

R E P O R T R E S U M E S

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PLANNING YOUR PLAYGROUND.

BURKE (J.E.) CO., FOND DU LAC, WIS.

EDRS PRICE MF-\$0.25 HC-\$1.72 41P.

DESCRIPTORS- *EQUIPMENT, *FACILITY GUIDELINES, *PLANNING,
*PLAYGROUNDS, *RECREATIONAL FACILITIES, HEALTH ACTIVITIES,
MAINTENANCE,

REVIEWS THE VALUE OF PLAYGROUND APPARATUS, FACTORS IN
SELECTION OF EQUIPMENT, AND CONSIDERATIONS IN PLANNING
PLAYGROUNDS. ALSO INCLUDED ARE SECTIONS ON TYPES OF PLAY
DEVICES, CONSTRUCTION OF PLAYGROUND APPARATUS, UNUSUAL
PLAYGROUND APPARATUS, CARE OF EQUIPMENT, SOURCES OF ACCIDENTS
OR DANGERS ON PLAYGROUNDS, AND EQUIPMENT SPACE REQUIREMENTS.
ASSEMBLY, ERECTION, AND FIELD PAINTING SUGGESTIONS ARE ALSO
DISCUSSED. HEALTHFUL EXERCISES FOR OUTDOOR GYM SETS AND
SURFACING PLAY AREAS ARE EXPLAINED. SEVERAL PLAYGROUND LAYOUT
AND SPECIFICATION DIAGRAMS ARE INCLUDED. (RK)

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Planning

Your

Playground

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The J. E. Burke Company

FOND DU LAC
WISCONSIN

Branch Factory
P. O. BOX 986
NEW BRUNSWICK, N. J.

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FOREWORD



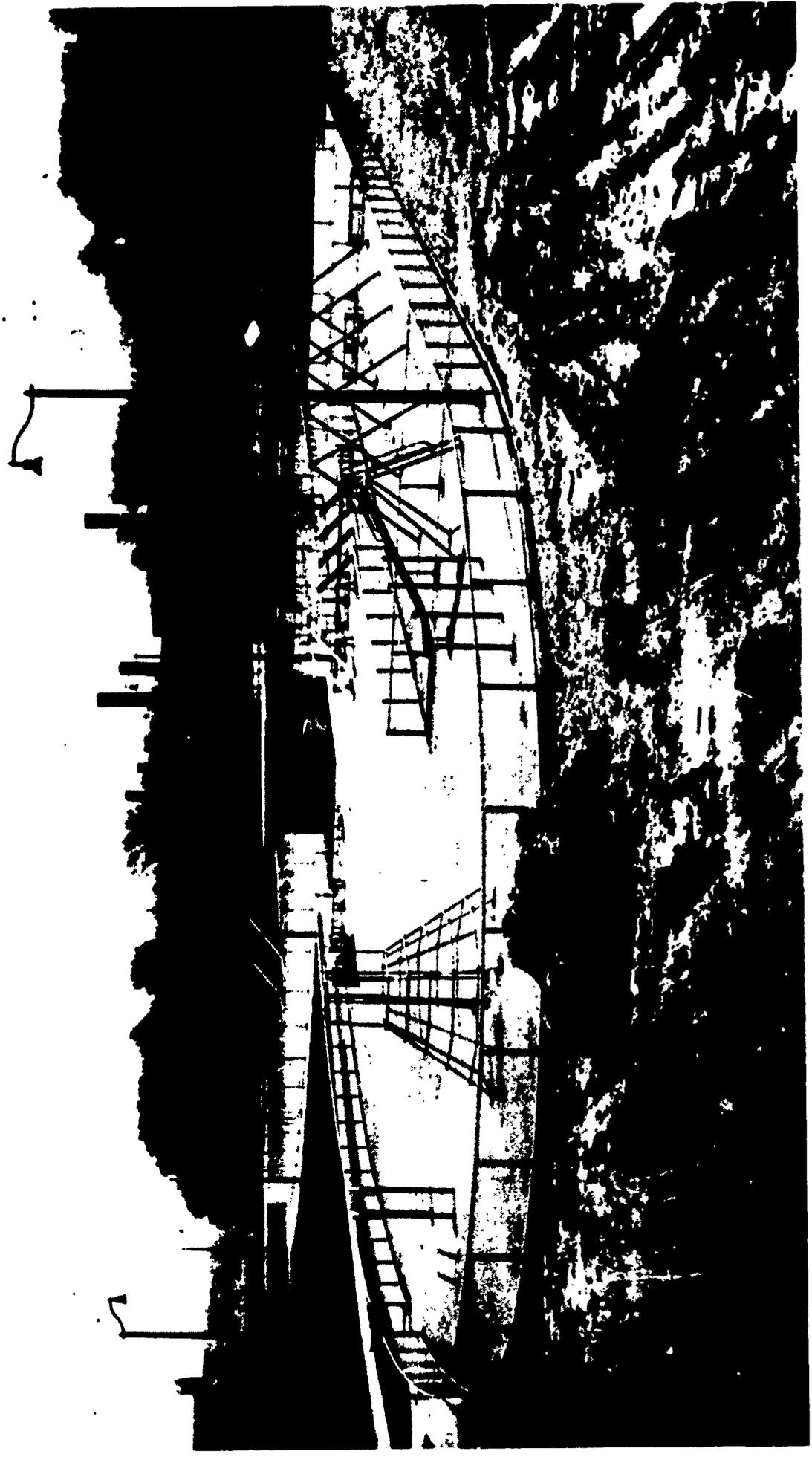
It is instinctive and compulsory for children to play every day in the year. Play means growth. Safe places in which to play under good leadership is the responsibility of the community in which the child lives.

Every child needs to be exposed to the growth-giving activities that have brought satisfaction through the ages — climbing, running, sliding, whirling, swinging, hanging, and jumping — to participate in group activity and thrilling adventure, to develop comradeship by doing things with others, and to discover which activities give him personal satisfaction.

Dr. Herbert S. Jennings of the Johns Hopkins University says: "The young child learns more and develops better through play than through any other form of activity. Opportunity for varied play under healthful outward conditions is beyond doubt the chief need of children."

The child's world and the foundations of child play are centered in his school or neighborhood playground. Here he acquires the feeling of security and individual worth, a social sense of belonging, a consideration for property and the rights of others.

What a contribution to this need you can make by providing playground equipment that will provide thrills and happiness for generations of children.



FOREST HILLS PLAYGROUND — Cleveland, Ohio

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CHAPTER I
VALUES OF PLAYGROUND APPARATUS

1. Develops body of child
2. Provides enjoyment
3. Develops muscular skills
4. Develops courage, confidence, and social values
5. Cares for large number of children
6. Permits variety in program
7. Relieves pressure on playground director
8. Offers inducement for interest in other activities
9. Provides outlet for basic physical skills; example, running, climbing, swinging, sliding, and balancing
10. Makes for easy supervision
11. Provides opportunity to teach safety, respect for property, and consideration of others

CHAPTER II
FACTORS IN SELECTION OF EQUIPMENT

1. Size of playground
2. Amount funds available
3. Kind and amount of leadership available
4. Climate conditions
5. Age of children
6. Physical growth of area to be served
7. Activity interests of area
8. Cost of facilities as related to any possible income
9. Most effective use of area available
10. Cost estimated operating and maintenance expense
11. Quality of equipment
12. Safety of fittings
13. Equipment appeal
14. Appropriate topography for equipment
15. Utilization of shade trees, etc.
16. Use in park, school, or playground

CHAPTER III
CONSIDERATIONS IN PLANNING

- A. **DIVISIONS OF PLAYGROUND**
 1. Area for pre-schoo^l children
 2. Apparatus area older children
 3. Open space for informal play
 4. Multiple use paved area
 5. Area for field games
 6. Area for crafts, dramatics, quiet games
 7. Area for old people
 8. Area for free play and low organized games
 9. Shelter house — wading pool
 10. Landscape features
- B. **PRINCIPLES IN PLANNING**
 1. Should contribute the maximum toward the recreation needs of the area
 2. Utilize fully opportunities for development of site
 3. Informality in design important

4. Simplify supervision and leadership
5. Careful segregation of activities for safety
6. Keep operating and construction costs low
7. Relationship of one area to another
8. Surfacing
9. Size of playground

C. AREA FOR APPARATUS

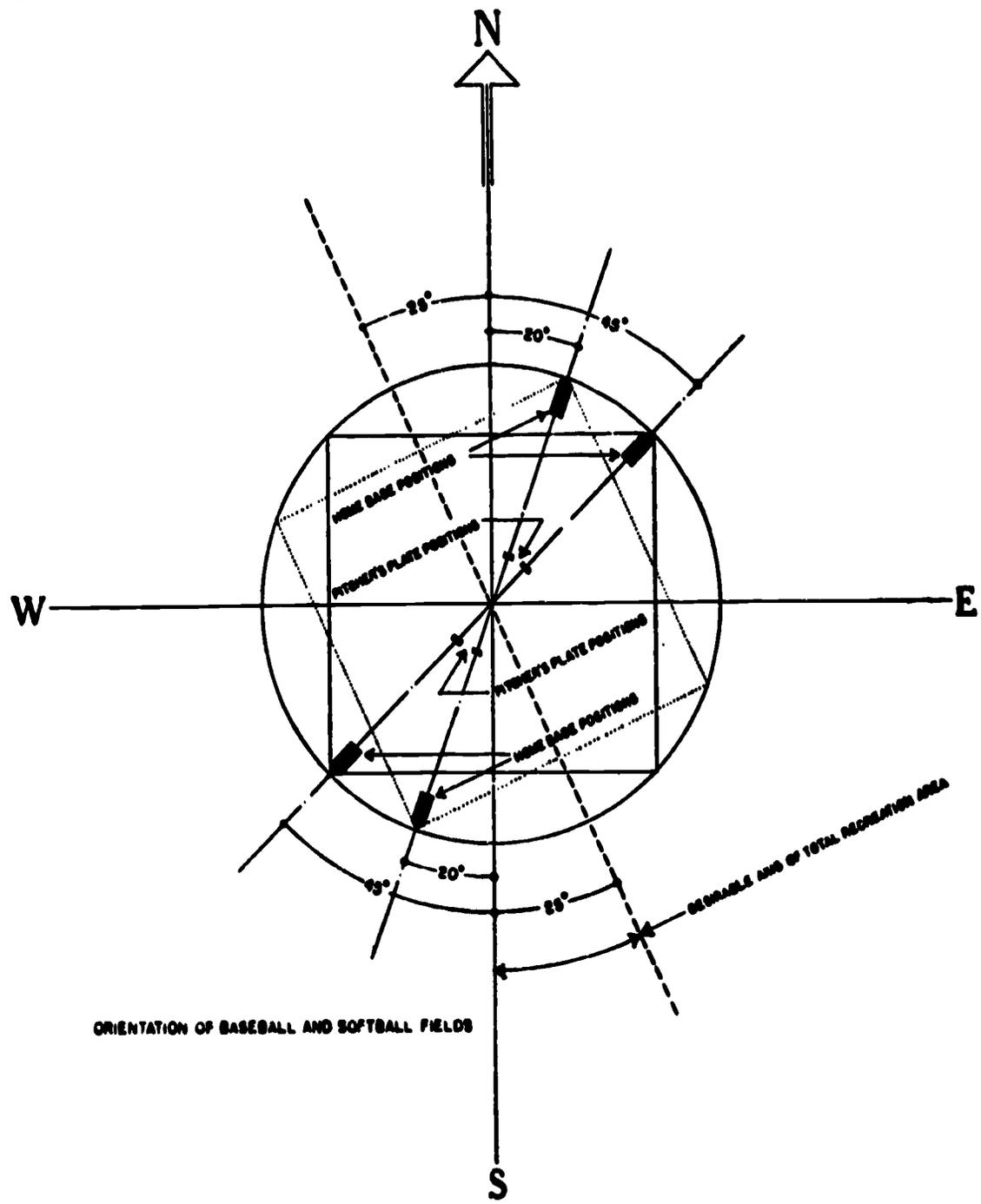
1. Use one set of apparatus for boys and girls
2. Accessible without crossing game fields or courts
3. Should be protected by fence
4. Ample space for each device for safety, circulation, progression in play
5. Lines of motion for each device should be parallel
6. Apparatus erected in line presents a more pleasing appearance
7. Equipment appeals
 - a.) Older Children
 - 1—Swing
 - 2—Slides
 - 3—Climbing structures
 - 4—Horizontal Ladders
 - 5—Horizontal Bars
 - 6—Giant Stride
 - 7—See-Saws
 - 8—Combination Sets
 - 9—Merry-Go-Round
 - b.) Pre-School Children
 - 1—Chair Swings
 - 2—Hobby-Horse Swings
 - 3—Sand Box
 - 4—Low Slide
 - 5—Low Climbing Structure
 - 6—Novelty Items

