A Day Care Center
for
Lubbock, Texas
Part I
Submitted to the Department of Architecture
of
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in
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for
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Design Option
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Statement of Thesis

My proposed project deals with a Day Care Center for Lubbock, Tx. One of my many concerns of which I would like to especially draw attention to is the psychological aspect of space which the child is located while in the Center. Also, I would like to note the rising change of life styles among married couples, especially where the mother is a "bread winner".
Introduction

The child's competence is represented in part by the nature of his attachments to people, his ability to create a "made-believe" world, his ability to receive and give information to others, and his ability to manipulate systematically the relationships between actions and outcomes. Therefore, one must conceptualize competence as a complex network of knowledge and talents that permits the child to deal in diverse ways with an increasingly differentiated world.

The adult-child ratio is primarily an administrative issue in the arena of legislative guidelines which require indirectness that can be unambiguously determined. In fact, not only are group environments more complex but governmental responsibilities for child-development programming are far broader. Hence these guidelines are the more fundamental issues of indexing and monitoring program quality along with the conceptualization of an optimizing environment.
Two categories of environment—family and school—stand out as distinctive in the life of the child. Yet each environment has structures and regulating mechanisms; each is in itself a coherent system. Each environment also generates psychological variables that influence the child's development. The family is the environment of long-term continuity that provides the relatively small group of "others" of heterogeneous age with whom the child will have life-long contact.

A major question in day-care concerns the variety and breadth of day-care alternatives. Day-care programming can reflect the ecology of current child-rearing environments by adapting them to the needs of a specific group of individuals, or it can concentrate on a limited set of options that reflects the historical occupation with group programs. The broader perspective is likely to be nurtured by an emphasis on the development of children in contrast to an emphasis on welfare reform, women's liberation, or multiproblem families. This means conceptions of "day-care" in the absence and in the presence of parents, in the home and out of the home, with relatives and
with strangers, next door and 10 miles away. Emphasis on the
development of the child creates new issues or rather things for-
ward those often obscured when day care is equated to particular
social-political problems and particular types of poor living.
The issues deal with the aims of day care with respect to the
child.
Aims of the Project

Some superordinate goals may reflect conceptions of the ideal state of human society, and the direction of human development. One would also like to stress their capacity to live by a rational, ethical system based on a commitment to the ideals of justice and human life.

Competence stresses those capacities or processes that determine effective functioning in a variety of situations. The notion of competence stresses the conceptual, affective, and motivational systems that apply equally well to school learning, job performance, political action, and social regulation. Competence systems are marked by their focus on active participation and on the reciprocity between the child's initiation of change and his accommodation to change.

Realizing this may be the most part of the program, one should consider at great length the effects of past centers and make a earnest effort to design psychologically for the child.
The history of day care

From its beginnings in the early nineteenth century until the rise of the nursery school in the 1920's the day nursery was the only formal program for the care of young children. A conceptual history of day care over the last 150 years reemphasizes the changing views of the child in America. Assumptions about him—what he starts with, what he ought to end with, and how he changes—have always been embedded in child-care practices and child development theories.

Day care is best known by the booms that come on the heels of the Civil War, the Depression, and World War II. These boom periods cannot be described simply as attempts to protect children whose mothers were drawn into the labor market. For example, the expansion of day care during the Depression occurred more in order to make jobs for unemployed teachers, nurses, and social workers than to care for the abandoned children of working mothers or provide a service for troubled or disadvantaged families.
Today the nation is on the edge of another major day-care expansion. In 1940 approximately 60,000 children were in licensed programs; in 1945 there were almost a million. At the present time approximately 620,000 children are using licensed day-care facilities, but estimates of the number currently needing care have ranged from 2 to 4.5 million.

"The truth is that we can and does learn a great deal more before that age(six years) than all he ever learns or can learn in all his after life. His attention is more easily aroused, his memory is more retentive, bad habits are not yet formed, nor is his judgment warped by an air bias (Forest, 1927, pg. 9)." Hopefully from this statement one can visualize the importance of having a well-designed and format program which anticipates problems and attempts to elevate some of these problems.

Evidence of acculturation began making its appearance in settlement-house activities and soon seeped into the nursery. By the turn of the century a few nurseries had added kindergartens
and had adopted the model developed by Friedrich Froebel, which was based on the notion of a preformed child, born with latent, symbolic mental contents. These latent contents expressed universal laws of development he were represented by the symbols of the circle, the cube, and the triangle. The purpose of education was to provide the child with symbolic "gifts" and "opportunities" so that the order and laws of the mind could be expressed.

Parent education in these institutions began in an atmosphere of criticism of the ways and values of the poor, combined with the notion that education could change adults as well as children. The early settlement house activists placed the responsibility of child neglect on the working, long working hours, and inhuman conditions rather than on the parent. The working mother and looked after children in the house, whose children were dirty and unclean, did not emerge as a bad mother but rather as a victim of a cruel system that permitted no alternatives.

The design of programs in response to the needs of particular
groups of children has yet to become a part of deliberate day-care planning. Such designs might distinguish a total program oriented toward a particular population group. Even more, programs might consider ways of working with different children within the program.

The history of day care in America can be seen as a succession of alternatives which, taken together, state themes that have a contemporary ring. We are still faced with contrasts in relief, rehabilitation, and reconstruction. We still shift from the mind of the child to his socialization and his socialization and his physical well-being. The history of day care is a complex interlacing of assumptions about the child, the origin and repair of social inequity, and the function of social institutions. The aims of protection and health care, acculturation and education, the impact of social stress, and institutional change have influenced the shape of day care in the past and continue to do so today.
Client and Financing

Day care is an expensive service, and an appointed board of directors usually seeks several types of financing. Often a combination of financial support is present.

Public Funds:

Public Funds may be available through the local, state, or federal government. But because preschool education has not yet been recognized as a part of public education, public funding can be obtained only for programs serving children of working mothers, as under the Work Incentive Program; children from low-income families; and those from culturally deprived backgrounds, such as in Head Start or migrant child care programs. Board surplus foods, school lunch programs, and free medical care can help decrease the need for outright grants.

Fund Raising:

The Community Chest, United Giver's Fund, or other public agencies, may allocate funds to support child care services. In
addition, private fund raising activities such as bake sales, chicken dinners, etc., and membership dues have been successful in past years.

Parents' Fees:

Some support is possible from the fees parents pay. Parents' fees depend on the amount of outside funding the day care agency receives and the ability of the parents to pay for the services.

Budget

A realistic operating budget for the child care center should be considered as essential to the success to the program may include all or some of the items listed below:

- initial capital investment for building
- salaries and employee benefits
- insurance-liability, personal, household
- rent
- building upkeep, maintenance, and repair
- utilities-heat, light, gas, water, and repairs
• household supplies and equipment
• food
• educational equipment & supplies, repair, and replacement
• office supplies-stamps, telephones, duplicating equipment, and supplies
• transportation for children, when needed
• staff training and professional development
• purchased services-physician, dentist, nurse, psychologist, social service workers, educational consultants, and the like.

Licensing and Standards

After several personal interviews, the Standards for this day care center will be 5% above the minimum Standards for the state of Texas placed in effect in 1976.

The Client

Extensive research concerning types-profit and non profit, the most feasible would be a non profit client which would gain
Grants and aid from local, state, and the federal government.

An imaginary client is the City of Lubbock which will allocate public funds as well as fund raising methods for the financing of the project.
Number of Children

The age group will range from infancy to eight(8) years of age.

There will be seventy-five(75) children at most in this Day Care Center. This number includes 20 infants taken care of in two groups in two areas, 20 2-3 year olds taken care in two groups in one large area, 20 4-5 year olds in two groups in one large area, and 15 6-8 year olds in two groups in two large areas.
Activities and People of the Day Care Center

Activities of the Children

**Arrival**- open at 6:45 to 6:30; five (5) days a week. The parents will bring the child into the center and sign him or her in. At this point the parent will fill out an information card concerning past medical record and any instructions to be left with the center.

**Departure**- most of the children will leave between 5:00 p.m. and 6:00 p.m. The afternoon curriculum is less structure and so a child which is leaving would usually not interrupt the activities if the child is able to prepare himself for his departure.

**Transportation**- scheduled field trips, walking, any distance the children are moved via a mini-bus and/or automobiles. The area where the children board should be either curbed or in a protected parking area which should be above the Minimum Standards.

Other activities which should be considered are these five (5) areas are: eating, sleeping, toileting, and play (indoor and
Eating during the day in the age groups are:
- infants ≤ 2 years old
- 2-3 years old
- 4-5 years old
- 6+ years old

The eating area may also be the indoor play space, but should essentially be located near the kitchen facilities.

Sleeping age breakdown during afternoon naps and also private resting is as follows:
- infants ≤ 12 mos.
- 1 - 3 years old
- 4 - 5 years old
- 6 - 8 years old

Toilet facilities should be supplied for each separate age group. It is not necessary to provide separate restroom facilities for boys and girls.

Play space (indoor & outdoor) should be at least 35 square feet of indoor play space for each child present. Also, at least
100 square feet for exterior play space. These areas are exclusive of kitchen, toilet rooms, offices, halls, stairways, if any, storage areas, adult furniture and outdoor equipment storage inside.

Six basic activities which are carried out at the D.C.C. are:

1) Large motor Skills
2) Clocks
3) Housekeeping
4) Library
5) Art
6) Puzzles and Table Games

Optional activities which are sometimes introduced are:

1) Sand
2) Water
3) Music
4) Science
5) Language development and Mathematical skills
people

Infants are ages 0-12 mos. They shall have available and be provided with the following:

1. Toys such as cradle gyms, rattles, and soft toy animals.

2. Colorful motiles and pictures

3. Music and household sounds. No toy shall be small enough to swallow.

B. For children 1 to 3 years of age, the following equipment shall be available and provided to the children:

1. Two blocks per child in the group for building experiences. These shall be of cardboard, hollow plastic or other safe construction.

