

INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.
2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.
3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.
4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.
5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.

Xerox University Microfilms

300 North Zeeb Road
Ann Arbor, Michigan 48106

73-26,411

WALL, Jean Griffith, 1926-
CHILD CARE ON THE MOVE: A MODULAR MOBILE
CHILD CARE CENTER.

University of North Carolina at Greensboro,
Ph.D., 1973
Home Economics

University Microfilms, A XEROX Company, Ann Arbor, Michigan

CHILD CARE ON THE MOVE: A MODULAR
MOBILE CHILD CARE CENTER

by

Jean G. Wall

A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
1973

Approved by


Dissertation Adviser

APPROVAL SHEET

This dissertation has been approved by the following committee of the Faculty of the Graduate School at The University of North Carolina at Greensboro.

Dissertation Adviser

Nancy White

Oral Examination
Committee Members

Helmi Cavaday

Donald Russell

Normi J. Albright

Rosemary McGehee

February 28, 1973
Date of Examination

The number of mothers entering the labor market in the United States has increased steadily over the past decade. Providing adequate care for the children of these women is a societal problem. Child care services are expensive for the consumer and the provider of services. One of the largest initial items of expense is the cost of a facility.

It was the purpose of this study to design, arrange for the manufacture of, equip with examples of appropriate educational materials, and exhibit to the public a modular mobile child care center that would be functional, esthetically appealing, economical, and also would meet local, state, and federal regulations pertaining to schools for young children. The study was designated Project Child Care.

Preliminary designs for a double-wide mobile child care center were prepared, using as guidelines regulations set forth by the North Carolina Department of Insurance, the North Carolina Department of Social Services, and the Guilford County, North Carolina, Health Department. The plans for the project were discussed with Mr. Wallace J. Conner, a mobile home manufacturer, and arrangements were made with his firm for the manufacture of a prototype modular mobile child care center.

An exhibition site for the public exhibition of the prototype was secured in High Point, North Carolina, through the assistance of representatives from the Southern Furniture Manufacturers Association and the High Point Redevelopment Commission. Publicity for the exhibition was made possible through local

television coverage and statewide newspaper releases. A brochure that included a brief description of the project was prepared and mailed to educators, child care agencies, government officials and industrialists.

The center was equipped with representative examples of educational materials and supplies that were provided by Kaplan School Supply, Winston-Salem, North Carolina. The materials chosen were deemed appropriate for three, four and five year old children.

Public reaction to the center was ascertained by means of a questionnaire. The questionnaire was administered to each person who visited the center while it was open to the public. The respondents were positive in their acceptance of the modular mobile center for use as housing for a child care center. Reasons for acceptance included mobility, appropriateness of design and low cost. Stated as deterrents to use of a mobile center for child care housing were impermanence, local zoning ordinances and prejudice toward mobile housing.

Since February, 1972, an all-day program for 20 children from three to five years of age, had been in progress. The purchase of the prototype by The University of North Carolina at Greensboro was made possible through a gift to The University by the late W. J. Carter. The prototype served as a laboratory for students in Child Development and Early Childhood Education, as a center for research, as a demonstration center and as an environment providing safe, educationally oriented, supplemental care for children of working parents.

Project Child Care was a cooperative effort between higher education and industry to make a positive contribution toward the alleviation of a societal concern. A year's experience utilizing the facility as housing for an all-day program served to indicate that modular mobile housing can be utilized as an economically feasible setting for quality child care.

ACKNOWLEDGMENTS

I wish to express my sincere appreciation and endless gratitude to all those people who have helped to make this project possible and especially to:

Dr. Nancy White, Chairman of my Graduate Committee, for her constant encouragement, support, and guidance;

Dean Naomi Albanese, member of my Graduate Committee, for her help in enlisting cooperation of business executives as sponsors for this project;

Dr. Helen Canaday, Dr. Rosemary McGee, and Dr. Donald Russell, members of my Graduate Committee, for their interest and constructive suggestions;

Mr. Wallace J. Conner, President, Conner Homes Corporation, and his employees for their generous contribution of time and expertise in manufacturing the modular mobile child care center;

Mr. Leon Kaplan, Kaplan School Supply, for his interest and his contribution of educational materials and equipment for display;

My husband, Percy, and my children, Anne and Allen, for their understanding, encouragement, and support.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.	1
Cost of Child Care	2
Purpose of the Study	4
Definition of Terms	4
II. REVIEW OF RELATED LITERATURE	5
Relocatables	5
Portables	7
Trailers	8
Permanent Portables	8
III. PROCEDURES	10
Preliminary Preparations	10
Professional Assistance	15
Agreement on Responsibilities	26
Manufacturer's Specifications	28
Final Preparations	37
Publicity	40
Public Response	43
Brent Woodson Carter Child Care Center	48
IV. SUMMARY AND RECOMMENDATIONS.	50
BIBLIOGRAPHY	55
APPENDIX A. Correspondence Initiating Project Child Care	60
APPENDIX B. Construction Details Pertaining to Manufacture of the Prototype	64
APPENDIX C. Inventory of Educational Materials Used in Display of Prototype	76
APPENDIX D. Public Display of Project Child Care	80

LIST OF TABLES

Table	Page
1. Respondents Categorized According to Occupation	45

LIST OF FIGURES

Figure	Page
1. Preliminary Plan One	16
2. Preliminary Plan Two	17
3. Preliminary Plan Three	18
4. Preliminary Plan Four	19
5. Preliminary Plan Five	20
6. Proposed Modular Mobile Child Care Center.	22
7. Final Floor Plans	23
8. Multi-purpose Room	24
9. Kitchen Showing Dishwasher and Stainless Steel Sinks	25
10. Children's Bathroom Showing Grab Bars	26
11. Children's Bathroom Showing Sinks.	27
12. Floor Construction	29
13. Pre-engineered Roof Trusses	30
14. Interior Wall Construction	31
15. Window Construction	32
16. Multi-purpose Room Roof Construction	33
17. Sidewall Insulation	35
18. Roofing	36

Figure	Page
19. Exterior Finish--Aluminum Siding.	38
20. Unit Being Positioned	41
21. Completed Unit	42
22. The Brent Woodson Carter Child Care Center	48

CHAPTER I

INTRODUCTION

The decade of the sixties and the beginning of the seventies have witnessed a steady rise in the number of mothers entering the labor market. In 1960, 30.5 per cent of all married women were in the labor force. This percentage had risen to 40.8 by 1970. Eighteen per cent of these married women, in 1960, had children under six years of age and 18.9 per cent also had children between the ages of six and seventeen. The 1970 census revealed that, of the married women in the labor force, 30.3 per cent had children under the age of six and 30.5 per cent also had children between the ages of six and seventeen (United States Bureau of the Census, 1972). Providing adequate child care for these children who are without parental care during working hours is a problem for working parents and for society. Studies have shown that early experiences have a significant effect on growth and development of the child (Hurlock, 1971) and consequently on whether or not he develops into an adult capable of making positive contributions to societal living. The number of child care facilities has risen along with the increase in demand for services, but not rapidly enough to provide spaces for all children needing care.

Mrs. Richard Landsburg, past president, Day Care-Child Development Council of America, in an address before the North Carolina Conference for

Social Services on December 13, 1972, stated that there were 16 million children under the age of 14 whose parents were employed outside the home. Six million of these children were under the age of six. Two million of these children were left in damaging care, two million were left in the care of others, and two million were left alone. There were available for these children only 700,000 licensed day care spaces.

Cost of Child Care

Purchasing child care services is expensive. The cost of providing all day care for one child has been estimated to be \$2,000 per year (Logan, 1969). According to operators of child care centers in Guilford County, North Carolina, day care services ranged from \$17.50 to \$25.00 per child per week. The quality of the care received varied tremendously from programs which were only custodial in nature to ones that were well organized and included a strong educational component. In certain circumstances, parents could receive federal aid to help defray the cost of child care provided the child was enrolled in a center which met federal guidelines concerning health, safety, staffing, and program (United States Department of Health, Education and Welfare, 1968). In order to meet these requirements, many center operators were often required to spend large sums of money either to renovate present facilities or to construct new ones. As a result of increased capital expenses, some centers were forced to charge higher fees, some lowered the quality of the program, and many abandoned the field as being unprofitable.

Home Economics has been defined (New Directions, 1959) as that

field of knowledge and service primarily concerned with strengthening family life through educating the individual for family living, improving the services and goods used by families, conducting research to discover the changing needs of individuals and families and the means of satisfying these needs, and furthering community, national, and world conditions favorable to family living [p. 4].

Since child care is a family problem and since home economists by the very definition of their profession are concerned with improving family life, devising a means whereby child care may be made more economical for both the provider of services and the family is an expedient task for the home economist. This study was planned to design a child care facility which would meet the requirements pertaining to schools for young children and at the same time be economically feasible. Construction costs consume a large part of the initial investment for a child care center. If these costs could be lowered, perhaps the cost of child care for the consumer would reflect the savings either in lower fees or in a program of higher quality. Lower construction costs might also serve to encourage more people to consider marketing child care services.

The cost of building a classroom in Greensboro, North Carolina, according to Mr. Thorpe Jones, Assistant Superintendent, Greensboro City Schools, varied, in 1972, from \$15 to \$25 per square foot. The variances were dependent upon carpeting and air conditioning. A modular mobile unit designed as a classroom for children enrolled in an all-day program could, at that time, be constructed for approximately \$11 per square foot. This represented a significant savings over conventional building methods. Not only was a mobile center less expensive to construct, but the center could be relocated as the needs for child

care changed, thus eliminating the necessity for abandoning a center, constructing a new center, or having a center that was inaccessible to the population needing services.

Purpose of the Study

It was the purpose of this study to design, arrange for the manufacture of, equip with examples of appropriate educational materials, and exhibit to the public a modular mobile child care center that would be functional, esthetically appealing, economical, and would meet local, state, and federal regulations pertaining to schools for young children.

Definition of Terms

For the purpose of clarification, the following terms are defined:

1. Child Care Center--an appropriately housed, staffed and equipped center for providing adequate "away-from-home" care for children.
2. Modular Mobile Child Care Center--a child care center composed of two 12 x 54 foot mobile units joined longitudinally to form a single building.
3. Project Child Care--term used to designate this study.
4. FHA--Federal Housing Authority.
5. MPS--minimum product standards.
6. PSI--pounds per square inch.
7. 4-C--Community Coordinated Child Care.
8. C-D--symbols used to designate grade of materials.

CHAPTER II

REVIEW OF RELATED LITERATURE

Mobile classrooms are not new to the field of education. For many years they have been utilized all across the United States. They have been known by several names such as relocatables, portables, trailers, permanent portables, and readmobiles. The reasons for using mobile classrooms were much the same everywhere. These reasons were well expressed by this statement from the Richmond, Virginia, school administration (Little, 1960) when they made the decision in 1960 to purchase portable classrooms:

1. to meet the needs of peak enrollments which temporarily exceeded building capacities;
2. to meet the needs in areas of fluid population where temporary enrollments exceeded building capacities; and,
3. to meet the needs of mushrooming growth where temporary facilities were required until permanent facilities could be constructed.

Relocatables

There was some evidence to indicate that the school administrator contemplating relocatable units should not necessarily rely on ready-made units to meet his needs. The experience of some school officials, as reported by Frank

Carioti (1964) in a survey of 18 school districts using relocatables, seemed to point to the necessity of consulting with architects and engineers concerning the most practical and economical design to fit individual school needs.

Many relocatable classrooms were housed in large vans which could easily be moved not only from one school to another within the same city or district, but also from one town to another. Reading and language laboratories were often housed in these vans. The school administrators in Northfield, Vermont, faced with the problem of providing a remedial reading program for children located in eight different schools, utilized the traveling language laboratory rather than transporting the children to a central location (American School Board Journal, 1966, (6), p. 34). Another use of vans was to design and equip them as audiovisual centers. These centers were scheduled on a regular basis at district schools for in-service training programs as well as for laboratory experiences for students (Lewis, 1967).

While some school districts elected to build their own units, it was also possible to purchase pre-built units or to rent or lease units. CIT Educational Building, Inc., in Long Island, had for rent units which contained asphalt shingle roofs, vinyl-covered hard board paneled walls, sliding aluminum windows, lighting and heating facilities (which exceeded the standards), and air conditioning. The rental fee was based on the size of the building and the equipment provided (American School and University, 1965, (2), p. 79).

Portables

Faced with a shifting population, the Castro School District in Castro Valley, California, solved the problem with steel-framed portable classrooms built on a modular design (American School Board Journal, 1961, (1), p. 34). San Patricio County, Texas, also elected to purchase mobile classrooms to alleviate overcrowded conditions in their Clark Elementary School. Two 60 x 27 foot mobile units which had a life expectancy of 50 years were purchased from Reynolds Aluminum for a cost of \$11,800 each (American School Board Journal, 1961, (1), p. 34). The Chicago School System, one of the nation's largest users of portable classrooms, in 1962, purchased 150 mobile units at a cost of \$8,160 each. Each of these units contained adequate space for 30 children. Although the units were purchased as a temporary measure, the school board planned to use them as meeting rooms and driver training classrooms when the overcrowded conditions were remedied (Audiovisual Instruction, 1962, p. 566). The Los Angeles school board (another large user of mobile classrooms) needed to provide each year some 700 new classrooms. The board turned to portables because they prevented overbuilding, they could be erected in a short period of time and at less expense than regular buildings, and they could be relocated for a cost of \$1,800 (Overview, 1962, (2), p. 36). In Tuscon, Arizona, an important criterion for selection of portable classrooms was that they be esthetically appealing and blend with the existing structures (Morrow, 1962).

Many portable classrooms were funded through federal funds under the Elementary and Secondary Education Act of 1965 and the Economics Opportunities

Act. By classifying portables as movable equipment, many schools were able to house their approved ESEA and EOA projects, which included libraries, reading and language labs, Head Start programs, and adult education (American School and University, 1966, (6), p. 74). In Hillsborough County, Florida, the Headstart program utilized 36 portable classrooms. The need for portable classrooms was due to shifting population. The program needed to go where the children were. Each classroom housed 20 children and could be moved in a day by six men (American School and University, 1966, (3), p. 34).

Trailers

Each year more and more schools utilized mobile units for a greater variety of services. These services ranged from use as regular classrooms to use as home management residence facilities (Wolf, 1968). In North Dakota, trailers were used as resident-teaching units for traveling teachers in remote areas. The teacher was engaged in remedial work and served several schools. As achievement testing indicated a need for her services, she traveled from school to school throughout the district. One-half of the unit was outfitted as an apartment and the other half was furnished as a classroom (Palmer, 1968).

Permanent Portables

In a departure from the usual portable classrooms, the planners of a child care training center in Reston, Virginia, utilized a modular concept in building a center for the training and supervision of family care mothers, nursery and day care teachers, and recreation leaders. Although the modules

were relocatable, they were installed as a permanent structure arranged around a courtyard. The modular prefabricated units were manufactured by Mobile Home Builders. The funding for this creative project was through a grant from Educational Facilities Laboratories of the Ford Foundation for the purpose of demonstrating "design adaptability and construction economy for the many cities across the country now planning facilities for day care and early childhood education" [Haase, 1969, p. 163].

The El Rancho, Texas, school district used permanent portables which were window-less, completely air conditioned, carpeted and wood paneled. The exterior was covered with stucco. This design blended with the existing architecture and enabled a savings in construction costs sufficient to cover the expense of air conditioning (McClain, 1964).

In all areas where mobile classrooms have been used, they have been selected because of their economy and their suitability to the needs of the local community. The major obstacles to their use seemed to be local opposition to the use of mobile units due to impermanence; prejudice toward mobile housing; or trade union objections arising from a fear that mobile housing would jeopardize laborers employed in the building trade (Jones, 1968). Since child care presents a problem for working parents and for the community, the writer was interested in investigating the possibility of applying the concept of modular mobile classrooms to child care facilities.

CHAPTER III

PROCEDURES

In the summer of 1970, the writer conducted a survey of executives of manufacturing firms located in North Carolina to assess their interest in industry-sponsored child care centers. Although only four of the one hundred nineteen respondents were already providing child care services for employees, 70 per cent of the respondents replied affirmatively when asked whether or not they would be interested in securing information concerning the advantages of a modular mobile child care facility. As a follow-up study, the writer embarked on a study known as "Project Child Care." The purposes of this study were:

1. to design and arrange for the manufacture of a modular mobile child care center;
2. to exhibit this center, equipped with appropriate educational materials to enhance a learning program for young children; and,
3. to design and administer a questionnaire to ascertain the reaction of the public to the center.

Preliminary Preparations

In order to design a mobile unit that would meet the needs of children in all-day care, comply with the North Carolina Building Code regulations (as they pertain to buildings used as schools for young children), and meet the North

Carolina Department of Social Services licensing requirements for day care centers, the writer conferred with Mr. Kern Church, engineer with the State Department of Insurance, and consulted the Department of Social Services publication, Day Care Center Standards for Child Care. The project was discussed in detail with Mr. Church and the writer was referred to a publication entitled North Carolina State Building Code.

North Carolina Building Code regulations. This book contained specific regulations pertaining to buildings that house young children. Buildings were divided into categories according to use. Child care centers were considered under three categories:

1. schools;
2. institutions; and,
3. buildings for handicapped (North Carolina State Building Code, 1968).

The design under investigation was for a facility to house children three to five years of age. Although the writer did not intend to design a center for handicapped children, the engineer suggested that with only minor changes in design, the center could qualify for this purpose. The changes were 42 inch wide corridors, 32 inch wide bathroom doors operable in a single effort, five feet clear floor space in front of one commode, the addition of grab bars beside at least one commode, and an access ramp having a slope no greater than one foot rise in twelve feet from ground to entry. In addition to technical requirements regarding construction detail, the building code made the following stipulations:

1. that the interior walls be constructed of a material that carried a one hour flame spread rating, that is to say that if the material were ignited, the flame would require one hour to spread across an inch of the material;
2. that the doors leading to the exterior open outward;
3. that fire extinguishers, approved by National Fire Protection Association for First Aid Fire Appliances, be located so that a person would not have to travel more than 100 feet to reach the nearest unit;
4. that an approved fire appliance be installed in the kitchen area; and,
5. that there be an automatic fire detection system (North Carolina State Building Code, 1968).

The engineer also cautioned that the mobile unit would have to be inspected by a third party at the manufacturing plant. The purpose of this inspection was to ascertain compliance with building, electrical, and plumbing codes and to issue a certificate of approval.