A large amount of equipment is not necessary for the play of pre-school children. Items selected should be considered from the standpoint of the enjoyment which they furnish, their educational value, their comparative safety and whether they will hold the continued interest of the child. The educational value of the equipment may be primarily physical (Training of the big or small muscles), imaginative, emotional, aesthetic, intellectual or social, but these values must be combined with enjoyment or the apparatus will not be used.

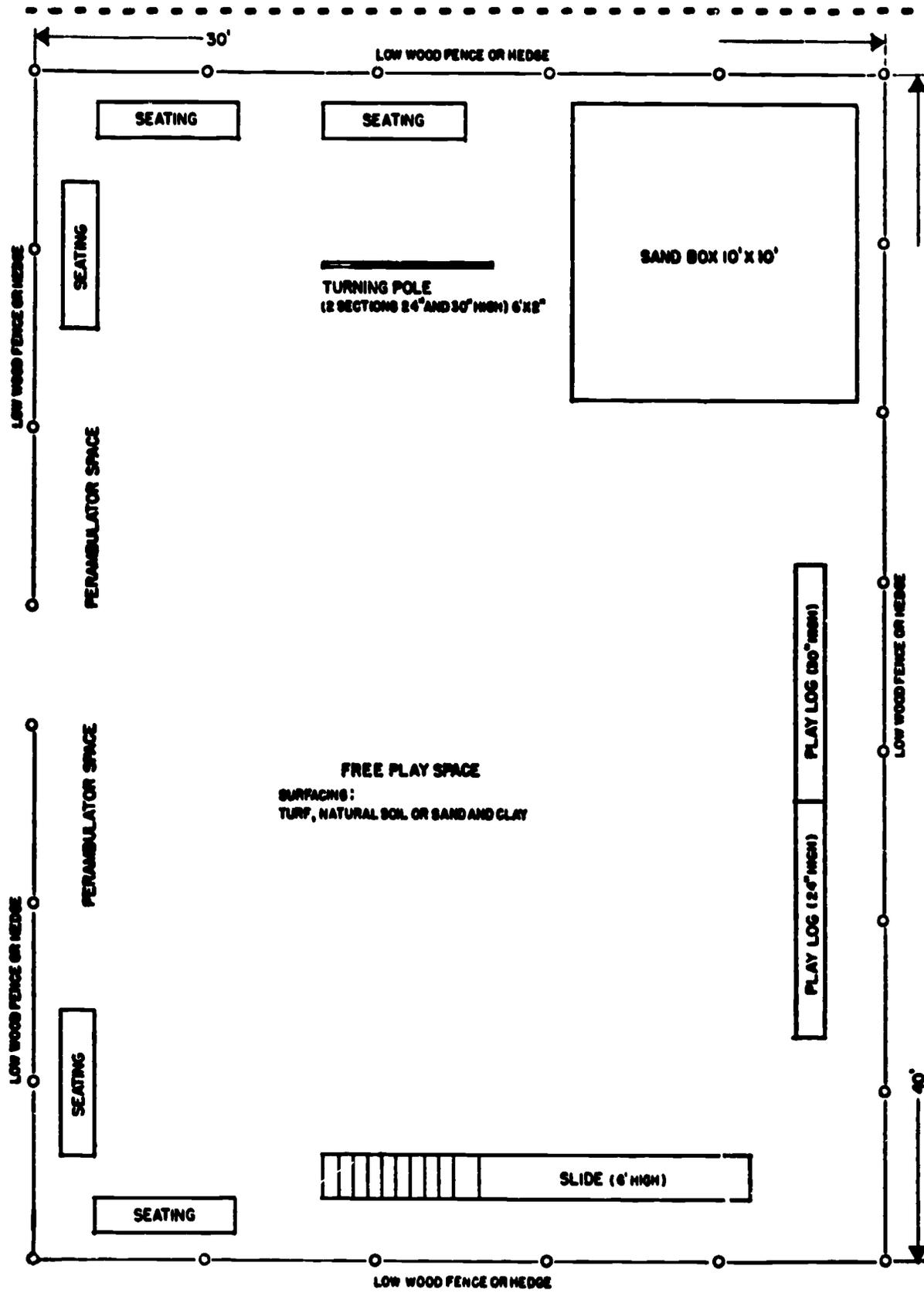
The term "comparative safety" is used, since any form of human activity involves some hazard and training of the adventurous spirit of the child is an important and necessary part of his early play. In addition, he needs to learn to balance his body, to fall properly, and to reduce the impact of a blow or sudden stop. However, the more hazardous types of apparatus must be avoided, and equipment used must be made as safe as possible since the child should not be exposed to extreme danger.

Whether or not a particular piece of equipment will hold the interest of children can be considered only in the light of experience for those types of devices which have been used on playgrounds for some years. Many new devices have recently been developed and there has not been sufficient experience to assess their continued popularity. A "new toy" always pleases a child, but unless it evokes a basic reaction it will soon be discarded.

LAYOUT — LEGEND
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Public Housing Authority, Washington, D. C.
Part III, "Planning *Outdoor Recreation Areas*,"
Bulletin No. LR-3



LAYOUT No. 1



LEGEND — LAYOUT No. 2

- | | |
|--|---|
| <p>I. FREE PLAY SPACE</p> <p>II. SCHOOL-AGE PLAYGROUND</p> <ol style="list-style-type: none"> 1. Craft Tables 8' x 14' 2. Seat for Activity Leader 3. Climbing Structure 8' x 6' 4. Balance Beam 12' x 6" 5. Swing Set of 4-10' high 6. Slide 8' high <p>III. SPRAY POOL
Also Roller Skating</p> <p>IV. PRE-SCHOOL AREA</p> <ol style="list-style-type: none"> 7. Swings Set of 3-8' high 8. Climbing Structure 8' x 6' 9. Slide (6' high) 10. Wheel Toy Track 11. Slide (4'6" high) 12. Drain Tile Tunnel 12' x 2'6" 13. Sandbox 10' x 10' 14. Stage 15. Craft Table 6'6" x 13' 16. Drinking Fountain 24. Games Area (Turf, Natural Soil, Sand-Clay) 25. Hard Surfaced Area | <p>V. HARD SURFACED AREA</p> <ol style="list-style-type: none"> 17. Paddle Tennis
Also Volleyball 18. Stage
and 19. Hopscotch 20. Basketball <p>VI. COMMUNITY BUILDING</p> <ol style="list-style-type: none"> 28. Toilets <p>VII. ADULT SPORTS AREA</p> <ol style="list-style-type: none"> 21. Badminton 22. Boccie 27. Horseshoes — 23. Seating |
|--|---|
-
- | | |
|-------------------------|----------------|
| TOTAL AREA | 50,000 sq. ft. |
| Pre-School | 2,500 " " |
| School-Age | 4,742 " " |
| Playground | |
| Spray Pool (400) | |
| Border (896) | 1,296 " " |
| Sports Area | 14,433 " " |
| Paved (7,783) | |
| Unpaved (6,650) | |
| Free Play Area | 27,027 " " |

LEGEND — LAYOUT No. 3

I. SOFTBALL FIELD* (Junior)

- 1. Hooded Backstop

II. SCHOOL-AGE PLAYGROUND*

- 2. Balance Beam 10' x 6"
- 3. Horizontal Bar
- 4. Seat for Activity Leader
- 5. Craft Tables 8' x 14'
Also for Picnic Tables, Story-Telling and Council Ring
- 6. Climbing Structure
- 7. Swings Set of 6 - 10' high
- 8. Slide 8' high
- 9. General Games Area

III. SPRAY POOL

- Also Roller Skating
- 10. Drinking Fountain

IV. HARD SURFACED AREA*

- 11. Shuffleboard
- 12. Paddle Tennis
Also Volleyball & Badminton
- 13. Basketball
- 14. Stage
Also Hopscotch, Jacks, Story-Telling in Wet Weather

V. PRE-SCHOOL PLAYGROUND

- 7A. Swings Set of 6 - 8' high
- 15. Drain Tile Tunnel 6' x 2'6"

- 16. Turning Pole (24" and 30" high)

- 8A. Slide (6' high)

- 17. Climbing Structure

- 18. Wheel Toy Track

- 8B. Slide (4'6" high)

- 19. Play Logs (24" and 30" high)

- 20. Steps 7'6" x 2'6"

- 21. Paved Area

- 22. Sand Box 10' x 10'

- 5. Craft Table 6'6" x 13'

- 23. Stage

- 24. Seating

- 26. Games Area (Turf, Natural Soil, Sand-Clay)

VI. TENANT ACTIVITY BUILDING

- 25. Toilets

VII. QUOITS*

*Areas I, II, IV, and VII used by school-age children and adults.

