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PLANNING THE INDOOR PHYSICAL EDUCATION FACILITIES.

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RECREATIONAL ACTIVITIES, SANITATION, SPACE REQUIREMENTS,  
STATE STANDARDS,

THIS PAMPHLET IS DESIGNED TO HELP ARCHITECTS AND LOCAL SCHOOL OFFICIALS IN THE PREPARATION OF PLANS FOR PHYSICAL EDUCATION FACILITIES IN NEW AND EXISTING BUILDINGS. FACILITIES MENTIONED INCLUDE--(1) GYMNASIUM, (2) SWIMMING POOL, (3) SMALL GROUP ACTIVITY ROOM, (4) DRESSING AND SHOWERING ROOMS, (5) TEAM ROOM, (6) EQUIPMENT DRYING ROOM, (7) LAUNDRY ROOM, (8) CLASSROOM, (9) PHYSICAL EDUCATION OFFICES, AND (10) APPARATUS AND SUPPLY STORAGE. SPECIAL MENTION IS MADE OF GYMNASIUM LOCATION, FLOOR SPACE AND TREATMENT, AND A COMPARISON OF BOYS' AND GIRLS' DRESSING AND SHOWERING ROOMS. OTHER CONSIDERATIONS INDICATED WERE--(1) TEACHING STATIONS, (2) TOILETS, (3) BULLETIN BOARDS, AND (4) ELECTRICAL INSTALLATIONS. FLOORPLANS ARE PROVIDED SHOWING THE LAYOUT FOR VARIOUS SPORTS. (MM)



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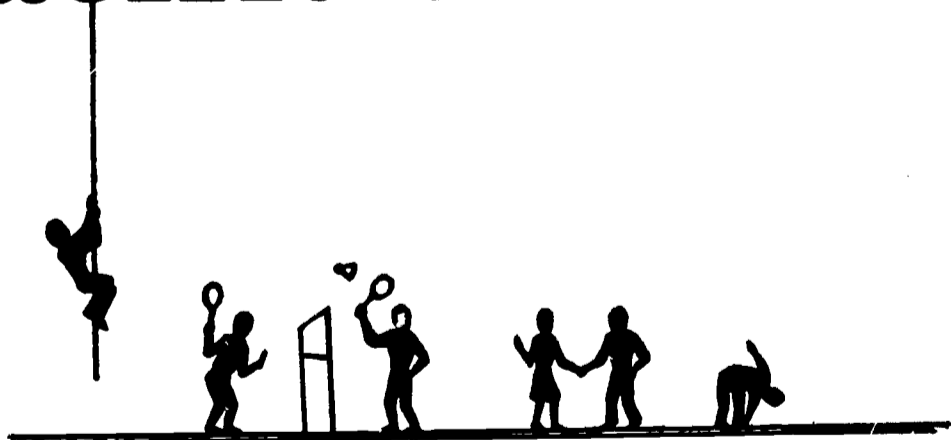
**physical**



**education**

**facilities**

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THE UNIVERSITY OF THE STATE OF NEW YORK  
THE STATE EDUCATION DEPARTMENT  
DIVISION OF EDUCATIONAL FACILITIES PLANNING  
ALBANY, NEW YORK 12224 . 1967

# Planning the Indoor Physical Education Facilities



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## INTRODUCTION

This pamphlet is one of a series designed to improve the planning of specific areas of the school plant. It is hoped that it will be helpful to both architects and local school officials in the preparation of plans for new buildings and improving facilities for physical education in existing buildings.

The manuscript was prepared cooperatively by Gerald J. Hase of the Division of Health, Physical Education and Recreation, and Basil L. Hick of the Division of Educational Facilities Planning.

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## **PLANNING THE INDOOR PHYSICAL EDUCATION FACILITIES**

New York State has, through statute and Regulations of the Commissioner of Education, established a basic program of physical education which is required of all pupils. This program includes body mechanics, rhythms and dance, games, athletics, gymnastics, swimming and water safety, and activities involving conditioning, self-testing, remedial or corrective, individual and dual, as well as recreation in sufficient variety to meet the individual pupil needs and capacities. In addition, adapted activities should be included for those with orthopedic defects, motor skill difficulties, and inadequate physical fitness.

In planning the indoor areas necessary to administer and carry on this program, basic consideration should be given to the gymnasium and its auxiliary facilities: apparatus storage room, boys' showering and dressing room, girls' showering and dressing room, and physical education office. In larger schools additional facilities such as team rooms, corrective room, swimming pool, and bowling alleys may be considered as a desirable means of implementing the program.

In scheduling the use of the planned space, all groups in a school should have the opportunity to share the use of the specialized areas. In a well balanced program that meets the individual needs of the students, an equal amount of space is necessary for each sex.

### **Location**

The gymnasium should be planned at or slightly above grade level. The auxiliary facilities when possible should be located adjacent to it and at the same level. This unit should be readily accessible from the rest of the building and from the outdoor playing field. An isolated location is desirable and these facilities should be insulated against noise transfer to the rest of the building. The gymnasium unit should have its own public entrance and, if possible, it should be located in proximity to the auditorium and cafeteria in order that these facilities may be used for community activities without the necessity of opening the entire building.