2. Transportation toys such as boats, trucks, planes and trains, so that a ratio of at least one toy per child age 1 to 3 years is maintained.

3. Accessory toys such as figures of animals and people, including washable rag or yarn dolls to number at least one per child.
(4) Manipulative equipment such as simple one through four piece wooden puzzles, drop-in toys, stacking toys and textured toys, shall number one toy per child.

(5) Books of cloth or other sturdy construction with bright pictures, shall number one for each child in the group.

(6) Homemaking equipment which shall include but not be limited to such items as play telephones, tea sets, plastic fruit or vegetables, brooms, and mops.

(7) Music equipment which shall be available and may be shared by the other groups. Music equipment may include such items as drums, bells, maracas, records and record player, tapes and tape recorder, music boxes and piano.

(8) Art supplies such as finger paint made from food coloring crayons, paste, playdough and paper shall be available for use by one third of the group at the same time. A drying area or rack should also be located near art area to prevent poor usage of floor space in the area. Also, it is recommended that provisions for several unpainted walls on which the children may
sketch and paint on.

(9) Equipment such as push-pull toys, shall number one per child. For these toys a storage box or area should be provided.

(10) Wheel toys (indoor and outdoor) such as tricycles and wagons shall number one for every three children.

Climbing experiences shall also be provided. Both indoor and outdoor spaces need this type of experience.

C. For children 3 years of age and older, there should be interest areas identified in the indoor play area(s) so that at least three children can use the same type of equipment at the same time. The equipment and materials shall be included in the following as a minimum set of requirements:

(1) One set of wood blocks of various sizes and shapes in sufficient quantity to allow a ratio of at least 20 blocks per child building in the building area. Of these blocks, at least one half shall be wood floor blocks.

(2) Transportation toys and Block accessories such as boats,
trucks, planes, trains, figures of people and animals, so that a ratio of one toy per child age three and a toy for every two children ages four through six is maintained.

(3) Equipment such as wooden puzzles, lotto, drop-in toys and counting blocks to number two toys per child in the group. Each group shall have some type of bulletin board and figures that are to be used.

(4) Books to number one for each child in the facility ages three and older. Provision shall be made to display the children's art work, some of which shall be placed at the children's interests.

(5) Equipment for dramatic play for each group to include at least two dolls with clothes, a child-sized stove, unbreakable doll dishes, a broom, a toy iron, two play telephones, a mirror of unbreakable material and/or securely mounted and dress-up clothes for both sexes. Appropriate accessories for domestic play shall be included, such as puppets, tents, stores and props as found in the community.

(6) Simple equipment for science experiences such as a
large magnifying glass, a growing plant or sprouting seeds shall be available to each group of children for observation and experimentation. Other science experiences such as a sea shell collection, aquarium or an animal in a cage may be made available to each group.

D. Music equipment such as a piano, drums, bells or other musical instruments shall be available. A record player and records or tape recorder and tapes shall be available. Records or tapes shall reflect the interest and development stage of each age group in the center.

E. Art supplies, tempera paint, crayons, scissors, paste, clay, finger paints and paper in sufficient quantity shall be available to allow at least one third of one of the groups to participate at one time. Also materials should be accessible to any one child at that time.

F. Equipment shall be chosen so that as the children mature and progress from group to group they will have different and interesting challenges as well as some familiar items.
G. Play equipment and materials from each category above shall be accessible to the children. Play equipment and play materials shall be arranged at the child's level so that the children may select and return equipment and move easily from one activity to another without help or direction. Note: Expendable supplies, such as art supplies, paints and clay or breakable items such as record players or tape players may be stored above child level but available to the child upon request.

II. Equipment and materials shall be rearranged in the room and rotated (stored or moved from group to group) as the children show lessening interest.

There shall be sufficient outdoor equipment in relationship to the number and ages of children in care to accommodate the physical and other developmental needs of the children served. III. There shall be interest areas identified in the yard and equipped so that at least three children can play in an area or use the same type of equipment at one time. At a minimum, the yard shall contain:
(1) Large muscle equipment such as boxes, boards, tires, barrels, ladders, and climbing apparatus.

(2) Gardening, other nature experiences and science experiences. A digging or a sand area or both with equipment such as scoops, strainers, pails, and funnels.

(3) Transportation toys such as wagons and wheelbarrows, tricycles and other riding equipment if the yard permits their use.

(4) Equipment to be used as accessories for play such as lengths of hose, outdoor blocks, saw horses, small stock boxes, a filling station and equipment such as balls and stick horses to be used for games or developing skills.

(5) Areas designated for special activities ordinarily thought of as being done indoors.

Indoor and Outdoor Equipment and Supplies shall be free from hazards, be of safe construction and in good repair when made available to the children.

(1) Broken items shall be repaired immediately or removed
from areas used by children.

(2) Stationary outdoor equipment such as large climbing apparatus, swings and slides shall be located away from traffic areas in the play yard and securely anchored, unless designed to be portable.

(3) Swing seats will be made of soft or flexible material.

Staff and other adults shall have supplies and equipment available to meet their needs.

(1) Storage away from the children shall be supplied for the adults' personal belongings.

(2) Adult size seating shall be available for adults to use for such things as rest and meetings with other staff or parents.

(3) Centers licensed for 100 children or more shall have resource materials such as pamphlets on child development, music and other program areas available for staff study.

(4) Toys, furnishings and equipment shall be free of sharp edges, rusty or loose parts and poisonous surfaces.
Toileting Arrangements:

(1) Children shall have available sufficient equipment to have their toileting needs taken care of properly, conveniently and safely.

(a) Bathrooms used by all age children shall be located inside the day care facility.

(b) Infants and pre-school age children shall have:

(1) Bathrooms which are located and designed to permit supervision by a staff member. No locks shall be on the inside of bathrooms used by pre-school children except those latches placed at the very top of doors which cannot be reached even by children standing on equipment.

(2) Toilets and lavatories child size in height or adjusted by the use of safe platforms or seat adapters.

(c) School age children shall have provision made for privacy in use of bathroom facilities. Separately labeled bathrooms with booths constitute compliance, as does a single bathroom with a reversible boy/girl sign.
The ratio of children to toilets shall be established as outlined in the chart below:

<table>
<thead>
<tr>
<th>Number of Children</th>
<th>Number of Toilets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-15</td>
<td>1</td>
</tr>
<tr>
<td>16-30</td>
<td>2</td>
</tr>
<tr>
<td>31-45</td>
<td>3</td>
</tr>
<tr>
<td>46-60</td>
<td>4</td>
</tr>
<tr>
<td>61-75</td>
<td>5</td>
</tr>
<tr>
<td>76-90</td>
<td>6</td>
</tr>
<tr>
<td>91-105</td>
<td>7</td>
</tr>
<tr>
<td>106-120</td>
<td>8</td>
</tr>
</tbody>
</table>

Potty chairs may be available for use by children at three years of age and under. However, these shall not be counted as toilets in the child-toilet ratio. Children using potty chairs shall be counted in the child-toilet ratio.

b. Potty chairs shall be emptied and washed with soap and water after each use.

The ratio of children to lavatories shall be established as outlined in the chart below:

<table>
<thead>
<tr>
<th>Number of Children</th>
<th>Number of Lavatories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-15</td>
<td>1</td>
</tr>
<tr>
<td>16-30</td>
<td>2</td>
</tr>
<tr>
<td>31-45</td>
<td>3</td>
</tr>
<tr>
<td>46-60</td>
<td>4</td>
</tr>
<tr>
<td>61-75</td>
<td>5</td>
</tr>
<tr>
<td>76-90</td>
<td>6</td>
</tr>
</tbody>
</table>

etc.
b. Children shall wash their hands after using the toilet and before meals.

c. In new construction by, wajt the effective date of the Minimum Standards, a lavatory shall be provided in any area designated for infant care.

- Any facility licensed for more than 100 children shall have at least one separate staff bathroom.

- A structurally separate bathroom for staff shall constitute compliance.

· Use of the Facility:

1) While the day care program is in operation, the day care area shall not be used by persons engaged in activities unrelated to day care.

2) There will be scheduled meal and snacktimes. While eating, children learn to converse; they share ideas and exchange views. Snacktime is more informal than mealtime.

3) Rest or sleep periods are inserted into the schedule of both morning-only and all-day programs. Because children
cannot detect fatigue, rest or sleep is a routine about which they have no choice.

4) The daily schedule is a planned sequence of events that occur daily in an early childhood program. The schedule is as follows:

**Morning:** 7:30-8:00 Arrival, Breakfast, Toileting
8:00-8:15 Outdoors, Clean-up
8:15-10:00 Indoor activities
10:00-10:15 Clean-up, Toileting
10:15-10:30 Snack
10:30-10:50 Group activity
10:50-11:30 Outdoors
11:30-12:00 Rest or sleep
12:00-12:30 Lunch
12:30-2:30 Toileting, Naptime
2:30-4:15 Snack, Toileting
4:15-4:45 Outdoors, Clean-up
4:45-5:45 Indoors, Clean-up, Preparation to go home, Dismissal
A 'Administrative Director' will be appointed to head the Day Care Center staff by a Board of Directors. The director's primary function will be to carry on the managerial and administrative work of the D.C.C.