TOTAL AREA	62,000 sq. ft.
Softball Field	40,000 " "
School-Age Playground	6,944 " "
Spray Pool (400)	1,296 " "
Hard Surfaced Border	896)
Hard Surfaced Sports Area ..	7,760 " "
Pre-School Area	4,500 " "
Quoits	1,500 " "

LEGEND — LAYOUT No. 4

- | | |
|--|--|
| <p>I. JUNIOR BASEBALL
 Also Softball, etc.
 1. Hooded Backstop</p> <p>II. SCHOOL-AGE PLAYGROUND
 2. Climbing Structure
 3. Horizontal Bar
 4. Seat for Activity Leader
 5. Craft Tables 8' x 14'
 6. Slide (8' high)
 7. Swings (10' high) (Set of 6)
 8. Balance Beam 12' x 6"
 28. Playground Games</p> <p>III. SPRAY POOL AND BORDER
 (also Roller Skating)
 9. Drinking Fountain
 20. Seating</p> <p>IV. PRE-SCHOOL PLAYGROUND
 10. Swings (8' high) (Set of 6)
 11. Tunnel 10' x 2'6"
 12. Slide (4'6" high)
 13. Steps and Platform (7'6" x 2'6")
 14. Climbing Structure
 15. Slide (6' high)
 16. Wheel Toy Track
 17. Play Log (18", 24", 30" high, each 8' long)
 18. Stage 10' diameter
 5. Craft Tables 6'6" x 13'</p> | <p>19. Sand Box 10' x 10'
 20. Seating
 29. Free Play Area (Turf, Natural Soil, Sand-Clay)
 30. Hard Surfaced Area
 31. Curb
 36. Turning Pole (24" and 30" high. 6' x 2")</p> <p>V. HARD SURFACED SPORTS AREA
 21. Badminton (also Volleyball)
 22. Box Hockey
 23. Paddle Tennis
 24. Stage and Hopscotch
 25. Shuffleboard
 26. Basketball
 27. Handball</p> <p>VI. COMMUNITY BUILDING
 32. Toilets</p> <p>VII. HORSESHOE PITCHING</p> |
|--|--|

TOTAL AREA	95,800 sq. ft.
Pre-school Playground	10,022 " "
School-age Playground	7,541 " "
Spray Pool	800 " "
Pool border	1,168 " "
Paved Sports Area	12,375 " "
Horseshoe Courts	3,224 " "
Junior Baseball Diamond	60,025 " "
Walk	645 " "

LEGEND — LAYOUT No. 5

DETAIL No. 2

II. SCHOOL-AGE PLAYGROUND

1. Craft Tables 8' x 14'
2. Seat for Activity Leader
3. Swings Set of 8 — 10' high
4. Balance Beam 12' x 6"
5. Horizontal Bar
6. Climbing Structure
7. Slide 8' high
22. General Games Area

III. SPRAY POOL

8. Drinking Fountain
18. Seating

IV. PRE-SCHOOL PLAYGROUND

9. Swings Set of 6 — 8' high

10. Slide (6' high)

11. Climbing Structure
12. Wheel Toy Track
13. Steps 7'6" x 2'6"
14. Drain Tile Tunnel 12' x 2'6"
15. Slide (4'6" high)
16. Sandbox 10' x 10'
 1. Craft Tables 6'6" x 13'
17. Stage 10' diameter
18. Seating
19. Free Play Space
20. Paved Area
23. Play Logs 18", 24", 30" high, each 10' long

VI. COMMUNITY BUILDING

21. Toilets

D. SUGGESTED STANDARDS

The following list of apparatus is recommended as the minimum standard for the average playground. The standard suggested is not intended to serve primarily the special requirements of a school physical education program, although to a considerable extent it will meet these needs in addition to providing apparatus of the playground or fun type. It is recognized that it will often be necessary to adapt the standard to meet local conditions and special needs.

The minimum standards recommended are: for preschool age children (Under 6 years):

- chair swings (set of 6)
- sand box
- small slide
- low climbing structure

For children of elementary school age (6-12 years and older):

- Swings, frame 12' high (set of 6)
- Slide — 8' high (approx. 16' long)
- Horizontal Ladder
- Giant Stride
- Balance beam
- Horizontal bar

Optional — if available funds, space, and attendance justify: traveling rings, climbing apparatus, see-saw (set of 3-4).

In case boys and girls of school age are to be separated on the playground and separate apparatus is to be provided for each of the sexes, the apparatus recommended in the standards should be installed for each group except that the horizontal bar may be omitted from girls' section and the balance beam from the boys'. When two sets of apparatus are to be provided for the children of school age, one for all girls and for boys up to 10 years old, the other for boys above 10 years, practically the same types should be provided as when all the boys and girls are separated, except that the climbing device may be omitted from the older boys' section.

Other Important Considerations

In the standards suggested above there have not been included such facilities as a wading pool, tables and benches for handcraft and games, jumping pits and standards, nor game courts and equipment. All of these facilities are important or essential but they are not commonly considered as playground apparatus. The committee recommends, however, that a pair of basketball backstops and volley ball posts be considered as essential equipment for every playground. Equally important is the provision of a generous supply of game materials such as bats, balls, jacks, bean bags, horseshoes, large building blocks, etc. Material for handcraft of various types should also be available. It is assumed that every playground provides some sort of shelter with toilet facilities. The committee also wishes to go on record as recognizing that adequate trained leadership is more important than apparatus in determining the success of a playground.

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CHAPTER IV

TYPES PLAYGROUND DEVICES

The following summarizes the opinions of many experienced leaders in regard to the value, construction and care of the common types of playground apparatus.

THE SWING

No type of apparatus has retained its popularity with children of a wide range of ages to a greater extent than the swing. In addition to the standard swing, many adaptations and variations have been developed to satisfy the desire of children for this type of activity.

Chair or hobby horse swings are the type enjoyed primarily by children between three and six and they are found on most playgrounds serving this age group. Older children should not be allowed to use them. The seat, seat back and the protecting side and front rungs are made in various forms. They are usually built of hardwood and malleable iron, although reinforced tubular rubber is sometimes used. An adaptation of the chair swing is used with great satisfaction in several western cities. It is constructed of leather belting 3 inches wide, crossed in such a way as to form a comfortable seat for the child and to provide openings for child's legs. It is almost impossible for a child to fall out of such a swing or to stand up in it. This type of seat also minimizes the injury in case a child is hit by the swing. A somewhat similar swing seat of rubberized canvas is on the market.

The top suspension pipe used in the frame supporting chair swings should be not less than 2 inch I.D. or more than 7 or 8 feet high, and should provide 3 to 3½ feet for each swing. The upright supports for the swing frame should be of not less than 1½ inch I.D. pipe, and these are required for every three swings.

The standard type of swing is most common and is most serviceable for the older children. The height of the supporting frame is 10 or 12 feet. Many authorities believe that 10 feet is adequate, especially if playground space is limited. Frames from which suspensions are hung should be 3 inch I.D. pipe and the upright supports 2 inch I.D. pipe. It is recommended that the frame be supported at each end by three poles. Each swing requires from 4½ to 5 feet on the supporting frame, and uprights are required for every three swings.

Steel chain is generally used for suspensions for the swing seats, and the long links are considered most satisfactory. Rope is not as practicable as chain. Swings with ball bearings and steel chains may be chained to the uprights at night.

Standard swing seats are of hardwood, smooth finished and with all edges rounded. In recent years rubber has been used widely on swing seats built of wood, steel or aluminum. The core of the seat is either entirely enclosed in rubber or its edges are cushioned with rubber bumpers. Since most swing accidents occur when children are hit by a swing seat, the use of rubber seats is desirable as a safety factor.

Two precautions are suggested in building or purchasing swings. The collar about the pipe which supports the chain should be so made that it will grip like a vise, as it must bear the strain of the swinging, and the ring holding the chain should be supported by roller-bearing hangers.

Frequently a railing 18 to 24 inches high, or an iron pipe fence is erected in front of the swings to prevent children from heedlessly running into them. For low swings this railing or fence should be about 10 feet in front of the top suspension rail; in the case of higher swings, 12 feet. A chain around the swing area may serve the purpose of the fence or railing.

THE SLIDE

The slide runs a close second in popularity to the swing. It accommodates large numbers of children of varying ages, is "self-discharging," provides valuable exercise, encourages the taking of turns, and satisfies the universal desire to slide down something. Because of the intensive use to which it is subjected, the slide must be well constructed of the best materials and carefully maintained.

The important parts of a slide are the stairway with platform, the chute and the supporting structure. The stairway leading to the top of the chute should be at an angle with the ground of not more than 60 degrees, the steps not too far apart, and a hand rail should be provided on both sides. If steps are of wood, the wear is reduced by fastening metal plates on them. The width of the stairway should be such as to permit only one person at a time to ascend. An equilibrium platform at least 8 inches in width at the top of the steps gives a child an opportunity to be seated properly before going down the slide. The hand rail should be extended above the platform to protect the child on it. In case the rail along the platform is high enough to permit a child's body to pass under it, a pressed wood panel fastened to each side of the platform by means of metal straps around the rail provides added safety.

The chute may be of rock maple or be lined with galvanized iron or rustproof stainless steel. If maple is used, the slats comprising the chute should be beveled at the edges and set about $\frac{1}{8}$ inch apart to allow rain to run off readily and to provide for expansion of the wood when wet. They should be sanded and treated with hot linseed oil. Metal bedways are attached to the side rails of the chute by means of lagscrews and are reinforced by wooden battens. Many authorities prefer the steel bedway, especially for outdoor use, not only because it wears longer but because when the maple slats are used children can stick nails or other sharp objects in the openings, thereby causing serious accidents. The chute should be curved near the bottom to minimize the shock of landing. To reduce the danger of a child's falling, it is desirable to have the hardwood side rails of the chute 6 inches to 8 inches higher where they are fastened to the platform than near the bottom, and graduated downward a distance 3 or 4 feet from the platform. The use of a guard pipe along the top of the side rail of the chute is not recommended since children are likely to catch their arms or legs in it.

The supporting structure varies with the size and type of slide, but braces, usually of galvanized steel pipe set in concrete, are always required for the top and bottom of the chute. In the case of portable slides which are commonly used, especially for small children, the supporting braces are attached at the base to ground members of wood or pipe.

The slide most commonly used on children's playgrounds is the 16 foot straight slide, the platform of which is approximately 8 feet high. Most experienced playground workers do not approve the use of a higher slide. For the smaller children slides 8 and 12 feet long are recommended. There are many wave slides on the market, but they are more expensive than the straight slides and do not have a great deal of additional value. The double racer slide, which consists of two chutes attached to a single platform, accommodates a larger number of children and is popular, but it is not considered essential on the average playground. Guard rails are essential around the platform of racer slides.

Another adaption of the standard slide, known as the gang slide, has a chute several feet wide, and accommodates a large number of children at one time. The wide platform at the top of the gang slide is sometimes reached by a stairway erected alongside the chute. In one city, the roof of a shelter house serves as the platform for a gang slide. Steps at one end of the building lead to the roof, at the other end of which is the top of the slide. Although generally built of wood, the bedway may be of concrete.

The chute of one gang slide has a $1\frac{1}{4}$ inch surface of coarse and fine marble chips, marble dust and Portland cement in equal parts, rubbed to a polish. Another has a surface of one part gray cement and two parts marble chips running from $\frac{1}{2}$ inch to dust, cast in place rather dry, floated and handrubbed smooth. These unusual types suggest the possibility of varying the standard apparatus so as to secure greater safety, more interesting design, and the accommodation of larger numbers of children.

Whenever possible, the slide should be placed in the shade as the chute, especially of a metal slide, gets very hot after standing for a while in the sun. The ground where the children leave the chute should be free from stones and be kept soft by spading or raking. It is recommended that a box about 5 feet long and 3 feet wide constructed of 2 inch planks be sunk into the ground at the foot of the slide and filled with tanbark, sand or sawdust in order to provide a soft landing place.

HORIZONTAL LADDER

The horizontal ladder is considered valuable because of the excellent body development which results from its proper use. It provides for climbing, swinging, chinning and many other forms of exercise.

Important considerations in setting up and using the horizontal ladder are its height and the condition of the ground underneath. If intended primarily for the use of children, a height of $6\frac{1}{2}$ feet is recommended, but if it is installed in a section of the playground for older boys or young men, $7\frac{1}{2}$ feet is a preferable height. The standard ladder is usually 16 feet and the junior ladder is 12 feet in length. It is recommended that the rungs of the ladder, before galvanizing, be welded or riveted through the sides of the ladder, or otherwise assembled, to prevent the turning of rungs while in use. Some authorities favor the use of elliptical pipe on the long horizontal sections to eliminate the danger of sagging. The ground underneath the ladder should be well spaded or excavated and filled with sand, shavings or similar material.