### **Teaching Stations**

A teaching station is defined as a space that can be regularly scheduled for a class under the direction of the teacher. Wise planning establishes some priority for the types of stations. For the school

that needs three stations, it would be wise to give first priority to a gymnasium with two stations and second priority to a pool for the third station. The second priority, if a swimming pool is not possible, is another teaching station.

The number of teaching stations needed for a school will depend upon:

1. Enrollment of the school
2. Number of pupils in a physical education class
3. Number of periods a teaching station is scheduled per week
4. Number of periods each pupil is scheduled for physical education per week
5. Number of activities and pupils in the extra-class program

#### **Gymnasium Floor Space**

It will be necessary to provide within the floor space as many separate class areas as will be needed for simultaneous activities of physical education classes, and of a size which will accommodate a maximum-size class of 40 pupils. In addition to these areas, there should be a reasonable amount of seating space for spectators when the physical education areas are converted for interscholastic sports.

In elementary schools requiring a single teaching station, a clear floor space 36 feet by 52 feet is required. Where two such areas are necessary, this space may be two areas each 36 feet by 52 feet, or may be one space 52 feet by 72 feet divided by a folding partition. If it is anticipated that the school will serve as a neighborhood recreational center, a larger area may be provided to accommodate such activities as basketball, badminton, and volleyball.

In secondary schools where the program and enrollment require only a single teaching station, a floor space 48 feet by 66 feet meets the minimum requirement for the physical education program. However, the minimum basketball court size is 42 feet by 74 feet plus 3 feet of clear floor space on all sides for out-of-bounds area. In small schools, construction costs may dictate that the basketball court be reduced below the recommended minimum.

If two teaching stations are required, an area 66 feet by 96 feet of clear floor space, exclusive of folded bleachers, will yield two stations of minimum size without seating space if equipped with a centered, folding partition. It is recommended that this folding partition be motor driven.

A substantial seating capacity for spectator sports may be provided with the use of folding bleachers. This involves a minimum amount of additional space, compared with fixed seating.

Where the program and enrollment of the school require more than two teaching areas, the additional facilities may be secured by extending the gymnasium area to provide another teaching station or by adding group activity rooms. The minimum size of such a room is 36 feet by 52 feet.

An additional teaching station may be gained by constructing a swimming pool. A reasonable pool size and one which will accommodate interscholastic swimming competition is 35 feet by 75 feet. If the pool is to be used for only swimming instruction, a smaller pool at constant level would serve that purpose.

#### **Small Group Activity Room**

These rooms will accommodate such activities as stunts and tumbling, wrestling, remedial or corrective activities, rhythms and dance, although the size of the groups participating will be limited. The size of these rooms for elementary schools and for secondary schools should be at least 36 feet by 52 feet with a minimum ceiling height of 14 feet.

#### **Gymnasium Treatment**

The finish of the gymnasium should be in keeping with the purpose of the room. The room treatment should be simple. It must lend itself to hard, vigorous usage, and should be acoustically treated. The walls should be light in color, and smooth and regular with no projections or sharp corners that may be hazardous to pupils. Care should be taken to insure that doors and doorways are not located in such a position as creates a safety hazard. For example, doors located at the center of the end walls of the gymnasium will frequently be a hazard to those using the gymnasium for active games as well as those passing in the corridor on the opposite side of the doors. Corner locations are preferred.

It is recommended that the ceiling height of the gymnasium proper never be less than 18 feet; 20 feet to 22 feet is preferable. If beams are left exposed, suspended equipment can be attached. If the ceiling is to be furred below the structural members, a layout of suspended equipment should be planned and eyebolts provided during the construction of the room. Some schools have found that eyebolts provided in each corner of the gymnasium during its construction are useful when decorating the room for school functions. When equipment is planned which will require fastening to the wall or floor, such as horizontal bars and volleyball standards, a layout of its placement should be made so that wallboards and floor sockets can be provided at the time of construction.



If design of the building will permit, high bilateral lighting is desirable. In order that the gymnasium wall may be used for rebound in such activities as handball, fielding a softball, and handling a basketball, windows should be placed with sills at least 10 feet above the floor. If possible, they should be arranged so that pupils using the basketball backboards in the daytime are not looking into the windows. Windows divided into small panes of heavy plate or tempered plate glass are desirable as the need for window guards is eliminated. Natural lighting is required.

The preferred floor for the gymnasium is first-quality, northern, hard strip maple laid on sleepers. It makes a floor that is resilient, durable, smooth, and easily cleaned. The floor should always be designed so that it can be ventilated underneath to prevent dry rot. Experience has proved that the gymnasium floor should never be located below grade level.

