attach the chains to the ceiling system was yet to be resolve

The cabinetmaker called to say that the panels which would block off the old counter had been installed. They would be bringing the counter over soon. They requested that the designer be present at the installation of the counter to determine the placement of the chrome legs. That afternoon, September 18, the new counter was in place. Fall term began Monday, September 24.

The designer shopped around town for the hardware to hang the banners. Wood dowels, silver chain and silver brads were found. The brads were used to attach the chains to the dowels.

The weekend before classes started the designer hung nine of the twelve banners. It was determined by the designer that by opening the last link of the chain and forming a hook a secure attachment could be made between the chain and the metal channel system. Three of the banners were hung on the entry wall in the Computer Laboratory. These banners would not remain at that location. That area would be used to hold a bulletin board which was to be designed later. The four remaining banners would be hung at a later date.

At the end of September the University Paint Shop called the designer to find out about finishing their paint job. They had some finishing painting to do

after the Reserve Book Room counter was completed. The designer was not able to give them a date. The cabinetmaker was heavily booked and could not pinpoint a date to finish the work.

The designer met with the clients to talk over the need for stools, signage, I.D./disk holder and bulletin board ideas. The I.D./disk holder is used by the Computer Laboratory employees to hold computer disks for each computer in the laboratory. When students are checked in to the laboratory an employee trades the disk for the computer the student will use for the student's student identification card. At this meeting the designer recommended that the banners be treated for fire retardancy because they were made of cotton.

October, 1990

The designer drew sketches of bulletin board/art wall ideas. The wall needed to accommodate a bulletin board which the Computer Laboratory employees would use frequently. The designer's idea was to incorporate both art and bulletin board into one piece. The drawing consisted of a many angled frame for the bulletin board. The frame would be made of the same laminates used in the counter project.

Signage options were discussed with a local sign shop. Signs were needed above the counter area to help direct students using the laboratory.

The designer visited a local office supply store which carried Steelcase products. Several stool options were chosen from a Steelcase catalog. Upholstery selections were also considered. At this point the designer felt the need to see the products before advising the client. Other product lines were considered as well. However, none of the options were available for viewing locally.

The designer drove to a Salem area office supply store that carried various product lines. In the showroom many Steelcase stools and other brands of stools were on the floor. Product literature was also available to show the client. The designer picked up a few stool brochures and two different upholstery samples. Pricing and shipping information was discussed with the sales representative. At this time the designer learned that Oregon State University had a credit line with the store and as a state institution received a forty-five percent discount.

At a meeting in October the designer showed the clients three different Steelcase stools within their price range. Two upholstery fabrics were shown as well. The clients were informed that there were many more options to choose from but the selections in front of them were among the best for the price range. They chose a stool and fabric without much discussion.

Also discussed at this meeting was the need for the signage and bulletin board. The client discussed having the same cabinetmaker do the work. This idea had been discussed earlier in the project as well. It was agreed that this would be best but it was understood that the cabinetmaker was very busy. The bulletin board design was reworked at the meeting. The client felt that the angled pieces may be too complicated to make. He suggested that a simpler frame may look just as interesting especially if the two laminates used in the counter were used.

The specifications for the Steelcase furniture were sent to the Business Manager for Computing Services. It had been established that he place the order.

On a field trip to the Northwest Design Center in Seattle the designer looked for signage options. The Design Center is a residential design

showroom. Therefore, there was not much commercial office furniture or many signage selections to view.

In October the project was mentioned briefly in the Oregon State University daily newspaper, the Barometer. The Computer Laboratory Manager was interviewed about the various computer laboratories on campus that are available to students. She mentioned that the laboratory at Kerr Library had been newly decorated and that a new counter had been built to make the employees there more accessible to students who use the laboratory.

November, 1990

This month the design process slowed. There was some discussion between the cabinetmaker, the designer and the Reserve Book Room Supervisor about possibly finding time to resurface the Reserve Book Room counter area during the Thanksgiving break.

After further discussion it was decided not to work in the Reserve Book Room at that time. According to Reserve Book Room employees Thanksgiving weekend is an especially busy time. Having work done on the counter at that time would be very inconvenient. It was decided to wait until the three-week break between terms during December. This would be a more convenient time for all concerned.

During the fall term the I.D./disk holder was designed and built by the cabinetmaker. Ideas for the holder had been discussed between the designer, the cabinetmaker and the client. The cabinetmaker took measurements of the existing holder and built a new one out of the teal laminate used on the counter.

December, 1990

During mid-December the cabinetmaker was called by the designer to schedule a time to work on the counter in the Reserve Book Room. A message was left on his telephone answering machine. The cabinetmaker answered the message after the weekend. The counter had been resurfaced over the weekend. The cabinetmaker had also been called by the Reserve Book Room staff about having the job completed and they decided it was best to proceed immediately. The cabinetmaker was eager for the designer to see the finished job.

After talking to the cabinetmaker the designer called the client to discuss further work the cabinetmaker was to complete for the project. It was decided that the cabinetmaker would make the three signs and have them lettered according to specifications worked out by the client and the designer. The cabinetmaker would also build the bulletin board.

The cabinetmaker was called again to discuss the details of the signs and bulletin board. He agreed to work on them as soon as he possibly could.

January, 1991

Early this month the designer hung the remaining four banners. Two were placed in the Reserve Book Room and two were placed in the Computer Laboratory. Three banners which were hung on the entry wall into the Computer Laboratory would be moved to another wall in the space as soon as the bulletin board was completed and ready to be hung there.

The designer met with the contact person from the Physical Plant to review the work that needed to be completed by the Paint Shop. Wooden posts that are on and in front of the counter areas of both the Computer Laboratory and Reserve Book Room needed to be painted after the work on the counter in the Reserve Book Room was finished. The contact person at Physical Plant said that now that the counter work was finished painting should begin very soon because the paint shop would like to finish the job that had begun in September.

Within two weeks of the meeting with the Physical Plant contact person the paint job was completed. However, the bulletin board and signs had not been completed. The acknowledgement sign also needed to be purchased. The completion of these elements will be handled under the client's direction.

Summary

The above chronology of the interior design project covered the installation of the project. Certain elements, such as the signage, have not been completed. However, the client will be handling the final details of the project. The design work necessary for fulfilling the purpose of the project was completed.

Chapter IV

POST-DESIGN EVALUATION

The post-design evaluation for this project will be presented as a discussion of the use of various methods of graphic communication and their effectiveness during a design project. The "Matrix for Design Communication" developed by Rey-Barreau and Whiteside (1983) will be used as a basis for comparing a set of theoretical stages of design development to those of an actual interior design project.

In Chapter II the importance of verbal communication in the design process was discussed. It was found throughout this design project that the main method of communication was verbal communication. Many meetings were attended by the designer and the clients. Many telephone calls were made between the designer and the client. Additional telephone calls were made by the designer to the cabinetmaker, Physical Plant staff and the seamstress. Also calls were made to paint stores, sign shops and office furniture supply companies.

The designer personally visited most of the above businesses as well to view merchandise, gather information, talk to sales staff and make purchases. However, most purchasing was done by the staff at the Computing Services Department.

In the following evaluation of the various methods of communication during the project it should be assumed that verbal communications were being made during every stage. Because of the volume and the repetitive nature of this information it was not being recorded in detail in this chapter.

Initial Phase Communication

The initial stage of the project was research oriented. Meetings with the client were used to learn more about the nature of the project. Various aspects of the project beyond the main objective of "warming up" the space were discussed such as the time frame for completion of the project, the budget, and the expectations of both designer and client. The main method of communication at this point was verbal.