The 'Teacher' or supervising teacher should be a professional-favorably a person with a degree in early childhood education. In some special instances this qualification might be substituted by at least three years of successful work with young children, such as kindergarten teaching, nursery school employment, day care work or primary Sunday school teaching.

Some of the duties allocated to the 'teacher' of the facility will be as follows:

1. To plan, in cooperation with other staff, the daily activities of the center.
2. To be responsible for the physical environment in which the children work and play.
3. To see that instructional materials important to the successful operation of the center are available.
These are but a few duties to be considered when beginning a schematic design. Another important aspect is the accessibility of the 'teacher' to the workers and also to the Administrative Director only on occasion.

The 'teacher aide' is usually a sub-professional. She may be a paid worker or a volunteer; she may be a full-time or a part-time employee and may reside in the neighborhood or community where her services are needed or within the larger community. Under the guidance of the supervising teacher the aide carries out responsibilities similar to the following:

1. To arrange the physical environment in which the children work and play.

2. Arrange for materials for work and play to be available when needed; keep needed materials and supplies on hand.

The 'Social Worker' should be a professional—a person who has a degree in social work or sociology. She must be skilled, however, in the techniques of social work, for she is expected to make her biggest contribution to the center in the area of being
a person in whom the parents of the children have absolute confidence— a person whom they trust and whose judgment they should solicit and respect.

'The Nurse': It is hoped that one nurse will serve this center and possibly one other in the city. Preferably, this person will hold the R.N. degree, and it would be desirable if she could have had several years of experience in dealing with children. Some of the duties of the nurse might be:

1. To be on hand to examine children who have fevers, unusual rashes, etc.

2. To administer immunizations to children.

3. To keep accurate health records on all children.

'The Cook': The cook is a person which will come in contact with a wide variety of individuals. Important people which work closely with the cook will be the Director of Nutrition and also come in direct contact with the children she prepares food for at the center. Some design considerations for the cook's facilities are:

1. An area for food preparation and storage.

2. A serving and removal location for dishes at snack
and mealtimes.

3. A sink or sinks to wash and dry dishes, also storage cabinets for dishes after the wash and dry activity. Under the cook's direction at the center will be her helpers and the custodian.

Other essential workers are the maintenance personnel and staff members.

The role of parents in the Day Care center is one which must be paid close attention to, especially concerning the responsibility of the parent with respect to their child's behavior at the center. Primarily, parents would rather be on the Decisions Policy Board.

Spaces which need to be provided for are conference areas for teaching staff, parents and other staff members. Space must also be available for social workers, medical advisors and psychologists to meet with parents individually and in groups. The
parents need a room where they can gather for discussion and activities of their own choosing while the children are either in classrooms or in play areas.

The typical day care class consists of 12 to 17 children, one teacher, and two assistant teachers. It is recommended that for a group this size a minimum of 700 square feet of instructional space excluding any office areas, be used. The instructional space, for the children, should be perceptually clear and distinct, primarily achieved through uncluttered equipment and furniture arrangements in an orderly manner. The effective use of this spatial environment will help the child to focus his attention on the curriculum and not the distractions of other forms of competing stimuli.

Proper considerations should be taken when designing for the scale of size of the children, as well as the scale of adults. Display areas usually higher than 4 ft.-6 in. are beyond the small child's range of awareness. Most children are able to select their own books, puzzles, and play materials if
the top shelves are not higher than 3 ft. - 6 in.

Comparative dimensions for the different scales of children are as follows:

<table>
<thead>
<tr>
<th>Age 2</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td>34&quot;</td>
<td>33.7&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age 4</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td>40.9</td>
<td>40.9</td>
</tr>
<tr>
<td>weight</td>
<td>38</td>
<td>37</td>
</tr>
<tr>
<td>arm reach</td>
<td>16.7</td>
<td>16.4</td>
</tr>
<tr>
<td>chair height</td>
<td>9.5</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age 6</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td>46.1</td>
<td>45.8</td>
</tr>
<tr>
<td>weight</td>
<td>48</td>
<td>46</td>
</tr>
<tr>
<td>arm reach</td>
<td>18.8</td>
<td>18.9</td>
</tr>
<tr>
<td>chair height</td>
<td>11.6</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age 8</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td>50.4</td>
<td>50</td>
</tr>
<tr>
<td>weight</td>
<td>58</td>
<td>57</td>
</tr>
<tr>
<td>arm reach</td>
<td>21.5</td>
<td>21.2</td>
</tr>
<tr>
<td>chair height</td>
<td>13</td>
<td>12.5</td>
</tr>
</tbody>
</table>

The infants (ages 4 mos. to 2 yrs.) should be provided for with basinets, a controlled play area with observers able to
oversee the entire activities.

A special effort should be made to design specific areas for each of these areas with some mutual controlled spaces which are available during play and snacktime.
The proposed site is now zoned "A-2", heavy apartment district. The Day Care Center would be permitted in this "A-2" area unconditionally.

"A-2" HIGH DENSITY APARTMENT DISTRICT

The purpose of this district is to promote high density multi-family developments and compatible land uses in harmony with lower density uses. The regulations are designed to provide the occupants with safe and convenient housing within an aesthetically pleasing environment in proper relationship to adjacent land uses. When proposed development in this district is adjacent to "A-1" or "A-2" zoned property, the proposed development shall be designed to provide for maximum compatibility with the adjacent developments. Architectural design, landscaping, screening, and parking areas shall be properly provided to insure maximum protection of lower density areas.
General Provisions.

No business shall be permitted in this district except as provided for in the section and in the "Specific Use" section of this Ordinance.

Accessory uses shall be so located within the development to insure maximum compatibility with the primary use and, shall be for the convenience of the occupants only.

Permitted Uses.

Day Nurseries are listed under this subtitle in the city ordinances under zoning codes and regulations.

Specific Use.

To provide limited flexibility for modern urban design, additional uses in this district are provided in the "Specific Use" section of the ordinance.

Yard Requirements.

Front Yard. The minimum front yard shall be twenty-five (25) feet, except that when the entire front yard is landscaped and permanently maintained, the required front yard may be fifteen (15) feet. This section shall not be construed so as to permit
obstructions of any nature on corner lots within the visibility triangle as defined in Section 27.2-6-9-2 of the city Ordinance.

**Rear Yard.**

The minimum rear yard shall be five (5) feet, except when proposed development is adjacent to an "R-1" District, even if separated by an alley, the minimum rear yard shall be one (1) foot for each one (1) foot of total height.

**Side Yard.**

There shall be minimum side yard of five (5) feet on each side of any single story structure, ten (10) feet on each side of any structure with two (2) or more stories, except that on corner lots the minimum side yard adjacent to the street shall be ten (10) feet. Provided further, that in no case, shall a garage fronting onto a street be within twenty (20) feet of the street property line. When proposed development is adjacent to an "R-1" District, the minimum side yard shall be one (1) foot for each one (1) foot of total height. No side yard shall be required for individual row dwellings or townhouse units except at the end of
each structure where a ten (10) foot side yard shall be required.

Lot Width.

The minimum lot width shall be one hundred (100) feet for all other uses except as provided for row dwellings and townhouses in the "Specific Use" section.

Lot Area.

The minimum lot area shall be ten thousand (10,000) square feet, except as provided for row dwellings and townhouses in the "Specific Use" section.

Lot Coverage.

The combined area of all buildings shall not exceed forty (40) percent, except that permitted accessory uses may cover an additional ten (10) percent of the development lot area.

Floor Area Ratio.

75/100's square feet of total floor area for each one (1) square foot of lot area.

Height Limit.

Building shall not exceed three (3) stories and shall not
exceed forty (40) feet.

**Off-Street Parking.**

Day Nurseries - one (1) space for each three (3) hundred (300) square feet of gross floor area, plus an off-street drive, having separate ingress and egress, capable of the temporary storage of three (3) more vehicles.

**Off-Street Parking - Provisions.**

Any lighting of drives or parking areas shall be so designed as not to cause any glare on any other residential or apartment zoned area in the vicinity.

Plans for the off-street parking areas, except for single family detached dwellings, shall be submitted to be checked and approved as to number of spaces, access, and ingress and egress by the City Traffic Engineer under the terms of this district and the City's driveway regulations.

**Parking Regulations.**

Day Care, one parking space per employee.

Canyon Lake Policy Zone

The site is also located in a Canyon Lakes Policy Zone. An
ordinance set up to encourage orderly development of this land adjacent to the Canyon Lakes Projects. This ordinance sets up a few guidelines which are specified below:

Residential "R" and "A" Districts—

1) Development shall be oriented in a manner that most effectively promotes contact and interaction between the Canyon Lakes Park and adjacent land use.

2) A minimum of 15% of the total lot area shall be landscaped and permanently maintained.

3) Landscaping shall be defined as changing the features of the required area by adding lawns, trees, shrubs, and other landscape materials so as to promote the aesthetic quality.

**Landscaping Requirement.**

Fifteen (15) percent of the total development lot area shall be landscaped and permanently maintained. One-fourth (1/4) of the required landscaping shall be located in the required front yard.

The parkway area shall be landscaped and permanently maintained. This shall be in addition to the required landscaping.
BUILDING CODES

The building code used for Lubbock, Texas is the Uniform Building Code, 1976 edition. The following is a summary of the codes which apply to this type of project.

