FIBER AS SPATIAL DEFINITION FOR OPEN SPACED BUILDINGS

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1958

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
MASTER OF SCIENCE
May, 1978

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OPEN SPACED BUILDINGS

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PREFACE

My desire to utilize my years of experience as a weaver and my growing knowledge of fiber as an integral aspect of space, both for enclosing space and for interior space, resulted in the projects described in the paper and in the writing of the paper itself. My increased awareness of the importance of historical aspects of fiber as spatial definition, as well as the contemporary use of fiber led to the lengthy section on fiber in history.

My special thanks go to Mrs. Christine Salmon, who accepted without reservation my abilities and experience and encouraged not only my work on this paper but my work for the past two and one half years. Her unerring sense of design, belief in people, and desire to promote a love of learning guided and enhanced my learning experiences.

Thanks that are equally special go to Dr. Kay Stewart and Miss LeeVera Pepin, who also unreservedly accepted me and my particular abilities.

I believe thanks need to go to the department of Housing, Design and Consumer Resources for recognizing needs of adult students, their experiences, knowledge and creativity and encouraging increased knowledge and utilization of a wealth of potential.

Last, my thanks go to my family, who not only cooked their own meals, washed their own dishes, and made their own beds, but encouraged me to continue my studies while they assumed many of my responsibilities.

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CHAPTER I

PROBLEM DEFINITION

As the need for changing the function of interior space becomes more and more frequent, the spaces of today's buildings are being used as multi-purpose spaces. An office facility may find it necessary to rearrange its spaces as new needs arise. Home or apartment spaces have changing functions with new residents or change in age, number, and needs of existing occupants. During the course of a day, a person, or a group, may need to work, sleep, eat, entertain, or relax in a single space. As space contracts and population grows, the need to meet the complexity of life functions in multipurpose spaces becomes more demanding.

Furthermore, as it becomes less feasible to discard old buildings and construct new ones with every function change, rigid, load-bearing walls that fixedly define spaces and their specific functions are becoming outmoded. New methods for defining spaces on a more flexible basis are being explored and utilized in office buildings, schools, libraries, convention facilities, homes, and apartments in all the industrial nations. Also, as the building trades and professions adapt to changing economic, energy, technological, and social needs, open spaced buildings that can fill multipurpose needs are being constructed.

Edward T. Hall (1966) states that though specific, fixed rooms for specialized activities is a recent historical trend, Western man, especially American, tends to feel a basic insecurity in too large, open spaces, thus the need for spatial divisions.

Gardiner (1974, p. 21), quoting Kenneth Clark, states that "civilized man . . . must feel that he belongs somewhere in space and time . . ." recognizes man's basic need for spatial orientation.

The necessity of spatially defining these vast interior spaces on a flexible, humanizing level that will constructively promote the life processes is paramount to all designers. The use of fabric in all its endless possibilities, from industrial canvas to one-of-a-kind artist produced art fabrics is being explored increasingly as a workable solution to defining space in a warm, human manner. Fabrics are being used structurally and decoratively to define existing spaces in aesthetically, psychologically, and sociologically meaningful ways. Therefore, a definitive exploration of fabric and its appropriateness as a medium for spatial definition needs to be made.

Purpose

The purpose of this study is to explore what has been done historically to utilize fabrics as spatial definitions, to research and evaluate current installations and trends of thought, and finally, to explore possibilities for future use of fabrics as spatial definitions.

Definition of Terms

In this paper, with a few exceptions, the term fiber is used rather than fabric or material, as fiber is a more inclusive term

because it refers not only to a length of woven cloth but to all techniques, both primitive and contemporary by which a structure is made from flexible, organic material.

When the term art fabric is used it refers to any fiber construction which is designed and created by one person for use in space or on space to delineate that space aesthetically and/or usefully.

To divide, by definition, practical use and aesthetic function is a recent concept perpetrated by the Renaissance and the Industrial Revolution. This writer has chosen to use a pre-Rennaisance meaning that use and aesthetics cannot be separated; that one follows the other in integrated and overlapping circles which join both use and design.

Space is defined as interior, architectural, three-dimensional volume providing living and working areas for people and the two-dimensional wall areas which divide interior three-dimensional spaces.

Review of Literature

A primary method of dealing with fiber as spatial definition is an examination of written documents. In recent years there has been an increasing interest in the use of fiber both historically and in the contemporary setting as an architectural material; i.e., primitive housing, and as an adjunct to architecture as wall hangings and space dividers. The literature, though still somewhat incomplete, is growing as interest in fiber and its uses expands.

Constantine and Larsen (1972) discuss at length contemporary fiber artists, their work and their aesthetic contribution to the art

field. Their discussion of Magdalena Abakanowitz and her monumental environmental structures is especially relevant to this study.

Gardiner (1974), in tracing the evolution of housing, deals with fiber as a total living environment as exemplified by African structures which utilize woven and twined reeds and grasses as framework, walls, roofs, and interior matting. He also stresses moveable interior divisions, especially in Japanese houses, as the desire for privacy increased.

Shelter (1973) has excellent illustrations and short discussions of fiber tents as housing. These are examples of primitive structures that are still valid in a technically advanced world.

Lejard (1947) has some very interesting material concerning French and English tapestry during the Middle Ages and Renaissance and the function of tapestry as luxurious travelling tents for kings and noblemen, as well as the use of tapestries in castle interiors to create warm, colorful rooms in drab, cold structures.

Much of the literature dealing with current installations of fiber as space dividers is found in professional design periodicals, most notably Contract Interiors. There is also much valid information on fiber as interior space division in such popular magazines as Apartment Life and House and Garden.

CHAPTER II

HISTORICAL PERSPECTIVES

For as long as man has been man as we know him, adjusting to his environment by learned behavior, making use of physical and bioatal parts of his environment to perpetuate his life and enhance it, he has utilized what we now term fiber, interlaced into innumerable forms of fabrics of sorts to fit all kinds of necessary life functions.