Written communications were also employed in the initial stage of the design process. Notes were taken at the various meetings between client and designer to record the discussions. The designer used these notes later in the studio to help formulate ideas that would meet the client's needs. Memoranda sent by the designer to various participants in the project were another form of written communication in this stage.

Research was the main function of the designer at this point in the design process. The Matrix for Design Communication also listed graphic communication as a communication method at this stage along with verbal and written communication. In the current design project no graphic communication methods were used during the initial research stage.

The first step consisted of one meeting between the designer and the client. Following this fact-finding meeting the designer went to work on the next stage.

The methods of communication used at this stage of the project concurred with the first stage in the Matrix for Design Communication developed by Rey-Barreau and Whiteside (1983). This stage is referred to as Programming/ Research as seen in Figure 1.

STAGE OF THE PROCESS:	PROGRAMMING/ RESEARCH
PURPOSE	* To identify the problem * To outline project require-ments
PRIMARY COMMUNICATION METHODS:	Graphic, written and verbal Techniques used to identify, define and seek information * Correspondence * Client interviews * Existing project drawings * Analytical photo-sketches Techniques used to convert, evaluate and break down information: * Bubble diagrams * Matrix * Bar graphs * Analytical photo-sketches
PRIMARY COMMUNICATION ORIGINATED BY:	Client and Designer
DIRECTED TO:	Designer and Client

Figure 1. Matrix for Design Communication: Programming/Research Stage.

Note. From Rey-Barreau J., & Whiteside, A. (1983). Communication methods in the design process. Journal of Interior Design Education and Research, 9(2), 14-17.

Idea Formulation

In the second stage, the designer formulated design ideas based on the communications of stage one. With the project's purpose and the budget limitations in mind the designer began developing ideas for color schemes and decorative elements for the space.

Producing drawings was one major method of developing design ideas. The first drawing was a rough sketch of the floorplan of the Computer Laboratory. Entrances and emergency exits were drawn, as well as clerestory window locations and the existing counter area. This drawing was made on tracing paper and was used as a reference for the development of decorative ideas to use within the space.

Other drawings in the Idea Formulation stage included drawings of possible furniture ideas and upholsteries. Various banner ideas were drawn as well. These drawings were also done on tracing paper. These were rendered in color by the designer to help solidify color choices. The drawings done in the Idea Formulation stage of the process were meant to aid the designer and not to be shown to the client.

During the Idea Formulation stage research continued. This research involved the designer searching for resources for the ideas that were developing. The designer used some resources that were available at the University. The resource room which is open to interior design students at Oregon State University was the source of paint chips and upholstery fabrics. Files of furniture manufacturer catalogs were used as references for furniture styles.

According to the Matrix for Design Communication (Rey-Barreau and Whiteside, 1983) during the Schematic Design/Concept Formation stage (see Fig. 2) ideas are being developed by using the information gathered in the previous stage. The main communication methods in the Schematic Design/Concept Formation stage according to the Matrix are free-hand, sketch-type drawings. These drawings are produced by the designer for the designer's own benefit. They are not intended to be shown to the client. The drawings are used solely as tools for idea development.

The activity of the designer during the Idea Formulation stage followed the activities for the second stage in the Matrix for Design Communication titled Schematic Design/Concept Formation .

Concept Development

As the designer progressed into the Concept Development stage, it became clear that certain ideas were worth presenting to the client as final design solutions. Thus, the designer had begun a new stage in the design process: Concept Development. This stage involved choosing and refining design ideas that would be presented to the client. The decision to present particular ideas to the client was made based on the initial fact-finding stage. Budget limitations were considered as well as the main objective of "warming-up" the space.

According to the Matrix for Design Communication the Concept Development stage, the third stage in the design process, should be one of "Informal graphic and verbal communication".

STAGE OF THE PROCESS:	SCHEMATIC DESIGN/ CONCEPT FORMATION
PURPOSE:	* to generate ideas by synthesizing previously determined project information
PRIMARY COMMUNICATION METHODS:	Informal graphics and verbal * Bubble diagrams * Freehand sketches * Loose orthographic drawings * Brainstorming * Tracing
PRIMARY COMMUNICATION ORIGINATED BY:	Designer
DIRECTED TO:	Himself

Figure 2. Matrix for Design Communication: Schematic Design/Concept Formation Stage.

Note. From Rey-Barreau, J., & Whiteside, A. (1983). Communication methods in the design process. Journal of Interior Design Education and Research, 9(2), 14-17.

This stage is considered a "concept development" stage. The Matrix for Design Communication also states that the information developed in this stage titled, Preliminary Design/Concept Development, is shared with the client (see Figure 3).

The designer did not communicate the design concepts being developed with the client. The designer went on to the next stage of the design process, that of organizing and formally presenting the design concepts to the client. Therefore, the designer made the decision to present the design concepts as full color, detailed renderings of the main wall elevations within the space. It was suggested that two different color schemes and design proposals be made to the client. One set of elevation drawings was made of each wall of the Computer Laboratory and run through the black-lined process twice. Each color scheme was then rendered with the same elevation views.

These elevations were then mounted on two white mat boards, one for each color scheme. Included on these boards were photocopies of furniture styles as references for the client. Paint chips to indicate color choices and an upholstery selection were also included. A floorplan of the Computer Laboratory was drafted and mounted on a separate mat board for presentation purposes.

Design Presentation

These boards were then presented to the clients. The designer made a formal presentation to the Director and the Manager for Academic Support of the University Computing Services Department of the two design options.

STAGE OF
THE PROCESS:

PRELIMINARY DESIGN/
CONCEPT DEVELOPMENT

PURPOSE:

* To analyze, develop
   and refine previously
   generated ideas

PRIMARY
COMMUNICATION
METHODS:

Informal graphics and
verbal communication:

* Orthographic drawings
    Plans
    Sections
    Elevations
    Details
* Axonometirc (paraline)
    drawings
    Isometric
    Plan oblique
    Elevation oblique
* Perspective Drawings
    One-point
    Two-point

PRIMARY
COMMUNICATIONS
ORIGINATED BY:

Designer and Other
Professionals

DIRECTED TO:

Client

Figure 3. Matrix for Design Communication: Preliminary Design/Concept Development Stage.

Note. From Rey-Barreau, J., & Whiteside, A. (1983). Communication methods in the design process. Journal of Interior Design Education and Research, 9(2), 14-17.

The various aspects of each design were pointed out by the designer. Following the presentation the client was free to make comments and suggestions about the designs.

One of the color schemes was selected at the design proposal presentation. The banners in that design were also accepted by the client. At that meeting the clients came up with a new concept: a new counter configuration. Sketches were made by the client on the chalkboard to clarify the idea for the designer. This new idea would eliminate the waiting area in the Computer Laboratory.

It was suggested at the design proposal presentation that the designer would make new drawings using the new information. The client wanted the designer to elaborate on the client's ideas to help them make the decision whether or not to continue with this new idea of a counter.

The title of the fourth stage of the design process in the Matrix for Design Communication is Design Development/Idea Presentation. The Matrix for Design Communication describes the fourth stage as the more formal presentation stage, "To present refined problem solutions to the client in order to obtain approval for further development" (p. 17).

It is in the Design Development/Idea Presentation stage that the Matrix for Design Communication refers to the use of detailed renderings as graphic methods of communication (see Figure 4). The current project was consistent with that description of activities in this stage of the design process. However, at this point in the project the design process went back to the design "concept formation" stage because of the need to develop ideas for the new counter.