1) Fire Zone-Fire Zone No. 3
2) Occupancy Group-Day Care Center, Group E Division 3 (any building used for day care purposes for more than six children)

Requirements for Group E Occupancies
Construction, Height, and Allowable Area

General:

Buildings or part of building classed in Group E because of the use or character of the occupancy shall be limited to the types of construction set forth in tables no. 5-A and no. 5-D and shall not exceed in area or height the limits specified in sections 505, 506, and 507 except that the area may be increased by 50 percent when the maximum travel distance specified in section 3302 (d) is reduced by 50% (percent). Tables 5-A and 5-D
are found below.

**TABLE #5-A BASIC ALLOWABLE FLOOR AREA FOR BUILDINGS ONE STORY IN HEIGHT IN FIRE ZONES NO. 1 AND NO. 2. FOR BUILDINGS IN FIRE ZONE NO. 3 THE BASIC AREA MAY BE INCREASED 33 1/3% IN SQUARE FEET.**

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
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<tr>
<td>E-3</td>
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<td>ted</td>
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<td>1-hour</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>or H.T.</td>
<td>N</td>
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: No general requirement for fire resistance.
H.T.- Heavy Timber.

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<thead>
<tr>
<th>OCCUPANCY</th>
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<th>II</th>
<th>III</th>
<th>IV</th>
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<td>1</td>
<td>2</td>
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</table>
Allowable Floor Areas

Section 505:

A. One Story Area- set down in Table No. 5-A.

B. For Buildings Over One Story- The total area of all of floors of multistory buildings. Shall not exceed twice the area allowed for one story buildings. No single floor area shall exceed that permitted for one-story building.

C. Basements and Cellars- A basement or cellar need not be included in the total allowable area, provided such basement or cellar does not qualify as a story nor exceed the area permitted for a one story building.

D. Area Separation Walls- Each portion of a building separated by one or more area separation walls may be considered a separate building provided the area separation walls meet the following requirements:

1) Area separation walls- not less than four hours
fire resistant in types I, II, III, and IV buildings and 2 hour in types II, one-hour, II-N, or V. The total width of all openings in such walls shall not exceed 25% of the length of the wall in each story. All openings shall be protected by a fire assembly having a three-hour fire protection rating in four-hour fire resistant walls and 1½ hours in 2 hour wall.

2) Area separation walls need not extend to the outer edges of horizontal projecting elements such as balconies, roof overhangs, canopies, marquees, or architectural projections provided the exterior wall at the termination of the area separation wall and the projecting elements above are not less than one hour fire resistive construction for a width equal to the depth of the projecting elements. Wall openings within such widths shall be protected by assemblies having a three/fourths hour fire protection rating.

3) Area separation walls shall extend from the foundation to a point at least 30" above the roof.
Exceptions:  a) area separation walls may termi­
nate at the roof soffit provided the roof is of
at least two-hour fire resistant construction.

b) 2 hour area separation walls may terminate at
the underside of roof sheathing provided that the
roof has at least one hour fire resistant time per-
iod for a width of not less than 5'-0" on each
side of area separation wall termination.  c) 2
hour area separation walls may terminate at roofs
of entirely non-combustible construction.

4) Where an area separation wall separates portions of
a building having different heights, such a wall may
terminate at a point 30" above the lower roof level
provided exterior wall for a Ht. of 10'-0" above the
lower roof is of 1 hour fire resistant construction
with openings protected by assemblies having a three/
fourths hour fire protection rating.

   Exceptions:  a) the area separation wall may termi-
inate at sheathing of lower floor provided the
roof is of at least one hour fire resistant construction for a width of 10'-0" without openings measured from the wall.

Allowable Area Increases

Section 506:

General- The floor areas specified in section 505 may be increased by one of the following:

1) Separation on Two Sides- Where public spaces, streets, or yards more than 20 feet in width extend along and adjoin two sides of the building, floor areas may be increased at a rate of one and one/fourth % for each foot by which the minimum width exceeds 20'-0", but the increase shall not exceed 50%.

2) Separation on 3 Sides- Where public spaces, streets, or yards more than 20' in width extend along and adjoin three sides of the building, floor areas may be increased at a rate of 2½% for each foot by which the minimum width exceeds 20 ft., but the increase shall not exceed 100%.
Automatic Fire Extinguishing Systems—Area specified in 505 may be tripled in one-story buildings and doubled in buildings of more than one story if the building is provided with an approved automatic sprinkler system throughout.

Section 507.

Limits set for by Table 5-1 may be increased by one story if the building is provided with an approved automatic sprinkler system.

Atmospheric Separation Requirements:

1) Definitions—Common atmosphere—A common atmosphere exists between rooms, spaces, or areas within a building which a building which are not separated by an approved smoke and draft stop barrier. Separate Atmosphere—A separate atmosphere exists between rooms, spaces, or areas that are separated by an approved smoke and draft stop barrier. Smoke and Draft Barrier—Consists of walls, partitions, floors and openings there in of such construction as will
prevent the transmission of smoke or gases through the construction.

2) General Provisions- The provisions of this subsection shall apply only to requirements for providing separate atmospheres. Walls, partitions, and floors forming all of, or part of, and atmospheric separation shall be of materials consistent with requirements for the type of construction, but of construction not less effective than a smoke or draft stop barrier. Glass lights of approved wired glass set in steel frames may be installed in such walls or partitions.

Every door opening therein shall be protected with a fire assembly as required elsewhere in the Code, but not less than a self-closing or automatic closing, tight-fitting smoke barrier and fire assembly have a fire protection rating of not less than 20 minutes when tested.

Ducts penetrating atmospheric separation walls partitions or floors, shall be equipped with an approved automatic closing
smoke damper when having openings into more than one atmosphere.

All automatic closing fire assemblies installed in the atmospheric separation shall be activated by approved detectors of products of combustion other than heat. The specific requirements of this section are not intended to prevent design or use of other systems, equipments, or techniques which will effectively prevent the products of combustion from reaching the atmospheric separation.

Special Provisions- Rooms in divisions one and two occupancies used for day care purposes, kindergarten, 1st and 2nd grade pupils and div. 3 occupancies shall not be located above the first story.

Storage and janitor closets shall be one hour fire resistant construction.

Location on Property

Section 803:

All buildings housing group E occupancies shall front directly upon or have access to a public street not less than 20
feet in width. The access to the public street shall be a minimum 20 foot wide right-of-way, unobstructed and maintained only as access to the public street. At least one required exit shall be located on the public street or on the access way.

Exit Facilities - As Specified in Chapter 33

Light Ventilation and Sanitation - All portions of Group E occupancies customarily used by human beings shall be provided with light and ventilation by means of windows or skylights with an area not less than one/tenth of the total floor area, one/twentieth of which shall be openable or shall be provided with artificial light and a mechanically operated ventilating system. The mechanically operated ventilating system shall supply a minimum of 5 cubic ft. per minute of outside air with a total circulated of not less than 15 cubic feet/minute/occupant in all portions of the building and such systems shall be kept continuously in operation during such time as a building is occupied. If velocity of air at the register exceeds 10 ft/second, the register shall be placed more than 8 ft. above the floor directly beneath.
STAIRS, EXITS AND OCCUPANT LOADS

Number of Exits- Every building or usable portion thereof shall have at least one exit, and shall have not less than two exits where required by Table No. 33-A. In all occupancies, floors above the first story having an occupant load of more than 10 shall have not less than two exits.

Width- The total width of exits in feet shall be not less than the total occupant load served divided by 50.

Arrangement of Exits- If only two exits are required they shall be placed a distance apart equal to not less than one-half of the length of the maximum over-all diagonal dimension of the building or area to be served measured in a straight line between exits.

Distance to Exits- The maximum distance of travel from any point to an exterior exit door, horizontal exit, exit passage-way, or an enclosed stairway in a building not equipped with an automatic fire-extinguishing system throughout, shall not exceed
150 feet or 200 feet in a building equipped with an automatic fire-extinguishing system throughout. These distances may be increased 100 feet when the last 150 feet is within a corridor, complying with Section 3304.

**Exits Through Adjoining or Accessory Areas**—Exits from a room may open into an adjoining or intervening room or area provided such adjoining room is accessory to the area served and provides a direct means of egress to an exit corridor, exit stairway, exterior exit, horizontal exit, exterior exit balcony or exit passageway. Exception: Exits are not to pass through kitchens, storerooms, rest rooms, closets or spaces used for similar purposes.

Foyers, lobbies and reception rooms constructed as required for corridors shall not be construed as intervening rooms.

**DOORS.**

**General**—This section shall apply to every exit door serving an area having an occupant load of more than 10, or serving hazardous rooms or areas. Buildings or structures used for human oc-
cupancy shall have at least one exit door which meets the requirements of Subsection (d). Subsections (h) and (i) shall apply to all doors, regardless of occupant load.

Swing--Exit doors shall swing in the direction of exit travel when serving any hazardous area or when serving an occupant load of 50 or more. Double acting doors shall not be used as exits serving a tributary occupant load of more than 100; nor shall they be used as part of a fire assembly, nor equipped with panic hardware. A double acting door shall be provided with a view panel of not less than 200 square inches.

Type of Lock or Latch--Exit doors shall be openable from the inside without the use of a key or any special knowledge or effort.

<table>
<thead>
<tr>
<th>Use</th>
<th>Minimum of Two Exits Other Than Elevators are Required Where Number of Occupants Is Over</th>
<th>Square Feet Per Occupant</th>
<th>Egress by Means of a Ramp or an Elevator Be Provided for the Physically Handicapped as Indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurseries for Children (Day Care)</td>
<td>5</td>
<td>50</td>
<td>yes</td>
</tr>
</tbody>
</table>
Width and Height- Every required exit doorway shall be of a size as to permit the installation of a door not less than 3 feet in width and not less than 6 feet 8 inches in height. When installed in exit doorways, exit doors shall be capable of opening at least 90 degrees and shall be so mounted that the clear width of the exitway is not less than 32 inches. In computing the exit width required by Section 3302 (b), the net dimension of the exitway shall be used.