Originally, myriad forms of naturally available grasses, leaves, and branches that needed little technical processing were used. In those areas where trees and shrubbery were abundant, branches, stripped of their twigs and leaves, were placed vertically in the ground at intermittant, or regular, intervals and interlaced horizontally with other more flexible branches to form a sort of windbreak shelter against cold, wind and rain, heat and sun.

From earliest times, from Africa to England to Latvia and other parts of the world man has been making shelter from woven reed, straw, grass, twigs--literally any available fibrous material. As his technology grew he began changing and improving the interwoven branch windbreaks. In the Lasso houses of Togo, West Africa, bundles of grasses were twined together to form durable rain shedding, heat reflecting roofs (Shelter, 1977).

The twining process, which is generally considered a pre-weaving technique, was found in all areas of the world and among various

people. The process consists of twisting two pieces of fiber placed horizontally around other bundles or individual fibers placed vertically to form a cohesive mass. It has proved a very useful technique in creating not only fiber shelter, flooring, and walls, but fiber containers for food, mats for beds, and bed coverings.

With the advent of weaving (and twining) in man's history, he was enabled to make modular, easily made units which were then lashed to pole frameworks to use for walls, roofs, and also flooring, beds, and coverings. They were easily rolled up and moved or replaced as they wore out.

In those areas where vegetation was scarce animal fibers were used to fabricate shelter. Hair of camel, goat, horse, and wool from sheep were spun into yarn and then woven into long strips of materials which were then sown together. Stretched over a space-frame of poles and ropes, the material created a simple adaptable system of shelter. In the Bedouin black tent infinite numbers of enclosures could be generated by attaching long woven strips of material to the framework of tent ropes (Shelter, 1977).

In various areas these grass shelters and hair and wool tents are still a viable part of a society's support system. Modular construction makes them highly usable by peoples dependent on seasonal vegetation. They neatly fill the need for nomads who need quick-change shelter that will fit easily on the family camel (Shelter, 1977).

This modular construction makes possible easy changes of space and its usefulness. This may be the key for today's use of fiber in spacial definition and adornment.

Many peoples were less nomadic, more settled, dependent on agriculture and wage work. Stone, mud, wood, clay became durable, long-lasting protective shelters and fiber was relegated to interior use, not shelter structure itself. At first, the interior was non-specified and activities such as cooking, living, sleeping, took place in one room. But an element of privacy began to creep in and interiors were partitioned into specific use spaces (Gardiner, 1974).

Woven cloth served the purpose for screening openings and for divisions of space in interiors. Colonial and frontier Americans used large squares of material to screen a bedroom area and for covering windows and doors for keeping out wind, rain, and heat and also to shield the occupants from prying eyes. Medieval Europeans used large tapestries to screen out drafts of large, drafty stone halls and to provide passageways for servants (Lewis, 1937).

In Medieval Europe the mobility of textiles made their use important.

> As a moveable form of decoration, tapestry retained for a long time the character imparted by its original purpose. The fabrics were easily folded up and of stronger texture than silk hangings and thus were perfectly fitted for frequent journeys. Formerly the French nobility led a very nomadic existence and tapestry was at first a luxury and a convenience of which only the great enjoyed the privilege.
>
> King Charles VI's account books give some curious details in this respect and the stages of his journey in 1380 can be followed from the sums laid out for the purchase of hooked nails 'for Hanging the kings' apartments!
>
> In the course of such migrations the tapestries were folded up and packed in coffers which were loaded on pack animals (Lejard, 1947, pp. 22, 23).

Not only were travelling tapestry "tents" used during the Middle Ages, but entire tapestry chambers were erected inside the rather bleak

castles and châteaux to create more compatible living quarters than cold stone afforded. Charles V owned a green room made entirely of silk tapestries woven with foliage patterns on a green ground (Lejard, 1947).

During the Renaissance, tapestries began to be made for specific spaces and the concept of their moveable quality began to be lost (Lejard, 1947). Though ". . . Francis I had frescoes from Fountainbleau copied in tapestries and carried them with him to give the illusion of being at Fountainbleau" (Lejard, 1947, p. 25).

By the end of the Renaissance era, fabric as an essential form of architecture had been lost, replaced by stone, wood, and as technology grew, an incredible profusion of man-made rigid materials. Except for primitive societies, fabric became adjunct to architecture, useful for upholstery, floor, and bed coverings, wall coverings, and was used to make living more comfortable, providing physical warmth and visual warmth.

An exception to this is the Japanese structure which, through time, has kept the sense of modular and moveable interior space. The sense of definition of space developed along different concepts with space less rigidly defined by specific function or by rigid support bearing walls. By the use of light-weight sliding walls two spaces may become one or the reverse and an area may serve as dining room, living room, and bedroom by addition or subtraction of key objects (Hiroshi, 1970). These sliding panels, which might more accurately be called moveable walls, are of two types: Shoji, lattice panels filled with white paper, and fusuma, made of sturdier material.

Though these walls cannot block sound they provide visual spatial divisions.

Edward T. Hall (1966, p. 104), in The Hidden Dimension, says that "specific fixed rooms for special activities is a recent historical invention. In a single space various activities took place by various occupants at various times." This multi-functional use of space has existed and still persists in the theater. In the theater the need to make one space--the stage--play different environmental roles is paramount. Change of setting must be quick and easy. Stage settings denote a temporariness. Settings enclose an area which delineates specific environments that must change quickly and easily. The full curtain set does this well. These are walls made of three foot strips of curtains that provide a very practical arrangement (Southern, 1964).

These material strips are most useful if they are kept in strips and not sewn together. They then may be rolled--to provide windows or doors, moved on tracks, or "flown" at will--raised out of sight to the ceiling area (Southern, 1964). Light--reflected and absorbed--is a prime factor in choosing the curtain. This affects both color--greys are considered best--and texture--velvet is considered excellent (Southern, 1964).

The rise of the desire for realism brought about the use of painted canvas scenery--painted to look like its real counterpart. This imitation of reality calls attention to its fakeness--its unreality--and a sense of the theatricalness of curtained sets was lost (Southern, 1964).