A finish especially designed for gymnasiums should be used rather than ordinary floor finishes or varnishes. Floor markings should be worked out according to the games and activities to be played. The lines should be painted on the gymnasium floor in differentiating colors and varying widths before the final finish is applied. A minimum of 3 feet for a safety zone should be planned between the adjacent lines of the playing areas and the walls of the gymnasium. A suggested color scheme with width of lines is:

Badminton, red, 1½ inches wide  
Basketball, black, 2 inches wide  
Shuffleboard, yellow, 1½ inches wide  
Volleyball, green, 2 inches wide  
Indoor baseball, blue, 2 inches wide  
Circle games, orange, 2 inches wide

Drinking fountains should be provided in the corridors convenient to the doors leading from the gymnasium. A safety hazard is involved in placing fountains in the gymnasium because of the inevitable slop-page of water. After a period of years this water spillage will lead to staining and eventual rotting of a wooden floor.

The number, size, and details of exit doors are determined by the Regulations of the Commissioner of Education.

### **Swimming Pool**

A swimming pool should be planned and constructed in accordance with the desires and needs of the school and community it is to serve. Since swimming is an integral part of the physical education program, the pool should be integrated with the other physical education facilities. Building costs can be saved by having the swimming groups

also use such facilities as the lockers, showers, drying and toilet rooms that serve the regular physical education classes. In large schools, however, there is merit in having swimming pools with their own dressing-showering facilities. For the elementary schools consideration should be given to having an instructional swimming pool of 3 feet to 4 feet in constant depth, 30 feet in width, and 60 feet in length. This would save a considerable amount in cost.

The slope of the bottom of the pool is important in designing for the purposes for which it will be used. The slope will determine how much of the pool can be used for instructional purposes and how much will be available for safe diving. Graduation of the slope for safety should have a maximum drop of 1 foot in 15 feet.

Approximately 60 per cent of the pool area should be shallow water in order to provide enough area to teach beginning swimmers. A program that includes lifesaving, synchronized swimming, and other deep-water skills should have 40 per cent of the pool area of deeper water.

There should be adequate floor space around the pool for deck areas. This serves as a place for rest periods and for the conduct of land drills and demonstrations. The surface in this area should be non-slip with deck drains properly spaced throughout the area.

All pool markings should be imbedded in the building materials so that they are permanent. The lane markings on the bottom of the pool should be dark color and designed according to regulations governing swimming competition.

The number and height of the diving boards will be determined by the size of the pool, the depth of the water, and the height of the ceiling. Recessed ladders should be located at the corners of the pool with handrails.

There should be an office with a vision panel or a small glass-enclosed cubicle adjacent and directly accessible to the pool deck with a clear, unobstructed view of the entire swimming area. Here such things as teaching materials, record player, and personal belongings may be housed. As an indispensable safety measure, this office or cubicle should have a telephone for direct outside calls.

### **Dressing and Showering Rooms**

Since dressing and showering are recognized as being integral parts of the health and physical education programs, it is desirable that pupils in the elementary schools have an opportunity to dress and shower during the physical education class and extra-class program. There should be separate rooms for boys and girls so that they can be scheduled simultaneously which is necessary for certain coeduca-

tional activities. It is recommended that the dressing and showering rooms be located on the same level as the physical education station.

Pupils 8 to 12 years old are ready for showering and should not be denied the opportunity of establishing this desirable health practice. Because the health and safety of pupils has been one of the primary concerns of the schools, in some programs of physical education the pupils dress and shower at grade 3 or 4. In the schools where dressing and showering are started in these grades, there are usually fewer problems with this part of the program at the junior and senior high school grades than in schools where dressing and showering are initiated in the junior high school.

### **Boys' Dressing and Showering Rooms**

The location and size of the boys' dressing and showering rooms and the arrangement of the facilities within the rooms are of great importance in the administration of the physical education program of the school.

The preferred location is on the same floor level as the gymnasium and adjacent to it, so that pupils can pass directly to the gymnasium from the dressing room and vice versa without going into the corridors of the school. It is also desirable that pupils be able to pass directly between the dressing room and outside playing fields without using the general school corridors. It should be possible to enter the dressing room from the corridor without going into the gymnasium. If a team room is provided, it should be possible to enter it directly from the playing field.

Lockers should be of two types; that is, the gymnasium-suit or storage locker, and the street-clothes or dressing locker. For hygienic reasons a storage locker 7½ inches or 9 inches by 12 inches by 24 inches or 7½ inches or 9 inches by 30 inches is preferred to the box-type locker. In a locker of this length it is possible to hang up the gymnasium suit and thereby insure drying and ventilation. A dressing locker 12 inches by 12 inches by 60 inches or 12 inches by 12 inches by 72 inches is satisfactory.

One storage locker must be provided for each boy using the dressing room. One dressing locker is required for each boy in the maximum-size physical education class. In addition to these lockers there should be a sufficient number of dressing lockers to provide for the team suite of the largest squad in the various interscholastic sports in which the school competes. These lockers may be housed in a space set aside for them in the dressing room or in a separate team room located adjacent to the body-drying space. When a team room is provided, a small section of it may be partitioned off to serve as

a uniform drying room. This room should have positive ventilation and sufficient heat to insure drying.