The designer began synthesizing the concepts for the new counter design. Sketches were drawn on tracing paper to help the designer formulate

STAGE OF THE PROCESS:	DESIGN DEVELOPMENT/ IDEA PRESENTATION
PURPOSE:	* To present refined problem solutions to the client in order to obtain approval for further development

PRIMARY COMMUNICATION METHODS:	Formal and/or informal graphics, and verbal communication:
	
	* Orthographic drawings
	* Axonometric drawings
	* Perspective drawings
	* Rendering
	  Tonal value
	  Shade and shadow
	  Color
	* Verbal descriptions

PRIMARY COMMUNICATION ORIGINATED BY	Designer
DIRECTED TO:	Client

Figure 4. Matrix for Design Communication: Design Development/ Idea Presentation Stage.

Note. From Rey-Barreau, J., & Whiteside, A. (1983). Communication methods in the design process. Journal of Interior Design Education and Research, 9(2), 14-17

the final design. The drawings that were used to present the ideas to the clientwere drawn to scale with pencil on white drawing paper. The drawings depicted elevation views of the counter and its position as it related to the existing counter. One drawing was attached by sprayed glue over the drawing of the existing counter on the presentation board that displayed the chosen color scheme. In this way the new drawings could be presented along with the previously approved design solutions. Included in this presentation was another elevation drawing which described the front view of the counter.

After the presentation of the drawings to the client the drawings were presented to employees of the Computer Laboratory by the client. The designer considered these drawings to be informal methods of presenting the general concept of the counter area.

The designer felt that because the idea of the proposed counter was a consideration and not a final solution, it should be drawn simply and without detail. When the counter concept was finalized, drawings showing more detail would be appropriate for presentation purposes.

The client decided to proceed with the new counter area construction. At a meeting between the client and the designer details about the counter were discussed. The client and the designer developed an angled counter area. The counter included shelves and a bookcase. Loose, conceptual drawings were drawn by both the client and designer at that meeting in order to clarify verbal communication. Again the designer was assigned the task of creating drawings illustrating the latest counter idea.

Working Drawings

According to the Matrix for Design Communication the stage in which the designer drafts detailed drawings is called the Construction Documents/Working Drawings stage (see Figure 5). The Matrix lists many details of a design which can be documented in this stage.

The next set of drawings in the current project were drawn to scale and in detail. These drawings were drawn with a pencil on sheet of vellum. Drawings were drafted of the plan view, and elevations of each panel of the angled counter. The elevations included views of the front view and interior views of the counter. Dimensions of various aspects were written on these drawings so the client would be able to judge the size of the counter.

The new drawing was approved by the client. When this drawing was shown to the cabinetmaker he requested that the designer draft construction drawings. The cabinetmaker wanted exact dimensions of every aspect of the counter in order to build the counter from the drawing. These drawings were also drafted in pencil on a single sheet of vellum. Therefore, this project stage was consistent with the Matrix for Design Communication.

Specifications

The next stage of the design process listed in the Matrix for Design Communication is titled, Construction Documents/Specifications. This stage requires no graphic communications according to the Matrix. The Matrix for

STAGE OF THE PROCESS:	CONSTRUCTION DOCUMENTS/ WORKING DRAWINGS
PURPOSE:	* To graphically portray the requirements for the construction of the project

PRIMARY
COMMUNICATION
METHODS:
	Formalized graphics with
	written notations:
	
	* Orthographic drawings
	  Plans
	  Sections
	  Interior elevations
	  Cabinet details
	  Millwork details
	  Miscellaneous details
	  Lighting plans
	  Electrical plans
	  Sample boards
	  Finish schedules
	  Show drawings
	* Verbal communication with
	  Contractors

PRIMARY COMMUNICATION ORIGINATED BY:	Designer
DIRECTED TO:	Contractor and Client

Figure 5. Matrix for Design Communication: Construction Documents/ Working Drawings Stage.

Note. From Rey-Barreau, J., & Whiteside, A. (1983). Communication methods in the design process. Journal of Interior Design Education and Research, 9(2), 14-17.

Design Communication describes specifying materials and workmanship used in the construction of the project as the purpose of this stage (see Figure 6). The specifications generated by the designer are directed to the contractor and client.

In the current project the specifications were given to the cabinetmaker in the form of laminate chips in the brand and color of the laminate which would be used on the counter in the Computer Laboratory. The same laminates would be used on the counter in the Reserve Book Room. The cabinetmaker made note of that information and returned the laminate chips to the designer. The designer verbally described the materials that the legs of the counter should be built with. The designer also verbally specified that each of the two legs be cylinders. The counter legs were made out of polished steel as requested, however, they were manufactured as four-sided legs rather than cylindrical. If this information had been drawn in specific details in the design drawing this information may have been communicated more effectively.

The designer wrote specifications for the stool and upholstery choices. These specifications were given to the Business Manager for the Computing Services Department who proceeded with the ordering of those products. These activities concurred with those listed in the sixth stage of the design process in the Matrix for Design Communication.

Installation

The Matrix for Design Communication lists verbal, graphic and written communication as the forms of communication used in the Installation or Implementation stage of the design process (see Figure 7, p. 57).

STAGE OF THE PROCESS:	CONSTRUCTION DOCUMENTS/ SPECIFICATIONS
PURPOSE:	* To specify in written form the requirements for the construction of the project. To specify in written form the quality of materials and workmanship required.
PRIMARY COMMUNICATION METHODS	Written descriptions: * Specifications
PRIMARY COMMUNICATION ORIGINATED BY:	Designer
DIRECTED TO:	Contractor and Client

Figure 6. Matrix for Design Communication: Construction Documents/ Specifications Stage.

Note. From Rey-Barreau, J., & Whiteside, A. (1983). Communication methods in the design process. Journal of Interior Design Education and Research, 9(2), 14-17.

In the current project only verbal communication methods were used at this stage. The designer was present at the installation of the counter to assist by verbally directing the placement of the steel legs. Following the installation of the counter in the Computer Laboratory, work was completed on the Reserve Book Room counter without assistance by the designer. Painting was completed in both the Computer Laboratory and Reserve Book Room by the Physical Plant Paint Shop employees after one final meeting between the contact person at the Physical Plant and the designer. The work on the project at this stage concurred with the activities listed in the final stage of the Matrix for Design Communication.

Summary of Project

The importance of verbal communication was made very clear to the designer throughout the design process of the project. The many telephone calls and meetings were the best ways of keeping in touch with the clients and workpeople involved with the project and exchanging ideas for the project.

Initially, the clients' ideas and requirements needed to be verbally communicated to the designer. These ideas were then graphically rendered and presented. However, the rendering of the ideas on paper required approximately 15% of the designer's time in relation to the amount of time communicating verbally with the clients and various workpeople during the project. The main function of the drawings was to help the client, and later the workpeople, visualize the proposed designs and details.

It was learned by the designer that the attractiveness of some drawings did not matter as much as their clarity in projecting ideas. For example, it did

STAGE OF THE PROCESS:	IMPLEMENTATION
PURPOSE:	* To oversee the con-struction and/or installation of the project design.
PRIMARY COMMUNICATION METHODS:	Verbal, written and graphic: * Correspondence Letters Memoranda * Revisions to working drawings and specifications * Verbal communication with contractor and client
PRIMARY COMMUNICATION ORIGINATED BY:	Designer
DIRECTED TO:	Contractor and Client

Figure 7. Matrix for Design Communication: Implementation Stage.

Note. From Rey-Barreau, J., & Whiteside, A. (1983). Communication methods in the design process. Journal of Interior Design Education and Research, 9(2), 14-17.

not matter to the seamstress that the sketch of the banner details and dimensions was not drafted mechanically or rendered in color, the basic information she needed was on a loose sketch drawn on yellow binder paper.