A very recent development in theater is to use fiber art works--made especially for a certain play--to be used as stage settings.

The rationale for fiber as stage design, according to Clayton Karkosh:

> . . . boils down to the integrity of the material. Much of theater is making something look like something else. But with fiber, you're using the material for what it is. For instance, we try to create the effect of texture and light play with paint, but fiber already has it (Fiber Arts, 1976, p. 35).

One of Karkosh's set designs used Ojo de Dios, dropped one-by-one, for the last act of Leonard Bernstein's Mass. Mass is essentially religious drama but in the southwestern setting of the University of New Mexico the religious nature takes on the nature of the environment--and the Ojo de Dios represents this (Fiber Arts, 1976, pp. 34-36).

One set, for Quintet, a dance program, consisted of translucent weavings of circles, diagonals, octagons, triangles, and arrows placed in various parts of the stage space around which the dancers moved (Fiber Arts, 1976, p. 38). Another set, for Strindberg's Ghost Sonata, was an entire wall one-sixteenth inch nylon line strung on forty-eight feet of webbing with nine ends per inch. On this string wall were projected slides and colored spots. The actors moved at will in and out of the string wall. The result--light play and movement to enhance the drama (Fiber Arts, 1976, p. 36).

Throughout history man and his spirit has needed more than sticks and bricks and stone and steel. He needs graciousness, warmth, and originality as well as practicality to complete his feeling of wholeness. Fiber has been, and is still, one of the tools he has available to him for this purpose.

Historically the art fabric's makers have been left to anonymity. Aesthetic and practical skills for creating fabrics were available to

many. Variously the work was done by men, women, certain families or groups, the elderly or the young, depending on the proscriptions of the culture. Fabric was both necessity and art and though locally one person may have been known for his exceptional skill, individual names have seldom been recorded until, in Europe, with the rise in popularity of woven tapestry, various artists and designers became known as the designers and executors of certain tapestries. The Renaissance and the subsequent rapid growth of industrialism left fabric as an industrial product rather than an artistic medium.

The rebirth of the individually created art fabric began with the revival of interest in the handcrafted object--by William Morris in England in the late 1880's, was continued by fiber craftsmen such as Anni Albers during the Bauhaus years and finally surfaced with vigor following World War II in America and the European countries.

CHAPTER III

PRESENT TRENDS

Since the Renaissance in the industrial countries fibers have not been considered architectural material but materials for providing interior accessory surfaces. They became window coverings, floor coverings, furniture upholstery, at times wall coverings, and always bed and table coverings. Fabrics, though they could be aesthetically pleasing to sight and touch, were basically utilitarian, adjuncts to architecture. They became one of the minor arts as opposed to the major arts of painting, sculpture, and architecture.

Artists, though, are always the harbingers of new trends and in the United States in the 1940's artist emigrants from Europe, such as Trude Quermonprez and Anni Albers, began to experiment with the aesthetic qualities of fiber over the utilitarian and technical qualities. Thus began the era of the wall hanging. As opposed to traditional tapestry, wall hangings were not an outgrowth of painting but explored fiber on its own terms of expression--texture, odor, color, and pliability. New yarns, new techniques (or rather, revivals of ancient primitive techniques expressed in contemporary terms) reflected new freedoms in form and function for fibers.

At the same time, utilitarian fabrics for interiors were becoming more and more aesthetically pleasing, thanks to Dorothy Liebes and other artists and designers who, instead of turning to the one

of a kind handmade fiber pieces were exploring the field of industrially produced fibers.

In the late 1940's artist Lenore Tawney turned to weaving as a medium of expression and was one of the first weaver/artists to create three-dimensional hangings, thereby forever freeing fibers from functional uses or wall-placements (Nordness, 1970).

At the same time, under the influence of such architects as LeCorbusier and Mies Van Der Rohe, American structures were becoming "less and less," following the dictum of "less is more" and "form follows function." Surfaces were getting flatter and plainer, and larger areas of a single material were getting less colorful--natural concrete--or maybe white at the most colorful. Glass was "in" and feelings of warmth and humanness were "out," though nobody really realized the latter for a number of years.

In the early 1960's architects and designers turned to the steadily growing group of fiber artists who were doing larger and larger hangings full of warmth, texture, color, form, and feeling. These were just what the "less" structures needed to add visual appeal, warmth, and feelings of human ambience. The die was cast--fibers were back as an integral part of architecture. Fibers in architecture became a way of preventing further alienation from environment. It was the path for humanizing cold concrete and glass with the visual and tactile textures, with color and warmth, with objects produced by human hands. But it must be stated that until very recent developments took place in the last five years these fibers were still considered wall-hangings--a non-utilitarian part of architecture, however monumental in scale or character (Constantine & Larsen, 1972).

Sheila Hicks, by training an artist and weaver and influenced by pre-Columbian, Mexican, and Peruvian weaving, and also not afraid to use machine techniques, began to expand her fiber works in the 1960's to provide texture, color, and radiance for austere, functional, utilitarian architecture (Constantine and Larsen, 1972).

In the 1960's Hicks moved her studio to Paris and began her association with designer Warren Platner. Her first major breakthrough in large scale architectural pieces began with a wall--called a wall as it covers an existing wall, but is still wall mounted--for the Ford Foundation in New York and then with a second monumental "wall" eleven feet by twenty-six feet for the Rochester Institute of Technology in 1967 (Constantine and Larsen, 1972).

Architects and the deans of the business world became increasingly aware that these large scale fiber pieces enormously affected their environment. Their color, texture, light reflection and absorption, form, and thickness had great positive effects on those people who used the buildings where they were installed. By the late 1960's, the demand for large scale architectural pieces had burgeoned to unprecedented numbers. Weavers had to quickly rethink their concepts of scale and internationally artist/fiberists began to produce one-after-another large architectural pieces.