TRAVELING RINGS

This piece of apparatus is popular with the older boys and girls and provides healthful exercise, but because it accommodates few children and occupies a great deal of space it is less common than some of the other types. The popularity and value of traveling rings are enhanced when children receive instruction in their proper use.

The cross pipe supporting the rings should be 12 feet high and 36 feet in length. It is supported at each end by three 2 inch pipes, and in the center by two similar pipe supports. The rings, six in number and preferably of aluminum, are suspended by galvanized chain supports spaced at approximately 6 foot intervals. The height of the rings is such that the average child can jump from the ground and seize them. Sometimes a low platform is provided at one end of the apparatus so the child may have more of a swing at the start. If the rings are intended primarily for the use of boys 16 or more, it is advisable to have the cross pipe 14 feet above the ground.

A circular traveling ring outfit which occupies much less space and serves nearly the same purpose has replaced the standard traveling rings in many cities. The rings are suspended from a circular frame about 10 feet in diameter and supported by a 4 inch upright pipe, 12 feet high. Children using it progress in a circle instead of in a line. Some playground authorities consider the circular ring outfit a substitute for the giant stride.

THE CLIMBING STRUCTURE

The climbing structure is a popular and valuable piece of apparatus which may be used by a number of children at one time. It provides a place for many types of races, stunts and games encouraging skill, ingenuity and physical development. Units like the Climb-A-Round, constructed especially for children of preschool age, are very popular with this age group; the large units appeal to children of elementary school age.

The climbing structures consist of various arrangements of galvanized steel tubing which is bolted, clamped or welded together to form horizontal, vertical or slanting ladders, horizontal bars, sliding poles and other combinations.

HORIZONTAL BAR

The horizontal bar or turning bar is an excellent piece of equipment requiring very little space, and it is found on most playgrounds. It is especially attractive to the older boys, who can be taught interesting stunts upon it.

Galvanized steel pipe from $\frac{3}{4}$ to $1\frac{1}{8}$ inches in diameter is used for the bar itself. The two uprights of 2- or 3-inch pipe are set 5 to 6 feet apart. The height of the bar varies from $5\frac{1}{2}$ to $7\frac{1}{2}$ feet, depending upon the ages of the children whom it is primarily intended to serve. If constructed so the height of the bar is adjustable, clamps or U-shaped end fittings should be used to prevent the bar from turning. Units are obtainable consisting of two or three bars of different heights to accommodate children of different ages, but if more than one bar is needed, there are advantages in placing them in separate locations. The ground under the bar must be kept clear and soft to avoid injuries in case of falls.

THE SEE-SAW

Everyone is familiar with the see-saw or teeter. It has less value than some of the other types and is not highly favored by many playground workers. A few see-saws, however, are generally provided for the young children.

The horizontal pipe supporting the see-saw should not be more than 22 inches above the ground, and preferably less. The lower it is, the safer the see-saw. The boards are generally 10 to 12 feet long, made of spruce, fir or selected North Carolina pine, 2 inches thick and 10 or 12 inches wide. They are commonly rounded, saddled, provided with proper hand holds, and reinforced with metal bumper plates. Special care should be taken in selecting the boards, since only vertical grain stock free from splinters should be used. An adjustable fulcrum is usually provided on the under side of the board which is secured by a rod or chain so the board cannot be removed. Safety bumpers near the ends of the board keep them 6 or 8 inches off the ground, help prevent pinching of feet and limbs, and reduce the wear on the board. Rubber hose fastened on the bumpers or ends of the board reduces the noise caused by bumping the see-saw—one of its most objectionable features.

THE GIANT STRIDE

The giant stride has considerable developmental value and gives much joy to the children. Some play leaders do not favor its use because they believe it presents too much of a hazard, but with the improved and lighter weight materials of which the ladders are now constructed, the probability of accidents has been materially reduced. It is important, however, that the children be taught how to use it properly.

The giant stride consists of an upright pole 12 feet high, with a pivot head from which are fastened ropes or chains with ladder handles. A galvanized steel pipe 4 inches in diameter and set about 4 feet in concrete serves as the upright. A 1-inch cross pipe put through the upright near the bottom prevents it from turning in the concrete. Fill the upright pipe with sand or concrete to deaden the sound of the chain ladders striking it. The rotating head with ball and roller bearings is set on the top of the upright pipe, and attached to this head are from 4 to 8 ropes or chains to which are fastened handles in the form of ladders. Ropes are preferred by some workers because they are lighter in weight, but the chains last longer. The chain ladder handles are of wood, steel, or aluminum. Because of their light weight, aluminum handles are preferred. Frequently ropes without ladders are used, 2 or 3 knots being tied at 18 inch intervals near the free end of the rope. A new type of ladder handle consisting of a steel ring with a covering of rubber tubing is a valuable safety feature.

The giant stride should be erected in a corner or section of the playground where children are not likely to run into it. A circle about 30 feet in diameter is sometimes marked on the ground around the stride as an added safety measure.

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232 Madison Avenue, New York City,
from the book "Recreation Areas," by Butler.

CHAPTER V

CONSTRUCTION OF PLAY APPARATUS

It is generally agreed that in the construction of playground apparatus, design, materials, and workmanship should be such as to insure:

1. Safety — absolute minimum of danger resulting from ordinary use.
2. Durability — capable of withstanding action of diverse climatic conditions without crystallization for the longest possible period of years.
3. Serviceability — capable of withstanding continued hard use with proper care.
4. Economical maintenance — parts easily replaced.
5. Simplicity of supervision — use readily controlled with minimum of necessary restrictions.
6. Developmental and recreational value.

The following recommendations based largely on the report of the Committee are offered for the guidance and consideration of both purchasers and manufacturers of playground apparatus.

1. That all pipe used in construction of apparatus be of standard weight hot galvanized steel pipe, factory tested, with standard wall thickness.
2. Only annealed or malleable iron clamps and fittings, except in base flanges, should be used, because malleable fittings on overhead construction are less liable to break under sudden thrusts and strains. All exposed pipe, clamps, or fittings should be hot galvanized to prevent rust.
3. Methods of lubrication:
 - a. Bearings that turn fast and bear large weights should be equipped with alemite valves or equally effective means of lubrication.
 - b. Bearings that sway back and forth should be alemited or packed with hard grease and the fittings provided with a covered slot to renew the grease, if packed.
 - c. Ball and socket fittings, where possible, should turn in oil.

4. The angle at which the steps to the slide extend upward from the ground should be not more than 60 degrees. Children using the slide will ascend the ladder with great ease, less danger and less timidity if the grade of ascent is as low as possible and yet practical and economical. The angle of 60 degrees is both practical and economical.
5. That slides be provided with equilibrium platforms at least 8" in width at the top of the steps in order to give the child an opportunity to be properly seated before going down the slide. It is desirable to have the sides of the chute 6 to 8 inches higher where they are fastened to the platform and graduated downward for a distance of 3 to 4 feet from the platform.
6. The steel sides for sand boxes, with top edge either rolled or with angle iron riveted at top to prevent injury, be used instead of wood. Steel lasts longer, does not warp or splinter, is more economical to maintain and is more sanitary. The steel plates should be 10 ft. x 10 in. and made of 14 gauge or 1/8 in. steel.
7. That the height of the horizontal ladder be standardized at 6 1/2 feet on playgrounds for children. (Note: Several members of the committee believe that if the apparatus is to be used also by young people and adults, the height of the ladder should be 7 1/2 feet.)
8. That before galvanizing, the rungs of the horizontal ladder be welded or riveted through the side of the ladder or otherwise assembled, to prevent turning of rungs while in use. (Note: Several members of the committee suggested either that the length of the ladder be reduced to 12 feet or that elliptical pipe be used on the long horizontal sections.)
9. That the height of the cross pipe on the traveling rings in line be 12 ft. from the ground and that the length be 36 ft. with the space between the rings reduced accordingly.
10. That the height of steel swings (not including chair and hammock swings) traveling rings in circle and giant stride suspensions be standardized at 12 ft. above the ground. If the height of all suspensions from the ground be 12 ft., it would facilitate ordering materials for repairs and replacements.
11. That all steel frames from which suspensions are hung have 3" I.D. top pipe rail, and that the supports be 2" I.D. pipe. For kindergarten swings, that the top rail be not less than 2" I.D. pipe and supports not less than 1 1/2" I.D. pipe.
12. That swing frames (except chair and hammock swings) and traveling rings (in line) be supported at each end by three poles rather than by two or one as is sometimes done.
13. That teeter boards be 12 ft. in length for the purpose of standardization.
14. That the material for the teeter boards be either spruce, fir or selected North Carolina pine made of 2 in. dressed material, rounded and saddled and provided with proper hand holds.

REPORT OF COMMITTEE ON STANDARDS
National Recreation Association
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 MP #282-7-40

CHAPTER VI

UNUSUAL PLAYGROUND DEVICES

Many cities and towns have installed unique and novel types of play devices. The design is such that children may use their imagination as well as their muscles. It also provides continuous activity for large numbers of children thus circumventing the age old playground problem of the more aggressive children taking over, while the shyer and smaller children spend most of their time waiting their turn.

The Parkside Elementary School in Silver Springs, Maryland, under the direction of Samuel Snyder have developed a concrete cinder-block structure 60 x 60 ft. embracing ramps and steps for running and jumping, three culverts for crawling through, a fireman's pole for sliding and shinnying, an "inching ledge" along which the children can creep by clinging to a bare wall, and even a secret passage.

The New York City Housing Authority which does not provide standard equipment such as climbing structures, swings, slides, etc., has developed some novel apparatus. This came about through watching children at play around sewer excavations and building projects. This equipment is inexpensive, maintenance costs are nil and all are easy to construct. These devices supplement the more widely accepted types of playground equipment.

The following is a brief description of the individual items.

(a) PLAY LOG

(1) *General.* Provide play logs 10 to 12 feet long with bark removed and knots and rough areas dressed smooth. Set logs on 2 vertical supports at heights of from 18 to 30 inches from the ground as directed.

(2) *Materials.* Logs should be locust, fir, pine, or other durable wood available. Posts shall be concrete or logs, treated below grade with a preservative similar to pentachlorophenol or zinc chloride (not creosote).

(3) *Construction.* Set posts 2 feet deep in the ground and shape top of posts to drain by beveling the top to a center ridge crosswise of the log. Flatten logs on the bottom at bearings for stability. Provide two $\frac{3}{4}$ inch iron lag screws with countersunk heads reaching 12 inches into each wood post for anchorage and 1, $\frac{3}{4}$ inch bolt for anchorage to each concrete post.

Apply a heavy thick coat of white lead and oil paint to top of wood posts before setting logs. Treat above ground with stain mixed with linseed oil.

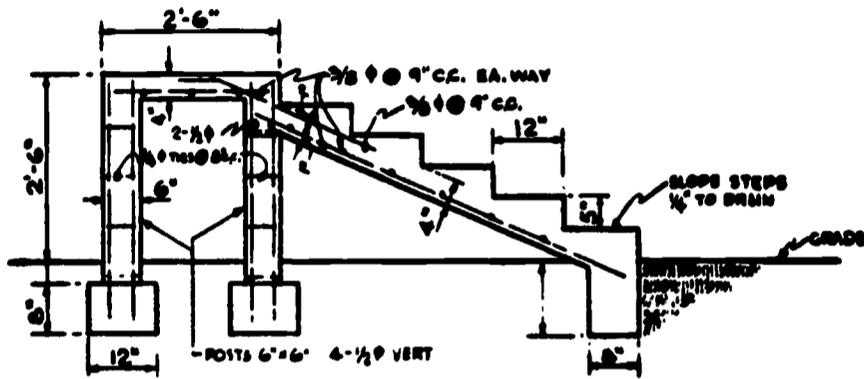
(b) BALANCE BEAM

(1) *General.* Provide a balance beam, consisting of a 2 x 3 inch plank and stakes of all heart locust, cypress or dense redwood, 10 to 12 ft. long set edgewise for users to walk on top edge.