North Carolina Department of Social Services regulations. The North Carolina Department of Social Services, which at the time of this study was responsible for licensing child care centers, published a manual containing regulations pertaining to space, programming, and staffing for child care centers.

According to the manual (Day Care Center, 1970), requirements for licensing child care centers were divided into two categories:

1. Level I--a center providing basic care and protection for children;
and,
2. Level II--a center providing care and protection which exceeded
basic levels.

In many instances, the standards were the same for both levels, in others, the standard was either a modification of the Level I requirements or pertained only to Level II centers. The following standards were considered in designing the mobile center:

1. stairs and porches shall be sturdy and safe and shall have railings
where needed for safety;
2. interior walls shall be painted in bright colors;
3. adequate ventilation shall be provided by artificial or natural means;
4. sufficient artificial lighting shall be provided so that objects on the
floor are easily visible;
5. hallways shall be well lighted and free from obstructions;
6. thirty-five square feet of indoor floor space shall be provided for
each child;
7. low, open storage space shall be provided for play materials;
8. storage space out of reach of the children shall be provided for
surplus materials;
9. equipment appropriate to the ages of the children shall be provided;
10. space shall be provided for the children's wraps and possessions;

11. each child shall be provided with his own cot and linens for rest time;
12. the rest cots shall be placed so as to allow for a distance of four feet between children's heads and at least two feet of walking space between cots;
13. the room arrangement shall be such that the kitchen area is not the main access route to the outdoor play area;
14. there shall be a minimum of one commode for every ten children (Level II);
15. there shall be one lavatory for every ten children with at least one lavatory being located in the toilet area (Level II); and,
16. receptacles for soap, paper towels, and waste shall be provided (Modification of Level I).

Health Department regulations. The Guilford County, North Carolina Health Department regulations pertaining to institutions serving food were investigated, and the writer was informed by the sanitarian that each institution was treated individually. The only requirements cited were that the kitchen be equipped with an institutional dishwasher to insure the sterilization of dishes and implements, a double stainless steel sink, and adequate above-the-floor storage space for equipment and supplies.

In addition to meeting the aforementioned requirements, an effort was made to design a facility that was esthetically appealing and one that could be

manufactured for an economically feasible cost.

Professional Assistance

Using the regulations of the North Carolina Building Code, the Department of Social Services and the Health Department as guides, the writer sketched several designs utilizing two mobile units 60 feet long by 12 feet wide. (Figures 1 through 5) These sketches were submitted to a local manufacturer of mobile homes with whom the possibility of arranging to produce a prototype was discussed. Although this manufacturer expressed interest in the possibilities of producing and marketing a modular mobile child care center, he declined to participate in the project because of his inexperience in manufacturing units designed for public use. The manufacturer stated that it would be impractical for his company to manufacture a commercial unit designed for school use since it would necessitate major changes in his manufacturing routine.

The Dean of the School of Home Economics mentioned the idea for such a project to Mr. Wallace J. Conner, president of Conner Homes Corporation. His firm, located at Newport, North Carolina, was engaged in the manufacture and sale of mobile homes. Mr. Conner expressed interest in the project. As a result, the writer corresponded with Mr. Conner and arranged a time to consult with him about the project (Appendix A). The writer, accompanied by the advisor to this project, traveled to Newport to meet with the manufacturer, his engineers, and his plant foreman. They examined the preliminary sketches of the double-wide unit and discussed the possibility of the company's participation in the project. The writer attempted to acquaint the manufacturer with the concept of

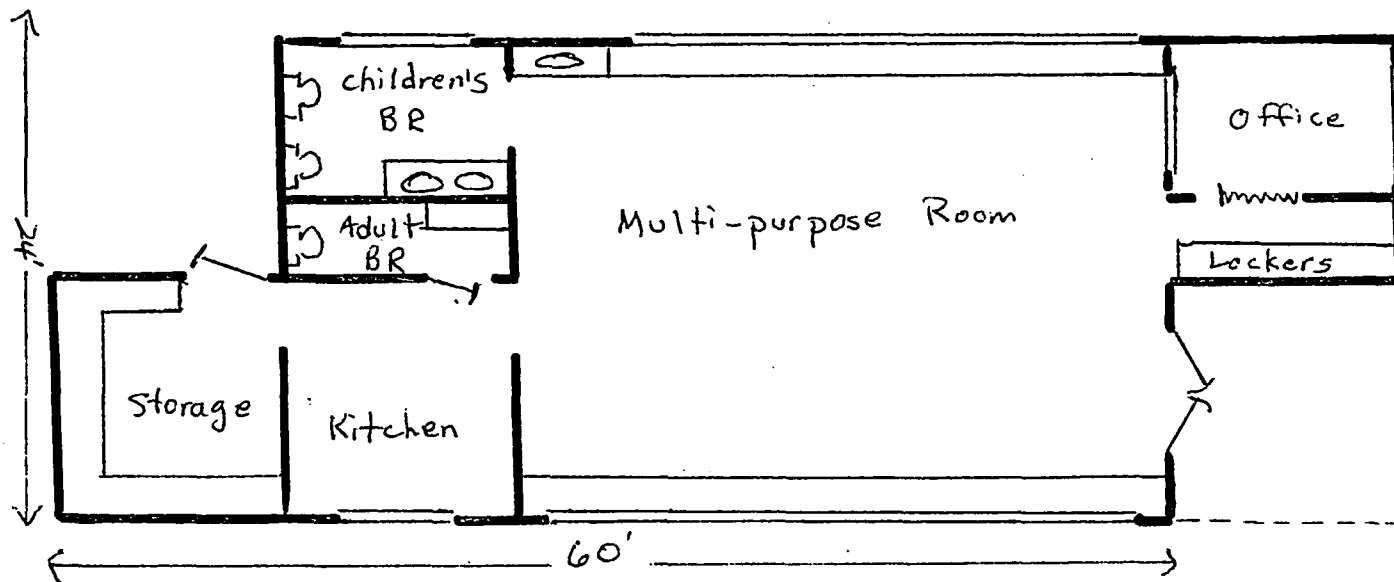


FIGURE 1. Preliminary Plan One

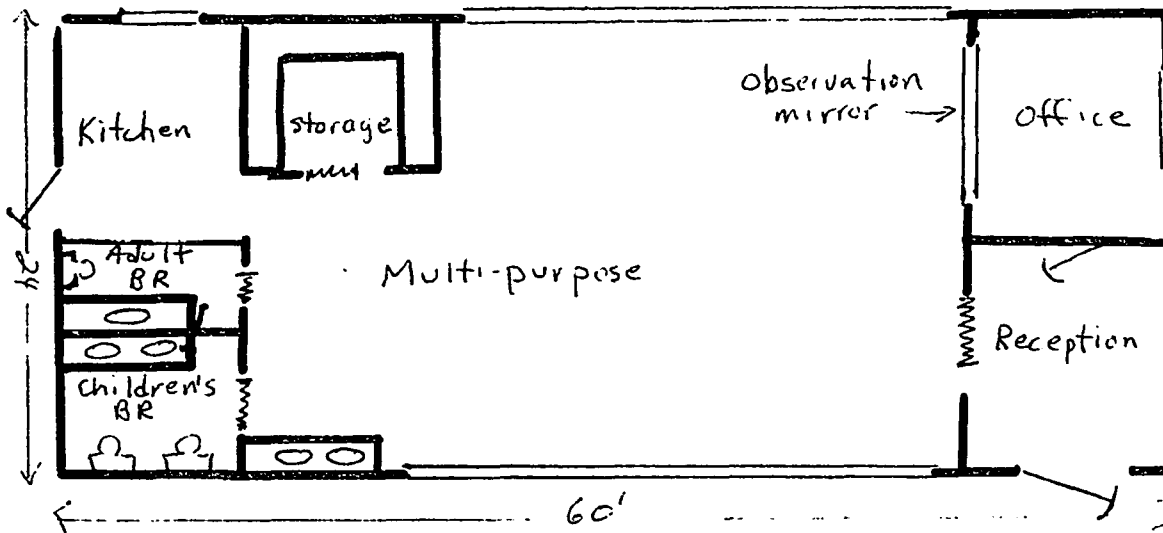


FIGURE 2. Preliminary Plan Two

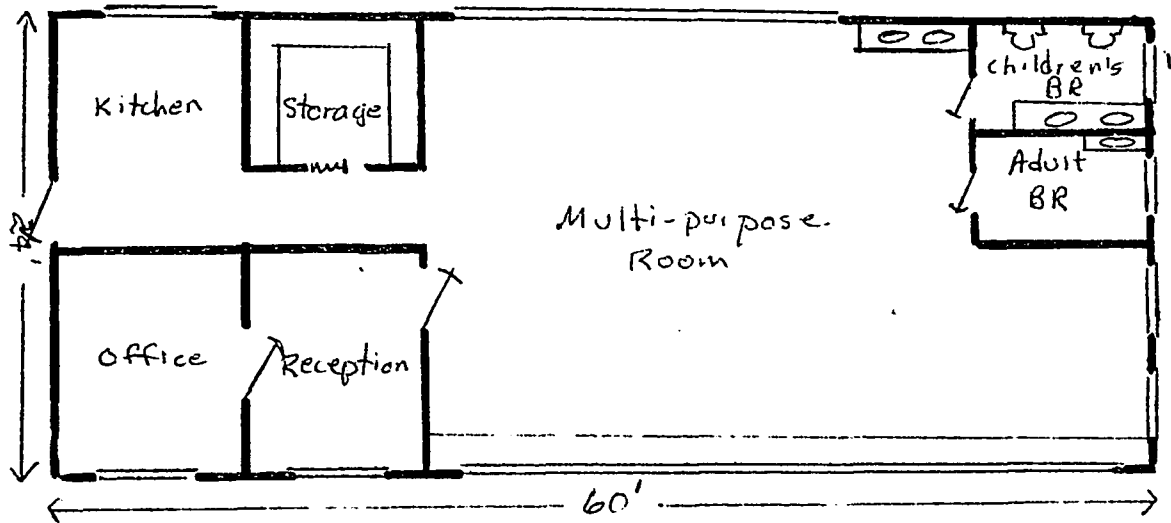


FIGURE 3. Preliminary Plan Three

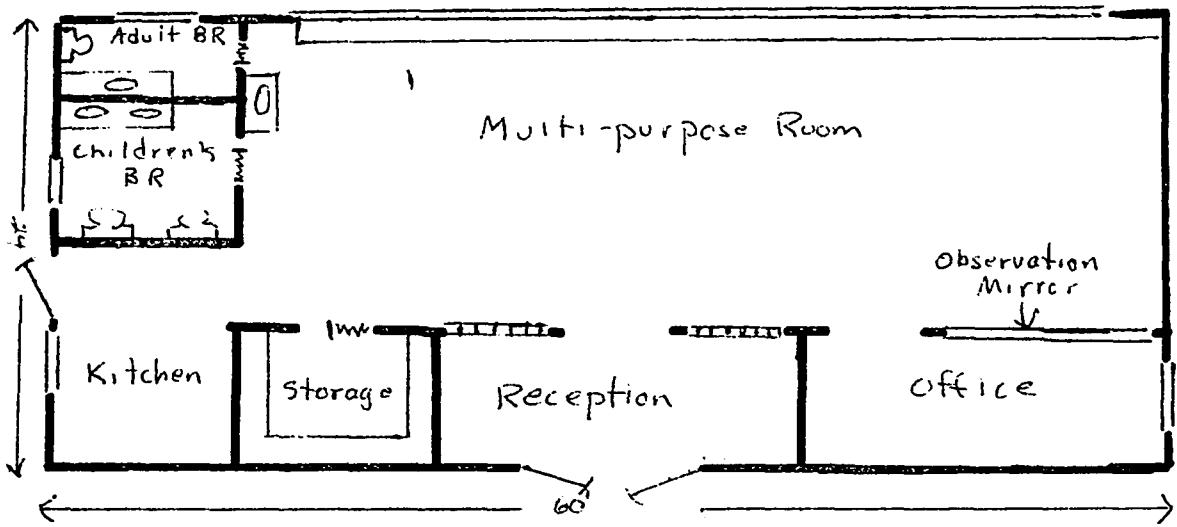


FIGURE 4. Preliminary Plan Four

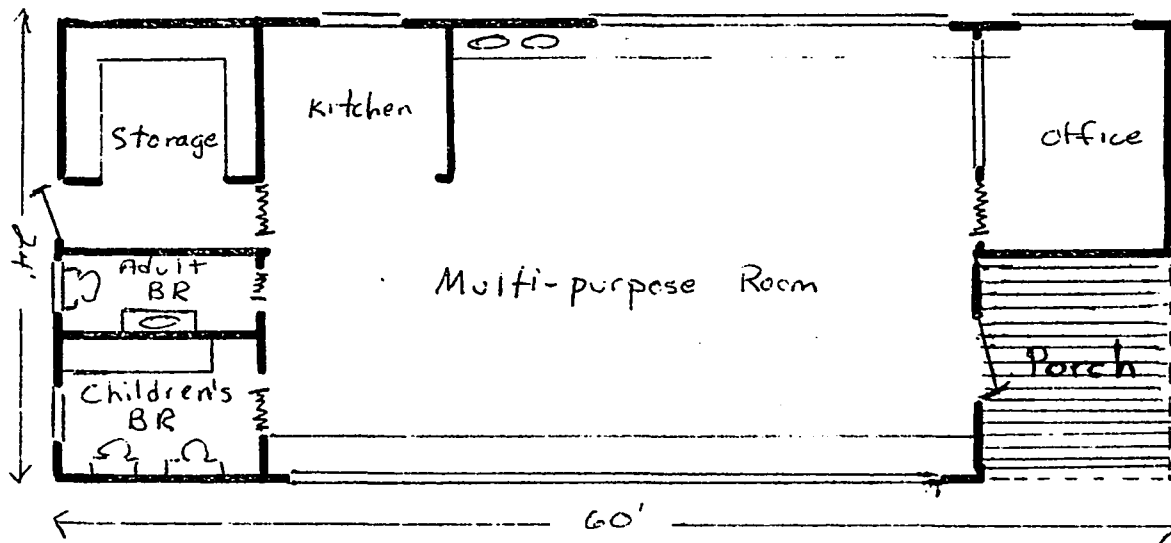


FIGURE 5. Preliminary Plan Five

child care, the ideas for the project, and the regulations with which the completed unit must comply.

The manufacturer explained that to manufacture the unit at a price that would be acceptable to the consumer, the plans would need to be revised so that they would fit into the manufacturing procedures in use in the manufacturing plant. He also discussed the necessity for using, as nearly as possible, materials already available in the plant and the desirability of locating all plumbing in one section of the double-wide unit.

After several weeks, company draftsmen submitted revised floor plans for a double-wide child care center and an architect's rendering of the exterior view of the completed unit. (Figure 6) The plans were examined and modified. After several consultations, a final floor plan was agreed upon. (Figure 7) The final plans were for a single building constructed from two mobile units that were 54 feet long and 12 feet wide. The interior of the unit would contain a multi-purpose room adequate in size to accommodate 20 three, four and five year old children. Cabinets, 18 inches in height, were planned for the two long sides of the room. Windows, designed to extend to the level of the cabinets, would serve the dual purpose of providing light and an outside exposure. (Figure 8)

The entrance to the center would be from a small porch, through a reception area leading directly into the multi-purpose room. Included in the plan was an office equipped with an observation mirror, a storage room with shelving, a fully equipped kitchen. (Figure 9) Also included was a bathroom for