Because most of work done in the Computer Laboratory and Reserve Book Room was of a decorative nature there were few detailed drawings. For various parts of the cabinetmaker's job no drawings were necessary at all. The designer had seen work done by the cabinetmaker and was satisfied, by communicating verbally and having simple design solutions, that the work would be executed properly. The simplicity of the designs of the counter in the Reserve Book Room and the printer cabinets for the Computer Laboratory were a reason that few drawings were necessary. The cabinet design was intentionally simple using a system for manufacturing furniture which was used by the cabinetmaker in building the existing computer workstations in the Computer Laboratory. Using the same style and materials was a logical choice for the printer cabinets. The cabinetmaker made a rough sketch for approval by the designer and client. However, the concept had already been approved by the designer and client and the sketch was used as a graphic record of the project for the client's file.

Drawing was critical for the designer in the initial Idea Formulation Stage as a means of creative thinking. Drawings done during this stage were used by the designer as the foundation for further idea development. The detailed drawings used in the Presentation Stage of the design process were used as communication tools, as well as, a foundation for the development of ideas both verbally and visually.

The drawings used in the design presentation served the purpose of visually conveying the designer's design solutions to the client. Because of the attention to detail within the drawings, the color rendering of each wall elevation

and the inclusion of existing, as well as, proposed furnishings within the space the client was able to visualize the design concept. This visualization of the space prompted further thought about how to use the space more efficiently. Therefore, the designer would consider those drawings to be highly effective.

In the Design Presentation Stage it was decided by the designer not to include a perspective drawing of the space. It was felt that because most of the design treatments for the space were flat against the walls of the rooms a perspective drawing would not be any more effective than wall elevations. Later in the design project when the new counter was proposed a perspective drawing would have been helpful, however, because of the time constraints of the designer it was decided to show the proposed idea in as simple but effective way possible.

Detailed construction drawings are also necessary in the design process for construction purposes. When a component in a design project is being custom-built to the client's specifications it is essential that clear, concise drawings are made for both the client and the workperson.

It is not known if having drawn numerous highly detailed drawings or colored renderings would have had an effect on the design process for this particular project. What is known is that the designer made fewer of that type drawing than the designer had thought would be necessary. The designer realized that perhaps detailed drawings are not appropriate or necessary in all situations during a project as has been suggested in the literature. As the design project progressed the designer made decisions about how much visual information was necessary for presentation purposes both for the client and workpeople on the project based on criteria such as the stage of the

development of the design, the simplicity of the design, the workers' ability to visualize end results and so forth.

Based on this design project, it can be concluded that drawing skills are very important to the design process. Drawing is an important tool for the creative thought process and the development of ideas. Highly rendered, colored drawings are also very helpful in the Presentation Stage of the design process to help the client visualize design concepts. How many highly rendered, colored drawings are necessary in a design process seem to be dependent on the size of the project and the client and workpeople involved with the project and their ability to visualize ideas.

Future study is needed to further substantiate the conclusions of this research in settings that vary in terms of the simplicity of design, worker's ability to visualize, and the client's ability to visualize. Recording the development of various design projects will add to the body of information regarding the design process.

REFERENCES

Albrecht, J. (1988). Towards a theory of participation in architecture- and examination of humanistic planning theories. Journal of Architectural Education, 42, 24-31.

Arends, M. (1990). Interior presentation sketching for architects and designers. New York: Van Nostrand Reinhold.

Baker, I., & Sondhi, L. (1989). Entry-level competencies and attributes needed by interio design graduates: A survey of top interior firms. Journal of Interior Design Education and Research, 15(2), 35-40.

Benhamou, R. (1980). Professional practices in interior design: Frequency profiles and their relation to interior design education. Journal of Interior Design and Research, 6(2), 16-21.

Diekman, N., & Pile, J. (1983). Drawing interior architecture. New York: Whitney Library of Design.

Doyle, M. (1981). Color drawing. New York: Van Nostrand Reinhold.

Forester, J. (1985). Designing: Making sense together in practical conversations. Journal of Architectural Education, 38, 14-19.

Greenstreet, R., & Shields, J. (1988). Architectural representation. New Jersey: Prentice Hall.

Halse, A. O. (1960). Architectural rendering. NewYork: McGraw Hill Book Co.

Harwood, B. (1989). Patterns: A view of the relationship between interior design education and practice. Journal of Interior Design Education and Research, 15(2), 41-50.

Herbert, D. M. (1988). Study drawings in architectural design: Their properties as a graphic medium. Journal of Architectural Education, 41(2), 26-38.

Hoffman, C. L. (1983). Architectural graphics competencies in interior design: A comparison of professional and student usage. Journal of Interior Design Education and Research, 9(1), 14-19.

Koenig, P. A. (1981). Design drawing: Teaching the design drawing process. Journal of Interior Design Education and Research, 7(1), 7-13.

Laseau, P. (1981). Graphic thinking for architects and designers. New York: Van Nostrand Reinhold.

Leach, S. D. (1978). Techniques of interior design rendering and presentation. New York; Architectural Record Books.

Lockard, W. K. (1968). Drawing as a means to architecture. Tucson: Pepper Publishing.

Myers, C. (1982). Entry level competencies needed by interior designers. Journal of Interior Design Education and Research, 8(1), 19-24.

Rey-Barreau, J., & Whiteside, A. (1983). Communication methods in the design process. Journal of Interior Design Education and Research, 9(2), 14-17.

Sherman, M. P. (1981). Developing a common language between the architect and client. Journal of Interior Design Education and Research, 7(2), 47-50.

Wiegand, R. (1986). Don't lapse into lingo when talking with clients. Architectural Record, 174(7) 47.

