DESIGN AND CONSTRUCTION OF
AN ORNAMENTAL SCREEN FOR
THE CONTEMPORARY HOME

BY

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A CREATIVE PROJECT

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THE CONTEMPORARY HOME

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CHAPTER I

DESIGNING THE SCREEN

The problem chosen for this creative project was to devise an original method of constructing a large, single-panel screen. A method was desired whereby the factors of design and construction could be carefully controlled to meet a specific need and achieve harmony with a particular setting.

The specific need, in this case, was to develop a decorative means of screening a bedroom window to provide a measure of privacy without obstructing the passage of light and air to the extent of causing discomfort or inconvenience.

The major difference between the screen designed for this project and the usual type of ornamental screen is this ability to permit partial visibility, light and air passage. A screen 3-1/2 by 6 feet in size was necessary to cover completely the bedroom window, which faced a neighboring house. Lack of space demanded a method of supporting the screen that would allow it to be placed quite close to the window.

Extensive research in art books dealing with furniture design and interior decoration failed to reveal working methods which would be directly applicable to this problem. Information about the effective use to which embroidered or woven wall decorations were sometimes put in modern interiors
was found in a book on Scandinavian popular art. A screen that would have similar surface qualities seemed desirable. This would provide a textural relationship between the screen and other fabrics in the room.

Travel in backwoods areas of the southern United States had shown that ingenious settlers sometimes enhanced the appearance and effectiveness of their wire window screens with painted decorations which were more visible from outside than from within the house. Strong daylight falling upon the painted decorations made visibility through the screen difficult from the outside, but interfered little with the ability of those behind the screen to see out. A working method was sought which would incorporate this quality of one-way visibility without the restriction of light and air.

The working method developed was that of weaving textile fibers into a wire mesh stretched tautly upon a frame. This method produced a strong screen of textile like surface, and allowed great control in determining the degree of light, air passage and visibility through the screen.

A screen design based upon the episode of Adam and Eve in the garden of Eden, at the moment when Eve was about to pluck the apple, had been tentatively decided upon before the working method was developed. The actual treatment of the subject was planned after the working method had been developed.

Studying pictures of historic tapestries revealed that, in the best examples, the linear movements were calculated to give the design the appearance of hanging with the fabric.¹ In planning the screen, movements were sought which would help the design appear to be hanging suspended within the frame. To assist this appearance of suspension, large areas toward the base of the screen were left relatively open and free of textile material. This was permissible from the standpoint of function, since the lower portion of the screen would set below the bottom edge of the window.

Further study showed that, in woven decorations, the dominance of warp and woof permeated every part of the design through repeated vertical and horizontal movements. It also showed that the two dimensional characteristic of textiles did not permit illusions of three dimensional form. Textiles are flat, and the designs must not violate their flatness.²

Keeping in mind the design principles applied to fabric decoration and the restrictions of the working method chosen, the type of treatment to be used in designing the screen was developed. It seemed obvious that the design should be conceived in terms of shapes that would work well with


the oblong of the screen frame, and with the warp and woof of
the wire mesh. To achieve this harmony of shapes and movements,
the two figures were placed in rather quiet, standing positions
which would allow the use of long vertical movements. Inter-
est was planned to come not through the positions of the
figures, but rather through shapes and textures within the
figures.

The method of working excluded the possibility of
fine detail in both figures and setting. Furthermore, such
detail would have been unsuitable to the size of the screen
and the coarseness of the wire mesh. Fingers, toes, facial
features and such were eliminated for the sake of simpler
shapes that would allow the textural differences between areas
of the design to become important.

The shapes, arrangement of shapes, and movements
chosen were not those which would function best towards cre-
ating story interest. Function and decoration were consider-
ed the primary factors, and little attempt was made to devel-
up the illustrative features of the design. A reason for
this was the necessary exclusion of representational qualities.

The most interesting movements, textures, and value
changes were planned to fall within the upper half of the screen
since, due to its location, it would be seen mostly by people
standing rather than sitting.

For the largest areas of the design, colors were
chosen which would be harmonious with the soft greens and yel-
lows of the room. The basic color scheme was planned as a
harmony in which yellow would either permeate all the color areas or would gray the effect of its complements. Complementary colors were suggested in small areas of the design, such as the contrast between green and red, but even here the reds were subdued and tinged with yellow.