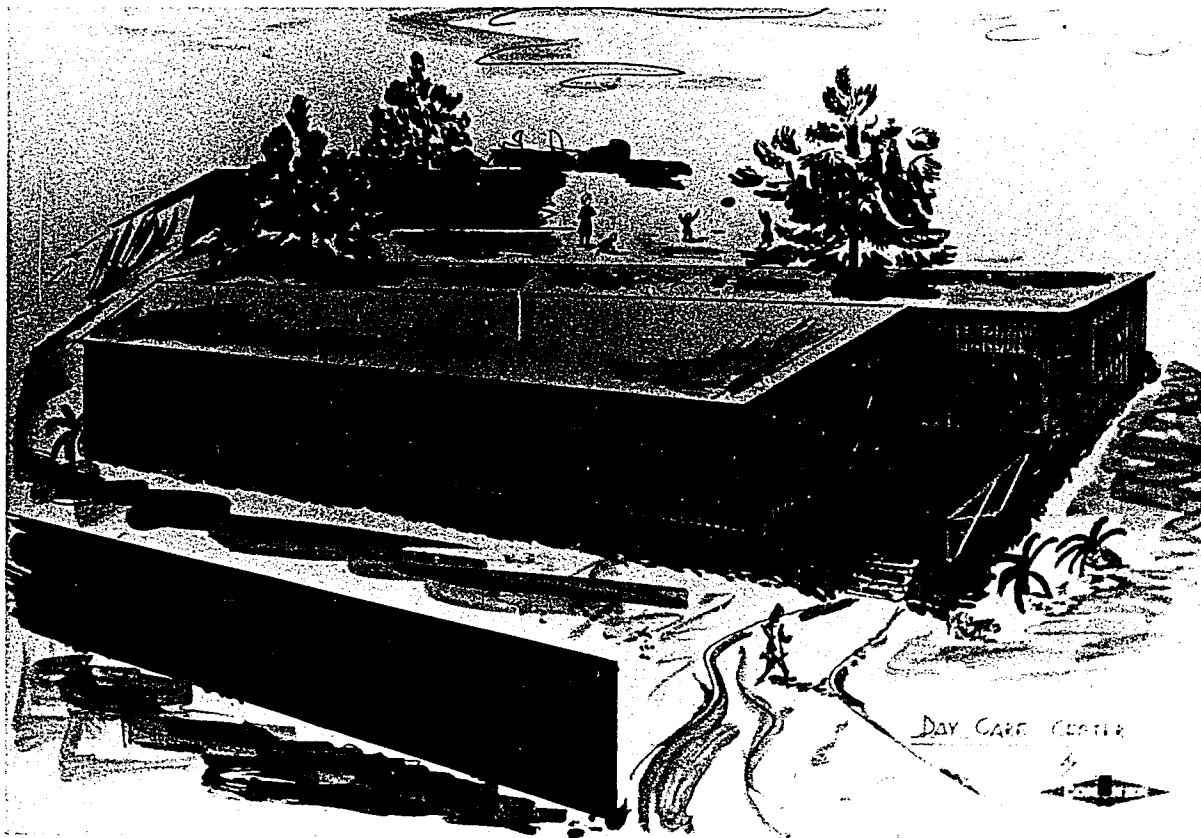


FIGURE 6. Proposed Modular Mobile Child Care Center

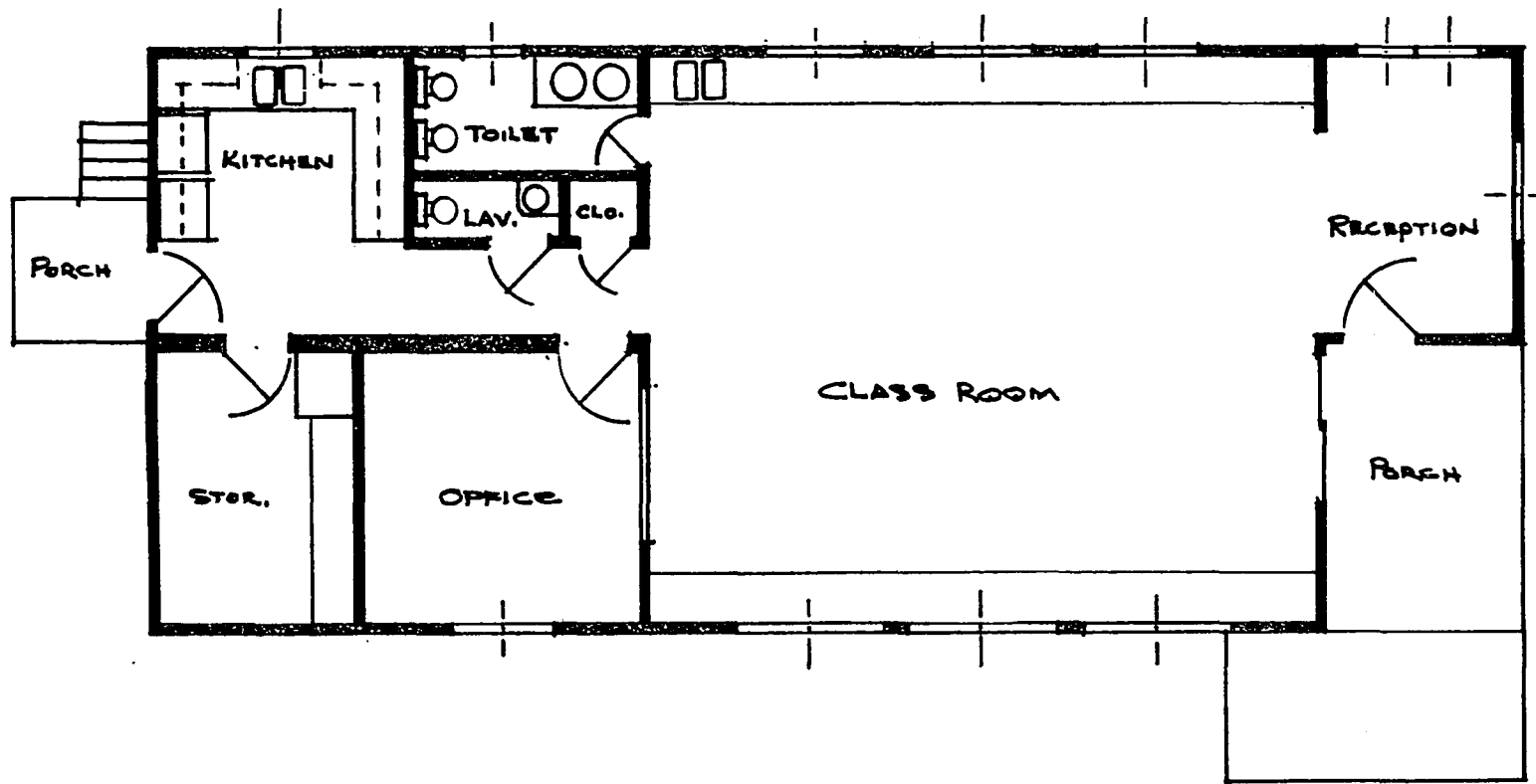


FIGURE 7. Final Floor Plans



FIGURE 8. Multi-Purpose Room

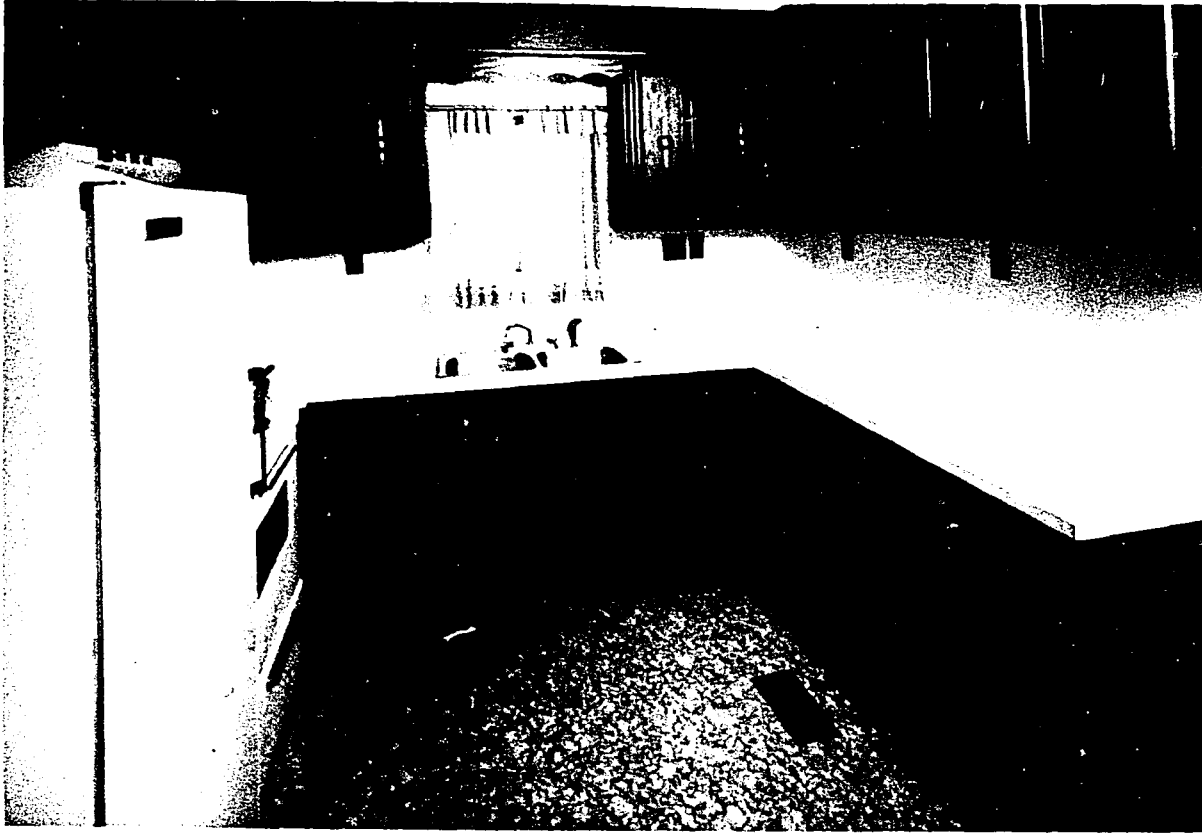


FIGURE 9. Kitchen Showing Dishwasher and Stainless Steel Sinks

adults, and a bathroom for children. The children's bathroom contained two child-sized commodes and lavatories. Handicapped children were considered and the children's bathroom was designed to include bars positioned beside the commodes. The doorway to the children's bathroom would be at least 32 inches wide and the corridors at least 42 inches wide in order to accommodate a wheel chair. (Figures 10 and 11)



FIGURE 10. Children's Bathroom Showing Grab Bars

The entire building would be air conditioned and heated, with air ducts in the multi-purpose room positioned in the base of the cabinets so that warm air would heat the floor.

Agreement on Responsibilities

When agreement was reached on the plans, advisors to this project, the manufacturer and the writer conferred about details of the project, including public exhibition. A written agreement between the School of Home Economics



FIGURE 11. Children's Bathroom Showing Sinks

and Conner Homes Corporation outlined specific responsibilities for the completion of the project (Appendix A).

Manufacturer's Specifications

According to specifications supplied by the manufacturer (Appendix B), the double unit was constructed of two, one story wood frame modules, each measuring 54 x 12 feet, manufactured in a plant that had a third party inspection by Underwriters' Laboratory, Inc. All required electrical wiring, plumbing supply, waste, vent lines, and fixtures were factory installed.

Floor construction. The floor was constructed from standard Douglas fir, hemlock, and No. 2 common yellow pine. In both modules, the floor system consisted of 2' x 6' wood floor joists spaced every 16 inches on center. To meet FHA requirements, 16d spiked nails were used to spike girder members. The plywood over the floor joists was 5/8 inch tongue and groove plywood, underlayment grade. This plywood was installed using 8d common or 6d threaded nails spaced 16 inches on center along all edges and 10 inches on center along intermediate members. (Figure 12)

Exterior wall construction. The exterior walls were constructed from No. 2 common southern yellow pine and kiln-dried C and better Douglas fir. The exterior walls were pre-assembled and fitted into place. Side walls were constructed of 2 x 4 wood studs spaced every 16 inches with a double top plate and single sole plate. Studs were doubled at the door and window openings and tripled at all corners. The headers for window and door openings were 2 x 6 and

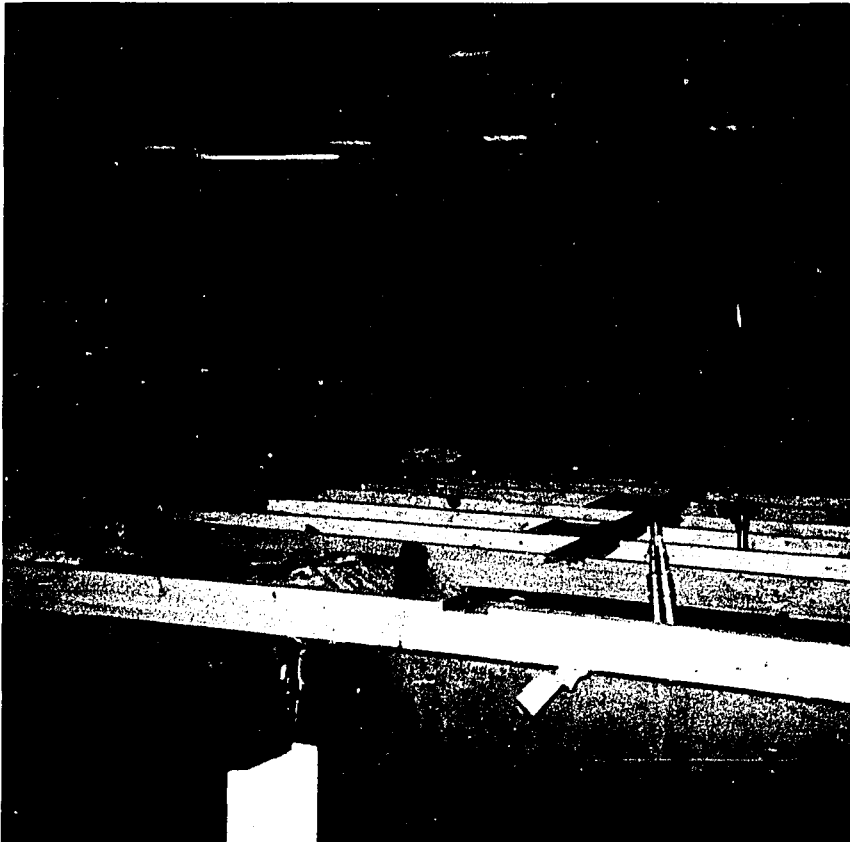


FIGURE 12. Floor Construction

2 x 8 and were supported by one stud on each side of the opening. As required by FHA, blocking was installed between the headers and the top plate.

Door construction. The rear door was constructed of exterior grade 1 3/4 inch hollow core flush panel luan mahogany. The front doors were aluminum sliders and a single hung aluminum framed exterior door. Both were glazed with double strength glass.

Roof construction. The roof was constructed of kiln-dried C and better Douglas fir-stress marked, minimum 1200 PSI. The roof system consisted of 2 x 4 pre-engineered wood trusses that were set at two foot centers.



FIGURE 13. Pre-engineered Roof Trusses

Interior wall construction. The interior walls were finished with 1/2 inch pre-finished sheetrock that had a flame spread rating of one hour.

(Figure 14)



FIGURE 14. Interior Wall Construction

Window construction. The windows were horizontal aluminum sliders glazed with double strength glass. Each window unit had self contained vinyl weather stripping. (Figure 15)

Multi-purpose room roof construction. The roof in the multi-purpose area was supported by six inch steel I-beams that rested on two vertical six inch steel I-beams located one at each end of the room (Appendix B). This support

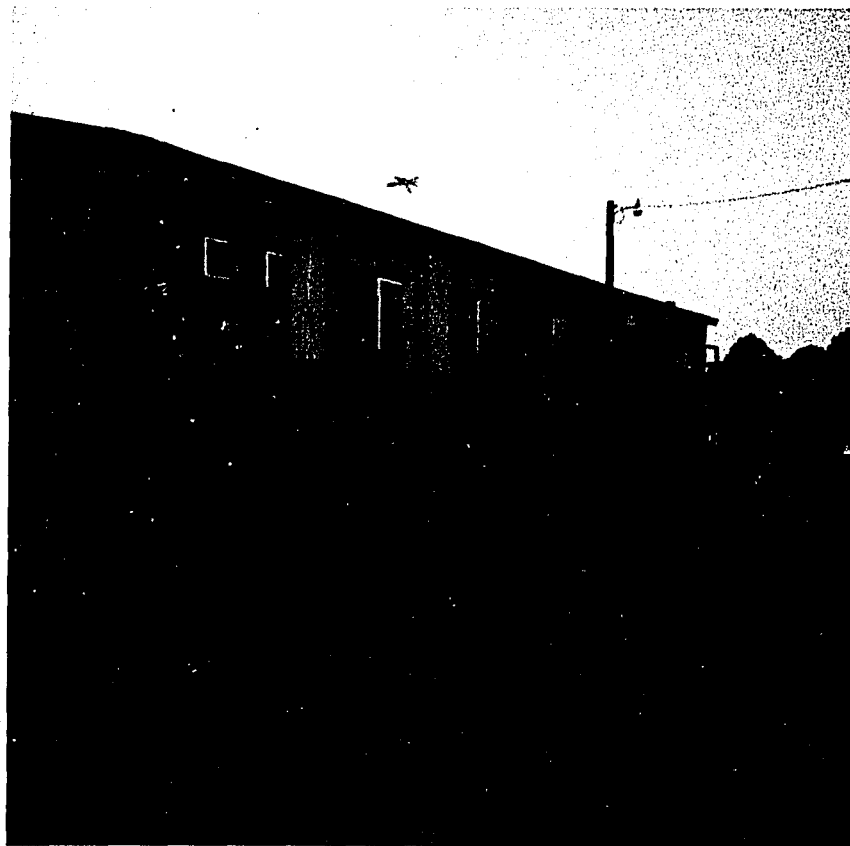


FIGURE 15. Window Construction

eliminated the necessity of using support columns in the center of the multi-purpose room. (Figure 16)

Interior partition construction. The interior partitions were constructed of the same material as the outside walls. The center line load bearing partitions were fastened together at all door openings with 16-gauge metal straps. All non-load bearing partitions were constructed of 2 x 4 wood studs placed 16 inches apart on center. The finished wall materials were 1/2 inch pre-finished sheet-rock with a one hour flame spread rating.

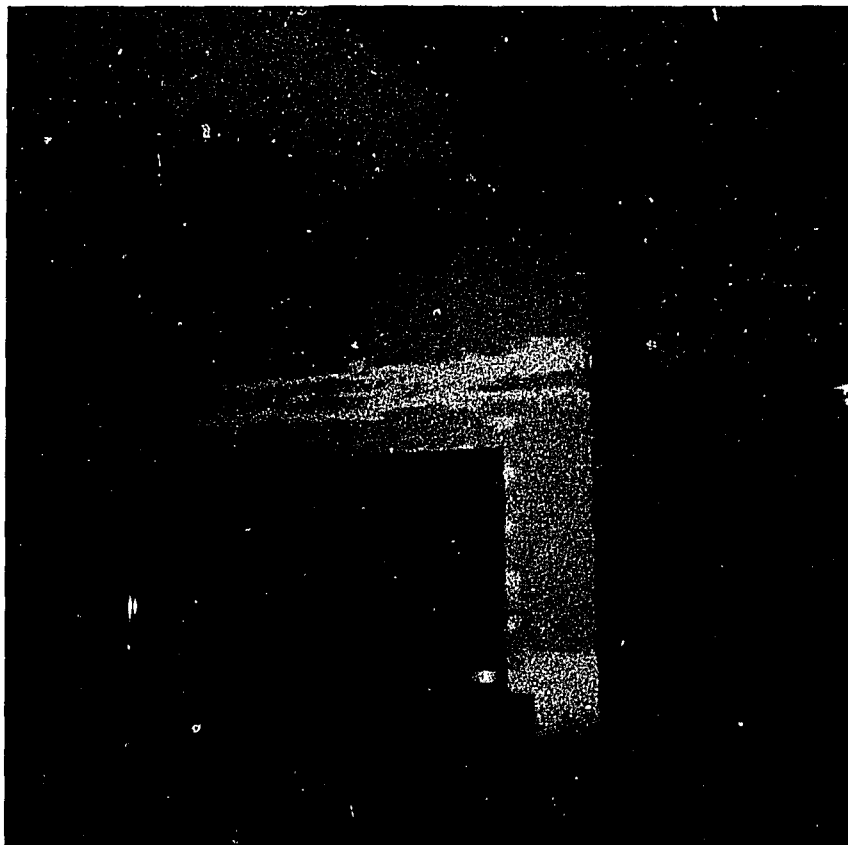


FIGURE 16. Multi-purpose Room Roof Construction

Ceiling and interior door construction. The interior doors were constructed of 1 3/8 inch hollow core flush panel luan mahogany except the storage room door that was a wooden bi-fold louvered door. The ceiling was made of 1/2 inch fiberboard similar to the Armstrong Company's "instalek".

Flooring. The flooring in both modules was constructed of .090 gauge sheet linoleum over plywood underlayment. The linoleum was laid continuous over the entire floor section of each module except for the office area and the

reception area. In these areas, carpet was installed directly on the underlayment. The exterior and interior partitions were installed over the top of the floor covering. The carpet material was a "textile resilient carpet" as approved by FHA.