The dressing lockers used by the physical education classes should be interspersed equally among the rows of storage lockers. The rows of lockers should be mounted on a coved masonry base. The locker arrangement within the room should be such as to facilitate the supervision of all activity therein from the physical education office through a glass panel provided for that purpose.

Another type of storage arrangement is handled through a basket system. There are several types that have been used successfully such as the post-office basket, basket storage on movable trucks, and attendant-operated plan.

Fixed benches should be provided. Mirrors should be conveniently located in several places around the dressing room. A drinking fountain should be installed; it would be desirable if this fountain were a refrigerated one.

If the dressing facilities are to be used by adults, the only additional requirement is that each adult be provided with a storage locker. Consideration should be given in planning this area so that it might serve as a visiting team locker room.

In order to determine the area needed for the dressing room, it is necessary to know the following facts: (1) total number of different pupils that will be using the dressing room; (2) number of storage lockers in each unit of battery arrangement; (3) peak load of pupils using the dressing room at one time; (4) area required for each battery unit of lockers.

The showering room may be either of the wall-type group shower arrangement or of the walk-around arrangement. In either case there must be enough shower heads to accommodate the maximum-size physical education class accruing from the enrollment of the school for which the space is being designed. One vandal-proof shower head should be planned for each four boys in the class with the group shower arrangement, and one for each three boys with the walk-around arrangement. Shower heads should be located at least 4 feet apart and not more than 5 feet above the floor for secondary schools. Elementary school showers should be between 48 inches and 54 inches from the floor.

In large showering rooms with the group shower arrangement, better use can be made of the center area by having a dwarf-type wall, 5 feet to 6 feet high, with shower heads on both sides of this center wall.

A control of water supply should be placed outside of the shower room where it may be operated by the teacher. Where group showers

are used, each shower head should be independently controlled. Where the walk-around shower is used, at least one shower head should be equipped for independent control. The remainder of the shower heads should be adjusted so that the temperature of the water will vary from warm to tepid to cool. The water temperature should never exceed 110° F. at any shower head.

A liquid-soap dispenser outlet may be located at each shower head in the group shower. About three soap outlets should be distributed along the "in" side of the walk-around shower and at least two at the turn before starting down the "out" side. These soap outlets should be supplied from a central reservoir of sufficient size to accommodate a day's supply of soap.

The floor and walls of the showering room should be constructed of an impervious material. The material used for the floor should be of nonskid finish. The ceiling and walls should be left unpainted. Sufficient drains should be provided and located so that no pupil needs to stand in or walk through waste water.

The body-drying space is an essential adjunct to the showering space. It should be so designed that the pupils must pass from the showering space into the body-drying space before entering the dressing room proper from the shower. It should be large enough to accommodate as many pupils as will be in the shower at one time. Towel service is desirable and is found in more and more schools. When towel service is to be offered, a towel distribution cubicle with a window opening into the body-drying space should be provided. Sufficient hooks for hanging up of towels should be provided around the wall of the body-drying space. A hamper or used towel receptacle is necessary at or near the opening between the body-drying space and the dressing room.

The wall between the drying room and the dressing room may be of the dwarf type from 4 feet to 6 feet high. The opening between the body-drying space and the dressing space should be at least 4 feet wide to permit pupils to pass each other. The opening between the body-drying space and the shower space should be of like width and should contain a curb 6 inches high to prevent water on the floor of the shower space from running into the body-drying space. Drains should be located in the body-drying space so that water dripping from the body will be carried away and not tracked into the dressing room.

#### **Girls' Dressing and Showering Rooms**

Everything that has been said concerning the dressing, showering, and drying spaces for boys may be repeated for the facilities for girls.

Women physical education teachers often need to help the girls learn the desirability — both personal and social — of taking showers after vigorous exercise. Encouraging them to do so when there are adequate facilities is a matter of giving them time for showers and helping them by individual guidance, class discussion, and commendations.

In order to meet the concern of some parents about girls' using group showers, there should be included one or two individual shower and dressing-booth cubicles, according to the size of the school. However, most of the showers should be of the group type because they are less expensive to install, easier to supervise, and simpler to keep clean. With less partitions attached to the floor there are fewer corners and other areas where dirt and germs may collect. Disinfectants can be used daily to clean the floors; this reduces the possibilities of foot infections.

Individual units cannot be as well ventilated or well lighted so are not conducive to good health practices. Shower heads should be located not more than 4 feet 6 inches from the floor. Several hair dryers should be provided, and mirrors should be installed in convenient places throughout the dressing room as places where girls can complete their grooming.

### Toilets

Toilets should always be located in the dressing room proper and not in the body-drying space. It should not be necessary for pupils to enter either the body-drying space or shower space except when undressed for shower purposes. Two water closets and one lavatory in the girls' dressing room will be sufficient for a class of 40 pupils. In the boys' dressing room one water closet, one urinal, and one lavatory will be required for a class of 40 pupils.