APPENDICES

Appendix A

Various Rough Sketches

Appendix A

Appendix B

Computer Laboratory Floorplan
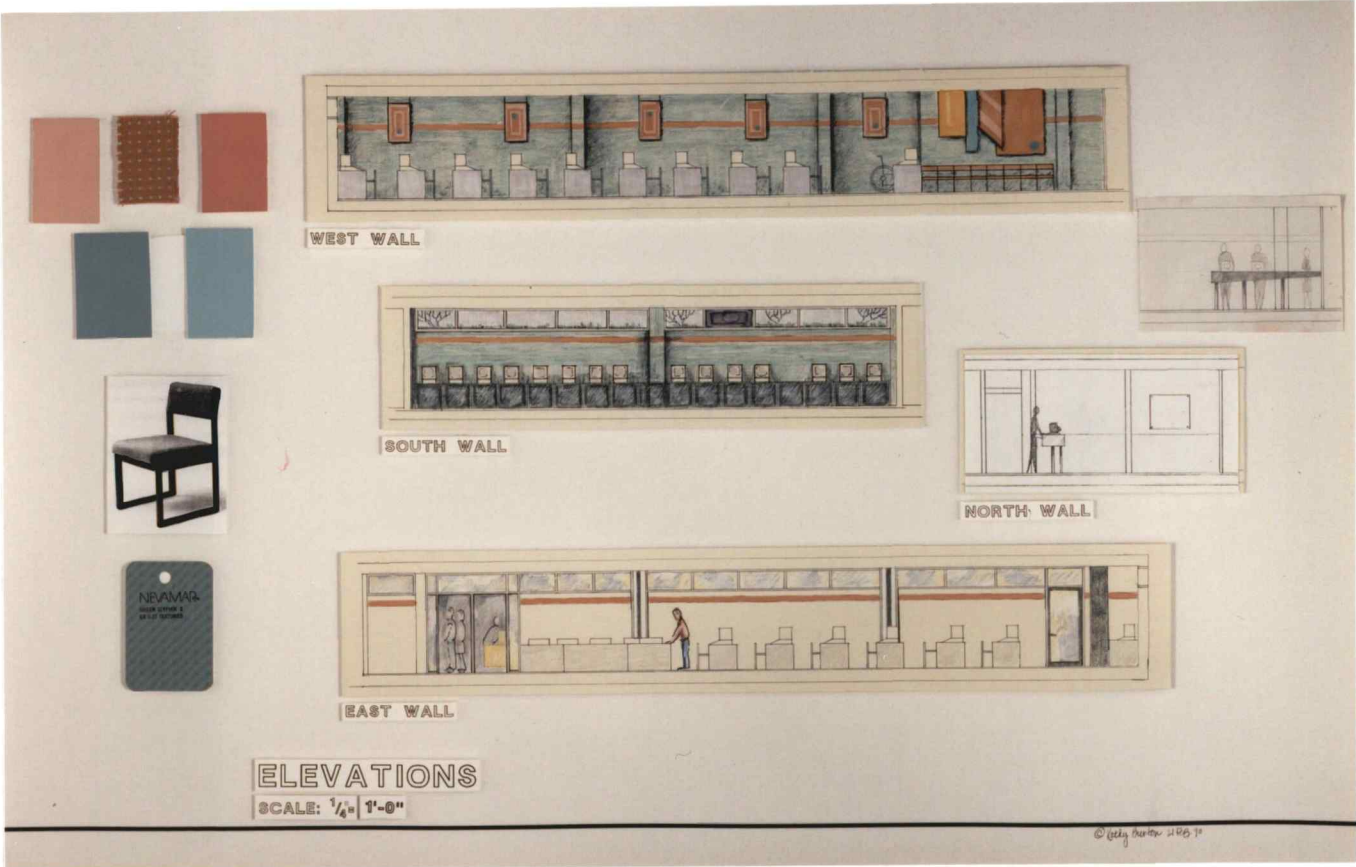
Formal Presentation Board
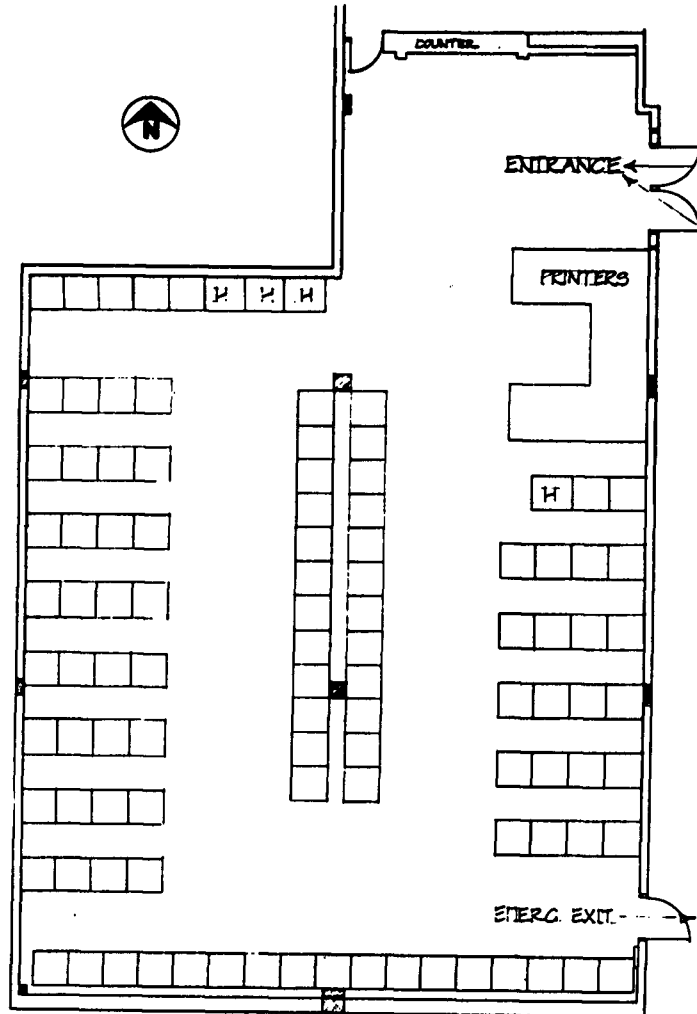
FLOOR PLAN

SCALE: 1/4" 1'-0"

OSU
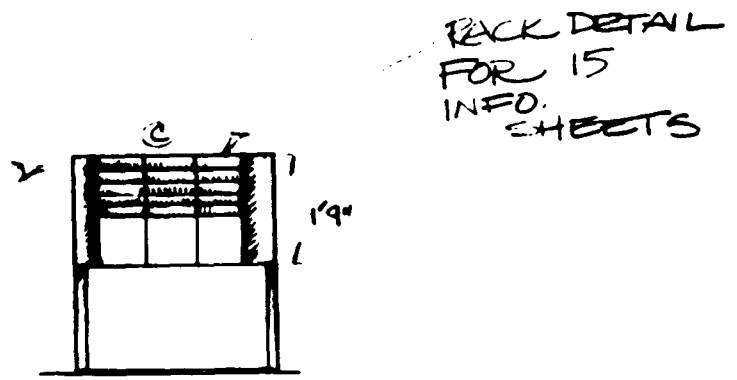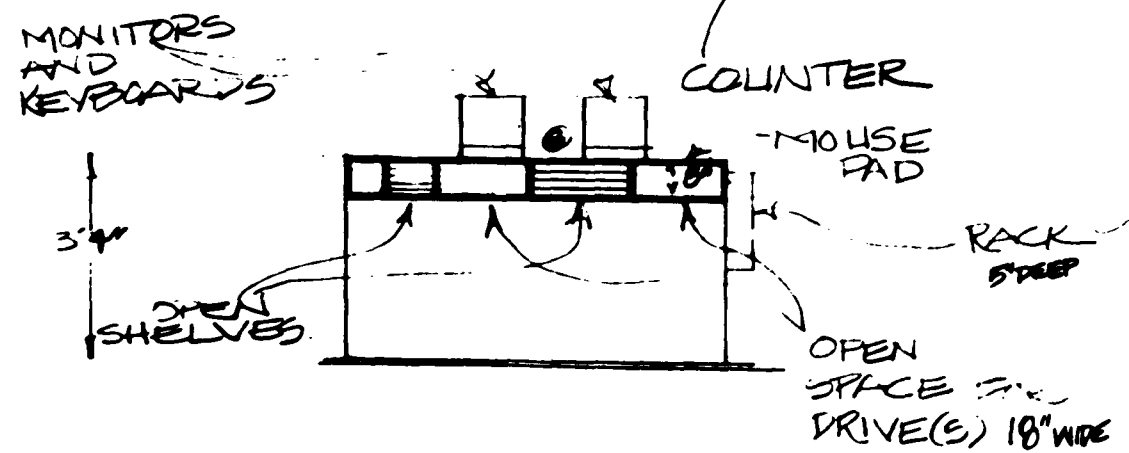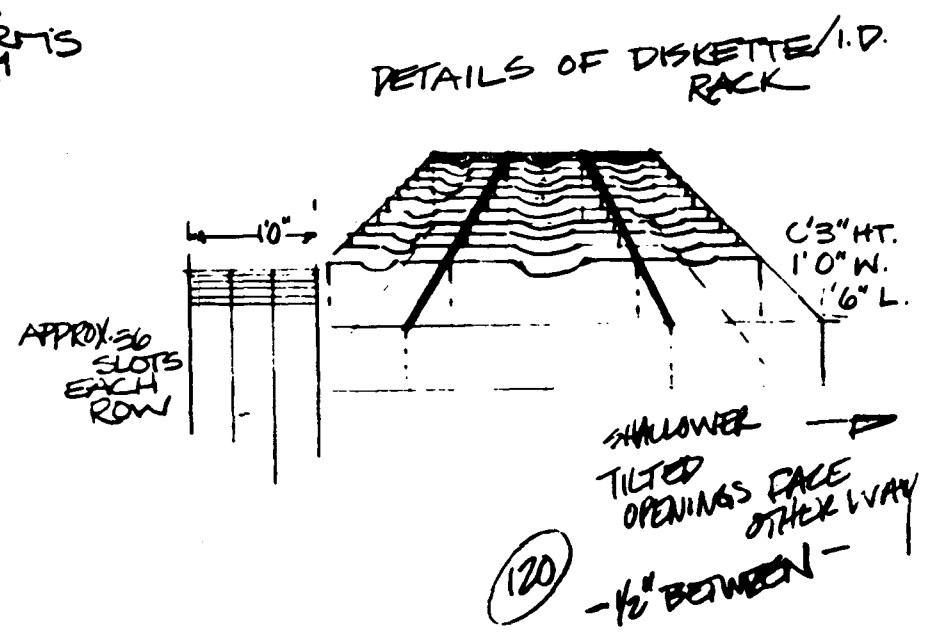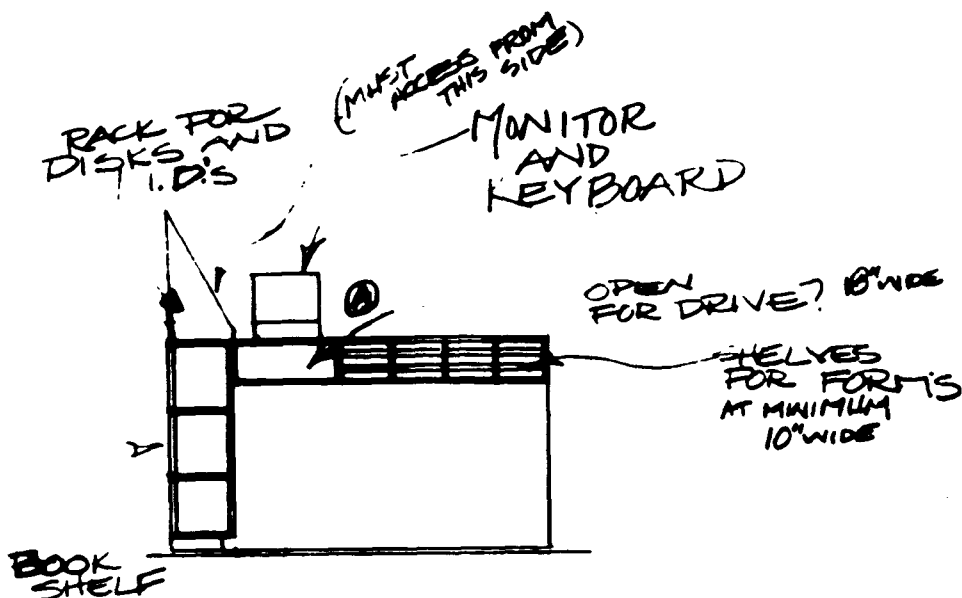KERR LIBRARY
COMPUTER LAB