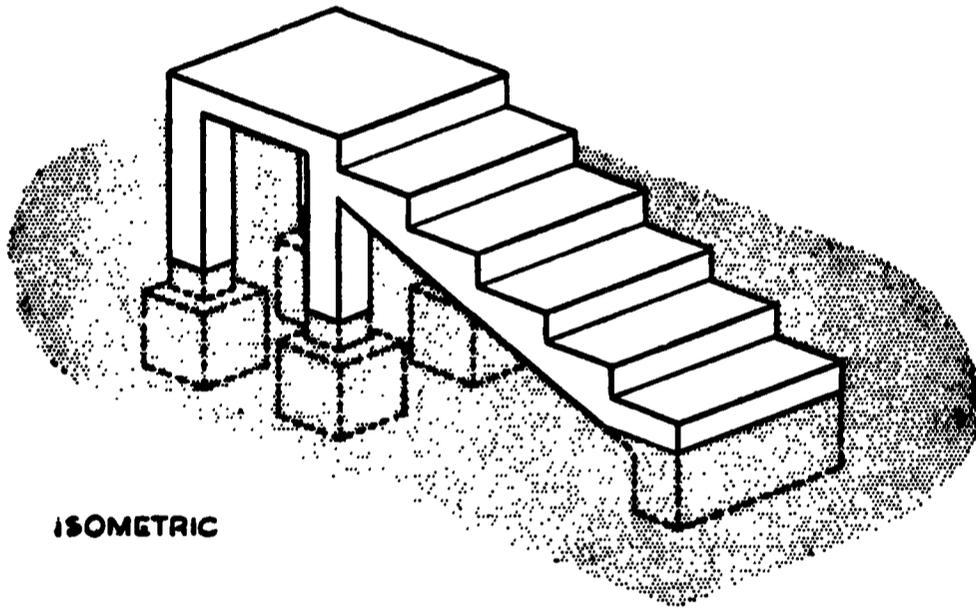
(2) *Construction.* Support beam with top 12 inches above grade between 3 pairs of 2 x 4 inch wood stakes 3 feet 6 inches long, set 3 feet in the ground. Bolt through stakes and beam with $2\frac{3}{8}$ inch carriage bolts to each pair of stakes and cut bolts off flush. Bevel top of 2 x 4 inch stakes.

Round off top of beam and sand smooth.

(3) *Finish.* Treat all wood with stain mixed with linseed oil.



SECTION



ISOMETRIC

FIGURE 5 STEPS & PLATFORM

(c) DODGER

(1) *General.* This specification and the accompanying drawing entitled "Figure 1, Dodger" shall govern the construction of the dodger.

(2) *Materials.* Concrete masonry units shall be cement-sand block. Dimensions of block shall be nominal 8 x 8 x 16 inches with half block and closures as required. Mortar shall be 1-3 cement washed concrete sand mortar with 10% to 25% of lime as required for workability.

(3) *Construction.* See the drawing for plan and dimensions. Provide 1 - 2½ - 5 portland cement concrete footing not less than 8 inches deep x 12 inches wide under all parts of the dodger. Set block level and true to line and fill all joints with mortar. Strike joints smooth.

Fill openings in top course of block with concrete or mortar to a depth of 4 inches and form water shed on top of walls 1 inch high in center and slope to edges with concrete or cement mortar.

(d) PIPE TUNNEL

(1) *General.* This specification and the accompanying drawing entitled "Figure 2, Pipe Tunnel" shall govern the construction of the pipe tunnel.

(2) *Materials.* Pipe shall be any standard concrete or vitrified clay sewer pipe. Clay pipe may have bell and spigot end. Pipe shall be free from irregularities that would cause bruises or cuts to users and shall be rubbed with carborundum blocks if necessary to remove such irregularities.

(3) *Construction.* See the drawing for details. Provide footings of 1 - 2½ - 5 portland cement concrete under pipes as shown. Set and space pipes as indicated or as directed and grade around pipe to drain surface water away from pipes.

(e) STEPS AND PLATFORM

(1) *General.* This specification and the accompanying drawing entitled "Figure 5, Steps and Platform" shall govern the construction of concrete steps and platform.

(2) *Materials.* Cement shall be portland cement. Sand and coarse aggregate shall have hard, durable stone particles equal to the best locally available concrete aggregate. Steel shall be medium grade deformed reinforcing bars. Concrete shall be 1-2-4 concrete or 2,000 lb. ready-mix concrete.

(3) *Construction.* Construct to details indicated on the drawings.

(a) Forms shall be rigid, smooth and braced in place. Wet before placing concrete. Provide strips at corners for chamfer.

(b) Bend and place reinforcing steel as indicated and wire in place.

(c) Mix concrete thoroughly with a slump of 4 to 6 inches. Spade and work concrete in place around steel so as to fill all corners and provide smooth surfaces.

(d) Finish top by floating with a cork or carpet float. Finish sides by removing forms and rubbing surface with a carborundum stone and brushing with cement grout.

PLAY LOG. This is a simple but useful play device. It consists of a log supported on wood or concrete uprights. The height varies for different pre-school ages and two or three at heights varying from 18 to 30 inches are desirable. The play log gives physical training in climbing, balancing and jumping and stimulates imagination as the child sits astride it and pretends it is a horse or a train.

TUNNELS. Children enjoy crawling through tunnels of drainage tile and they use them for playing hide and seek. Tunnels 30 inches wide are large enough for this purpose and they require a space of that width by their length. Any length up to 12 feet is satisfactory.

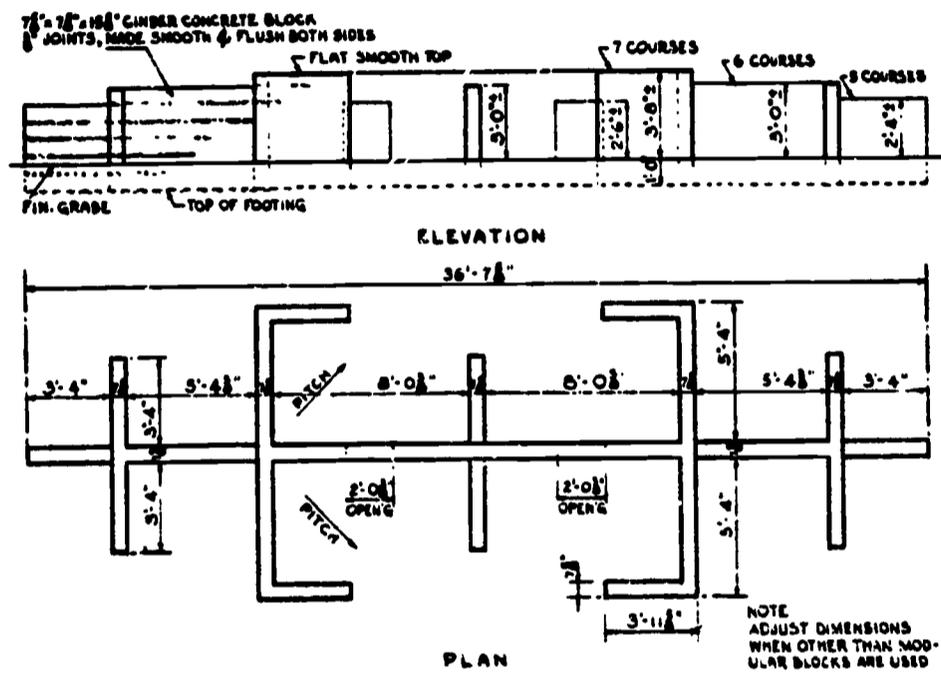


FIGURE 1 DODGER

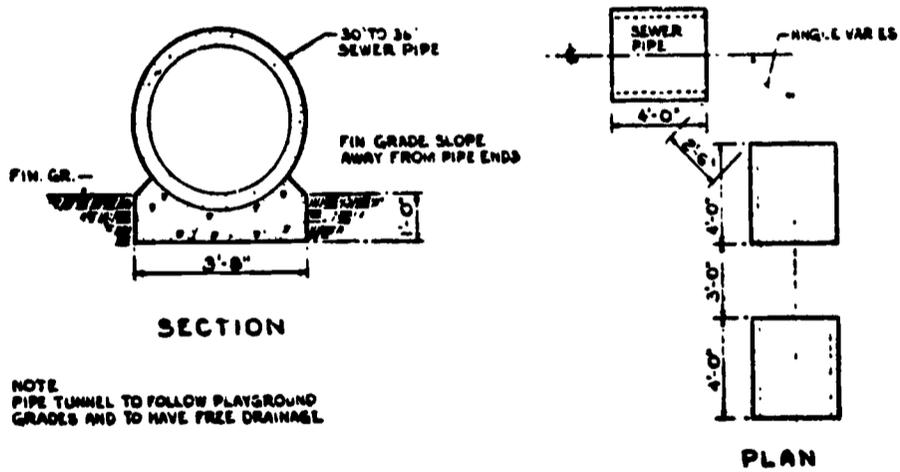


FIGURE 2 PIPE TUNNEL

STEPS. A set of steps with a platform and a sand pit beside it for jumping provides for the young child an ever increasing thrill of adventure and accomplishment as he learns to jump from higher levels. The girls will also use the steps for playing "jacks" and the platform can be used for checkers, parchesi, etc. The top level of the steps including the platform should not be more than 30 inches wide by 1 foot deep. The steps should terminate in a platform 30 inches square. Since this structure will usually be built along the edge of the free play area, a sand pit three feet wide along one side and at the end will be sufficient for jumping and the total space required will be 10 feet 6 inches by 5 feet 6 inches.

Experience of play leaders shows that such flexible equipment as large hollow blocks and smooth finished boards, which the child can arrange according to his fancy, is more effective in stimulating imaginative play than concrete airplanes and other static representations of actual objects.

The *blocks and boards* provide something big for the child to handle and it gives him a sense of accomplishment to be able to master them. Furthermore, out of them he builds his own play apparatus — rooms for "playing house," trains, forts, castles or whatever his fancy demands for the particular time, place and situation which his imagination has created. Small sets of portable wood steps and various cylindrical and angular blocks add to his opportunity to vary his structures.

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Public Housing Authority, Washington, D. C.
Part III, "Planning Outdoor Recreation Areas," Bulletin #LR-3

CHAPTER VII CARE OF EQUIPMENT

A. GENERAL

1. Every piece of apparatus used on a playground should be examined and placed in first class condition prior to the opening of the playgrounds for the season. All bolts should be checked and tightened. New set screws should be installed on all frames, chains repaired on see-saw boards, chair seats of swings examined, cracked boards replaced. Where needed, new concrete footings should be installed at base of frames and poles. In addition to these repairs, all apparatus should be given two coats of paint. It is the duty of the supervisor to prevent mutilation of see-saw boards by the carving of initials, etc.