The lighting of the showering, body-drying, and dressing rooms should be a minimum of 5 foot-candles (maintained), and the switch for the lights of the showering and body-drying space should be located in the dressing room. The rooms should be positively ventilated, and heating design of 78° F. should be provided.

### Team Room

In the senior high school it is desirable to have a separate home team dressing room for boys on the interscholastic squads. This room should be designed so that the showers of the regular dressing-showering room are directly accessible. Large-size, full-length lockers should be put in the team room. In order to ascertain the area

needed for this room, it is necessary to know the following facts: (1) total number of different pupils that will be using the team room, (2) area required for each locker, (3) peak load of pupils using the team room at one time.

#### **Equipment Drying Room**

The drying room for equipment should be located adjacent to the team room. It should be of sufficient size to take care of the peak load of equipment to be dried at one time. There should be sufficient circulation of air at high temperature in order to insure proper drying of the equipment.

#### **Laundry Room**

The laundry room, if provided, should be of sufficient size to accommodate the equipment. It is much better to install commercial laundry equipment than the home type, including the washer, extractor, and dryer. In addition to the laundering of towels, physical education uniforms can be washed, including many items of clothing used in interscholastic activities that are frequently sent out to be dry-cleaned. Also, there are laundering needs in such areas as the cafeteria which can be serviced in this room.

#### **Apparatus and Supply Storage**

Good design of the apparatus and supply storage room will provide three essential characteristics; namely, easy access from the gymnasium floor, door openings wide and high enough to permit moving equipment from the gymnasium floor into the storage with ease, and a space large enough to accommodate all movable equipment.

Preferably, the apparatus and supply storage room should be adjacent to the physical education station. But, when the design of the building makes it necessary to locate the apparatus storage room across a corridor from the gymnasium, care should be taken that the door of the storage room is directly opposite a gymnasium door. Six-foot doors without saddles are needed to permit easy movement of equipment from the gymnasium to the storage space.

The apparatus and supplies usually provided for physical education which require storage space include the following pieces: parallel bars, horse, buck, springboard, beat-board, volleyball standards and nets, horizontal bars, stall bar benches, mats, testing equipment, archery targets, out-of-season uniforms and equipment, etc. A room containing 300 square feet to 400 square feet of floor space is adequate to

store this equipment for secondary schools. For elementary schools a room containing 200 square feet to 225 square feet should provide sufficient storage space.

The apparatus and supply storage room should be well lighted and should have positive ventilation. It should be equipped with cabinets and bins in which those articles or supplies that are in daily use, such as volleyballs, basketballs, indoor baseballs and bats, may be kept. These facilities should be provided with locks. Provision also should be made for storing equipment and supplies which have not been put into use. Built-in shelves are generally recommended for this type of storage facility.

#### **Bulletin Boards**

Bulletin boards should be provided near or in the dressing-showering rooms where they may readily be seen by all pupils in a well-lighted area. Glass-covered boards make for neat appearance and protect board materials from being defaced.

#### **Electrical Installations**

Provisions should be made for the installation of a separate public address system, picture projectors, radio, television, record players, and cleaning machines in each station. The controls for the gymnasium lighting should be conveniently located, recessed, and keyed. Outlets to allow for the installation of electric scoreboards should be provided.

#### **Classroom**

It is desirable to have available at least one regular classroom equipped with the usual teaching aids and also equipped for the use of audio-visual materials. This room is a desirable area in which to teach the knowledge and appreciation area of physical education.