Insulation. The insulation consisted of 6 inch fiberglass batts in the ceiling, 4 inch fiberglass batts in the outside walls, and 2 inch fiberglass batts in the floor. This insulation was similar to Johns Manville, with an integral vapor barrier. The insulation was installed with the vapor barrier to the warm side. The installation was completed at the factory. (Figure 17)

Roofing. The roof sheathing was 1/2 inch C-D grade sheathing plywood. The trusses and one layer of 15 pound asphalt impregnated felt was installed at the factory. When the unit was located on the exhibition site, the manufacturer installed a second layer of 15 pound asphalt felt and roof shingles. Before attaching the roof shingles, the two modules were secured at the ridge line with 16 gauge galvanized metal straps placed at four foot centers. (Figure 18)

Plumbing. Both units were plumbed in the manufacturing plant in compliance with the North Carolina Code and the FHA MPS. The following fixtures were furnished: one double stainless steel sink, one standard sized water closet--vitreous china, two child-sized water closets--vitreous china, three enameled steel lavatories, one standard sized stainless steel sink. The manufacturer provided a disposal unit and an institutional dishwasher. Also provided was a 40 gallon quick recovery hot water heater. All plumbing connections and lines were

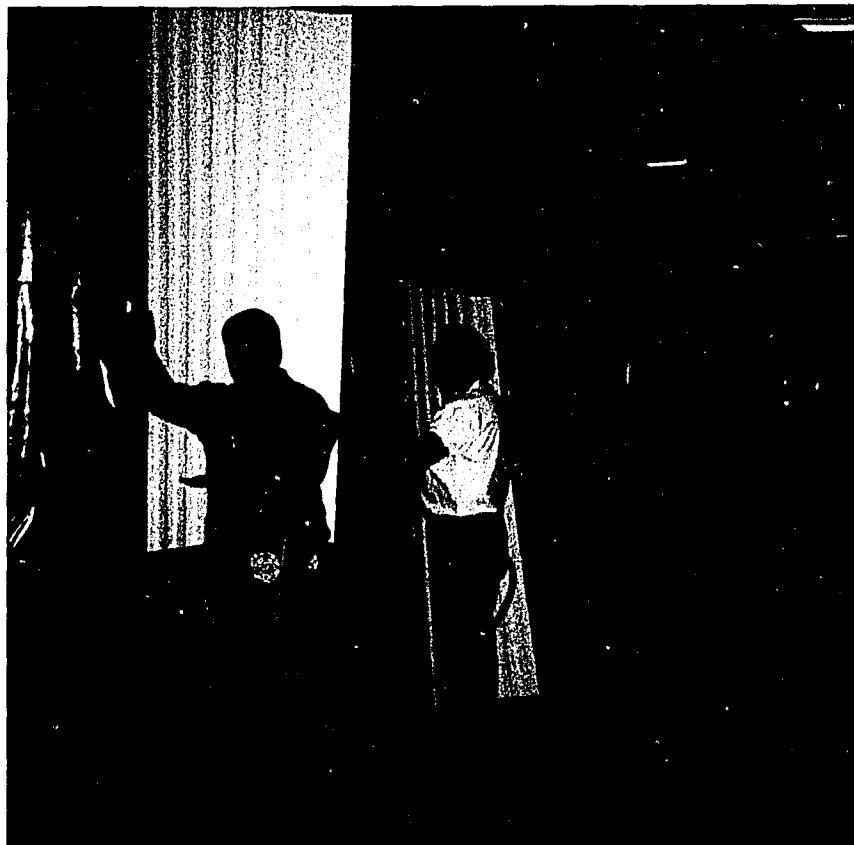


FIGURE 17. Sidewall Insulation



FIGURE 18. Roofing

stubbed out on the bottom of the unit and connection to the public system completed on site to comply with local, state, and RHA regulations.

Heating and air conditioning. The double wide unit was equipped with an electrical heating system to provide for the flow of warm, forced air. The ducts ran under the floor with heat registers in the floor and under the cabinets in the multi-purpose room. The furnace was an Intertherm, Inc., Model Mac 2480 electric furnace with an input of 100,000 BTU's. The unit was also air condi-

conditioned, using the same duct system.

Electrical wiring. The units were wired during construction with the manufacturer being responsible for complying with the North Carolina Electrical Code and the FHA MPS. A 200 amp circuit breaker was installed in the storage room.

Exterior construction. The exterior of the building was constructed of green aluminum siding simulated to have the appearance of wood. The roof was pitched rather than flat. Guttering was attached upon location on a permanent site. (Figure 19)

Builder's warranty. Upon completion, the manufacturer furnished a Builder's Warranty and a letter signed by the appropriate authorities certifying that the unit had been properly inspected and complied with the required building, plumbing, and electrical codes and also met the FHA MPS (Appendix B).

Final Preparations

There remained two final problems to solve, one being a source of financing for the educational equipment and materials to be displayed in the unit and the other finding a suitable site for public display.

Educational materials. The educational materials were to be examples of materials which in the opinion of the writer were appropriate for three, four and five year old children. Children's needs, interests, and developmental levels were used as criteria for selection. Several funding sources were investigated.



FIGURE 19. Exterior Finish-Aluminum Siding

The writer corresponded with the Department of Health, Education and Welfare in Washington concerning the project and subsequently received an invitation to visit a child care specialist with the Office of Child Development. The writer accompanied by the advisor to the project went to Washington where an interesting, but non-productive conference was held. Although interest in the concept of a modular mobile child care center and in the plans to equip and display the center was expressed, the child care specialist indicated that all monies available through the Office of Child Development were already committed to a nation wide survey

concerning licensing practices and, therefore, were not available for the kind of funding requested.

Assistance was solicited from a manufacturing firm which had expressed interest in providing child care services for employees. A proposal which would have given free use of the modular mobile child care center for a period of six months in exchange for \$2,000 for educational materials and supplies, carpeting, and draperies, was presented to an executive of the firm. The proposal was considered by the board of the firm, but rejected due to the instability of the market which made commitment to a new venture economically unsound.

The writer approached two large manufacturers of educational equipment and supplies with the proposal that, in return for the loan of equipment during the exhibition period, public recognition for their participation would be given. Representatives from both companies replied that the request was in opposition to company policy and, therefore, could not be granted.

The owner of a school supply house in Winston-Salem, North Carolina was contacted and asked to consider equipping the center for the period of exhibition in return for advertising privileges. The proposal was accepted and Kaplan School Supply became an active contributor to Project Child Care.

Materials selected were chosen from stock available in the supply house. Care was exercised to choose materials that would provide a balance in large and small muscle activities, vigorous and quiet activities, and that would stimulate creative expression. For purposes of classification, the materials were divided into interest areas such as block-building, housekeeping and

dramatic play, science, art activities, books, manipulative toys and games, music and rhythms, and audio-visual teaching aids. The materials displayed in the unit were not intended to be all inclusive, but rather to be examples of available items (Appendix C).

Selection of site for public display. With the help of a representative of the Southern Furniture Manufacturers Association and the Redevelopment Commission of High Point, North Carolina, the writer obtained a suitable site for the exhibition. A site was selected in a redevelopment area near downtown High Point. Positioning a mobile home on this property for even a short period of time necessitated obtaining a special building permit from the City of High Point (Appendix D). This permit was temporary and was valid only for the period during which the center was open to the public. The difficulties encountered in obtaining a building permit were indicative of the type problems which might have to be overcome if this type building were used.

The completed modules were delivered to the exhibition site on self contained chassis and running gear, 12 x 36 x 60 feet long. Once positioned on the site, the units were joined. (Figures 20 and 21)

Publicity

Project Child Care was an endeavor that was of interest to a variety of people who were concerned with away-from-home care for young children. So that the project might have exposure to as many people as possible, the writer, with the assistance of the public relations manager for Conner Homes, prepared

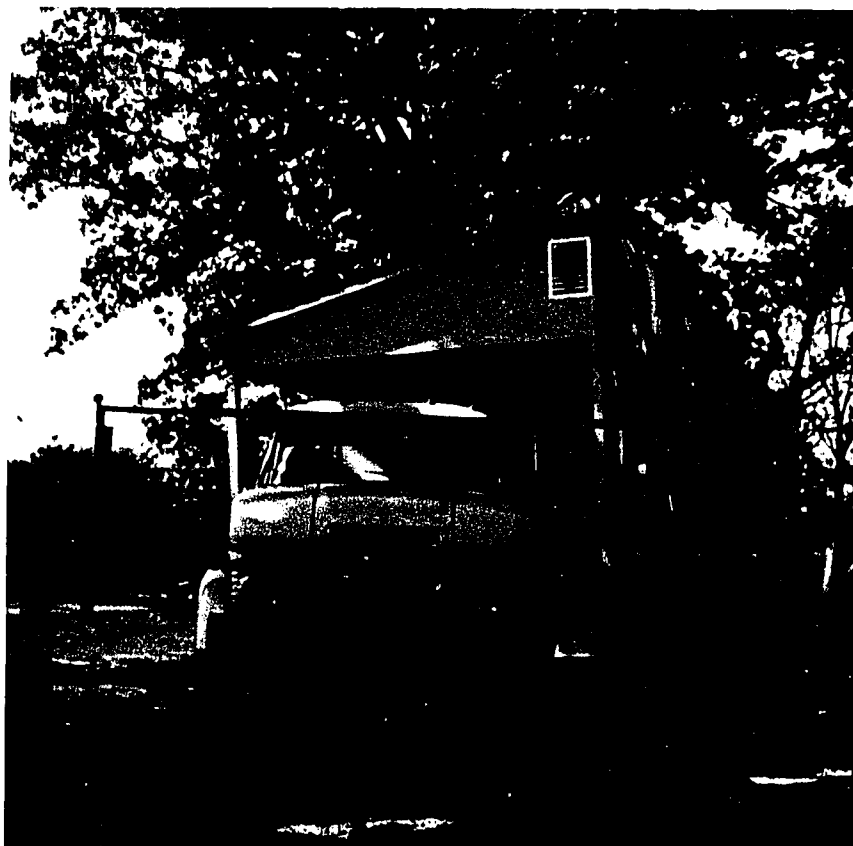


FIGURE 20. Unit Being Positioned

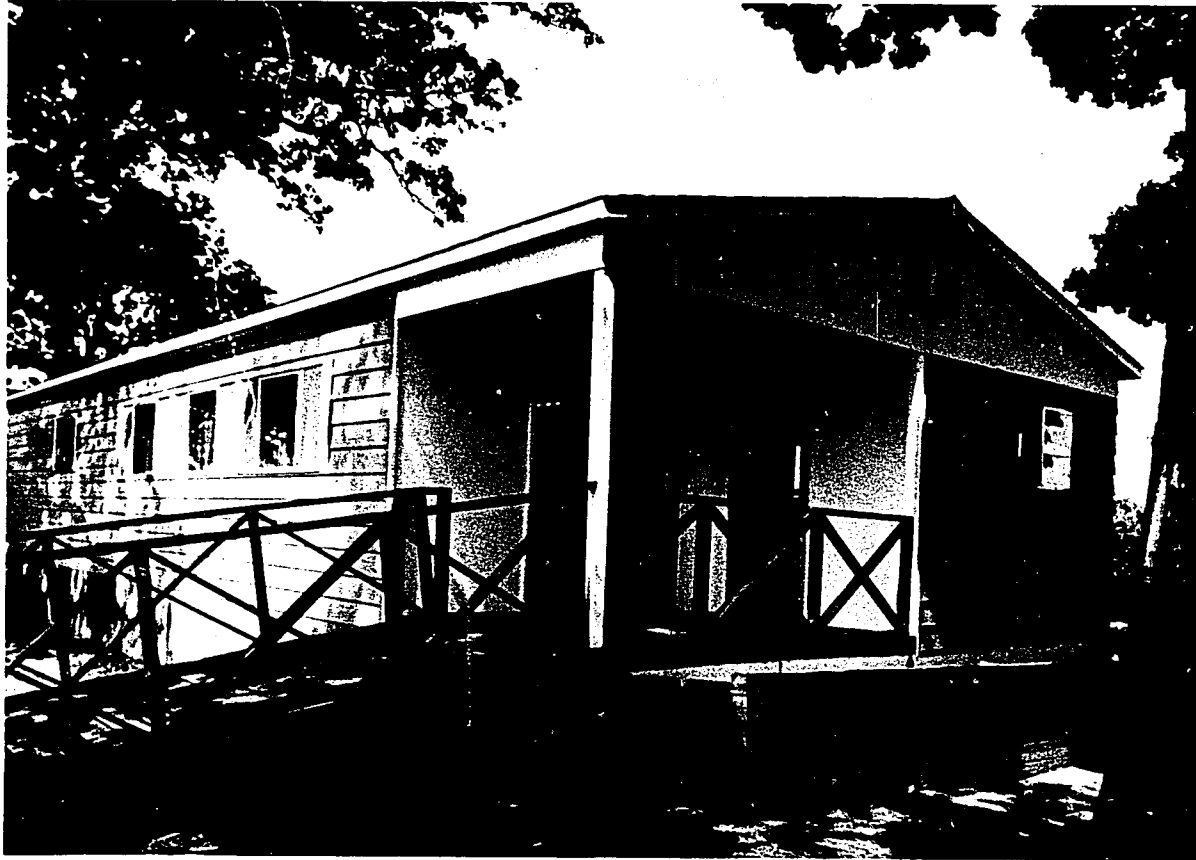


FIGURE 21. Completed Unit

a brochure. The brochure briefly outlined the project and listed the time and location of the public exhibition (Appendix D). The brochure was mailed to representatives of manufacturing firms who had requested information about a modular mobile child care center (Wall, 1971), to school personnel at the local and state level, to the Board of County Commissioners, to the City Councils of High Point and Greensboro, to day care organizations, to the Department of Social Services, and to representatives of higher education. In addition to the brochure, statewide newspaper coverage and local television coverage served to bring Project Child Care to the attention of the public.

During the summer of 1971, Conner Homes made arrangements with Robert Rusting Associates, New York, and the J. Walter Thompson Agency, New York, for commercial advertising of the modular mobile child care unit throughout the North Carolina, Georgia, South Carolina, and Virginia marketing areas (Appendix D).

The cooperation of many people contributed to making Project Child Care a reality. Letters of appreciation were mailed, at the conclusion of the public exhibition, to those people who had helped with the project.

Public Response

One of the objectives of this study was to ascertain the reaction of the public to the concept of using a modular mobile unit for a child care center. In order to accomplish this objective, the writer designed and presented a questionnaire to each of the more than 200 persons who visited the center (Appendix D).

The occupations of the visitors covered a wide range. Two hundred and twelve people toured the center while it was open to the public. Of these visitors, 45, or 21.2 per cent were students. Teachers comprised the next largest group of visitors. There were 34 teachers, or 12 per cent. Of these, 16, or 7.5 per cent were teachers of preschool children. Twenty-one, or 9.9 per cent of the visitors were actively engaged in operating child care centers. Housewives accounted for 15 visitors, or 7.1 per cent. Twelve public health nurses toured the center. This group comprised 5.2 per cent of the total. The remaining 85 visitors, 40.6 per cent of the total, listed a wide variety of occupations, such as social worker, psychologist, physician, hospital administrator, builder, government planner, home economist, Head Start director, or textile worker.

The ages of the respondents were divided into three groups, 18 to 21 years, 31 to 40 years, and over 40. Eighty-one, or 38.2 per cent of the respondents, constituted the first group, 47, or 22.2 per cent, were in the second group, and 79, or 37.3 per cent, were in the last group. Five respondents declined to answer the question. The results indicated that the respondents represented a fairly balanced age spread.

Question two inquired whether or not there was a need for more child care facilities in the respondent's locality. Two hundred respondents replied in the affirmative, five replied in the negative, and seven declined to respond.

Question three inquired, in the opinion of the respondent, what groups might use this type building. The suggested groups listed on the questionnaire all received positive response. In addition, respondents suggested that the unit be

TABLE 1
 Respondents Categorized According
 to Occupation

	Number of Respondents		Number of Respondents
Student	45	Evaluation Assistant	1 each
Operator of Child Care Center	21	Sales	
Teachers (preschool level)	34 (16)	Medical Social Worker	
Housewife	15	Director of Children's Work	
Public Health Nurse	12	Psychologist	
Secretary	6	Physician	
Home Economist	5	Representative Housing Authority	
Social Worker	4	Cost Engineer	
Minister	4	Accountant	
Head Start Director	4	Barber	
Finance Officer	3	Salesman, plywood	
Hospital Administrator	3	Upholstery	
Licensed Practical Nurse	3	Postal Inspector	
Home Service Advisor (utility company)	3	Director, Citizen Involvement	
Government Planner	2	Director, Information on Education	
Staff Member, N. C. Coun- cil on Mental Retardation	2	Clerk	
Personnel Director	2	Outreach Worker	
Toy Manufacturer	2	Librarian	
Bookkeeper	2	Tutorial Services	
Nurse	2	Fuel Dealer	
Community Service Consultant	2	Engineer	
Builder	2	Insurance Salesman	
		Textile Worker	
		Stock Broker	
		Hostess, Merchants Greeter Service	
		Total	212
Retired	3		
No response	4		
Response not legible	2		

used for infant care, scout huts, hospital units, Head Start programs, Montessori schools, handicapped workshops, community recreation centers, and adult education centers.

Question four asked for suggestions for change in the design of the center. One hundred ten, or 51.9 per cent, of the respondents declined to respond to this question. Thirty-three, or 15.6 per cent, of the respondents recommended no change. The remaining 69 respondents recommended diverse changes in design, which included such things as: designing the basic units so that they might be used in clusters, planning for a covered play area anchored to the building, providing either different type lighting or providing covers for the lighting, and providing more bulletin board space.

Question five asked whether or not the respondent thought the building had possibilities for use other than child care. Of the two hundred two respondents, 176 or 83.0 per cent answered affirmatively. Suggested uses included various types of kindergartens, infant care centers, recreational facilities, schools for migrant workers, church school housing, low income housing, and building for small businesses.

Question six inquired whether or not the respondent would consider use of this type educational center if he were planning to operate a child care center. Of the two hundred twelve respondents, two hundred one or 94.8 per cent, replied affirmatively, two replied negatively, and nine either declined to respond or stated that they had no opinion. The respondents answering affirmatively listed mobility, flexibility of design, relative low cost, and attractiveness as reasons for using this type of building. The two respondents replying negatively

gave as their reasons need for a larger building and lack of permanence.