In the Netherlands, Wilhelmina Fruytier created large, weighty, abstract image tapestries in various kinds of rope. One rope piece, for a crematorium in the Netherlands, measures four feet eleven inches by twenty-six feet three inches (Constantine and Larsen, 1972). In Canada, Marie Rouseau-Vermette worked with simple plain weaving

greatly enlarged in scale, subtle color progression, and texture to create whole walls. One piece, "Direct," executed in 1959, measures twenty feet four inches by fifty feet ten inches.

But monumental scale was not the only criteria. Many buildings and homes needed less massive pieces and many artists complied. Lenore Tawney, Dominic de Mare, Robert Kidd, Moik Schiele, Peter Collingwood, and Dorian Azchai, to name only a few.

The full circle of fiber as architectural structure has been realized in recent years. Olga Amaral, working out of her studio in Bogota, Columbia, and influenced by pre-Columbian weaving, began looping, wrapping, and finger-weaving giant pre-woven and pre-wrapped strips into dense ceiling suspended walls that were used independently of a structure bearing wall. Most notably, in Poland, Magdalena Abakanowicz is fabricating environmental structures that replace interior walls. Working with three assistants, she suspended warps from the ceiling of a new State Building in the Netherlands. Working entirely in situ with these freely suspended warps, wefts were woven to create an entire reception room wall measuring seventy-one feet by twenty-four feet (Constantine and Larsen, 1972).

All of the aforementioned fiber structures and discussions of them, though directly related to architecture, are still in that nebulous category--art. Also to be considered is the field of fiber walls for architecture that fall into a more utilitarian category which may be termed decorative arts, many designed by interior designers or artists to fill the growing practical needs for soft space division.

CHAPTER IV

CURRENT INSTALLATIONS

From a practical standpoint, any discussion of a topic that is basically concerned with actual construction and use of material objects needs to include a discussion of how concepts are actually being applied.

Therefore, this chapter deals with current installations of fiber spatial definitions in both public and private spaces. Some of these installations are artist-created, one-of-a-kind pieces and one is artist designed for manufacture and one is designed as a do-it-yourself project for apartment dwellers. Each stands on its own merit designed to fit its own purpose in its own space.

The art in public places movement is attracting more and more fiber creations that act as spatial definitions as Gerhard Knodel's five story sail-like, multiple-elemented work over the one-half acre "lake" of the atrium in the Detroit Plaza Hotel.

Canvas and Dowel Multi-Purpose Dividers

Using lengths of unbleached cotton, canvas and dowels lashed together with leather thongs, Georgio Saint'Angelo has created modular. easily changeable spatial delineations for his rented apartment. In the entry area there is a corner guest closet with canvas ceiling and

one canvas wall plus a canvas door to the guest bath. A sliding canvas and dowel screen serves as a bedroom closet door.

A living room is turned into living room/guest bedroom by partitioning the open space with four canvas screens. A fold-back canvas and dowel screen door swings across dining area entry for privacy.

With this easy to assemble modular system an assortment of areas can be defined as needs change--new walls, hallways, closets, and folding or swinging doors can be formed. Small havens of organized clutter, a need for every apartment, add warmth and a human quality.

Its inspiration is economy of money, time, and energy and each screen can function with double and even triple duty. Additional pieces planned are canvas screens with pocket backs, free-standing canvas/dowel closets on casters, and duffle and dowel hampers (House and Garden, 1977, pp. 150-153).

A Tent in an Apartment

A fabric tent folds up to fit the size of the family car, ready to move at the slightest thought of raised rent or the "we've got to have more room" syndrome. The fabric covers stark box-like walls and hides peeling plaster and creates a wonderful cozy look. The bedroom, which is the living room by day, becomes private space when the tied-back curtain wall is drawn shut.

Designed by Carol Kavalaris Associaties, the fabric walls are made of light-weight natural canvas with grommets put in at the top of the fabric every five inches and attached to cup hooks screwed into lathe nailed to the wall and ceiling. Bedroom curtain wall is gathered on a one and one-eighth inch closet pole, or two if space is large.

It does take a lot of fabric but not much else is needed and it is functional and cozy (Apartment Life, 1977, pp. 90-95).

Library Banners

High ceilings in the Chula Vista Public Library permitted use of clerestory windows with minimal energy providing maximum light and also made usable high wattage mercury vapor lamps. It also permitted a maximum ventilation system using exterior air. But these same high ceilings created an impossible overhead void that contrasted too sharply with the exhilarating, colorful interior. Jorjanna Lundgren created large scale primary-colored banners that not only delineated the upper spaces but, because they are strategically placed, provide guidance to various areas (Interiors, 1976, pp. 60-63).

Meadowlands Racetrack

Lighting used to define large open areas into a multitude of fragmented visionary spaces is further enhanced by the use of brightly colored graphically designed banners. Escalator spaces are large open voids embracing two to three stories. Neon tubes with colored lights create illusions of light bouncing off the surface of the multi-colored and numerous long, narrow banners hung at irregular levels from ceiling to floor. Light, air, space, and color create a spectacular mood of excitement (Interiors, 1977, pp. 80-83).

Erhard Seminars Training - San Francisco

Human, soft, sophisticated, exhilarating, yet quietly conducive to concentration with the surprise--banner hung ceilings. This is

the effect of EST Headquarters in San Francisco. Each bannered ceiling is a work of art integral to the environment of its floor. The banners baffle the glare of fluorescents and change their color (white and colored banners only eighteen inches deep are differently hung on each floor). On the third floor they are red, yellow, and blue. On the fourth floor they are in autumn tones of bronzes and blue-greens. On the second floor they are pale yellow and greys--following a sunlight and cloud wave. The entire atmosphere is soft, diffused--not inhuman (Interiors, March, 1977, pp. 94-97).

The banner hung ceiling is gaining widespread popularity. The February, 1978 issue of Contract Interiors contains an article and pictures of the Detroit Plaza Hotel in which the ceiling of the Renaissance Cafe is almost entirely a banner-lowered ceiling of glowing yellows, oranges, and reds.