The colors chosen, tints and shaded of green, yellow and orange, in varying intensities, were more intense when seen in skeins than might seem advisable for use in so large a piece of work. But the fact that more light would shine through the screen than would fall upon its surface necessitated the use of rather strong color, and the comparatively large open spaces between these thin strands of color subdued their original brilliance very much. In keeping with the size of the screen, a rather limited range of values was employed. Sharp value contrast, as between black and white, would have given the screen unnecessary importance in the room for which it was intended.

The wire mesh chosen to form the back or back material of the screen was the type known as hardware cloth, which is available at any iron works. The wires taken from the mesh are interwoven in the manner of a simple fabric, and each intersection of wires is not soldered. This construction gives the wire cloth great strength, though the weight of the material is slight. It is practicable to wash dyes of oxidizing,

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CHAPTER II

THE MATERIALS

The materials used were considered for their durability, for their flexibility in constructing a screen to meet a specific need, and for their cost and availability. Judgment of the suitability of materials was made chiefly on the basis of experiments with a variety of substances. Those chosen were the ones which, to some extent, fulfilled all the requirements, rather than those which met some requirements very well and others scarcely at all.

Well-seasoned white pine was chosen for the frame, for a properly constructed wooden frame is both light and strong. Pine can be painted, stained, lacquered, or otherwise finished to harmonize with the room for which it is intended. Some type of finish in necessary, since the grain of this wood has no particular interest.

The wire mesh chosen to form the body, or base material of the screen was the type known as hardware cloth, which is available at any lumber yard. The wires which form the mesh are interwoven in the manner of a simple fabric, and each intersection of wires is spot welded. This construction gives the wire cloth great strength, though the weight of the material is slight. It is available in mesh sizes of one-half,
one-quarter, and one-eighth of an inch, and in widths of twenty-four to forty-eight inches. A mesh size of one-quarter inch was selected for this project, since it appeared best suited to the scale of the design and yet was not too open to permit a certain amount of detail.

The textile material chosen in which to render the design was cotton rug yarn. This type of yarn is available in a wide range of colors. It is large enough in diameter to handle easily and has considerable strength. The colored yarns are dyefast, and the white yarn takes dye readily when it is necessary to produce a color not commercially available.

Although the textural quality of the cotton yarn was preferred for this project, many other textile materials could have been used satisfactorily. Linen yarn has great strength and is slightly lustrous. It also is available in a wide range of dyefast colors, and has less tendency to fray while being worked with than does cotton yarn. The cost, however, is considerably greater than that of cotton yarn.

In some instances, the brilliant, highly lustrous silk and rayon embroidery yarns might be used successfully. These yarns are rather small in diameter to be used singly, but may be twisted together with the heavier cotton or linen yarn to form interesting variations in texture.

Natural fibers such as hemp and jute might be used to provide unusual textures, but the harsh, brittle nature of these fibers makes them difficult to handle. They have a poor affinity for dye, and they deteriorate badly when wet.
These fibers could be used best in small areas of a design where their natural colors would be effective without dyeing.  

Metallic thread, drawn out of such ductile metals as gold, silver, copper, and aluminum, is highly ornamental. This type of thread may be obtained in single filaments, or twisted together with any of the major textile fibers to form a complex yarn. These complex yarns are far stronger and easier to work with than the single filaments, and are obtainable in a fairly wide range of colors. 

With the exception of jute and hemp, any of the fibers mentioned here might be used singly throughout the constructing of a screen, or in various combinations with other fibers. Other materials might be ideally suited to some particular problem of screen design. Any fiber or material which is durable and flexible enough to be woven into the wire cloth might be found useful, such as twine, bamboo strips, cane, or bits of cloth.

2Ibid., p. 256
CHAPTER III

CONSTRUCTING THE SCREEN

As mentioned previously, wood was chosen as the material from which to make the frame of the 3-1/2 by 6 foot screen. One by two inch first grade white pine stock was used, having first made certain it was sufficiently cured to prevent warping. In constructing the frame, the corners were mitered accurately at an angle of forty-five degrees. Each mitered joint was butted together and clamped, and a hole one-eighth inch in diameter and two inches deep was drilled through it and countersunk. (Plate II, Fig. A.) Before assembling the frame with three-inch, flat-headed wood screws, each mitered surface was coated thinly with plastic resin furniture glue. This glue is manufactured in powdered form, and mixes readily with water for immediate use. It forms a bond stronger than the wood itself, and in this case, eliminated the need of metal corner braces to prevent the frame from twisting.