Question seven asked the respondent's opinion as to the appropriateness of the educational materials displayed in this center. The materials displayed were intended only to be examples of what might be used in an operative center and were not intended either to be adequate in number or to imply that all the materials on display would be used simultaneously. Two hundred six, or 97.2 per cent, of the respondents answered this question affirmatively. Two respondents answered negatively, two respondents were undecided, and two respondents had no opinion. Comments which accompanied the affirmative answers pointed out the fact that much of the material could be made less expensively.

Question eight asked whether or not the respondent foresaw any objection to the use of a modular unit as a child care facility in his locality. One hundred sixty-seven, or 78.8 per cent, of the respondents responded negatively to this question. Thirty-two, or 15.1 per cent, responded affirmatively, and 13 or 6.1 per cent, had no opinion. Attractiveness of appearance was cited as a major factor in favor of the building's use. Those respondents who foresaw objections to use of the structure in their communities cited zoning ordinances, building codes, and prejudice toward mobile homes as the major factors involved.

Most of the visitors to Project Child Care seemed to view it as a center which was adequate not only for a child care program, but for a variety of other purposes. Although only a small percentage of the respondents indicated doubt about zoning regulations, these loom as major obstacles to the use of mobile housing for child care centers.

Brent Woodson Carter Child Care Center

In the summer of 1971, the purchase of the prototype Project Child Care was made possible through a gift to The University by the late Mr. W. J. Carter and family in honor of Mrs. Carter, an alumnus of The University.

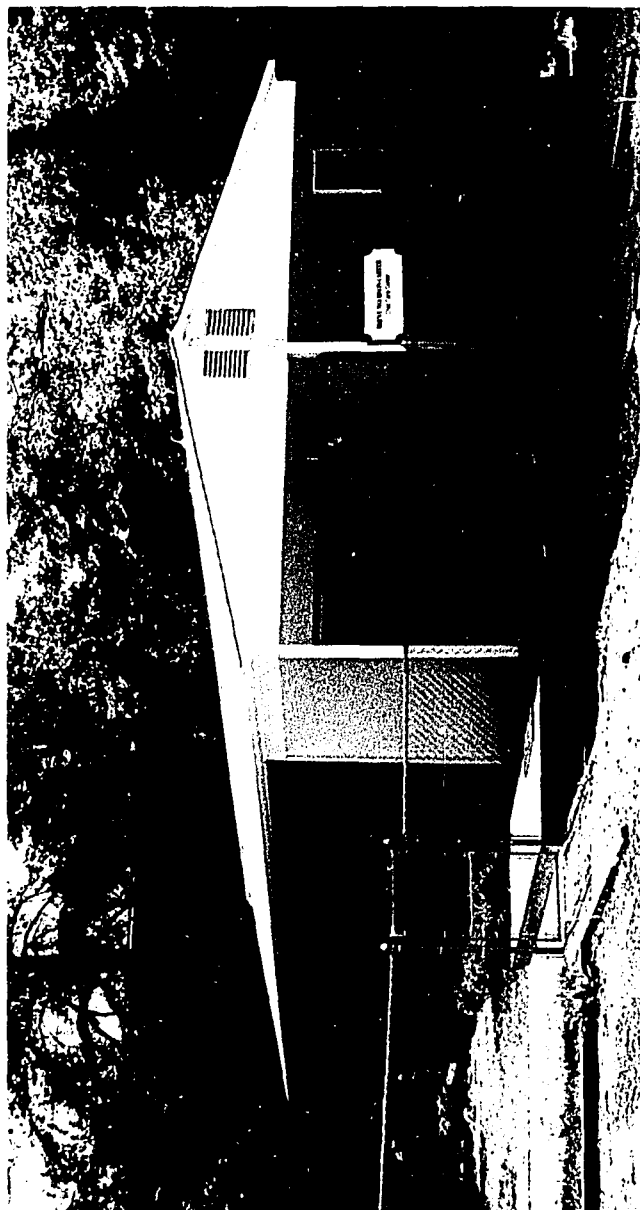


FIGURE 22. The Brent Woodson Carter Child Care Center

Since February, 1972, an all day program for 20 children ranging in age from three to five years has been in progress. The Center, which was licensed for 20 children by the North Carolina Department of Social Services, opened at 7:30 in the morning and remained open until 5:30 in the afternoon five days a week. The Center program was approved by the North Carolina Department of Public Instruction and served as a laboratory for students in Child Development and Early Childhood Education, as a setting for research, as a demonstration center for persons interested in child care, and as an environment providing safe, educationally oriented supplemental care for children of working parents. The Center was dedicated in May, 1972, and named The Brent Woodson Carter Child Care Center.

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

The number of married women in the United States labor market has risen steadily during the past decade. In 1970, married women comprised 40.8 per cent of the labor force. Thirty per cent of these women had children under the age of six years. Providing adequate care for these children was a major societal concern because there was an inadequate number of licensed spaces for the number of children requiring child care.

For many years mobile classrooms have been used by educators to relieve overcrowded school conditions due to rapidly expanding or shifting population. Their use has enabled school administrators to meet the needs of students in an efficient, economical manner. Special services such as reading laboratories, audiovisual resources and remedial programs have been made available on a limited schedule to schools unable to justify full time need for these services. Needs for child care also change with changes in population. The mobile child care center may be able to meet these needs in areas where permanent housing is not readily available.

Project Child Care was a cooperative effort between higher education and industry to make a positive contribution toward the alleviation of this concern. So that more people might be attracted to enter the child care business, the

concept of a modular mobile child care facility was introduced and, with the assistance of a mobile home manufacturer, Wallace J. Conner, and a school supply house, Kaplan's, a prototype for a double wide mobile child care center was designed, constructed, equipped with educational materials, and exhibited to the public. The center was designed to meet local, state and federal guidelines regarding health and safety and at the same time to be economically feasible. The projected cost of a modular mobile center adequate in size to accommodate 20 children, not including educational materials, was \$14,500, or \$11 per square foot. This was more economical than the estimated cost of a conventional classroom which was \$15 to \$25 per square foot. Mobility was a unique feature of the facility. It could be relocated easily as shifting population created changes in needs for child care services. The facility was totally electric and equipped with an air conditioning unit for year round comfort. The interior contained a large multi-purpose room, an office featuring an observation mirror, a storage room, a fully equipped kitchen, and two bathrooms. The exterior was covered with horizontal aluminum siding simulated to resemble wood. The roof was pitched and roofed with asbestos shingles, giving the appearance of a small house rather than of a trailer. Esthetic appeal can be extremely important as a tool for developing positive attitudes toward schooling (Kling, 1959).

In addition to the people who visited the center while it was open to the public, numerous requests for information were received not only from people in the surrounding areas, but also from people outside North Carolina. From Louisiana came an inquiry from two hospital administrators who were

investigating possible building alternatives for a child care center designed to offer services to patients and staff. The 4-C Committee in Baltimore, Maryland, the Day Care Council of Central Pennsylvania, the Community Action Council, Miami, Florida, a day care center in Penns Grove, New Jersey, and a day care center in Newton Grove, North Carolina were among those groups seeking information (Appendix D). Some 27 such inquiries were received. The inquiries were all answered and referred to the manufacturer for details concerning cost and availability.

Recommendations

A year's experience in utilizing the facility for a program has served to indicate that the facility can adequately house 20 young children in an all day program; and that a few changes in design (some of which were suggested by visitors during the exhibition period) are advisable. In subsequent models, these modifications are recommended:

1. that acoustical tile be installed on the ceiling;
2. that the sliding glass doors be eliminated thus providing more wall space;
3. that the cabinets in the multi-purpose room be constructed on one long side only and that they be 24 inches in height;
4. that the sink in the multi-purpose room be lowered to 2 feet;
5. that the fluorescent tubes used to light the multi-purpose room be covered with a protective sheath; and,

6. that a child-sized water fountain be installed in conjunction with the sink in the multi-purpose room.

In addition, these suggestions are recommended as optional means of lowering the construction costs without jeopardizing compliance with the Building Code specifications:

1. eliminate the steel beam supporting the multi-purpose room ceiling and substitute center post supports;
2. eliminate the pitched roof and asbestos shingles and use, instead, a flat roof covered with aluminum sheeting;
3. eliminate the guttering; and,
4. utilize window air conditioning units rather than central air conditioning.

Although the space is limited, there is adequate room in which to conduct a quality program for 20 children. A facility which meets local, state and federal requirements can be constructed economically.

The concept of modular mobile units for child care has many possibilities for use. The two most significant obstacles to be overcome are public prejudice toward mobile housing, and local zoning and building codes. One possible way to overcome the prejudice toward mobile housing might be to have the facility constructed by a modular builder instead of a mobile home manufacturer. The feature of mobility would be retained, but perhaps without the negative concept of "house trailer."

This study, a cooperative effort between higher education and industry, attempted to present a feasible alternative to conventional housing for child care centers. The prototype, The Carter Child Care Center, housing 20 three, four, and five year old children, approved by the Division of Early Childhood Education of the North Carolina Department of Public Instruction and licensed by the North Carolina Department of Social Services has experienced one year of successful operation on the campus of The University of North Carolina at Greensboro.

BIBLIOGRAPHY

- All about classrooms made to travel. American Schools and Universities, 1967, 39 (10), 32-33.
- Architects design new schools for new towns. Nation's Schools, 1967, 80 (3), 66-69.
- Boles, H. Classrooms in clusters. Nation's Schools, 1959, 64 (2), 65-67.
- Burns, G. Wide load education for ghetto schools. Audiovisual Instruction, 1969, 14 (10), 54-55.
- Can portable classrooms help your school district? American School Board Journal, 1961, 142 (1), 34-35.
- Carioti, F. How school districts are using classrooms that move. Nation's Schools, 1964, 73 (5), 14.
- Carter, C. AV on the move: filmobile. Educational Screen and Audiovisual Guide, 1968, 47 (12), 14 .
- Closing the facilities gap with relocatable buildings. American School and University, 1967, 39 (10), 27-30.
- Committee on Philosophy and Objectives of Home Economics. New directions. Washington: American Home Economics Association, 1959.
- D'Amico, V. Children's art caravan: creative education on wheels. Arts and Activities, 1970, 68 (2), 13-17.
- Dystra, J. W. Travel trailer serves the educator. Peabody Journal of Education, 1964, 42 (1), 55-58.
- Education takes the wheel for progress. American School and University, 1968, 40 (10), 29.
- Filep, R. T. and Gillette, P. Teaching technology applied in the main stream: the supermarket discovery center. Educational Technology, 1969, 9 (10), 30-34.

- Gates, K. M. Readmobile takes to the road. Journal of Reading, 1970, 14 (2), 89-93.
- Haase, R. W. Child care training center, Reston, Virginia. Contemporary Education, 1969, 49 (3), 159-165.
- Howes, C. B. Chicago's mobile classrooms. American School Board Journal, 1962, 144 (6), 35-36.
- Hurlock, E. B. Child development. New York: MacMillan, 1971.
- Innovation in guidance: a mobile counseling center. Personnel and Guidance Journal, 1967, 45, 818-820.
- Instant schools, ready when you are. American School and University, 1971, 43, 25-26.
- Jones, E. Five districts show what problems relocatables solve and create--prebuilt modules. Nation's Schools, 1968, 82 (6), 35.
- Kelley, G. Educational technology in southeast Alaska. Audiovisual Instruction, 1967, 12, 1094-1097.
- Kling, V. G. Beauty in schools. School Executive, 1959, 78 (12), 21-23.
- Lewis, P. Mobile units help special services to get around. Nation's Schools, 1967, 79 (4), 123-216.
- Lipson, R. Mobile preschool. Young Children, 1969, 24 (3), 154-156.
- Little, T. C. Mobile classroom units. American School Board Journal, 1960, 140 (1), 19-20.
- Logan, M. The untapped potential of day care. AFL-CIO Federationist, 1969, 76, 810.
- Lumley, K. W. Mobile reading units and a traveling bookstore in Washington, D. C. Reading Teacher, 1967, 20, 319-323.
- McClain, J. V. Permanent portables in El Rancho. American School Board Journal, 1964, 149 (4), 75-76.
- Michigan school expands easily with portable classrooms. American School and University, 1966, 38 (6), 74.

- Mobile classrooms: Chicago's answer to overcrowded facilities. Audiovisual Instruction, 1962, 7, 566.
- Mobile educational media laboratory. Audiovisual Instruction. 1968, 13, 80.
- Mobile trade program serves rural Thailand population. American Vocational Journal, 1872, 47 (2), 102.
- More cities choose portables. American School and University, 1963, 36 (2), 23-26.
- Morrow, R. D. Portable classrooms for Tuscon. American School Board Journal, 1962, 145 (4), 31-32.
- Moveable schools. Overview, 1962, 3 (2), 36-39.
- New ideas spur new uses for relocatable facilities. American School and University, 1966, 39 (3), 25-26.
- North Carolina Department of Insurance. North Carolina State building code, Raleigh, North Carolina: State of North Carolina, 1968.
- North Carolina Department of Social Services. Day care standards for child care. Raleigh, North Carolina: State of North Carolina, 1970.
- Off to a head start with relocatable classrooms. American School and University, 1966, 39 (3), 34-36.
- O'Grince, S. H. Baltimore expands its portables. American School and University, 1970, 42 (9), 24-25.
- O'Grince, S. H. Baltimore's own multi-room relocatables feature long term use. American School and University, 1967, 40 (4), 32-33.
- Palmer, D. Teachers ride the range. American Education, 1968, 4 (8), 22-24.
- Pearson, G. Schoolrooms on the go. American Education, 1969, 5 (3), 27-28.
- Peters, R. O. Mobile classrooms concept: operation EPIC. Audiovisual Instruction, 1970, 15 (4), 98.
- Pfeil, M. P. Off the shelf and into the classroom: mobile educational technology unit. American Education, 1970, 6 (7), 13-16.
- Potter, T. C. Mobile learning laboratory: educational research and development on the move. Audiovisual Instruction, 1968, 13 (2), 152-153.

- Pupils in 3 towns benefit: education on the move. American School Board Journal, 1966, 153 (6), 34.
- Relocatable classrooms for Rocky Point, L. I. American School and University, 1965, 38 (2), 79.
- Relocatables meet new challenges. American School and University, 1970, 42 (9), 27-29.
- Schoolmen rediscover relocatable classrooms. Nation's Schools, 1968, 82 (6), 32-34.
- Schoolmen warm up to relocatable classrooms. Nation's Schools, 1968, 82 (5), 70.
- Schools for the 70's: the module of one. Nation's Schools, 1970, 85 (3), 57-82.
- Schwaar, W. L. Putting industrial art on wheels. Industrial Arts and Vocational Education, 1967, 56 (3), 43-46.
- Siegel, H. and Krane, H. Curbside shops for NYC. Industrial Arts and Vocational Education, 1971, 60 (3), 37-38.
- Singleton, C. M. Moveable teaching environments in Appalachia. American School and University, 1967, 39 (10), 32-33.
- Tanzman, J. How to get rolling with your media center. School Management, 1969, 13 (3), 90.
- United States Bureau of the Census. Statistical abstract of the United States: 1972 (93rd edition). Washington: United States Government Printing Office, 1972.
- United States Department of Health, Education and Welfare. Federal interagency day care requirements. Washington: United States Government Printing Office, 1968.
- United States Department of Labor. Handbook of labor statistics. Washington: United States Government Printing Office, 1971.
- Wall, J. G. An assessment of the interest of manufacturing executives in providing child care services. Unpublished master's thesis, The University of North Carolina at Greensboro, 1971.
- Wheels: how they push the progress of education. American School and University, 1969, 41 (10), 25-26.

Wolf, I. Home management residence facilities at Texas technical school utilize mobile homes. Journal of Home Economics, 1968, 60, 360-362.

APPENDIX A

Correspondence Initiating Project Child Care



THE UNIVERSITY OF NORTH CAROLINA
AT GREENSBORO

June 10, 1970

School of Home Economics

Mr. Walter J. Conner, President
Conner Homes Corporation
P. O. Box 520
Newport, North Carolina 28570

Dear Mr. Conner:

As a further cooperative venture between industry and education, we are investigating the feasibility of designing, equipping, and demonstrating a modular mobile child care center. We envision this unit as a practical way to help solve the acute shortage of space for the adequate care of children whose parents are away from home during the day. Dean Albanese indicated that she had mentioned this project to you. At her suggestion, I am sending you a copy of tentative plans for the exterior of the unit. If you would give some thought to these as well as to the feasibility of the project, it would be very helpful. Should you consider this project to be one in which your company and the School of Home Economics could work cooperatively, I would be pleased to come to Newport and discuss the project in more detail. I will call you on Wednesday morning, June 17, to make further arrangements.

Thank you for your cooperation and interest.

Sincerely,

(Mrs.) Jean G. Wall



THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

January 22, 1971

School of Home Economics

To: Wallace J. Conner
Conner Homes Corporation

From: Naomi G. Albanese, Dean
School of Home Economics
The University of North Carolina at Greensboro

Re: Modular Mobile Child Care Center

A memorandum of agreement between the School of Home Economics, University of North Carolina at Greensboro and Conner Homes Corporation defining objectives and responsibilities regarding a modular mobile child care center project.

Objectives

The objectives of the project are to design, manufacture, equip, and exhibit a modular mobile child care center. The goals are to produce for a reasonable amount of money an attractive, structurally sound, functional facility for housing children who need all-day care away from home and to exhibit the facility in such a way as to give the project maximum exposure to persons concerned with day care for young children--industrial leaders, educators, day care operators.

Responsibilities--Conner Homes Corporation

1. Manufacture the unit (if possible roof will be shingled, gutters and overhang will also be added).
2. Transport and set up the unit on the site and connect the unit to existing services (water, electricity, sewer).
3. Provide underpinning.
4. Provide porch and outdoor carpeting.

5. Carry insurance coverage on the unit and any equipment belonging to Conner Homes plus liability insurance coverage for Conner personnel and visitors to the unit.
6. Provide for the office an executive desk and chair, two side chairs, a bookshelf, a coat rack and carpeting.
7. Provide for the playroom one 3 x 6 rectangular table and three chairs (to be selected by a representative from the School of Home Economics).
8. Carpet reception area.
9. Professional assistance on brochure to be distributed during public showing. The cost of the brochure will be shared by both parties.

Responsibilities--School of Home Economics

1. Site.
2. Landscaping.
3. Liability insurance coverage for UNC-G personnel and for visitors to the unit.
4. Educational materials.
5. Planning and scheduling public showings.
6. Staffing for the unit during showings.
7. Prepare with Mr. Yates Nagel of Conner Homes Corporation a brochure to be distributed during public showings. (The cost of the brochure will be shared by both parties.)
8. Contact High Point Model Cities Commission and secure a firm commitment on the length of time the proposed site will be available for this project.