2. It is the duty of supervisors to make an inspection of all apparatus daily and to tighten bolts when necessary. Any condition of apparatus that cannot be adjusted by the tightening of bolts should be immediately reported and such apparatus should not be used until the necessary repair is made. In the interest of safety, this procedure is very important. In addition to tightening all bolts, all swing bearings should be checked at least once a week.

3. When the playground is officially closed, all swings should be taken down and stored until the playground is re-opened. In brief, the swings and all other movable apparatus are to be stored away when the playground is not open officially.

4. The supervisor could be responsible for assigning a group of boys to clean up debris and to aid in keeping the playground in a safe and sanitary condition. If this is done at the opening and closing of each session, it will occupy but a short period of time.

5. The safety guards or guard rails should be put up before swings are erected.

B. INDIVIDUAL PIECES

1. *Slide*

See that steps are safe and watch for splinters, screws, or nails in a wood slide. Oil maple slides frequently with linseed oil or wax them. Arrange for a safe landing place at the foot of the slide. Fill in all holes, preferably with sand.

Do not permit children to run or crawl up the slide, stand while coming down, slide down backward, or hang their feet over the edge.
There should be no passing on the steps or ladder and no loitering at top.

2. *See-Saw*

Be on the alert for splinters, nails and screws in the board.
Impress the children with the danger of sliding or jumping off the board when another child is in the air or when getting off without warning.
Do not permit walking or standing on the board, or bumping when see-sawing.

3. *Swings*

Examine hooks and hangers daily.
Impress the children with the importance of waiting their turn and being fair at all times.
Allow only one child on a swing at one time and do not permit children to stand or kneel on the swings or run under them. Small children should not be permitted to use large swings.
Place a low fence or a rail in front of the swings as a safety measure.

4. *Sand Boxes*

Use a good quality of clean sand, 8 or 10 inches deep, and keep it free from paper, sticks, glass bottles and other debris. Do not permit children to eat lunch in the sand box.
Moisten the sand sufficiently to hold it together for modeling purposes, and rake and turn it daily. Provide toy pails, spoons, painted sticks, wooden blocks and similar playthings. Sand modeling is a fascinating activity and one to be encouraged.

5. *Giant Stride*

Keep a watch on attachments. Teach the children to run inward, when they have stopped swinging, and stand at the pole until all swinging has stopped. Warn them against dropping the ladder and running outward, and do not allow the practice of winding the chain around the pole.

6. *Horizontal Bar and Ladder*

Do not permit children to use these when they are wet. Provide a soft landing pit under them.

7. *Traveling Rings*

Rings must not be used when they are wet. Do not locate them adjacent to areas used for games.
Provide two pieces garden hose fastened around pipe uprights with wire, for children to place feet on and jump to rings, bar, etc.

CHAPTER VIII

SOURCES OF ACCIDENTS OR DANGERS ON PLAYGROUNDS

GENERAL

Presence of broken glass, protruding nails, tin cans
Leaving dangerous objects on grounds, e.g., junk, bottles, boxes with nails in them, fruit skins
Permitting children to play with burning rubbish
Congestion of activities

Attempting activities not adapted to grounds
Riding bicycles across grounds
Unnecessarily rough play, tripping, pushing
Climbing trees, fences, shelter houses
Carelessness in playing "Jack-knife"
Bringing dogs on grounds
Allowing rough play with dogs or other animals on grounds
Using apparatus slippery from rain
Pools of water remaining after rain, making breeding places for flies and mosquitoes, also
the danger of slipping in mud
Allowing children with contagious skin diseases to mingle with the others
Neglect of first aid kit
Running off playground and across street
Throwing of stones or other objects
Paved or macadamized play areas

SWINGS

Pushing swings that are occupied or unoccupied
Jumping from moving swing
Running, chasing or playing between or around swings
Holding baby in lap while swinging
Two children in swing at the same time
Inefficient or infrequent examinations of swings; neglect of oiling or bearings
Climbing on frames while swings are or are not in use
Improper use of swings, twisting, swinging sideways
Swinging too high causing chains to slacken and yank
Throwing swings over frame in order to make them shorter
Running under swings
Conducting other activities too near swings
Standing on swings
Swinging children facing different directions
Children should swing with back to sun

SLIDES

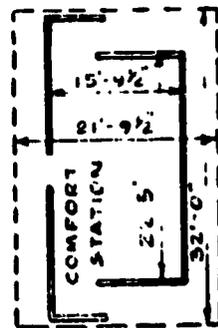
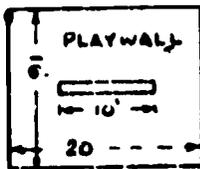
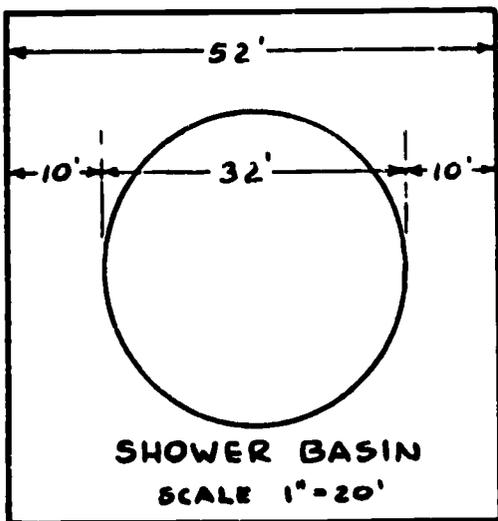
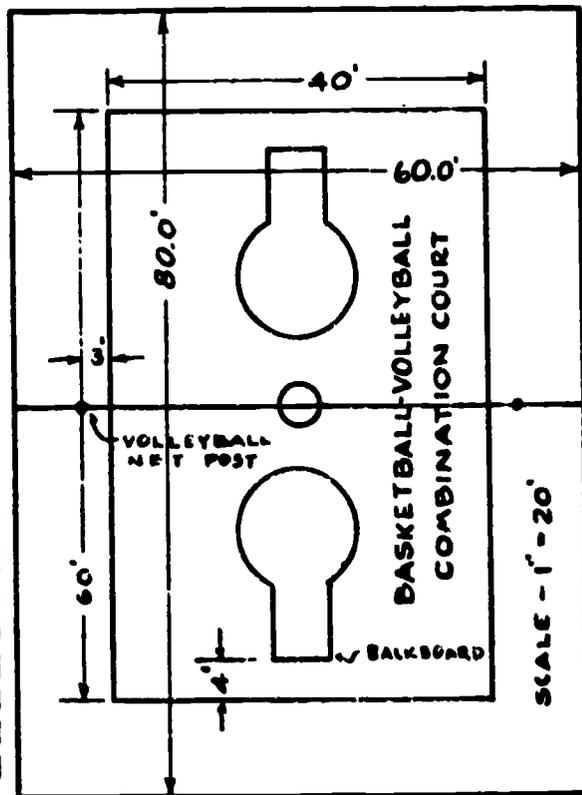
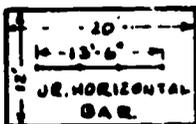
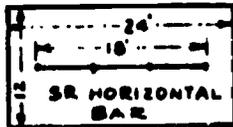
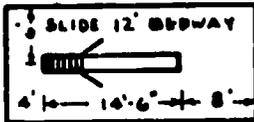
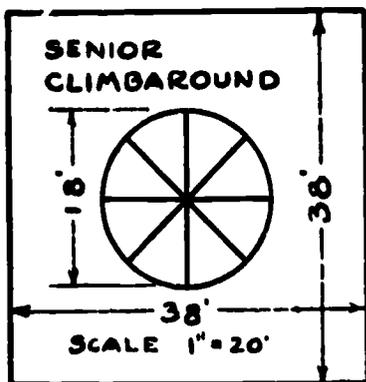
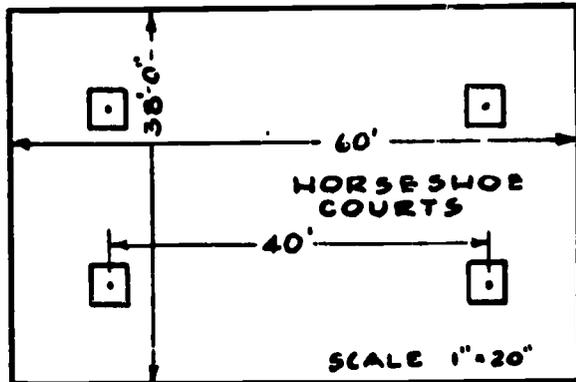
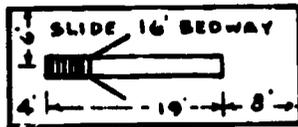
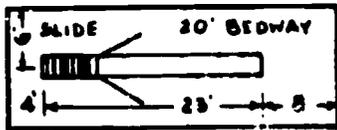
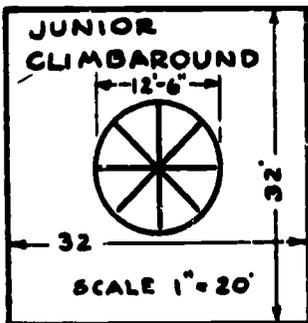
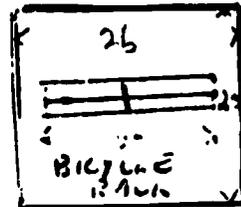
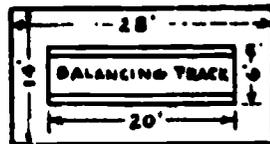
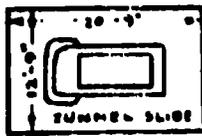
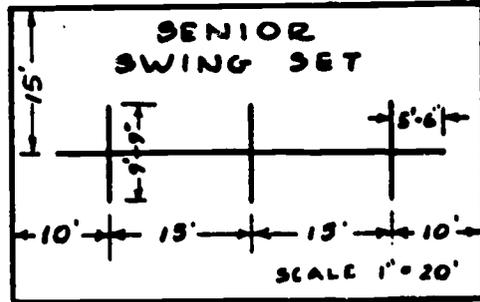
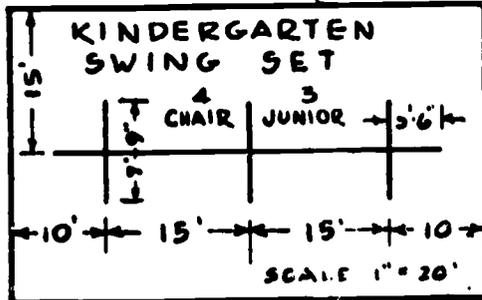
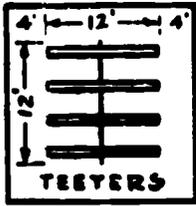
Standing up on slide
Putting babies on slide
Forcing anyone to slide or pushing a person at top of stairway
Coming down backwards
Running or climbing up slide
Playing tag on slide
Person not on slide taking hold of person sliding
Infrequent inspection of slides

SAND BOXES

Throwing sand
Presence of glass in sand boxes — broken or unbroken bottles
Throwing blocks used in boxes
Concealing of any hard or sharp substances in sand

SEE-SAWS

Jumping off see-saw without care of partner
Standing or walking on see-saw
Bumping board on ground
Using badly cracked or splintered boards



SPACE REQUIREMENTS OF PLAYGROUND EQUIPMENT
 City of Cleveland, Ohio — Design — Construction Department

MAY POLE OR GIANT STRIDE

- Hooking or dropping the giant stride chain while other children are swinging without giving warning
- Shortening or crossing chains
- Permitting children with too great difference in size on at same time

POOLS

- Throwing glass, bottles, or rubbish into the pool
- Diving into the shallow water of wading pool
- Use of sharp edged containers in water

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SUMMER PLAYGROUNDS
 Albany, New York
 Recreation Department

CHAPTER X

SPACE REQUIREMENTS

When considering space requirements for the many activities on a playground the needs of a neighborhood, site limitations, maximum use for minimum space sometimes require many adaptations in design. Space and equipment is often determined by the amount and nature of leadership available.