Appendix C

<u>Warm Color Scheme</u>

<u>Formal Presentation Board</u>

WEST WALL

SOUTH WALL

NORTH WALL

EAST WALL

ELEVATIONS

SCALE: $\frac{1}{4}$" = 1'-0"
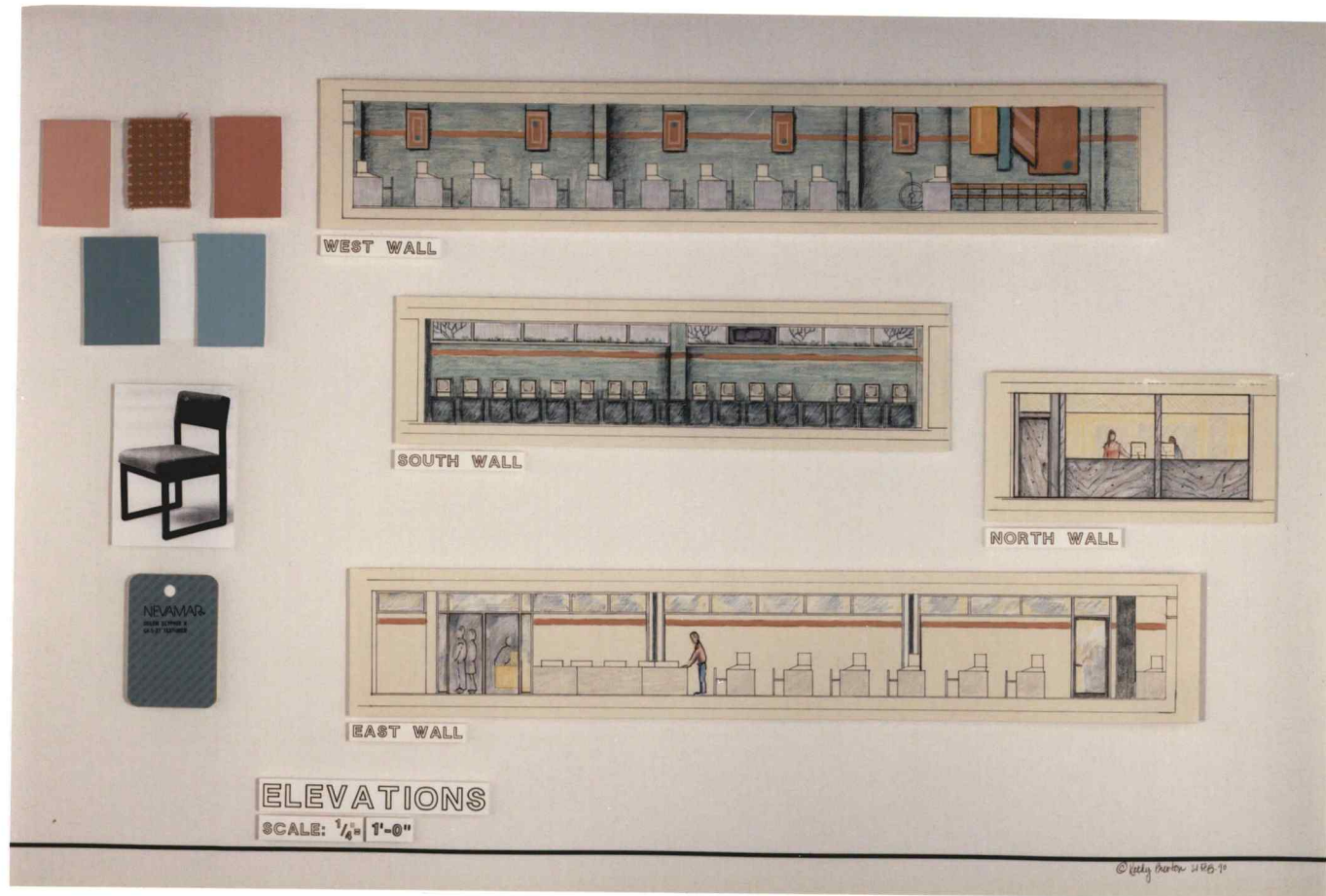
Appendix C