APPENDIX B

**Construction Details Pertaining to
Manufacture of the Prototype**

FHA Form 2005
VA Form 26-1052
Rev. 3/78

FOR REBATE REGISTER OR CUSTOM SUPPLIER, THESE
may be separated along above fold. Single
completed sheets together in original order.

Form suggested
Budget Bureau No. 63-10055

Proposed Construction **DESCRIPTION OF MATERIALS** No. _____ (To be issued by FHA or VA)

Under Construction

Property address _____ City _____ State _____

Mortgagor or Sponsor CONNEL HOMES CORPORATION P. O. Drawer 10, Newport, N.C.
(Name) (Address)

Contractor or Builder Manufacture - CONNER HOMES CORPORATION P. O. Drawer 10, Newport, N.C.
(Name) (Address)

INSTRUCTIONS

- For additional information on how this form is to be submitted, number of copies, etc., see the instructions applicable to the FHA Application for Mortgage Insurance or VA Request for Determination of Reasonable Value, as the case may be.
- Describe all materials and equipment to be used, whether or not shown on the drawings, by marking an X in each appropriate check box and entering the information called for in each space. If space is inadequate, enter "See list," and describe under item 27 or on an attached sheet.
- Work not specifically described or shown will not be considered unless required, then the minimum acceptable will be assumed. Work exceeding minimum requirements cannot be considered unless specifically described.
- Include no alternates, "or equal" phrases, or contradictory items. (Consideration of a request for acceptance of substitute materials or equipment is not thereby precluded.)
- Include signatures required at the end of this form.
- The construction shall be completed in compliance with the related drawings and specifications, as amended during processing. The specifications include this Description of Materials and the applicable Minimum Construction Requirements.

1. EXCAVATION:
Bearing soil, type _____

2. FOUNDATIONS:
Footings: concrete mix M or S Mortar; strength psi 3000 Reinforcing MPS 704-6.2
Foundation wall: material Concrete Block (Solid) M or S Mortar Reinforcing MPS 704-6.2
Interior foundation wall: material Concrete Block (Solid) Party foundation wall _____
Columns: material and size 8"x8"x16" Solid Concrete Posts: material and reinforcing 8x16 Solid Concrete Blocks
Girders: material and size Std. & Better 2x6 Doug. Fir Sills: material M or S Mortar
Basement entrance airway None Window airways _____
Waterproofing None Footing drains _____
Termite protection 26 Gage Galv. Metal As Indicated On Drawings
Basementless space: ground cover 6 Mil. Polyethylene insulation _____; foundation vent 8x16 Alum. Screen
Special foundations _____
Additional information: Floor Joist Spaced 16 Inches On Center Over Two Jr. I-Beams 12"
ONE SPACED 6-INCHES SPACED 12 FT 20.7

3. CHIMNEYS:
Material Gal. Steel No. 24 Prefabricated (make and size) Coleman or International 5" DIA. ALUM.
Flue lining: material Galv. Steel No. 24 Heater flue size 4" Fireplace flue size 4"
Vents (material and size): gas or oil heater _____; water heater 66 Gals. Elect. (Glass Lined)
Additional information: 40 Gallon (Gas)

4. FIREPLACES:
Type: solid fuel, gas-burning, circulator (make and size) _____ Ash dump and clean out _____
Fireplace: facing _____; lintel _____; hearth _____; mantle _____
Additional information: _____

5. EXTERIOR WALLS:
Wood frame, wood grade, and species 2x4 Std. Douglas Fir Corner bracing. Building paper or felt 15 lb. felt
Siding Aluminum or Plywood; thickness 3/8" or 1/2"; solid; spaced _____" o. c.; diagonal _____
* Siding 019 Lap Alum. Siding; type Alum.; size 8"; exposure _____; fastening _____
Shingles 235 L.P.; grade _____; type Comp.; size 3" 12"; exposure 8"; fastening 5/16" x 1 1/4"
Sills _____; thickness _____; Lath _____; weight _____ lb.
Masonry veneer Pine Brick Sills Alum. Lintels Steel Base flashing 30 lb. felt or
Masonry: solid faced stuccoed; total wall thickness _____"; facing thickness _____"; facing material 6 mil. poly.
Backup material _____; thickness _____; bonding _____
Door sills Alum. Threshold Window sills Alum. Lintels 2x6 Double Base flashing _____
Interior surface: damp-proofing _____ coats of _____; furring _____
Additional information: Acrylic Paint Baked on Alum. Siding; number of coats 2
Gable wall construction: same as main walls; other construction _____

6. FLOOR FRAMING:
Joists: wood, grade, and species 2x6 Doug. Fir 16"; other Hemlock; bridging 1x4; anchors 16 D Nut's
Concrete slab: basement floor; first floor; ground supported; self-supporting; mix _____; thickness 8"
reinforcing _____; insulation _____; membrane _____
Fill under slab: material Earth/Gravel; thickness _____". Additional information: Mortar mix type II or S

7. SUBFLOORING: (Describe underflooring for special floors under item 21.)
Material, grade and species 3/4" Tongue and Grooved (Underlayment); size 4'x8'; type Underlayment
Laid: first floor; second floor; attic _____; sq. ft. diagonal; right angles. Additional information: NOILING
of Sub Floor Will Comply with MIA MPS.

8. FINISH FLOORING: (Wood only. Describe other finish flooring under item 21.)

Location	Species	Grade	Thickness	Finish	Notes
First floor					
Second floor					
Attic floor					

Additional information: All Finish Flooring Material Shall be 100% Lint-free and Equal.

FHA Form 2005
VA Form 26-1052 Alum. Siding To be Applied Over Sheathing or Density Board. **DESCRIPTION OF MATERIALS**

DESCRIPTION OF MATERIALS

9. PARTITION FRAMING: Kiln dried C and B
 Studs: wood, grade, and species Douglas Fir size and spacing 2x4 Spaced 16" O.C. Other _____
 Additional information: 2x6 Studs at Bath Plumbing Wall

10. CEILING FRAMING:
 Joists: wood, grade, and species Trusses Other Qang Nail Bridging Web Reinforcement
 Additional information: _____

11. ROOF FRAMING:
 Rafters: wood, grade, and species 2x4 Trusses #2 Roof trusses (see detail): grade and species Trusses
 Additional information: Constructed of No. 2 S.Y.P. or Kiln Dried C and B Douglas Fir

12. ROOFING:
 Sheathing: wood, grade, and species 3/4" C-D Sheathing Grade Plywood ; solid, spaced _____ " oc.
 Roofing Asphalt Com/ Shingles: grade C 235 LB. ; size 12x16 ; type Seal Tab
 Underlay: Two Layers 15 LB Asphalt Felt ; weight or thickness 15 lb ; size _____ ; fastening Galv. Nail
 Built-up roofing _____ ; number of plies _____ ; surfacing material _____
 Flashing material _____ ; gage or weight _____ ; gravel stops; snow guards
 Additional information: Vent. Flashing - 26 Gage Galv. Metal

13. GUTTERS AND DOWNSPOUTS:
 Gutters: material _____ ; gage or weight _____ ; size _____ ; shape _____
 Downspouts: material _____ ; gage or weight _____ ; size _____ ; shape _____ ; number _____
 Downspouts connected to: Storm sewer; sanitary sewer; dry-well. Splash blocks: material and size _____
 Additional information: 26 Ga. Galv. Metal Rain Diverters Over Entrance

14. LATH AND PLASTER
 Lath walls, ceilings: material _____ ; weight or thickness _____ Plaster: coats _____ ; finish _____
 Dry-wall walls, ceilings: material 1/2" Fiberboard ; thickness 1/2" ; finish Pro-Finished
 Joint treatment Stapled to 1" x 1 1/2" Wood Strips with a PVC Spine Between Joints

15. DECORATING: (Paint, wallpaper, etc.)

ROOMS	WALL FINISH MATERIAL AND APPLICATION	CEILING FINISH MATERIAL AND APPLICATION
Kitchen	<u>1/4" Pre-Finished Paneling</u>	<u>Armstrong's "Instalok"</u>
Bath	<u>1/4" Vinyl Covered Hard Board</u>	<u>Armstrong's "Instalok"</u>
Other	<u>1/4" Pre-Finished Paneling</u>	<u>Armstrong's "Instalok"</u>

Additional information: _____

16. INTERIOR DOORS AND TRIM:
 Doors: type Luan Hollow Core ; material Mahogany ; thickness 1 3/8"
 Door trim: type 2" Clam Shell ; material Mahogany ; base: type 2" Clam Shell ; material Mahogany ; size 2"
 Finish: doors Prestained Profinished ; trim Prestained Profinished
 Other trim (trim, type and location) _____
 Additional information: _____

17. WINDOWS:
 Windows: type Sliders ; make Anderson Series 50 ; material Alum (6063-T5) ; sash thickness _____
 Glass grade PSB ; sash weights; balances: type _____ ; head flashing _____
 Trim: type 2" Clam Shell ; material Mahogany ; paint Profinished ; number coats 2
 Weatherstripping: type Insert ; material Vinyl ; screen cloth material 18x16 Alum. Mesh
 Screens: full; half, type _____ ; number _____ ; screen cloth material _____ ; screen sash, number _____
 Basement windows: type _____ ; material _____ ; screens, number _____ ; screen sash, number _____
 Special windows _____
 Additional information: _____

18. ENTRANCES AND EXTERIOR DETAIL:
 Main entrance door: material Flugh.H.C. ; width 3'0" ; thickness 1 3/4" ; frame: material Mahogany ; thickness 3/4"
 Other entrance door: material Flugh.H.C. ; width 2' 8" ; thickness 1 3/4" ; frame: material Mahogany ; thickness 3/4"
 Head flashing _____ ; weatherstripping: type Spring Bronze ; saddle: Alum W/vinyl insert
 Screen door: thickness 3/8" ; number 1 ; screen cloth material Alum ; storm door: thickness _____ ; number _____
 Combination storm and screen door: thickness _____ ; number _____ ; screen cloth material _____
 Shutters: hinged; fixed Railings _____ ; Attic louvers _____
 Exterior millwork: grade and species Kiln dried C&B Doug Fir ; paint Stained ; number coats ?
 Additional information: _____

19. CABINETS AND INTERIOR DETAIL:
 Kitchen cabinets, wall units: material Plywood Profinished ; linear feet of shelves 35LF ; shelf width 12"
 Base units: material Profinished Plywood ; counter top Plastic Laminate ; edging Plastic Laminate
 Back and end splash Plastic Laminat ; finish of cabinets Profinished Prestained ; number coats 2
 Medicine cabinets: make Lambert No. 5181 (4/8) ; model Surface Mounted with Light
 Other cabinets and built-in furniture Kitchen and Utility Cabinets are similar in construction to kitchen cabinets
 Additional information: Manufactured by March Cabinet Company (See Drawings for Manufac. Numbers)

20. STAIRS:

STAIR	TREADS		RISERS		STRING		HANDRAIL		BALUSTERS	
	Material	Thickness	Material	Thickness	Material	Size	Material	Size	Material	Size
Basement										
Main										
Attic										

Disappearing: make and model number Attic Scuttle Provided in Attic area if required.
 Additional information: _____

21. SPECIAL FLOORS AND WAINSCOT:

Room	LOCATION	MATERIAL, COLOR, BORDER, CAP, SILL, GAGE, ETC.	THRESHOLD MATERIAL	WALL BASE MATERIAL	UNDERLAYER MATERIAL
	Kitchen		Linoleum (Vinyl Cushion Tone) .090 Ga.		
Bath		Linoleum .090 Ga. Carpet --- Type ---			
Wainscot	LOCATION	MATERIAL, COLOR, BORDER, CAP, SILL, GAGE, ETC.	HEIGHT	HEIGHT OVER TUB	HEIGHT IN SHOWERS (FROM FLOOR)
	Bath	Vinyl Covered Hardboard or Vinyl Covered Plywood <i>SHEEP SHEET</i>		8 Foot	

Bathroom accessories: Recessed; material _____; number _____; Attached; material _____; number 5
 Additional information: Chrome Tumbler, 2-Towel Bars, 1 Soap Dish, Tub Area Material is set over lip & protrudes inside of tub and water protected, warranty on PVC pipe, included in warranty packet.

22. PLUMBING:

FEATURE	NUMBER	LOCATION	MAKE	MANUFACTURER IDENTIFICATION No.	SIZE	COLOR
Sink	1	Kitchen	Eljar	E-2451	18 x 32	Avocado
Lavatory	1	Bath	Eljar	E-1534	19 x 17	Avocado
Wair: closet	1	Bath	Eljar	E-5270		Avocado
Bathtub	1	Bath	Eljar		5 feet	Avocado
Shower over tub	1	Bath	Eljar	E-9035 W-E-9050 Trip	and Waste	
Stall shower						
Laundry trays						
NOTE: Install Rough Plumbing and Wiring for Washer and Dryer.						

Curtain rail Door Shower pan: material _____
 Water supply: public; community system; Individual (private) system.*
 Sewage disposal: public; community system; Individual (private) system.*
 *Show and describe individual system in complete detail in separate drawings and specifications according to requirements.
 House drain (inside): cast iron; tile; other ABS or PVC House sewer (outside): cast iron; tile; other PVC
 Water piping: galvanized steel; copper tubing; other Type I Hard Copper Sill cocks, number 2
 Domestic water heater: type Electric; make and model State; heating capacity 3.0
AGA or UL listed gph. 100" rise. Storage tank: material Glass Lined; capacity 60.52 gallons.
 Gas service: utility company; liq. pet. gas; other 40 Gallon Glass Lined Gas piping: conking; house heating.
 Fluing drains connected to: storm sewer; sanitary sewer; dry well. Sump pump; make and model _____; capacity _____; discharges into _____

23. HEATING:

Hot water. Steam. Vapor. One-pipe system. Two-pipe system.
 Radiators. Convectors. Backboard radiation. Make and model _____
 Radiant panel: floor; wall; ceiling. Panel coil: material _____
 Circulator. Return pump. Make and model _____; capacity _____ gpm.
 Boiler: make and model _____ Output _____ Btu/h; net rating _____ Btu/h.
 Additional information: _____
 Warm air: Gravity. Forced. Type of system Central Furnace
 Duct material: supply Alum. Duct; return Central Insulation 4" Fiberglas thickness 1" Outside air intake.
 Furnace: make and model Intertherm MAC 2480 2400 Btu/h Input 100,000 Btu/h; output 80,000 Btu/h.
 Additional information: Fuel #1 or #2 (Thermostat)
 Space heater; floor furnace; wall heater. Input _____ Btu/h; output _____ Btu/h; number units _____
 Make, model _____ Additional information: _____
 Controls: make and type Thermostat (International)
 Additional information: _____
 Fuel: Coal; oil; gas; liq. pet. gas; electric; other _____; storage capacity Installation
 Additional information: Oil Tank Will Be In Accordance NPS 10-3-19
 Firing equipment furnished separately: Gas burner, conversion type. Stoker: hopper feed bin feed
 Oil burner: pressure atomizing; vaporizing
 Make and model _____ Control _____
 Additional information: _____
 Electric heating system: type Intertherm MAC #2480 Input 80,000 watts; @ 240.0 volts; output 80,000 Btu/h.
 Additional information: Hard Board Heaters For Int. Elect. Code
 Ventilating equipment: attic fan, make and model _____ Kitchen hood, Fan Exhaust _____; capacity 50 cfm.
 Kitchen exhaust fan, make and model 30" Nutone W/Charcoal Filter per Inst.
 Other heating, ventilating, or cooling equipment _____

24. ELECTRIC WIRING:

Squared D/Cutler Hammer
 Service: overhead; underground. Panel: fuse box; circuit-breaker; make OR F.P.E. AMP's 200 No. circuits 24
 Wiring: conduit; armored cable; nonmetallic cable; knob and tube; other 19 ckt. w/nd and 5 unpts.
 Special outlets: range; water heater; other Dryer - Electric Furnace 201 12.5 117W 117V 117V
 Dwell. Chimes. Push-button locations Nutone Additional information: Use No. 12 Ga. wire
Minimum use 10 gauge wire for dryer, No. 6 gauge for range.

25. LIGHTING FIXTURES:

SHEE ELECT PRINT FOR CTS
 Total number of fixtures 12 Total allowance for fixtures, typical installation, \$ 60.00
 Non-typical installation _____
 Additional information: _____

26. INSULATION:

Location	Thickness	Material, Type, and Method of Installation	Vapor Barrier
Roof			
Ceiling	6"	Fiberplann Batt. Insulation	Integral
Wall	4"	Fiberplann Batt. Insulation	Integral
Floor	2"	Fiberglass Batt. Insulation	Integral

HARDWARE: (make, material, and finish.) Sergeant / Schlage Type F

SPECIAL EQUIPMENT: (State material or make, model and quantity. Include only equipment and appliances which are acceptable by local law, custom and applicable FHA standards. Do not include items which, by established custom, are supplied by occupant and removed when he vacates premises or chattles prohibited by law from becoming realty.)

Tappan / Primor / Brown / Hot Point - Ranges (Gas or Electric)
Admiral / Hot Point / G.E. / Whirlpool - Refrigerators (Gas or Electric)
Sears / Hot Point / Whirlpool / Frigidare - Wash - Dryers.

50 BARS DISHWASHER MADE UP of Tray, Ohio
Free standing cabinet dishwasher stainless steel (5 ft hot water cooler)

27. MISCELLANEOUS: (Describe any main dwelling material, equipment, or construction items not shown elsewhere, or use to provide additional information where the space provided was inadequate. Always reference by item number to correspond to numbering used on this form.)

Use 4" Face Brick over 1/2" insulated sheathing - with metal ties as noted on drawings
weep holes at 4 foot centers - Base Flashings of 30 lb. felt.

PORCHES:

Entry Deck Will be constructed of tide water cypress (Both Front and Rear Size 3 1/2' x 4'
or equivalent or concrete or II or S mortar.

TERRACES:

GARAGES:

WALKS AND DRIVEWAYS:

Driveway: width 10' 0"; base material Compacted Fill; thickness 4"; surfacing material Gravel; thickness 2"
 Front walk: width 3'; material Gravel/CONC; thickness 4". Service walk: width 2'; material CONCRETE; thickness 2"
 Steps: material Tide Water Cypress; treads 12"; risers 6". Cheek walls Stringer 2x12 Cypress
 or similar.

OTHER ONSITE IMPROVEMENTS:

(Specify all exterior onsite improvements not described elsewhere, including items such as annual grading, drainage structures, retaining walls, fence, railings, and accessory structures.)