Door Leaf Width- No leaf of an exit door shall exceed 4 feet in width.

Special Doors- Revolving, sliding and overhead doors shall not be used as required exits. Approved power operated doors may be used for exit purposes.

Egress from Door- Every exit door required by this Section shall give immediate access to an approved means of egress from the building.

Change in Floor Level at Doors- Regardless of the occupant load, there shall be a floor or landing on each side of a door.
The floor or landing shall be not more than 1 inch lower than the threshold of the doorway. Where doors open over landings, the landing shall have a length of not less than 5 feet.

**Corridors and Exterior Exit Balconies - General** - This section shall apply to every corridor serving as a required exit for an occupant load of 10 or more persons.

For the purposes of this Section the term "corridor" shall include "exterior exit balcony" and any covered or enclosed exit passageway including walkways, tunnels and malls.

Foyers, lobbies and reception rooms meeting the construction requirements of corridors as specified in this section may be classed as corridors.

Partitions, rails, counters and similar space dividers not over 5 feet in height above the floor shall not be construed to form corridors.

**Width** - Every corridor shall be not less in width than 44 inches. For Group E Occupancy see Section 3317.

**Height** - Corridors and exterior exit balconies shall have a
clear height of not less than 7 feet measured to the lowest projection from the ceiling.

Projections- The required width of corridors shall be unobstructed. Exception- Trim, handrails, and doors when fully opened, shall not reduce the required width by more than 7 inches. Doors in any position shall not reduce the required width by more than one-half.

Access to Exits- When more than one exit is required, they shall be so arranged that it is possible to go in either direction from any point in a corridor to a separate exit, except for dead ends not exceeding 20 feet in length.

Changes in Elevation- When a corridor or exterior exit balcony is accessible to an elevator, changes in elevation of the floor shall be made by means of a ramp.

Construction- Walls of corridors serving an occupant load of 30 or more shall be of not less than one-hour fire resistant construction and the ceilings shall not be less than that required for a one-hour fire resistant floor or roof system.

Stairways- General- Every stairway serving any building or portion thereof shall conform to the requirements of this section.
Exception - Stairs or ladders used only to attend equipment are exempt from the requirements of this section.

Width - Stairways serving an occupant load of more than 50 shall be not less in width than 44 inches. Stairways serving an occupant load of 50 or less may be 36 inches wide. Private stairways serving an occupant load of less than 10 may be 30 inches in width. Trim shall not reduce the required width by more than 3½ inches. Handrails may project from each side of a stairway a distance of 3½ inches into the required width.

Rise and Run - The rise of every step in a stairway shall not exceed 7½ inches and the run shall be not less than 10 inches. The width of treads and the height of risers within any flight shall have identical dimensions with a ¼ inch tolerance.

Exception - Private stairways serving an occupant load of less than 10 and stairways to unoccupied roofs may be constructed with an 8 inch maximum rise and 9 inch minimum run.

Circular Stairways - Circular stairs may be used as an exit providing the minimum width of run is not less than 10 inches
and the smaller radius is not less than twice the width of the stairway. The largest tread width or riser height within any flight shall have identical dimension with a $\frac{1}{4}$ inch tolerance.

Landings- Every landing shall have a dimension measured in the direction of travel equal to the width of the stairway. Such dimension need not exceed 4 feet when the stair has a straight run. Landings when provided, shall not be reduced in width by more than $3\frac{1}{2}$ inches by a door when fully open. See Section 3303 (h). Exception- Stairs serving an unoccupied roof are exempt from these provisions.

Basement Stairways- Where a basement stairway and a stairway to an upper story terminate in the same exit enclosure, an approved barrier shall be provided to prevent persons from continuing on into the basement. Directional exit signs shall be provided as specified in Section 3312 (b).

Distance Between Landings- There shall be not more than 12 feet vertically between landings.

Handrails- Stairways shall have handrails on each side, and
every stairway required to be more than 88 inches in width shall be provided with not less than one intermediate handrail for each 88 inches of required width. Intermediate handrails shall be spaced approximately equal within the entire width of the stairway.

Handrails shall be placed not less than 30 inches nor more than 34 inches above the nosing of treads. They shall be continuous the full length of the stairs and except for private stairways at least one handrail shall extend not less than 6 inches beyond the top and bottom risers and ends shall be returned or shall terminate in newel posts or safety terminals. Handrails projecting from a wall shall have a space of not less than 1½ inches between the wall and the handrail.

Exterior Stairway Protection- All openings in the exterior wall below or within 10 feet, measured horizontally, of an exterior exit stairway serving a building over two stories in height shall be protected by a self-closing fire assembly having three-fourths-hour fire resistant rating.

Ramps- General- Ramps used as exits shall conform to the pro-
visions of this section.

Width- The width of ramps shall be as required for stairways.

Slope- Ramps required by Table No. 33-A shall not exceed a slope of one vertical to 10 horizontal. The slope of other ramps shall not exceed one vertical to 8 horizontal.

Landings- Ramps having slopes greater than one vertical to 15 horizontal shall have landings at the top and bottom and at least one intermediate landing shall be provided for each 5 feet of rise. Top landings and intermediate landings shall have a dimension measured in the direction of ramp run of not less than 5 feet. Landings at the bottom shall have a dimension in the direction of ramp run of not less than 6 feet. Doors in any position shall not reduce the minimum dimension of the landing to less than 42 inches and shall not reduce the required width by more than 3½ inches when fully open.

Handrails- Ramps having slopes exceeding one vertical to 15 horizontal shall have handrails as required for stairways,
except that intermediate handrails shall not be required.

Surface- The surface of ramps shall be roughened or shall be of nonslip materials.

Horizontal Exit- Used as a Required Exit. If conforming to the provisions of the chapter, a horizontal exit may be considered as a required exit.

Openings- All openings in a wall which provides a horizontal exit shall be protected by a fire assembly having a fire resistant rating of not less than one and one-half hours. Such fire assembly shall be automatic closing as provided in Section 4306 (b) when subject to products of combustion other than heat.

Discharge Areas- A horizontal exit shall lead into a floor area having capacity for an occupant load not less than the occupant load served by such exit. The capacity shall be determined by allowing 3 square feet of net clear floor area per ambulatory occupant and 20 square feet per nonambulatory occupant. The area into which the horizontal exit leads shall be provided with exits other than additional horizontal exits as required by
Section 3302.

Exit Enclosures—General—Every interior stairway, ramp, or escalator shall be enclosed as specified in this section.

Enclosure Construction—Enclosure walls shall be of not less than two-hour fire resistant construction in buildings more than four stories in height and shall be of not less than one-hour fire resistant construction elsewhere.

Openings into Enclosures—There shall be no openings into exit enclosures except exit doorways and openings in exterior walls. All exit doors in an exit enclosure shall be protected by a fire assembly having a fire-protection rating of not less than one hour where one-hour shaft construction is permitted and one and one-half hours where two-hour shaft construction is required. Doors shall be maintained self-closing or shall be automatic closing by means of products of combustion detectors other than heat as provided for in Section 4306 (b). The maximum transmitted temperature end point shall not exceed 450 F. above ambient at the end of 30 minutes of the fire exposure specified in U.B.C. Standard No. 43-2.
Extent of Enclosure- Stairway and ramp enclosures shall include landings and parts of floors connecting stairway flights and shall also include a corridor on the ground floor leading from the stairway to the exterior of the building. Enclosed corridors or passageways are not required from unenclosed stairways. Every opening into the corridor shall comply with the requirements of Section 3308 (c).

Barrier- A stairway in an exit enclosure shall not continue below the grade level exit unless an approved barrier is provided at the ground floor level to prevent persons from accidentally continuing into the basement.

Use of Space Under Stair- There shall be no enclosed usable space under stairways in an exit enclosure, nor shall the open space under such stairways be used for any purpose.

Exit Courts- General- Every exit court shall discharge into a public way or exit passageway.

Width- Exit court minimum widths shall be determined in accordance with provisions of Section 3302 based on the tributary
occupancy load and such required width shall be unobstructed except for projections permitted in corridors in Section 3304.

Where the width is reduced from any cause the reduction shall be effected gradually by a guardrail at least 3 feet in height and making an angle of not more than 30 degrees with the axis of the exit court.

Number of Exits- Every exit court shall be provided with exits as determined by Section 3302.

Openings- All openings into an exit court less than 10 feet wide shall be protected by fire assemblies having not less than a three-fourths hour fire-protection rating. Exception- Openings more than 10 feet above the floor of the exit court may be unprotected.

Exit Passageways- Discharge- The walls of exit passageways shall be without openings other than required exits and shall have walls, floors, and ceilings of the same period of fire resistance as required for the walls, floors and ceilings of the buildings served with a minimum of one-hour fire-resistant construction. Exit
openings throughout the enclosing walls of exit passageways shall be protected by fire assemblies having a three-fourths-hour fire protection rating.

Detailed Requirements- Exit passageways shall have the width, height, and other construction requirements as required for corridors in Section 3304.

Exit Signs and Illumination- Exits shall be illuminated at any time the building is occupied with light having an intensity of not less than one footcandle at floor level.

Exit Signs- At every required exit doorway, and wherever otherwise required to clearly indicate the direction of egress, and exit sign with letters having principal stroke not less than 3/4 inch and at least 6 inches high shall be provided in all areas serving the occupant load specified in the subsection. In interior stairways the floor level leading direct to the exterior shall be clearly indicated.