Sheila Hicks - Wall

The thickness of fleece, color and shadow, radiance, mellow depths, the attributes to dream palaces. These are the adjectives Claude Lévi-Strauss uses to describe the works of Sheila Hicks. What better way to adorn our functional, utilitarian architecture?

The wall, ten feet by sixteen feet, made for the Executive Suite, Banque de Rothschild, Paris, is composed of innumerable single, chain-like elements. These elements are each a multitude of linen warps wrapped in gleaming silk. At intervals the rough linen, unwrapped, forms bulbous relief from the tight, disciplined, wrapped areas and also sharp contrast in color from the myriad of blues that progress

across the sixteen foot surface. The well disciplined forms and colors resemble pebbles and stones floating on cool seas. The wall is both visually and physically perceived and experienced with the rhythmic sense reminiscent of a well-disciplined music score (Larsen, 1975).

Total Environment - Magdalena Abahanowicz

The reception room of the State Building in North Brabant, s'Hertogenbosch, the Netherlands, is a total surround situation in fiber. Larger than life, almost gargantuan, this woven environment is seventy-one feet by twenty-four feet. Woven in situ by the artist and three assistants, warps were suspended directly from the ceiling and the wefts were freely woven without heddle or shuttles. This environment embodies Abahanowicz's complete absorption in the weaving process. Influenced by painters she never succumbs to painting. Always she expresses the nature and identity of her materials--cords, horsehairs, sisal. The work is entirely personal, insistently monochromatic, which intensifies its visual and physical force. The panel grows from the black stone floor to the dark wood ceiling. She makes an adventurous and outrageous relationship statement to the architectural elements of the building that is emotional, volatile, creative, and rebellious. The total composition confronts and inundates the viewer with forms that are on the borderline of dream and reality (Larsen, 1975).

Sculptural Wall and Furniture - In Moveable Parts

In Dennis Jenkins' apartment one wall and the furniture it becomes are made entirely of upholstered free-form sculptural padded modular elements. Designed by Kenkins and made by Rona Kirtzer, the padded forms are applied to walls and continue on to the floor as furniture. All pieces are color coordinated and all are modular and can be moved at will.

What Jenkins and Kritzer realized they had when they installed the forms was exciting functional art that filled the room with color and texture. The colors are warm, earth tones, very sensual, inviting, yet with a rock-like quality.

Jenkins feels there will be more art as architecture if architects persist in constructing buildings that look like concrete bunkers. Fiber is one of the best means of converting these functional structures into environments that satisfy the soul as well as functional needs. He states that "we're going to look more to the arts than to technology for the truly satisfying" (Fiber Arts, 1976, pp. 35-37).

CHAPTER V

PROJECTS IN FIBER SPATIAL DEFINITIONS

This researcher has concluded that necessary though the study of other's work is, of equal importance in the testing of a person's knowledge is his ability to perform. Therefore, this researcher has undertaken three projects which utilize fiber for interior spatial division. The first is a series of fiber storage elements. The second, an attempt to create interest and focal point in large scale wall sculpture for a bare wall in a large undefined room out of inexpensive, readily available materials. The third project was the construction of a series of modules that could be combined in any number needed to visually divide interior space.

Fiber Storage Elements

The study of historical use of fiber resulted in the realization that not only has fiber been used as shelter, body covering, bedding, seating, and window covering, but it has played a major role in storage of household accouterments. Nomadic and semi-nomadic peoples used a varied assortment of cloth bags as soft, collapsible storage chests and as travelling bags. Persians, well-known for their rugs, used a jewal (Gregorian, 1967) for storage and a khurjens, or saddlebag for transporting goods (Gregorian, 1967). A torba was a small carrying bag for carrying provisions (Gregorian, 1967). The American

Indian stored his belongings in parfleshes, made of stiff rawhide and beautifully decorated with geometric designs (Ashton and Stuart, 1977). Pre-Columbian peoples, especially Peruvians of the Nazca period, stored their goods in decorated pouches woven in an interlocking tapestry technique (Lapiner, 1976). These containers were hung on tent walls, carried by camel or horse, or placed on raised platforms in living quarters, turning one room into multi-purpose space.

Now the concept of soft storage is attractive to those who have limited funds, space, and who may have again become part of contemporary urban nomadic groups. Therefore, research as to the practicality of soft storage seemed appropriate.

For the first project yarns spun by nomadic Iranian tribesmen were ordered. These natural colored yarns approximately duplicated yarns that had been used for storage bags made 75 to 100 years ago. For warp a durable two-ply camel hair was used and for filler the softer single-ply yarns. The bag face was woven in three techniques--ghiordes knots, soumaks, and slit tapestry, all traditional techniques used by Persians, Caucasians, and Turks for weaving rugs and storage pieces. The pile formed by the knots was clipped closely and evenly, also a traditional method.

The back of the bag was woven in slit tapestry with a design similar to that of the bag face. The front and the back were sewn together with an overcast stitch. The top edges of the bag were turned under and hemmed and four-strand braided tabs were added to the top of the back of the bag for hanging. Warp ends at the bottom were left about eighteen inches long, knotted together at the edge of the web and then braided, again with four-strand braiding.

The finished bag, twenty-four inches by eighteen inches, was hung by hooks on the studio wall and used as a container for shuttles, pick up stocks, yard sticks, and drop spindles.

It was conviently hung, took no floor space, and used previously unused wall space, and could be quickly moved or stored when the need arose, showing that what had worked for tent dwellers was working equally well in a settled, hard-goods dominated environment.

The possibilities for further storage bags were many. Many decorative techniques could be used. Pockets could be made with double weave techniques. Pieces could be made singly and put together. Single element techniques could be used. Scale could be manipulated. Entire walls could become soft storage units.

For the second storage piece five pounds of domestic wool yarns of three weights were dyed with commerical dyes. The colors were selected by using a semi-antique Turkoman rug, with Tekke pattern, as a guide. Good results were achieved in producing faded-looking reds, rusts, deep blue-black, and browns.