#### **Physical Education Offices**

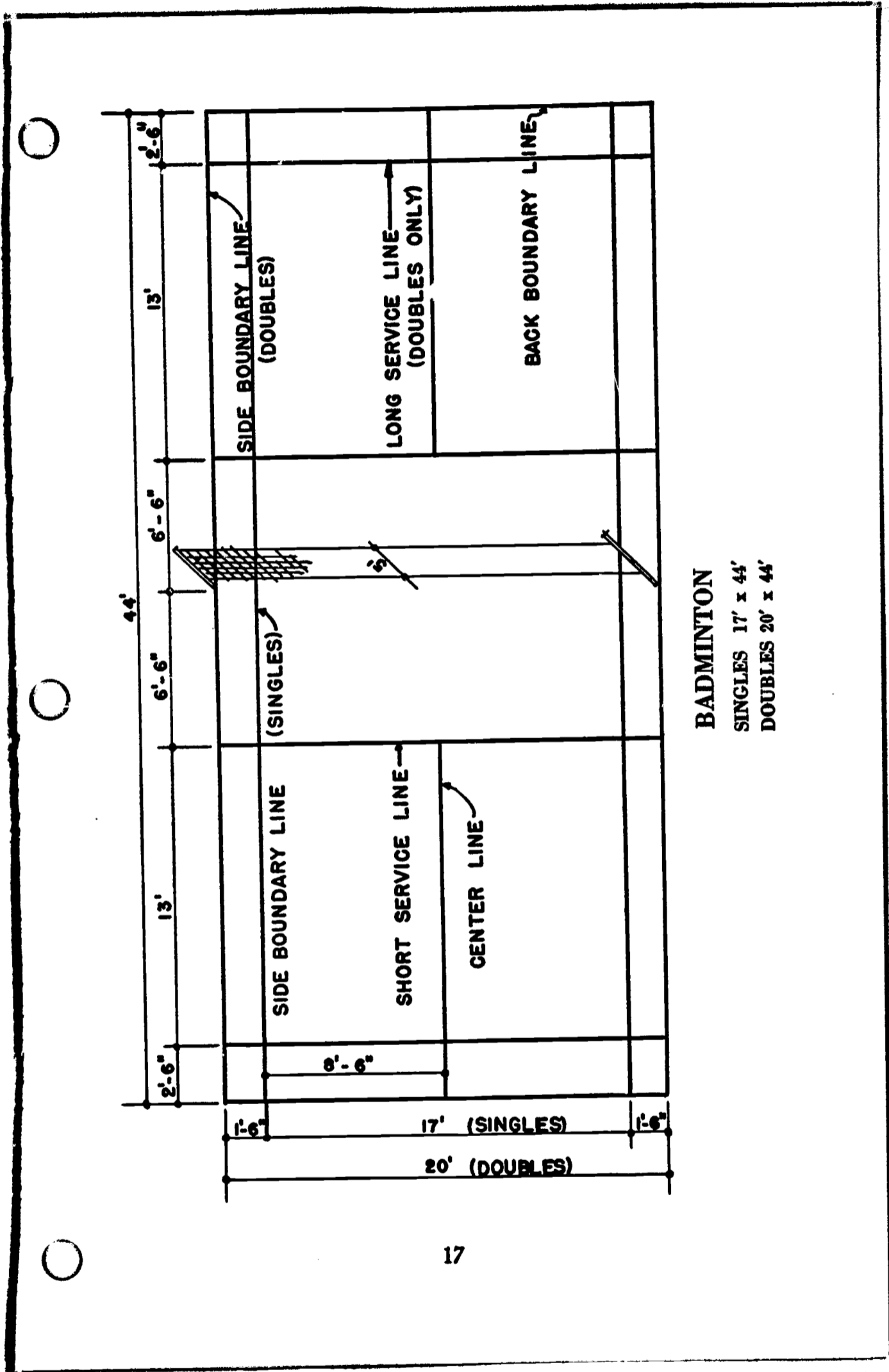
There should be separate offices for men and women physical education teachers. When offices are provided for individual teachers, there should be 100 square feet to 130 square feet of space; when group offices are needed, there should be 70 square feet to 90 square feet of space for each teacher. In large schools, consideration should be given to planning for group offices for the several teachers with a separate office for the chairman or department head. There should be enough room for desks, files for records, and limited cabinet space for



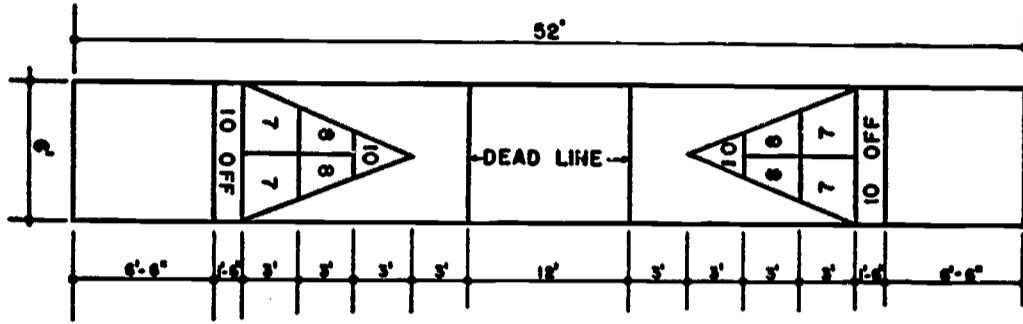
the storage of some instructional supplies such as basketballs, footballs, baseballs, volleyballs, bats, and tennis rackets. There should be some dressing lockers for physical education teachers, other teachers who are coaching, and athletic officials.

Separate showering and toilet facilities for the teachers are desirable. These rooms should be adequately lighted, heated, and ventilated. The physical education offices should be located in proximity to the gymnasium and the dressing room. Access to the physical education office from a public area such as a corridor is desirable.