Septic Tank, Well Water
Water and Sewer Tap when on City Water.

LANDSCAPING, PLANTING, AND FINISH GRADING:

Topsoil 4" thick: front yard; side yards; rear yard to 15 feet behind main building.
 Lawns (seeded, sodded, or spigged): front yard Seeded; side yards Seeded; rear yard Seeded
 Planting: as specified and shown on drawings; as follows:
2 Shade trees, deciduous, 1 1/2" caliper. _____ Evergreen trees, _____' to _____', B & B.
3 Low flowering trees, deciduous, _____' to _____'. _____ Evergreen shrubs, _____' to _____', B & B.
3 High growing shrubs, deciduous, _____' to _____'. _____ Vines, 2-year _____
3 Medium-growing shrubs, deciduous, _____' to _____'. Leave all possible existing trees.
3 Low-growing shrubs, deciduous, _____' to _____'.

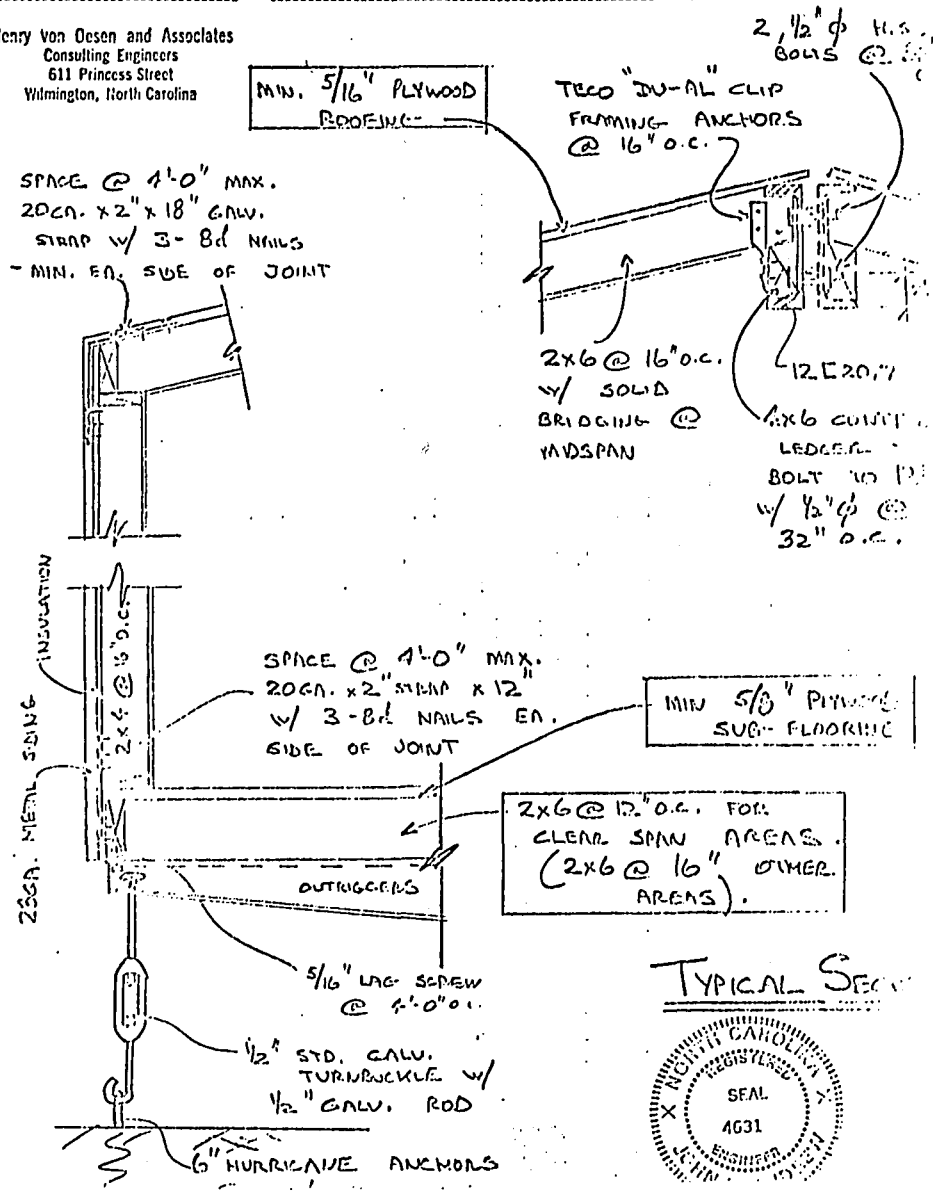
IDENTIFICATION:—This exhibit shall be identified by the signature of the builder, or sponsor, and/or the proposed mortgagee if the latter is known at the time of application.

Date _____ Signature _____

Signature _____

BY VDA DATE 3/27/71 SUBJECT CORNER MACHINE ROOMS SHEET NO. 1
 CHKD. BY _____ DATE _____ _____ _____ JOB NO. _____

Henry von Oesen and Associates
 Consulting Engineers
 611 Princess Street
 Wilmington, North Carolina



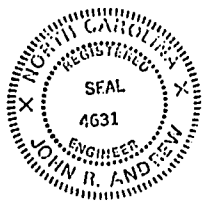
TYPICAL SECTION

REGISTERED PROFESSIONAL ENGINEER
 SEAL
 4631
 NORTH CAROLINA

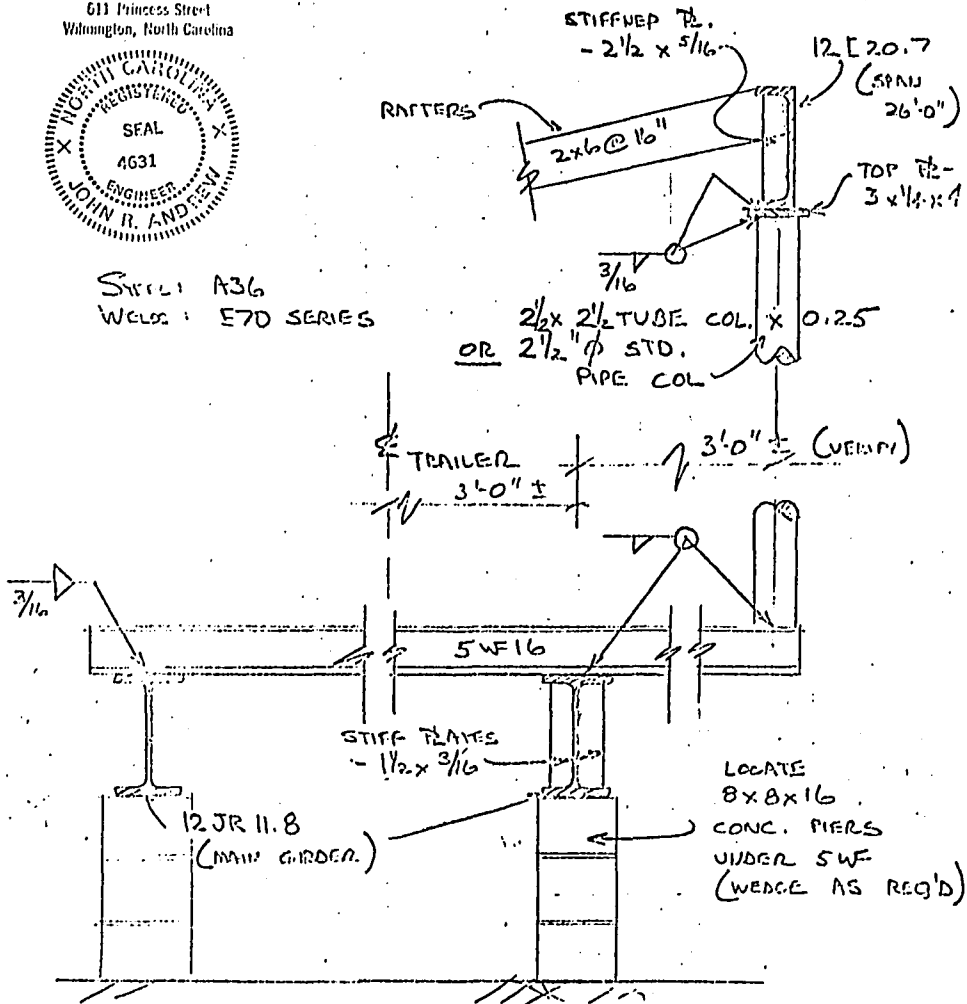
Multi-purpose Room Roof Construction

BY _____ DATE _____ SUBJECT _____ SHEET NO. 2 OF 2
 CHKD. BY _____ DATE _____ JOB NO. _____

Henry von Oesen and Associates
 Consulting Engineers
 611 Princess Street
 Wilmington, North Carolina



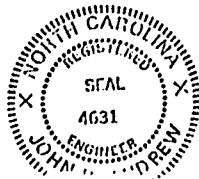
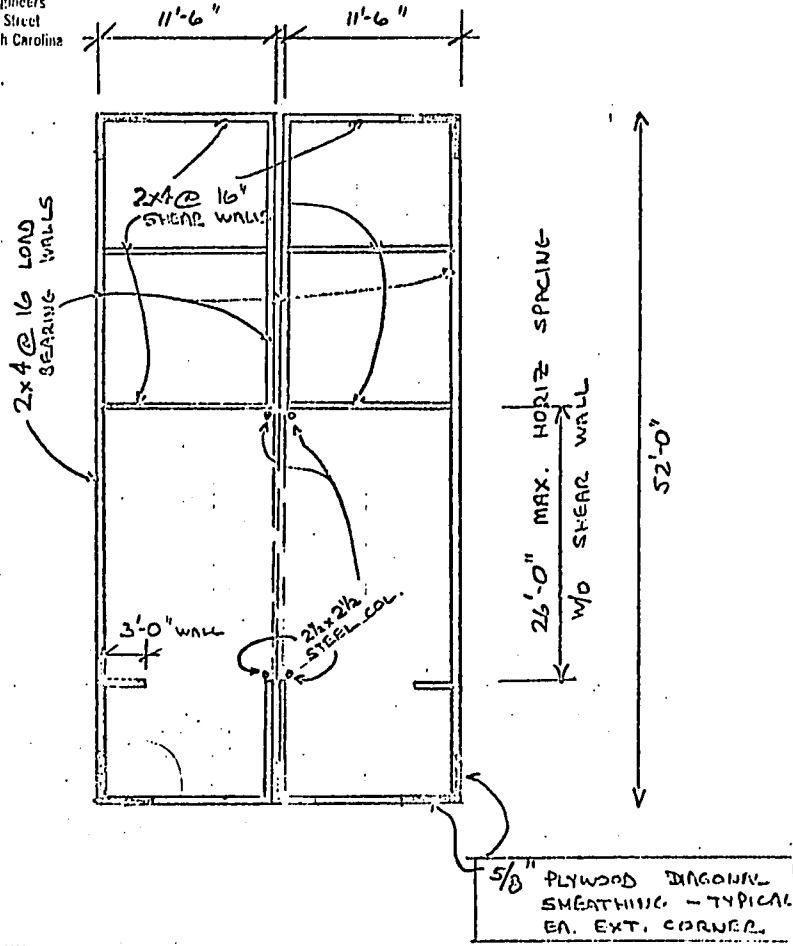
STEEL: A36
 WELDS: E70 SERIES



TYPICAL SECTION @ COLUMN

BY..... DATE..... SUBJECT..... SHEET NO. 5 OF 5
 CHECKED BY..... DATE..... JOB NO.....

Henry von Oesen and Associates
 Consulting Engineers
 611 Princess Street
 Wilmington, North Carolina



PLAN
 MINIMUM SHEAR WALLS &
 BRACING REQUIREMENTS.

Roof Bracing Plan

james b willis jr / architect

714 ARTHUR STREET MORRISHEAD CITY NORTH CAROLINA 28557 919 726-6686

DAY CARE UNIT
CONNER HOMES CORP.

DRAWINGS CHECKED FOR COMPLIANCE WITH NORTH CAROLINA BUILDING CODE FOR
CONNER HOMES CORP., NEWPORT, NORTH CAROLINA FOR PROPOSED DAY CARE UNIT

DRAWING PRINT N°	DATED	CONTENT/LABEL
None	7/2/70	Hitch, Removable
1018	7/27/70	Steel Frame
None	8/13/70	Floor Plan
None	2/8/71	Side Panels "A" & "B"
None	2/8/71	Side Panels "C" & "D"
None	2/8/71	Plumbing
None	3/23/71	Typical Heat Duct Detail
1050	12/1/70	Typical Cross Over Assembly All Double Widen
None	2/8/71	Floor Frame & Plumbing Layout
None	2/8/71	Kitchen Sink Top
None	2/8/71	Overhead Kitchen Cabinet
None	2/8/71	Ceiling Rafters
None	2/8/71	Electrical Drawing

The above drawings have been checked for compliance with Section 519 of the North Carolina Building Code to permit the use of the proposed structure as a Day Care Facility. The attached letter from Henry Von Gemen and Associates with three attached detail sheets (letter and detail sheets dated March 22, 1971) and the attached letter from Finner and Proffitt, Inc. (2 pages) indicates revisions required in order to comply with structural, mechanical and electrical requirements of the North Carolina Building Code.

The addition of a ramp with maximum slope of 1:12 with a 32" high hand-rail on one side and a 5 x 5 foot landing at its top and 6 feet straight clearance at its lowest point; and with the addition of assist bars on one watercloset in the large toilet room; and construction of interior walls, ceilings and ridge beam enclosure using type X gypsum board or equivalent 1 hour rated material, the proposed structure will comply with the Architectural Design Requirements of the North Carolina Building Code.

JAMES B WILLIS JR / ARCHITECT



March 26, 1971

A M E R I C A N I N S T I T U T E O F A R C H I T E C T S

HENRY VON OESEN AND ASSOCIATES
CONSULTING ENGINEERS TELEPHONE 763-014.

611 PRINCESS STREET - P. O. DRAWER 2067
WILMINGTON, NORTH CAROLINA 28401

HENRY M. VON OESEN, P.E.
J. B. BRISON, JR., P.E.
CHARLES E. DAVIS, P.E.
WILLIAM B. KING, P.E.
MOTT S. BRADSHAW, P.E.S.

March 22, 1971

JAMES H. CHEATHAM, JR., P.E.
T. ROBERT LYONS, JR., P.E.
WILLIAM T. STEUER, P.E.
JOHN B. ANDREW, P.E.

Mr. James B. Willis, Jr., AIA
713 Arundel Street
Morehead, North Carolina 28557

Re: Conner Mobile Homes

Dear Jim:

We are forwarding revised sketches showing the structural connections and modifications required to connect two mobile homes together.

The shop drawings furnished us for construction of a mobile home meet the Mobile Homes Building Code. We have not checked the foundation design, electrical, mechanical, plumbing, or hurricane hold-down devices as these were not included in our scope of work.

We have also checked the units for compliance with the Residential Building Code and find no violations. The minimum requirements for roof and floor joist and sheathing requirements are indicated on the sketches.

Please call us if you have any questions.

Very truly yours,

HENRY VON OESEN AND ASSOCIATES, INC.

ROD

John R. Andrew, P. E.

JRA/g
Enc.

W. E. FENNER, P. E.
C. V. PROFFITT, P. E.

FENNER AND PROFFITT, INC.
CONSULTING ENGINEERS
P. O. BOX 1266
MILBURN 22 J-4134
WILSON, N. C. 27003

March 22, 1971

Jim Willis, Architect
714 Arundell Street
Morehead City, North Carolina 28557

Subject: Day Care Unit
for Connor Homes

Dear Jim:

After studying the owners plans for the subject modular building, we have the following comment.

A. HVAC

1. The building heat loss (including 10% factor of safety) at 0° outside temp, is 85,000 BTUH (25 KW), with single-pane glazing in the windows; or 64,460 (18.5 KW) if double-pane glazing is used. This is based on 1" insulation in the sidewalls, 1½" insulation in the roof, and 1" insulation in the floor. We do not recommend that furnaces with less capacity than this be installed.
2. The building instantaneous cooling load at 95° DB, 78° WB outside temperature, 78° DB, 67° WB inside temp, is 46,215. However, considering the building as a residence, with some temperature swing allowed, we are of the opinion that a unit with a cooling capacity of 3,000 Btu will be sufficient.
3. The furnace fan should have a capacity of 1,200 cfm at an external static pressure of 0.50".
4. The ductwork must be designed to comply with the requirements of Paragraphs 6.10 and 6.11 of NFPA No. 501B.

B. PLUMBING

1. There must be a single 3" sewer connection.
2. There must be at least one 2" vent to the water closets.

C. ELECTRICAL

1. Move furnace and A.C. unit into storage area to eliminate necessity of separate disconnects in the office area.

Architect's Appraisal (continued)

Page 2
March 22, 1971

2. Add note 5: "All grounding shall comply with article 250 and its related articles of the National Electrical Code."
3. Changes electrical circuit schedule.
 - a. Change circuit 7-8 to 7. Use 1-20 amp single pole breaker, 2 No. 12 W.G. to feed furnace fan.
 - b. Leave circuit 8 as a 20 amp single pole for A.C. fan unit.
 - c. Add circuits 21-22: each to be 5 amp single pole and each with 2 No. 6 and 1 No. 8 feeding each stage of a 3 stage heater.
4. Add note 6: "Main panel to be equal to Square D QO-30-40K-200."
5. Add note 7: "Main service conductors to be 3 No. 4/0 THW copper or 3 No. 250 ECM THW aluminum."
6. Add note 8: "Main service ground to be No. 4 if copper service used; No. 2 if aluminum used."
7. Add note 9: "Provide 60 amp 2 pole no fuse NEMA 3it disconnect at condensing unit."
8. If furnace and A.C. not located in storage it will be necessary to add the following disconnects in the office:
 - a. 1-30a 1 pole no fuse for furnace fan.
 - b. 1-30a 1 pole no fuse for A.C. fan.
 - c. 3-60a 2 pole no fuse for strip heaters.
9. A fire detection system will be necessary to comply with the requirements in the State Building Code for type B-2 occupancies.

If the drawings incorporate all the requirements as listed herein, we can certify that they comply with the applicable Codes and with good engineering practice.

Very truly yours,

FENNER & PROFFITT, INC.