Warp was a grey-black goat hair and warped on the loom twelve epi for double-weave for a twenty-four inch wide piece. Using random stripes for pattern, two eight-inch tubes, open on both sides were woven, then an eighteen-inch pocket. Then, using only one warp layer--the back or bottom layer, which would be the back of the bag, another fifteen inches was woven to give height to the finished piece.

In order to stabilize the finished piece and help keep it flat against the wall, yarn-wrapped welding rods were woven into the bottom, middle, just above the pocket opening, and top of the piece. The top

rod, heavier than the other two, doubled as a hanger. Warp ends on the pocket face and top edge were back into the web. Bottom edge warps were knotted and let hang free.

Finished, this piece contained three storage areas, the two lower eight inch tubes and the large eighteen by twenty-four pocket in the middle. In use, the pocket proved a usable size but the two eight inch tubes would be easier to utilize if they were woven twelve to fifteen inches each (Figure 1).

The coloring and the striping pattern give the effect of being both Oriental and Indian rug-like, yet very graphic and contemporary, a seeming contradiction, but visually very unifying (Figure 2).

The third storage piece used the same grey-black goat hair warp still on the loom warped for double weave for a twenty-four inch width. Still using the double weave technique, two connected side by side pockets were woven, each ten inches deep. The face of the bag was completely covered with a ten to twelve inch pile, with the exception of the area around the opening, which was flat woven with areas of short, looped-uncut pile. The colors used were dark brown, rust, and natural. The long pile was worked in ghiordes knots which give a definite downward pile and the short top pile was worked in Sehna knots, which cause the pile to stand out (or up) rather than to lie flat to the surface. The visual effect of this piece is very warm, textural, and again somewhat primitive/contemporary. Its highly textural surface does not interfere with its performance as a storage bag.

The fourth piece used grey goat hair for warp and varigated grey-black and white flocked Berber rug wool for filler. This piece,

Figure 1. Soft Wall Storage

Figure 2. Sample of Soft Wall Storage

though still viable as storage, is very sculptural in visual effect. The shallow storage area is flat woven with a white band at the top opening. The warp ends have been braided about six inches and guinea hen feathers attached, softening the effect of the severe rectangle form. The bottom fringe has been left long--twenty-four inches, which elongates the form. This piece is of a less practical size than the other pieces but is suitable for mail, papers, or any long narrow items. Its sculptural form does not lend itself as easily to purely utilitarian use.

The fifth piece was again warped for double weave, this time with six-ply cotton string used for wrapping twine. The filler was wool and mohair in many weights and sizes, in shades ranging from white to grey to muted browns. The piece was woven sideways in a random stripe pattern. This makes the stripe vertical when the piece is hung and the depth of the storage area is twenty-four inches.

First, two separate twelve inch flaps were woven, then the flaps joined and loops of heavy core-spun wool woven in which were planned as hanging loops. Then a sixteen inch pocket was woven, open on one side (which would later be the top opening), another hanging loop woven, and again, two twelve inch flaps. In the weaving process, weft yarn was extended from the selvedge about eight to ten inches, so that there was on the finished piece both warp and weft fringe.

Hung on the wall, this piece visually has a soft, draped, muted effect. The four side flaps drape at angles and in folds. If hung with the loops close together the bag part of the hanging is three-dimensional and does not lie flat against the wall. This piece is durable, deep storage.

These five storage pieces combine two important qualities--form and function. They are both a delight to the eye and soul and they are functional. In them there is a connection with a simpler time in life, when making what one needed for daily living was an activity common to all. There is in them a sense of connectedness with life-processes.

The concept of soft storage has its roots in a historical time far removed from ours and utilizing ancient forms, interpreting them in contemporary forms preserves a sense of on-goingness with history. There is a sense of continuity, of roots.

Grass-Wall Sculpture

Grass is undoubtedly one of the natural world's most common products. This availability has made it also one of the most useful products, albeit recently not in great favor in technologically sophisticated societies. Nevertheless, in 1976, a major exhibit of objects made of grass was mounted by the Los Angeles County Museum of Art. The exhibit included one of a kind pieces created by contemporary artists, mass produced utilitarian items, antique grass objects of historical value, and items whose value rested on their magical or religious value. But in the process of transformation into a museum exhibit even the most utilitarian or strictly "decorative" object of organic everyday materials was transcended into an art object. One particular object--a large, rope-like chain, thick and long at one end and fine as thread at the other, snaked along the porch roof-frontal of an Oriental house. Its purpose was to keep the house and

its occupants free of harm. On another level, its visual impact was to beautifully utilize the roof-frontal space.

From this confrontation with design in grass came the impetus to give visual impact to an interior wall with grass. As grass is as native to Oklahoma as the red clay which potters use, it seemed an ideal material to further a sense of place in interior design.

The next step was to collect and identify various grasses that grew in quantity in available places and experiment with techniques that could transform grass as organic fiber material into a man made object.

There are various grasses that grow easily and prolifically in Oklahoma. Johnson grass is tall, stiff-stemmed, and hollow. It could be twined together in bunches for roofing or siding. Stems and leaves might be stripped and woven as weft for matting. Broom weed grows profusely and looks nice dried in arrangements with other dried materials but it is brittle and stiff and bushy, not malleable at all, and is resistant to manipulation. Weeping love grass is grown on inclines to prevent soil erosion and is also used by some ranchers as a folk remedy for curing ailing cattle. It has long, curving, needle-like leaves that grow in clumps. In the breeze it waves gracefully and en masse on hillsides, resembling abstract rolling waves. Dry, it has lovely muted straw and grey-brown colors with wispy, curving tips. It is also part of recent Plains Indian folklore and has been planted in Tallequah on the slopes of the Trail of Tears Theater as a symbol of the Indians' disillusioned journey to their designated reservations.

It is one thing for a designer to choose a material for its visual and intellectual appeal but quite another matter to work with that

material, choosing techniques that suit the material, bringing out its best features and letting it keep its own integrity and at the same time making the statement the designer has in mind.