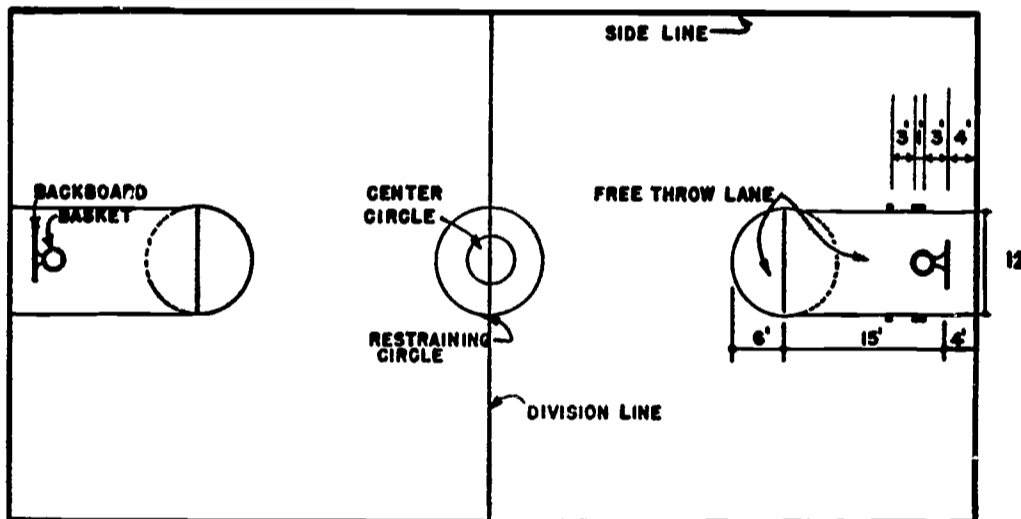
Visual supervision of the physical education station and the locker room from the office is deemed desirable by some physical education instructors.



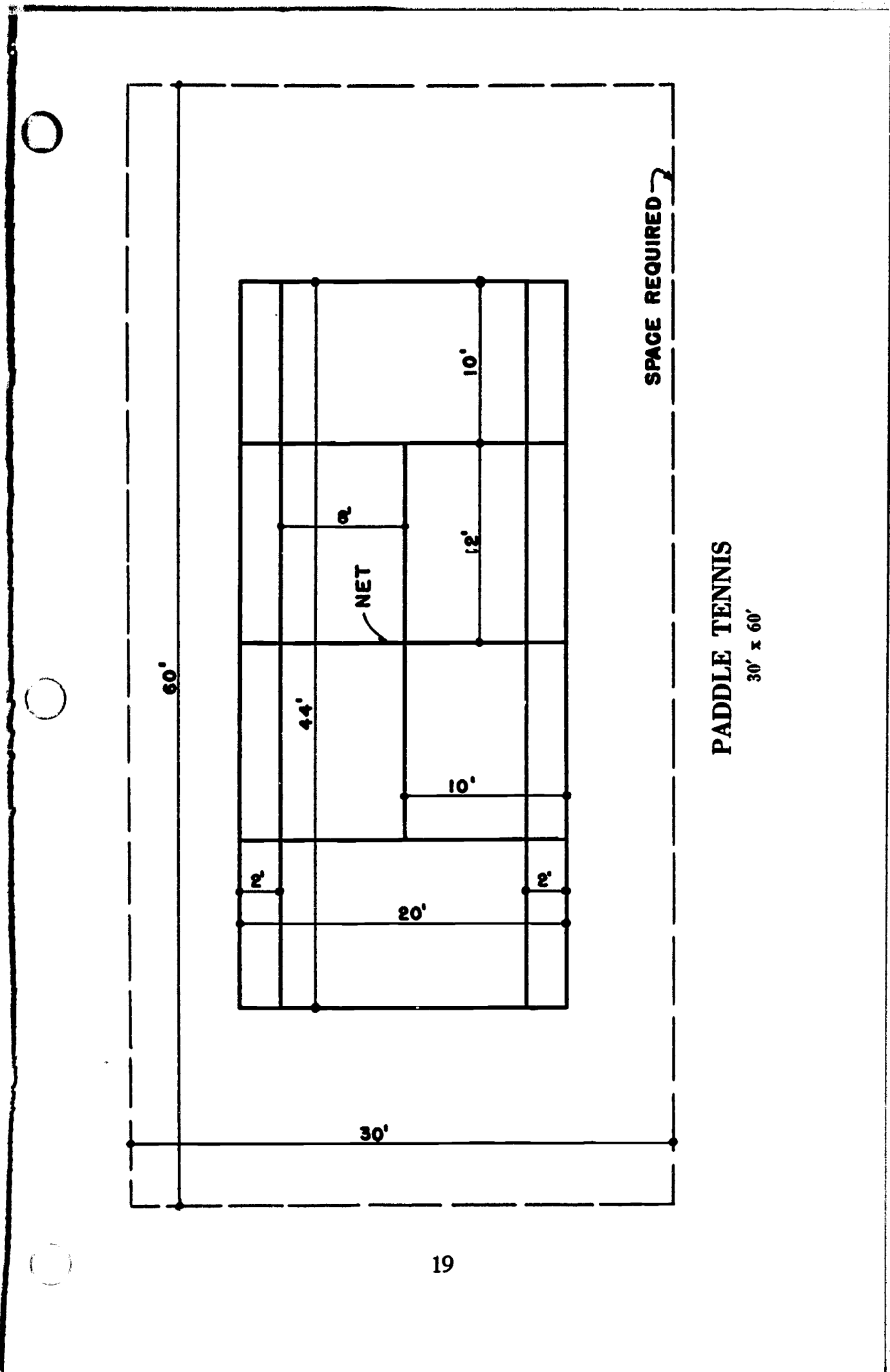
**BADMINTON**  
 SINGLES 17' x 44'  
 DOUBLES 20' x 44'