Appendix D

<u>Cool Color Scheme</u>

<u>Formal Presentation Board</u>

WEST WALL

SOUTH WALL

NORTH WALL

EAST WALL

ELEVATIONS

SCALE: $\frac{1}{4}" = 1'-0"$

© Kathy Burton 21 Feb. 90
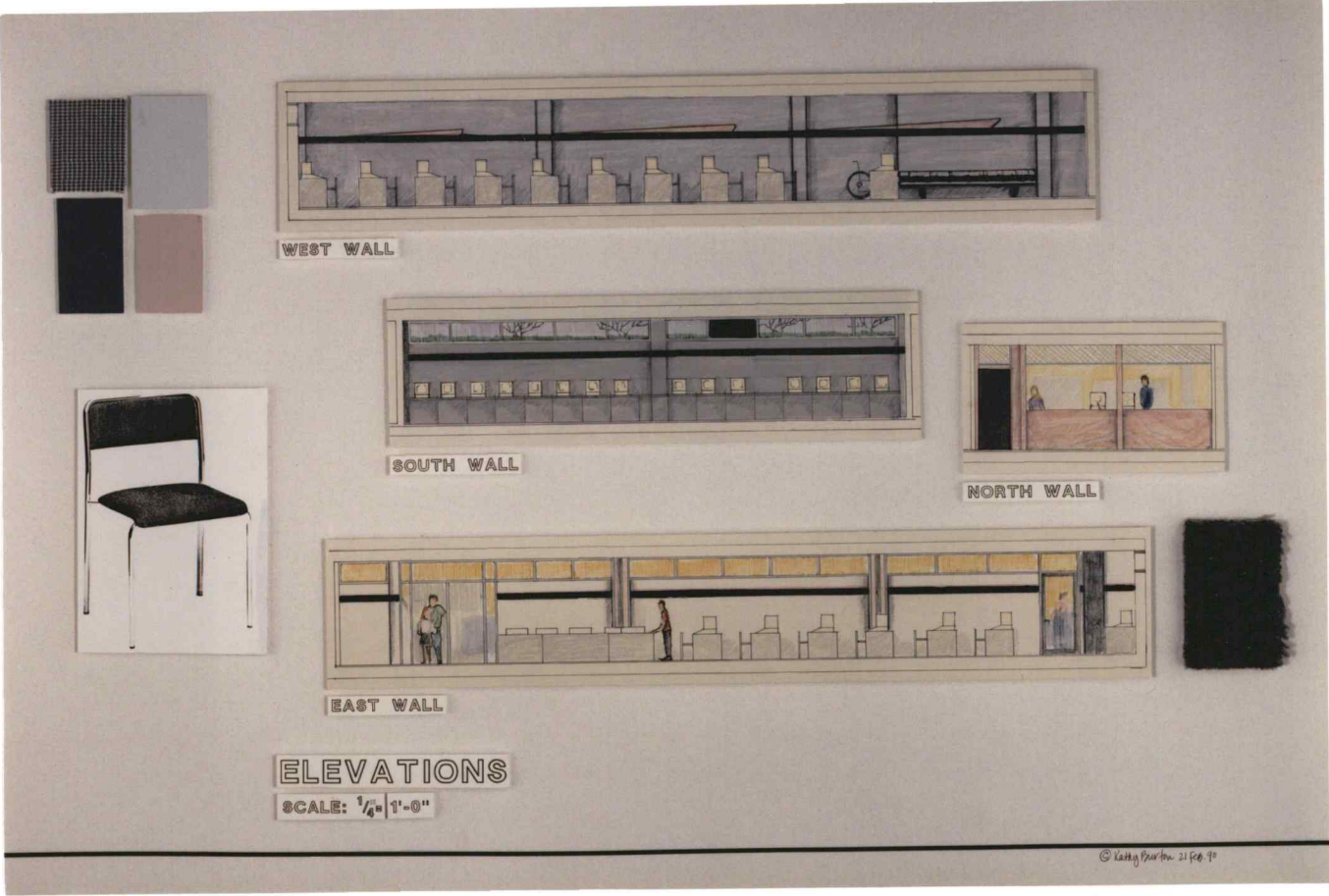
Appendix D

Appendix E

Computer Laboratory Floorplan

with

New Counter Proposal Overlay
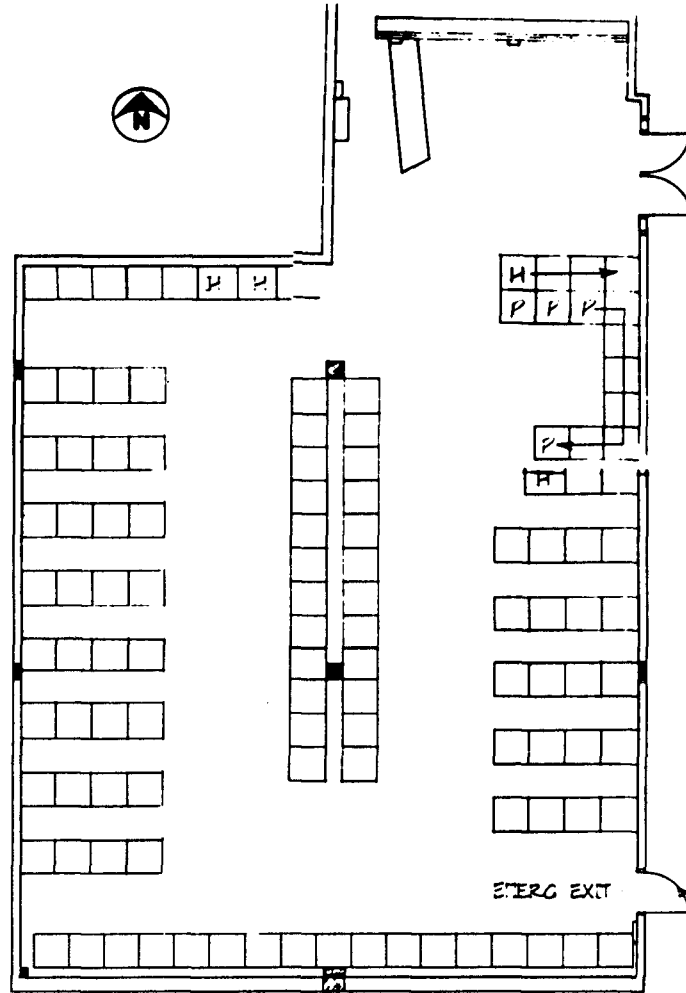
FLOOR PLAN

SCALE: 1/4" 1'-0"

OSU
KERR LIBRARY
COMPUTER LAB

Appendix F

<u>Warm Color Scheme</u>

<u>Proposed Counter—Elevation Views</u>

WEST WALL

SOUTH WALL

NORTH WALL

EAST WALL

ELEVATIONS
SCALE: ¼" 1'-0"

Appendix F

Detail Drawing of New Counter

BOOKSHELF

1'0"

8'0"

5'2" Ⓐ

10"

6'0" Ⓑ

C

9'6"

RACK FOR DISKS AND I.D.'s

(MUST ACCESS FROM THIS SIDE)

MONITOR AND KEYBOARD

OPEN FOR DRIVE? 18"WIDE

SHELVES FOR FORMS AT MINIMUM 10"WIDE

BOOK SHELF

DETAILS OF DISKETTE/I.D. RACK

1'0"

C'3" HT.
1'0" W.
'6" L.