The wire cloth was first tacked to one side of the frame at a corner and stretched as tightly as possible to the corner diagonally opposite and tacked. This procedure was repeated at the other two corners, and tacking was completed with staples spaced two inches apart around the perimeter of
the frame. The rows of staples were then covered with a wooden moulding nailed to the frame.

At this point, it was decided that the use of legs or base members, protruding far enough on either side to give the screen adequate support, would require too much floor space and would prevent setting the screen close to the window. Therefore, the following method of support was devised. A hole five-eighths of an inch in diameter and one inch deep was drilled in the top edge of the frame to provide a tight socket for one end of an eighteen inch length of aluminum tubing. A one-quarter inch hole was drilled, near the upper end of the length of tubing, and tapped to accept a setscrew. A twenty inch length of aluminum rod, small enough to slide easily within the tubing, completed the support. (Plate III, Fig. B.) In use, the telescoping rod is forced up snugly against the ceiling and the setscrew is tightened, wedging the screen between the floor of the room and the ceiling. (Plate III, Fig. A.) A strip of corrugated rubber, cemented to the bottom edge of the frame, prevents the screen from twisting or skidding.

After completing construction of the frame, both frame and wire mesh were painted a shade of grayed yellow-green of slightly higher than middle value. This color, appearing through the design wherever the wire was exposed, served as a unifying element. On the frame, this color helped contain the warmer hues used in the design, and assisted in making the design appear suspended within the frame.
CHAPTER IV

RENDERING THE DESIGN

Preparatory to rendering the design, the small sketch was enlarged to the exact size of the screen on a sheet of brown wrapping paper. (Plate I) The large drawing revealed that certain areas of the design were somewhat oversimplified, and more interesting detail was created by subdividing some of these areas. The large, working drawing was then fastened to the back of the screen, where it was clearly visible through the wire cloth, and served as a pattern while weaving.

Basically, the method of weaving the design into the screen consisted of passing the end of a strand of yarn through a space in the wire cloth, and then reaching through an adjoining space with a wire hook and pulling the loose end through. (Plate IV, Fig. A. and B.) This procedure was continued in vertical, horizontal or diagonal rows of spaces until an area of the design was completed. Upon completing an area, the loose ends of the strand were tied to the wire cloth and clipped off closely.

Though the major divisions of the design were decided as to shape, color and value beforehand, variations of the basic method of weaving were worked out directly upon the screen. This allowed considerable freedom in developing
textural differences. A weaving textbook helped provide ideas for ways of developing these differences.¹

In some instances, weaving was begun at the outer edge of an area and continued spirally inward to the center, repeating the shape of the area over and over. (Plate II, Fig. B.) This created a more contained area in which the general interest was shut apart from the remainder of the design, forming, in effect, a pause.

In other areas, the strand of yarn was passed, not through adjoining spaces, but through every fifth space. This left long floats of yarn lying on the surface of the screen, and produced areas sufficiently different in texture from those in which the strand passed through every space. These long floats tended to speed up the design wherever they were used. (Plate II, Fig. C.) In still other areas, a particular path was repeated with succeeding parallel strands to form patterns and create additional divisions within the areas. (Plate II, Fig. D.)

Besides providing visual interest, these textural variations were the means of controlling light, air passage and visibility through the screen, according to the extent to which the yarn filled the spaces in the wire cloth.

In rendering the design, some of the colors chosen appeared too intense, particularly in large areas. In most cases this was remedied by removing the yarn from the screen and

¹Ibid., pp. 55-81
immersing it in a mild bleaching solution until the desired reduction in intensity was obtained. The three values of green chosen seemed too dissimilar in hue as well as too intense. This was corrected by immersing all three skeins in a yellow-orange dye, which gave them a common color factor and reduced the intensity.

The dye used was the powdered type available in small packages. It was mixed at half the recommended strength, but the instructions were otherwise followed exactly. Preliminary tests were conducted to determine the immersion time necessary for each skein.

Orange and gray yarns used in the design were produced by dyeing skeins of white in solutions of the same type of dye. As before, samples were dyed first to determine the solution strength and immersion time necessary to produce the desired colors and values.
construction details, frame and weaving
Fig. A

Screen Support
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