Various methods were tried. Coiling the love grass in clumps using a linen card as binder left the material looking stiff and lifeless. None of its color and movement showed at all.

Next, twining was tried, using clumps the size of a person's thumb or larger, and positioning the grass within a rectangular framework. Twining was a better method than coiling but there was still confinement and none of the rolling movement so indigenous to the grass as it grew along the steep slopes of the Interstate highways where it was thickly planted. The grass needed to curve and flow along the wall space, not in imitation of its natural setting, but in reminiscence of its living and growing form.

The grass, still a primitive material, seemed to need a relatively primitive manipulative technique, but it resisted those techniques historically used for grasses. An alternate technique needed to be tried that would allow the grass to show its characteristics, yet bind it solidly together. As a result, the ancient Egyptian technique of card weaving was tried. This technique weaves narrow bands that are very durable and useful as belts, strapping, or decoration.

Working on a much larger scale, to accommodate the architectural feeling necessary, cards were set up to weave bands about three inches wide and nine feet long. The warp was goat hair from Iran and the weft alternately clumps of grass and strands of goat hair in each turn of the cards. As the weaving progressed, grass fanned out

eighteen to twenty-four inches on one side of the three inch band, bending and curling at the ends. On the other side of the band, the grass ends protruded about three inches, cut bluntly as though they had been cut at the base where they grew out of the ground as they actually had been so cut.

In all, four bands, ranging from six to nine feet in length, were woven. The ends were braided into thick two foot braids. Cut from the taut working arrangement the bands were ribbons or fringe, falling and draping when manipulated into large curving arcs.

Tacked to the wall surface in large arcs the four grass bands retained the life and movement of the grass on the hillsides but was abstracted and refined in the interior setting. The result was sculpture, movement, visual delight, and the smell and feel of late Indian summer afternoons along a gently rolling prairie road. In this manner a viable spatial art form was created from organic, utilitarian material and a primitive technique (Figure 3).

The four modules are durable, can be moved to other positions on the way or to other walls. They can be stored if need be; more modules can be made or they can be used singly. They have been fireproofed. Above all, the bands are providing a visual environment that is art, not art separated from the life processes, but integrated with them, blending with voices, lights, thoughts, and visual awarenesses of those who come into and use the room (Figure 4).

The implications for contemporary designers of what can be accomplished visually with such a readily accessible material are formidable. With many fibers at an economic premium and with fiber pieces in demand for interiors because of their humanizing warmth, grass, in

Figure 3. Grass Wall Delineation

Figure 4. Sample of Grass Wall Delineation

this case, offers a suitable alternate to the most expensive wools, linens, and cottons.

Thinking laterally, other common materials might be creatively used by designers for solutions to spatial divisions. Paper has had a long history of decorative and utilitarian use. Rag strips and string have long been utilized in industries and households. These materials used with the right techniques could transform large spaces into decorative and usable spaces.

Fiber Space Dividers

The concept of the standardized module as a basic unit of building material and interior furnishing is a practical and prevalent solution for architects, designers, and manufacturers. For the interior designer confronted with the necessity of converting large individual spaces into smaller usable units the module concept offers unlimited possibilities.

It is both conceptually and practically a necessity to deal with small units that can be readily comprehended and to expand those units in scope and scale. For the designer this method offers a unity of visual design and the ability to use as many or as few units as are needed. If these basic modules are made of fabric they have the added advantage of being moveable, storable, easy to clean, and possibly less expensive to make and install, depending on materials and techniques used.

As an experiment with the module concept this researcher chose to work with fabric panels that could be made and used in multiples.

Drawing on a traditional African textile method of weaving strips of material which were then joined to form cloths of sizes fitted to use. Questions of size, materials, method of making, use and design were formulated.

A basic size of six feet in length and fifteen inches in width was determined. As these panels were to be handwoven, this allowed for relative ease in warping procedures, tension control, and actual weaving process. Longer or wider pieces would have been difficult to produce, both as to time and mechanics. Also, the smaller units would not overpower relatively small spaces that needed some division, yet used in large numbers would still provide the right scale for large spaces.

Materials were chosen for their durability, inexpensiveness, adaptability, and the fact that they were fibers traditionally used by African weavers. The material is cotton. Two types of cotton were used: a 4/4 cotton warp that is normally used for tying packages and warping looms for rag rugs. This was used for warp, set twelve epi, and for weft. The second kind of cotton used was industrial mop rope usually used as its name implies, for making mops. The mop rope used as weft adds design and texture and also acts as stabilizing and stiffener for the relatively lightweight cotton weaving. It also adds the larger scale necessary for visual interest when the modules are viewed from distances.

The durability and nature of the cotton makes it possible for the panels to be used in outdoor spaces--atriums, gardens, or entries. The panels are easily fireproofed by spraying or immersion in any fireproofing liquid usable on natural cotton material.

The cotton was left in its natural off-white color, but its choice was influenced by the fact that it readily accepts dye and the panels could be dyed any color desired, either after being woven or the yarn dyed before the weaving process was begun.

The design was chosen for its simplicity, flexibility, and ease of weaving. Bands of plain weave alternated with a heavy cording effect created with the use of the mop rope in varying thicknesses. The simplicity of the designs makes it more adaptable to various spatial situations and the flexibility of placement of the alternating bands of thick and thin yarns allows for variation in design (Figure 5). The panels were to be handwoven which meant that the design needed to be easily executed or the time element would have made their making economically prohibitive. Though the three panels woven in the experiment were handwoven, there is no reason why the panels could not be commercially manufactured, as their design is such that with minor adaptations for the mop rope elements they could be produced on power looms (Figure 6).

The three panels made have been suspended from a dowel and hung independently from each other. Narrow spaces between the panels create negative patterns and allow for a more visually open feeling in the space they divide. They can be easily attached via the mop rope elements for a more solid opaque look. They can also be ceiling suspended in serpentine fashion, providing an undulating spatial surface. The panels can be staggered in space, giving a staccato breakup of space.