APPROX. 56 SLOTS EACH ROW

SHALLOWER TILTED OPENINGS FACE OTHER WAY

⑳ -½" BETWEEN-

MONITORS AND KEYBOARDS

COUNTER

MOUSE PAD

3'4"

OPEN SHELVES

OPEN SPACE FOR DRIVE(S) 18"WIDE

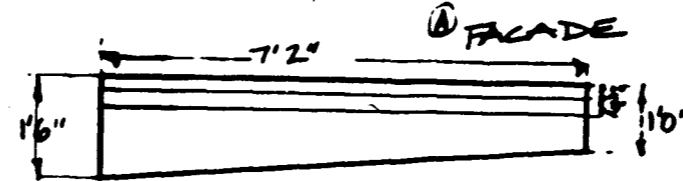RACK DETAIL FOR 15 INFO. SHEETS

RACK 5"DEEP

C

1'9"

DETAILS OF COUNTER

OSU KERR LIBRARY COMPUTER LAB

SCALE: ½" = 1'0"

Working Drawing of New Counter

COUNTER DIMENSIONS
SCALE ½" = 1'

= ELEVATIONS =
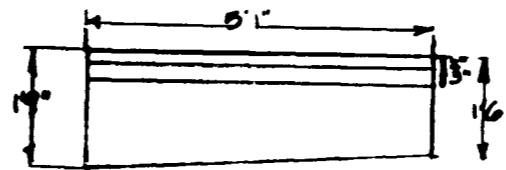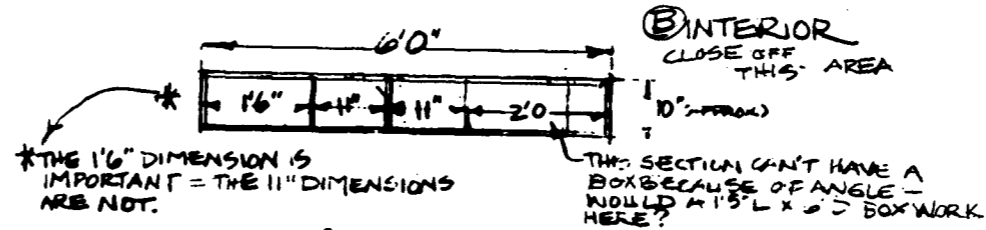
Ⓐ FACADE

Ⓐ INTERIOR

- TWO SHELVES PER PIGEONHOLE
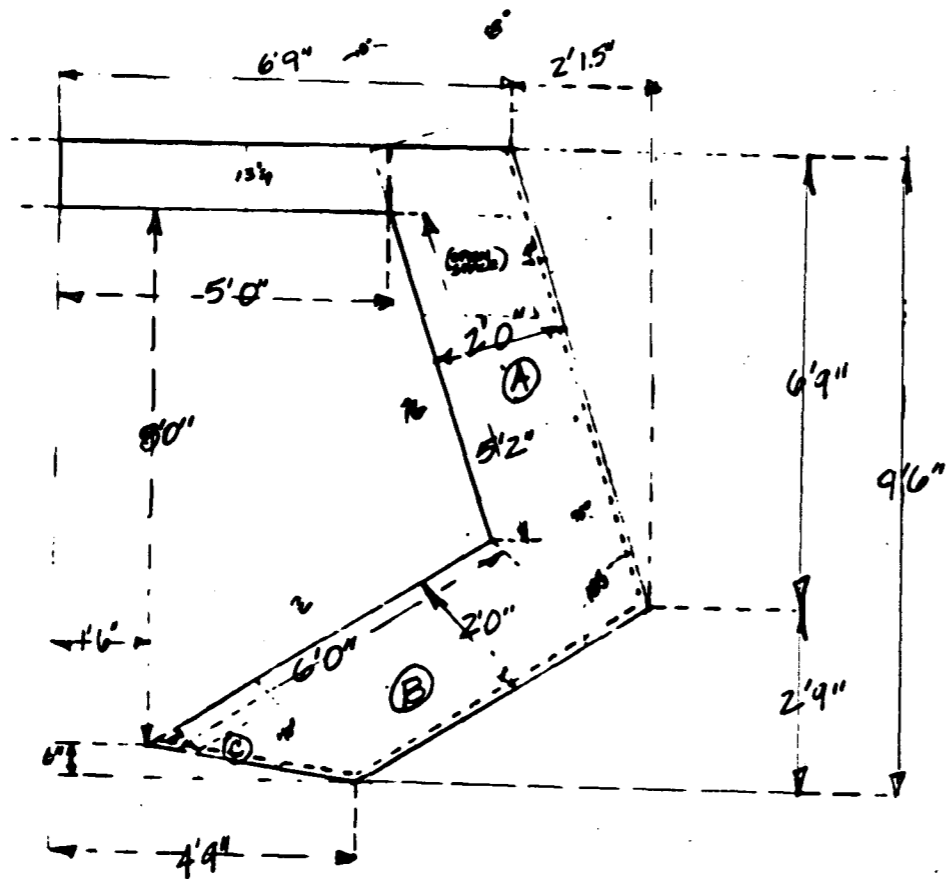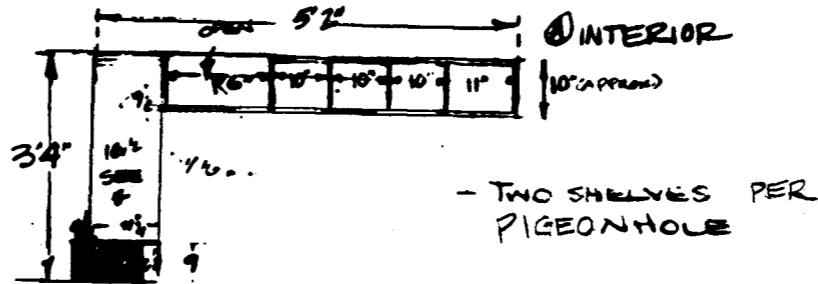
✳ DETAILS OF BOOKSHELF NOT RENDERED

Ⓑ FACADE

Ⓑ INTERIOR
CLOSE OFF THIS AREA

✳ THE 1'6" DIMENSION IS IMPORTANT = THE 11" DIMENSIONS ARE NOT.

THIS SECTION CAN'T HAVE A BOX BECAUSE OF ANGLE — WOULD A 1'5"L × 6"? BOX WORK HERE?

Ⓒ END PANEL

ELEVATION

SCALE

CROSS SECTION
FORM RACK ON END
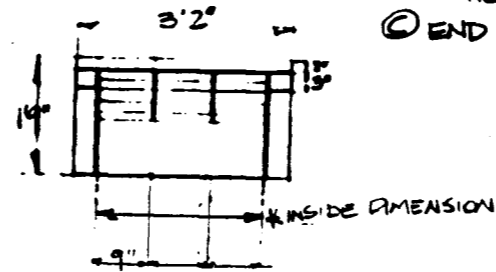
ALLOWS FOR ½" TOTAL MATERIAL BETWEEN ROWS

SCALE ½" = 1'

✳ INSIDE DIMENSION
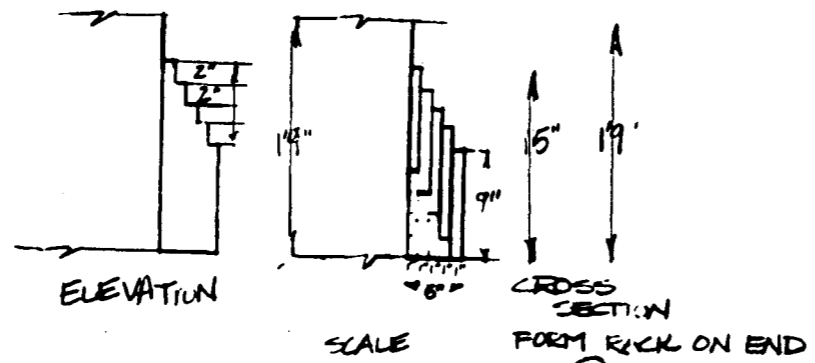
Appendix I

Area Before Design Project

Appendix J

Area After Design Project