It's hard to divide a playground into clearly defined divisions of play.
 Space required for installation of playground equipment is pretty well defined.

SLIDES

Straight Slides

Height	Length	Use Space Ft.	Sq. Ft.
5'	10'	10' x 24'	
6'	12'	10' x 26'	
8'	16'	12' x 32'	
10'	20'	12' x 35'	
		<i>Slides</i>	
8'	16'	20' x 40'	

SWINGS

- L — Length in feet of equipment
- A — Width use area
- B — Length use area

No. Swings	Chair Type			STANDARD						
	L	A	B	L	A	B	A	B	A	B
2	8	16	24	9	16	25	20	25	25	25
3	10	16	26	15	16	31	20	32	25	32
4	16	16	32	18	16	34	20	34	25	34
6	20	16	38	27'	16	46	20	46	25'	46
				30'						
8	24	16	38	36	16	52	20	52	25	52
				45	16	61	20	61	25	61
Ht.	8'			8'	8'		10'		12'	
				10'						
				12'						

No. Bds.	SEE-SAW		
	L.	A.	B.
1	3	20	5
2	6	20	10
3	9	20	15
4	12	20	20
6	18	20	25

Ht.	HORIZONTAL LADDER		
	L.	A.	B.
6'	12	14	25
7½'	16	14	30

	Length in Feet	Height in Feet	Use Area in Feet
Climb-a-Round, Junior	12'6"	10'6"	32 x 32
Climb-a-Round, Large	18'	12'3"	38 x 38
Climbing Structure, Average	10'	10'	20 x 20
Giant Stride	—	12'	30 x 30
Horizontal Bar, Single	5'	6'	10 x 20
Horizontal Bar, Double	10'	6'	16 x 20
Sand Box	12 x 12	3'6"	16 x 16
Merry-Go-Round	12' dia.	3'6"	25 x 25

	Dimensions of Apparatus	Use Area
Craft Table (with attached seats)	13' x 6'6"	17' x 10'6"
Play Logs (10' long)	10' x 1'	10' x 5'
Sewer Pipe or Tile Tunnels	2'6" by length of tunnel	2'6" by length of tunnel
Turning Pole	6'2"	6' x 3'
Balance Beam	10' or 12' x 6"	10' x 12' x 6"
Horizontal Ladder	10' or 12' x 3'	10' x 12' x 9"
Dodger	28' x 16'	34' x 22'

CHAPTER XI

ASSEMBLY — ERECTION — FIELD PAINTING SUGGESTIONS

Assembly, installation plans and erection instructions are furnished by all manufacturers. Many manufacturers suggest a schedule of time required for the installation of equipment. These figures are often based on estimates and not actual experience. Common sense will suggest that a man with mechanical ability experienced in the use of tools and following of blueprints can assemble a piece of equipment in much less time than one who is inexperienced. Likewise it requires less time to excavate for a concrete fill in sand than it does in rock. Consequently, installation depends on the ability of the workmen and the condition of the soil.

Each concrete fill requires 1-1/3 sacks of cement and 1/2 cubic yard of gravel. On this basis total requirements may be safely estimated.

When selecting new equipment it is recommended that purchase be of approved design, built only by those firms which merit and enjoy nation-wide popularity. This should assure many years of repair free service before maintenance becomes much of a problem. This should also be of help in making replacements. In buying equipment of approved design, you simplify the interchangeability of parts. Familiarity with the units and parts of national approved design of any one manufacturer makes installation, repair, replacement and maintenance work more routine.

PAINING

After playground equipment has been used for one year a fresh coat of paint adds to the zest for use. Children are attracted by bright colors. Painting should be done each spring. It contributes to general attractiveness and makes for longer wear. In addition to the usual aluminum paint the following color schemes have added much to general attractiveness.

BICYCLE RACK

	Sherwin-Williams
End Supports	Vermilion 217
Rails	Light Blue 241
Verticals	Dark Blue 203

CLIMB-A-ROUND

	Sherwin-Williams
Corner Caps	Vermilion
Other Caps	Light Green

BASKETBALL STANDARD

Backboard	Green
1st Coat	Zinc Dust-Zinc Oxide
2nd Coat	Light Grey or Green
3rd Coat	Green

HORIZONTAL LADDERS

	Sherwin-Williams
Supports	Vermilion 217
Rails	Light Blue 241
Rings	Dark Blue 203

PARK BENCHES

Sherwin-Williams Light Green Kem-Luster Enamel 226

HORIZONTAL BARS

Supports	Yellow Orange 213
Fittings	Dark Blue 303
Bars	Omit Paint

SLIDES

	Sherwin-Williams
Bedway	Light Blue 241
Sides and Underneath	Light Blue 241
Ladder Stringers	Light Blue 241
Guard and Rails	Yellow Orange
Bracers	Yellow Orange

SWINGS

Heavy Duty

Seat	Medium Yellow 212
Seat Bracket	Dark Blue 203
Frames	Light Blue 241
Supports Toprail and Clamps	Bright Red

Kindergarten and Junior Swings

Seats	Vermilion 217
Seat Brackets	Dark Blue 203
Frames	Light Green 226
Supports — Toprail clamps	

TEETERS

	Sherwin-Williams
Board	Light Green 226
Handle Casting	Black and Varnish (3 coats)
Frame	Vermilion 217
Supports, rails and fittings	

City of Cleveland
Design and Construction Dept.

CHAPTER XII

HEALTHFUL EXERCISES FOR OUTDOOR GYM SETS

A. HORIZONTAL BAR

- I. Exercises from stand frontways, upper-grip.
 - A. Pull up to half-turnover backward.
 1. Balance hang — Inverted — hips and knees straight.
 2. Squat hang — hips and knees bent.
 3. Bend arms — Inverted — Positions 1 and 2.
 4. Bend legs — Inverted — Positions 1 and 2.
 5. Hand-knee-hang — Knees outside or inside of hands.
 - (a) Swinging in above position.
 - (b) Swinging one knee between hands, other leg extended.
 6. Nest-hang — Insteps pushing against bar between hands.
 - II. Underswing from stand frontways upper-grip.
 - A. Place jumping standard the length of leg away from bar. Use rope or bamboo pole for cross-bar.
 - B. Swing-off and over bar raising it as group progresses in jumping over cross-piece.
 - III. With bar height of chest.
 - A. From stand facing bar upper grip.
 1. Flank vault.
 2. Flank vault — 1 turn and inward.
 3. Flank vault — $\frac{1}{2}$ turn and inward.
 4. Flank vault — $\frac{1}{4}$ turn and outward.
 5. Flank vault — $\frac{1}{2}$ turn and outward.
 6. Rear vault — $\frac{1}{4}$ turn and inward.
 7. Rear vault — $\frac{1}{2}$ turn and inward.
 - IV. With bar at high reach.
 - A. Hip pull up backward.
 1. To seat on bar.
 2. To squat-hang (insteps against bar).
 - B. Hip pull up forward.
 1. To cross riding rest.
 2. To turn over forward.
 - V. With bar at shoulder height.
 1. Knee and crotch circles.
 - (a) Knee or hip circles backward.

B. RINGS

1. Many of the exercises on the rings are the same or similar to those on the other pieces of apparatus usually somewhat more difficult to perform owing to the mobility of the rings. The procedure would be to learn these exercises on the stationary apparatus, then on the low, still hanging rings, next on the jump-high, and finally the swinging rings. Although all exercises which are usually considered of the more dangerous type have been omitted, care must be taken, as some of the most simple exercises, when improperly or carelessly executed, may result in accidents. The danger lies in turning backward during the swing. Here turning too far or with a sudden jerk, or the hands slipping, the feet may slip out from under so gymnast has no way of regaining control.

It being supposed that the fundamental exercises on the apparatus have already been mastered.

1. Rings (head-high) (Later repeat reach-high)

(a) Turnover.

(1) Backward to stand.

- (a) From side-stand between rings, outer-grip, turn backward to inverted-squat hang; lower backward to stand.
- (b) As (a) but release grasp at time feet touch floor.
- (c) As (a) but retain grasp, straighten arms side-ward and resume starting position.

(2) Forward to stand.

- (a) Straighten arms side-ward, bend trunk forward, rotating arms inward and turn over forward to stand
- (b) As (a) but jump upward same time arms are straightened.
- (c) Repeat (b) several times.

(b) Repeat (1 b) and (2 b) on high rings.

(c) Nest-hang

- (1) Inverted-squat-hang, hook feet in rings, continue turning until back is well arched; return forward to stand.
- (2) As (1) but straighten one leg backward.
- (3) As (2) but straighten left arm upward. Turn forward to stand with re-grasping left.
- (4) As (2) and (3) one leg backward and opposite arm upward, turn forward and re-grasp rings.

C. HORIZONTAL LADDER

Lesson 1

1. Chinning.
2. Travel forward, hands on rails.
3. Travel sideward one rail.
4. Raise knees.
5. Raise the knees, straighten legs forward, lower legs.

Lesson 2

1. Chinning.
2. Hand traveling backward on pipes.
3. Hand traveling forward on pipes swinging sideward.
4. Side hang. Raise knees, straighten legs forward.
5. Raise legs forward.
6. Hand jumping forward on pipes.

Lesson 3

1. Chinning.
2. Crosshang on beams; hand jumping forward; backward.
3. Raise knees, straighten legs forward, lower them.
4. Raise straight legs forward.
5. Traveling on rounds, skipping one or more.

Lesson 4

1. Side-hang, facing inward. Chinning.
2. Side-hang, facing outward; under grip. Raise knees, straighten legs upward.
3. As 2 and pull-up, lying top of the ladder (strong pupils).
4. Cross-hang on beams. Hand-jumping forward; backward.
5. Traveling forward on rounds, skipping one or more.

Lesson 5

1. Chinning, hanging one beam.
2. Cross-hang on beams. With swinging sideward travel backward.
3. Travel backward on rounds, skipping one or more rounds.
4. Side-hang one beam, facing outward; under grip. Pull up on Ladder.
5. Hang as in 4; bend arms, raise knee, then straighten legs forward.
6. Cross-hang on pipes. Hand-jumping forward, backward and sideward.

D. CLIMBING POLE

Where two climbing poles are not included in the equipment of outdoor combination gym sets one climbing pole and one side of a climbing ladder could be used.

Lesson 1

1. Climb.
2. Between two poles or pole and one side of climbing ladder: swing with straight and with bent arms.
3. Raise knees.
4. Swing; raise knees.

Lesson 2

1. Climb, come down next pole.
2. Between two poles; bent-arm hang, short swing.
3. Half turn over bent knees.
4. Swing, jump forward for distance.

Lesson 3

1. Climb, come down hand over hand.
2. Bent arm hang and swing.
3. Turn over backward bent knees.
4. Swing, jump forward for height.

Lesson 4

1. Climb up pole, cross to next and come down.
2. Hang between two poles; bend arms, then shortswing.
3. Half turn over bent arms.
4. Swing, jump forward for distance.