Illumination of Signs- Exit signs serving the occupant loads specified in this subsection shall be lighted with two electric
lamps of not less than 15 watts each.

Exits: Group E Occupancies—Group E, Divisional, 2, 3.

Group E, Divisions 1 and 2 Occupancies shall have exits as required by Section 3315. In Group E, Division 3, Occupancies having an occupant load of more than 100, exit doors shall not be provided with a latch or lock unless it is a panic hardware.

No point in an unsprinklered building shall be more than 150 feet from either an exterior exit door, a horizontal exit, exit passageway or enclosed stairway all measured along the line of travel. In a building protected throughout with an automatic fire-extinguishing system this may be increased to 225 feet. In buildings not more than two stories in height protected throughout with detectors of products of combustion other than heat, the distance may be increased to 175 feet.

Exits Through Adjoining Rooms—Interior rooms may exit through adjoining or intervening rooms to an exit corridor does not exceed that specified in subsection (c) above and is a direct, obvious and unobstructed means of travel. Such paths of exit travel shall
not pass through kitchens, storerooms, restrooms, closets, laboratories using hazardous materials, industrial shops or other similar spaces.

Foyers and lobbies constructed as required for exit corridors shall not construed as adjoining or intervening rooms.

Where the only means of exit from a room is through an adjoining or intervening room, detectors of products of combustion other than heat shall be installed in the area of the common atmosphere through which the exit must pass. The detectors shall actuate alarms audible in the interior room and shall be connected to the school fire alarm system. Exceptions- Where the aggregate occupant load of the interior room or rooms is less than 10. Where the enclosures forming interior rooms are less than two-thirds of the floor to ceiling height and do not exceed 8 feet. Rooms used exclusively for mechanical and public utility service to the buildings.

Stairs- Each floor above or below the ground floor level shall have not less than two exits, stairs and the required exit
width shall be equally divided between such stairs, provided that no stair serving an occupant load of more than 100 shall be less than 5 feet in clear width. Exception- This subsection does not apply to rooms used for maintenance, storage, and similar purposes.

Doors- The width of exit doors shall be sufficient to accommodate the occupant load served.

Basement or Cellar Rooms- Exit stairways from the cellar or basement shall open directly to the exterior of the building without entering the first floor corridor.

Fences and Gates- School grounds may be fenced in and gates equipped with locks, provided safe dispersal areas located not less than 50 feet from the buildings are available for persons between buildings and fence. Dispersal areas shall be based upon an area of not less than 3 square feet per occupant. Gates shall not be permitted across corridors or passageways leading to such dispersal areas unless they comply with exit requirements.
CLIMATE

Lubbock, Texas is located on the high, level surface of the South Plains region of northwest Texas and is approximately N 33°35' x W 101°51'. Lubbock's elevation is approximately 3,243 feet above sea level. The climate of the area is semi-arid, transitional between desert conditions on the west and humid climates to the east and southeast. Summers are hot and the winters are cold, however in the winter the temperature very seldom gets below 25 and in the summer it seldom gets above 98. Rainfall is minimal with some sort of irrigation needed to keep lawns, trees, etc., growing and doing well. Because of Lubbock's location of the south plains and because the terrain is extremely flat and open, winds are a major climatological factor. They are very frequent and occasionally reach speeds of 40 mph and higher. Severe dust storms occur during the spring due to open fields, high winds, and the lack of geological barriers. Depending upon conditions, the dust can extend up to 20,000 feet and visibility can be cut to zero feet.
The following is climatological data of Lubbock, Texas:

Total Precipitation
Between 10.00 inches to 40.55 inches annually and 0.00 inches to 13.93 inches monthly.
Normal annual precipitation-17.67 inches.
Normal annual precipitation recent years-18.23 inches.
Maximum precipitation occurs during May, June and July (when warm tropical air is carried inland from the Gulf. This air mass produces moderate to heavy afternoon and evening convective thunderstorms, sometimes with hail).
Rain is erratic.
Maximum in 24 hours-5.14 inches.
Maximum in one month 7.87 inches.

Total Snowfall
Snows occasionally during winter months. Generally light and remains on the ground only a short time.
Between 0.00-24.00 inches annually.
Maximum in one month-16.8 inches.
Maximum in 24 hours-8.00 inches.

**Mean Number of Days with Percipitation**

-.10 or .50 inches.
-.10 31 annually 6 monthly.
-.50 10 annually 2 monthly.

**Relative Humidity**

33 to 78 percent average monthly.

**Temperatures**

**Mean Annual Temperature**-60.2°.

Monthly Range-38 to 84°.

Warmest months-June, July, August.

July-normal daily maximum-92° average.

Record High-110° (June '77).

Coldest-December and January.

January normal daily minimum of 25.4° average.

Record low- -16° (January '63).

**Mean Daily Maximum Temperature**

Annually 74-75°.

Monthly 54-93°.
Mean Daily Minimum Temperature

Annually 45-46°.

Monthly 26-66°.

Mean Number of Days with Temperature

90° 25 per month maximum 99 per year.
32° 22 per month maximum 89 per year.

Wind

Normal mean wind speed- 13 mph.
Prevailing direction- south.
Directional range WSW/ SW/ S.
Strong continuous winds occur relatively frequent in spring.
Above 30 mph for short periods of time.
Frequent occurrence of tornadoes (3 to 4 annually) sighting within Lubbock vicinity.

Other Data

Percentage of possible sunshine- 80% yearly average.
Low percentage- January.
High percentage- August.

Normal average heating degree days- 3545.
Mean annual relative humidity:
Hour  12 p.m.  6 a.m.  12 a.m.  6 p.m.
R.H.  63%    74%    46%    41%

Mean sky cover sunrise to sunset 4.6%.

Monthly Precipitation (average)

<table>
<thead>
<tr>
<th>Month</th>
<th>Precipitation (average)</th>
</tr>
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<tbody>
<tr>
<td>January</td>
<td>.55 inches</td>
</tr>
<tr>
<td>February</td>
<td>.50 inches</td>
</tr>
<tr>
<td>March</td>
<td>.89 inches</td>
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<tr>
<td>April</td>
<td>1.08 inches</td>
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<tr>
<td>May</td>
<td>3.17 inches</td>
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<tr>
<td>June</td>
<td>2.78 inches</td>
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<tr>
<td>July</td>
<td>2.23 inches</td>
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<tr>
<td>August</td>
<td>1.87 inches</td>
</tr>
<tr>
<td>September</td>
<td>2.19 inches</td>
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<tr>
<td>October</td>
<td>2.05 inches</td>
</tr>
<tr>
<td>November</td>
<td>.49 inches</td>
</tr>
<tr>
<td>December</td>
<td>.61 inches</td>
</tr>
</tbody>
</table>

Mean Number of Days

Precipitation-.01 or more  59 days.

Snow/Ice- 3 days.

Thunderstorms- 45 days.

Heavy Fog 16 days.

Temperature Maximum:
32 and below-99 days.
0 and below-1 day.
SITE INFORMATION

The selected site is bordered on the east by Mackenzie State Park, on the west by the Amarillo Hwy., and on the south side by Fourth St.

The reasons for selecting this site location are better service to the needing area and a primary location for parents to place their children on their way to work.

Services in the area are also excellent opportunities for the Day Care Center.
Facts about the Children

Two Year Olds

Height is 32 to 38 inches.
Weight is 23 to 30 pounds.
He has a stagger in his steps, a forward lean in his posture.
He greatly enjoys motor activity.
He delights in rough and tumble play, solitary and responsive.
He expresses joy by dancing, jumping, clapping hands.
He can snip with scissors.
Stoops or squats.
Experiments by touching, smelling, and testing.
Is able to undress self except for buttons.
Can go upstairs, one foot after the other onto each step.
Can throw or kick a ball.
Can turn a doorknob.
Likes to take things apart and put them back together.
Prefers bright gay colors.
Engages in solitary parallel play.
Prefers to play alone, likes to watch other people instead of participating.
Does not share.

Three Year Olds

Height is 32 to 40 inches.
Weight is 25 to 36 pounds.
Enjoys gross motor activity.
Likes to use crayons and he likes puzzles.
Runs with more smoothness, turns corners, makes sudden stops.
Jumps upward with both feet as much as 12 inches.
Uses large muscles in arms, legs, body lifting, loading, pushing.
Rides a tricycle, confident of his equilibrium.
At meals, is self reliant, does not have to be fed.
Gets own glass of drinking water.
Makes trains and towers out of blocks.
May stay awake at nap time.
Acts more like a four year old than a two year old.
Will fall alot.
Does not "share" easily with other children.
Does not play with other children but near them.

Four Year Olds

Height is around 38½ inches.
Weight is about 34 pounds.
More facile runner than three.
Finds pleasure in feats of fine coordination.
Likes to make things out of paper.
Can use crayons, scissors, and other simple tools.
Enjoys being still, along with friends; Craves being with other children.
Is developing a longer attention span (10) minutes.

Five Year Olds

Five is 43½ inches tall.
Weights 42 pounds.
More mature sense of balance; less given to caution.
Can get a drink, go to the toilet, wash hands and face, clean up after play and help themselves to the table.
Prefer playing with other children in projects like playing house, building garages, switch yard for trains and cars.

Note: Because of the economic and social conditions that these children live in, these children may be below the specified characteristics of children.
Furniture

1. Tables:
   Height: High enough for a child to rest his elbows on it, use arms comfortably, and fit his legs under table apron when in use.
   2-3 year olds, 18" from floor to top of table.
   4-5 year olds, 20" to 21" from floor to top of table.
   Mobility: Small tables are more versatile and easier to move from place to place.