The three panels have fringed ends that move fully in the air currents caused by heating and air conditioning systems or the

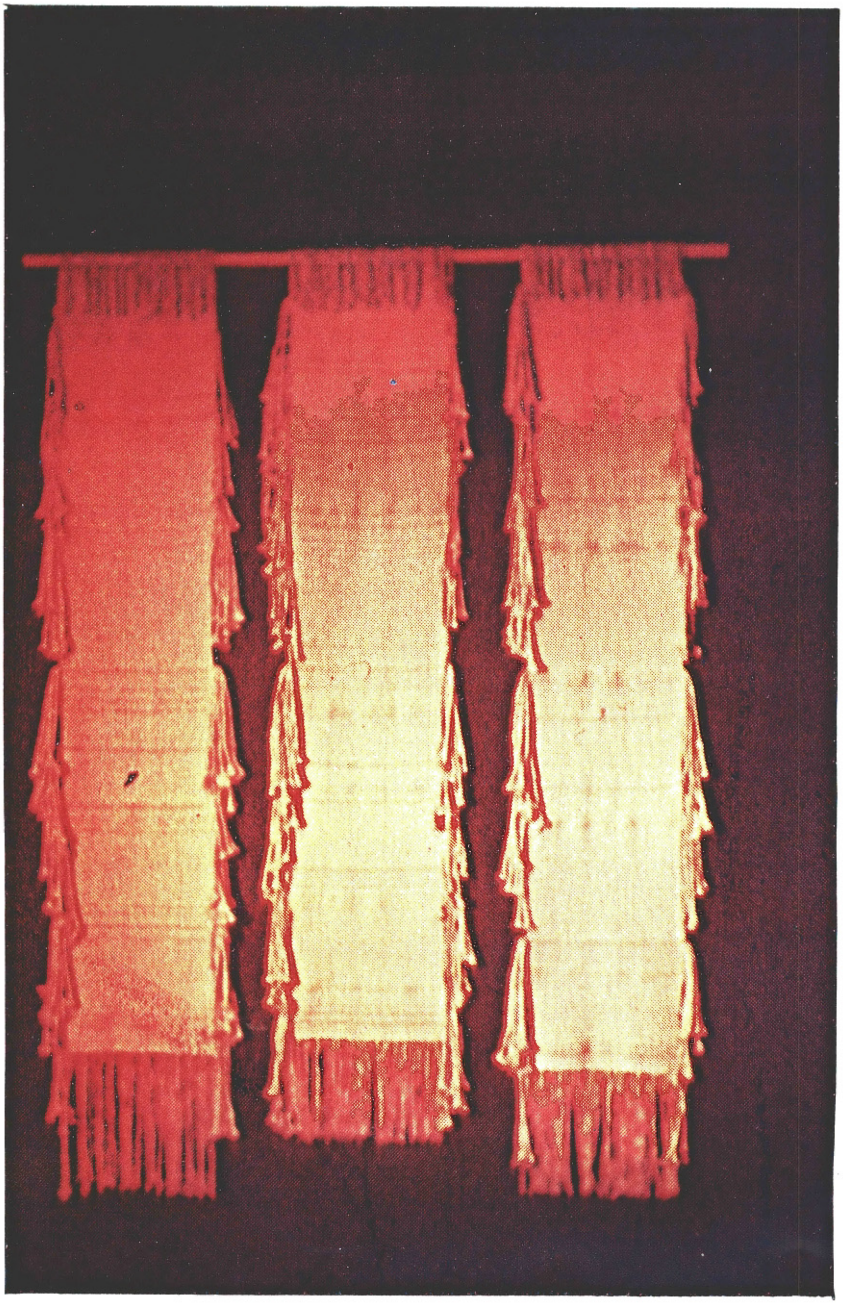

Figure 5. Woven Cotton Space Divider

Figure 6. Sample of Cotton Space Divider

movement of people near the panels. The entire panels undulate slowly and pleasantly in these air currents. In spatial situations such as public entries or areas of high people traffic which could cause the panels to move too freely, the addition of metal rods or wooden dowels would be appropriate. For a very free and stable suspension in space the panels could be suspended from top and bottom by guy wires and placed in any aesthetically pleasing position or level. The purely artistic possibility of the latter method of suspension would be an attractive one to those interested in art in public places.

The panels offer a viable solution for a module method for private or public spaces that may need visual divisions for privacy for various life functions or for purely aesthetic considerations of a space.

CHAPTER VI

CONCLUSIONS

Why is there such a resurgence of interest in fibers by architects, designers, and artists? Is it simply a passing fancy with a long unused creative medium and why has it been largely neglected except as a utilitarian window dressing and upholstery and covering, etc? It could be because, since the Renaissance art meant painting and sculpture and space division means permanent solid wall. Concepts of permanence and solidity left fiber without much place in architecture except for an occasional tapestry or wall covering.

Contemporary architecture more often than not is taking cues from medieval buildings; fortress-like structures to keep people out--or in--with small doors one can hardly find or masses of windows that do not permit an inside view and only reflect nothing. For the interiors of these buildings fiber is the chosen medium for creating necessary human qualities of warmth, dimensionality, pliable flexible planes, texture, color, softness. Fiber can give people the feeling that their environment has not yet reached the complete impersonality of 2001, Clockwork Orange, or Brave New World.

Fiber is one of the oldest materials known to man for building shelter, clothing, interior accessories, utilitarian objects, art forms. Its staying power as a manipulative medium ranks along with

wood, clay, and metals. Man-made fibers have only expanded its usefulness, though in no way completely replacing the natural fibers.

Changes in space, population, and urban mobility have turned fibers into a useful tool for inexpensive, easily and quickly made space divisions, storage, entire environments. The need for color, warmth, texture, and pliableness make it the medium for creating psychological warmth and aliveness. These same qualities make it the ideal medium for meeting aesthetic needs and desires.

The rising consciousness that we have been creating increasingly sterile, inhuman environments and the conscious need to counteract this direction is the primary reason fibers have always and will continue to play such an important part in building our man-made environment.

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VITA 2

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