Lesson 5

1. Climb up one pole, down hand over hand.
2. Between two poles, chinning.
3. Between two poles; bent hang and short swing.
4. Between two poles, turn over backward with bent knees.

Lesson 6

1. Climb up one pole and come down on next.
2. Between two poles. Turn over backward and return.
3. Between two poles. Swing between two poles. Bent-arm hang. Jump forward for height.
4. Climbing hand over hand.

E. TRAPEZE

Many of the same exercises listed under bar, rings, and ladder can be used.

F. COMPETITION

Organize groups for contests. Call it Junior Olympics or have a pentathlon or a hexathlon. Events such as chinning, basketball free throw, climbing pole, ring, lung jumping on horizontal ladder, potato race, fence vault over bar, and others.

NOTE

The terminology used applies to all stands, hangs and supports. In naming the positions of the gymnast, three things must be considered:

1st—Axis of the individual.

2nd—The length axis of the apparatus.

3rd—The aspect of the individual.

1st—Breadth axis is imaginary line drawn through body of the individual from one side to the other or from shoulder to shoulder.

2nd—Length axis of apparatus is imaginary line drawn lengthwise or longitudinally through the apparatus.

3rd—Aspects of individual are front, rear, and sides, either right or left

A cross-position is one in which the breadth axis of individual is at right angles to length axis of apparatus. When an individual faces apparatus, position would be a cross-position frontways.

A side-position is one in which breadth axis of individual is parallel with length axis of apparatus. When individual's back is turned toward apparatus, position would be called a side-position rearways.

On the rings, the length axis of the apparatus is considered as from one ring to the other.

CHAPTER XIII

SURFACING PLAY AREAS

It is generally agreed that turf is the best type of surfacing for children's play areas and for large areas devoted to general recreation use, though it is not practical for small areas used intensively the year round. In general, natural or existing soils must be used for fairly large play areas, although special surfacing materials are required for certain types of games and also for areas which are intended for active year-round use. Probably the most urgent problem facing recreation executives is to find a comparatively inexpensive surface which can be laid on parts of municipal or school areas which are used intensively throughout the year. It is generally agreed that the development of an inexpensive surface suitable for intensive year-round use would help tremendously in promoting play activities and in developing a more favorable public opinion with reference to children's playgrounds.

Consequently, the surfacing committee is greatly interested in the experiments which have recently been made and which are being continued in soil stabilization. Where this method is used, existing soils are treated with some form of binder to make a firm surface. Most efforts at soil stabilization have been directed toward the construction of secondary roads, airports and other non-recreation areas, but it is believed that this method can be applied with equal success in the construction of play surfaces.

By using existing soils instead of excavating existing areas and bringing in at considerable expense crushed stone, rock screenings, or some other materials to form a sub-base, the cost of building up a playing surface can, it is believed, be greatly reduced. A highly satisfactory playing surface can be secured by the application of the stabilized base of a thin top layer of resilient surfacing material such as cork asphalt.

Asphalt, cement and rock salt are among the materials which have been used in soil stabilization experiments. The binding materials are either thoroughly mixed with the existing soil and the resulting mixture spread over the area or they are applied directly on the soil which has been disced or scarified and thoroughly loosened. The area to be treated is usually stripped of all sod or vegetable matter and graded in accordance with an approved general plan.

The success of this method is dependent to a large degree upon a careful analysis of existing soil conditions, determined by testing specimens of the soil taken from different parts of the area.

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In a paper entitled, "Surfacing of Play Areas" which Mr. Walter L. Scott, coordinating director of recreation in Long Beach, California, presented at Western Division Conference in the spring of 1937, there is much valuable information with reference to types of surfacing used in cities throughout the country, especially on the Pacific Coast. In concluding his paper Mr. Scott attempted to suggest an ideal surface treatment for an average elementary school playground or municipal active recreation area. The following is his recommendation.

"One-sixth of the total area might well be paved with concrete; two-sixths given a medium hard bituminous surface treatment; one-sixth set aside for a grassy plot and the other two-sixths maintained as a sandy or silty clay loam surface and treated with calcium chloride annually.

"It is obvious that any one type of surface which might be selected could not be thought of as most suitable for all activities, therefore a combination of different types of surfaces seems the logical solution to this difficult problem. It seems to me that if one had to choose only one type of surfacing from the many types available — the natural clay and sandy loam mixture would be best provided it could be given an adequate annual treatment of calcium chloride or other chemical substance which would produce the same results.

"The concrete slab suggested above would provide space for paddle tennis, handball and similar games, some of which might be played mostly during vacation periods. The semi-hard bituminous surface would make volleyball, basketball and similar games very much more attractive and enjoyable. The grassy plot would be an ideal place for tumbling, stunts, folk dances and story hours during vacation periods. The sandy or silty clay loam surface would be best used for softball, horseshoes, speedball, relays and similar running games."

For second choice Mr. Scott suggested that one-fifth of the area be in grass, two-fifths in bituminous surfacing, and two-fifths in sandy or silty clay loam. A number of alternative later choices were also suggested. Even though it is realized that many communities would be unable to finance the ideal playground surface as suggested by Mr. Scott, the suggestion which he offers is worthy of careful consideration.

The National Recreation Association, 315 Fourth Avenue, New York City, has recently published a new Bulletin called "Surfacing Play Areas" No. MP219, selling for 35 cents. This includes all the latest reference sources and newer forms of surfacing as used over the country. Recommendations and action by the Committee of Standards has not been taken up to this time.

TABLE II
DESIRABLE SURFACES, IN ORDER OF PREFERENCE,
FOR VARIOUS SPORTS AND GAMES

(1 indicates first preference, 2 next preference and so on. Where same number is used no preference between such surfaces is indicated.)

	<i>Turf</i>	<i>Natural Earth</i>	<i>Sand-Clay</i>	<i>Stabilized Soil</i>	<i>Black Top 1/4</i>	<i>Concrete</i>
Badminton	1	2	2	3	4	5
Baseball 2/	1	2	3			
Basketball				2	1	1
Box Hockey	2	2	2	1	1	1
Boccie			1			
Clock Golf	1					
Croquet	1	3	2			
Deck Tennis	1	2	2	3	4	5
Field Hockey	1	3	2			
Football	1	2	3			
Handball					2	1
Horseshoes	1	2	2			
Paddle Tennis			1	2	2	2
Quoits	1	2	2			
Shuffleboard					2	1
Soccer	1	3	2			
Softball	1	2	2			
Speedball	1	2	2			
Tennis			1	2	4	3
Tether Tennis	1	2	2	3	3	3
Touch Football	1	2	3			
Volleyball	1	2	2	3	3	3
General Games Area	1	2	2	3	4	5

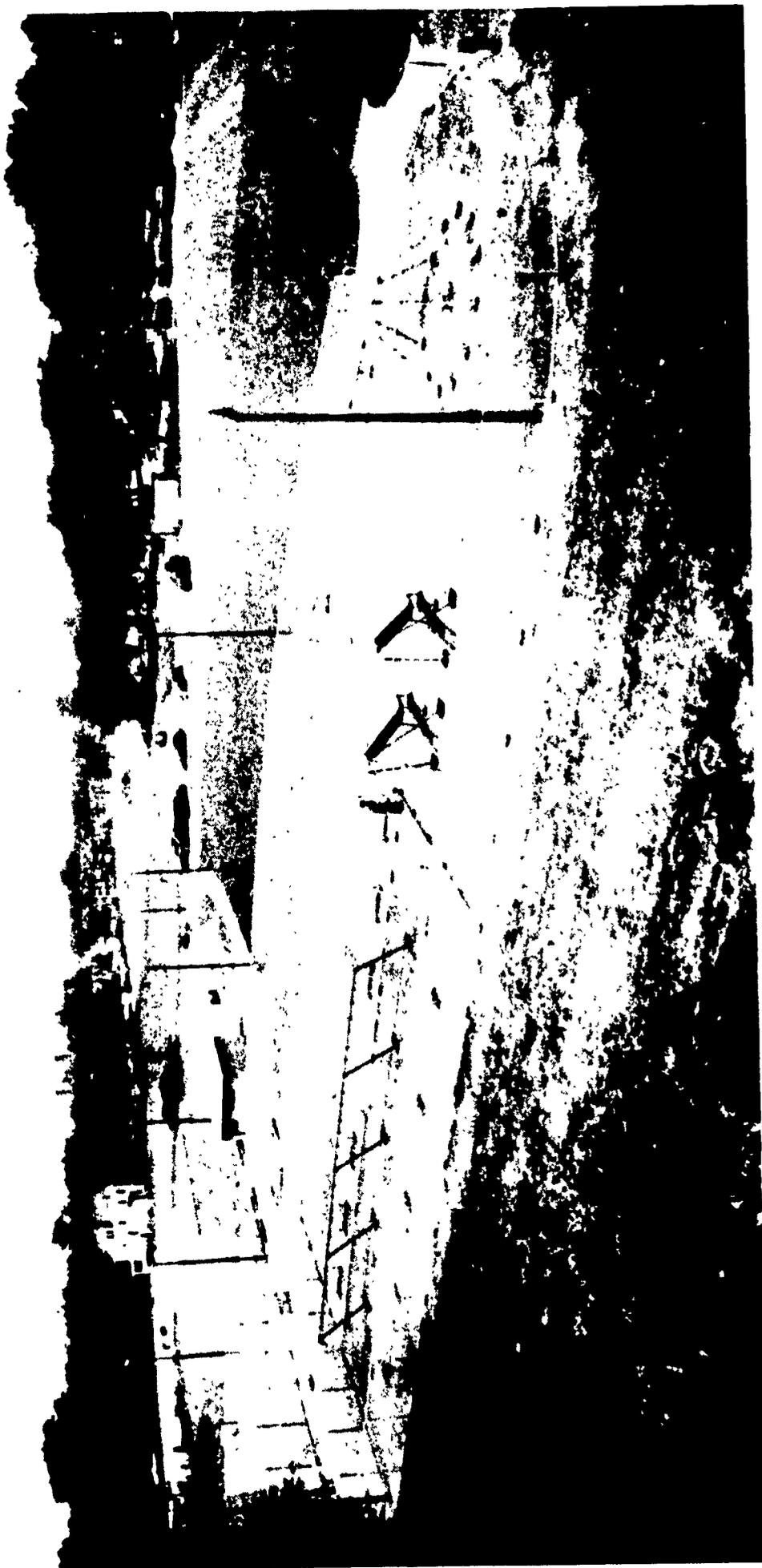
- 1/ Not desirable in hot climates.
 2/ Sandy loam for skinned areas.

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 Bulletin #LR-3 Part III

When the problem involves grading, drainage, surfacing, walk circulation shelters and comfort stations and lighting ball diamonds the aid of a qualified landscape architect or site planner capable of preparing complete construction plans should be sought.

REFERENCES

1. Public Housing Administration, Washington, D. C. Bulletin #LR-3 Part III.
2. M P #203 National Recreation Association, 315 Fourth Ave., New York City.
3. M P #282 National Recreation Association, 315 Fourth Ave., New York City.
4. Book "Recreation Areas" by Butler National Recreation Association. Publisher A. S. Barnes Co., 232 Madison Ave., New York City.
5. Architectural Graphic Standards Ramsey & Sleeper Publisher John Wiley & Sons, Inc., New York City.



FOREST HILLS PLAYGROUND — Cleveland, Ohio