2. Chairs:
   Size Variation: Child should be able to rest his feet flat on the floor and have space between front edge of seat and inside angle of his knees when sitting in it.
   2-3 year olds, 10" to 11"
   4-5 year olds, 11", 12", 12 3/4"
   Shape: Wooden posture chairs with saddle seats best recommendation.
   Durability: Should be durable enough to withstand a child's punishment.
3. Lockers:

Size: 52" high, 48" wide

Wooden lockers: no sharp edges, better adapted for use with the children.

Separate compartment for each child-locker and cubby holes combined with hooks placed underneath or near one another.
Open cupboard with trays or boxes in each one.
Safety: no doors, anchor to wall or floor, if moveable to provide sturdiness and safety so it cannot be knocked over.
Needs to be easily accessible within the child's reach.
Also, double hooks should be located within the cubby hole so as to hang belongings.

4. Shelves:

Low open shelves
Eye level

No doors- avoids accidents, easier accessibility
Anchored to the wall or floor.
Placed in areas where children use them.

Recommended size per shelf unit- 4' long, 28"-29" high
Cover backs with pegboard or corkboard (picture display possible)
Total storage space - consider number, size and shape.
Recommended storage areas:
  Blocks and accessories
  Library
  Equipment not used in daily - closet or cabinet
  Filing cabinet

5. Cots:
  Individual cot per child 22" x 53"
  Arrangement - separation of at least one foot on each side
  next to a two foot aisle.
  Sturdy, washable, appropriate to child's size.

6. Miscellaneous:
  Full length mirror - possibly several
  Bulletin boards at eye level of the child.
  Wastebasket
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4. Day Care- Serving School Age Children.
5. Day Care- Staff Training.
7. Day Care- Administration.
9. Day Care- Family Day Care.

Guides for Day Care Licensing.

State and Local Day Care Licensing Requirements.

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1. Resources for Child Care, 1976 Publications Catalog.
2. A New Day in Child Care.
Interviews

After speaking with several individuals, I had interviews with Dr. Jeanette M. Jenkins, Dr. Charles A. Smith, and Dr. Jeffery W. Elias.

Dr. Jenkins offered quite an interesting opinion on Day Care Centers and their employees. She feels, as I, children are the source for the future and need to be pointed in the right direction, both under Day Care supervision and in the home.

Dr. Smith helped me gain information concerning child interaction with Day Care employees.

Dr. Elias aroused an interest which basically calls for major changes in child care, both physically and mentally. Psychological information concerning the children has helped me gain a deeper faith in man, his abilities to help others, and the knowledge to aid other human beings in their quest for emotional, psychological, and physical health in the world in which we all live.
Acknowledgments

Part I.
1) Who's Minding The Children?
2) Interview with Dr. Jeanette M. Jenkins
3) Interview with Dr. Charles A. Smith

Part II.
1) Designing The Child Development Center
2) Designing a Day Care Center
3) Minimum Standards for Day Care Centers (1976)

Part III.
1) Lubbock Zoning Ordinances and Maps
3) Minimum Standards for Day Care Centers (1976)
DOCUMENTATION
CHANGES AND ADDITIONS IN THE THESIS PROGRAM:

In addition to children and activities, a schedule of activities for each age group during the day was needed to understand the uses at different times of the day. Also, the physical abilities and language skills of the different age groups.

Motor and Language Development:
Age: 12 weeks
Motor Development: The child is able to support his head when in the prone position; weight is on his elbows; hands are mostly open; and he has no grasp reflex.
Vocalization and Language: There is markedly less crying than at 8 weeks; when talked to and nodded at, smiles, followed by squealing gurgling sounds usually called cooing, which is vowel like in character and pitch modulated; sustains cooing for about 15-20 seconds.

Overall Language Development:
Birth to Six Months: Infants are born with the ability to make sounds. By three or four months they frequently make sounds and noises during play or blow bubbles using the saliva in their mouths.
Babies cry differently when they are hungry, wet, in pain, or upset almost from the moment of birth. Usually the mother or primary care-person understands what different cries mean—the baby is already communicating.

By three and one-half months, infants begin to hear differences in sounds and will turn their heads in the direction of a particular sound.

Between four and five months, infants start to recognize the voice of their mother or primary careperson. They may smile and coo even when the voice is heard from another room.

16 weeks:

The infant plays with a rattle placed in hands (by shaking it and staring at it), head is self-supported; tonic neck reflex subsiding. He responds to human sounds more definitely, turns head; eyes seem to search for speaker; occasionally some chuckling.

20 weeks:

Sits with props.

The vowel-like cooing sounds begin to be interspersed with more consonantal sounds; labial fricatives, acoustically, all vocalizations are very different from the sounds of the mature language of the environment.

24 weeks:

Sitting: bends forward and uses hands for support; can
bear weight when put into standing position, but cannot yet stand without holding on; reaching: unilateral; grasp: no thumb apposition yet; releases cube when given another.

Cooing changing into babbling resembling one syllable utterances; most common seem to be ma, ma, da, di.

From Six to Twelve Months:

Around six months babies begin to make sounds that seem like words-- da-da, ma-ma, and bye-bye. Excitement and smiles of the parents when this happens encourage the baby to make the sounds again and again.

In this period babies will stop what they are doing for short periods and listen to others talking. They begin to react to, and to understand, simple familiar words. This is the beginning language. As babies understand more language, they are able to follow simple, frequently heard commands, such as "stop", "look", "come here", and "no-no".

Around their first birthday, children begin to say simple, single words like "no" or "mama" clearly, correctly and with definite purpose. These words are not just the repetition of accidental sounds.

8 months:

Stands holding on; grasps with thumb apposition; picks up pellet with thumb and finger tips.

Reduplication (or more continuous repetitions) becomes
frequent; intonation patterns become distinct; utterances can signal emphasis and emotions.

10 months:
Creeps efficiently; takes side steps, holding on; pulls to standing position.
Vocalizations are mixed with sound play such as gurgling or bubble blowing; appears to wish to imitate sounds, but the imitations are never quite successful; beginning to differential adjustment.

12 months:
Walks when held by one hand; walks on feet and hands- knees in the air; mouthing of objects almost stopped; seats self on the floor.
Identical sound sequences are replicated with higher relative frequency of occurrence and words and simple words are emerging; definite signs of understanding some words and simple commands.

Twelve to Eighteen months:
This is an important period for language development. The more new words children hear, the more rapidly they learn to talk new words usually need to be repeated again and again before children understand them.
Children enjoy learning and saying new words. They repeat words again and again until they sound right to them, or until
the words bring the desired action from others.

Children recognize names of familiar objects, such as bed, bottle, and cat, during this period.

Frequently they use single words, then begin to string words together to mean a complete thought, like "All Gone", or "Me Go". 18 months:

Grasp, prehension and release fully developed; gait stiff, propulsive and precipitated; sits on child's chair with only fair aim, creeps downstairs backwards; has difficulty building tower of three cubes.

Has a definite repertoire of words—more than three, but less than fifty; still much babbling but now of several syllables with intricate intonation patterns; no attempt at communicating information and no frustration for not being understood; words may include items such as thank you or come here, but there is little ability to join any of the lexical items into spontaneous two item phrases; understanding is progressing rapidly.

THE TODDLER—WHAT TO EXPECT

The tiny baby who needed nearly constant care and physical support is, at 18 months, a child who can toddler about and get into all kinds of things. Now the child can do more than cry when he or she wants or needs something. Toddlers are extremely active; it is often physically exhausting to keep up with them.

The toddling stage begins at a different time for each child.
For many children it is a period of uneven growth. Some children develop physical and language skills at about the same rate, others will not acquire these abilities as soon as some of the children. Over the months, the development of motor and language skills tends to even out. By age three most children walk well and talk in short phrases or sentences.

**PHYSICAL DEVELOPMENT**

The most impressive physical accomplishment during this period is walking. Some children start walking as early as nine or ten months; others not until 18 months. Once they learn to walk the toddlers use their new freedom of movements to explore everything within reach.

**Between 18 and 24 months most children learn to:**
- walk forward and sideways
- sit down easily in a small chair
- climb into a big "Grown-up" chair
- use the toilet

**By two-and-a-half or three most children can:**
- kick a ball
- jump up and down in one place
- walk downstairs holding an adult's hand or a bannister
- run about easily
- walk on tiptoe
- stand on one foot for a few seconds
- ride a tricycle
- put on simple clothes
- wash and dry hands, with a little help
- drink from a cup
- feed themselves with a spoon
- keep dry except for occasional accidents

MOTOR DEVELOPMENT
Toddlers learn quickly. Around the time they learn to talk, they begin to remember where they put things or where certain things are kept, like a ball or the cookie jar.

Between 18 and 24 months most children learn to:
- go around objects instead of running into them or trying to get over them
- imitate what other children and grown ups are doing
- pretend a brush may become a make-believe airplane or a truck

Between two and two-and-a-half, children:
- can follow simple directions, such as "Put the toys in the box."
- like to name things they see in pictures and books.
- can listen to stories
- begin to ask questions- "why?" or "what?"
By three most children:
- can follow more than one direction at a time, such as "Get the ball and close the door."
- want to know the "why" for everything they see and hear
- can match simple shapes, like squares with squares and circles with circles
- know what familiar objects are used for
- love to pretend- children pretend to be asleep, or to use the telephone

SOCIAL/EMOTIONAL DEVELOPMENT

Babies stay where adults put them, but toddlers can get around by themselves. Toddlers do not want adults to get in their way. But since they don't know what might hurt them or how they should behave, they keep hearing "no" from parents, from brothers and sisters, and from other care-givers. The "no" will be accepted more easily if the child is told or given something else to do that is acceptable.