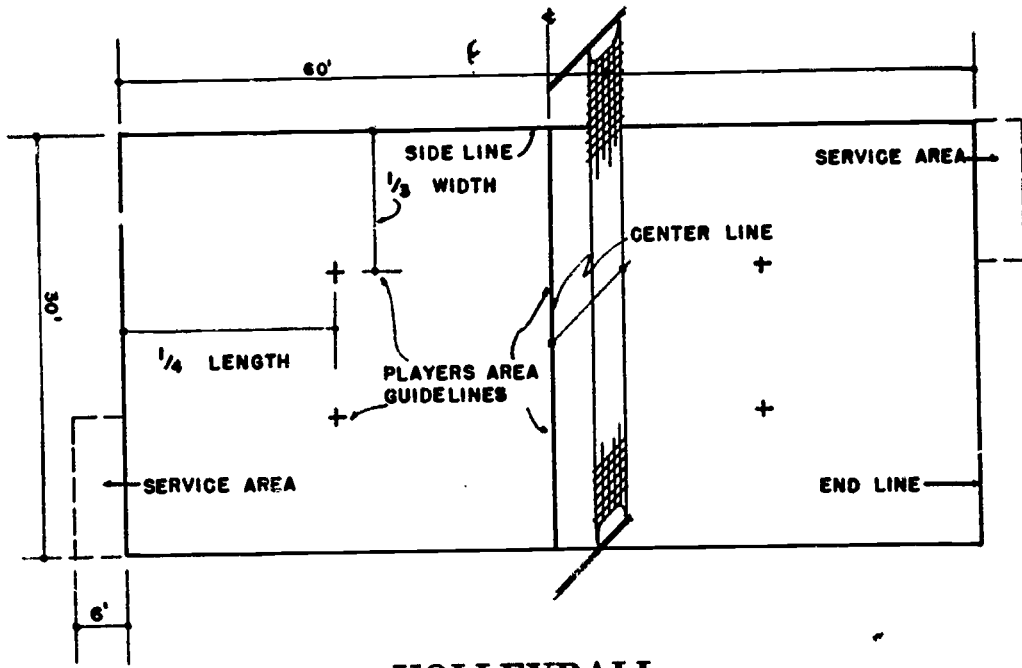
**SHUFFLEBOARD**  
6' x 52'



**BASKETBALL**  
50' x 84'

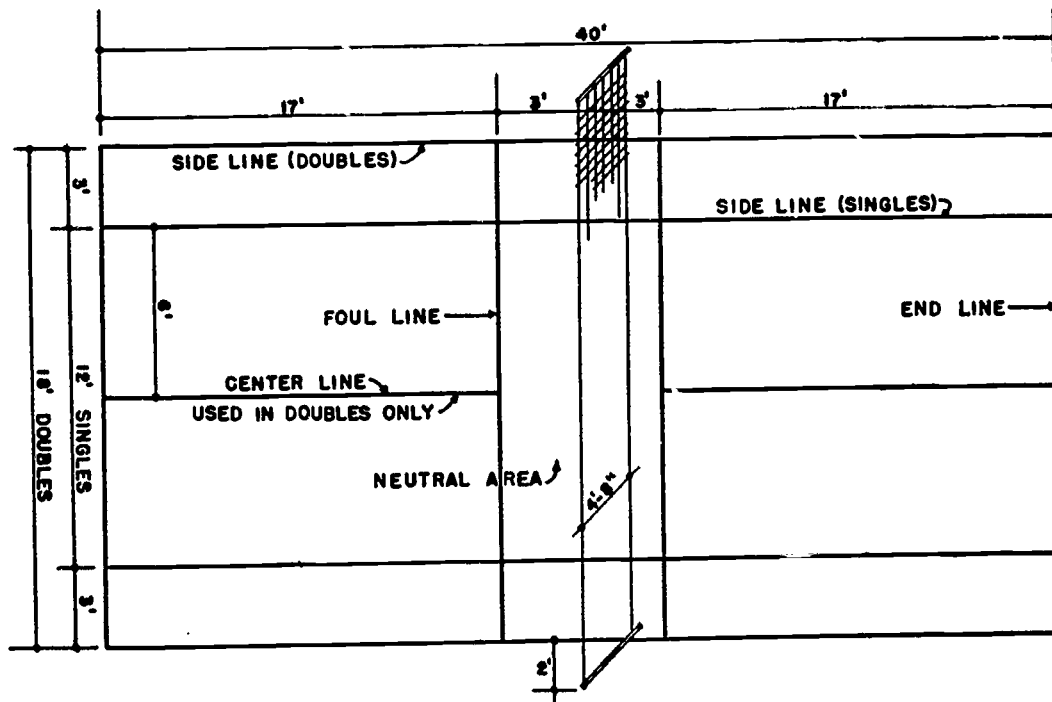


**PADDLE TENNIS**  
30' x 60'



**VOLLEYBALL**

30' x 60'



**DECK TENNIS**

18' x 40'