W. E. Fenner
William E. Fenner

WE/c1

APPENDIX C

**Inventory of Educational Materials Used in
Display of Prototype**

INVENTORY OF EDUCATIONAL MATERIALS USED
IN DISPLAY OF PROTOTYPE

Block Play

Unit blocks
Hollow blocks
Rideable transportation toys
Block accessories, such as a gasoline station, farm set,
wooden people, wooden animals, small traffic signs
Small transportation toys

Housekeeping and Dramatic Play

Puppets
Ethnic baby dolls
Doll bed
Cradle
Rocking chair
Ironing board and iron
Dress-up clothes
Clothes tree
Tea table
Plastic food
Housekeeping set--broom, mop, dust pan
Stove
Refrigerator
Sink
Hutch
Chest of drawers
Tea set
Flatware
Pots and pans
Teepee

Science

Globe
Magnets
Metal filings
Kaleidoscope
Prism
Color keys
Magnifying glass, small
Magnifying glass, large tripod

Art Activities

Easel
 Tempora paints
 Finger paints
 Crayons--assorted sizes and styles
 Paper mache powder
 Newsprint
 Construction paper
 Scissors
 Scissors rack
 Paint brushes--assorted sizes
 Play doh
 Clay

Books

Samples representing animal stories, families,
 community helpers, transportation, science, poetry,
 books for building perception and developing concepts

Manipulative Toys and Games

Lotto--various types
 Dominoes--various types
 Table blocks--various types
 Small Lego blocks
 Pipes and joints
 Puzzles
 Games--Candyland, Hi! Ho! Cheerio!
 Old Maids and other card games
 Workbench and tools

Music and Rhythms

Assortment of records for pleasure listening,
 rhythmic activity, teaching, quiet time
 Rhythm band instruments

Audiovisual teaching aids

Flannel board and figures
 Record player
 Tape and cassette player
 Tape recorder
 Acoustiphones

Large muscle equipment

Portable climbing gym

Tricycle

Wagon

Indoor climb and slide

Balance beam

Furniture

Tables--adjustable height

Chairs--stackable, varying heights

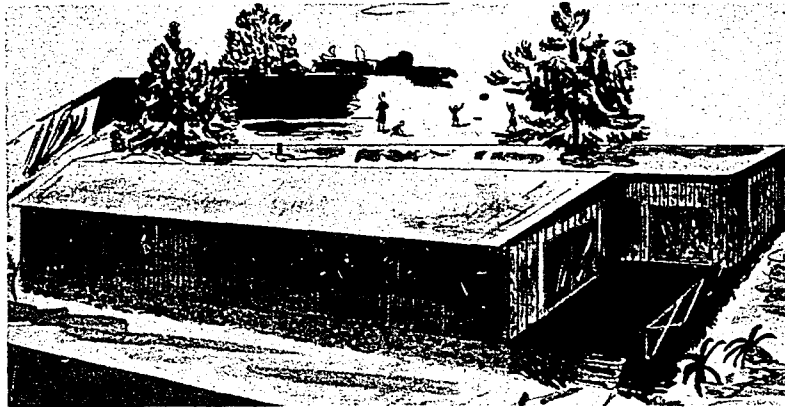
APPENDIX D

Public Display of Project Child Care

PROJECT CHILD CARE



School of Home
Economics
University of
North Carolina
at Greensboro



Conner Homes
Corporation
Newport, North
Carolina

Brochure

More women with children under six entering the labor market.

Too few child care centers to accommodate the children needing care.

THE ANSWER — MODULAR MOBILE CHILD CARE CENTERS

Relatively low capital expenditure.

All electric unit.

Mobility.

Designed for the care of young children.

Complies with North Carolina code regarding housing for young children.

Adaptability.

Esthetically appealing.

PROJECT CHILD CARE

EDUCATION AND INDUSTRY—TOGETHER

Project Child Care is a cooperative endeavor on the part of education and industry toward making a positive contribution to the solution of social concerns of American Society.

The SCHOOL OF HOME ECONOMICS OF THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO CONNER HOMES CORPORATION, and KAPLAN SCHOOL SUPPLY have worked together to design, manufacture and equip an innovative facility for housing child care centers. With the increasing number of mothers entering the labor market, there is a concurrent increasing demand for facilities to meet the needs for the all-day care of young children. There is evidence to support the fact that a mother who feels secure about the care her children are receiving in her absence will be a more productive, conscientious employee. Some industrial leaders are investigating the possibility of operating a child care center as an employee benefit.

One of the largest initial expenditures involved is the cost of housing for such a center. The School of Home Economics at the University of North Carolina at Greensboro together with Conner Homes Corporation, Newport, North Carolina, has developed the concept of a MODULAR MOBILE CHILD CARE CENTER. Such a structure consists of two mobile units joined together to form a single building. Because of the relative low cost and the design of this structure, it has possibilities for use as housing for child care centers for industrial plants and also for kindergartens, nursery schools, and other all-day child care operations.

For more detailed information, please contact:

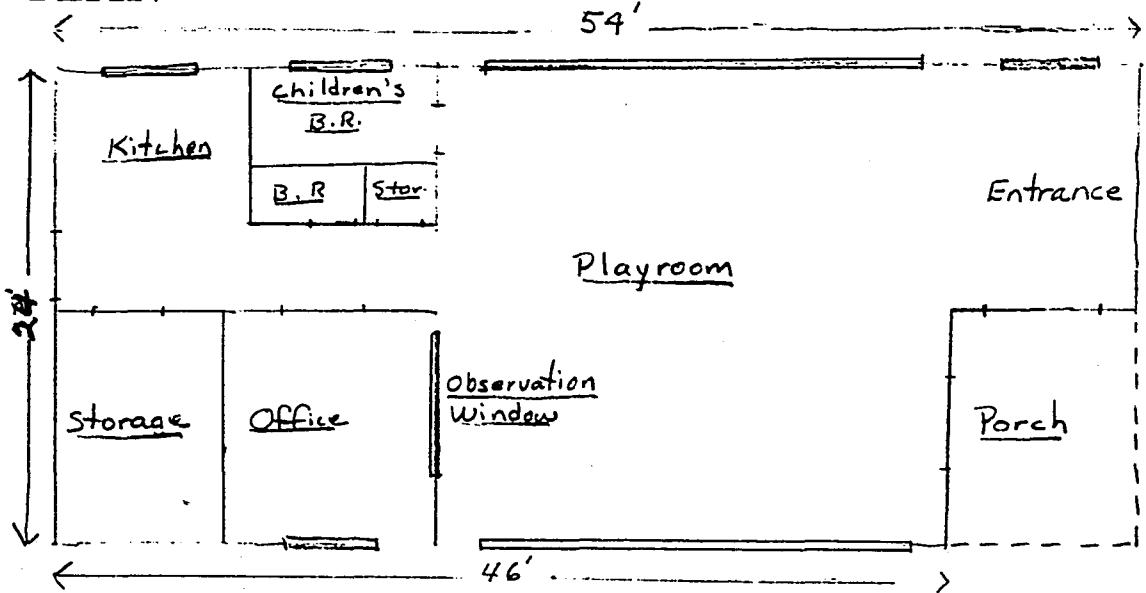
School of Home Economics

University of North Carolina at Greensboro
Greensboro, North Carolina 27412

Conner Homes Corporation

P. O. Box 520
Newport, North Carolina 28570

FLOOR PLAN



Brochure

PROJECT CHILD CARE

This model center which has implications for use by persons interested in operating kindergartens, nursery schools, and child care centers, will be on display in High Point, North Carolina, on a lot located in the 600 block of East Greene Street. We would like to invite you to visit the center at one of the times listed below so that we may show you its unique features. Should this schedule of showings not be convenient for you, please let us know and we will be happy to arrange another time.

EXHIBITION SCHEDULE

PLACE—600 East Greene Drive
High Point, North Carolina

TIME—Tuesday, May 4 through Saturday,
May 8—10:00 a.m. until 5:00 p.m.

Sunday, May 9—2:00 p.m. until 5:00
p.m.

Tuesday, May 11 through Saturday,
May 15—10:00 a.m. until 5:00 p.m.

Sunday, May 16—2:00 p.m. until 5:00
p.m.

For Additional Information

Contact:

School of Home Economics

University of North Carolina at Greensboro

Exhibition Schedule (Inserted in Brochure)

Office of
City Inspector of Buildings

**CITY OF HIGH POINT
BUILDING PERMIT**

No 32248

High Point, N.C. 4-28, 1971
Upon application, permission is hereby granted to H. P. Re-Development Comm as owner to
erect or alter a 1 story, class "A" "B" "C" roof, Type I II III IV V VI construction,
Flat No. _____ lot _____ block _____ in _____ subdivision,
at No. 601 E. Green Street, between Rud and _____
Park Streets, to be used as a Display containing _____ rooms;

including electrical wiring plumbing heated by _____
chimneys _____, flues _____. The work covered by this permit is to be done by day labor contractor .

General contractor _____
Number families planned for _____ Total Estimated Cost \$ 10,000.00

New Prototype Day Care Unit for display
Repairs may 5 thru May 16, 1971
Liability Insurance \$ 7.00 Plumbing \$ _____
Market Fee \$ 15.00 Wiring \$ _____
Total \$ 17.00 Heating \$ _____

Total cost of main building exclusive of wiring, heating and plumbing \$ 10,000

Building Area _____ Sq. Ft. _____ Building Inspector
THIS PERMIT VOID IF WORK NOT BEGUN WITHIN SIX MONTHS FROM DATE.

I hereby certify that I, the undersigned, of _____ State, executing this permit in behalf of and with full
authority of _____ and that the statements made herein are true.

This building will be erected according to the Building Laws of the State of North Carolina and the City of High Point, N. C., and will also comply with the Zoning
Ordinance of High Point. On completion of said building I will notify the building inspector, and apply for a building certificate. If said building is to be erected in the
five blocks as established by ordinance of the City of High Point, then such building will be erected in accordance with such ordinance and laws of the State of North
Carolina. It is further understood that any permit for a building to be erected within such five blocks is issued subject to approval of the Insurance Commissioner of the
State of North Carolina.

Approved _____ Owner _____
Agent Jean B. Hall

INSURANCE COMMISSIONER OF NORTH CAROLINA

This permit does not include plumbing and (or) heating or electrical work or driveways.

Robert Rusting Associates, Inc.
 110 E. 55 St.
 New York, N.Y. 10022
 Phone: (212) 832-1533

FOR: ALCAN ALUMINUM CORPORATION, BUILDING PRODUCTS DIVISION

MODULAR CHILD CARE CENTER FOR
INDUSTRIAL AND SCHOOL USE DEVELOPED
BY UNIVERSITY OF NORTH CAROLINA

What started out as a master's thesis project by a North Carolina housewife, has resulted in a possible solution to the problem of low-cost child care facilities for working mothers with children under five.

A prototype of a modular mobile child care center is being offered for the consideration of industry by the University of North Carolina at Greensboro, and is believed to be the first of its kind in the U.S. The center has been built for the University by Conner Homes Corporation, Newport, North Carolina, a leading manufacturer of mobile homes.

Although the 1200 square-foot child care center, which sells for about ^{11,500} \$10,000 furnished, utilizes the construction know-how of modern modular or sectional home manufacturing and can be assembled in a parking lot, or serve as an annex to an existing nursery school or educational facility, it has been designed primarily with the needs of the young children in mind.

The project, begun as a thesis project by Mrs. Percy L. Wall, a Greensboro resident with two teen-age children, who had returned to college for her Master's Degree in Child Development, was subsequently sponsored by the School of Home Economics of the University.

In her research for the project, Mrs. Wall found that while over 60% of executives of 500 North Carolina companies employing 100 people or more expressed great interest in such a Center to retain and attract working-mother employees, only 4 of the 500 actually sponsored such centers for their employees.

Copy for Area-wide Advertising

-2-

As it eventually evolved, the Modular Child Care Center consists of a large playroom designed to comfortably care for 20 children, with toys and other play and teaching aids, furniture, etc.; a storage room, kitchen, office, and two bathrooms, one for the children and one for the staff. The office contains an observation window with a two-way mirror.

The all-electric, air conditioned Center is 56 feet long at its longest point and 24 feet wide. The building has a homelike appearance, rather than one usually associated with prefabricated structures. The exterior is made of Alcan residential aluminum siding to simulate the appearance of wood while providing the low maintenance of aluminum. This use of aluminum also combines light weight (for easier shipment) and superior insulation to reduce heating and/or cooling problems.

According to Wallace J. Conner, president of Conner Homes Corporation, the need to develop a low-cost structure which could be assembled and disassembled quickly if needed, and moved to another location, has been met while, at the same time, conforming to rigorous building and electrical codes and other safety specifications. In this regard, technical advice was provided by the Duke Power Company. Other firms cooperating in the project were Kaplan School Supply of Winston-Salem, and Montgomery-Green Co., Inc. of Greensboro, kitchens.

Further information on the Child Care Center may be obtained by writing to School of Home Economics, University of North Carolina at Greensboro, Greensboro, North Carolina, 27412.

-0-

QUESTIONNAIRE

Thank you for visiting Project Child Care. Your evaluation of this center would be appreciated. Please answer the following questions and make any comments which you think would be helpful.

1. Occupation _____ Residence _____
(City or County)

Age: _____ 18 to 30 _____ 31 to 40 _____ over 40

2. In your opinion, is there a need for more child care centers in your locality:

_____ Yes _____ No

Comment _____

3. What groups do you think could use this type building as a center for children?

_____ Industry	_____ Migrant labor employees
_____ Franchised day care centers	_____ Private schools
_____ Individually owned child care centers	_____ Public schools
_____ Church related child care centers	_____ Other, please list
_____ Community day care centers	

4. In what ways would you change the design of this experimental center? List.

5. Do you think this type of building has possibilities for uses other than child care?

_____ Yes _____ No

Comment _____

6. If you were planning to operate a child care center, would you consider using this type of educational center?

_____ Yes _____ No

Comment _____

7. Do you think the types of educational materials displayed in this center are appropriate for young children?

_____ Yes _____ No

Comment _____

8. Do you foresee any objection to a modular mobile unit being used in your community as housing for a child care center?

_____ Yes _____ No

Comment _____

MARYLAND 4-C COMMITTEE

88

Community Coordinated Child Care

EMPLOYMENT SECURITY BUILDING, 1100 NORTH EUTAW STREET
BALTIMORE, MARYLAND 21201

MRS MARJORIE D TEITELBAUM
Executive Director

DR EDWARD DAVENS
President

DR. T. K. MUELLEN
Vice President

MRS MARION PERSONS
Vice President

MRS SADIE D GINSBERG
Treasurer

February 23, 1972

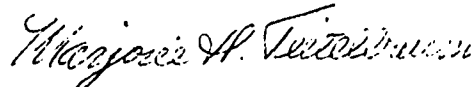
Dr. Mary Elizabeth Keister
North Carolina Training Center
for Infant-Toddler Care
The University of North Carolina
Greensboro, North Carolina 27412

Dear Dr. Keister:

We have received a request for information about a modular mobile child care structure from a Community College which is most interested in starting an on-campus day care center. We are turning to you for assistance in answering this inquiry since we understand that the Home Economics Department at your institution has had experience with this kind of building. Any and all information you can share would be most appreciated. If you are not the person to whom we should address this inquiry, could you let us know to whom it should be addressed. Do you know the names of other universities that have utilized a mobile type structure for day care.

Thanks ever so much for keeping my name on your mailing list. If things move along for us as we hope, one or more of us will be down for one of your workshops this year. With many thanks.

Sincerely,



Marjorie D. Teitelbaum
Executive Director

MDT/bh

DAY CARE COUNCIL OF CENTRAL PENNSYLVANIA, INC.

P. O. Box 648
State College, Pa. 16801
Feb. 8, 1972

89

Mrs. Jean Wall, Dept. of Child Development
University of North Carolina
Greensboro, North Carolina 27514

Dear Mrs. Wall:

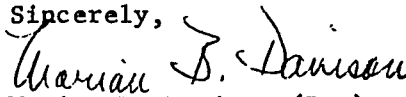
At the Day Care and Child Development conference held in Washington this past weekend, Mr. Carl Staley told me that you had done a dissertation on the design of a modular unit for a day care facility and had worked with a manufacturer in the development of a prototype which is now being used on the campus.

We are at the point of organizing and hiring staff for our Day Care Council. One of our members has been very much interested in finding out about your experience. He has been discussing such units with one of our local manufacturers. Your experience would be most helpful to us, I am sure.

Do you have anything in print, or is your thesis available through inter-library loan or on microfilm? May we have the correct title, etc.? The name, address and phone number of your manufacturer would also be helpful.

Thank you for what information you can send.

Sincerely,



Marian B. Davison (Dr.)
Vice chairman, Day Care Council
of Central Pennsylvania

**METROPOLITAN DADE COUNTY FLORIDA**

COMMUNITY ACTION AGENCY
395 N.W. 1st STREET
MIAMI, FLORIDA 33128
TEL: 377-8601

OFFICE OF COUNTY MANAGER

September 16, 1971

University of North Carolina at Greensboro
School of Home Economics
Greensboro, North Carolina 27412

Dear Sir:

The Dade County Community Action Agency operates a Head Start Program serving preschool children between 2 1/2 and 5 years old. We are presently looking into the feasibility of securing trailer units to use as classrooms.

We have been advised that your organization either can provide such trailer units or could give us directions as to where they could be purchased. I would appreciate receiving all information relative to the type of trailers which may be available, the cost involved and length of time between our placing an order and actual receipt.

Your cooperation in this matter will be greatly appreciated.

Sincerely,

Marvin Smith
Asst. Director for Administration

MS:bah

**WOMAN'S HOSPITAL**

Goodwood at Airline
P. O. Box 15379
BATON ROUGE, LOUISIANA 70815

THOMAS R. HIGHTOWER
Administrator

September 8, 1971

School of Home Economics
University of North Carolina at Greensboro
Greensboro, North Carolina 27412

Dear Madam:

Please furnish us with complete information on the Modular Mobile
Child Care Centers.

Thank you.

Sincerely,

Thomas R. Hightower
Administrator

TRH:src

**WOMAN'S HOSPITAL**

Goodwood at Airline
P. O. Box 15379
BATON ROUGE, LOUISIANA 70815

THOMAS R. HIGHTOWER
Administrator

December 17, 1971

Mrs. Jean G. Wall
Graduate Teaching Assistant
Child Development, School of Home Economics
University of North Carolina
Greensboro, North Carolina 27412

Dear Mrs. Wall:

Thank you very much for the scale drawing sent to me recently of the Modular Child Care Center that has been developed by the School of Home Economics at the University of North Carolina.

Hopefully, this will expedite our plans for a day care center, and we will correspond with you later and give you details of our project.

Sincerely yours,

Thomas R. Hightower
Administrator

TRH:src