Children in this age range may:
- throw temper tantrums when frustrated or when a toy is taken away
- take what seems like forever to do things they have no concept of adult time
- want to feed and dress themselves without help, even though it is frustrating for them
- wander off to play or talk with other children or strangers, but look back to be sure the adult is there
- develop fears of sudden noise, of being alone at bedtime, of being left with a sitter, of adults never coming back, of strangers
- grab toys and shove other children, they want to be with other children but haven't yet learned to share
- cling to parents
Most children 2½ and 3:
- are willing to leave parents or primary care-givers for a while to play with other children
- can talk well enough to say they are angry rather than throw a temper tantrum.

SUMMARY OF GOALS

What then are the developmental goals for a child from birth to age three?
- Gaining increasing control over his body systems: development of regulatory physiological mechanisms; gross and fine motor development and coordination.
- Increasing awareness of the self as a separate identity; a sense of self involving who and what he is.
- The ability to communicate needs, wants feelings and ideas; the use of verbal and non-verbal methods of communication; the development of a sense of being understood
- The ability to be flexible and open to new ideas, new feel-
ings and new people

- The development of skills, and techniques for gaining skills

A major design concept in the development is to evolve a design which, the child can relate to not only emotionally, but physically as well, in terms of the created physical environment.

CONSIDERATIONS FOR ACTIVITIES AND AGE GROUPS

In the development of space, one must not only consider the equipment to go into that space but the scale of the children. Designing for this variable will be the greatest challenge in solving this project.

A comparison of common space is necessary in meeting the needs of the children. Spatial qualities of the environment will play an important role in the design phase. It is one of my main goals to design this Day Care Center for the main user, the child.

Forms, shapes, colors, etc. should be taken into account, as these factors as well as psychological effects of space will determine the success of the design stages as it progresses through phases.

The importance of trying to satisfy these ages cannot be over-emphasized, however, in realizing these goals some modification may be necessary to better understand, and design for these criteria.
Since a majority of the better views are to the northeast and east, I decided to orient the building so that these views would carry the inside viewer visually from the playground areas, where visual supervision is needed, to the State Park in the background.

Access to the facility is supplied by a one way entry off of I-27. The main reason for using a one way entry is for the safety of the children being brought to or picked up from the Center.

Parking for the facility is kept away from the entrance of the Center so that there is little possibility of an accident occurring with any of the children. There are 18 parking spaces for employees and visitors. Also, a one way drive is located near the Center entrance for the safety of the children during their arrival and departure of the facility.

Due to the slope of the site, a certain amount of cut and fill needs to be done. Most of this can be done using cut from the entry area of parking and using this to fill under the northeast portion of the foundation and footings. Also, berms are used primarily around the curved areas of the Center to provide interest and play areas for some of the children. Trees and shrubs are to be planted around the expansive glass panes of the Infant area for summer shade in the afternoons.

Outdoor play equipment is located in corresponding areas that match the age groups of the children in the area of the Center.
PLANNING

My overall concept of this project is to provide an enriched physical environment which promotes the development of early age children. I am doing this by providing a variety of colors, textures, shapes, volumes of space and personal interactions of different age groups.

This basic concept has helped me develop large open areas with multi-use spaces located within these areas. It is important to note that a variety of activities occur within these larger areas, so a large volume of space with several intimate areas for children to retreat to and play in seem more beneficial.

The play areas for the different age groups are arranged in terms of physical and mental capabilities of the children in that environment. There is also better supervision, both visually and physically, by the teachers and caretakers. The Infant area is located away from other children because of the audible disturbance caused by the infants and the individual care each child receives from their caretaker. Different factors change the physical design primarily because of the wide range of abilities each age group and child is capable of.

The playground areas are designed for the age groups of the children and safety of each child. There are three definite play areas for the children because of this factor. The infants must have their own separate area for safety.
The older children (12 mos.- 3 yrs. and 4-5 yrs.) are in an area located directly through the main entry of the Center to the back of the site. The six to eight year-olds are located to the north of the facility adjacent to their interior play area. It is necessary that both of these exterior areas have a visual connection and supervision that is strongly needed between teacher and children or individual.

The main entry is located close to the one way drive so that the children may have easy access to the building. The entry also opens into a major foyer area which is used for a major circulation node in the design. Off of this area there are four main corridors which lead to the different age group play areas.

Administration offices are located away from the children’s areas primarily because there is no needed for them to be in contact with the children.

The mechanical room is located in a branch area because of the noise and service needed for this area. The restrooms for the children of different age groups are scaled down for the child instead of the adult size fixtures.
MAJOR ASPECTS OF THE DESIGN

Some of the major aspects of the design are: that the physical and social environments are varied for each age group to enrich their learning process and development, also the children will experience a wide variety of forms, textures, colors, and materials which aids in the environmental development of each child.

The glass panes in the facility are low to provide children with the visual connection of the external surroundings. Skylights are used to emphasize play areas and provide freshness of light in enclosed restrooms.

A variety of murals, graphics and colors used in designated areas will allow the children to experience and learn at their own pace. Also, it is important that the children be able to paint on designated walls for a visual display of the age group's abilities. The ceiling heights are 8'-0" in the hallways, restrooms (adults), offices, mechanical room, and storage areas. The main reason for this is economy and a recognition of main areas that are in constant use through circulation.

Children areas also have an 8'-0" ceiling height except where level changes occur and then the height is 9'-0". The main reason for this is that large motor activities are located in these areas and a definite volume difference is needed to denote the
space from the rest of the open space.

There are so many activities happening at any one time that a free-form structure enables better use of interior space and a less formalized learning environment.

Each age group needs acoustical ceilings or textures to eliminate noise that will travel throughout the Center. I am using acoustical ceiling panels along with sound absorbing materials on some walls. Major areas of consideration concerning acoustics are the Infant Area, the twelve months to three year-olds and the older age children located in the large open area in the northern portion of the plan.

The offices of the Center are also designed for privacy and noise from the children. These are primarily used during the early morning and late afternoon hours of operation.

The major hall areas and intersection point are to be floored with textured tile of similar colors, but having enough color change so that the children can also visually have directions to their own separate area of learning. The separate care areas will have a resilient indoor/outdoor carpet. There will also be patterned carpet that corresponds to activities taking place in that space.
MATERIALS:

Acoustics: Drop ceilings will be used along with 6" batt insulation to provide a sound absorption rate higher than already used. Economy also is a concern in using a variety of building and finish materials.

Interior walls are of metal studs with sound board to insulate against noise on both sides and gypsum board on some of these walls. Learning areas will have a slat ceiling dropped down from the acoustical ceiling. This is done to identify the space or area for the child in that certain activity area.

Bulletin boards, decking, paneling, plastics and fabrics are used in different areas so that children are exposed to many types of textures and materials. A major factor concerning the scale of bulletin boards is the size and scale of the children in the area, so that they may be able to reach and see the board easily. The board and wall decking will often be used as wall displays.

Exterior wall construction will consist of square steel columns with beams and open-web steel joists. Concrete block will be the fill in the cavity with a 3" exposed lightweight concrete aggregate panel. The width of the panel is three feet and heights vary from 12'-0" to 15'-0". The main reason for using a steel frame is the openness of the plan and interiors which it provides in achieving my basic concept.
The foundations and floor slab are poured on site. A solid slab is used primarily because of the site being cut and filled. Also, economically, this construction would be just as efficient as a ribbed slab. Column footing will also add to the strength of the slab.

The change in floor levels is to emphasize the activity areas of the different age groups and the economy of following the natural slope instead of raising these areas and using more fill than actually needed. The main areas that the fill will be used at are the eastern portion of the building and in the outdoor playground areas. In doing this, I have built up better drainage on the site and better foundation soil.
The electrical service will be moved below grade to provide larger parking areas with no utility poles around them. The telephone service presently is located below grade and runs through the middle of the site.

The mechanical system will be a multi-zoned forced air system. The main reason for using this system is the expected long life of the Center and the range of temperatures in the children's areas and offices.

This all-air system will have four multi-zoned areas to provide temperature differences that are needed in the office areas to the individual children's areas.

A mechanical room containing a boiler and chiller for the ventilation system is supplied in this room. I decided to use a longer life system instead of roof top units to stress the long time use of the Center. The condensing units are located on the south side of the mechanical room for easy service and location for air circulation. Maintenance and repair will be checked each month.

Electrical circuits will be located above the children's scale and have protective covers on the outlets.
STRUCTURAL CALCULATIONS:

Roof:

- 3 ply R.U. roof felt and gravel: 5.5 p.s.f.
- 2" plywood deck @ 4 p.s.f. / in.
- Corrugated metal deck: 8 p.s.f.
- Suspended acoustical ceiling: 7 p.s.f.
- Skylight, 3/8" glass in galv. iron frame: 1.5 p.s.f.

Dead Load: 26 p.s.f.  
Live Load: 35 p.s.f.  
Total area: 4x1=4'

61(4)=244#/L.F.
Length of typical joist is 32'-0''
Size is 18J8 244 264

61 p.s.f x 32 = 1952 1.95 k  use a 4"x4"x1/4" column 12' in height

Air Distribution System: 9500 cfm

4 Zones
A - 4000 cfm 1100 fpm use 30" @ 26x32
B - 3000 cfm 1100 fpm use 28" @ 26x26
C - 1500 cfm 900 fpm use 18" @ 11x26
D - 1000 cfm 600 fpm use 18" @ 11x26